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Substation #1

Substation #2

Substation #3

8632

8620

8633

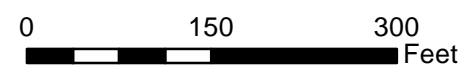


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- Access Control (TWIC)
- Access Control System
- Barrier Control Panel
- Gate
- Intercom
- Other
- Turnstile
- Communication Vaults
- Communication Huts
- Cabinet
- FOB
- Junction Box
- Other
- Pullbox/Handhole
- Unknown
- Wireless Access Points
- Cameras
- AFO
- BFO
- Copper
- Unknown
- Asset Areas
- Power Capacitor
- Power Generator
- Power Junction
- Power Lights
- Power Poles
- Power Services
- Power Substation
- Power Switch
- Power Transformer
- Power UPS
- Overhead Powerlines
- Underground Powerlines

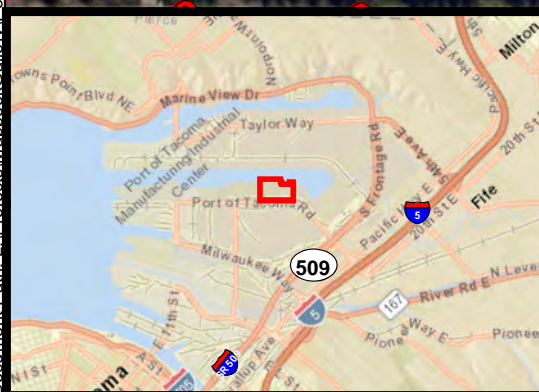
Port Parcel: = 25 North
Asset ID: = 8620, 8632, 8633

AUTHOR: Brian Archer
2/13/2019



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Document Path: L:\Projects\MapbookGallery\Power&Fiber_Mapbook.mxd

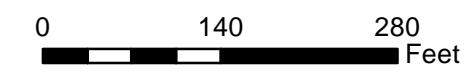


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- | | | | | |
|-----------------------|----------------------|------------------------|-----------------|------------------------|
| Access Control (TWIC) | Communication Vaults | Wireless Access Points | Power Capacitor | Power Substation |
| Access Control System | Communication Huts | Cameras | Power Generator | Power Switch |
| Barrier Control Panel | Cabinet | AFO | Power Junction | Power Transformer |
| Gate | FOB | BFO | Power Lights | Power UPS |
| Intercom | Junction Box | Copper | Power Poles | Overhead Powerlines |
| Other | Other | Unknown | Power Services | Underground Powerlines |
| Turnstile | Pullbox/Handhole | Asset Areas | | |
| | Unknown | | | |

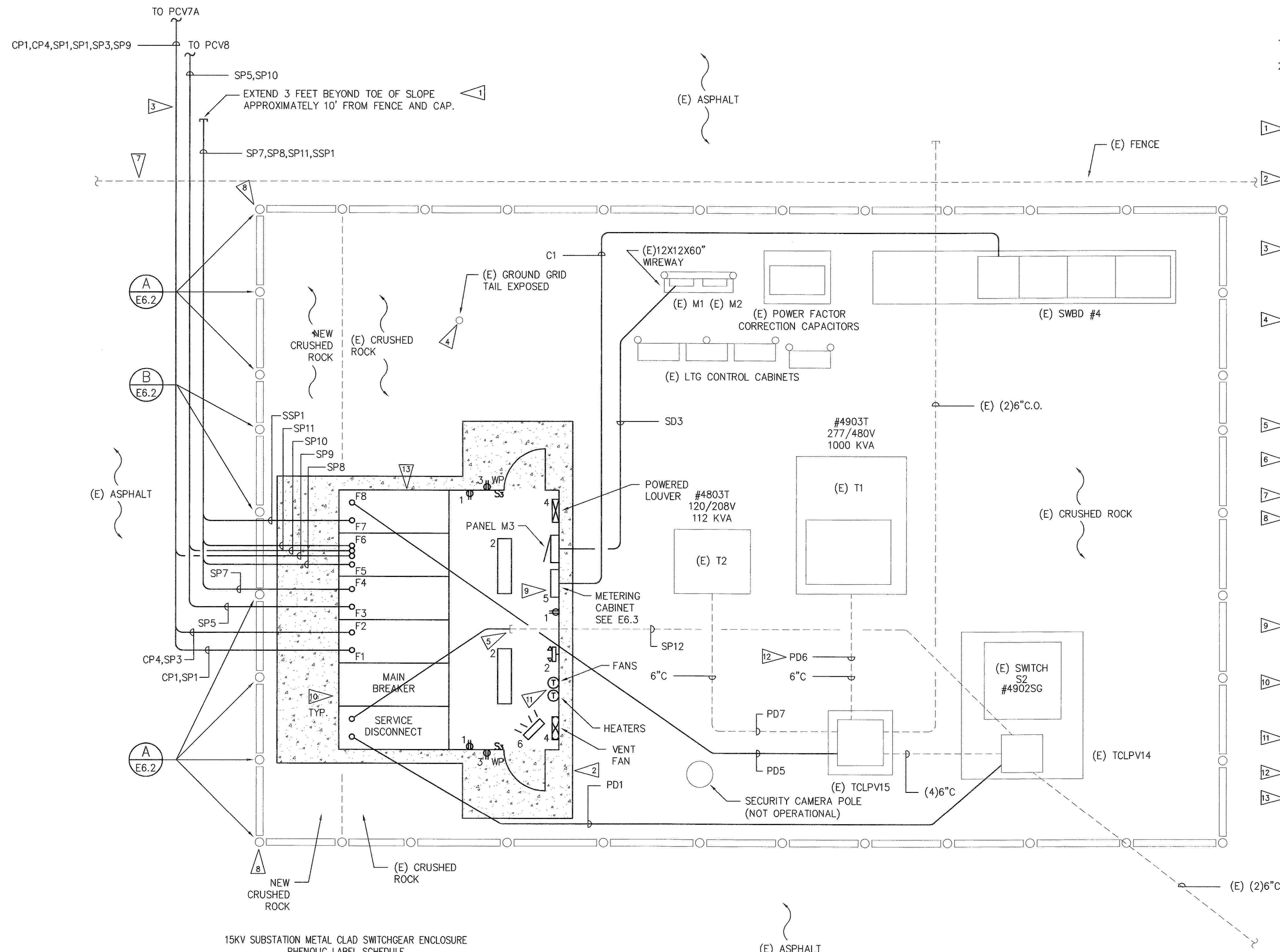
Port Parcel: = 25 Middle
Asset ID: = 8620, 8631, 8633

AUTHOR: Brian Archer
 2/13/2019



46

BINDING EDGE



15KV SUBSTATION METAL CLAD SWITCHGEAR ENCLOSURE
PHENOLIC LABEL SCHEDULE

- M1 = MAIN BREAKER
- F1 = CRANE 5
- F2 = CRANE 6
- F3 = FUTURE CRANE
- F4 = FUTURE CRANE
- F5 = FUTURE CRANE
- F6 = FUTURE CRANE
- F7 = FUTURE SHORE TO SHIP
- F8 = TRANSFORMERS T1 & T2

