

**TAYSHELL
SUBSTATION**



3.5 MILES
1 TAP DEADEND
11 DEADENDS
45 TANGENTS

**SOCALGAS
SUBSTATION**



140 S STATE COLLEGE BLVD
BREA, CA 92821

LEGEND:

-  PROPOSED 66 KV ROUTE
-  SUBSTATION

**10% PRELIMINARY
DESIGN STUDY**

NOT FOR CONSTRUCTION

DATE: 7/14/23

SHEET 1 OF 1

**TAYSHELL SUB
TO SOCALGAS
OVERVIEW**



CHALLENGES

- Multiple pipeline crossings
- Challenging terrain



140 S STATE COLLEGE BLVD
BREA, CA 92821

LEGEND:

- PROPOSED 66 KV ROUTE
- SUBSTATION

**GETTY
SUBSTATION**



4.7 MILES
1 TAP DEADEND
15 DEADENDS
65 TANGENTS

**SOCALGAS
SUBSTATION**

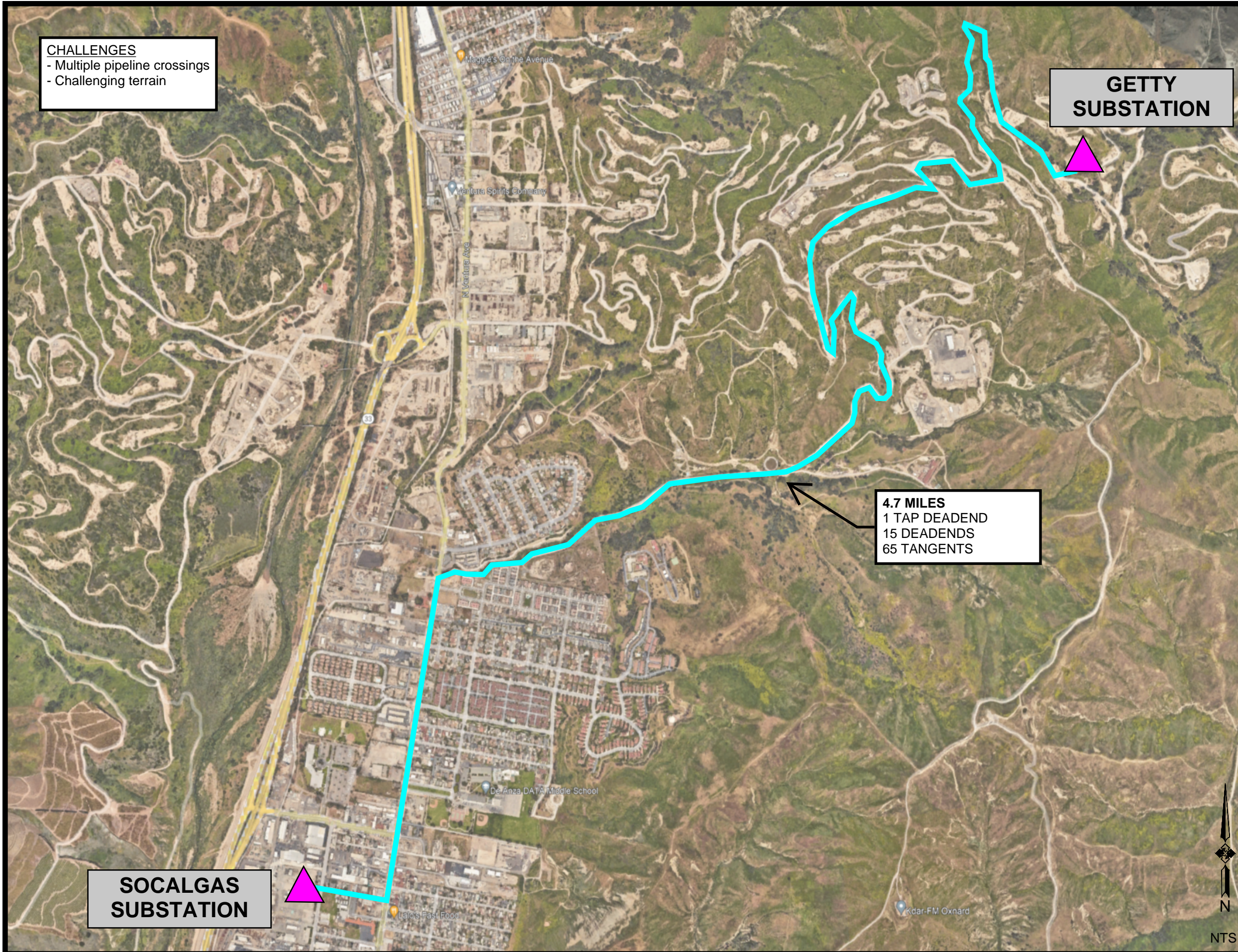


**10% PRELIMINARY
DESIGN STUDY**
NOT FOR CONSTRUCTION

DATE: 7/14/23

SHEET 1 OF 1

**GETTY SUBSTATION
TO SOCALGAS
OVERVIEW**



CASITAS
SUBSTATION



140 S STATE COLLEGE BLVD
BREA, CA 92821

LEGEND:

- PROPOSED 66 KV ROUTE
- SUBSTATION

4.7 MILES
1 TAP DEADEND
16 DEADENDS
65 TANGENTS

SOCALGAS
SUBSTATION



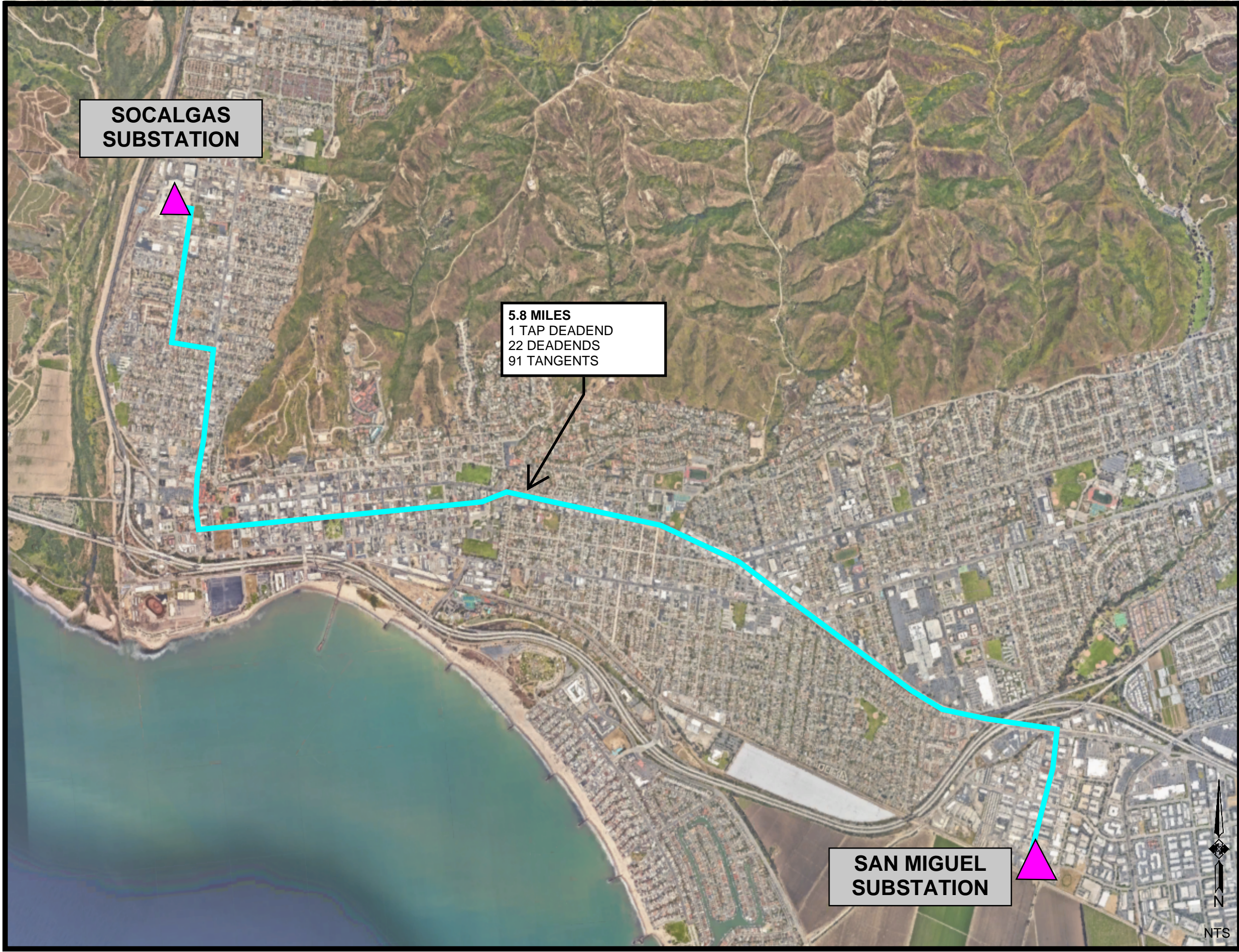
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DATE: 7/14/23

SHEET 1 OF 1

NTS

CASITAS SUBSTATION
TO SOCALGAS
OVERVIEW



**SOCALGAS
SUBSTATION**



5.8 MILES
1 TAP DEADEND
22 DEADENDS
91 TANGENTS

**SAN MIGUEL
SUBSTATION**



140 S STATE COLLEGE BLVD
BREA, CA 92821

LEGEND:

-  PROPOSED 66 KV ROUTE
-  SUBSTATION

**10% PRELIMINARY
DESIGN STUDY**
NOT FOR CONSTRUCTION

DATE: 7/14/23

SHEET 1 OF 1

**SAN MIGUEL SUB
TO SOCALGAS
OVERVIEW**





**SOCALGAS
SUBSTATION**



**SATICOY
SUBSTATION**

9.3 MILES
1 TAP DEADEND
36 DEADENDS
132 TANGENTS

**BURNS
MCDONNELL®**

140 S STATE COLLEGE BLVD
BREA, CA 92821

LEGEND:

-  PROPOSED 66 KV ROUTE
-  SUBSTATION

**10% PRELIMINARY
DESIGN STUDY**

NOT FOR CONSTRUCTION



DATE: 7/14/23

SHEET 1 OF 1

**SATICOY SUBSTATION
TO SOCALGAS
OVERVIEW**



LEGEND:

-  PROPOSED 66 KV ROUTE
-  SUBSTATION

**10% PRELIMINARY
DESIGN STUDY**

NOT FOR CONSTRUCTION

DATE: 7/14/23

SHEET 1 OF 1

**GONZALES SUB
TO SOCALGAS
OVERVIEW**



**SOCALGAS
SUBSTATION**

9.9 MILES
1 TAP DEADEND
36 DEADENDS
143 TANGENTS

**GONZALES
SUBSTATION**



NTS

SOCALGAS PRELIMINARY PROJECT SCOPE FOR A NEW 66/4 KV SUBSTATION

PROJECT OBJECTIVE

The objective of this project is to engineer, design, and construct and test a new 28 MVA maximum load capacity, 66/4 kV customer dedicated substation to serve the load growth needed for the SoCalGas Compressor Station project.

GENERAL SCOPE AND DESCRIPTION OF PROJECT

DESCRIPTION

Customer has allocated space for the required new substation within their property near North Olive Street and West McFarlane Drive in the City of Ventura, California and shall be required to grant easement for the substation and the 66 kV sub-transmission line to Southern California Edison for the subject facility.

SCOPE

- Construct one (1) 80-foot wide x 80-foot long x 33-foot high square box-type steel structure with foundation to terminate two (2) 66 kV incoming lines.
- Install three (3) 66 kV circuit breakers and seven (7) group operated disconnect switches.
- Install nine (9) 72.5 kV metal oxide polymer type station class surge arresters.
- Install one (1) 66/4 kV, 16.8/22.4/28 MVA, ONAN/ONAF/ONAF, wye-delta-wye power transformers and oil containment with LTC and high/low side neutral current transformers.
- Construct two (2) 12-foot wide x 24-foot long x 18-foot high box-type steel structure with foundation to terminate two (2) 4 kV underground incoming lines as shown on the Plot Plan.
- Install two (2) 4 kV circuit breakers and nine (9) circuit breaker isolating hook-stick disconnect switches.
- Install a 15'-10"-foot x 35 -foot Mechanical Electrical Equipment Room (MEER) Building to house batteries, battery charger, AC and DC distribution panels, protective relays, and other equipment.
- Install one (1) weatherproof revenue metering cabinets supported by steel pipe with foundation to house meters, associated equipment, and switches. Enclosed cabinet with a 6-foot wide x 8-foot x 6-foot high chain link fence without barbed wires and a 4-foot wide walk-in gate for access.
- Install three (3) light pole for station lightning.
- The perimeter required to build this new 66/4 kV substation is approximately 154-feet wide x 210-feet long as shown on the Plot Plan.

DESCRIPTION OF WORK

66 kV BOX RACK

- The new 66 kV underground incoming line (main) shall be connected to the existing SCE 66 kV line or SCE nearby substation, and a 2nd 66 kV line will be available to serve as back-up.
- Construct one (1) 80-foot wide x 80-foot long x 33-foot high square box-type steel structure. The structure shall be equipped with three (3) 66 kV, 1200A, 40 kA duty SF6 gas circuit breakers;

seven (7) 66 kV, 1200A, vertically mounted group operated disconnect switches; nine (9) 72.5 kV metal oxide polymer type station class surge arresters.

- Install six (6) 6.5 kVA, 69000/115000-115/69x115/69V voltage transformers supported on steel pedestals with foundations.
- Conductor the 66 kV services box rack with one (1) 605 kcmil ACSR conductor per phase.

