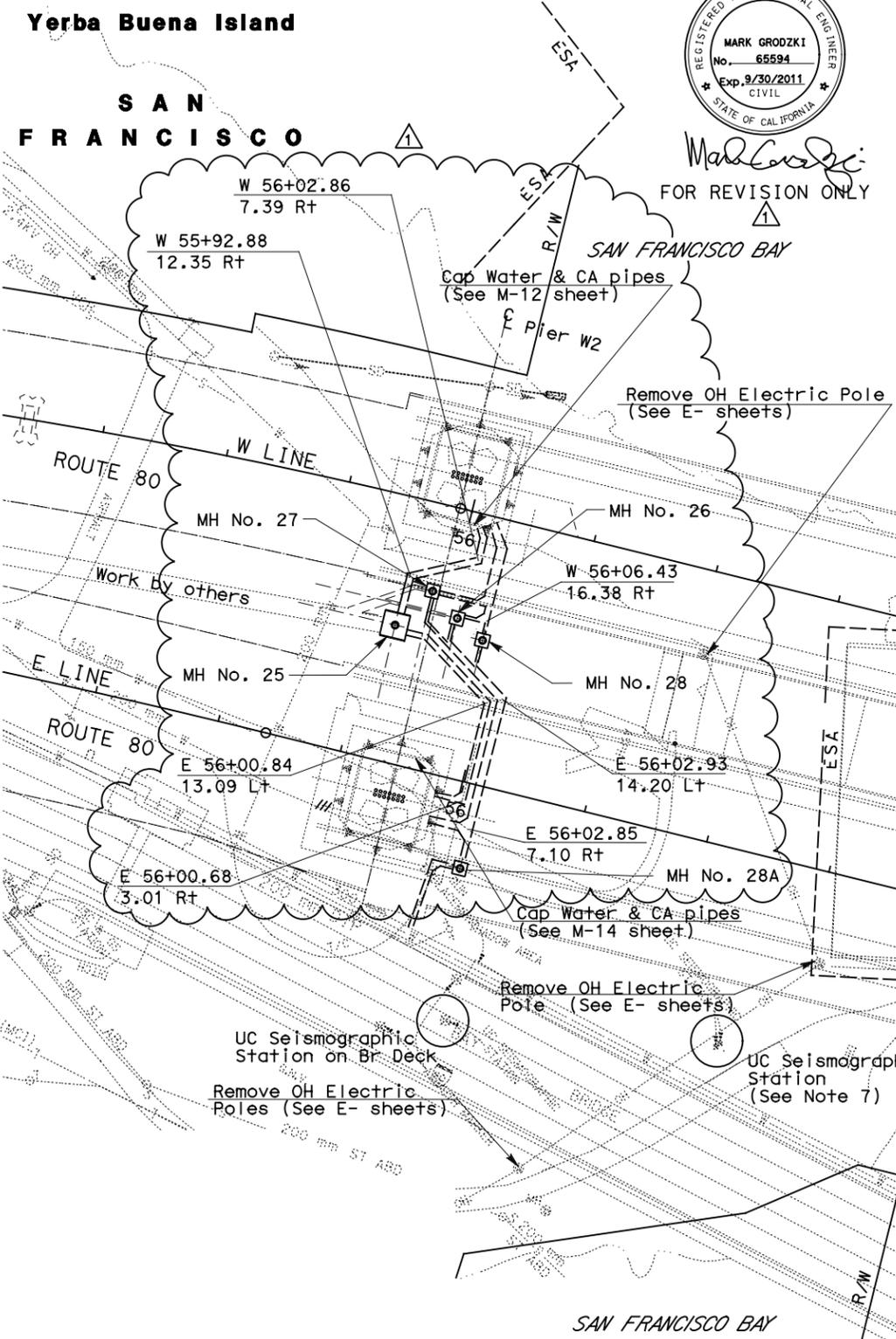


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		REVISIONS	BY	CH	CCO#

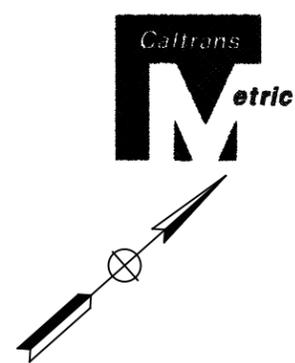
CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____



FOR REVISION ONLY



Existing buried miscellaneous items				
Ref. No.	Station	Offset	Elevation	Description
1	E 55+74.606	34.379 Lt	19.620	Guy Wire Anchor
2	E 55+82.741	33.894 Lt	19.744	Guy Wire Anchor
3	E 55+92.631	32.741 Lt	19.881	Guy Wire Anchor
4	E 55+95.582	32.510 Lt	19.914	Guy Wire Anchor
5	E 55+74.951	12.560 Lt	20.417	Guy Wire Anchor
6	E 55+77.404	12.011 Lt	20.394	Guy Wire Anchor
7	E 56+01.638	7.525 Lt	20.704	Guy Wire Anchor
8	E 56+06.946	9.497 Lt	20.595	Guy Wire Anchor
9	E 56+03.665	7.181 Lt	20.712	South Tie-Back Anchor
10	E 56+02.966	7.161 Lt	20.695	South Tie-Back Anchor
11	E 55+89.163	7.646 Lt	20.420	South Tower Deadman
12	E 55+83.101	8.683 Lt	20.481	South Tie-Back Anchor
13	E 55+81.420	8.631 Lt	20.302	South Tie-Back Anchor
14	E 55+77.338	8.877 Lt	20.341	South Tie-Back Anchor
15	E 55+77.156	8.300 Lt	20.335	South Tie-Back Anchor
16	E 55+76.685	9.622 Lt	20.286	South Tie-Back Anchor
17	E 55+77.027	10.606 Lt	20.361	South Tie-Back Anchor
18	E 55+99.702	31.990 Lt	20.073	North Tie-Back Anchor
19	E 56+01.415	32.569 Lt	19.869	North Tie-Back Anchor
20	E 55+96.130	31.842 Lt	20.044	North Tie-Back Anchor
21	E 55+96.843	21.157 Rt	21.247	Guy Wire Anchor
22	E 55+81.770	18.677 Rt	20.689	Guy Wire Anchor
23	E 55+93.617	15.117 Rt	20.882	Guy Wire Anchor
24	E 55+77.764	12.157 Rt	20.319	Guy Wire Anchor
25	E 56+00.651	2.143 Lt	20.601	Guy Wire Anchor
26	E 55+84.798	5.103 Lt	20.32	Guy Wire Anchor
27	E 55+99.407	25.467 Rt	21.495	Guy Wire Anchor
28	E 55+95.401	18.967 Rt	21.084	Guy Wire Anchor
29	E 55+77.944	21.947 Rt	20.71	Guy Wire Anchor
30	E 55+73.947	15.437 Rt	20.341	Guy Wire Anchor
31	E 56+03.978	5.423 Lt	20.552	Guy Wire Anchor
32	E 56+00.472	11.933 Lt	20.491	Guy Wire Anchor
33	E 55+79.008	15.413 Lt	20.338	Guy Wire Anchor
34	E 55+93.822	20.677 Rt	21.107	Guy Wire Anchor
35	E 55+98.497	15.117 Rt	21.019	Guy Wire Anchor
36	E 55+76.029	16.767 Rt	20.452	Guy Wire Anchor
37	E 55+79.104	11.287 Rt	20.322	Guy Wire Anchor
38	E 55+99.312	0.773 Lt	20.62	Guy Wire Anchor
39	E 55+79.918	5.103 Lt	20.265	Guy Wire Anchor
40	E 55+84.593	10.663 Lt	20.356	Guy Wire Anchor
41	E 55+96.726	24.787 Rt	21.41	Guy Wire Anchor
42	E 56+00.720	18.277 Rt	21.225	Guy Wire Anchor
43	E 55+71.681	19.297 Rt	20.42	Guy Wire Anchor
44	E 55+75.675	12.777 Rt	20.284	Guy Wire Anchor
45	E 56+02.740	2.763 Lt	20.594	Guy Wire Anchor
46	E 56+06.734	9.283 Lt	20.532	Guy Wire Anchor
47	E 55+81.689	14.773 Lt	20.351	Guy Wire Anchor
48	E 55+79.222	31.188 Lt	20.066	Guy Wire Anchor
49	E 55+93.407	36.398 Lt	18.081	Guy Wire Anchor
50	E 55+99.532	53.198 Lt	4.743	Guy Wire Anchor
51	E 55+96.185	60.298 Lt	1.299	Guy Wire Anchor
52	E 55+85.007	57.638 Lt	2.953	Guy Wire Anchor
53	E 55+80.521	64.858 Lt	2.644	Guy Wire Anchor
54	E 55+78.155	40.558 Lt	15.18	Guy Wire Anchor
55	E 55+99.483	53.198 Lt	4.749	Guy Wire Anchor
56	E 55+99.439	57.098 Lt	2.418	Guy Wire Anchor
57	E 55+84.003	63.028 Lt	1.771	Guy Wire Anchor



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		20R1	1204

Gene V. Lusherovich 10/07/04
REGISTERED CIVIL ENGINEER DATE

12-6-04
PLANS APPROVAL DATE

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
303 Second St., Suite 700N
San Francisco, CA 94107-1317

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NOTES:

- Locations of utility facilities on these plans are approximate and shall be verified by the Contractor prior to construction.
- Contractor to provide temporary utility connections during staging operations.
- All compressed air lines are steel pipe unless otherwise noted.
- All existing utilities are US Navy owned unless otherwise noted.
- Contractor to protect /monitor existing utilities. Utilities are old and can break from ground vibration during construction.
- US Navy's Electrical Power distributed as noted on the drawings.
- Contractor to protect UC Seismograph Station.
- Contractor to field route electrical duct bank. Excavation for installation of duct bank and manholes will be in the rock. For additional electrical manhole and duct bank information see E- sheets.
- Elevation is based on 1929 National Geodetic Vertical datum (NGVD29).
- Location of Guy Wire Anchors is approximate. Contractor to remove as necessary for construction of duct bank. Guy Wire and Tie-Back Anchors installed battered into the ground.

ABBREVIATIONS

ABD	Abandoned
CA	Compressed Air
DIP	Ductile Iron Pipe
E	Electric
FM	Force Main
KV	Kilo Volt
MCI	MCI Telecommunications
PACBELL	Pacific Bell
SFWD	San Francisco Water Department
S	Sanitary Sewer
ST	Steel
U	Utility
V	Volts
W	Water
UC	University of California

SYMBOLS

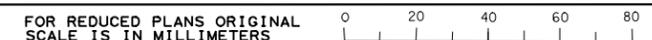
oC	Cable Vault
□E	Electric Handhole
oE	Electric Manhole
*	Electric Pull Box
+H	Fire Hydrant
⊥	Light Pole
oS	Sewer Manhole
■	Storm Drain Inlet
oT	Telephone Manhole
oT	Telephone Vault
—●—	Utility Pole
oU	Utility Vault
oW	Water Valve
oW	Water Vault

LEGEND

SYMBOL	UTILITY	OWNERSHIP
— SD —	Storm Drainage	Caltrans or US Navy
— CA —	Compressed Air	Caltrans

UTILITY PLAN
SCALE: 1:500

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN



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USERNAME => ilorico

CU 04251

EA 0120F1

THIS PLAN ACCURATE FOR UTILITIES ONLY

DESIGNED BY: KR
CHECKED BY: EPJ
DESIGN OVERSIGHT: Bob Zandipour
DEPARTMENT OF TRANSPORTATION



DATE PLOTTED => 09-AUG-2011
TIME PLOTTED => 14:02
LAST REVISION 00-00-00

U-1

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	MG	RG	205
08/08/11	08/08/11	W2 DUCT BANKS REINFORCEMENT			
		REVISIONS	BY	CH'D	CCO#

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

NOTES:

1. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING DUCTS PRIOR TO CONSTRUCTION. IF EXISTING, ABANDONED MCI DUCT BANK IS IN CONFLICT, THE CONFLICTING PORTION MAY BE REMOVED.
2. FOR CONCRETE DUCT BANK ANCHORS, SEE SHEET U-4.



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		21S1	1204

Mark Grodzki 07/05/11
REGISTERED ELECTRICAL ENGINEER DATE



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

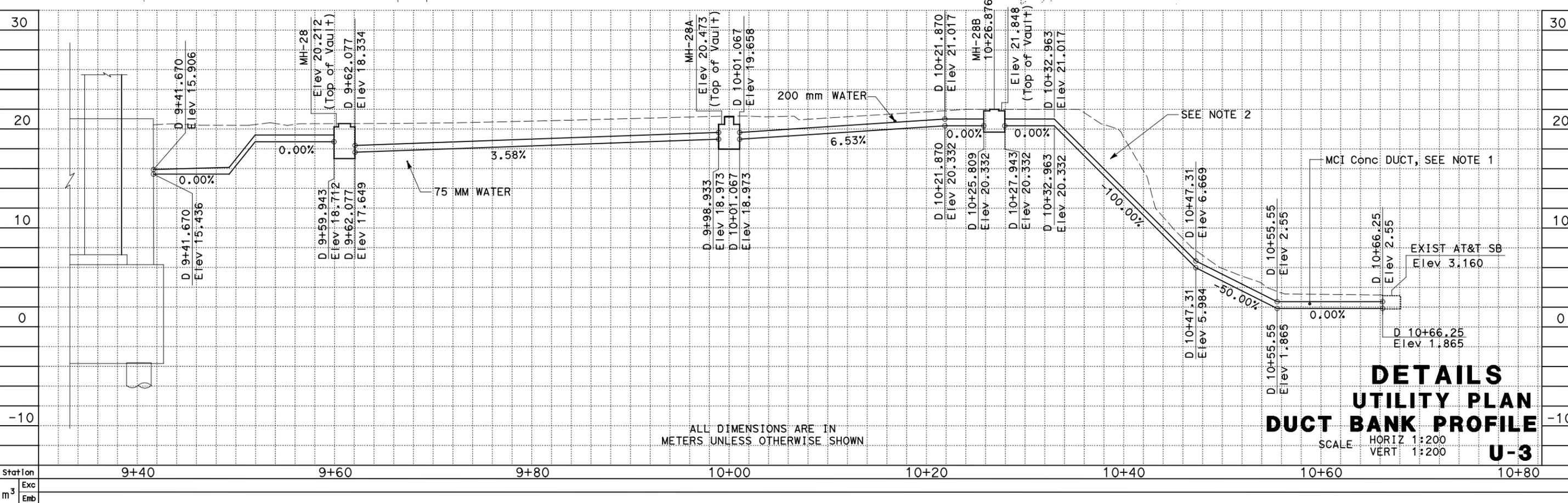
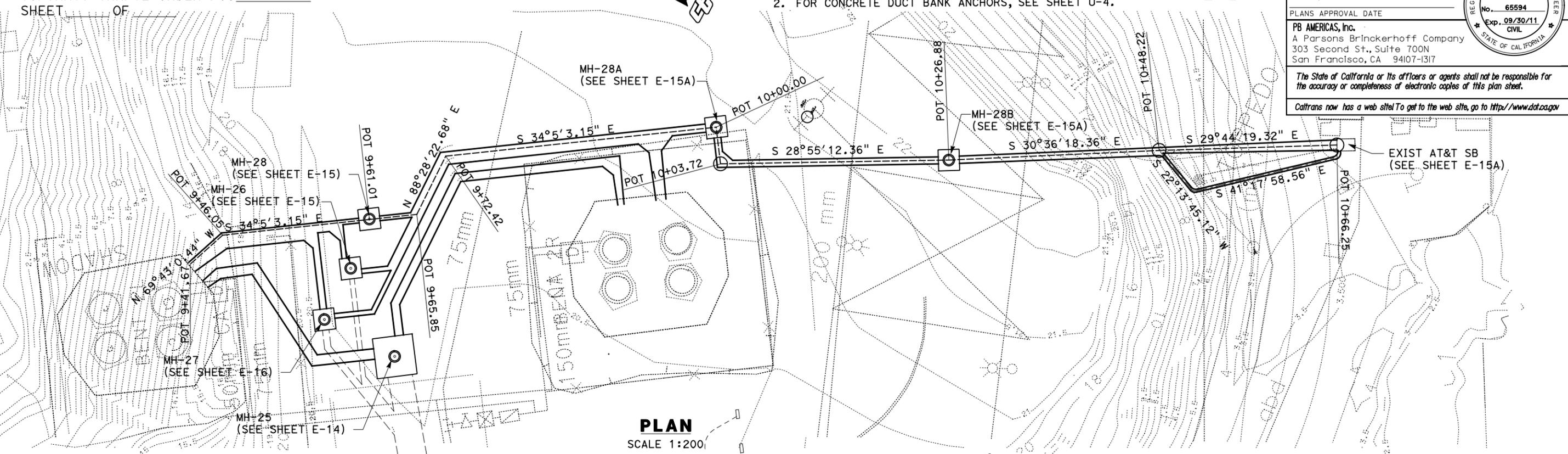
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DATE	REVISOR	DATE	REVISOR
XX/XX/XX	XX	XX/XX/XX	XX