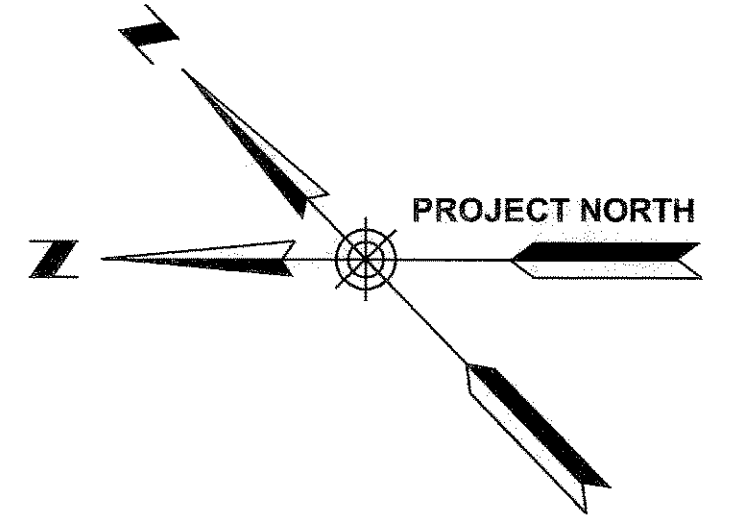
EXISTING/NEW SUBSTATION #4 LAYOUT PARTIAL PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES:

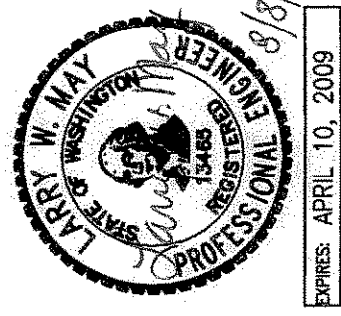
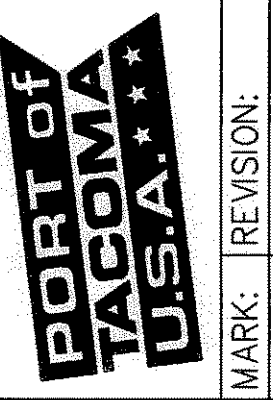
1. SEE CONDUIT AND WIRE SCHEDULE DRAWING E7.0.
2. FOR CONTINUATION OF CONDUITS AND CONDUCTORS SEE PARTIAL ELECTRICAL SITE PLAN DRAWING E2.1.

ELECTRICAL NOTES:

1. CAP CONDUITS APPROXIMATELY 10' BEYOND FENCE AND MARK WITH 24" METAL ROD AND 3/4" X 3" ROUND STEEL PLATE AT TOP OF BASE COURSE BELOW ASPHALT FOR FUTURE LOCATE.
2. CONCRETE HOUSEKEEPING SLAB WITH STEEL REINFORCING. 9" THICK SLAB WITH #4 REBAR AT 6" ON CENTERS EACH WAY AT SLAB MID DEPTH. PROVIDE POWER DISTRIBUTION SWITCHGEAR ENCLOSURE. COORDINATE FOOTPRINT OF SLAB WITH ELECTRICAL EQUIPMENT SUBMITTALS PRIOR TO POURING CONCRETE.
3. TRENCH IN ASPHALT OUTSIDE OF HANDRAIL. ASPHALT IS APPROXIMATELY 9" THICK. THERE ARE EXISTING CONDUIT/DUCTBANKS IN THIS AREA. LOCATE EXISTING UNDERGROUND UTILITIES AND PROTECT THEM DURING CONSTRUCTION. SOME HAND DIGGING CAN BE EXPECTED.
4. SUBSTATION #4 HAS A 48" X 48" GROUND GRID OF #2/0 BARE STRANDED COPPER DOWN 18". BOND METAL BUILDING, NEW AND RELOCATED BOLLARDS, NEW SWITCHGEAR, AND STEEL REINFORCING IN HOUSEKEEPING SLAB WITH #2/0 COPPER TO EXISTING GROUND GRID USING EXOTHERMIC WELDS BELOW GRADE AND HYPRESS LUGS ABOVE GRADE. RESTORE ANY GROUND GRID OR STANCHION BONDS DAMAGED DURING CONSTRUCTION. TRENCHING IN SUBSTATION #4 WILL REQUIRE CUTTING AND SPLICING OF GROUND GRID.
5. DIG UP EXISTING SPARE 6" CONDUIT AND REDIRECT AND EXTEND IT TO SWITCHGEAR MAIN COMPARTMENT.
6. PROVIDE BLOCK-OUTS IN SLAB UNDER EACH SWITCHGEAR UNIT BASED ON FLOOR CUT-OUTS PROVIDED WITH EQUIPMENT SUBMITTALS.
7. REMOVE AND REPLACE 3 SECTIONS OF FENCE OVER DUCTBANK.
8. REMOVE NORTH END OF SUBSTATION RAILING. REMOVE EXISTING PAVING AND PROVIDE 5/8" CRUSHED ROCK BASE (MIN. 4") TO FLUSH WITH YARD PAVING. EXTEND #2/0 CU GROUND GRID INTO NEW YARD AREA. PROVIDE NEW BOLLARD AND NEW 6 FOOT RAIL SECTION ON NORTH END OF EAST AND WEST RAILING. REINSTALL NORTH RAILING BETWEEN NEW BOLLARDS. REPAINT ALL EXISTING GUARD POSTS AND HANDRAILS SAFETY YELLOW. PROVIDE FIXED AND REMOVABLE BOLLARDS PER DETAILS ON DRAWING E6.2.
9. METERING CABINET TO BE FIELD INSTALLED. POWER DISTRIBUTION SWITCHGEAR ENCLOSURE MANUFACTURER TO COORDINATE AND PROVIDE BRACING FOR WALL MOUNTING IN FIELD. CONTRACTOR TO PROVIDE POWER WIRING AND METER WIRING IN FIELD.
10. BACK WALL OF BREAKERS AND MAIN DISCONNECT SWITCH SHALL BE ACCESSIBLE FROM THE EXTERIOR VIA WEATHERPROOF DOORS WITH MULTI-POINT LATCHES AND PADLOCK PROVISIONS FOR INSTALLATION AND MAINTENANCE OF CABLES AND CONNECTIONS
11. SET FAN THERMOSTAT TO COME ON AT 80°F AND ABOVE. SET HEATER THERMOSTAT TO COME ON AT 42°F AND BELOW.
12. PD5, PD6 AND PD7 ARE PART OF ADDITIVE BID ALTERNATE #1.
13. 15KV METALCLAD SWITCHGEAR IN A WALK-IN POWER DISTRIBUTION SWITCHGEAR ENCLOSURE PROVIDED WITH 120/208V ELECTRICAL PANEL, FAN AND LOUVER. PROVIDE UNIT HEATER, LIGHT FIXTURE(S), LIGHT SWITCHES, RECEPTACLES AND THERMOSTATS. CONDUIT AND WIRE TO THESE ITEMS ARE NOT SHOWN ON PLAN. PROVIDE CIRCUITING AS SHOWN IN SURFACE MOUNTED EMT, 3/4" MINIMUM.