66/4 KV NO. 1 TRANSFORMER BANK

- Construct one (1) 34-foot wide x 30-foot high dead end structures to terminate the overhead jack bus between the 66 kV service rack and the transformer rack.
- Install one (1) 66/4 kV, 16.8/22.4/28 MVA, ONAN/ONAF/ONAF, wye-delta-wye connected, three phase power transformers on a concrete pad as shown on the Plot Plan. The high side connection shall be with one (1) 605 kcmil ACSR conductor per phase and low side connection shall be three (3) 1272 kcmil SAC conductors per phase.
- Install one (1) current transformer wound-type (Ratio TBD), mounted and supported by steel structure with foundation, connected to the high side neutral of the transformer, as shown on the One Line Diagram.
- Install two (2) current transformers bar-type current transformers, mounted on the transformer dead-end rack, connected to the low side neutral bushing of the transformer.
- Install three (3) current transformers bar-type, mounted on the transformer dead-end rack for revenue metering.
- Install three (3) 6 kV neutral surge arresters, mounted on a pedestal next to the transformer.
- Install oil containment around the transformer.

4 KV SERVICE RACK

Construct one (1) 12-foot wide x 24-foot long x 18-foot high box-type service at the location shown on the Plot Plan.

The service rack shall be equipped with six (6) 7.2 kV, 3000 A hook-stick operated outdoor disconnect switches; two (2) 7.2 kV S&C type SM-5 fuse disconnects with four (4) 20E standard fuse units including spares; two (2) 15 kVA, 4160-120/240V distribution transformer for Station Light and Power source; three (3) 4160-120 voltage transformers for revenue metering; and 3-1/2 inch IPS extra-heavy aluminum jack buses.

The voltage, current and SLP&P transformers shall be connected as shown on the One Line Diagram.

The 4 kV service rack shall be designed with two-positions to accommodate two (2) termination points for two (2) 4 kV underground circuits to customer termination.

Install a plastic barrier chain with removable "RPB-1" for each service rack.

Provide one (1) 15-foot mounted hook-stick receptacle.

MECHANICAL ELECTRICAL EQUIPMENT ROOM (MEER)

- Install a new 15'-10"-foot wide x 35-foot long metal prefabricated MEER Building as shown on the Plot Plan drawing.

- The MEER Building shall house the battery, battery charger, AC and DC distribution panels, power and test outlet box, RTU cabinet, annunciator rack and two (2) 19-inch relay racks equipped with relays, controls, devices and switches, communication and associated equipment as required for the project. The number of relays and types will be determined once the protection requirements have been defined.
- The MEER Building shall be equipped with one (1) 2-ton heat pump (air conditioner) unit and appropriate lighting.

METERING REVENUE

- Install one (1) revenue metering cabinets equipped with revenue meters, test switches and associated equipment in a weather-proof cabinet. The customer interface cabinet shall be located (location TBD) near the metering revenue enclosed in a 6-foot wide x 8-foot long x 6-foot high chain-link fence without barbed wire. Provide a 4-foot wide walk-in gate for entry.

POWER SYSTEMS CONTROL

- Install a real-time RTU type DAQ with a 72-inch high x 30-inch wide x 24-inch deep cabinet.
- The RTU shall be equipped with 48 digital input points, 16 pairs Open/Close control, and 16 analog inputs.
- The analog quantities monitored by the RTU shall be 66 kV line amperes, line voltage, watt and VAR for 66 kV line and amperes, voltage, watt and VAR for the transformer banks. The remote control of the high side circuit breakers shall be performed by the RTU. The CB status and statio alarms shall be monitored through the RTU.

IT/TELECOMMUNICATIONS

- Install fiber optic cable to each Supervisory Control and Data Acquisition (SCADA) controlled piece of equipment.
- Install a new fiber optic cable from the new steel transmission pole (outside of the substation) to a 19-inch communication rack inside the MEER Building. The fiber optic cable shall be brought to the substation via a 4-inch wide x 6-inch long x 4-inch deep communication cabinet (Telecom Cabinet) with two (2) 5-inch PVC duct bank to the MEER Building.

YARD LIGHTING

- Install yard lighting for general lighting of the 66/4 kV equipment and new MEER area as required per SCE standards.

TEST AND POWER CIRCUITS

- Provide test and power outlets at the MEER Building, 66 kV service area and the transformer area.

CONDUIT

- Provide conduit on all equipment installed and install a customer interface box (location TBD) for cable connections between Edison and customer.

GROUNDING GRID ANALYSIS

- Conduct a grounding study and design the station ground grid based on the recommendation of the study.

GROUNDING

- Ground all new equipment and structures to the new substation ground grid using bare copper cable. All above ground connection to the substation ground grid shall be made per SCE standards or industry standards.

WEATHER STATION

- Install a new weather station on the outside (location TBD) corner area of the MEER Building for monitoring both ambient temperature and humidity.
- Provide conduit from the Weather Station to the optic cable tray inside the MEER Building.

CIVIL/STRUCTURAL ENGINEERING REQUIREMENTS

FOUNDATIONS

The following foundations shall be designed based on the latest Geotechnical data, and Edison design guidelines and standards.

- Nine (9) pile foundations for the 66 kV switchrack.
- Three (3) slab foundations for 66 kV circuit breakers.
- Six (6) pile foundations for 66 kV potential transformer supports.
- One (1) slab foundation for 66/4 kV transformer bank.
- One (1) oil containment for 66/4 kV transformer bank.
- Two (2) pile foundations for 66/4 kV dead-end structures.
- One (1) pile foundation for 66 kV neutral current transformer support.
- One (1) pile foundation for 66 kV neutral transformer and surge support.
- Two (2) slab foundations for 4 kV circuit breakers.
- Three (3) pile foundation for light pole.
- Six (6) pile foundations for 4 kV service rack.
- One (1) slab foundation for the MEER Building.
- Three (3) foundations for removable bumper guard.
- One (1) pile foundation for metering cabinet supports.
- One (1) lot 8'-0" high chain-link fence with 5 strands barbed wire all around the substation with 18' double swing gate.
- One (1) lot 6'-0" high chain-link fence without barbed wire for metering cabinets with 4'-0" walk-in gate.

STRUCTURAL STEEL

- One (1) four box-bay structure for the 66 kV switchrack.
- Six (6) steel stands for 66 kV potential transformers.

- One (1) structure for 66/4 kV dead-end structure.
- One (1) steel stand for 66 kV neutral current transformer.
- One (1) steel stand for 66 kV neutral transformer surge arrester.
- One (1) two box-bay structures for the 4 kV switchrack.
- Three (3) light pole structures.

SAG DATA

The conductor SAG shall be calculated for all overhead conductors spanning more than 30 feet.

SITE CLEARING

- Clearing the site, remove trees, debris, vegetation, bulk stones, roots, organic matters.
- Remove 6 inch to 12 inch top soil.

SITE GRADING

- Excavate site to design elevations.
- Fill the area to design elevations with approved materials and compact per specifications.
- Install 4 to 6 inch washed crushed stone on top of compacted subgrade.

SPILL PREVENTATION CONTAINMENT AND COUNTERMEASURES (SPCC)

- SPCC work shall be provided on the new transformer banks. Its design shall be coordinated and compatible with the grading design approach.

BUILD ACCESS ROAD TO CONNECT THE STATION YARD TO PUBLIC ROAD

- Build road subgrade per design, compact per specifications.
- Put non-woven geotextile fabric above subgrade.
- Install 12 inch aggregate material on top of subgrade and compacted per specifications.

PAVING

- Install a new asphalt paving for the new 16-foot wide driveway leading to the new MEER and parking area beside or near the new MEER Building.

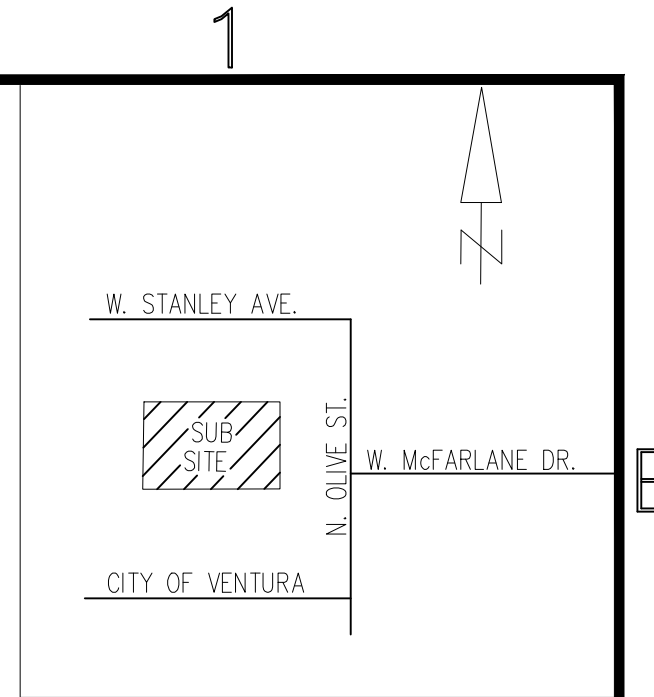
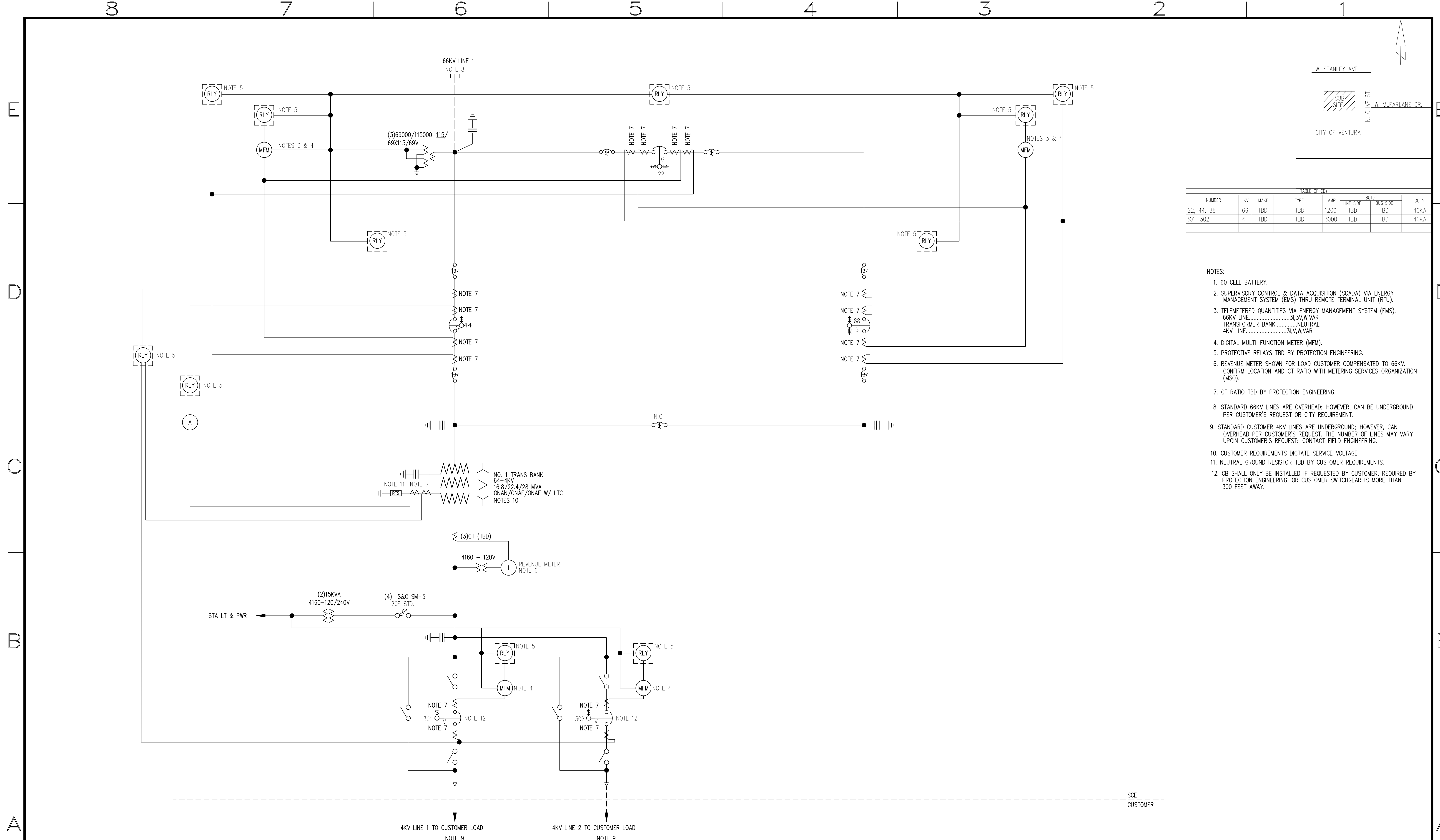
INSTALLATION OF CONSTRUCTION EROSION CONTROL BMPs

- Install temporary construction entrance/exit per design.
- Install concrete washout.
- Install silt fence per design.
- Install slope protection blanket as necessary.
- Install ditch checks as necessary.

CONSTRUCTION NOTES

- Ensure the entire ground area of the substation is covered with a 4-inch layer crushed rock.

- The setback distance for the new 66/4 kV substation will be assume to be 75ft (typical) or per City's requirements.