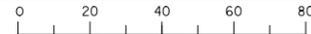
CHECKED BY	DESIGNED BY
XX	XX

DESIGN OVERSIGHT
BEHZAD GOLEHAMMADI



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CU 04251

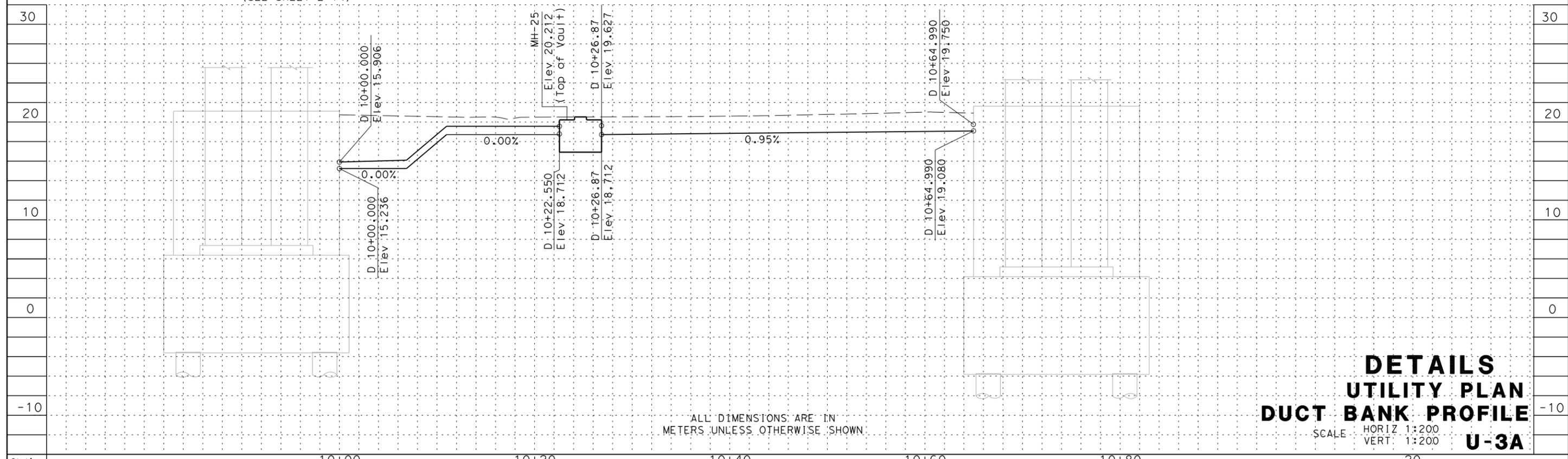
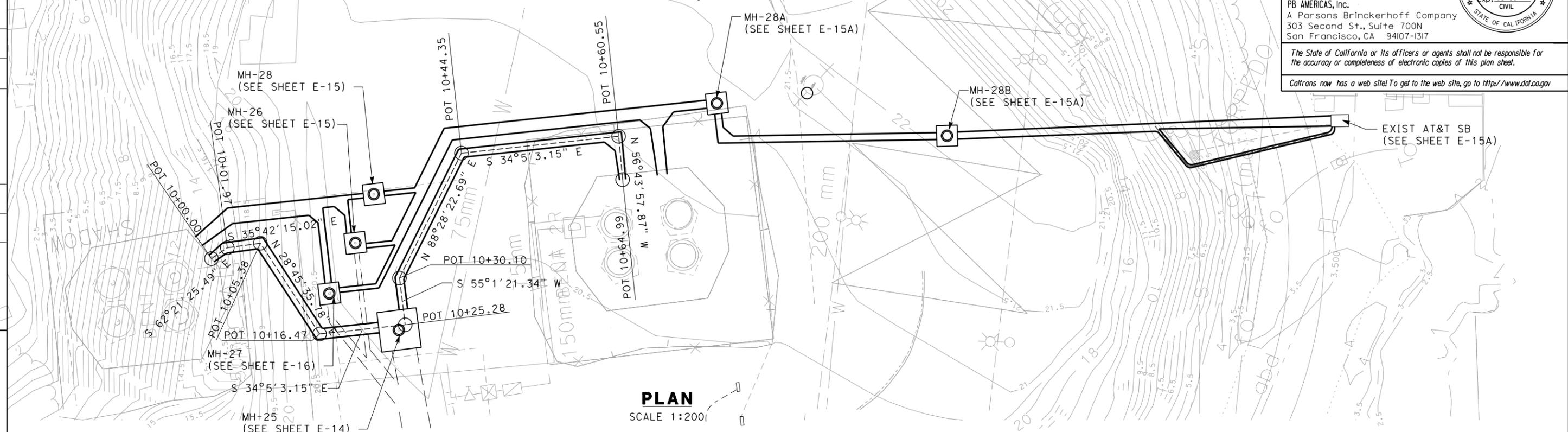
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN OVERSIGHT
 BEHZAD GOLEHAMMADI

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
MARK	DATE	DESCRIPTIONS	BY	CH'D
0	08/08/11	W2 DUCT BANKS REINFORCEMENT	MG	RG
		REVISIONS	BY	CH'D

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____



Station	10+00	10+20	10+40	10+60	10+80	20
m ³ Exc						
m ³ Emb						

NOTES:

- CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING DUCTS PRIOR TO CONSTRUCTION. IF EXISTING, ABANDONED MCI DUCT BANK IS IN CONFLICT, THE CONFLICTING PORTION MAY BE REMOVED.
- FOR CONCRETE DUCT BANK ANCHORS, SEE SHEET U-4.



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		2152	1204

REGISTERED ELECTRICAL ENGINEER
 Mark Grodzki
 No. 65594
 Exp. 09/30/11
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE: 07/05/11
 PB AMERICAS, Inc.
 A Parsons Brinckerhoff Company
 303 Second St., Suite 700N
 San Francisco, CA 94107-1317

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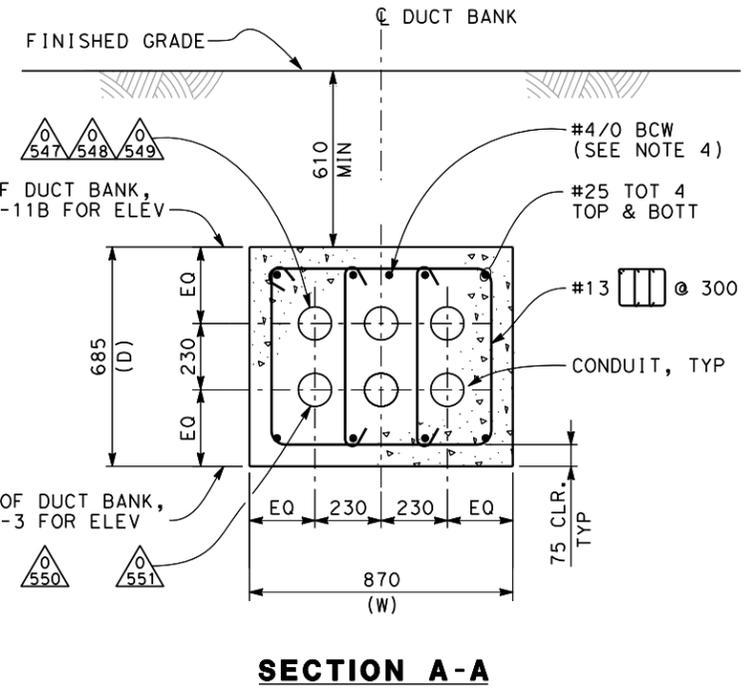
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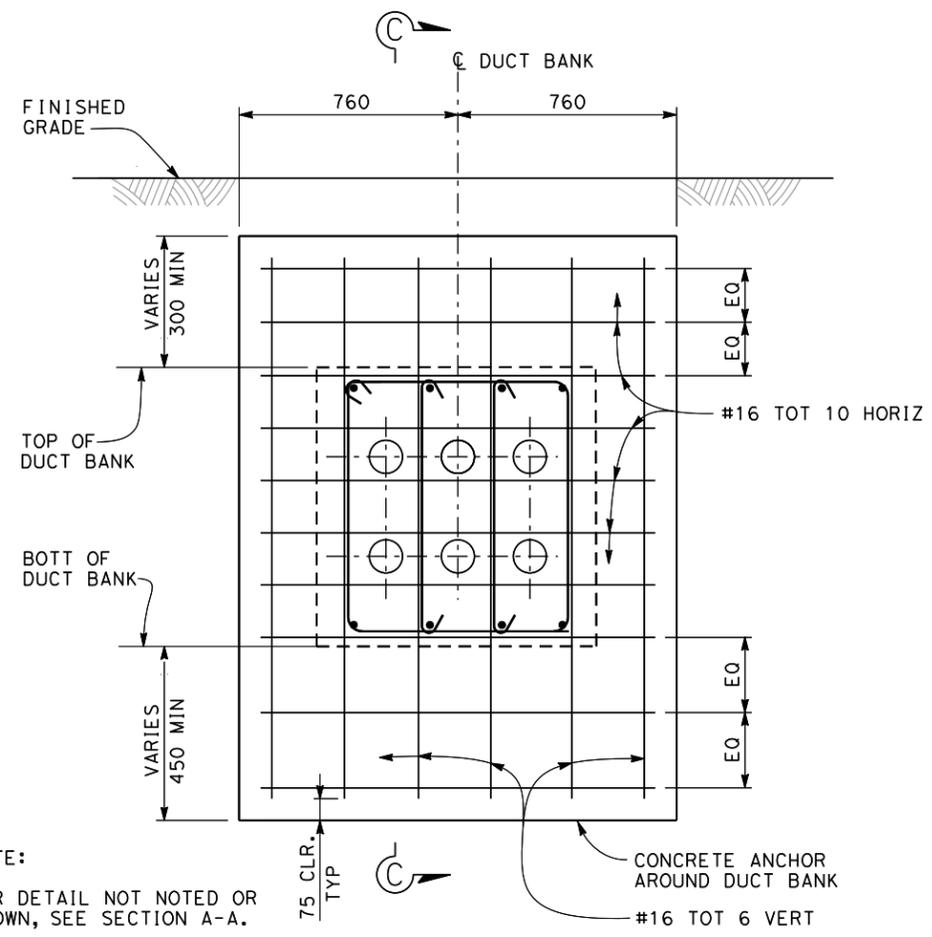
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07/05/11 REGISTERED ELECTRICAL ENGINEER DATE						
PLANS APPROVAL DATE PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317						
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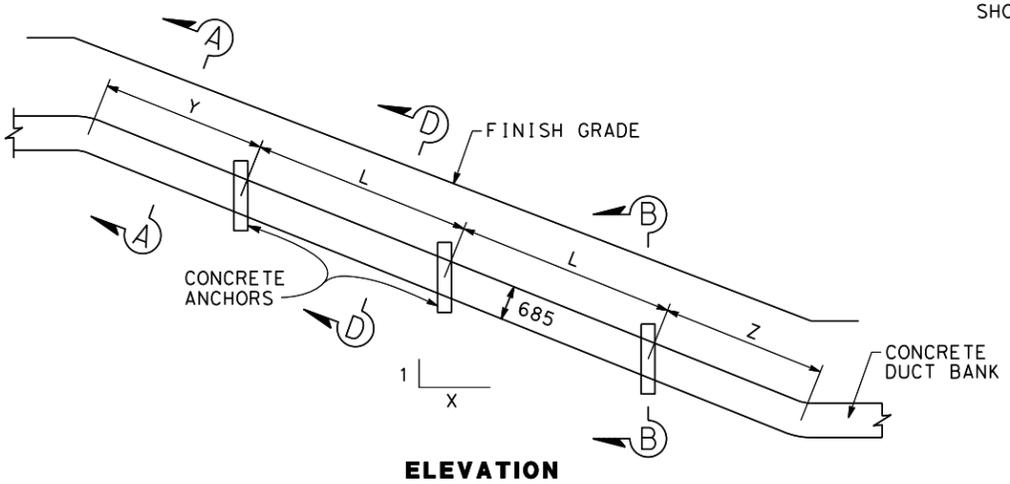


SECTION A-A

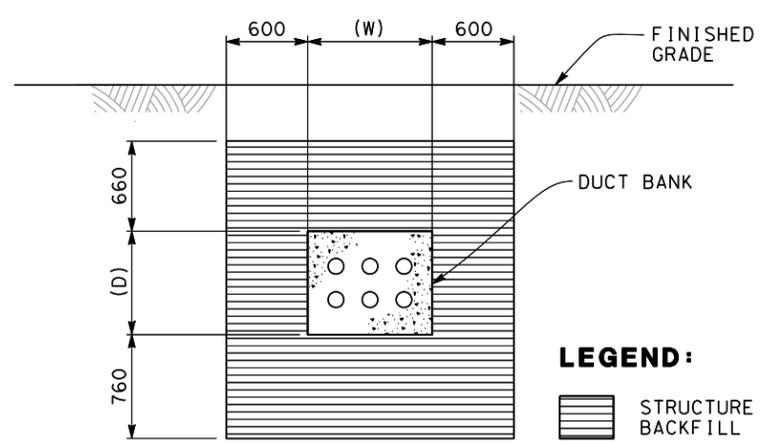


SECTION B-B

NOTE:
FOR DETAIL NOT NOTED OR SHOWN, SEE SECTION A-A.

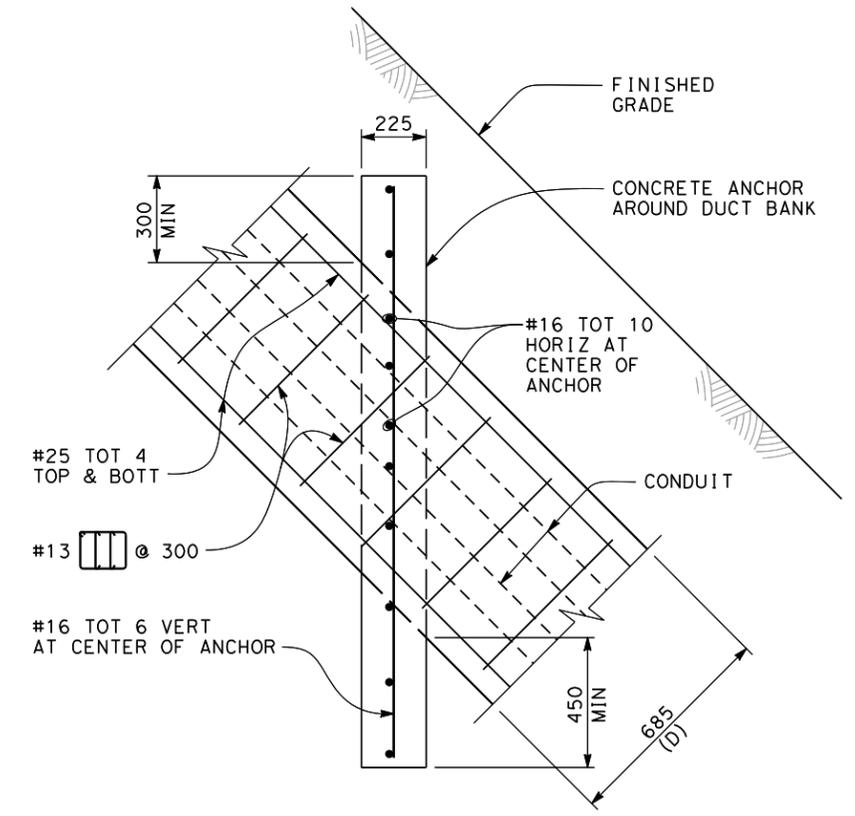


**CONCRETE DUCT BANK ANCHORS
(870 mm (W) X 685 mm (D))**



SECTION D-D

**LIMITS OF STRUCTURE BACKFILL AT DUCT BANK ON SLOPE
(LIMITS AS SHOWN NORMAL TO DUCT BANK)**



SECTION C-C

**TABLE A
(For 870 X 685 DUCT BANK)**

DUCT BANK SLOPE (1:X)	L (Max) (mm)	Z (Max) (mm)	Y (Max) (mm)	LENGTH OF EXCAVATION IN STAGES (Max) (mm)
1:1	4270	1200	2135	4270
1:1.5	5485	1525	2590	5485
1:2	6705	1830	3050	6705
1:2.5	7620	2135	3810	7620
1:3	9145	2440	4570	9145

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
08/08/11	W2 DUCT BANKS REINFORCEMENT	MG	LJ	205	
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

**DETAILS
UTILITY PLAN
DUCT BANK STRUCTURAL DETAILS**

NO SCALE

U-4

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REVISOR	DATE	REVISION

DESIGN OVERSIGHT
BEHZAD GOLEHAMMADI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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TIME PLOTTED => 2:38:04 PM
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REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
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2	08/08/11	W2 DUCTBANKS REINFORCEMENT	MG TW	RG	205
1	01/14/11	BASE INTEGRATION	RSB	WB	150

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
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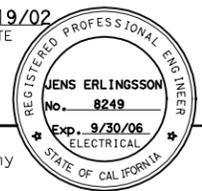
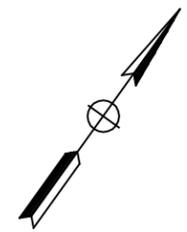
Jens Erlingsson 12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE

12-6-04
 PLANS APPROVAL DATE

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

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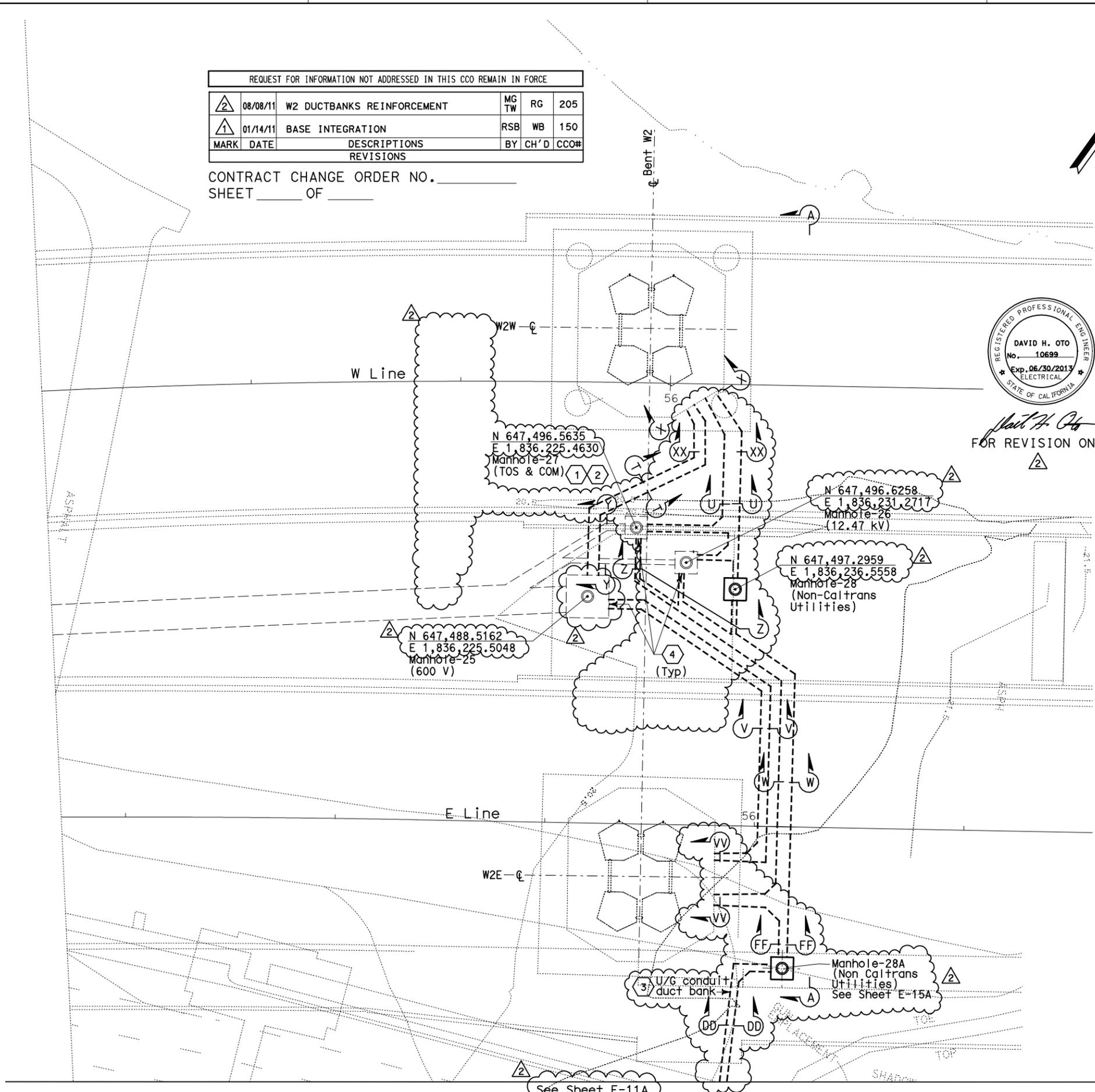
David H. Oto FOR REVISION ONLY
Syn Yee Chin FOR REVISION ONLY

NOTES:

- References:
 - For manhole plans and sections, see sheets E-14 through E-16.
 - For typical manhole and duct bank details, see sheet E-17.
 - For duct bank sections, see sheets 19, 19A, 19B and E-23.
 - For pier W2W plans and sections, see sheet E-20.
 - For pier W2E plans and sections, see sheet E-21.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
- Underground conduit duct bank shall be provided with additional reinforcement. For details, see sheet U-4, E-19C and E-19D.
- For other related work, not shown on this sheet, see Electrical Special Provisions.
- For location of manholes, see utility sheets.
- For duct bank anchors on slopes, see utility sheets.
- Refer to Utility Duct Bank Profile and Details, see sheet E-23.