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LWM	8/4/08	CHECKED BY	DATE
GLV	8/4/08	PROJ. ENGR	DATE
APPROVED:		DATE	DATE
CHIEF ENGR	DATE	SCOTTK	Aug 08, 2008
PRINTED BY:		PORT ADDRESS: 1815 PORT OF TACOMA RD	
TACOMA, WA 98401-1837			

**WUT BERTH EXTENSION
CRANE POWER MODIFICATIONS
EXISTING SUBSTATION #4 LAYOUT**

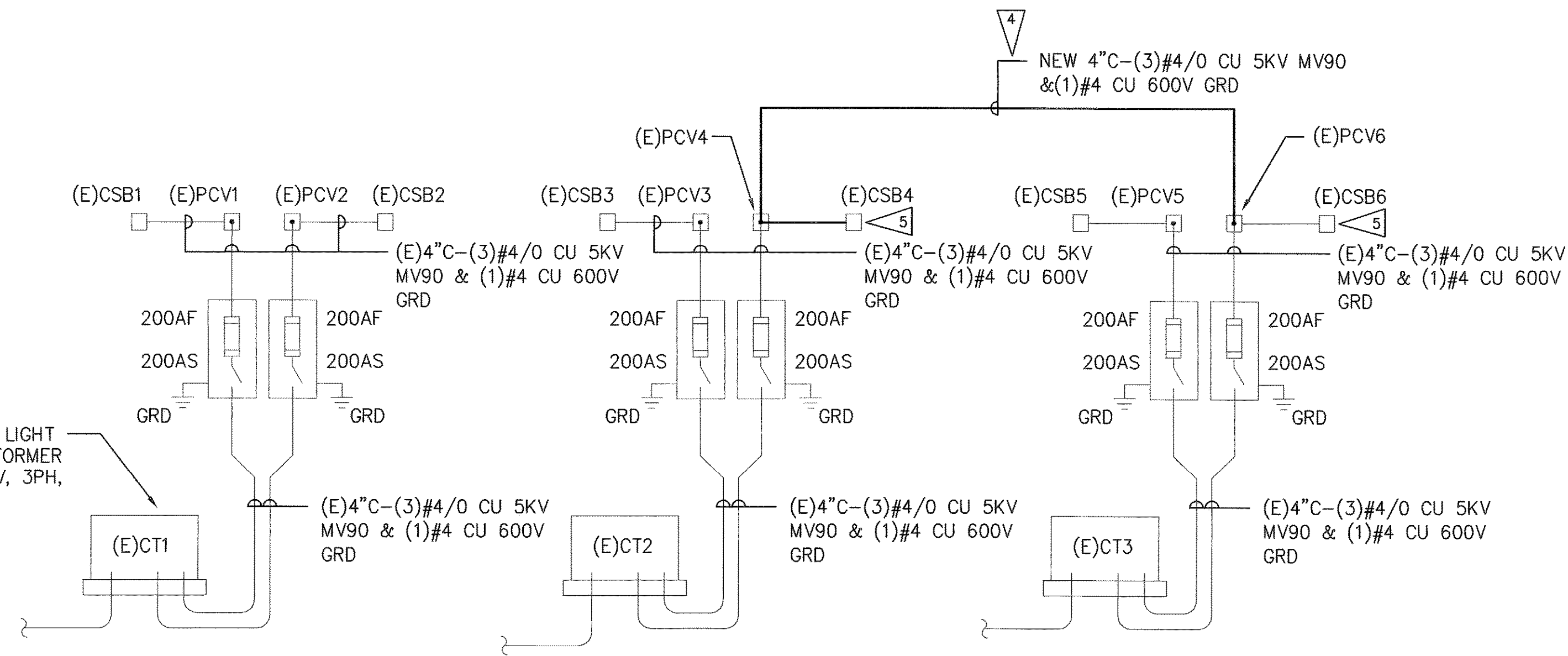
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DAT-HRZ:	NAD 83-07	VERT:	NDS TIDAL (M.L.L.W. = 0.0)		
PARCEL:	24 & 25	DRAWING SCALE:	AS SHOWN		
CONTRACT/CONS:	068061				
E. NUMBER:	E8023				
PHASE:	100% SUBMITTAL				

E4.1
SHEET 8 OF 16

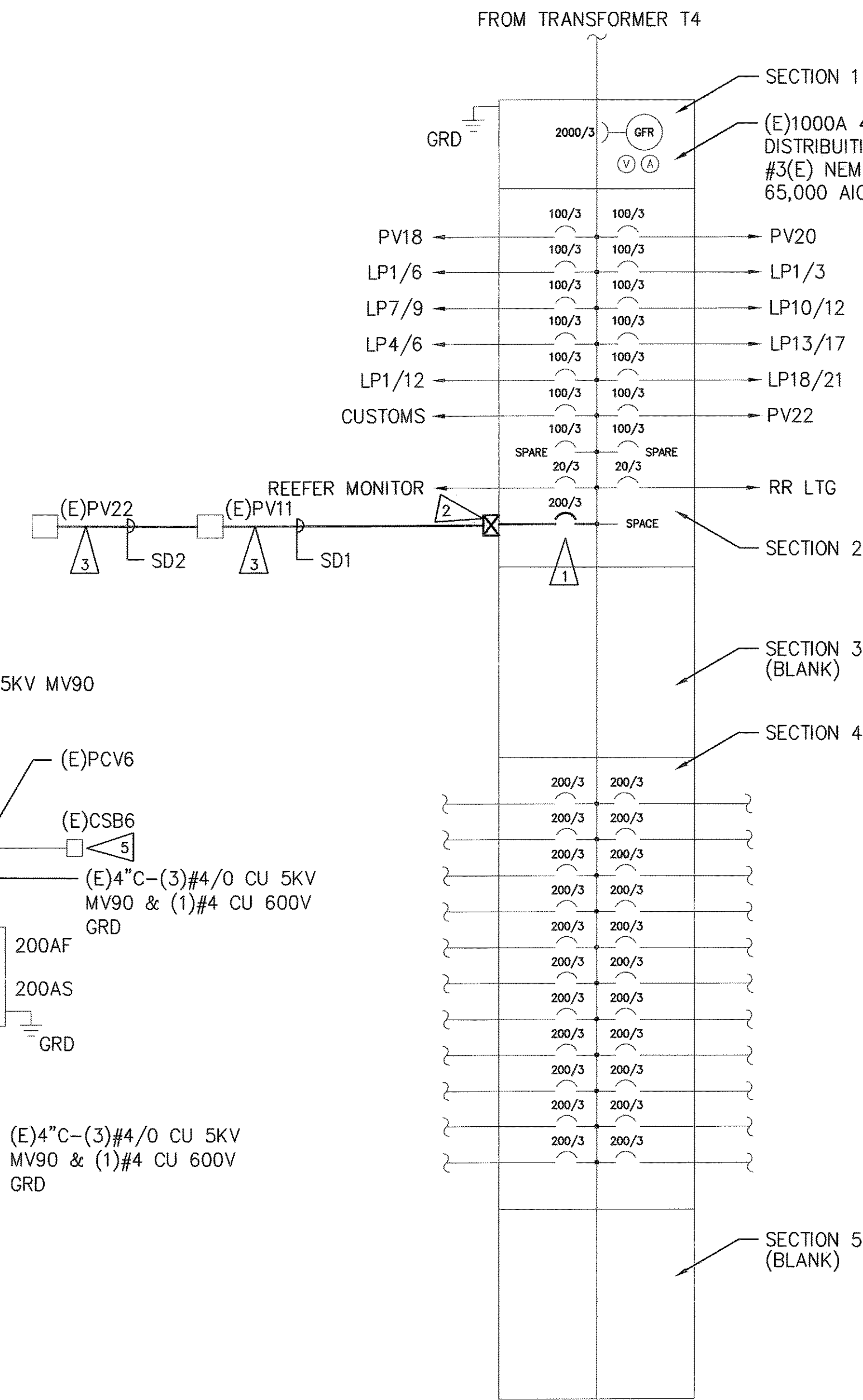
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FILE: J:\Jobs\2008c\08-007\Drawings\08-007-E41

CT1, CT2, CT3: TACOMA CITY LIGHT 2500 KVA PADMOUNT TRANSFORMER 13.8KV, 3PH, DELTA TO 4160V, 3PH, 4W, WYE.



