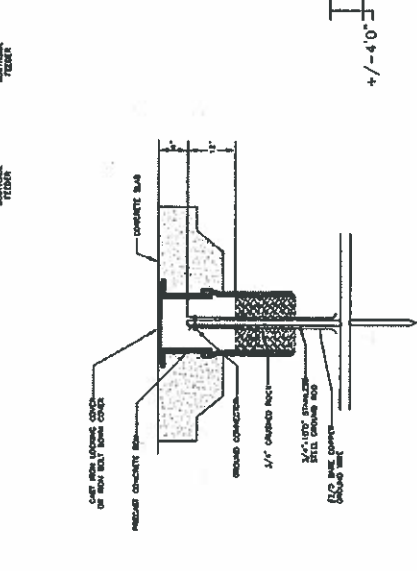
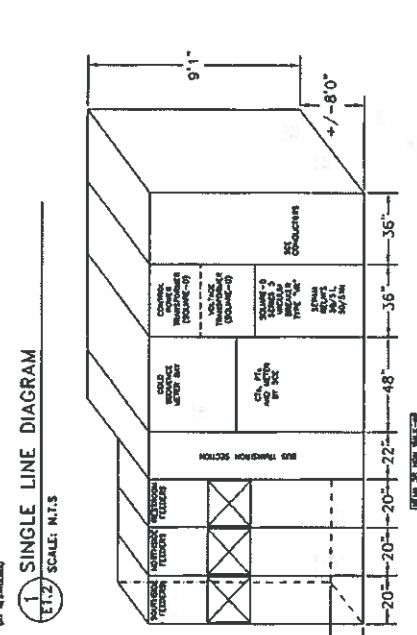
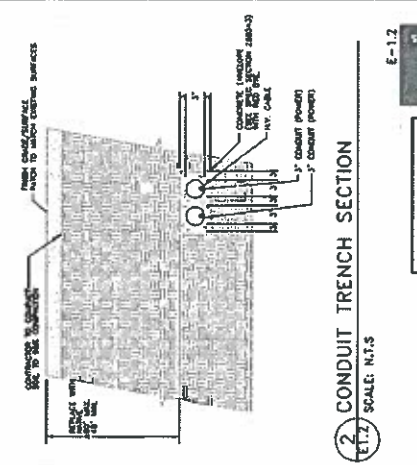
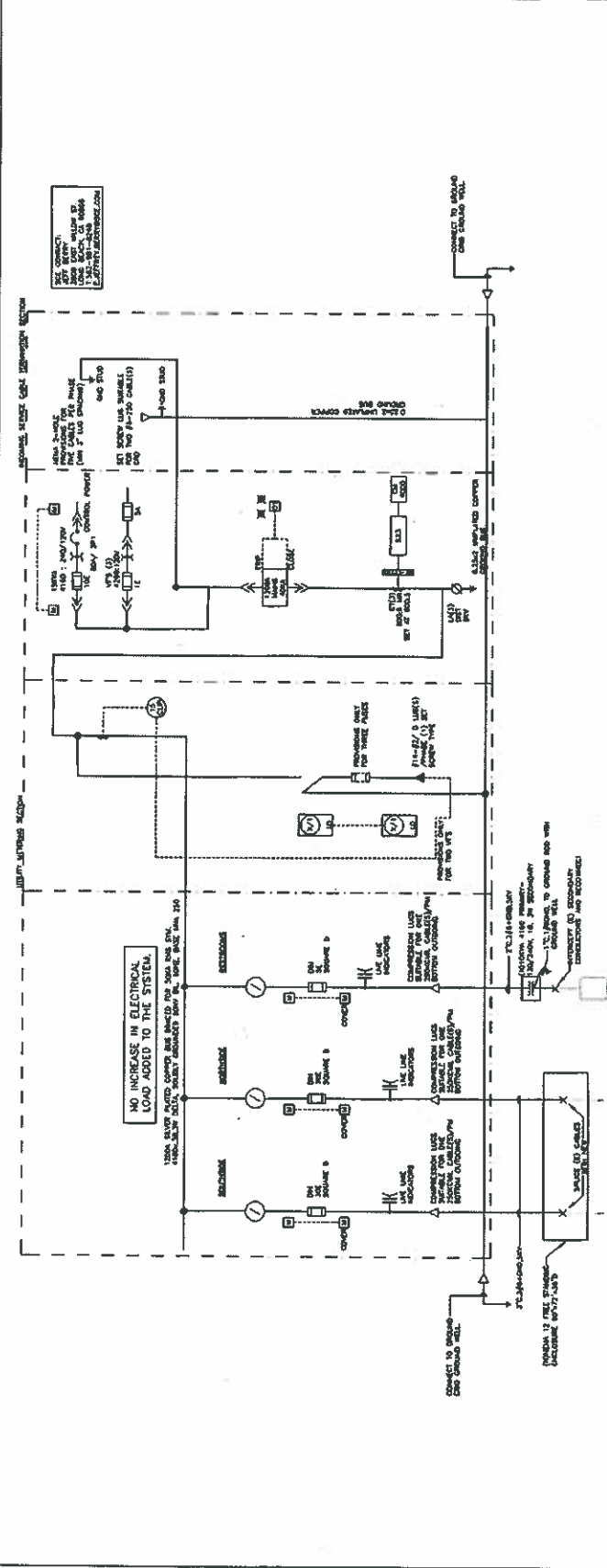