SHEET NOTES:

- Furnish and install 4-25.4 mm innerducts inside TOS/COM conduit (0560) from MH-27 to Bent W2.
- Furnish and install BASE fiber optic cable in innerduct. See sheet E-1100.
- The conduits exiting from the west wall of manhole MH-28A down to (E) AT&T Hut manhole shall be rigid pvc, schedule 40. Conduit 90 degree bends, risers or exposed to grade shall be rigid steel conduit.
- The Contractor shall verify existing and the provisions for conduit entry to manhole. See sheet E-17.



UNDERGROUND DUCT BANKS AND MANHOLES
 SCALE 1:200

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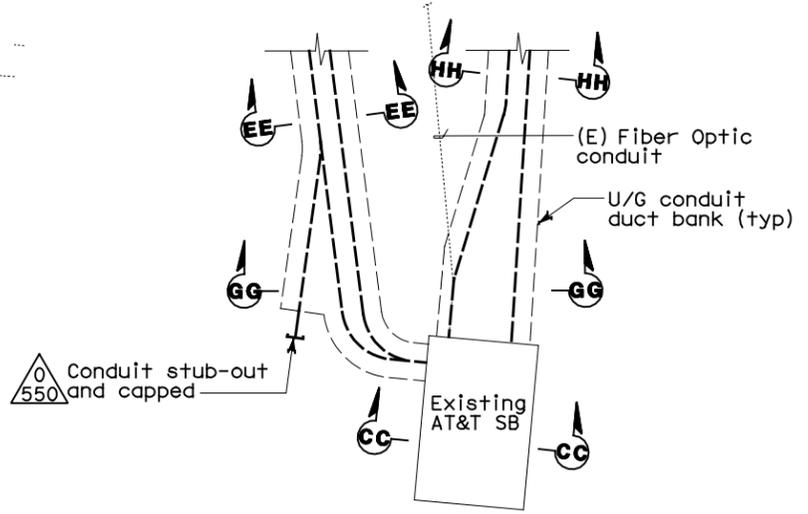
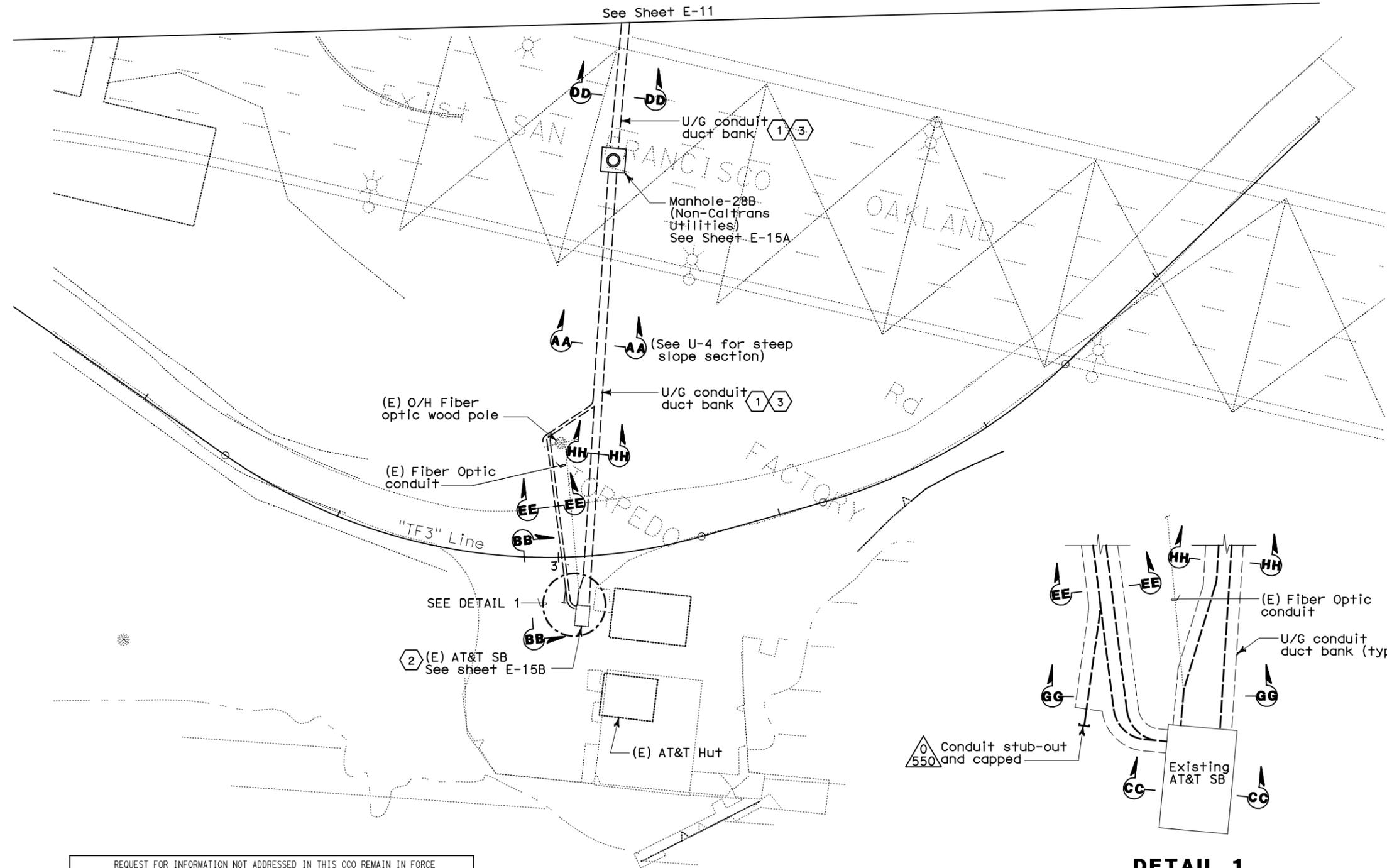
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DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		96S1	1204
 REGISTERED ELECTRICAL ENGINEER DATE 07/05/11						
PLANS APPROVAL DATE						
PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317						
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DESIGNED BY	REVISOR	DATE	REVISION
BEHZAD GOLEMOHAMMADI			
CHECKED BY	DATE	BY	REVISION



- NOTES:**
- References:
 - For typical manhole and duct bank details, see sheet E-17.
 - For duct bank profile and coordinate, see civil sheet U-4.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
 - Minimum compressive strength of concrete $f'c = 28$ MPa.
 - For location of manholes, see utility sheets.
 - For other related work not shown on this see Electrical Special Provisions.
 - Provide long sweep for conduits inside duct banks whenever feasible.
 - For duct bank sections, see sheets E-19B.

- SHEET NOTES**
- Contractor shall route duct bank with a minimum cover of 610 mm from top of conduit to top of finished grade. The conduit bank shall slope down to manhole. Verify existing to avoid interferences. Connect the ground conductor to the existing grounding grid at the end of duct bank.
 - Contractor to clean and drain (E) AT&T SB. Contractor shall use existing provisions for conduit entries to AT&T SB. Other conduit penetrations are not shown.
 - The conduits from manhole MH-28A to AT&T Hut manhole shall be rigid pvc schedule 40. Conduit 90 degree bends, riser and exposed to grade shall be rigid galvanized steel conduit.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
△	08/08/11	W2 DUCT BANKS REINFORCEMENT	EJL	RG	205
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
REVISIONS					

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

PLAN
 SCALE: 1:200

DETAIL 1
 NTS

UNDERGROUND DUCT BANKS AND MANHOLES
 SCALE: 1:200

E-11A

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

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CU 04251

EA 0120F1

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DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		97R2	1204

12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE
 12-6-04
 PLANS APPROVAL DATE
PB POWER, Inc.
 A Parsons Brinckerhoff Company
 303 Second St., Suite 700N
 San Francisco, CA 94107-1317

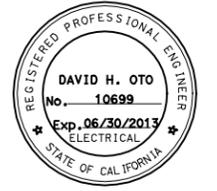
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NOTES:

- References:
 - For duct bank and manhole plan, see sheet E-11.
 - For typical manhole and duct bank details, see sheet E-17.
 - For duct bank sections, see sheets E-19, E-19A and E-23.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401
- For other related work, not shown on this sheet, see Electrical Special Provisions.

SHEET NOTES:

- Deleted
- Not in contract. (Work included on contract 04-120P4).

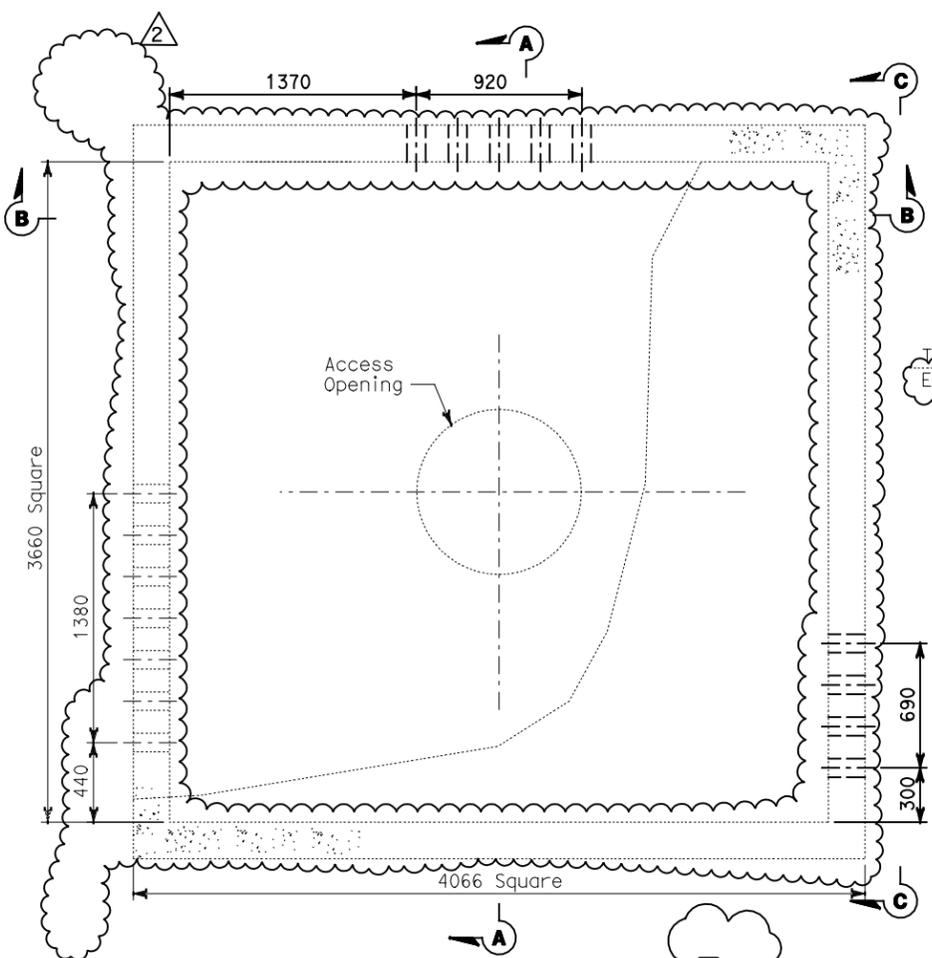


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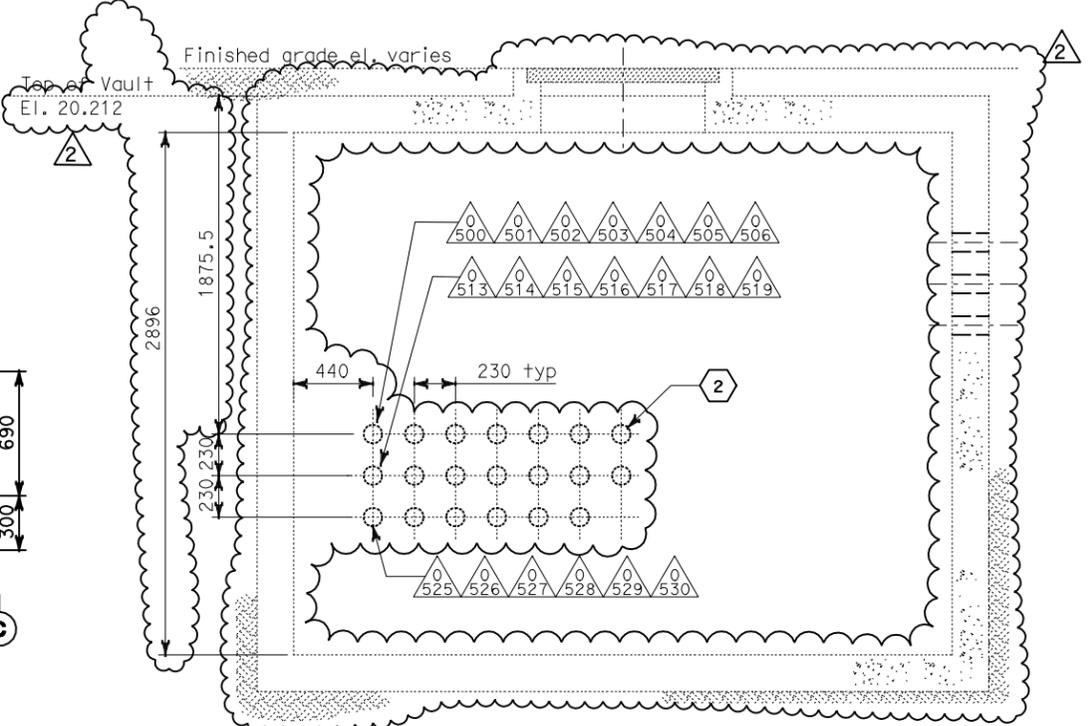
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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
2	08/08/11	W2 DUCT BANKS REINFORCEMENT	TW	RG	205
1	1/10/06	Revised Manhole detail	CR	JE	11