EXISTING 5KV POWER RISER DIAGRAM NO SCALE



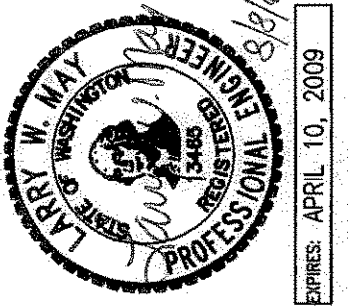
EXISTING SUBSTATION #3 480V SWITCHBOARD #3 PARTIAL POWER RISER DIAGRAM NO SCALE

ELECTRICAL NOTES:

- 1 PROVIDE NEW 200A 3 POLE CIRCUIT BREAKER IN SWITCHBOARD #3 SECTION 2 BELOW EXISTING BREAKERS. SIEMENS #HFD63B200. PROVIDE MOUNTING HARDWARE KIT AND FILLER PLATE. CONTACT DON ASKINS, (425)-507-4787
2 PROVIDE 200A 3 POLE CONTACTOR ON EXTERIOR OF SWITCHBOARD AND LOOP NEW 200A CIRCUIT THRU CONTACTOR. PROVIDE 5 #10 CONTROL WIRES FROM CONTACTOR THRU EXISTING SPARE CONDUITS TO PV11 AND PV22. SEE RECEPTACLE CONTROL DIAGRAM DRAWING E6.2.
3 PROVIDE NEW POWER AND CONTROL CONDUCTORS IN EXISTING CONDUIT TO EXISTING POWER VAULTS PV11 AND PV22. SEE CONDUIT AND CONDUCTOR SCHEDULE ON DRAWING E7.0.
4 5KV CABLES TO BE REMOVED FROM PCV6 TO CSB6, FROM PCV5 TO CSB5 AND FROM PCV4 TO CSB4. IN ORDER TO KEEP TRANSFORMER CT3 ACTIVE, A NEW JUMPER WILL PROVIDE 5KV POWER FROM PCV6 TO CRANE 4 AT CSB4.
5 RELOCATION OF CRANE #4 TRAILING CABLE TO BE PROVIDED BY PORT OF TACOMA.

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general@hultzbross.com Job Number: 08-007

PORT OF TACOMA U.S.A.
MARK: REVISION: BY: APPR: DATE:



LWM 8/4/08 CHECKED BY DATE
GLV 8/4/08 PROJ. ENGR DATE

APPROVED: Jim N. Aug 08, 2008
CHIEF ENGR DATE
PRINTED BY: Jim N. Aug 08, 2008

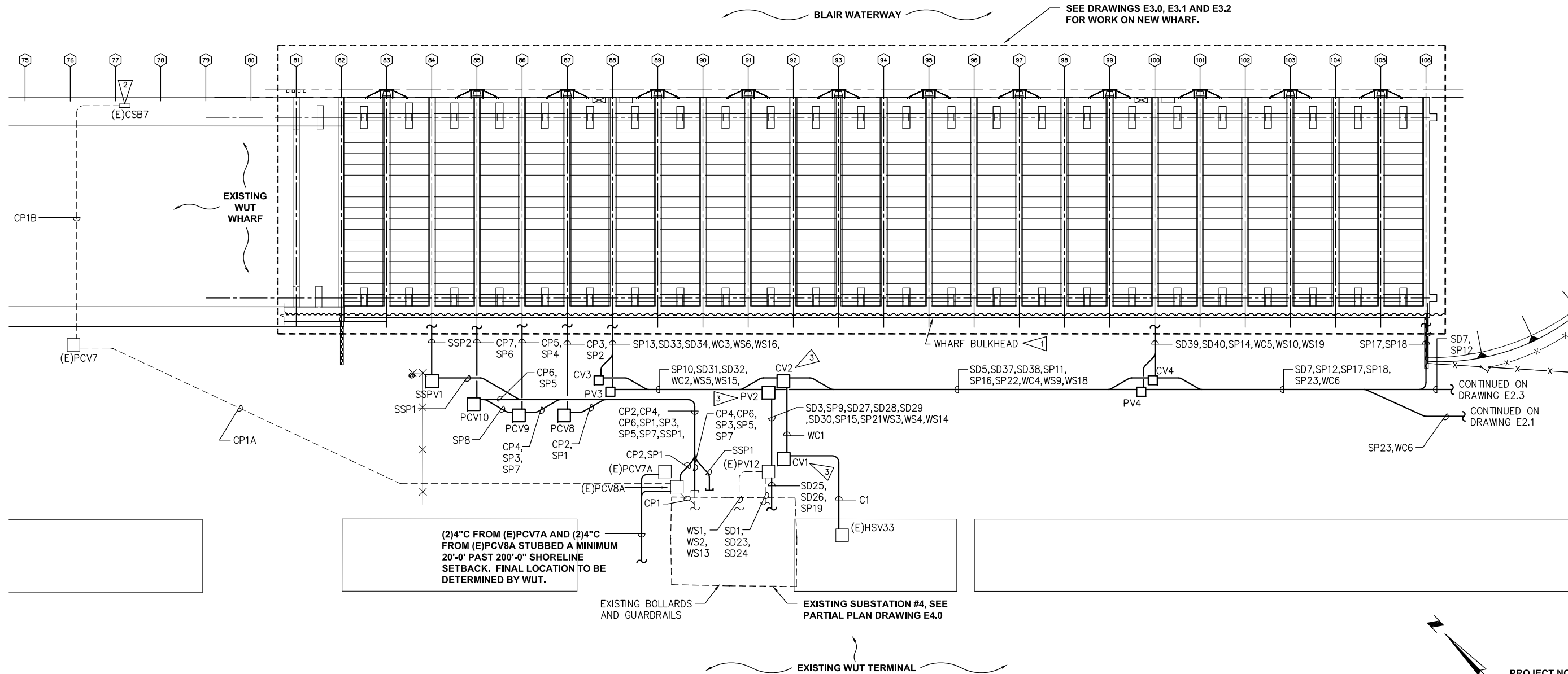
WUT BERTH EXTENSION CRANE POWER MODIFICATIONS EXISTING SUBSTATION #3 POWER RISER DIAGRAM
TOWNSHIP: 21 N RANGE: 3 E SECTION: SE 1/4 35
DAT-HRZ: NAD 83-07 VERT: NDS TIDAL MLLW = 0.0
PARCEL: 24 & 25 DRAWING SCALE: AS SHOWN

E5.2 SHEET 11 OF 16
CONT/CONS: 068061
E. NUMBER: E8023
PHASE: 100% SUBMITTAL

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ELECTRICAL NOTES:

- 1 CONTRACTOR SHALL INSTALL ALL NEW VAULTS AND CONDUIT AFTER STONE COLUMNS HAVE BEEN PLACED TO AVOID CONFLICTS WITH PLACEMENTS. NEW VAULTS SHALL BE INSTALLED A MINIMUM 30' FROM WHARF BULKHEAD TO AVOID STONE COLUMNS.
- 2 CONTRACTOR SHALL PROVIDE (3)2-WAY 15KV LOAD BREAK JUNCTIONS ON EXISTING CSB7 VAULT WALL. CONTRACTOR SHALL PROVIDE AND INSTALL GROUND MONITOR (STARTCO SE-134C) TO MATCH EXISTING GROUND MONITORS. VERIFY EXACT MANUFACTURER AND MODEL NUMBER PRIOR TO ORDERING. THIS WORK IS PART OF BID ALTERNATE #3.
- 3 CONTRACTOR SHALL INSTALL PORT PROVIDED POWER/COMM. VAULTS. SEE SPECIFICATION SECTION 01 10 00, PARAGRAPH 1.07, C FOR ADDITIONAL INFORMATION.