NUMBER	KV	MAKE	TYPE	AMP	CB'S		DUTY
					LINE SIDE	BUS SIDE	
22, 44, 88	66	TBD	TBD	1200	TBD	TBD	40KA
301, 302	4	TBD	TBD	3000	TBD	TBD	40KA

- NOTES:
- 60 CELL BATTERY.
 - SUPERVISORY CONTROL & DATA ACQUISITION (SCADA) VIA ENERGY MANAGEMENT SYSTEM (EMS) THRU REMOTE TERMINAL UNIT (RTU).
 - TELEMETERED QUANTITIES VIA ENERGY MANAGEMENT SYSTEM (EMS).
66KV LINE.....3.3V,W,VAR
TRANSFORMER BANK.....NEUTRAL
4KV LINE.....3.1V,W,VAR
 - DIGITAL MULTI-FUNCTION METER (MFM).
 - PROTECTIVE RELAYS TBD BY PROTECTION ENGINEERING.
 - REVENUE METER SHOWN FOR LOAD CUSTOMER COMPENSATED TO 66KV. CONFIRM LOCATION AND CT RATIO WITH METERING SERVICES ORGANIZATION (MSO).
 - CT RATIO TBD BY PROTECTION ENGINEERING.
 - STANDARD 66KV LINES ARE OVERHEAD; HOWEVER, CAN BE UNDERGROUND PER CUSTOMER'S REQUEST OR CITY REQUIREMENT.
 - STANDARD CUSTOMER 4KV LINES ARE UNDERGROUND; HOWEVER, CAN OVERHEAD PER CUSTOMER'S REQUEST. THE NUMBER OF LINES MAY VARY UPON CUSTOMER'S REQUEST. CONTACT FIELD ENGINEERING.
 - CUSTOMER REQUIREMENTS DICTATE SERVICE VOLTAGE.
 - NEUTRAL GROUND RESISTOR TBD BY CUSTOMER REQUIREMENTS.
 - CB SHALL ONLY BE INSTALLED IF REQUESTED BY CUSTOMER, REQUIRED BY PROTECTION ENGINEERING, OR CUSTOMER SWITCHGEAR IS MORE THAN 300 FEET AWAY.

REFERENCE DRAWINGS

DRAWING NUMBER	DESCRIPTION

REV	DATE	DESCRIPTION	PTS NO.	BY	CHKD	APPD	DATE
0	07/11/23	INITIAL ISSUE					

DRAWN : XX	DATE XX	APPROVED FOR CONSTRUCTION	
DESIGN : XX	DATE XX	PROJECT NO. XX	ENGR. SUPT. XX
CHECK : XX	DATE XX	SCALE: NONE	
APP'D. : XX	DATE XX		
EQUIPMENT NOS. NONE			
UNIT NO. XX	TRACT: XX	ACAD NO. FILENAME	
	AREA: XX		

CUSTOMER - DEDICATED SUBSTATION
ONE LINE - (1) 66KV LINE SERVICES WITH
(1) TRANSFORMER BANK

SoCalGas

DRAWING NUMBER	REV
SOCALGAS ONE LINE	A.A.A
PTS NO. XX	

8 7 6 5 4 3 2 1

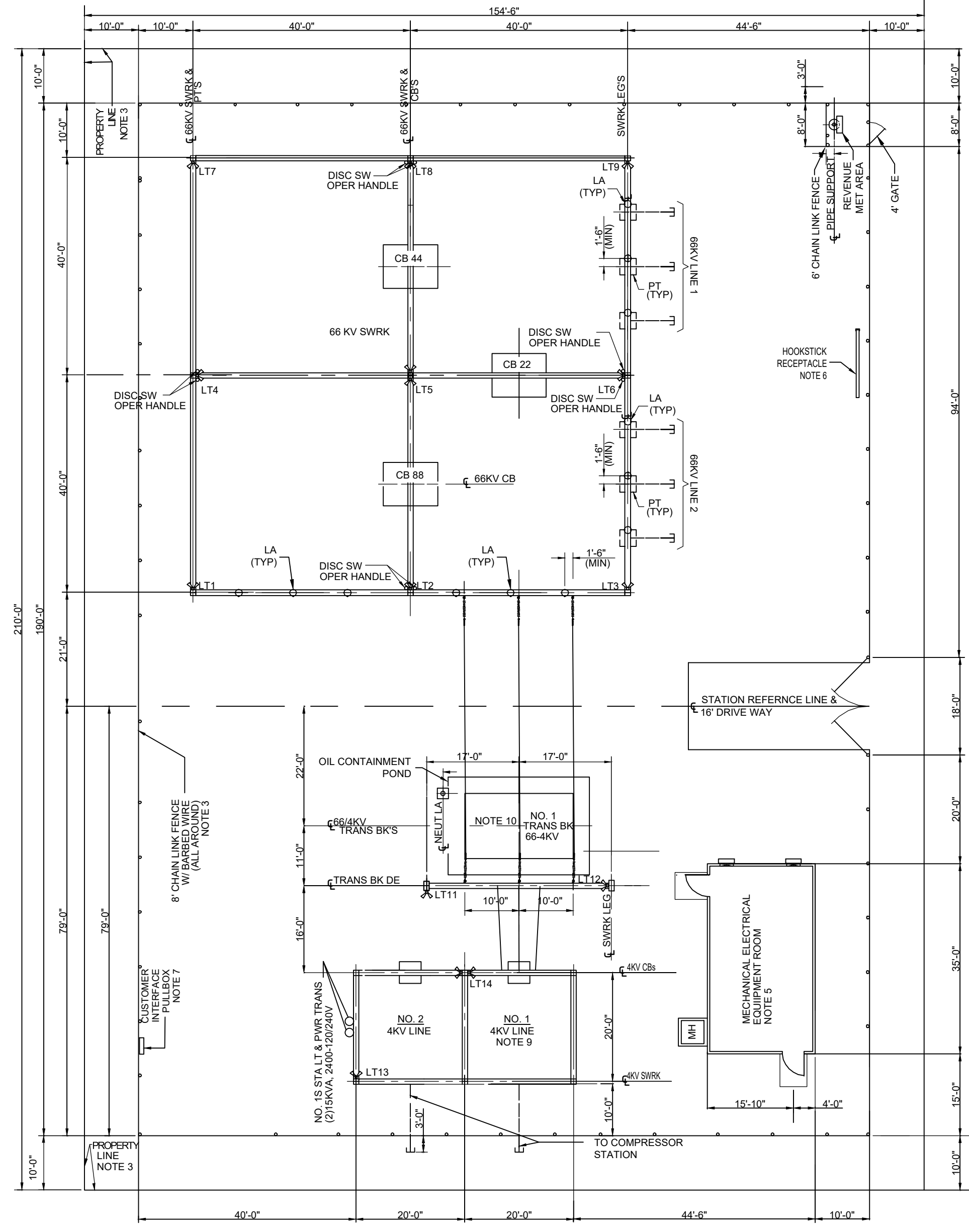
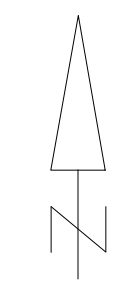
E

D

C

B

A



- NOTES:**
- DIMENSIONS OF OVERALL SUBSTATION AND ITS CONFIGURATION MAY DIFFER DEPENDING ON SITE LIMITATIONS AND EQUIPMENT CONFIGURATIONS.
 - LINE CONFIGURATIONS:
A. STANDARD 66KV LINE IS OVERHEAD; HOWEVER, CAN BE PER CUSTOMER'S REQUEST OR CITY REQUIREMENT.
B. STANDARD CUSTOMER 4KV LINE IS UNDERGROUND; HOWEVER,
 - SUBSTATION PROPERTY LINES WILL VARY SIGNIFICANTLY DEPENDING ON THE SIZE AND SHAPE OF THE SITE. A PERIMETER BUFFER OF 10 FT. (OR AS NEGOTIATED WITH THE CUSTOMER) IS REQUIRED, AND SHALL BE MAINTAINED BETWEEN THE ENCLOSED SUBSTATION AND THE CUSTOMER PROPERTY LINE ON ALL SIDES, EXCEPT FOR COMMON (SHARED) FENCE(S).
 - SUBSTATION ENCLOSURE AT MINIMUM SHALL BE AN 8-FT CHAIN-LINK FENCE WITH BARBED WIRE (ALL AROUND), UNLESS SPECIFIED BY THE CUSTOMER OR AS REQUIRED.
 - MEER SIZE MAY DIFFER.
 - MOUNT HOOKSTICK RECEPTACLE WITH THE APERTURE END LOWER THAN THE CAPPED END.
 - CUSTOMER INTERFACE PULL BOX SHALL ONLY BE INSTALLED IF APPLICABLE.
 - 4KV NEUTRAL GROUND RESISTOR TBD ON A CASE-BY-CASE BASIS.
 - 4KV SWITCHRACK CAN BE ORIENTATED 90 DEGREEES.
 - NUMBER OF PVC-EMBEDDED CONDUITS ENCASED IN CONCRETE TO CUSTOMER TBD BY CUSTOMER.

REFERENCE DRAWINGS

DRAWING NUMBER	DESCRIPTION

REV	DATE	DESCRIPTION	PTS NO.	BY	CHKD	APPD	DATE
0	07/17/23	INITIAL ISSUE		XX	XX	XX	XX

DRAWN :	XX	DATE	XX	APPROVED FOR CONSTRUCTION	
DESIGN :	XX	DATE	XX	PROJECT NO.	DATE
CHECK :	XX	DATE	XX	XX	XX
APP'D. :	XX	DATE	XX	SCALE:	NONE
EQUIPMENT NOS.		NONE			
UNIT NO.	XX	TRACT:	XX	ACAD NO.	FILENAME
		AREA:	XX		

**CUSTOMER - DEDICATED SUBSTATION
PLOT PLAN-(2) 66KV LINE SERVICES WITH
(1) TRANSFORMER BANK**



DRAWING NUMBER	REV
SOCALGAS PLOT PLAN	A.A.A
PTS NO. XX	

8 7 6 5 4 3 2 1

SOCALGAS PRELIMINARY PROJECT SCOPE FOR A NEW 66/4 KV SUBSTATION

PROJECT OBJECTIVE

The objective of this project is to engineer, design, and construct and test a new 56 MVA maximum load capacity, 66/4 kV customer dedicated substation to serve the load growth needed for the SoCalGas Compressor Station project.

GENERAL SCOPE AND DESCRIPTION OF PROJECT

DESCRIPTION

Customer has allocated space for the required new substation within their property near North Olive Street and West McFarlane Drive in the City of Ventura, California and shall be required to grant easement for the substation and the 66 kV sub-transmission line to Southern California Edison for the subject facility.

SCOPE

- Construct one (1) 80-foot wide x 80-foot long x 33-foot high square box-type steel structure with foundation to terminate one (1) 66 kV incoming line.
- Install four (4) 66 kV circuit breakers and eight (8) group operated disconnect switches.
- Install twelve (12) 72.5 kV metal oxide polymer type station class surge arresters.
- Install two (2) 66/4 kV, 16.8/22.4/28 MVA, ONAN/ONAF/ONAF, wye-delta-wye power transformers and oil containment with LTC and high/low side neutral current transformers.
- Construct two (2) 12-foot wide x 24-foot long x 18-foot high box-type steel structure with foundation to terminate two (2) 4 kV underground incoming lines as shown on the Plot Plan.
- Install two (2) 4 kV circuit breakers and nine (9) circuit breaker isolating hook-stick disconnect switches.
- Install a 15'-10"-foot x 35 -foot Mechanical Electrical Equipment Room (MEER) Building to house batteries, battery charger, AC and DC distribution panels, protective relays, and other equipment.
- Install one (1) weatherproof revenue metering cabinets supported by steel pipe with foundation to house meters, associated equipment, and switches. Enclosed cabinet with a 6-foot wide x 12-foot x 6-foot high chain link fence without barbed wires and a 4-foot wide walk-in gate for access.
- Install three (3) light pole for station lightning.
- The perimeter required to build this new 66/4 kV substation is approximately 189-feet wide x 210-feet long as shown on the Plot Plan.

DESCRIPTION OF WORK

66 kV BOX RACK

- The new 66 kV overhead incoming line shall be connected to the existing SCE 66 kV line or SCE nearby substation.
- Construct one (1) 80-foot wide x 80-foot long x 33-foot high square box-type steel structure. The structure shall be equipped with four (4) 66 kV, 1200A, 40 kA duty SF6 gas circuit breakers; eight

(8) 66 kV, 1200A, vertically mounted group operated disconnect switches; twelve (12) 72.5 kV metal oxide polymer type station class surge arresters.

- Install six (6) 6.5 kVA, 69000/115000-115/69x115/69V voltage transformers supported on steel pedestals with foundations.
- Conductor the 66 kV services box rack with one (1) 605 kcmil ACSR conductor per phase.

66/4 KV NO. 1 TRANSFORMER BANK

- Construct one (1) 34-foot wide x 30-foot high dead end structures to terminate the overhead jack bus between the 66 kV service rack and the transformer rack.
- Install one (1) 66/4 kV, 16.8/22.4/28 MVA, ONAN/ONAF/ONAF, wye-delta-wye connected, three phase power transformers on a concrete pad as shown on the Plot Plan. The high side connection shall be with one (1) 605 kcmil ACSR conductor per phase and low side connection shall be three (3) 1272 kcmil SAC conductors per phase.
- Install one (1) current transformer wound-type (Ratio TBD), mounted and supported by steel structure with foundation, connected to the high side neutral of the transformer, as shown on the One Line Diagram.
- Install one (1) current transformers bar-type current transformers, mounted on the transformer dead-end rack, connected to the low side neutral bushing of the transformer.
- Install three (3) current transformers bar-type, mounted on the transformer dead-end rack for revenue metering.
- Install three (3) 66 kV neutral surge arresters, mounted on a pedestal next to the transformer.
- Install oil containment around the transformer.

NOTE: No. 2 Transformer Bank will be installed at a future time to offer more load capability and reliability.

4 KV SERVICE RACK

Construct one (1) 12-foot wide x 24-foot long x 18-foot high box-type service at the location shown on the Plot Plan.