NO.	DATE	BY	CHKD.
1	10/15/14	JAC	JAC
2	11/10/14	JAC	JAC
3	11/10/14	JAC	JAC
4	11/10/14	JAC	JAC
5	11/10/14	JAC	JAC
6	11/10/14	JAC	JAC
7	11/10/14	JAC	JAC
8	11/10/14	JAC	JAC
9	11/10/14	JAC	JAC
10	11/10/14	JAC	JAC

MARINE VISTA PARK ELECTRICAL SINGLE LINE DIAGRAM AND DETAILS

NO.	DATE	BY	CHKD.
1	10/15/14	JAC	JAC
2	11/10/14	JAC	JAC
3	11/10/14	JAC	JAC
4	11/10/14	JAC	JAC
5	11/10/14	JAC	JAC
6	11/10/14	JAC	JAC
7	11/10/14	JAC	JAC
8	11/10/14	JAC	JAC
9	11/10/14	JAC	JAC
10	11/10/14	JAC	JAC



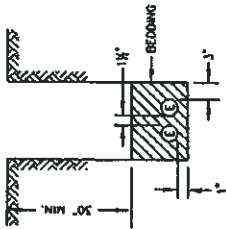
1 SINGLE LINE DIAGRAM
E.T.2 SCALE: N.T.S.

2 CONDUIT TRENCH SECTION
E.T.2 SCALE: N.T.S.

3 FRONT VIEW ELEVATION
E.T.2 SCALE: N.T.S. SEE SPEC SECTION 261313 & 261316

4 GROUND WELL DETAIL
E.T.2 SCALE: N.T.S.

MIDWESTERN
CONCRETE SYSTEMS



241
153

SEE UGS CD 120

DIRECT BURIAL
CONSTRUCTION FOR TEEBEE CONDUIT
2 CONDUITS MAX.

DATE: Rev. 10/20/08

EX: E5134282 ENCLOSURE

- 17' x 20' CUSTOMER ENCLOSURE
- 1750/28V TO 4KV
- 4x3/4" AMP ELBOWS
- 4x 3/4" 3/4" EZIP JACKETS - 4KV
- 4x 2MR 921 & 925
- 4x 30 3/4" EZIP - 4KV
- 4x 2MR 921 & 2MR 925

CONNECTING TO EXISTING SCE STRUCTURES

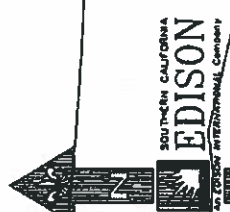
- Per SCE requirements, customers are not allowed to enter, intercept or tie-in to existing SCE structures, equipment or conductors. This work will only be performed by SCE. Contact the appropriate SCE Inspector to schedule an appointment. Customers may connect to an existing duct slab without a SCE Inspector present.
- Per CHUC/SCE's Rule 15 9.1.A and Rule 16 D.1.A., the customer will provide all necessary excavations (with the exception of excavation under pads and primary splice boxes), material (including conduit and structures) and encasement, to be utilized in the intercept/tie-in process.
- The customer must adhere to all applicable Cal-OSHA, local, city, state and federal regulations, (including, but not limited to, all necessary shoring and traffic control in place to perform the intercept/tie-in work by SCE's underground civil contractors(s)).
- Intercept/tie-in work must be coordinated with SCE's civil contractors through the Division Inspector/OCA to limit exposure of excavation(s). Customer is responsible for securing excavation(s).