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

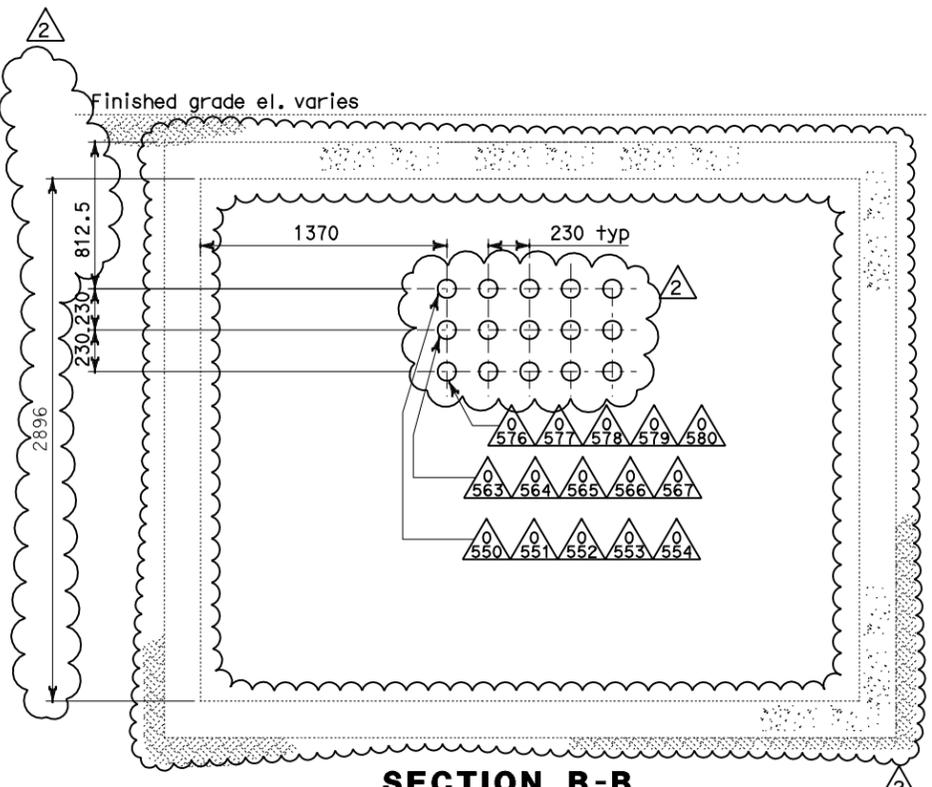
DETAILS UNDERGROUND MANHOLE PLANS AND SECTIONS
SCALE AS NOTED



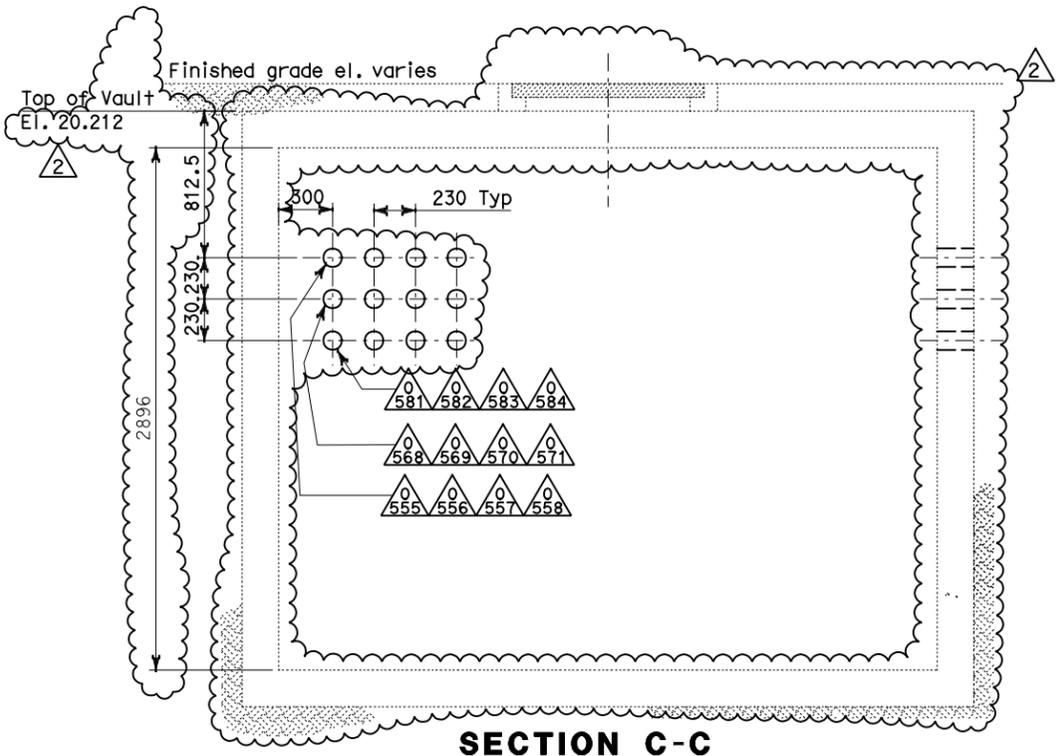
PLAN-MANHOLE-25
SCALE: 1:20 (600 V)



SECTION A-A
SCALE: 1:20



SECTION B-B
SCALE: 1:20



SECTION C-C
SCALE: 1:20

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

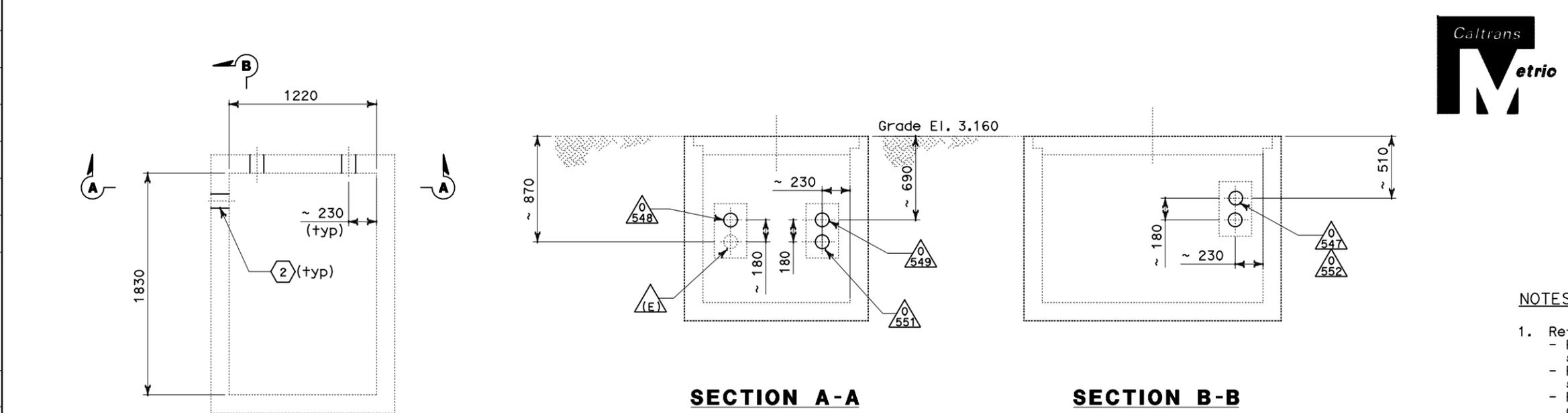


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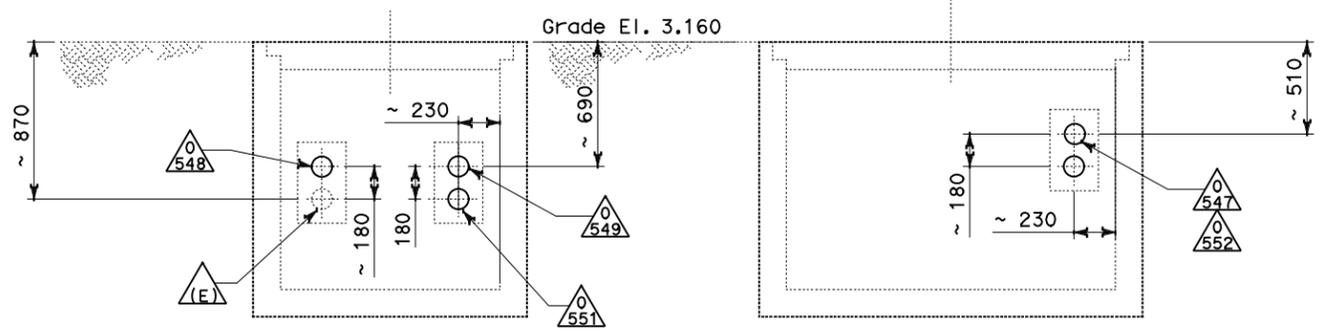
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 DESIGN OVERSIGHT
 BEHZAD GOLEMOHAMMADI
 REVISIONS: 1, 2
 DATE: 11/04
 DESIGNED BY: AB
 CHECKED BY: --
 REVISIONS: 1, 2
 DATE: --/--
 DESIGNED BY: --
 CHECKED BY: --

DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:45
 LAST REVISION 00-00-00

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN OVERSIGHT
 BEHZAD GOLEMOHAMMADI



PLAN-(E) MANHOLE
ATT SB



SECTION A-A

SECTION B-B



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	98S2	1204

07/05/11
 REGISTERED ELECTRICAL ENGINEER 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. 06/30/2013
 ELECTRICAL
 STATE OF CALIFORNIA

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NOTES:

- References:
 - For duct banks and manhole plan, see sheet E-11A.
 - For typical manhole details, see sheet E-17.
 - For duct bank sections, see sheets U-4 and E-19B.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401
- For other related work, not shown on this sheet, see Electrical Special Provisions.

SHEET NOTES:

- Dimensions shown (~) are field survey. The Contractor is to verify to ensure the existing conduit is the reference for the actual location of the new conduits.
- Contractor to ensure the conduit entering the (E) Manhole shall be seal watertight.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
△	08/08/11	W2 DUCT BANKS REINFORCEMENT	EJL TW	RG	205
REVISIONS					

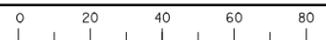
CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

DETAILS
UNDERGROUND
MANHOLE PLAN AND SECTIONS
 SCALE: NONE

E-15B

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS



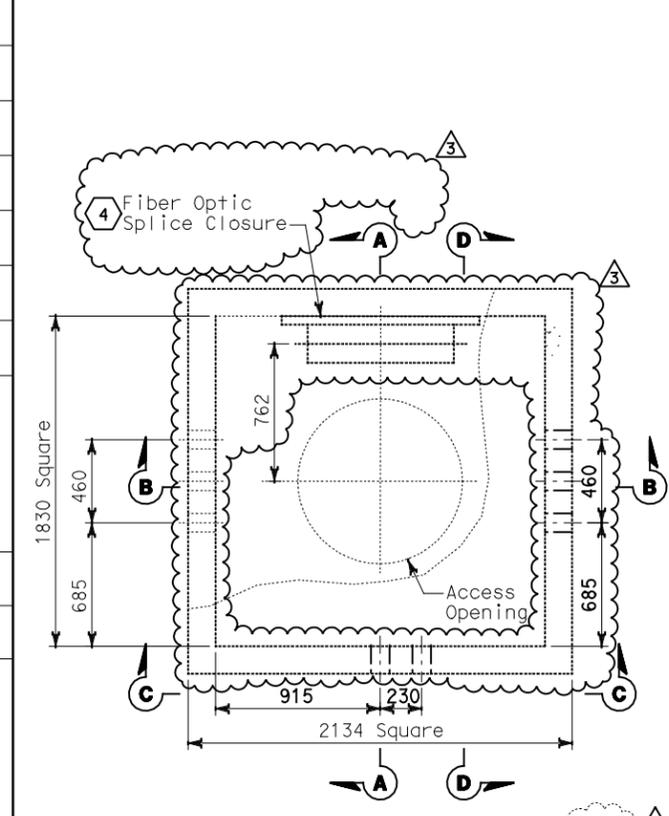
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CU 04251

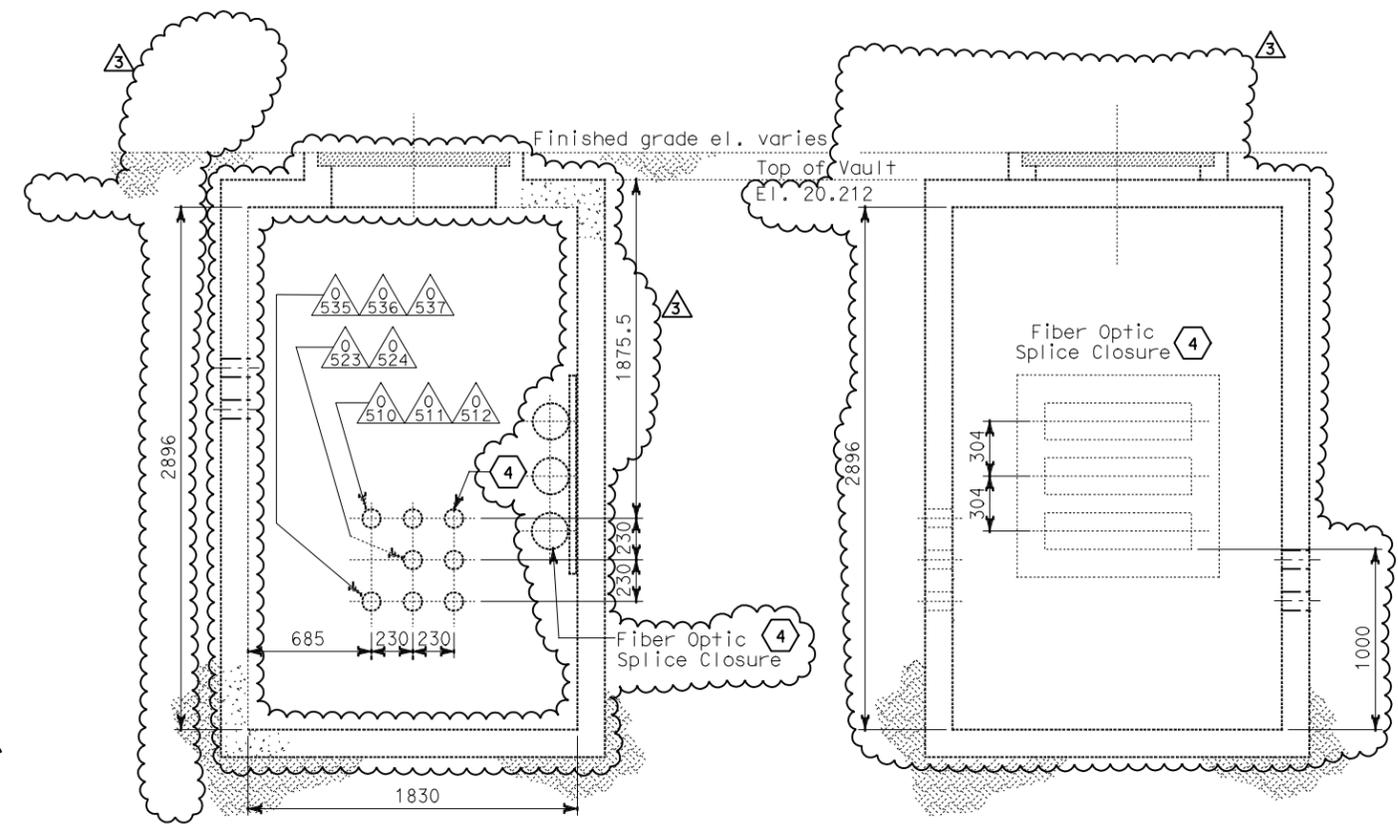
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DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:45
 LAST REVISION
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN OVERSIGHT
 BEHZAD GOLEMOHAMMADI

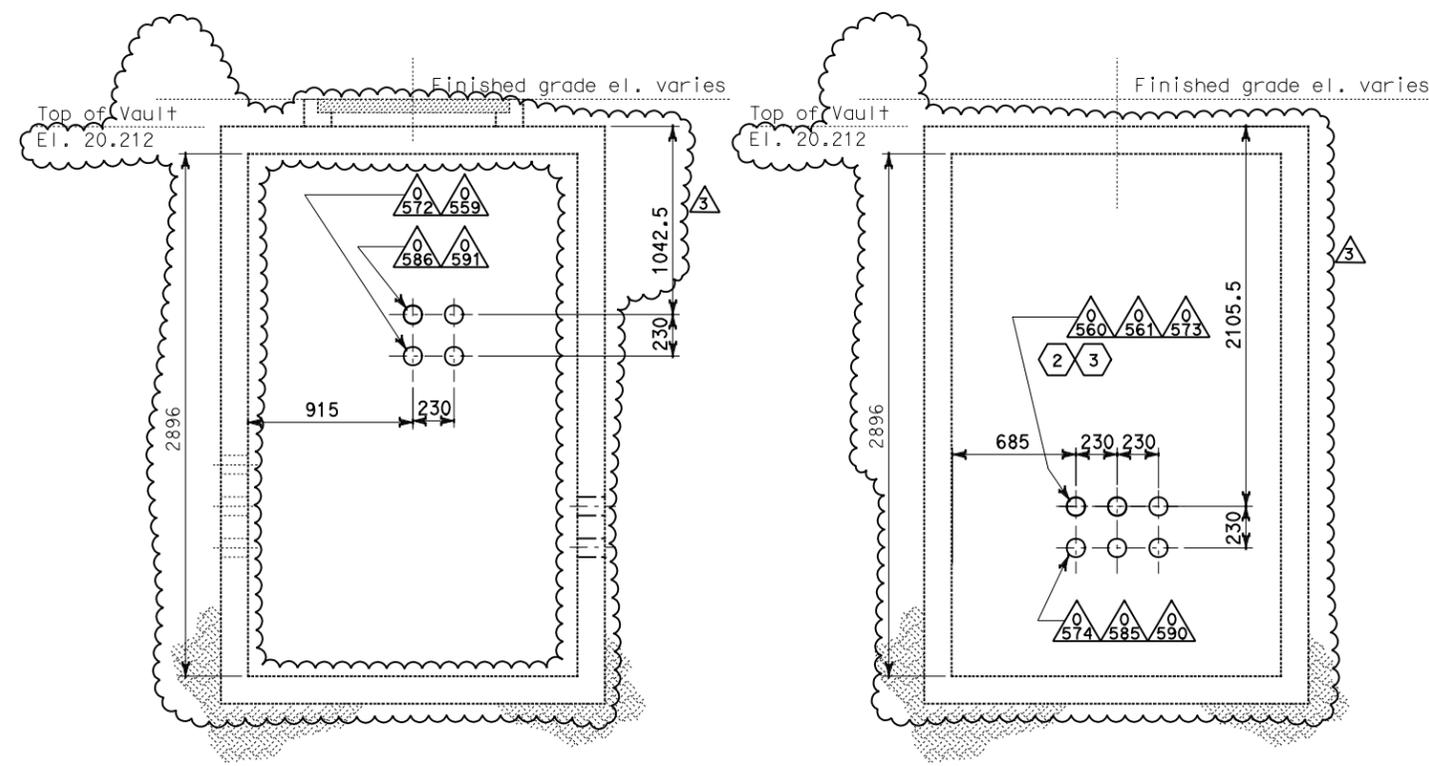


PLAN-MANHOLE-27
 SCALE: 1:20 (TOS & COMMUNICATION)



SECTION A-A
 SCALE: 1:20

SECTION B-B
 SCALE: 1:20



SECTION C-C
 SCALE: 1:20

SECTION D-D
 SCALE: 1:20

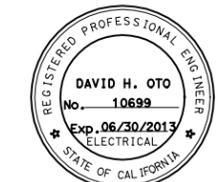


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		99R3	1024

Jens Erlingsson 12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE
 12-6-04
 PLANS APPROVAL DATE
PB POWER, Inc.
 A Parsons Brinckerhoff Company
 303 Second St., Suite 700N
 San Francisco, CA 94107-1317
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- NOTES:**
- References:
 - For duct bank and manhole plan, see sheet E-11.
 - For typical duct bank and manhole details, see sheet E-17.
 - For duct bank sections, see sheets E-19, & E-19A.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
 - For other related work, not shown on this sheet, see Electrical Special Provisions.

- SHEET NOTES:**
- Deleted
 - Furnish and install 4-25.4 mm innerducts inside TOS/COM conduit (0560).
 - Furnish and install BASE fiber optic cable in innerduct. See sheet E-1100.
 - Not in contract. (Work included on contract 04-120P4).