The service rack shall be equipped with three (3) 7.2 kV, 3000 A hook-stick operated outdoor disconnect switches; two (2) 7.2 kV S&C type SM-5 fuse disconnects with four (4) 20E standard fuse units including spares; four (4) 15 kVA, 4160-120/240V distribution transformer for Station Light and Power source; three (3) 4160-120 voltage transformers for revenue metering; and 3-1/2 inch IPS extra-heavy aluminum jack buses.

The voltage, current and SLP&P transformers shall be connected as shown on the One Line Diagram.

The 4 kV service rack shall be designed with two-positions to accommodate two (2) termination points for two (2) 4 kV underground circuits to customer termination.

Install a plastic barrier chain with removable "RPB-1" for each service rack.

Provide one (1) 15-foot mounted hook-stick receptacle.

NOTE: The 2nd 4 kV Section Box will be installed at a future time to offer more load capability and reliability.

MECHANICAL ELECTRICAL EQUIPMENT ROOM (MEER)

- Install a new 15'-10"-foot wide x 35-foot long metal prefabricated MEER Building as shown on the Plot Plan drawing.
- The MEER Building shall house the battery, battery charger, AC and DC distribution panels, power and test outlet box, RTU cabinet, annunciator rack and two (2) 19-inch relay racks equipped with relays, controls, devices and switches, communication and associated equipment as required for the project. The number of relays and types will be determined once the protection requirements have been defined.
- The MEER Building shall be equipped with two (2) 2-ton heat pump (air conditioner) units and appropriate lighting.

METERING REVENUE

- Install one (1) revenue metering cabinets equipped with revenue meters, test switches and associated equipment in a weather-proof cabinet. The customer interface cabinet shall be located (location TBD) near the metering revenue enclosed in a 6-foot wide x 12-foot long x 6-foot high chain-link fence without barbed wire. Provide a 4-foot wide walk-in gate for entry.

NOTE: The 2nd revenue metering will be installed at a future time to offer more reliability.

POWER SYSTEMS CONTROL

- Install a real-time RTU type DAQ with a 72-inch high x 30-inch wide x 24-inch deep cabinet.
- The RTU shall be equipped with 48 digital input points, 16 pairs Open/Close control, and 16 analog inputs.
- The analog quantities monitored by the RTU shall be 66 kV line amperes, line voltage, watt and VAR for 66 kV line and amperes, voltage, watt and VAR for the transformer banks. The remote control of the high side circuit breakers shall be performed by the RTU. The CB status and statio alarms shall be monitored through the RTU.

IT/TELECOMMUNICATIONS

- Install fiber optic cable to each Supervisory Control and Data Acquisition (SCADA) controlled piece of equipment.
- Install a new fiber optic cable from the new steel transmission pole (outside of the substation) to a 19-inch communication rack inside the MEER Building. The fiber optic cable shall be brought to the substation via a 4-inch wide x 6-inch long x 4-inch deep communication cabinet (Telecom Cabinet) with two (2) 5-inch PVC duct bank to the MEER Building.

YARD LIGHTING

- Install yard lighting for general lighting of the 66/4 kV equipment and new MEER area as required per SCE standards.

TEST AND POWER CIRCUITS

- Provide test and power outlets at the MEER Building, 66 kV service area and the transformer area.

CONDUIT

- Provide conduit on all equipment installed and install a customer interface box (location TBD) for cable connections between Edison and customer.

GROUNDING GRID ANALYSIS

- Conduct a grounding study and design the station ground grid based on the recommendation of the study.

GROUNDING

- Ground all new equipment and structures to the new substation ground grid using bare copper cable. All above ground connection to the substation ground grid shall be made per SCE standards or industry standards.

WEATHER STATION

- Install a new weather station on the outside (location TBD) corner area of the MEER Building for monitoring both ambient temperature and humidity.
- Provide conduit from the Weather Station to the optic cable tray inside the MEER Building.

CIVIL/STRUCTURAL ENGINEERING REQUIREMENTS

FOUNDATIONS

The following foundations shall be designed based on the latest Geotechnical data, and Edison design guidelines and standards. The foundation quantities include the allocation of the future 2nd transformer bank.

- Nine (9) pile foundations for the 66 kV switchrack.
- Four (4) slab foundations for 66 kV circuit breakers.
- Six (6) pile foundations for 66 kV potential transformer supports.
- Two (2) slab foundations for 66/4 kV transformer banks.
- Two (2) oil containments for 66/4 kV transformer bank.
- Four (4) pile foundations for 66/4 kV dead-end structures.
- Two (2) pile foundation for 66 kV neutral current transformer support.
- Two (2) pile foundation for 66 kV neutral transformer and surge support.
- Two (2) slab foundations for 4 kV circuit breakers.
- Three (3) pile foundation for light pole.
- Six (6) pile foundations for 4 kV service rack.
- One (1) slab foundation for the MEER Building.
- Three (3) foundations for removable bumper guard.
- Two (2) pile foundation for metering cabinet supports.

- One (1) lot 8'-0" high chain-link fence with 5 strands barbed wire all around the substation with 18' double swing gate.
- One (1) lot 6'-0" high chain-link fence without barbed wire for metering cabinets with 4'-0" walk-in gate.

STRUCTURAL STEEL

- One (1) four box-bay structure for the 66 kV switchrack.
- Six (6) steel stands for 66 kV potential transformers.
- Two (2) structures for 66/4 kV dead-end structure.
- Two (2) steel stand for 66 kV neutral current transformer.
- Two (2) steel stand for 66 kV neutral transformer surge arrester.
- One (1) two box-bay structures for the 4 kV switchrack.
- Three (3) light pole structures.

NOTE: The steel structure quantities include the allocation of the future 2nd transformer bank.

SAG DATA

The conductor SAG shall be calculated for all overhead conductors spanning more than 30 feet.

SITE CLEARING

- Clearing the site, remove trees, debris, vegetation, bulk stones, roots, organic matters.
- Remove 6 inch to 12 inch top soil.

SITE GRADING

- Excavate site to design elevations.
- Fill the area to design elevations with approved materials and compact per specifications.
- Install 4 to 6 inch washed crushed stone on top of compacted subgrade.

SPILL PREVENTATION CONTAINMENT AND COUNTERMEASURES (SPCC)

- SPCC work shall be provided on the new transformer banks. Its design shall be coordinated and compatible with the grading design approach.

BUILD ACCESS ROAD TO CONNECT THE STATION YARD TO PUBLIC ROAD

- Build road subgrade per design, compact per specifications.
- Put non-woven geotextile fabric above subgrade.
- Install 12 inch aggregate material on top of subgrade and compacted per specifications.

PAVING

- Install a new asphalt paving for the new 16-foot wide driveway leading to the new MEER and parking area beside or near the new MEER Building.

INSTALLATION OF CONSTRUCTION EROSION CONTROL BMPs

- Install temporary construction entrance/exit per design.

- Install concrete washout.
- Install silt fence per design.
- Install slope protection blanket as necessary.
- Install ditch checks as necessary.

CONSTRUCTION NOTES

- Ensure the entire ground area of the substation is covered with a 4-inch layer crushed rock.
- The setback distance for the new 66/4 kV substation will be assume to be 75ft (typical) or per City's requirements.

8 7 6 5 4 3 2 1

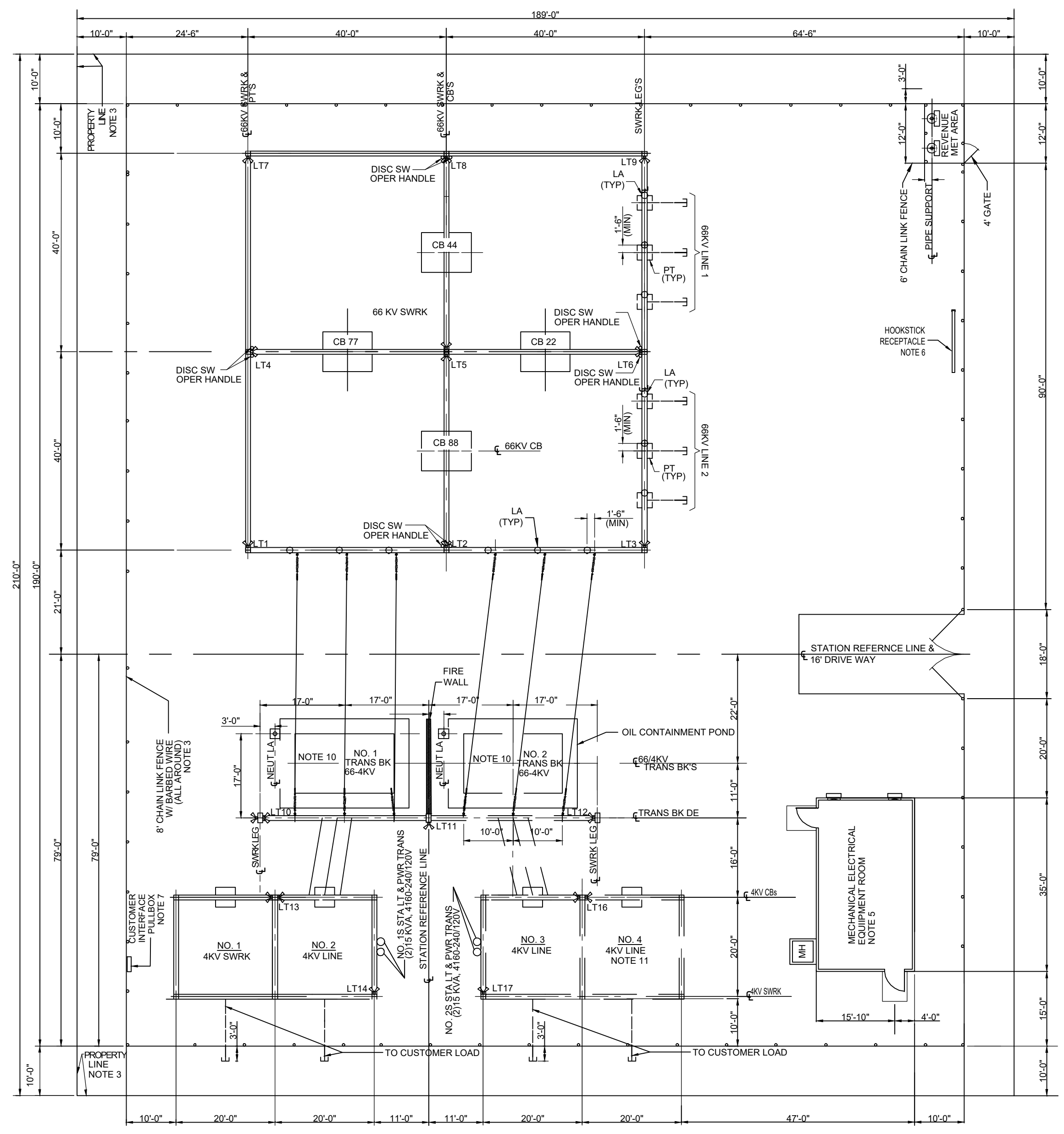
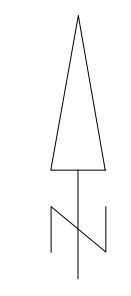
E

D

C

B

A



- NOTES:**
- DIMENSIONS OF OVERALL SUBSTATION AND ITS CONFIGURATION MAY DIFFER DEPENDING ON SITE LIMITATIONS AND EQUIPMENT CONFIGURATIONS.
 - LINE CONFIGURATIONS:
A. STANDARD 66KV LINE IS OVERHEAD; HOWEVER, CAN BE PER CUSTOMER'S REQUEST OR CITY REQUIREMENT.
B. STANDARD CUSTOMER 4KV LINE IS UNDERGROUND; HOWEVER,
 - SUBSTATION PROPERTY LINES WILL VARY SIGNIFICANTLY DEPENDING ON THE SIZE AND SHAPE OF THE SITE. A PERIMETER BUFFER OF 10 FT. (OR AS NEGOTIATED WITH THE CUSTOMER) IS REQUIRED, AND SHALL BE MAINTAINED BETWEEN THE ENCLOSED SUBSTATION AND THE CUSTOMER PROPERTY LINE ON ALL SIDES, EXCEPT FOR COMMON (SHARED) FENCE(S).
 - SUBSTATION ENCLOSURE AT MINIMUM SHALL BE AN 8-FT CHAIN-LINK FENCE WITH BARBED WIRE (ALL AROUND), UNLESS SPECIFIED BY THE CUSTOMER OR AS REQUIRED.
 - MEER SIZE MAY DIFFER.
 - MOUNT HOOKSTICK RECEPTACLE WITH THE APERTURE END LOWER THAN THE CAPPED END.
 - CUSTOMER INTERFACE PULL BOX SHALL ONLY BE INSTALLED IF APPLICABLE.
 - 4KV NEUTRAL GROUND RESISTOR TBD ON A CASE-BY-CASE BASIS.
 - 4KV SWITCHRACK CAN BE ORIENTATED 90 DEGREEES.
 - NUMBER OF PVC-EMBEDDED CONDUITS ENCASED IN CONCRETE TO CUSTOMER TBD BY CUSTOMER.

REFERENCE DRAWINGS

DRAWING NUMBER	DESCRIPTION

REV	DATE	DESCRIPTION	PTS NO.	BY	CHKD	APPD	DATE
0	07/17/23	INITIAL ISSUE		XX	XX	XX	XX

DRAWN :	XX	DATE	XX	APPROVED FOR CONSTRUCTION	
DESIGN :	XX	DATE	XX	PROJECT NO.	DATE
CHECK :	XX	DATE	XX	XX	ENGR. SUPT.
APP'D. :	XX	DATE	XX	SCALE:	NONE
EQUIPMENT NOS.		NONE			
UNIT NO.	XX	TRACT:	XX	ACAD NO.	FILENAME
AREA:		XX			

CUSTOMER - DEDICATED SUBSTATION
PLOT PLAN-(2) 66KV LINE SERVICES WITH
(2) TRANSFORMER BANK



DRAWING NUMBER	REV
SOCALGAS PLOT PLAN	A.A.A
PTS NO. XX	

8 7 6 5 4 3 2 1

[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Tuesday, July 18, 2023 8:28 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [EXTERNAL] FW: SoCalGas Ventura CPCN - Backup Electrical Info
Attachments: 33900-1906-D-SKT (2).pdf

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[REDACTED] -

Option #1 electrical docs have been updated and uploaded to Procore, following our clarification discussion this afternoon.