PARTIAL NEW ELECTRICAL SITE PLAN
SCALE: 1"=30'-0"

SEE DRAWINGS E3.0, E3.1 AND E3.2 FOR WORK ON NEW WHARF.



APPROVED:	SLH	9/30/2013
CHECKED BY:	GLW	9/30/2013
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DATE:	SCOTT K. SEP	DATE
PRINTED BY:	SCOTT K. SEP	DATE
PORT ADDRESS:	1815 PORT OF TACOMA RD	TACOMA, WA 98401-1837

WUT BERTH EXTENSION	TOWNSHIP:	21 N	RANGE:	3 E	SECTION:	SE 1/4 35
PARTIAL NEW ELECTRICAL SITE PLAN	DATE-HRZ:	NAD: 83-07	VERT:	NIS TIDAL (MLLW = 0.0)	DRAWING SCALE:	AS SHOWN
	TACOMA, WA 98401-1837					

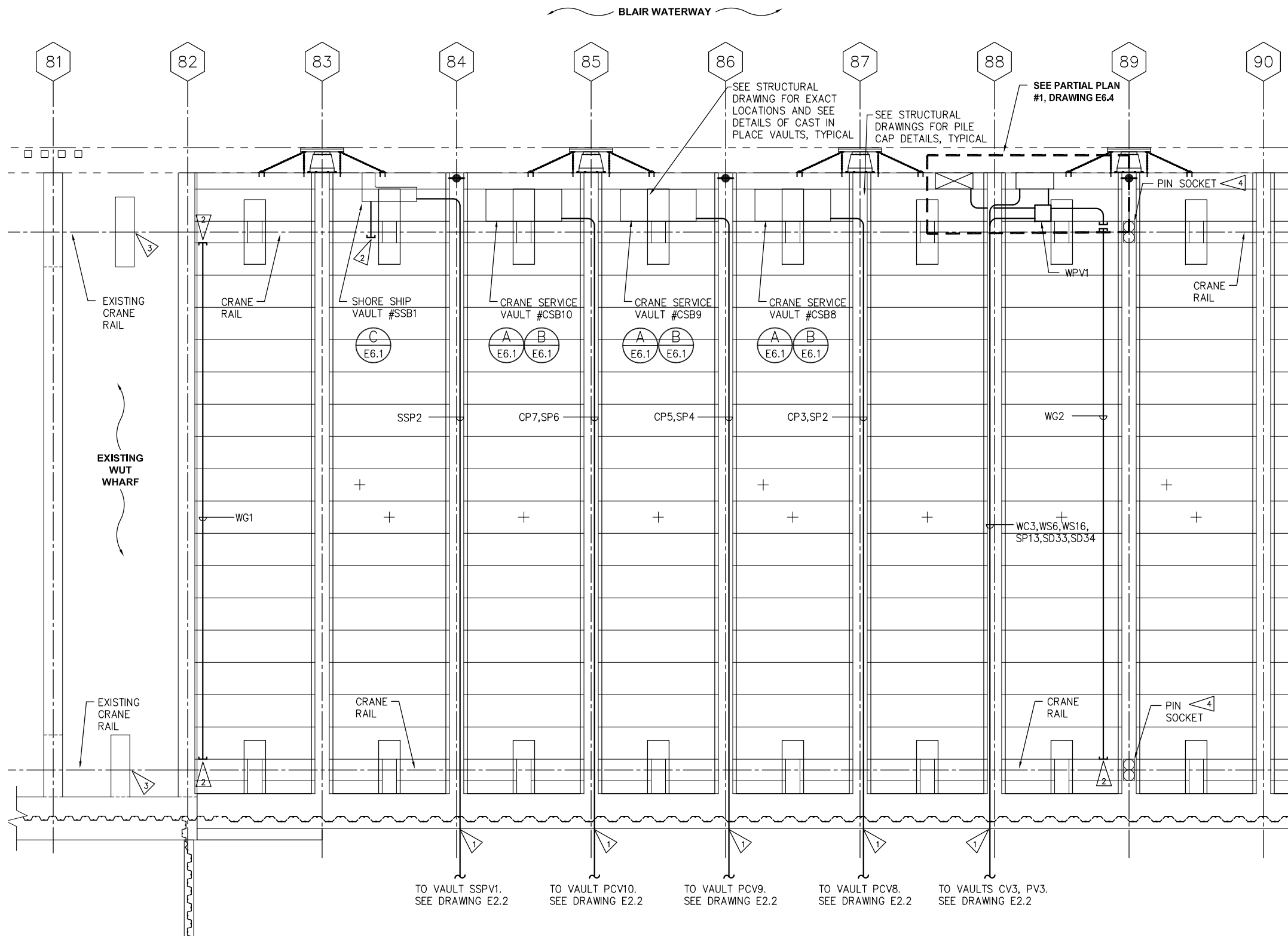
6345	E2.2
SHEET 162 OF 179	
CONT/CONS:	068064
E. NUMBER:	E8022
PHASE:	RECORD

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10000 University Blvd
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Phone: (253) 863-8841
Fax: (253) 863-8842
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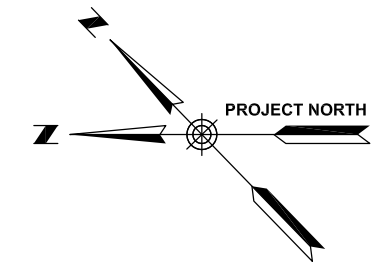
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1	RECORD DRAWINGS	SJK	9/30/2013
	APPR:	GLW	



PARTIAL ELECTRICAL WHARF PLAN
SCALE: 3/32"=1'-0"