David H. Oto
 FOR REVISION ONLY



Syn Yee Chin
 FOR REVISION ONLY

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
3	08/08/11	W2 DUCT BANKS REINFORCEMENT	TW	RG	205
2	03/01/11	BASE INTEGRATION	RSB	WB	150
1	1/10/06	Revised Manhole detail	CR	JE	11

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

DETAILS UNDERGROUND MANHOLE PLAN AND SECTIONS
 SCALE AS NOTED

DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:45
 LAST REVISION 00-00-00

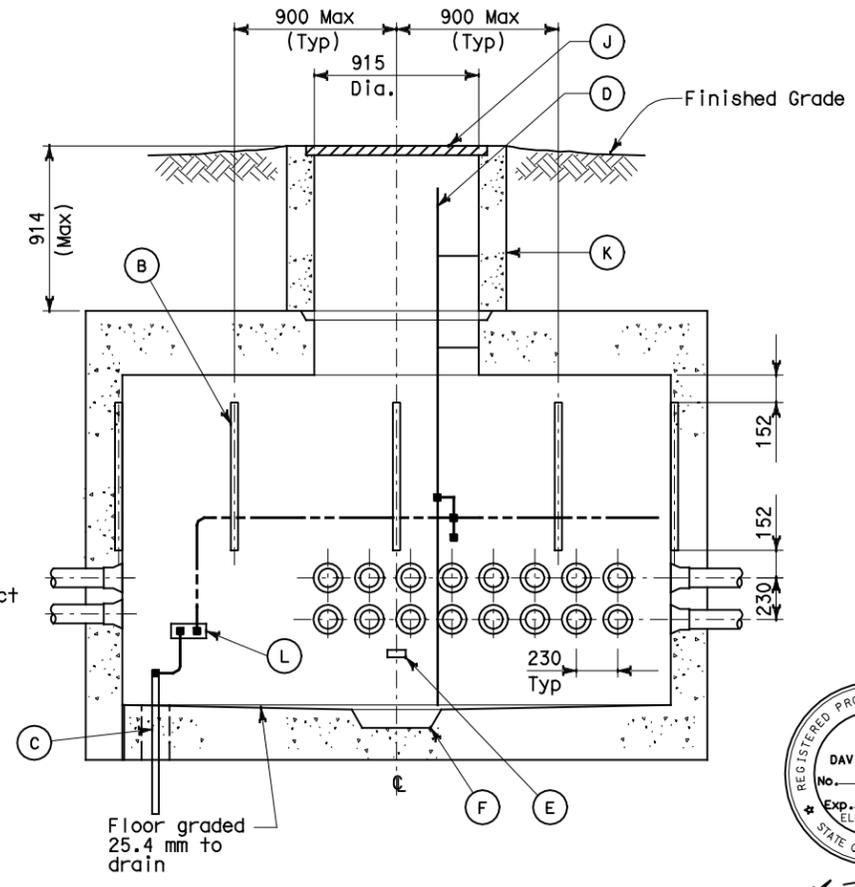
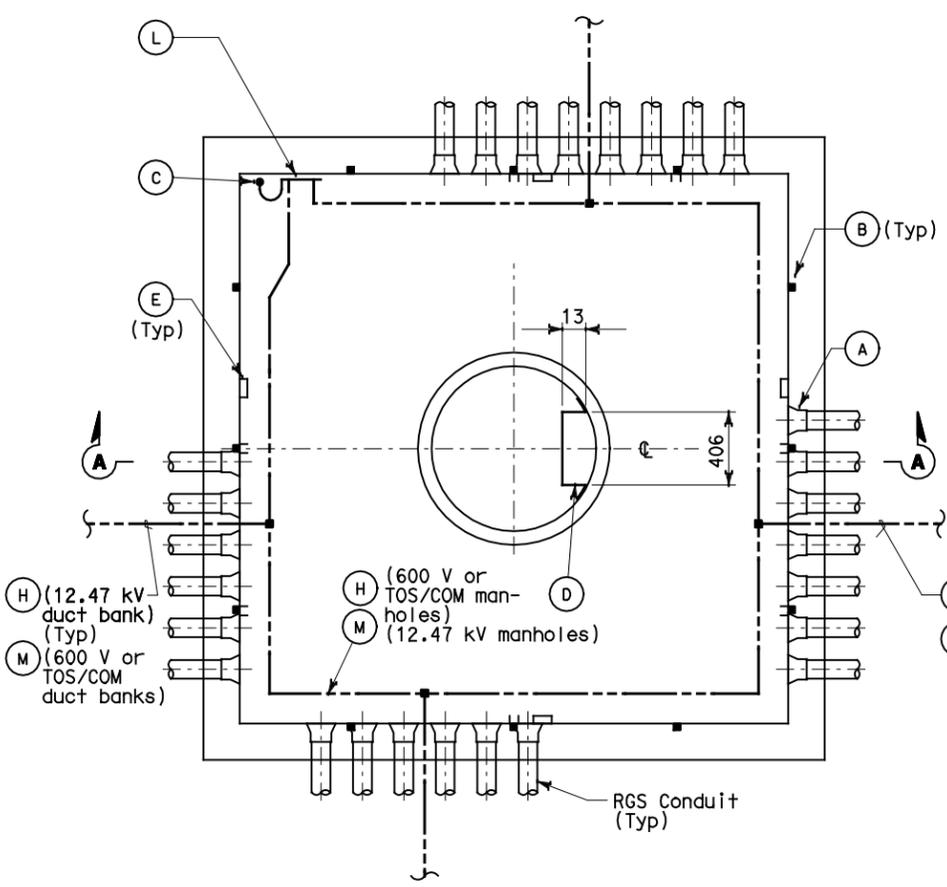


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		100 R1	1204

REGISTERED ELECTRICAL ENGINEER DATE
 12-19-02
 REGISTERED PROFESSIONAL ENGINEER
 JENS ERLINGSSON
 No. 8249
 Exp. 9/30/06
 ELECTRICAL
 STATE OF CALIFORNIA

12-6-04
 PLANS APPROVAL DATE
 PB POWER, Inc.
 A Parsons Brinckerhoff Company
 303 Second St., Suite 700N
 San Francisco, CA 94107-1317

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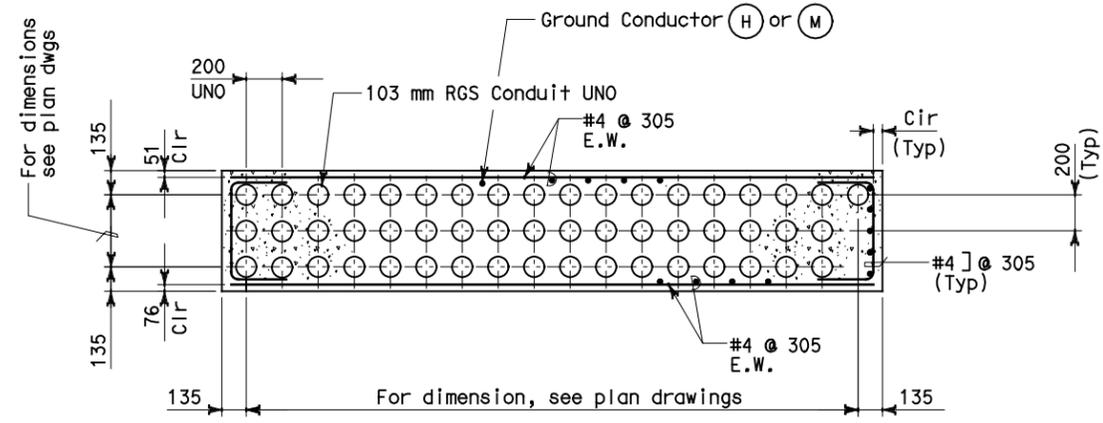
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NOTES:

- Manhole, cast iron ring and cover shall be designed for HS-20 traffic loading acting on top of and beyond the dimensional plan limits of the manhole. Additionally, the manhole shall be designed for a 1330KN point load distributed over a 1000mm X 1000mm area at the finished grade elevation. This load shall be applied on top of the manhole but outside the manhole cover and riser, and beyond the dimensional plan limits of the manhole.
- Minimum ultimate compressive strength $f'c = 25$ MPa.
- Steel reinforcement yield strength $Fy = 414$ MPa.
- All manhole joints shall be primed with joint primer by manhole supplier. In addition, all joints shall be made watertight by using joint sealant.
- Prior to setting the manhole, the contractor shall prepare the site by providing a minimum of 152 mm of sand or other suitable base material. The base material shall be compacted and graded to the required level.
- Manholes shall comply with requirements of ASTM C478 and ASTM C858, as applicable.
- The ladder shall be designed to the specifications in the latest revision of American National Standard Institute's publication A1413, safety requirements for "Fixed Ladder".
- Manhole cover engraved nameplates shall read as follows:
 - Caltrans High Voltage } Manholes No. 1,3,8,11,14,17,20, 23 and 26.
 - Caltrans 600 V } Manholes No. 2,5,7,10,13,16,19, 22 and 25.
 - Caltrans TOS&COMM } Manholes No. 4,6,9,12,15,18,21, 24, 27, 29 and 30.
 - Non-Caltrans Utility } Manhole No. 28.
- For other related work, not shown on this sheet, see Electrical Special Provisions.
- References:
 - For duct banks and manholes, see sheet E11, & (E-11A).
 - For manhole plans and sections, see sheets E-14 through E-16.
 - For duct bank sections, see sheet E-19, E-19A, E-19B.
 - For grounding interface, see sheet E-18.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
- Manhole cover shall be standard size round steel plate unless noted otherwise.
- All exposed metal shall be grounded.
- For actual duct bank configuration and details see sheets U-4, E-19C and E-19D.

TYPICAL MANHOLE DETAIL

LIST OF MATERIAL		
ITEM NO	DESCRIPTION	REMARKS
(A)	End bells. For size & location see manholes plans & sections	
(B)	41 mm X41 mm concrete insert strut channel (flush mounted)	Hot dip galvanized
(C)	Copper clad round rod 19 dia x 3050 long	
(D)	Ladder complete with supports	Hot dip galvanized
(E)	Pull iron-insert type	As required
(F)	305 dia round x 102 deep sump	
(H)	500 kcmil bare copper ground conductor	
(J)	Cast iron manhole cast cover with engraved nameplate	See notes 8 and 11
(K)	Manhole necking or riser	As required
(L)	Ground copper bar, 6 mm thick x 100 mm high x 600 mm long	
(M)	#4/0 AWG bare copper ground	



TYPICAL DUCT BANK DETAIL

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
08/08/11	W2 DUCT BANKS REINFORCEMENT	LJ TW	LJ RG	205	
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

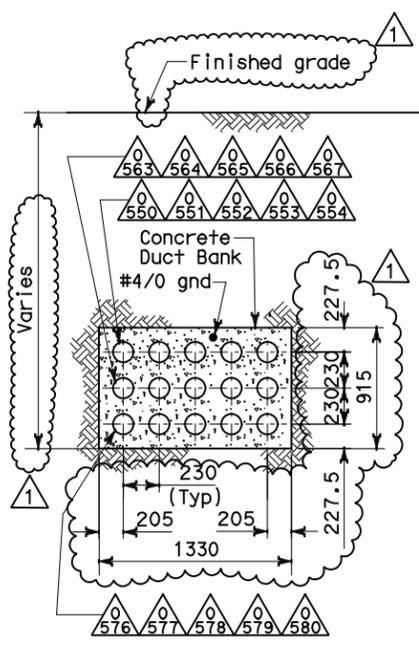
CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

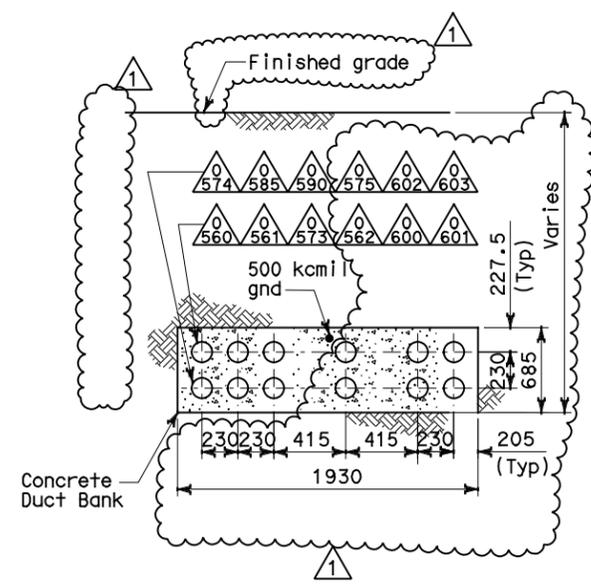
DETAILS UNDERGROUND TYPICAL MANHOLE AND DUCT BANK SCALE AS NOTED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DESIGN OVERSIGHT
 BEHZAD GOLEMOHAMMADI
 REVISIONS: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

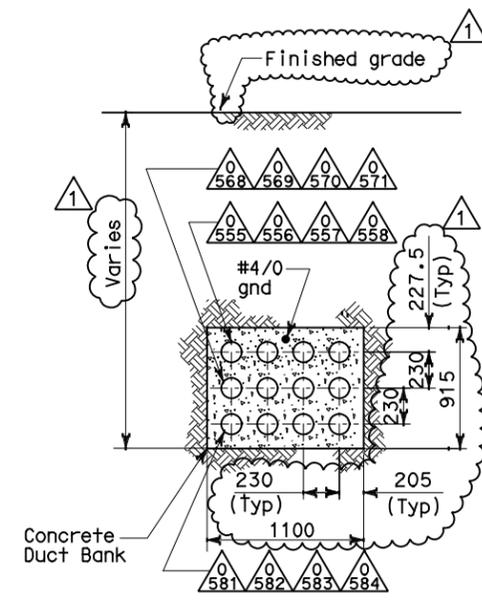
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 DESIGN OVERSIGHT
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 REVISIONS
 REVISION NO. DATE REVISION BY DATE REVISOR



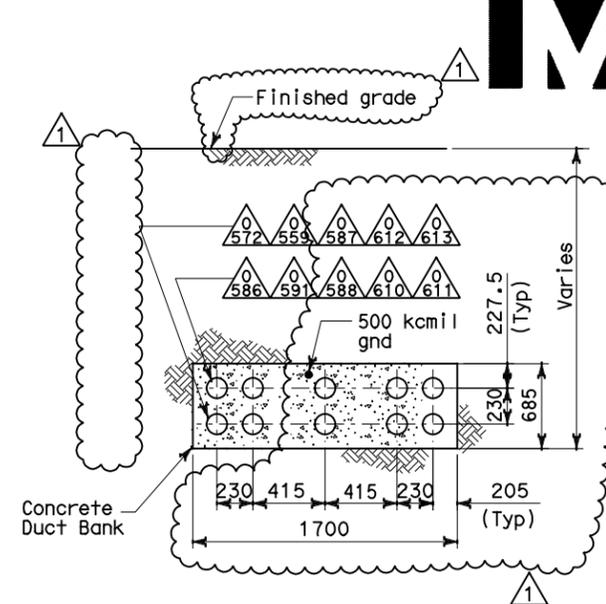
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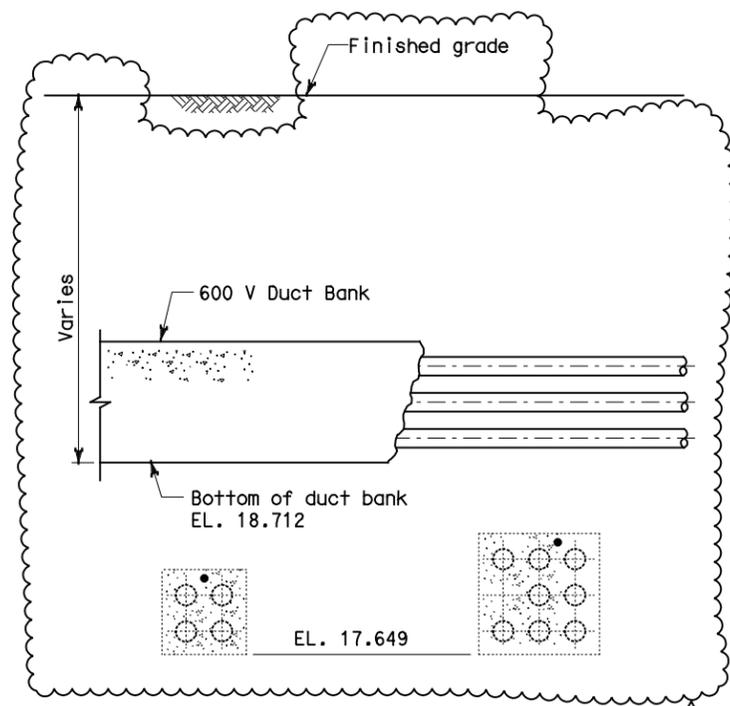
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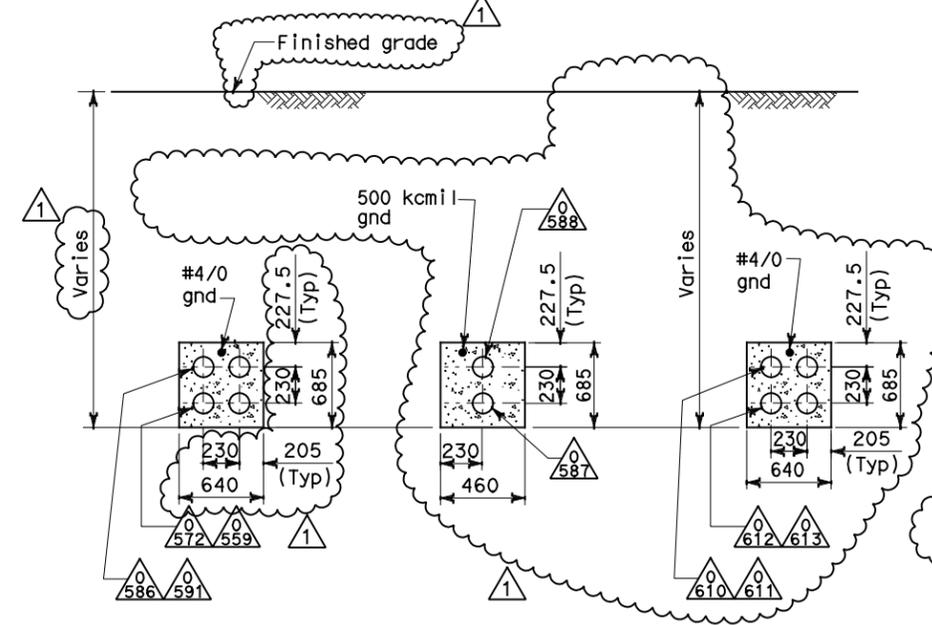
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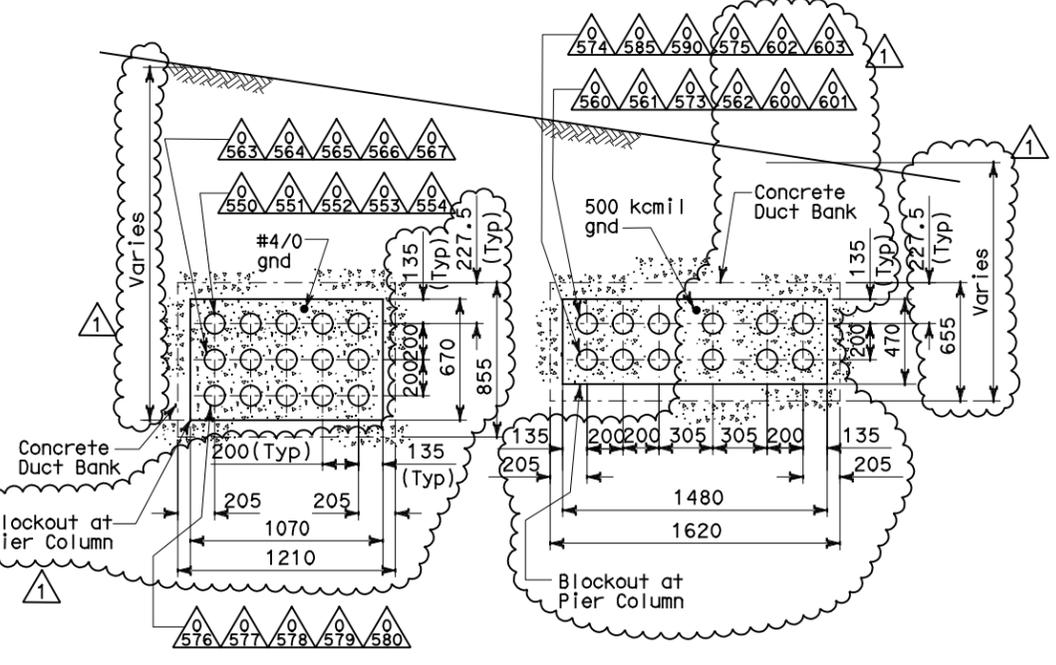
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SECTION Y-Y
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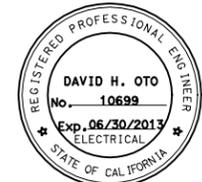