[REDACTED] has also provided photos below showing examples of the types of structures we have assumed in this substation design.

Lastly, I had the team overlay the scaled substation plot over our recent -1906 drawing, and it appears that we are a bit tighter against the compressor building than originally thought. I believe we can maneuver some of these components around, and even locate the dead end structure further to the east in the facility the run UG to the SW corner of the facility through the transformers, if we needed to make this plot work.

Documents

Search in this project

Add Filter

- ▼ Ventura Compressor Modernization Proj
 - > 07 - Targeted Revised FEED
 - ▼ 08 - CPCN Proceedings Data Reque
 - ▼ BMcD Deliverables
 - ▼ Backup Power Study
 - New 66-4kV Option 1**
 - New 66-4 kV Option 2
 - Transmission Routes
 - Listing of Industry Standard
 - > Tie-In Pipeline Drawings
 - > SoCalGas Requests
 - Navisworks 3D Model

⋮ > Backup Power Study > **New 66-4kV Option 1**

<input type="checkbox"/>	Name
<input type="checkbox"/>	SoCalGas_One Line_Option 1_Adding a 2nd 66
<input type="checkbox"/>	SoCalGas_Option 1_Plot Plan_Adding a 2nd 66
<input type="checkbox"/>	SoCalGas Preliminary 10% New 66-4kV Substa
<input type="checkbox"/>	SoCalGas Preliminary 10% New Substation Cos

\ Burns & McDonnell
Transmission & Distribution \ Projects Manager

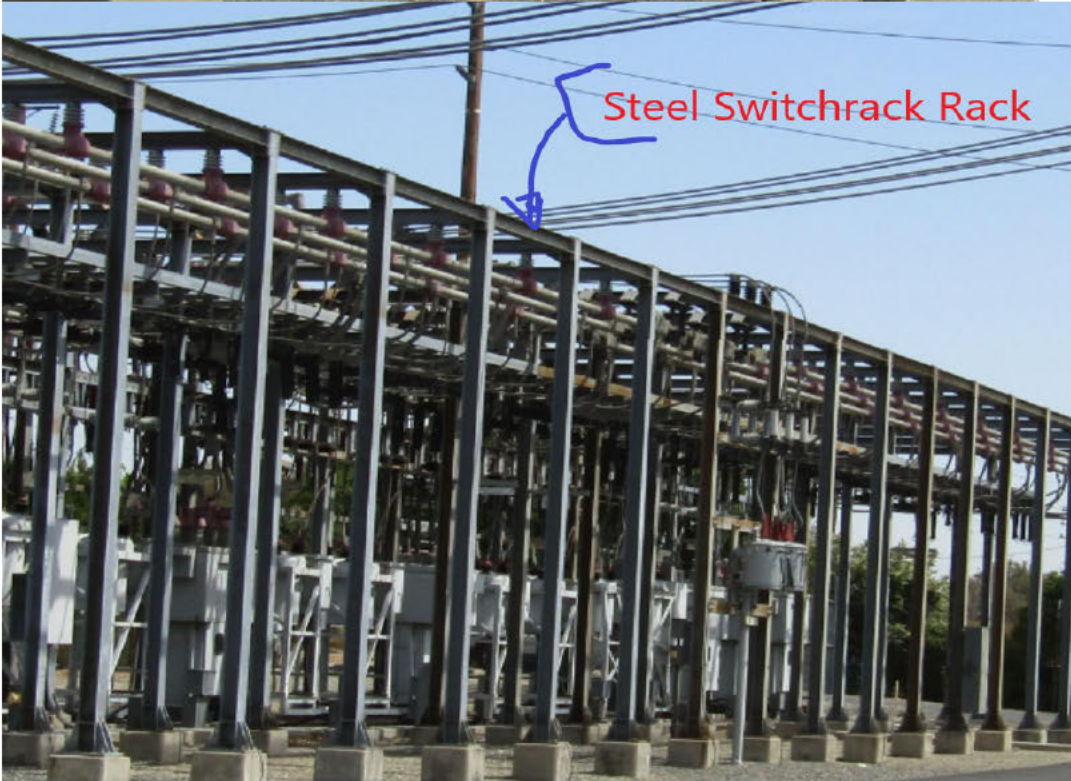
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From: @burnsmcd.com>
Sent: Tuesday, July 18, 2023 3:49 PM
To: @burnsmcd.com>
Cc: @burnsmcd.com>
Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

Please see revised documents as per our conversation with SoCalGas that includes adding a 2nd 66 kV line for Option 1. Also, see pictures below showing the transformer dead-end, transformer banks, and low side voltage steel bay positions.



Regards,

[Redacted]

Burns & McDonnell
Project Manager \ Transmission &
Distribution Services

[Redacted]

██████████@burnsmcd.com \ burnsmcd.com
[nam12.safelinks.protection.outlook.com]
140 S. State College Blvd., Suite 100 \ Brea,
CA 92821

██████████
[nam12.safelinks.protection.outlook.com]
DESIGNED TO BUILD.

From: ██████████ anni
Sent: Tuesday, July 18, 2023 1:49 PM
To: ██████████@socalgas.com>
Cc: ██████████@socalgas.com>; ██████████@socalgas.com>; ██████████@socalgas.com>; ██████████@burnsmcd.com>
Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

Hi, ██████████. Please see responses to your questions below – there are two (2) 66/4 kV substations: Option 1 and Option 2...see attached files.

Overview for Options 1 and 2

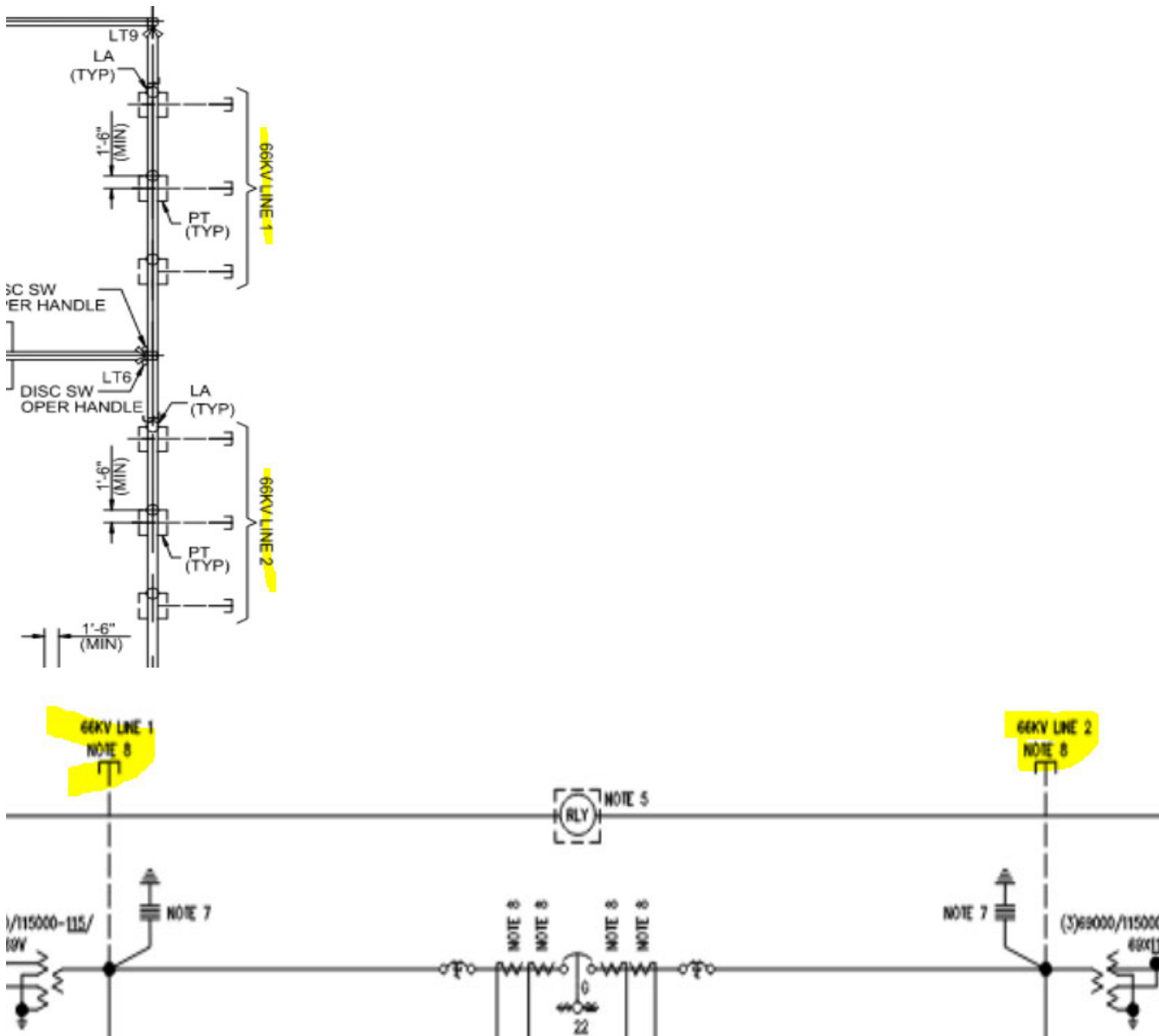
The Option 1 includes:

- 66 kV Partial Ring Bus Configuration with three (3) 66 kV Circuit Breakers
- One (1) 66/4 kV 1-28 MVA Transformer Bank
- Two (2) 4 kV Feeders
- One (1) MEER Control Building

The Option 2 includes:

- 66 kV Full Ring Bus Configuration with four (4) 66 kV Circuit Breakers
- Two (2) 66/4 kV 2-28 MVA Transformer Banks
- Two (2) 4 kV Feeders with two (2) additional 4 kV Feeders for future expansion if required
- One (1) MEER Control Building

1. Where is 2nd 66kV feed from SCE on the single line? [Response: Please refer to Option 2 \(One Line, Plot Plan, and Scope Document \)](#)



2. Why are there 3 circuit breakers? **Response:** The partial ring bus configuration is an extension of the sectionalized bus arrangement and is accomplished by interconnecting the two open ends of the buses through another sectionalizing breaker. This results in a closed loop or ring with each bus section separated by a circuit breaker. For maximum reliability and operation flexibility – for a breaker failure, the two breakers on the sides of the affected breaker open, along with a transfer trip to a remote breaker, to isolate the failed breaker and remove two bus sections from service. The ring bus arrangement provides for circuit breaker maintenance since any breaker can normally be removed from service without interruption of services to any circuits. Similar situation for Option 2 bus arrangement by showing four (4) circuit positions which is a practical maximum for a ring bus configuration.
3. Where are the other 4kV feed lines for the other two EDCs? (all electric option) **Response:** Option 1 shows two (2) 4 kV Feeders as requested, and Option 2 shows an additional two (2) more 4 kV Feeders for future loads.

Hope this helps! Please let me know if you have any questions.

Regards,

[REDACTED]
Burns & McDonnell
Project Manager \ Transmission &
Distribution Services

[REDACTED] 3
[\[REDACTED\]@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com) \ burnsmcd.com
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140 S. State College Blvd., Suite 100 \ Brea,
CA 92821


[\[REDACTED\]@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)
DESIGNED TO BUILD.

From: [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>
Sent: Tuesday, July 18, 2023 12:49 PM
To: [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>; [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
Cc: [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED]
[REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>
Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

Thanks Gary I'll send a Teams invite.

Some items Rohit and I had discussed:

1. Where is 2nd 66kV feed from SCE on the single line?
2. Why are there 3 circuit breakers?
3. Where are the other 4kV feed lines for the other two EDCs? (all electric option)

Thanks,
[REDACTED]

From: [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
Sent: Tuesday, July 18, 2023 12:45 PM
To: [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
Cc: [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED]
[REDACTED] [@socialgas.com](mailto:[REDACTED]@socialgas.com)>
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Backup Electrical Info

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Sorry... I hit send too soon.

Do you have questions you can send Gio and I ahead of time to review and prep for?

[REDACTED] \ Burns & McDonnell
Transmission & Distribution \ Projects Manager

[REDACTED] \ burnsmcd.com [burnsmcd.com]
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From: [REDACTED] @socialgas.com>

Sent: Tuesday, July 18, 2023 12:15 PM

To: [REDACTED] @burnsmcd.com>; [REDACTED] @burnsmcd.com>

Cc: [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>; A [REDACTED]
[REDACTED] @socialgas.com>

Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

[REDACTED] & [REDACTED],

Would you have time this afternoon (15 minutes or so) to discuss some of our basic questions from the single lines? We are available any time after 230.

Thanks,

From: [REDACTED] @burnsmcd.com>

Sent: Tuesday, July 18, 2023 10:01 AM

To: [REDACTED] dina2@socialgas.com>

Cc: [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>; [REDACTED]
[REDACTED] @socialgas.com>; [REDACTED] @burnsmcd.com>

Subject: [EXTERNAL] SoCalGas Ventura CPCN - Backup Electrical Info

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[REDACTED] –

Following up my text message – see below snapshot showing the location of the latest electrical backup info we have uploaded to Procure.

The following has been provided:

- Proposed transmission/distribution line routings from identified SCE substations to the Ventura station.
 - Associated Class V ROM estimates for those line routings.
 - Basis document for Class V ROM



SoCalGas

91651 - Ventura Compressor...