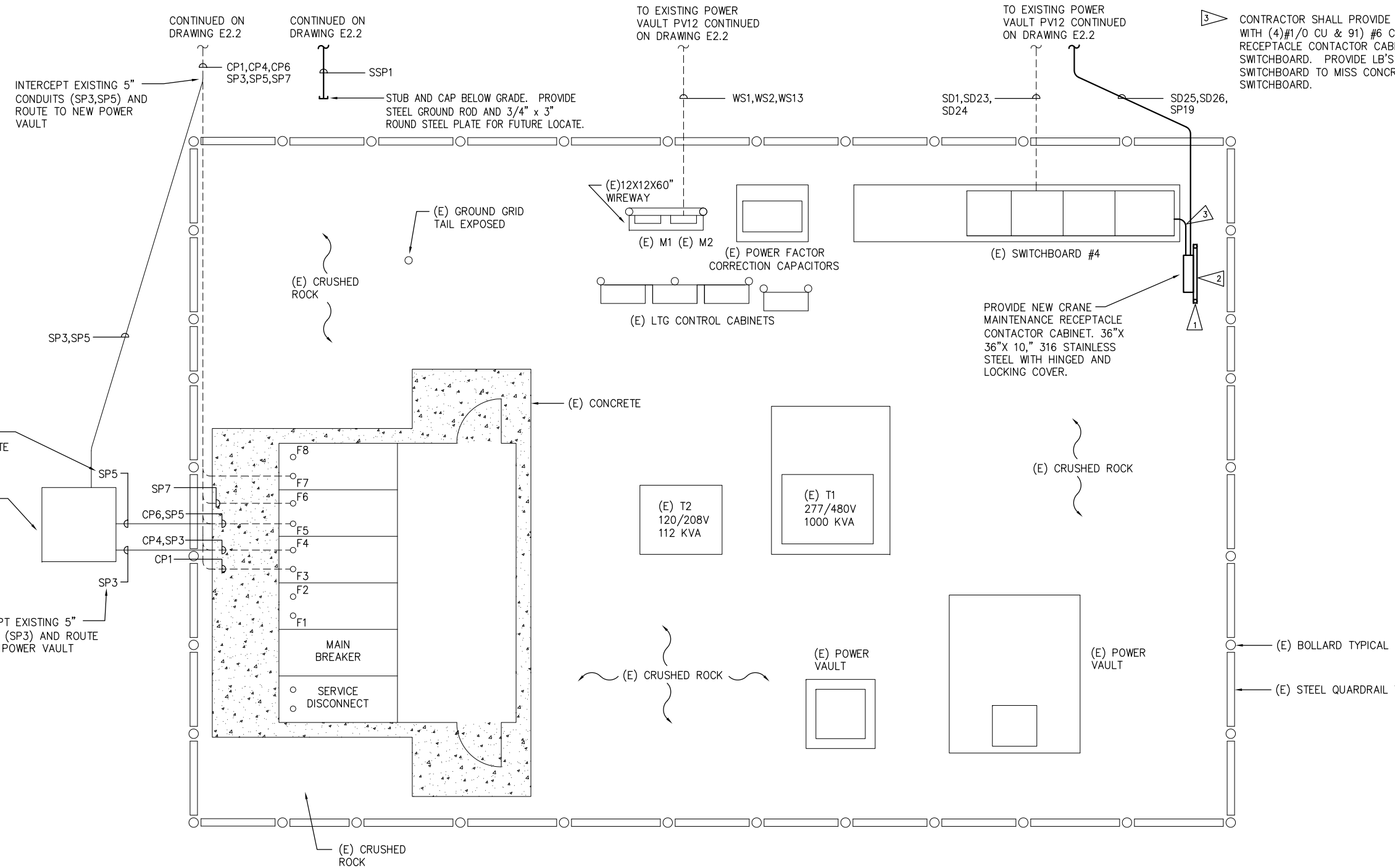
ELECTRICAL NOTES:

- 1 CONTRACTOR SHALL PROVIDE CONDUIT DEFLECTION AND EXPANSION COUPLINGS AT TRANSITION BETWEEN WHARF AND SITE FOR ALL CONDUITS. SEE DETAIL C, DRAWING E6.0.
- 2 CONTRACTOR SHALL PROVIDE EXOTHERMIC WELD FOR GROUND WIRE CONNECTION AT CRANE RAILS. SEE STRUCTURAL DRAWINGS FOR CRANE RAIL DETAIL.
- 3 CONTRACTOR SHALL PROVIDE #4 CU GROUND FROM EXISTING CRANE RAIL TO NEW CRANE RAIL AT TRANSITION BETWEEN NEW AND EXISTING WHARF. GROUND WIRE SHALL BE EXOTHERMICALLY WELDED AT EACH LOCATION.
- 4 CONTRACTOR SHALL PROVIDE 3/4" PVC SCHEDULE 80-(1)#4 CU GROUND FROM CRANE RAIL TO EACH CRANE PIN SOCKET AND CRANE CABLE SLOTS. PROVIDE EXOTHERMIC WELD FOR GROUND WIRE CONNECTIONS. SEE STRUCTURAL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT. FIELD COORDINATE CONDUIT AND CABLE ROUTING, SLEEVES, SAWCUTTING REQUIREMENTS AND CONNECTIONS.

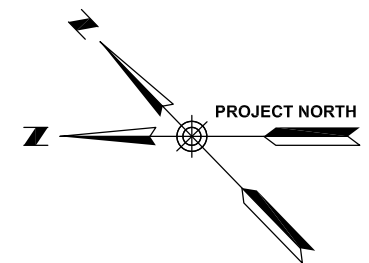


	PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)863-8841 CROSS ENGINEERS, INC. 10000 1st Avenue Tacoma, WA 98401 Phone: (253) 863-8841 Fax: (253) 863-8842 www.crossengineers.com
	SLH 9/30/2013 CHECKED BY DATE GLW 9/30/2013 PROJ. ENGR DATE Sotek Sep 27, 2013 PORT ADDRESS: 1815 PORT OF TACOMA RD TACOMA, WA 98401-1837
WUT BERTH EXTENSION PARTIAL ELECTRICAL WHARF PLAN	APPROVED:
CONT/CONS: 068064 E. NUMBER: E8022 PHASE: RECORD	TOWNSHIP: 21 N RANGE: 3 E SECTION: SE 1/4 35 DAT-HRZ: NAD 83-07 VERT: NIS TIDAL (MLLW = 0.0) PARCEL: 24 & 25 DRAWING SCALE: AS SHOWN
6345 E3.0 SHEET 164 OF 179	MARK: REVISION: BY: APPR: DATE: 1 RECORD DRAWINGS SJK GLW 9/30/2013