SECTION Z-Z
SCALE 1:20



SECTION X-X
SCALE 1:20

DETAILS UNDERGROUND DUCT BANK SECTIONS
SCALE AS NOTED



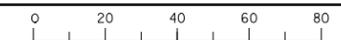
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 1

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
MARK	DATE	DESCRIPTIONS	BY	CH'D CCO#
1	08/08/11	W2 DUCT BANKS REINFORCEMENT	TW	RG 205
		REVISIONS		

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

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DGN FILE => 04-0120f1_0102R01.dgn
 USERNAME => ilorico

CU 04251

EA 0120F1

DIST 04 COUNTY SF ROUTE 80 KILOMETER POST TOTAL PROJECT 13.2/13.9 SHEET No. 102 R1 TOTAL SHEETS 1204

Caltrans Metro

Jens Erlingsson 12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE

12-6-04
 PLANS APPROVAL DATE

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

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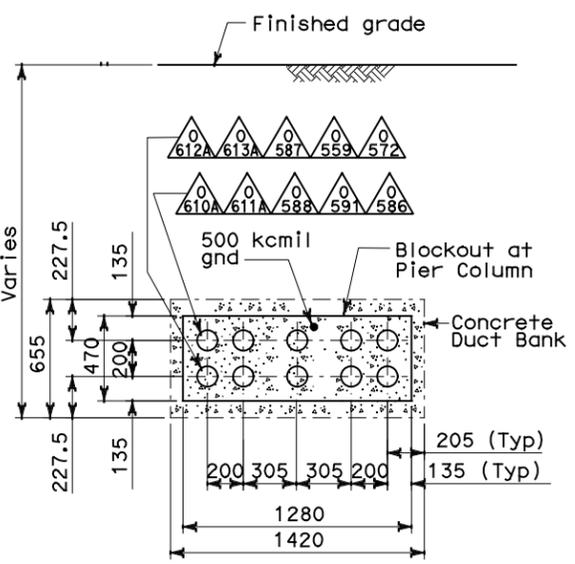
REGISTERED PROFESSIONAL ENGINEER
 JENS ERLINGSSON
 No. 8249
 Exp. 9/30/06
 ELECTRICAL
 STATE OF CALIFORNIA

- NOTES:**
- References:
 - For duct bank and manhole plan, see sheet E-11.
 - For manhole plans and sections, see sheets E-14 through E-16.
 - For typical manhole and duct bank details, see sheet E-17.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
 - For underground conduit duct bank reinforcing, see details on sheets E-19C and E-19D.
 - For other related work, not shown on this sheet, see Electrical Special Provisions.

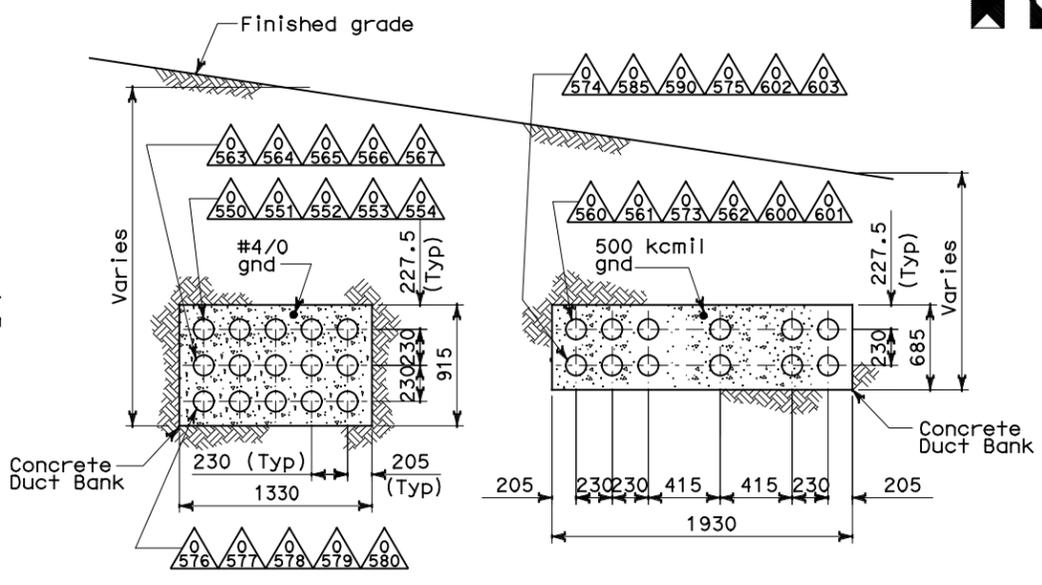
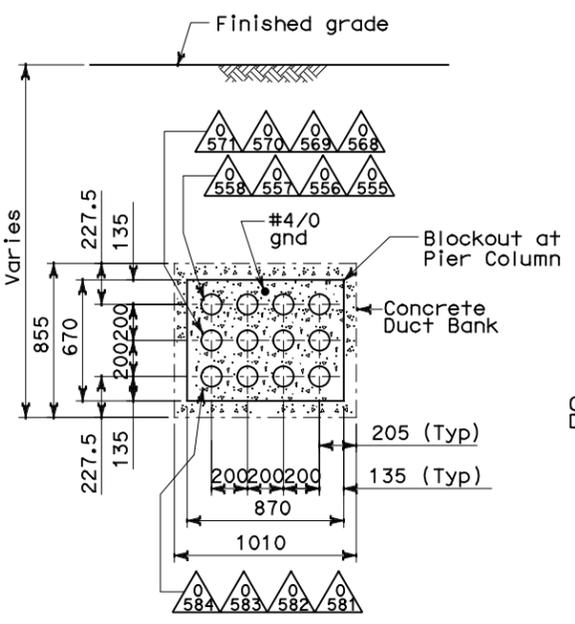
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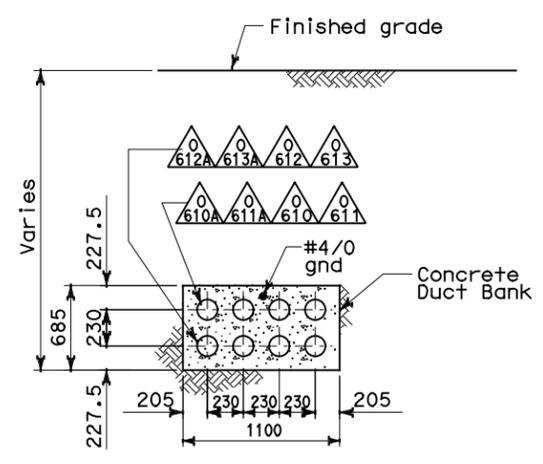
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	102 S1	1204
 REGISTERED ELECTRICAL ENGINEER DATE 07/05/11					
PLANS APPROVAL DATE _____					
PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317					
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SECTION VV-VV
SCALE 1:20



SECTION XX-XX
SCALE 1:20



SECTION FF-FF
SCALE 1:20

- NOTES:**
- References:
 - For duct bank and manhole plan, see sheet E-11.
 - For manhole plans and sections, see sheets E-14 through E-16.
 - For typical manhole and duct bank details, see sheet E-17.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
 - For underground conduit duct bank reinforcing, see details on sheets E-19C and E-19D.
 - For other related work, not shown on this sheet, see Electrical Special Provisions.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
△	08/08/11	W2 DUCT BANKS REINFORCEMENT	TW	RG 205
MARK	DATE	DESCRIPTIONS	BY	CH'D CCO#
REVISIONS				

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

**DETAILS
UNDERGROUND
DUCT BANK SECTIONS**
SCALE AS NOTED

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS

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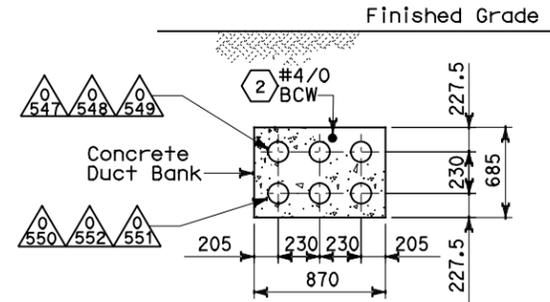
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 DESIGN OVERSIGHT
 BEHZAD GOLEHAMMADI
 REVISIONS
 DATE 07/11
 TW
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 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR
 DATE REVISOR
 DATE REVISOR

DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:46
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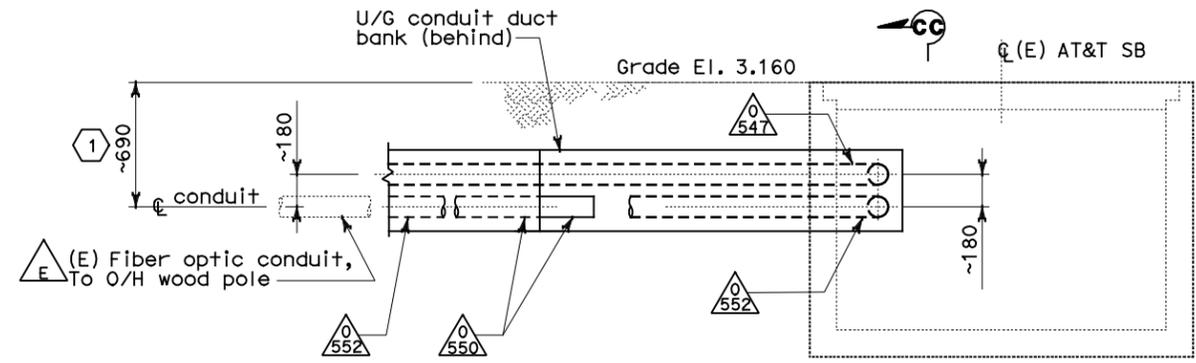


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
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 REGISTERED ELECTRICAL ENGINEER DATE 07/05/11						
PLANS APPROVAL DATE _____ PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317						
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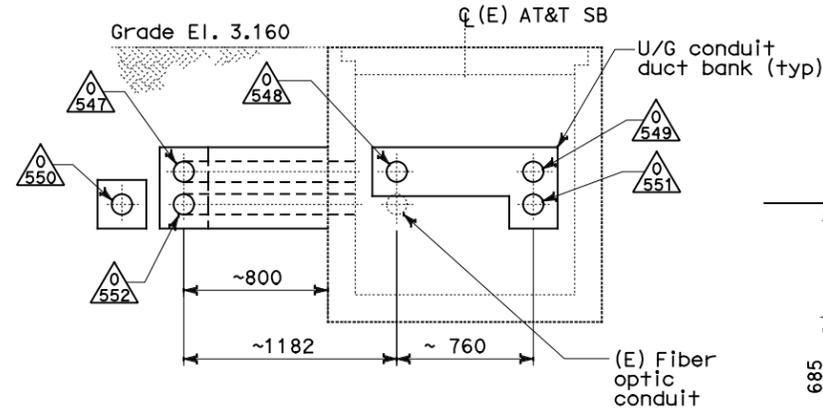
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DESIGN OVERSIGHT
 BEHZAD GOLEHAMMADI
 REVISIONS: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



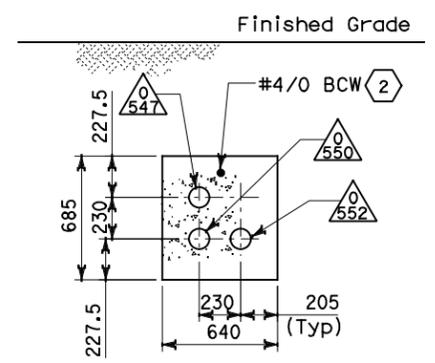
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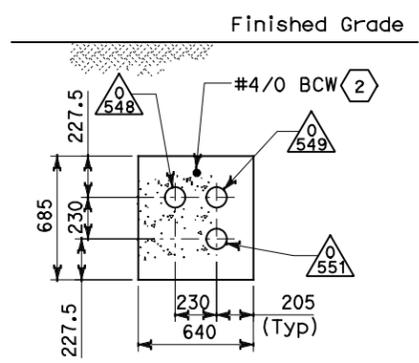
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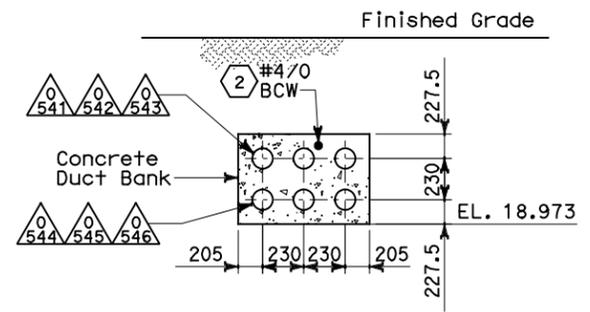
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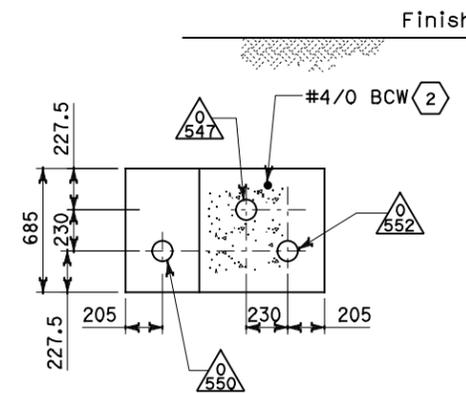
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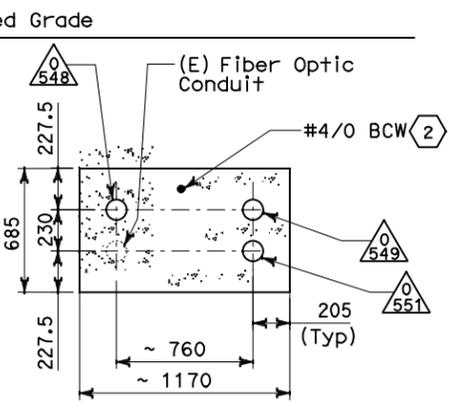
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SECTION DD-DD
SCALE: 1:20



SECTION GG-GG
SCALE: 1:20



NOTES:

- References:
 - For duct banks and manhole plan, see sheets E-11 and E-11A.
 - For typical manhole details, see sheet E-17.
 - For underground conduit duct bank reinforcing, see details on sheets U-4 and E-19D.
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401
- For other related work, not shown on this sheet, see Electrical Special Provisions.

SHEET NOTES:

- Dimensions shown (~) are field surveyed. The Contractor is to verify to ensure the existing conduit is the reference for the actual location of the new conduits.
- Connect ground conductor to ground bar inside manhole.
- Refer to Sheet U-4 for structural details.
- Refer to Sheet E-19D for structural details.