Pr

D

Documents

- ▼ Ventura Compressor Modernizati
- 07 - Targeted Revised FEED
- ▼ 08 - CPCN Proceedings Data f
- ▼ BMcD Deliverables
- Tie-In Pipeline Drawir**
- SoCalGas Requests
- Navisworks 3D Model

[REDACTED] \ Burns & McDonnell
Transmission & Distribution \ Projects Manager

[REDACTED] \ [REDACTED]
[REDACTED]@burnsmcd.com \ burnsmcd.com [burnsmcd.com]
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From: [REDACTED]@socialgas.com>

Sent: Friday, July 14, 2023 1:31 PM

To: [REDACTED]@burnsmcd.com>

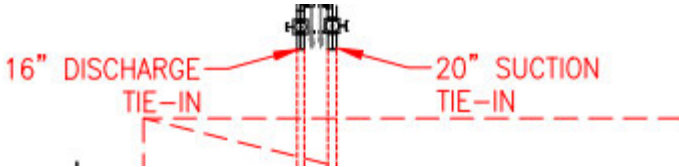
Cc: [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>

Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

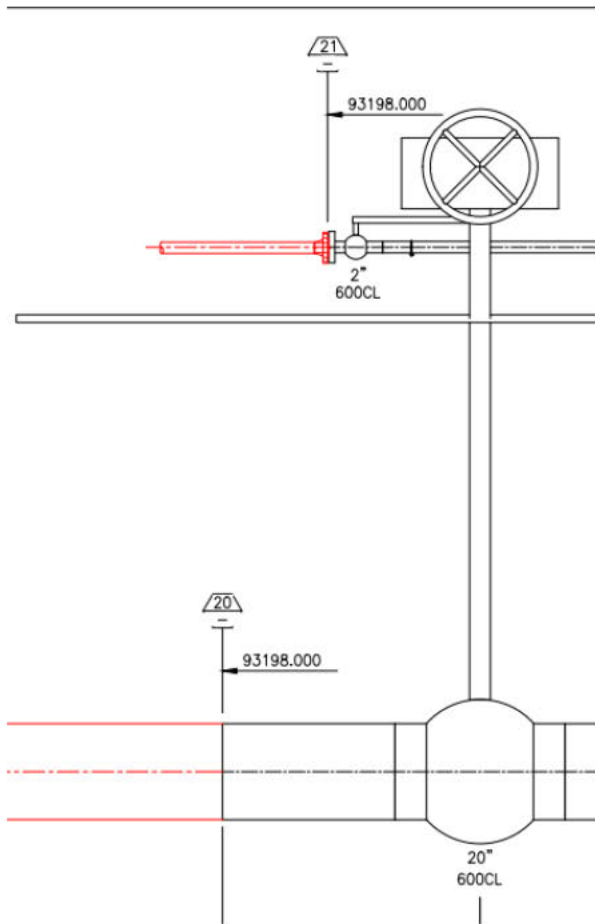
Good Afternoon [REDACTED]

We have completed our review of the drafts shared and below are the requested modifications:

1. Please edit the title block to state "Proposed Gas Pipeline Tie-ins Drawing"
2. Add the word "new" ahead of the suction and discharge tie-ins shown below



3. Use blue color to all the gas pipelines within the drawing to allow the new layer to be better distinguishable
4. Add a description to the depressurization line denoting "depressurization tie-in to Line 1003" where it meets L1003
5. Add a table on the right hand side of page 1906 to contain the estimated excavation volumes for each of the suction line, discharge lines, fuel gas lines and depressurization to Line 1003. The table is to contain the following columns: location description (line names referenced in the drawing next to the description), diameter, segment length, estimated excavation volume in cubic feet.
6. Make sure there is a legend on the drawing to state the dashed lines are underground pipelines and the solid lines are above grade.
7. Add a note on page 1907 to the demarcation points 20 and 21 to state "installed by others" as shown below:



Thank you,

[REDACTED]
SoCalGas Project Manager
Ventura Compressor Station Modernization Project
Cell: [REDACTED]
[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Wednesday, July 12, 2023 5:13 PM
To: [REDACTED]@socalgas.com>
Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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[REDACTED] -

I have uploaded our initial draft of the gas piping tie-in drawings (and other piping requested in the SOW) to Procore. Screenshot of location is provided below.

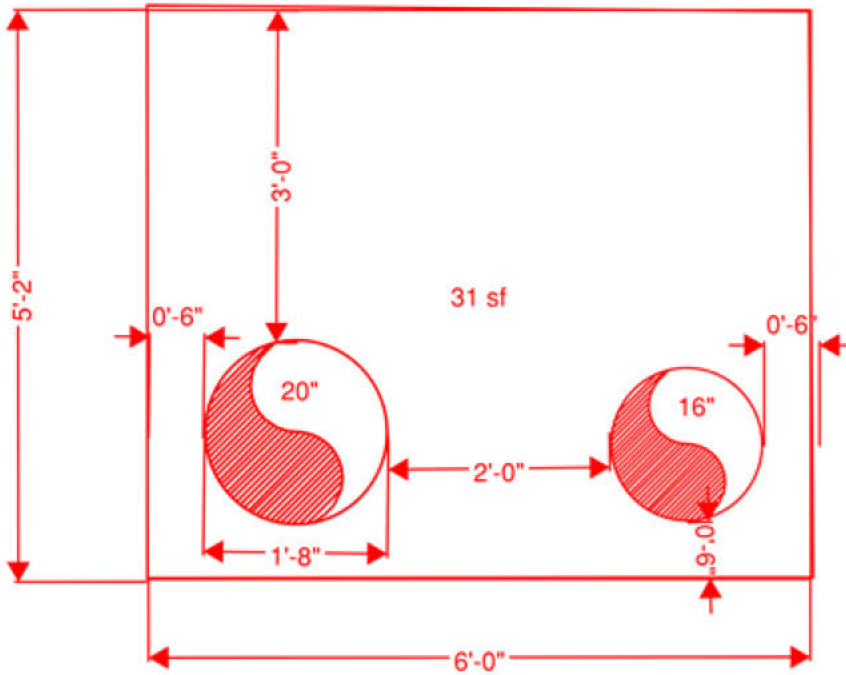
A few items to note:

- We've provided preliminary routing for all piping listed in the SOW (beyond the gas suction/discharge tie-in piping).
- You will note that the supply / discharge piping immediately south of the tie-in location runs right through the blowdown scrubber footprint. I believe we can work the blowdown scrubber around this routing, as a believe re-routing these lines will cause further issues. How will this visual play (from an optics perspective) of the data request response?
- I am still working through the excavation quantities, but right now for all UG lines shown in this drawing (GN2544, GN2502, GV1016, GV1035) we are conservatively at around 12,000 CF of soil disturbed – driven by the excavation required to get the suction/discharge piping from the tie-in locations to the Plant 2 UG/AG transition (James provided the below cross section to provide a visual, with line spacing provided in accordance with Gas Standards).

Take a look at these drafts and let us know if you have any questions. Thanks,

The screenshot shows a document management system interface. At the top left is the SoCalGas logo with the text 'A Sempra Energy utility'. To the right of the logo is a dropdown menu showing 'SoCalGas 91651 - Ventura Compressor...'. Further right is another dropdown menu labeled 'Project Tools Documents'. A search bar contains the text 'Search Documents'. Below the header, the word 'Documents' is displayed on the left, with a search box 'Search in this project' and an 'Add Filter' button. The main content area shows a breadcrumb trail: 'Ventura Compressor Modernization Project > BMcD Deliverables > Tie-In Pipeline Drawings'. On the left side of this area is a tree view with folders: '07 - Targeted Revised FEED', '08 - CPCN Proceedings Data Request', 'BMcD Deliverables' (expanded), 'Tie-In Pipeline Drawings' (selected), 'SoCalGas Requests', and 'Navisworks 3D Model'. The right side of the main area shows a table of documents:

<input type="checkbox"/>	Name
<input type="checkbox"/>	33900-1906-D-SKT.pdf
<input type="checkbox"/>	33900-1907-D-SKT.pdf



[REDACTED] \ Burns & McDonnell
 Transmission & Distribution \ Projects Manager

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 140 S State College Blvd, Suite 100 \ Brea, CA 92821

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From: [REDACTED] [@socalgas.com](mailto:[REDACTED]@socalgas.com)>
 Sent: Monday, July 3, 2023 10:41 AM
 To: [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
 Cc: [REDACTED] [@socalgas.com](mailto:[REDACTED]@socalgas.com)>; [REDACTED] [@socalgas.com](mailto:[REDACTED]@socalgas.com)>; [REDACTED] [@socalgas.com](mailto:[REDACTED]@socalgas.com)>; [REDACTED] [@socalgas.com](mailto:[REDACTED]@socalgas.com)>; [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>; [REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
 Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

Good Morning [REDACTED],

Please see the responses below in bold thanks.

[REDACTED]

SoCalGas Project Manager
Ventura Compressor Station Modernization Project

From: [REDACTED]@burnsmcd.com>
Sent: Monday, July 3, 2023 5:29 AM
To: [REDACTED]@socialgas.com>
Cc: [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Subject: [EXTERNAL] FW: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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Hey [REDACTED] –

I am working to get the team set loose on working this gas piping tie-in drawing request. A couple high level questions to makes sure we are starting off on the right foot. When you respond, can you be sure to include Banks/Rizo in the response?

I am thinking that we use previous plot plan -1901 we last updated in May 2023 as our starting point:

- Is there any need for the aerial / satellite image back drop? – **No need for the aerial overlay**
- Are we to show Plant 1 / existing infrastructure in this sketch or represent post-decommissioning/demo? – **Maintain above grade plant 1 features (compressor building, pipe sleeper way etc.)**
- Any issues in BMcD deleting the equipment list on the right-hand side of the drawing? – **No issue**

Thanks,

[REDACTED] | Burns & McDonnell
Transmission & Distribution \ Projects Manager
[REDACTED] | [REDACTED]
[REDACTED]@burnsmcd.com \ burnsmcd.com [burnsmcd.com]
140 S State College Blvd, Suite 100 \ Brea, CA 92821

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[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Tuesday, July 18, 2023 1:49 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Backup Electrical Info
Attachments: SoCalGas_One Line_Option 1_7.17.23.pdf; SoCalGas_One Line_Option 2_7.17.23.pdf

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Hi, [REDACTED]. Please see responses to your questions below – there are two (2) 66/4 kV substations: Option 1 and Option 2...see attached files.

Overview for Options 1 and 2

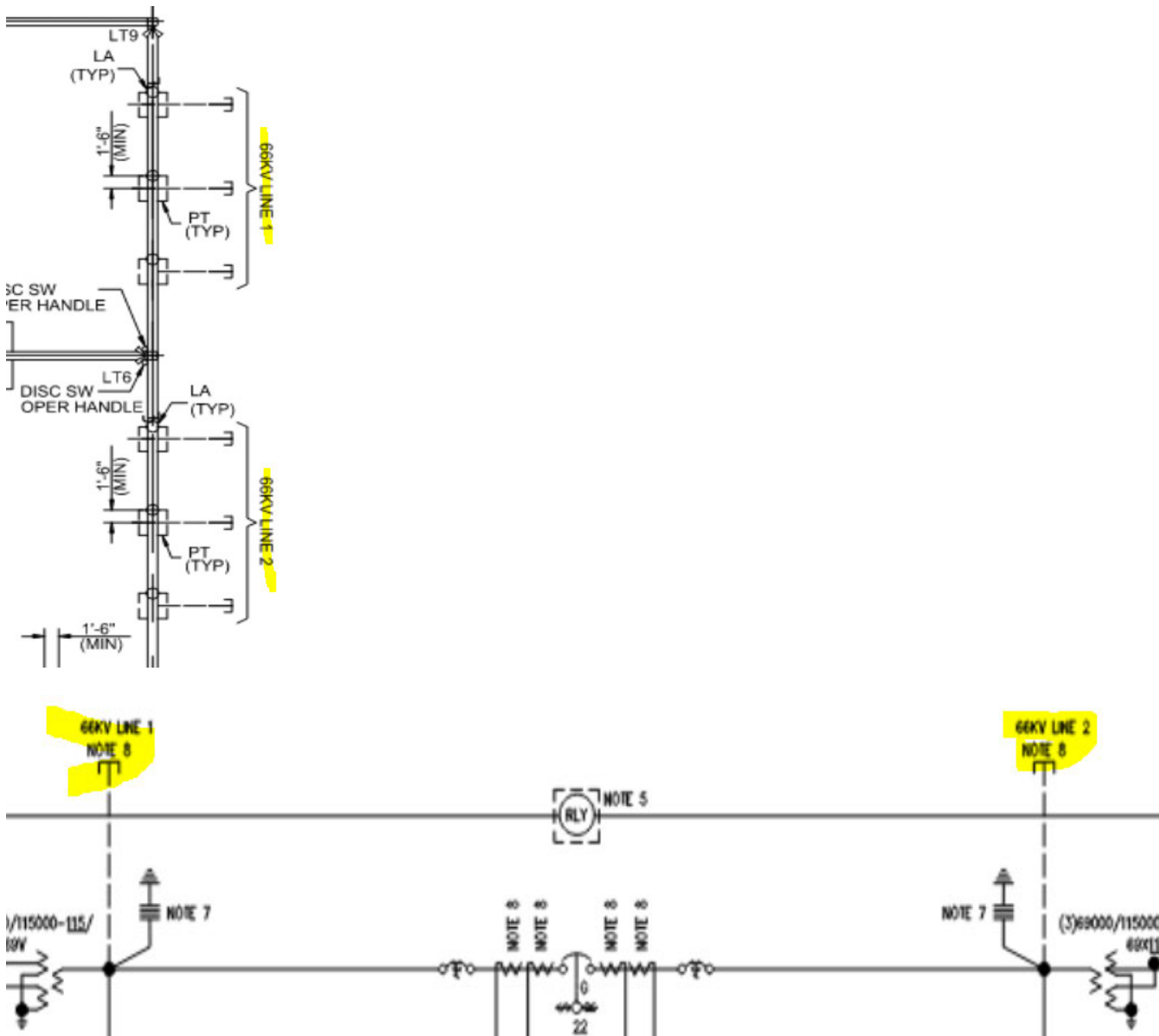
The Option 1 includes:

- 66 kV Partial Ring Bus Configuration with three (3) 66 kV Circuit Breakers
- One (1) 66/4 kV 1-28 MVA Transformer Bank
- Two (2) 4 kV Feeders
- One (1) MEER Control Building

The Option 2 includes:

- 66 kV Full Ring Bus Configuration with four (4) 66 kV Circuit Breakers
- Two (2) 66/4 kV 2-28 MVA Transformer Banks
- Two (2) 4 kV Feeders with two (2) additional 4 kV Feeders for future expansion if required
- One (1) MEER Control Building

1. Where is 2nd 66kV feed from SCE on the single line? [Response: Please refer to Option 2 \(One Line, Plot Plan, and Scope Document \)](#)



2. Why are there 3 circuit breakers? **Response:** The partial ring bus configuration is an extension of the sectionalized bus arrangement and is accomplished by interconnecting the two open ends of the buses through another sectionalizing breaker. This results in a closed loop or ring with each bus section separated by a circuit breaker. For maximum reliability and operation flexibility – for a breaker failure, the two breakers on the sides of the affected breaker open, along with a transfer trip to a remote breaker, to isolate the failed breaker and remove two bus sections from service. The ring bus arrangement provides for circuit breaker maintenance since any breaker can normally be removed from service without interruption of services to any circuits. Similar situation for Option 2 bus arrangement by showing four (4) circuit positions which is a practical maximum for a ring bus configuration.
3. Where are the other 4kV feed lines for the other two EDCs? (all electric option) **Response:** Option 1 shows two (2) 4 kV Feeders as requested, and Option 2 shows an additional two (2) more 4 kV Feeders for future loads.