DOB: 12/10/07

NOTE:
ALL ELECTRICAL DUCTS AND STRUCTURES WILL CONFORM TO GENERAL ORDER #128 (RULES FOR CONSTRUCTION OF UNDERGROUND ELECTRICAL SUPPLY AND COMMUNICATION PRESCRIBED BY THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, JANUARY 2006)



E5134282 57
12 X20
1750/28V TO 4KV
4x3/4" AMP ELBOWS
4x 3/4" 3/4" EZIP JACKETS - 4KV
4x 2MR 921 & 925
4x 30 3/4" EZIP - 4KV
4x 2MR 921 & 2MR 925



SCALE: 1" = 30'

DISTRICT 45 - LONG BEACH	PROJ. NO. PHONE	PLANNER BERRY, JEFFREY A PHONE 562-981-8240	DESIGN NO. 246215_1
FOREMAN	TRUCK NO. P/E	INVENTORY W/P NO. THOMAS GUBE	ASSOCIATED DESIGNER NO.
CSD 140 Y M	BY-PASS EXISTING CHANGE TO	TLM CHECKED	PRODUCT/SAP NO.
PRODUCT/SAP NO. 411818-METER SERVICE CHANGE	RELOAD	J.P.A. NO.	PRODUCT/SAP NO.
PROPOSED CONSTRUCTION (LOCATION)			
5355 ELIOT LONG BEACH			
TYPE	APPROVED BY	DATE	CHECKED BY
Southern California Edison Company			JOB NO. 246215_1



April 11, 2011

Mr. Mark Verrengia, PE
PSOMAS
3 Hutton Center Drive, Suite # 200
Santa Ana, CA 92707.

Re: Long Beach Marina Vista Park
Medium Voltage Switchgear Replacement Project.

Dear Mark:

The power for Long Beach Marina Vista Park and its adjacent lagoon area is currently served by SCE medium voltage (4.160 KV system, 5KV class) switchgear. We understand that the existing switchgear was installed in early 1960. The switchgear has reached its end of service life. Parts are not available and the installation is unsafe to maintain. Any scheduled or non-scheduled routine task or maintenance would require power shut down of the entire facility by SCE. The shutdown would affect power to the park and surrounding area serviced by the facility. Due to obsolete parts, there is no guarantee that the switches could be operated and brought back online after shut-down; thus the power for the Marina Vista Park is not reliable. Therefore it is critical that the facility be repaired as soon as possible.

On the request of the City of Long Beach Planning & Development, Bureau of Parks, Recreation & Marine Department, it was proposed to design new switchgear for the replacement to meet current codes, SCE requirements (SCE - ESR-7 Switchboards above 600 volts) for Medium Voltage services, clearances around equipment and minimum interruption of services during installation process.

Based on the request we have developed a **Base Scheme** for the project. New switchgear is designed to be located north of the existing Switchgear in a larger fenced enclosure. The fence enclosure is extended to accommodate the required clearances per the electrical code. The new switchgear can be built before switching power over to it. This will minimize the power interruption for the Park.

Additionally we have been requested by Ms. Sandra J Gonzalez, Manager, Planning & Development, Bureau of Parks, Recreation & Marine for the City of Long Beach, to study the outlined base scheme and five (5) alternatives for location of the replacement medium voltage switchgear. Base scheme and all options below are on the assumption that the existing SCE

Consulting Engineers
200 N Berry Street, Building B
Brea, CA 92821
t: 213.746.2844
f: 213.746.6463



substation and transformers will remain in place and only the new medium voltage switchgear and enclosure options are evaluated.

The relocation of the SCE substation with transformers is cost prohibitive and disruptive. SCE charges for relocation of their system are estimated to be \$250,000 at a minimum. Additional design and construction costs including costs to provide temporary power during construction would easily push this alternative past a million dollars. This alternative would not be considered a repair project and be subject to timelines that do meet the goals of the project. Therefore this alternative can not be considered a viable option.

In addition to the Base Scheme, we have reviewed five (5) Options of Medium Voltage Switchgear locations:

1. Relocate Medium Voltage Switchgear Underground
2. Relocate Medium Voltage Switchgear Across Eliot Street
3. Relocate Medium Voltage Switchgear Near the Tennis Courts
4. Relocate Medium Voltage Switchgear Near the Restrooms
5. Rebuild Medium Voltage Switchgear Within the Existing Chain Link Enclosure.

We have discussed with Mr. Jeff Berry, SCE service representative, regarding each of these locations.

Option 1: Medium Voltage Switchgear Underground

This option is not feasible for the following reasons:

1. The required medium voltage switchgear is not available for underground installation.
2. SCE will not service underground service equipment due to unsafe condition.
3. The site is near a lagoon. The high level of ground water precludes the feasibility of constructing an underground structure to house this medium voltage equipment.

Option 2: Medium Voltage Switchgear Across Eliot Street

According to SCE, the service feeder duct bank from the existing above grade SCE transformers would have to be run underground across Eliot Street to the new switchgear location. Even though the underground duct banks (conduits) are installed by the City, the ownership of medium voltage cables, duct bank and feeders would belong to SCE. We are informed that SCE would not accept the responsibility to maintain the underground cable and duct bank. This option is not feasible from SCE service requirements.