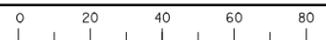
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08/08/11	W2 DUCT BANKS REINFORCEMENT	EJL	RG	205	
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

DETAILS UNDERGROUND DUCT BANK SECTIONS
SCALE: AS NOTED

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS

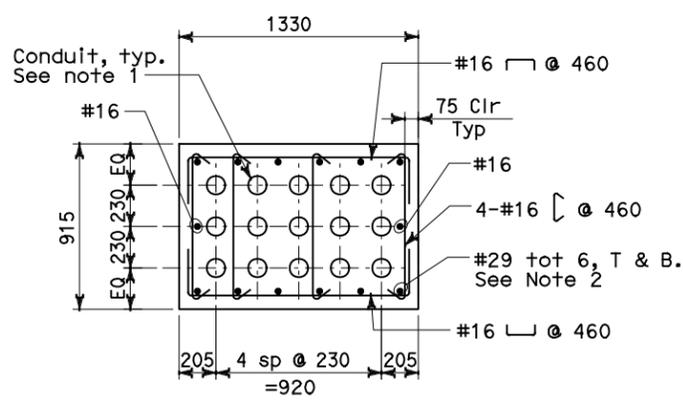


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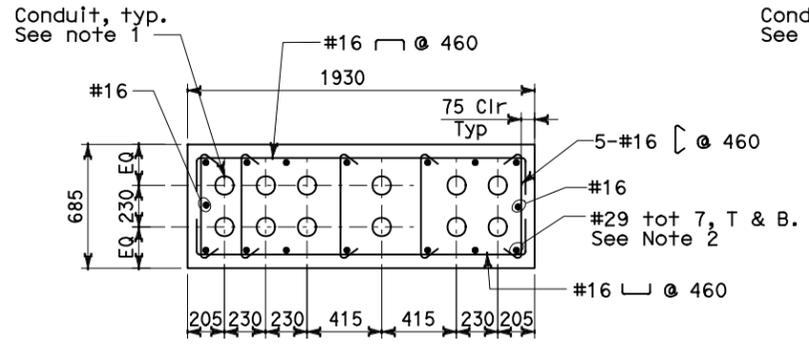


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		102 S3	1204
07/20/11 REGISTERED ELECTRICAL ENGINEER DATE						
PLANS APPROVAL DATE _____						
PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317						
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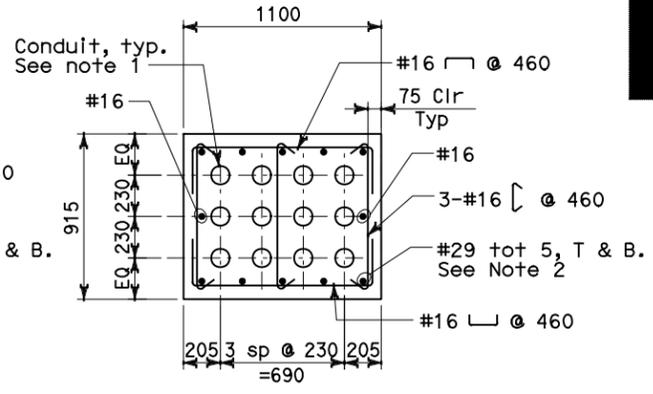
DETAIL 1
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Note:
For Detail not noted or shown see Section T-T on sheet E-19



DETAIL 2
SCALE: 1:20

Note:
For Detail not noted or shown see Section U-U on sheet E-19

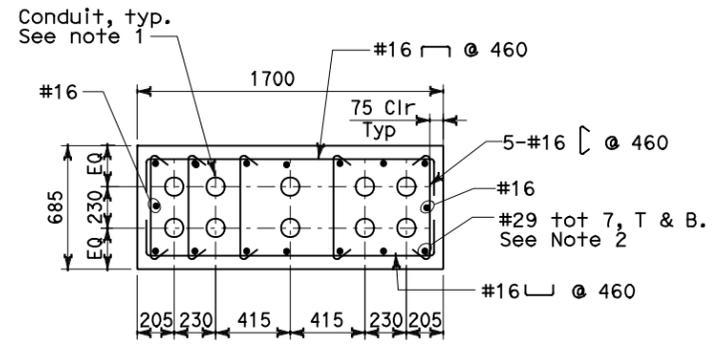


DETAIL 3
SCALE: 1:20

Note:
For Detail not noted or shown see Section V-V on sheet E-19

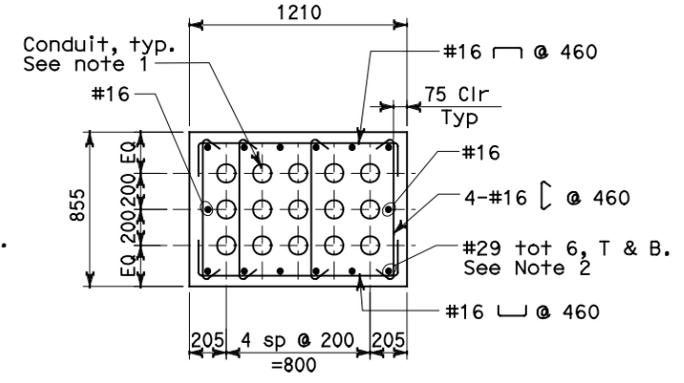
NOTES:

1. For conduit duct bank sections, see sheet E-19, E-19A, E-19B and E-19C.
2. Where duct banks intersect, develop #29 top and bottom reinforcing a minimum distance of 1525 mm into adjacent duct bank.
3. The duct bank concrete compression strength at 28 days: $f'c = 25$ MPa.
4. The duct bank reinforcing bar yield strength: $Fy = 414$ MPa.
5. The duct banks have been designed for a maximum point load of 1330 kN distributed over a 1000mm x 1000mm area at the finished grade elevation.



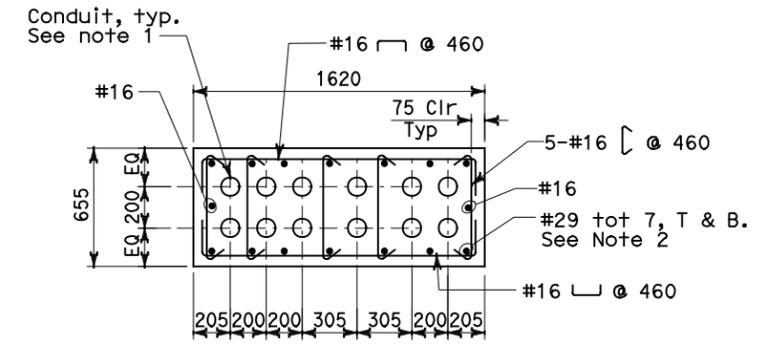
DETAIL 4
SCALE: 1:20

Note:
For Detail not noted or shown see Section W-W on sheet E-19



DETAIL 5
SCALE: 1:20

Notes:
A. For Detail not noted or shown see Section X-X on sheet E-19
B. Locate 1st stirrup 75mm from face of pier.



DETAIL 6
SCALE: 1:20

Notes:
A. For Detail not noted or shown see Section X-X on sheet E-19
B. Locate 1st stirrup 75mm from face of pier.

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE					
	08/08/11	W2 DUCT BANKS REINFORCEMENT	LJ	RG	205
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
REVISIONS					

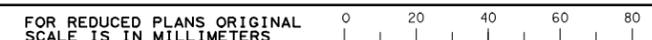
CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

DETAILS UNDERGROUND DUCT BANK SECTIONS
SCALE AS NOTED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 BEHZAD GOLEMOHAMMADI
 DESIGN OVERSIGHT
 CALCULATED/DESIGNED BY
 CHECKED BY
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 DATE REVISOR
 DATE

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN



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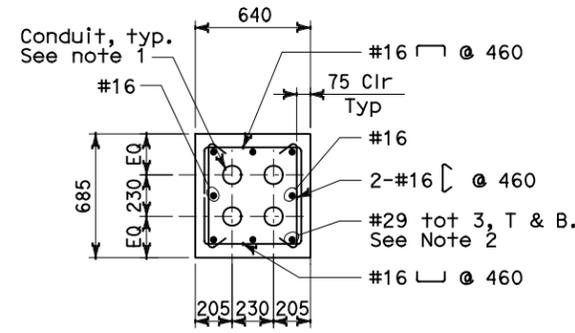
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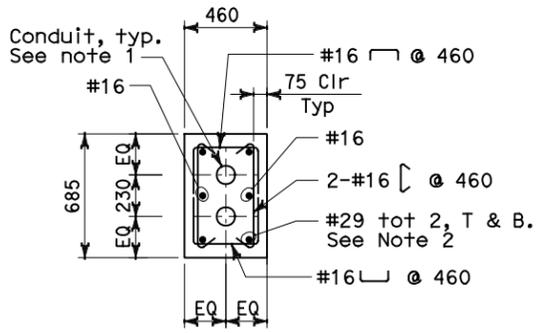


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9	102 S4	1204
07/20/11 REGISTERED ELECTRICAL ENGINEER DATE					
PLANS APPROVAL DATE _____					
PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317					
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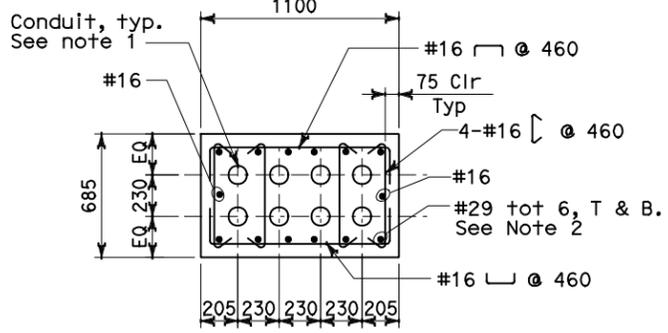
DETAIL 7
SCALE: 1:20

Note:
For Detail not noted or shown see Section Z-Z on sheet E-19



DETAIL 8
SCALE: 1:20

Note:
For Detail not noted or shown see Section Z-Z on sheet E-19

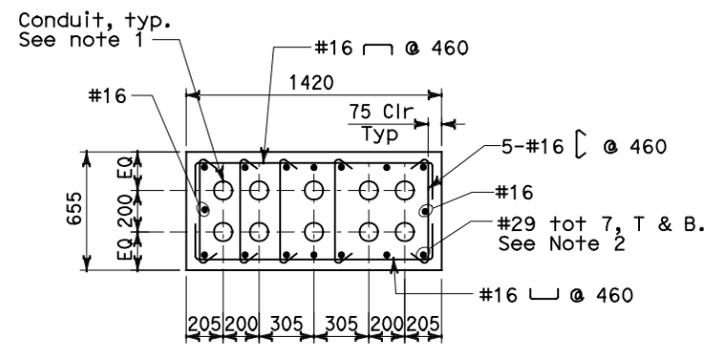


DETAIL 9
SCALE: 1:20

Note:
For Detail not noted or shown see Section FF-FF on sheet E-19A

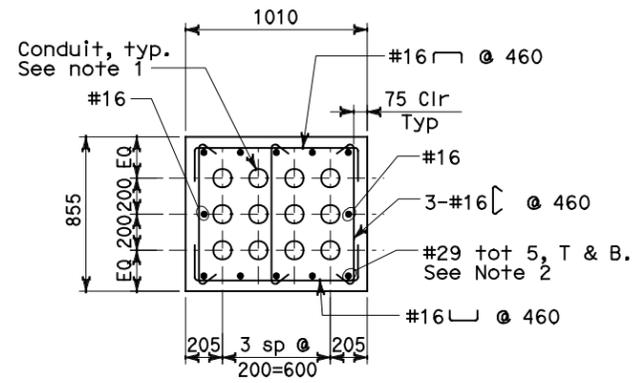
NOTES:

1. For conduit duct bank sections, see sheet E-19, E-19A, E-19B and E-19C.
2. Where duct banks intersect, develop #29 top and bottom reinforcing a minimum distance of 1525 mm into adjacent duct bank.
3. The duct bank concrete compression strength at 28 days: $f'c = 25$ MPa.
4. The duct bank reinforcing bar yield strength: $Fy = 414$ MPa.
5. The duct banks have been designed for a maximum point load of 1330 kN distributed over a 1000mm x 1000mm area at the finished grade elevation.



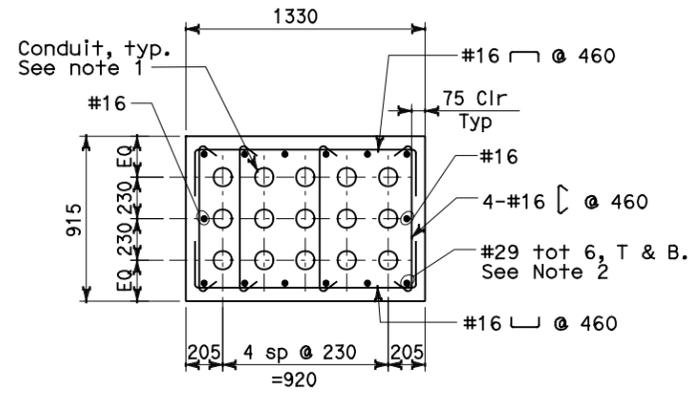
DETAIL 10
SCALE: 1:20

Note:
A. For Detail not noted or shown see Section VV-VV on sheet E-19A.
B. Locate 1st stirrups 75mm from face of pier.



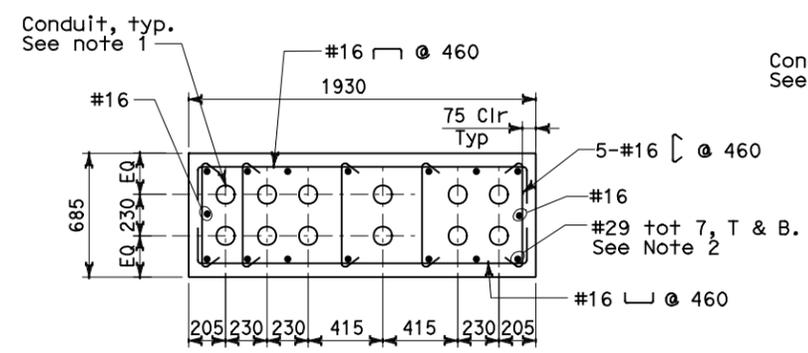
DETAIL 11
SCALE: 1:20

Note:
A. For Detail not noted or shown see Section VV-VV on sheet E-19A.
B. Locate 1st stirrups 75mm from face of pier.



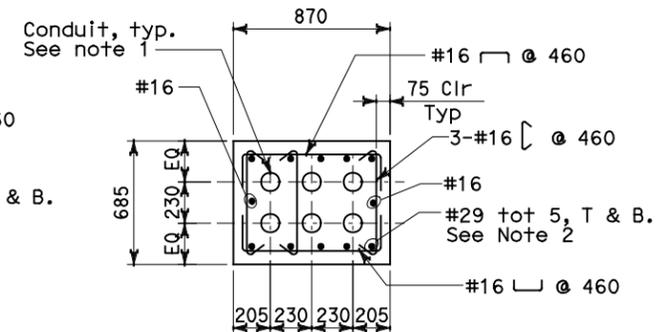
DETAIL 12
SCALE: 1:20

Note:
For Detail not noted or shown see Section XX-XX on sheet E-19A



DETAIL 13
SCALE: 1:20

Note:
For Detail not noted or shown see Section XX-XX on sheet E-19A



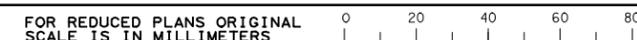
DETAIL 14
SCALE: 1:20

Note:
For Detail not noted or shown see Section DD-DD on sheet E-19B

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
△	08/08/11	W2 DUCT BANKS REINFORCEMENT	LJ	RG 205
MARK	DATE	DESCRIPTIONS	BY	CH'D CCO#
		REVISIONS		