Hope this helps! Please let me know if you have any questions.

Regards,

[REDACTED]
Burns & McDonnell
Project Manager \ Transmission &
Distribution Services

[REDACTED] [@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com) \ burnsmcd.com
burnsmcd.com
140 S. State College Blvd., Suite 100 \ Brea,
CA 92821

 burnsmcd.com
DESIGNED TO BUILD.

From: [REDACTED]@socalgas.com>
Sent: Tuesday, July 18, 2023 12:49 PM
To: [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]
[REDACTED]@socalgas.com>
Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

Thanks [REDACTED] I'll send a Teams invite.

Some items [REDACTED] and I had discussed:

1. Where is 2nd 66kV feed from SCE on the single line?
2. Why are there 3 circuit breakers?
3. Where are the other 4kV feed lines for the other two EDCs? (all electric option)

Thanks,
[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Tuesday, July 18, 2023 12:45 PM
To: [REDACTED]@socalgas.com>; [REDACTED]@burnsmcd.com>
Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]
[REDACTED]@socalgas.com>
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Backup Electrical Info

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Sorry... I hit send too soon.

Do you have questions you can send Gio and I ahead of time to review and prep for?

[REDACTED] \ Burns & McDonnell

Transmission & Distribution \ Projects Manager

\ burnsmcd.com [burnsmcd.com]
140 S State College Blvd, Suite 100 \ Brea, CA 92821

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From: [REDACTED] @socialgas.com>

Sent: Tuesday, July 18, 2023 12:15 PM

To: [REDACTED] @burnsmcd.com>; [REDACTED] @burnsmcd.com>

Cc: [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>

Subject: RE: SoCalGas Ventura CPCN - Backup Electrical Info

[REDACTED] & [REDACTED]

Would you have time this afternoon (15 minutes or so) to discuss some of our basic questions from the single lines? We are available any time after 230.

Thanks,

[REDACTED]

From: [REDACTED] @burnsmcd.com>

Sent: Tuesday, July 18, 2023 10:01 AM

To: [REDACTED] @socialgas.com>

Cc: [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>; [REDACTED] @socialgas.com>; [REDACTED] @burnsmcd.com>

Subject: [EXTERNAL] SoCalGas Ventura CPCN - Backup Electrical Info

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[REDACTED] -

Following up my text message – see below snapshot showing the location of the latest electrical backup info we have uploaded to Procore.

The following has been provided:

- Proposed transmission/distribution line routings from identified SCE substations to the Ventura station.
 - Associated Class V ROM estimates for those line routings.
 - Basis document for Class V ROM



SoCalGas

91651 - Ventura Compressor...

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> SoCalGas Requests

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From: ██████████@socialgas.com>

Sent: Friday, July 14, 2023 1:31 PM

To: ██████████@burnsmcd.com>

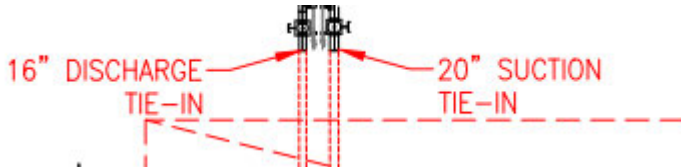
Cc: ██████████@socialgas.com>; ██████████@socialgas.com>; ██████████@burnsmcd.com>; ██████████@burnsmcd.com>

Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

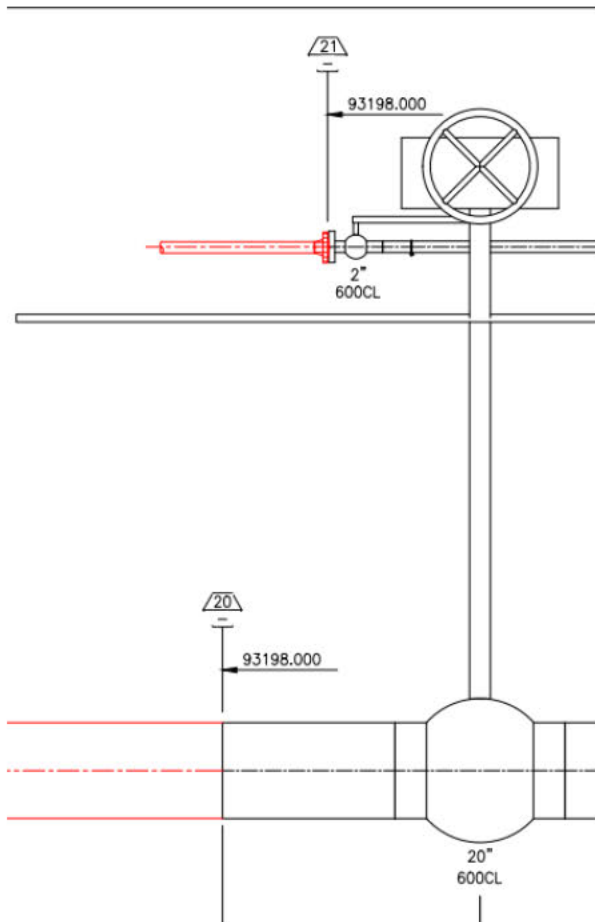
Good Afternoon ██████████,

We have completed our review of the drafts shared and below are the requested modifications:

1. Please edit the title block to state "Proposed Gas Pipeline Tie-ins Drawing"
2. Add the word "new" ahead of the suction and discharge tie-ins shown below



3. Use blue color to all the gas pipelines within the drawing to allow the new layer to be better distinguishable
4. Add a description to the depressurization line denoting "depressurization tie-in to Line 1003" where it meets L1003
5. Add a table on the right hand side of page 1906 to contain the estimated excavation volumes for each of the suction line, discharge lines, fuel gas lines and depressurization to Line 1003. The table is to contain the following columns: location description (line names referenced in the drawing next to the description), diameter, segment length, estimated excavation volume in cubic feet.
6. Make sure there is a legend on the drawing to state the dashed lines are underground pipelines and the solid lines are above grade.
7. Add a note on page 1907 to the demarcation points 20 and 21 to state "installed by others" as shown below:



Thank you,

[REDACTED]

Ventura Compressor Station Modernization Project

[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Wednesday, July 12, 2023 5:13 PM
To: [REDACTED]@socalgas.com>
Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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[REDACTED] -

I have uploaded our initial draft of the gas piping tie-in drawings (and other piping requested in the SOW) to Procore. Screenshot of location is provided below.

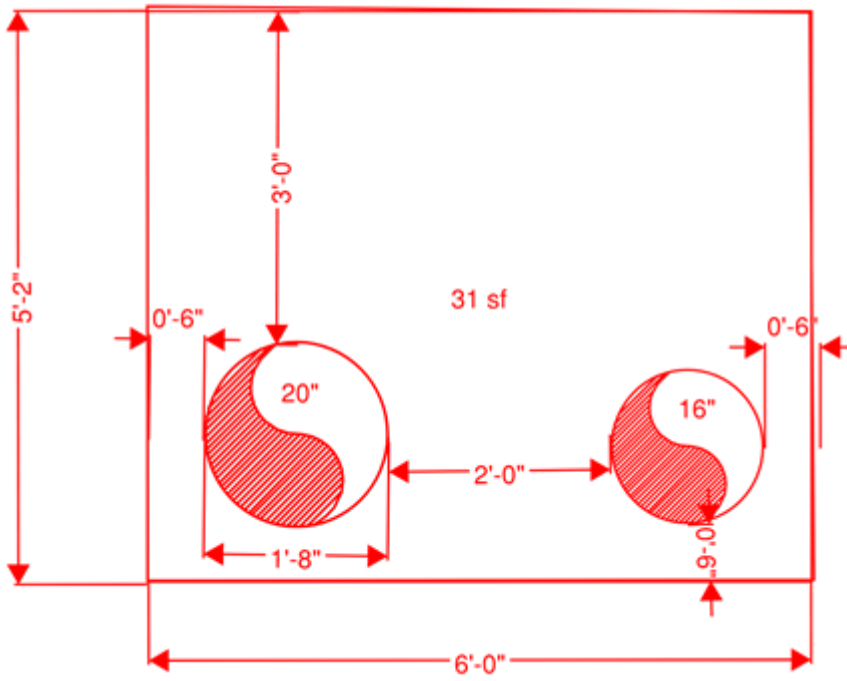
A few items to note:

- We've provided preliminary routing for all piping listed in the SOW (beyond the gas suction/discharge tie-in piping).
- You will note that the supply / discharge piping immediately south of the tie-in location runs right through the blowdown scrubber footprint. I believe we can work the blowdown scrubber around this routing, as a believe re-routing these lines will cause further issues. How will this visual play (from an optics perspective) of the data request response?
- I am still working through the excavation quantities, but right now for all UG lines shown in this drawing (GN2544, GN2502, GV1016, GV1035) we are conservatively at around 12,000 CF of soil disturbed – driven by the excavation required to get the suction/discharge piping from the tie-in locations to the Plant 2 UG/AG transition (James provided the below cross section to provide a visual, with line spacing provided in accordance with Gas Standards).

Take a look at these drafts and let us know if you have any questions. Thanks,

The screenshot shows a document management system interface. At the top left is the SoCalGas logo with the text 'A Sempra Energy utility'. To the right of the logo is a dropdown menu showing 'SoCalGas 91651 - Ventura Compressor...'. Further right is another dropdown menu labeled 'Project Tools Documents'. A search bar contains the text 'Search Documents'. Below the header, the word 'Documents' is displayed on the left, with a search box 'Search in this project' and an 'Add Filter' button. The main content area shows a breadcrumb trail: 'Ventura Compressor Modernization Project > BMcD Deliverables > Tie-In Pipeline Drawings'. On the left side of this area is a tree view with folders: '07 - Targeted Revised FEED', '08 - CPCN Proceedings Data Request', 'BMcD Deliverables' (expanded), 'Tie-In Pipeline Drawings' (selected), 'SoCalGas Requests', and 'Navisworks 3D Model'. The right side of the area shows a table of documents:

<input type="checkbox"/>	Name
<input type="checkbox"/>	33900-1906-D-SKT.pdf
<input type="checkbox"/>	33900-1907-D-SKT.pdf



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From: ██████████ @socialgas.com>
Sent: Monday, July 3, 2023 10:41 AM
To: ██████████ @burnsmcd.com>
Cc: ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @burnsmcd.com>; ██████████ @burnsmcd.com>
Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

Good Morning ██████████

Please see the responses below in bold thanks.

██████████

Ventura Compressor Station Modernization Project

From: [REDACTED]@burnsmcd.com>
Sent: Monday, July 3, 2023 5:29 AM
To: [REDACTED]@socialgas.com>
Cc: [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Subject: [EXTERNAL] FW: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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Hey [REDACTED] –

I am working to get the team set loose on working this gas piping tie-in drawing request. A couple high level questions to makes sure we are starting off on the right foot. When you respond, can you be sure to include [REDACTED] in the response?

I am thinking that we use previous plot plan -1901 we last updated in May 2023 as our starting point:

- Is there any need for the aerial / satellite image back drop? – No need for the aerial overlay
- Are we to show Plant 1 / existing infrastructure in this sketch or represent post-decommissioning/demo? – Maintain above grade plant 1 features (compressor building, pipe sleeper way etc.)
- Any issues in BMcD deleting the equipment list on the right-hand side of the drawing? – No issue

Thanks,

[REDACTED] | Burns & McDonnell
Transmission & Distribution \ Projects Manager
[REDACTED]@burnsmcd.com \ burnsmcd.com [burnsmcd.com]
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From: [REDACTED]@burnsmcd.com>
Sent: Saturday, July 15, 2023 7:06 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: [EXTERNAL] SoCalGas Ventura CPCN - Electrical Backup Info
Attachments: SOCALGAS PLOT PLAN_OPTION 1_Rev 0.pdf; SOCALGAS ONE LINE_OPTION 1_Rev 0.pdf; SoCalGas_7.12.23.kmz; SoCalGas Preliminary 10% New 66-4kV Substation Project Scope_7.11.23.docx

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Following up with our call late yesterday (Friday), I have attached the following info showing where we are at re: the electrical backup power concept request.