Option 3: Medium Voltage Switchgear Near the Tennis Courts

According to SCE guideline, the switchgear shall be within 150 feet from SCE substation and transformers. The new switchgear enclosure will be approximately 28' X 22'. Please refer to the attached map for suggested location that meets the maximum allowed distance requirement. This option requires new underground duct banks for SCE service, and to back feed existing medium voltage feeders at the current chain-linked enclosure.

The concern with this location is the close proximity to major activity areas in the park, specifically the tennis courts. Being next to the courts, there is a good possibility that balls will be accidentally hit into the enclosure. This poses a major safety concern as people may try to retrieve the balls by getting in from the top of the enclosure.

The approximate construction cost of this option is estimated to exceed \$100,000.

Option 4: Medium Voltage Switchgear Near the Restrooms

The distance of the switchgear will be in excess of 150 feet from the SCE substation and transformers. This option will not comply with SCE requirements.

Option 5: Medium Voltage Switchgear Within the Existing Chain Link Enclosure.

There are challenges for building new switchgear at the same location:

1. This option would require an extended period of power shut down which interrupts the service to the Park and adjacent properties.
2. It would still require extension of existing fence enclosure to provide SCE and code required clearances.
3. Since the new equipment dimensions do not match the existing switchgear, a new concrete equipment pad is required. This will prolong the construction schedule.
4. Temporary power feeds during power shut down time may be provided by multiple generators by intercepting the existing medium voltage feeders outside of the existing enclosure. However, this requires constant supervision and maintenance during operation for re-fueling. Noise, safety and air pollution are major obstacles. Permits to operate the temporary generator are required from South Coast Air Quality Management District, Coastal Commission and any other agencies having jurisdiction. The option will require approval process from all agencies.
5. The cost of the project also increases by additional amount of \$250,000 and the shut down time could run for 6 to 8 weeks depending on the Contractor.



Conclusion:

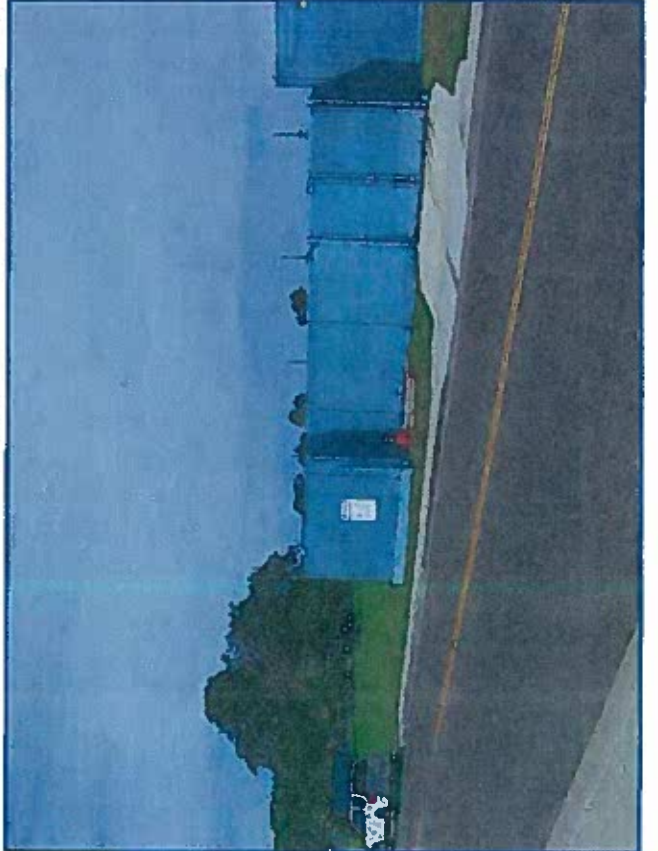
In analyzing all of the above options, the best scenario is the current Base Scheme design for the following reasons:

1. The scheme meets the main objective of the project which is to provide new switchgear that is safe and reliable for the Park.
2. The scheme has minimal duration (estimate less than a week) on power shutdown duration. New equipment, duct bank and all related work can be performed prior to SCE shut down of power and continue to operate existing equipment when the site infrastructure being built.
3. The scheme complies with all City, Coastal Commission and SCE requirements.
4. The Base Scheme is the least expensive and it does not incur additional costs from SCE.

It is our recommendation that the Base Scheme be implemented for the project.

B.A. Satya
Principal
MDC Engineers Inc.

**Notice of LCP Hearing Posted at Marina Vista Park
10/25/2010**



Location Map- Options 1-5