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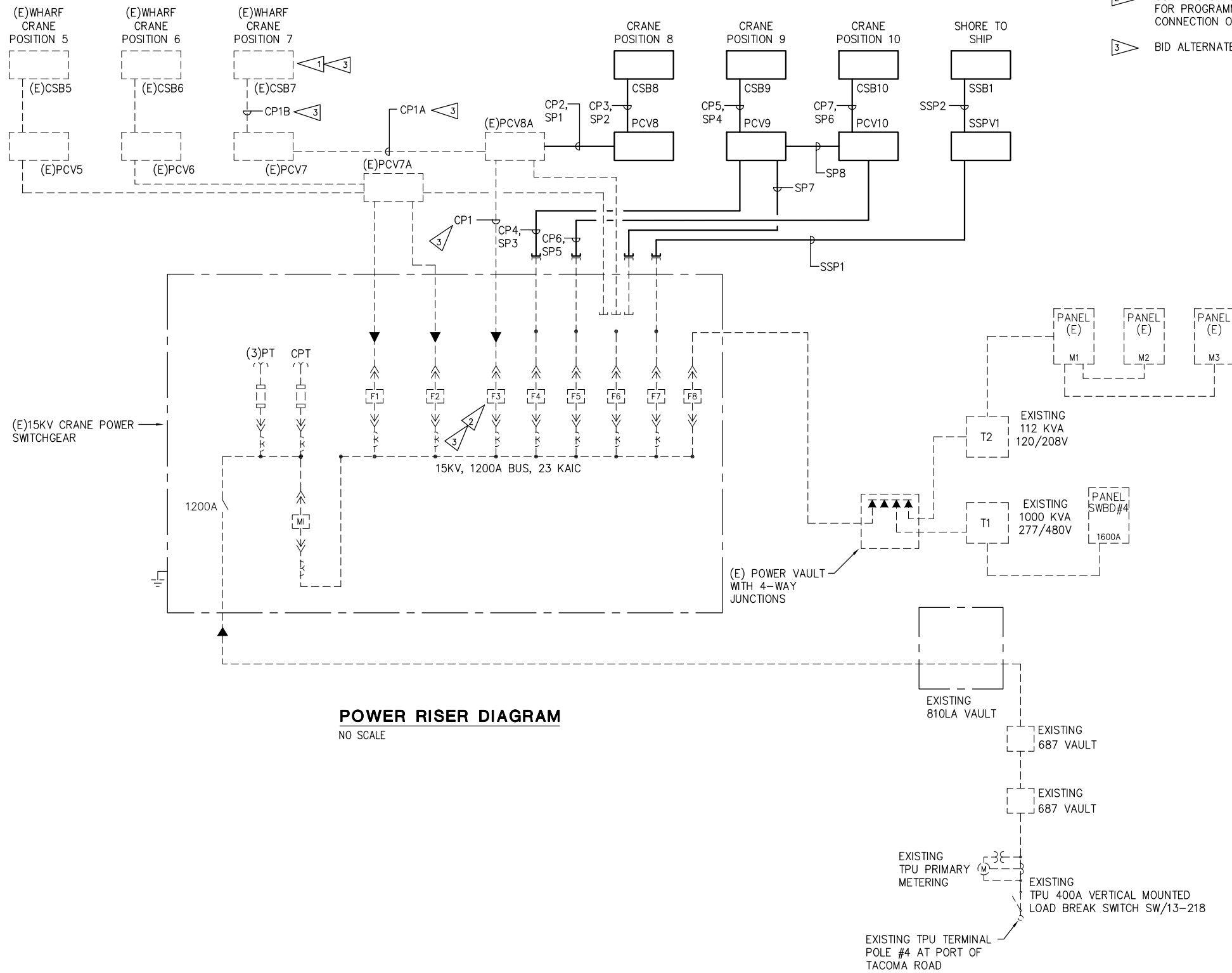
EXISTING SUBSTATION #4 LAYOUT PARTIAL PLAN
 SCALE: 1/4"=1'-0"



ELECTRICAL NOTES:

- 1 PROVIDE 8'-0" SECTION OF 3" PVC COATED RIGID GALVANIZED STEEL CONDUIT WITH THREADED END CAP. PROVIDE 9" DIAMETER X 3'-0" DEEP CONCRETE BASE AND EMBED 3'-0" BELOW FINISHED GRADE. TYPICAL OF TWO (2).
- 2 PROVIDE (3)1-5/8" FIBERGLASS STRUT EACH SIDE BETWEEN PVC COATED GALVANIZED RIGID STEEL CONDUITS FOR MOUNTING EQUIPMENT. PROVIDE STAINLESS STEEL MOUNTING HARDWARE FOR EQUIPMENT MOUNTING.
- 3 CONTRACTOR SHALL PROVIDE (2)2" PVC SCHEDULE 80 CONDUITS WITH (4)#1/0 CU & 91) #6 CU GRD FOR CRANE MAINTENANCE RECEPTACLE CONTACTOR CABINET TO EXISTING 480V SWITCHBOARD. PROVIDE LB'S OUT OF EXISTING 480V SWITCHBOARD TO MISS CONCRETE PAD BELOW EXISTING SWITCHBOARD.

 	PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-8841 CROSS ENGINEERS, INC. <small>10000 1st Avenue Tacoma, WA 98401 Phone: (253) 784-1177 Fax: (253) 784-1172 Job Number: 08072</small>
	SLH 9/30/2013 CHECKED BY DATE GLW 9/30/2013 PROJ. ENGR DATE SJK 9/30/2013 REVISION: DRAWINGS RECORD DATE DATE: 9/30/2013
WUT BERTH EXTENSION EXISTING SUBSTATION #4 LAYOUT	APPROVED:
6345 E4.0 SHEET 168 OF 179	CHIEF ENGR DATE SCOTT SEP 27, 2013 PORT ADDRESS: 1815 PORT OF TACOMA RD TACOMA, WA 98401-1837
CONT/CONS: 068064 E. NUMBER: E8022 PHASE: RECORD	TOWNSHIP: 21 N RANGE: 3 E SECTION: SE 1/4 35 DAT-HRZ: NAD: 83-07 VERT: NIS TIDAL (MLLW = 0.0) PARCEL: 24 & 25 DRAWING SCALE: AS SHOWN



POWER RISER DIAGRAM
NO SCALE

ELECTRICAL NOTES:

- 1 CONTRACTOR SHALL PROVIDE THREE (3) 2-WAY 15KV LOAD BREAK JUNCTIONS ON VAULT WALL.
- 2 CONTRACTOR SHALL PAY AND COORDINATE WITH SQUARE D FOR PROGRAMMING AND SET UP OF EXISTING METERING FOR CONNECTION OF NEW CRANE.
- 3 BID ALTERNATE #3 WORK.

LEGEND
 - - - - - EXISTING
 _____ NEW

6345 E5.0 SHEET 169 OF 179	WUT BERTH EXTENSION POWER RISER DIAGRAM		APPROVED:	SLH 9/30/2013 CHECKED BY DATE GLW 9/30/2013	CHIEF ENGR DATE PRINTED BY: Scot K Sep 27, 2013 PORT ADDRESS: 1815 PORT OF TACOMA RD TACOMA, WA 98401-1837
	CONT/CONS: 068064 E. NUMBER: E8022 PHASE: RECORD	RANGE: 3 E SECTION: SE 1/4 35 TOWNSHIP: 21 N DAT-HRZ: NAD 83-07 VERT: NIS TIDAL (MLLW = 0.0)	DRAWING SCALE: AS SHOWN PARCEL: 24 & 25	REVISION: 1 RECORD DRAWINGS	BY: SJK DATE: 9/30/2013

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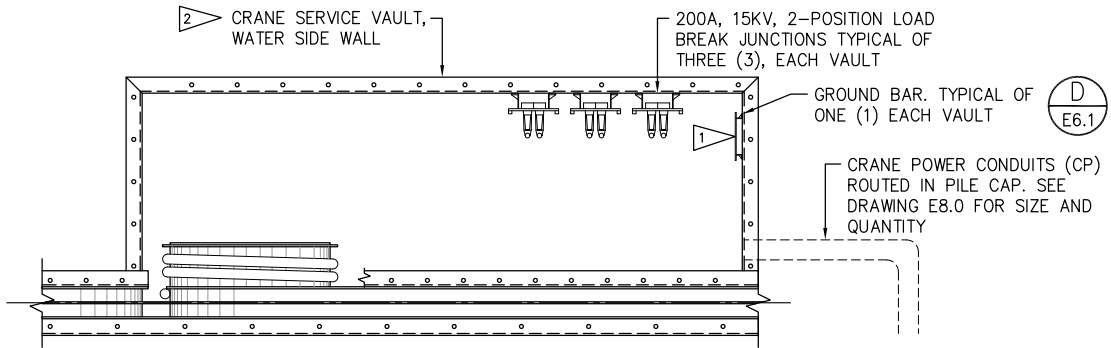
STEVEN L. HUBBS
REGISTERED PROFESSIONAL ENGINEER
STATE OF WASHINGTON
LICENSE NO. 18000