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

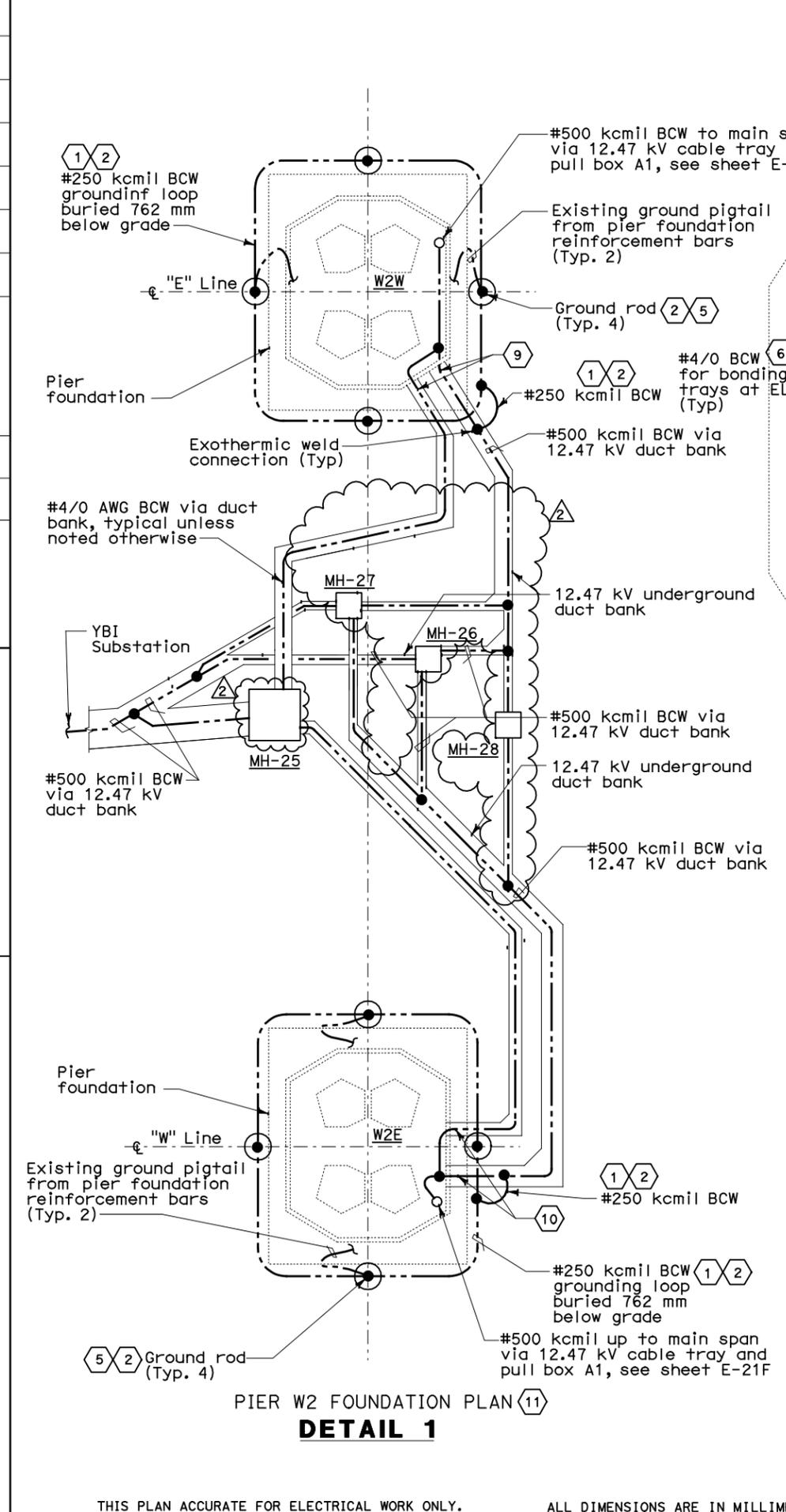
DETAILS UNDERGROUND DUCT BANK SECTIONS
SCALE AS NOTED



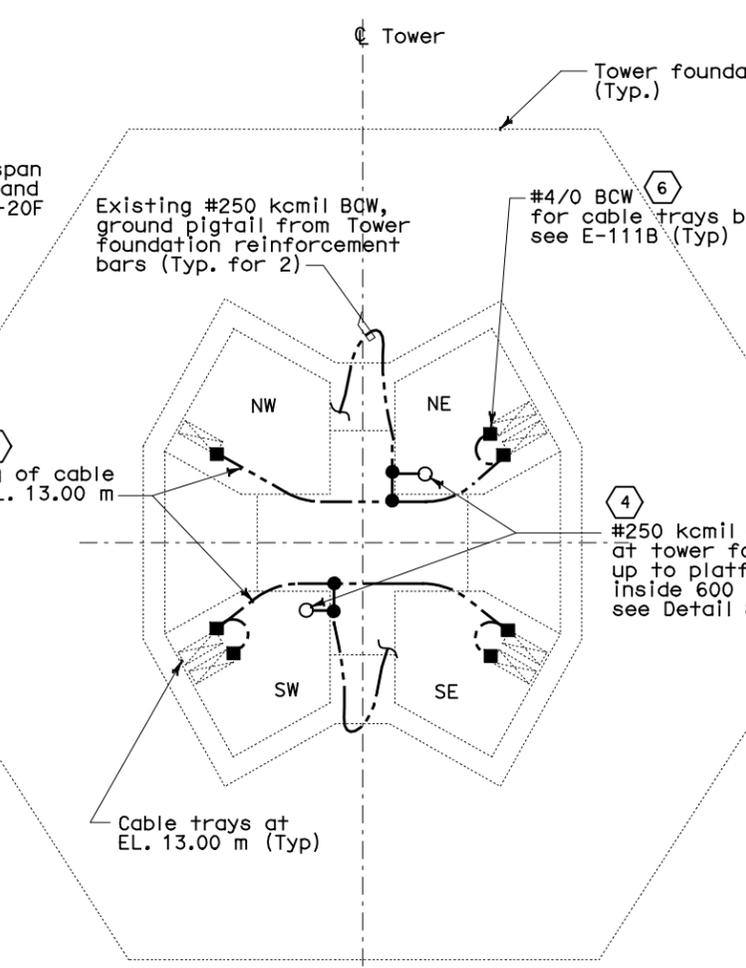
REVISIONS: 07/11 L
 DESIGNED BY: BEHZAD GOLEMOHAMMADI
 CHECKED BY:
 DESIGN OVERSIGHT:
 DEPARTMENT OF TRANSPORTATION
 STATE OF CALIFORNIA
 Caltrans

DATE PLOTTED => 09-AUG-2011
 TIME PLOTTED => 13:46
 LAST REVISION 00-00-00

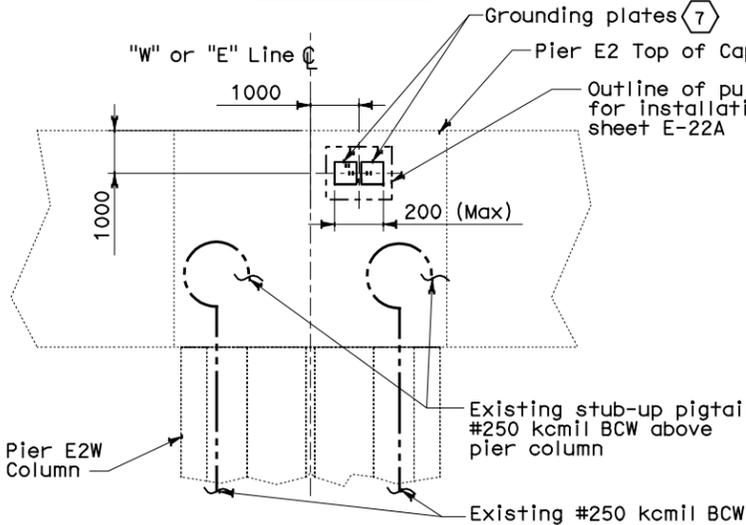
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 BEHZAD GOLEMOHAMMADI
 DESIGN OVERSIGHT
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11



PIER W2 FOUNDATION PLAN
DETAIL 1



TOWER FOUNDATION PLAN
DETAIL 2

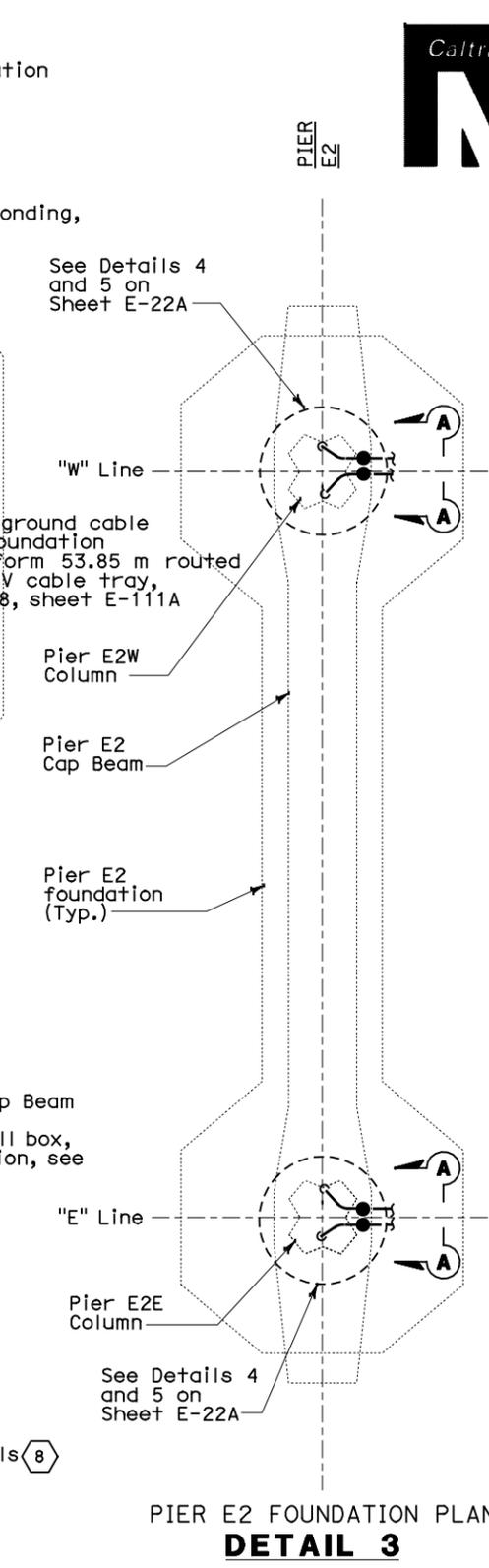


GROUNDING PLATE INSTALLATION
SECTION A-A

REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE

MARK	DATE	DESCRIPTIONS	BY	CH'D CCO#
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1	11/20/09	ELECTRICAL GROUNDING	RR	RG FE 75

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____



PIER E2 FOUNDATION PLAN
DETAIL 3



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		105 R2	1204

REGISTERED ELECTRICAL ENGINEER DATE 12/19/02
 JENS ERLINGSSON No. 8249 Exp. 9/30/06
 PB AMERICAS, Inc. A Parsons Brinckerhoff Company 303 Second St., Suite 700N San Francisco, CA 94107-1317

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

PLANS APPROVAL DATE 12-6-04
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SHEET NOTES:

- 1 Tie the underground duct bank #500 kcmil Bare Copper Wire (BCW) system grounding conductor to the W2E and W2W pier foundations. See W2 contract 04-0120C4 for limited scope of work.
- 2 Route the #250 kcmil grounding conductors around the W2W and connect to the new grounding rods. This grounding loop shall be exothermically connected to the #500 kcmil main ground conductor at the pier. This is typical for pier W2E.
- 3 Not used.
- 4 Main tower foundation ground conductors shall be routed vertically up to platform 53.85 m via 600V cable trays inside SW and NE tower quadrants and tied exothermically to the #500 kcmil main ground conductor.
- 5 Ground rod shall be copper clad, 19 mm diameter and 3048 mm long.
- 6 Bond all the cable trays to the ground loop at Tower elevation 13 m.
- 7 Install two grounding plates, Thermoweld Type CR-27 Cat. #38-4533-6B or equal (sized for #250 kcmil BCW with 305mm pigtail). Grounding plates shall be embedded at east face side of the pier E2 cap beam.
- 8 For connection of stub-up #250 kcmil BCW to grounding plates, see sheet E-22A.
- 9 See Detail 1, sheet E-22B for grounding installation through pier pit wall.
- 10 See Detail 2, sheet E-22B for grounding installation through pier pit wall.
- 11 Pier grounding system must be verified and tested for ground resistance prior to tie-in to #500 kcmil main ground conductor. Perform tests, by the fall-of-potential method according to IEEE-81. Contractor shall submit a test plan and procedure for Engineer's approval. Test results shall be submitted to the Engineer for evaluation and approval.

ORIGINAL SHEET SUPERCEDED

DETAILS UNDERGROUND FOUNDATION GROUNDING
 NO SCALE

REGISTERED PROFESSIONAL ENGINEER
 FADI WALIEDDINE No. 11465 Exp. 12/31/2009 ELECTRICAL STATE OF CALIFORNIA

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

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CU 04251

EA 0120F1

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DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9		106 R3	1204

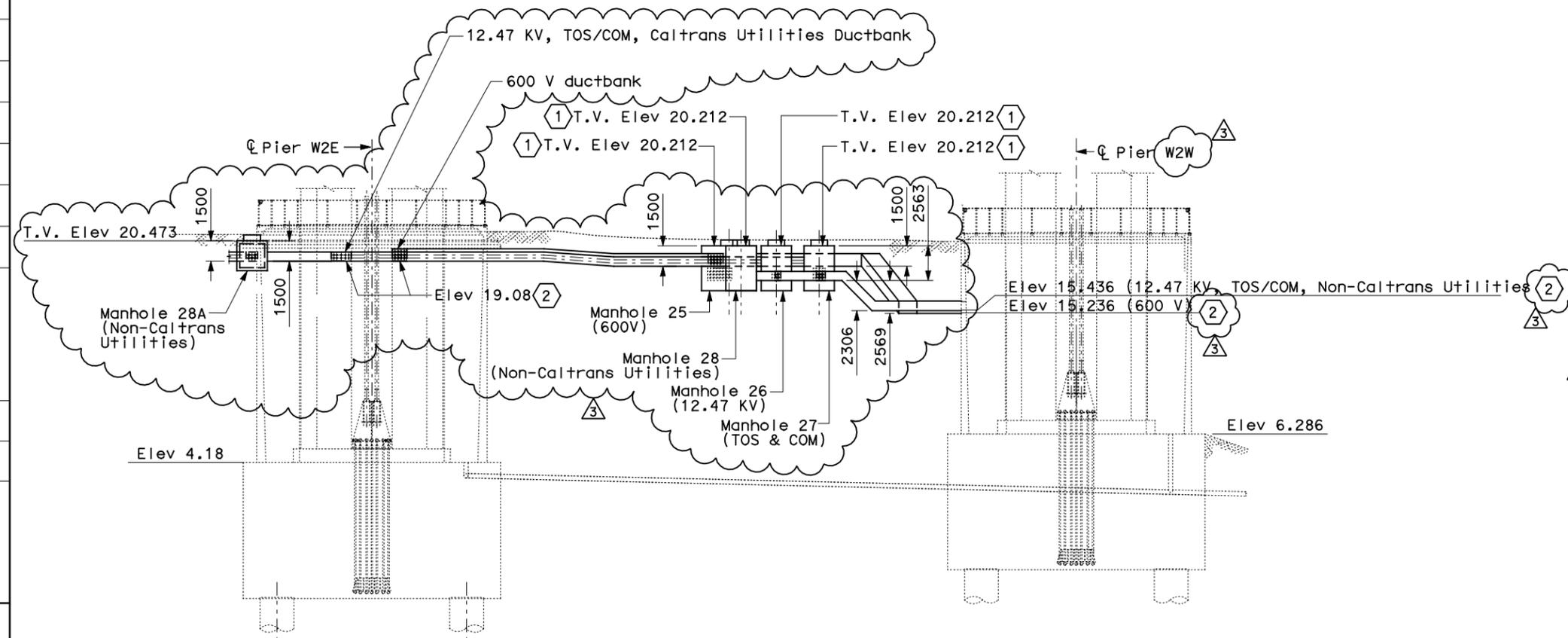
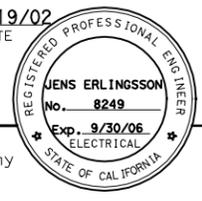
JENS ERLINGSSON 12/19/02
 REGISTERED ELECTRICAL ENGINEER DATE

12-6-04
 PLANS APPROVAL DATE

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

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SECTION A-A
(Reference E-11)
SCALE 1:200

- SHEET NOTES:**
- Contractor to verify finished grade and may make necessary adjustment to the specified top of manhole elevations and ductbanks to suit field condition.
 - Specified elevations are for breakout openings on Pier columns. See structure plan sheets.

- NOTES:**
- References:
 - For duct banks and sections, see sheet E-11.
 - For typical manhole and duct bank details, see sheet E-17
 - For duct bank sections see sheet E-19
 - For pier W2W sections and plans, see sheet E-20F
 - For pier W2E sections and plans, see sheet E-21F
 - For circuit and conduit/cable tray schedules, see sheets starting at E-401.
 - For other related work, not shown on this sheet, see Electrical Special Provisions.

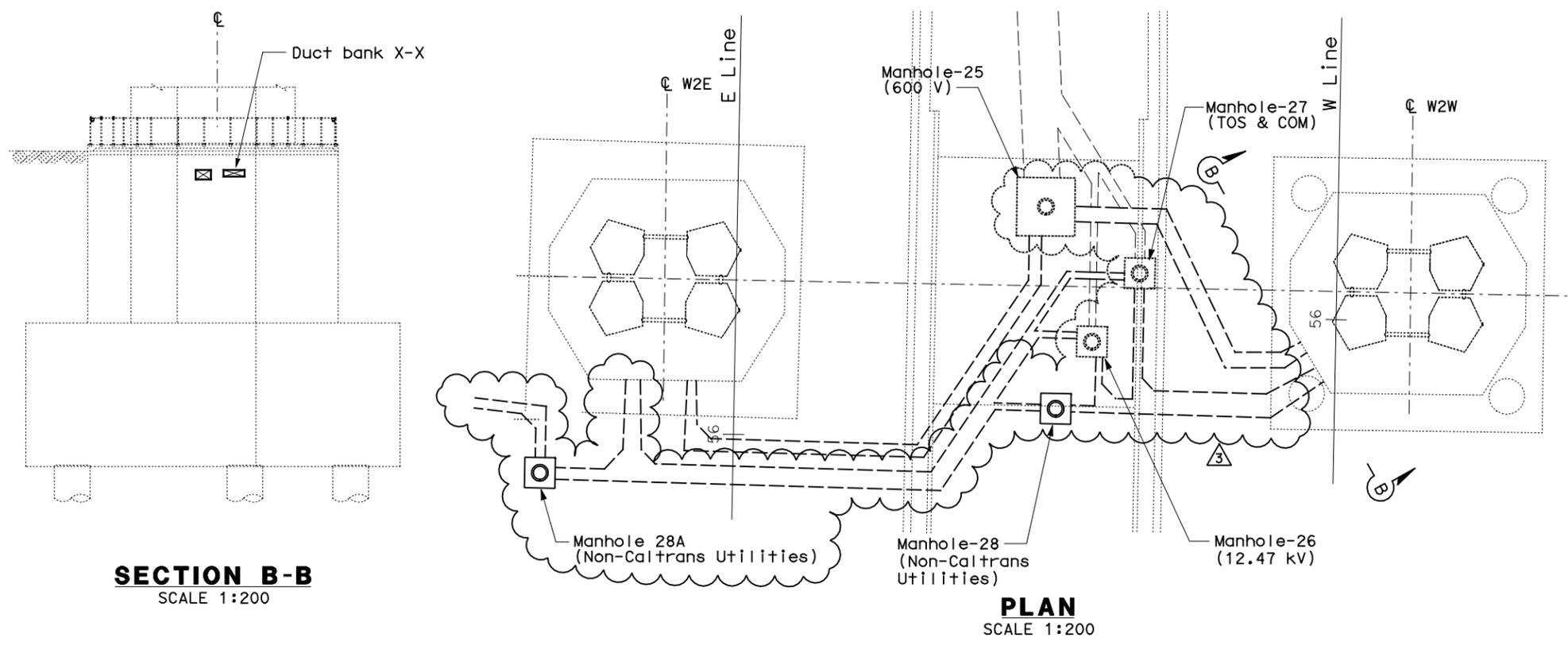
ABBREVIATION:
T.V. - Top of Vault

 FOR REVISION ONLY 3	 FOR REVISION ONLY 1	 FOR REVISION ONLY 2
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REQUEST FOR INFORMATION NOT ADDRESSED IN THIS CCO REMAIN IN FORCE				
MARK	DATE	DESCRIPTIONS	BY	CH'D CCO#
3	08/08/11	W2 DUCT BANKS REINFORCEMENT	RR	RG 205
2	11/20/09	ELECTRICAL GROUNDING	RR	RG FW 75
1	02/25/08	CABLE TRAY CHANGES	TW	SE 42S1
REVISIONS				

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

DETAILS UNDERGROUND DUCT BANK SECTIONS
SCALE 1:200



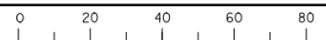
PLAN
SCALE 1:200

SECTION B-B
SCALE 1:200

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