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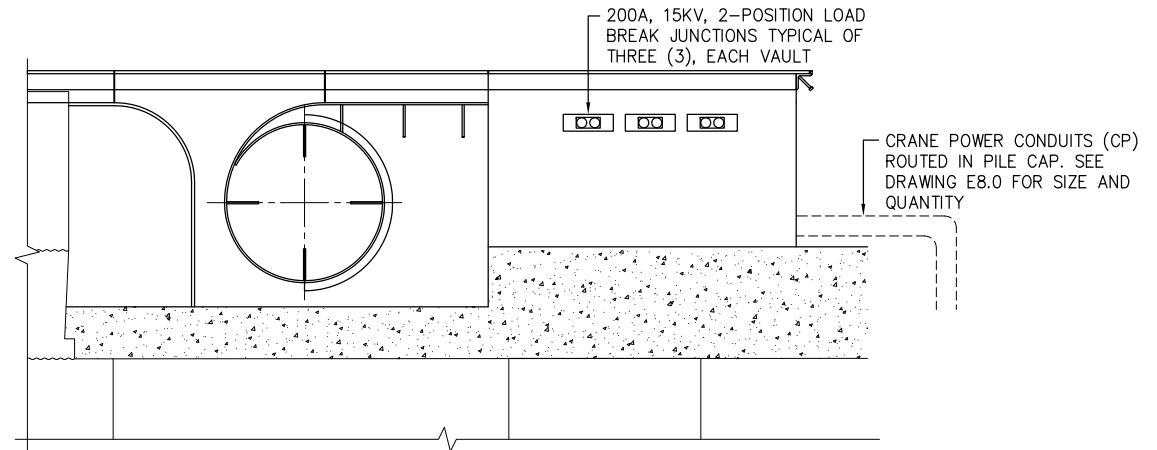
ELECTRICAL NOTES:

1 CONTRACTOR SHALL PROVIDE #4 BARE COPPER GROUND WIRE BETWEEN GROUND BAR(S) AND TO ALL METAL PARTS (CABLE DRAWN, FUNNEL BOTTOM, LIDS, FRAMES, LOAD BREAK JUNCTIONS, GROUND STUDS, ETC.) IN VAULT. CADWELD GROUND WIRE(S) TO ALL METAL PARTS WHERE GROUND STUDS OR HOLES FOR BOLTING GROUND WIRE(S) IS NOT AVAILABLE. ATTACH GROUND WIRE(S) ROUTED IN VAULT TO VAULT CABLE RACKS WITH PLASTIC TIE WRAPS. SEE STRUCTURAL DETAILS FOR GROUND STAB LOCATIONS.

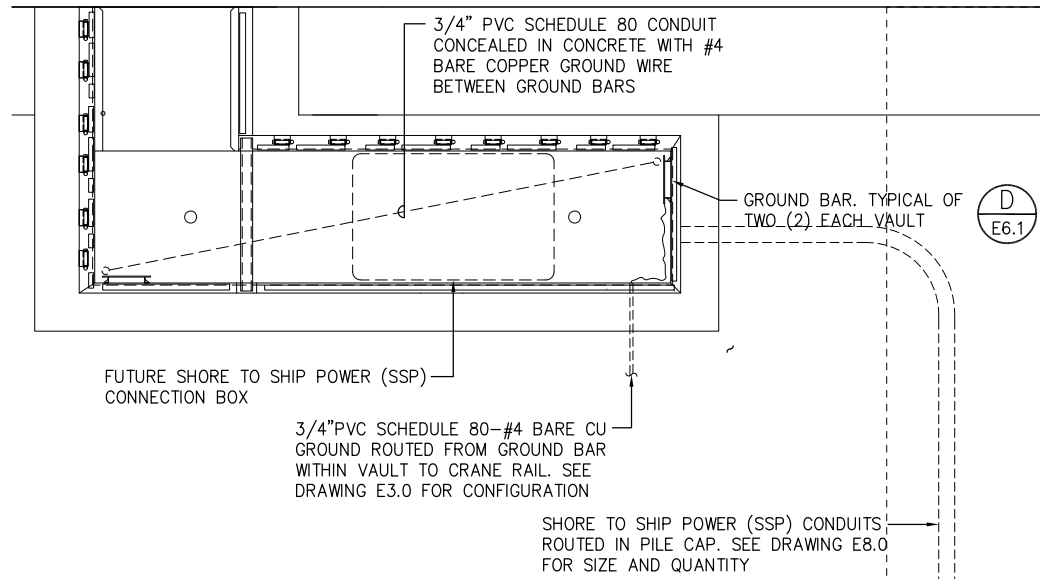
2 CONTRACTOR SHALL PROVIDE FIBERGLASS CABLE RACK WITHIN VAULT FOR MOUNTING ELECTRICAL EQUIPMENT. PROVIDE FIBERGLASS OR STAINLESS STEEL MOUNTING HARDWARE TO ATTACH FIBERGLASS CABLE RACKS TO VAULT IMBEDS. SEE STRUCTURAL DRAWINGS FOR IMBEDS.



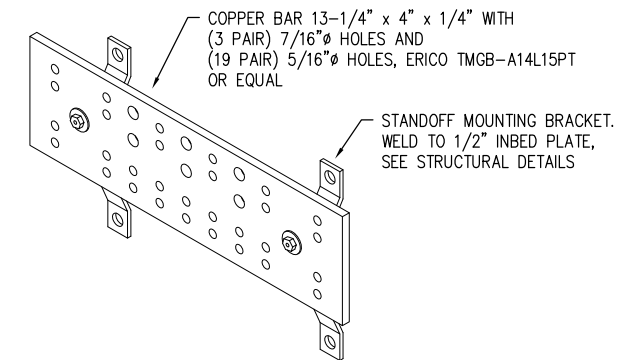
PLAN - TYPICAL CRANE SERVICE VAULT
SCALE: 1/2"=1'-0" A
E6.1



SECTION - TYPICAL CRANE SERVICE VAULT
SCALE: 1/2"=1'-0" B
E6.1



PLAN - SHORE TO SHIP POWER VAULT 'SSB1'
SCALE: 1/2"=1'-0" C
E6.1



GROUND BAR D
NOT TO SCALE E6.1

6345 E6.1 SHEET 173 OF 179	WUT BERTH EXTENSION		APPROVED:	SLH CHECKED BY	9/30/2013 DATE
	CRANE SERVICE VAULT LAYOUT		CHIEF ENGR	GLW PROJ. ENGR	9/30/2013 DATE
CONT/CONS: 068064	TOWNSHIP: 21 N	RANGE: 3 E	SECTION: SE 1/4 35	PRINTED BY: ScottK	DATE: Sep 27, 2013
E. NUMBER: E8022	DAT-HRZ: NAD 83-07VERT:		PORT ADDRESS: 1815 PORT OF TACOMA RD		TACOMA, WA 98401-1837
PHASE: RECORD	PARCEL: 24 & 25	DRAWING SCALE: AS SHOWN			



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1 RECORD DRAWINGS SJK GLW 9/30/2013