1. Plot plan and single line for the proposed onsite substation designed for 2 separate SCE feeders. As discussed, this approach contains a single transformer, so while it does provide redundancy for the feeders, if that single transformer fails power is lost to the facility. However, it is more plot space friendly. Gio and his team are quickly working up a 2 transformer option (for full reliability) and we will maneuver them on the facility plot plan on Monday.
2. KMZ showing the relative SCE substation locations we are reviewing routing for.
3. Preliminary write up showing the build up for the various routing options.
4. ROMs the team has developed for the various routing options.

Transmission Cost Estimates (Refer to the Transmission Word Document file)

- Option 1: Approx. 3.5 miles = \$10.5 to \$14 Million
- Option 2: Approx. 4.8 miles = \$14.4 to \$19.2 Million
- Option 3: Approx. 5.1 miles = \$15.3 to \$20.4 Million
- Option 4: Approx. 6.8 miles = \$20.4 to \$27.2 Million
- Option 5: Approx. 11.2 miles = \$33.6 to \$44.8 Million
- Option 6: Approx. 11.3 miles = \$33.9 to \$45.2 Million

As discussed, we are fine tuning the routing and looking at certain approaches and configurations to fit the substation within the project site boundaries.

[REDACTED] \ Burns & McDonnell
Transmission & Distribution \ Projects Manager
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From: [REDACTED] J

Sent: Wednesday, July 12, 2023 5:13 PM

To: [REDACTED]@socialgas.com>

Cc: [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]

<[REDACTED]@socialgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>

Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

[REDACTED] –

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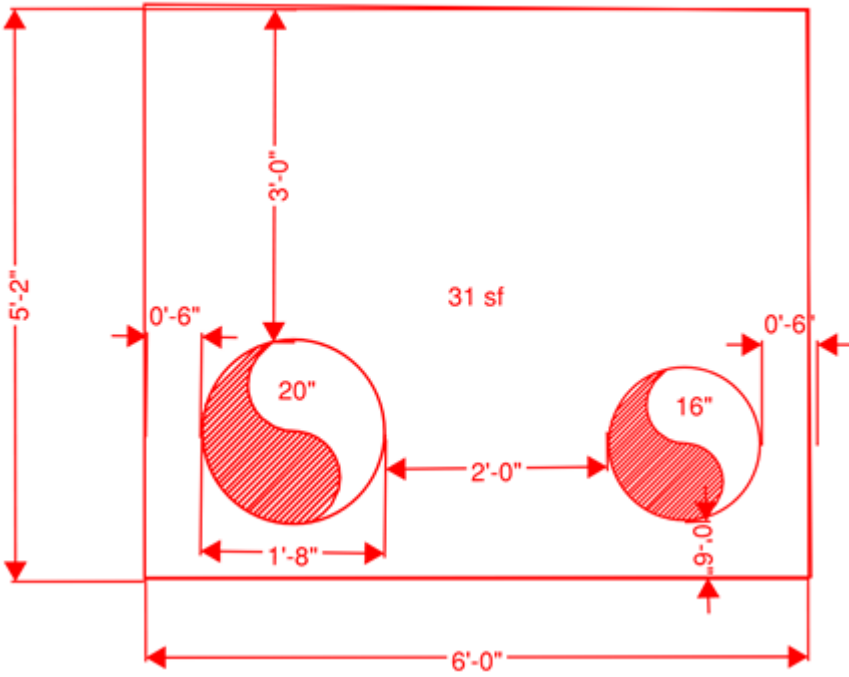
Documents



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 - BMcD Deliverables
 - Tie-In Pipeline Drawings**
 - SoCalGas Requests
 - Navisworks 3D Model

BMcD Deliverables > Tie-In Pipeline Drawings

<input type="checkbox"/>	Name
<input type="checkbox"/>	 33900-1906-D-SKT.pdf
<input type="checkbox"/>	 33900-1907-D-SKT.pdf



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From: [REDACTED] [@socialgas.com](#)>
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To: [REDACTED] [@burnsmcd.com](#)>
Cc: [REDACTED] [@socialgas.com](#)>; [REDACTED] [@socialgas.com](#)>; [REDACTED] [@socialgas.com](#)>; [REDACTED] [@socialgas.com](#)>; [REDACTED] [@burnsmcd.com](#)>; [REDACTED] [@burnsmcd.com](#)>
Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

Good Morning [REDACTED],

Please see the responses below in bold thanks.

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[REDACTED]

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Subject: [EXTERNAL] FW: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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From: [REDACTED]@burnsmcd.com>
Sent: Tuesday, July 18, 2023 10:01 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: [EXTERNAL] SoCalGas Ventura CPCN - Backup Electrical Info

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- Option 3: Approx. 4.7 miles = \$14.1 to \$18.8 Million
- Option 4: Approx. 5.8 miles = \$17.4 to \$23.2 Million
- Option 5: Approx. 9.3 miles = \$27.9 to \$37.2 Million
- Option 6: Approx. 9.9 miles = \$29.7 to \$39.6 Million

- 2 options for the onsite electrical substation –
 - Option #1 – 2 service feeds with 1 step down transformer option
 - Option #2 – 2 service feeds with 2 (redundant) step down transformer option.
 - Each option is provided a SOW/equipment outline, single line and plot plan
 - KMZ showing the relative size of this substation within the station (noting that we are currently updating to shift to another location within the facility).

Take a look and let us know if you have any questions.

[REDACTED] \ Burns & McDonnell
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Sent: Monday, July 17, 2023 2:28 PM

To: [REDACTED]@socalgas.com>

Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; [REDACTED]

[REDACTED]@socalgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>

Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

[REDACTED] -

The VCM gas piping tie-in drawings (incorporating your comments from 7/14) have been uploaded to Procore at the location in the screenshot below.



SoCalGas








91651 - Ventura Compressor...

Pr

D

Documents

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From: [REDACTED]@socialgas.com>

Sent: Friday, July 14, 2023 1:31 PM

To: [REDACTED]@burnsmcd.com>

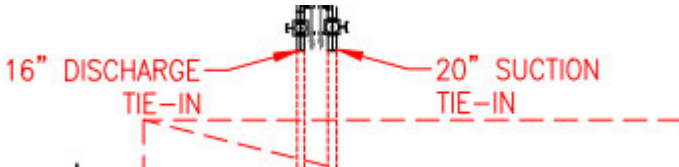
Cc: [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@socialgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>

Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

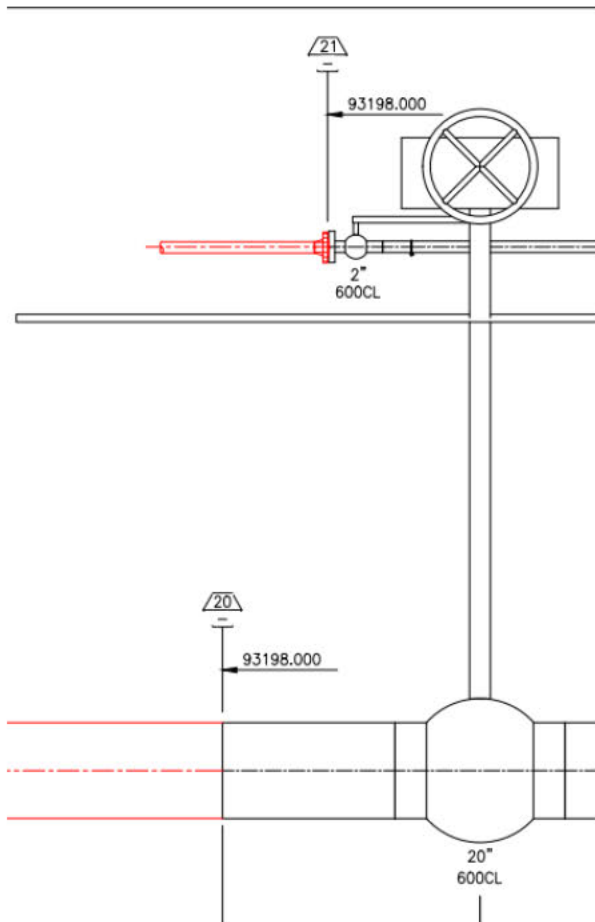
Good Afternoon [REDACTED]

We have completed our review of the drafts shared and below are the requested modifications:

1. Please edit the title block to state "Proposed Gas Pipeline Tie-ins Drawing"
2. Add the word "new" ahead of the suction and discharge tie-ins shown below



3. Use blue color to all the gas pipelines within the drawing to allow the new layer to be better distinguishable
4. Add a description to the depressurization line denoting "depressurization tie-in to Line 1003" where it meets L1003
5. Add a table on the right hand side of page 1906 to contain the estimated excavation volumes for each of the suction line, discharge lines, fuel gas lines and depressurization to Line 1003. The table is to contain the following columns: location description (line names referenced in the drawing next to the description), diameter, segment length, estimated excavation volume in cubic feet.
6. Make sure there is a legend on the drawing to state the dashed lines are underground pipelines and the solid lines are above grade.
7. Add a note on page 1907 to the demarcation points 20 and 21 to state "installed by others" as shown below:



Thank you,

[REDACTED]

Ventura Compressor Station Modernization Project

[REDACTED]

From: [REDACTED]@burnsmcd.com>
Sent: Wednesday, July 12, 2023 5:13 PM
To: [REDACTED]@socalgas.com>
Cc: [REDACTED]@socalgas.com>; [REDACTED]@socalgas.com>; A [REDACTED]
[REDACTED]@socalgas.com>; [REDACTED]@burnsmcd.com>; [REDACTED]@burnsmcd.com>
Subject: [EXTERNAL] RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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[REDACTED]

I have uploaded our initial draft of the gas piping tie-in drawings (and other piping requested in the SOW) to Procore. Screenshot of location is provided below.

A few items to note:

- We've provided preliminary routing for all piping listed in the SOW (beyond the gas suction/discharge tie-in piping).
- You will note that the supply / discharge piping immediately south of the tie-in location runs right through the blowdown scrubber footprint. I believe we can work the blowdown scrubber around this routing, as a believe re-routing these lines will cause further issues. How will this visual play (from an optics perspective) of the data request response?
- I am still working through the excavation quantities, but right now for all UG lines shown in this drawing (GN2544, GN2502, GV1016, GV1035) we are conservatively at around 12,000 CF of soil disturbed – driven by the excavation required to get the suction/discharge piping from the tie-in locations to the Plant 2 UG/AG transition (James provided the below cross section to provide a visual, with line spacing provided in accordance with Gas Standards).

Take a look at these drafts and let us know if you have any questions. Thanks,

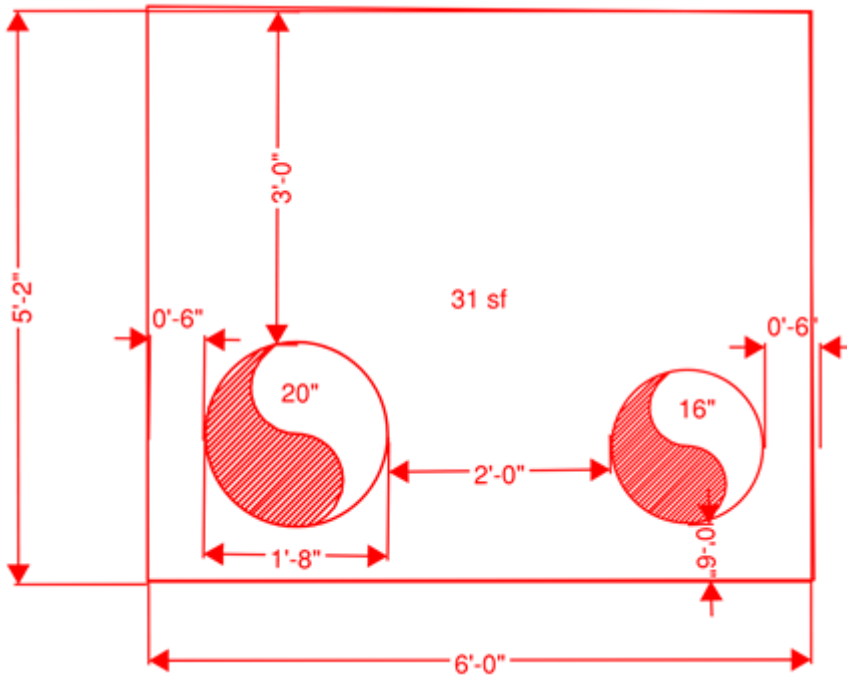
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BMcD Deliverables > Tie-In Pipeline Drawings

<input type="checkbox"/>	Name
<input type="checkbox"/>	33900-1906-D-SKT.pdf
<input type="checkbox"/>	33900-1907-D-SKT.pdf



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Sent: Monday, July 3, 2023 10:41 AM
To: ██████████ @burnsmcd.com>
Cc: ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @socialgas.com>; ██████████ @burnsmcd.com>; ██████████ @burnsmcd.com>
Subject: RE: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

Good Morning ██████████

Please see the responses below in bold thanks.

██████████

[REDACTED]
Ventura Compressor Station Modernization Project
[REDACTED]

From: [REDACTED] <[\[REDACTED\]@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
Sent: Monday, July 3, 2023 5:29 AM
To: [REDACTED] <[\[REDACTED\]@socialgas.com](mailto:[REDACTED]@socialgas.com)>
Cc: [REDACTED] <[\[REDACTED\]@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] <[\[REDACTED\]@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] <[\[REDACTED\]@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] <[\[REDACTED\]@socialgas.com](mailto:[REDACTED]@socialgas.com)>; [REDACTED] <[\[REDACTED\]@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>; [REDACTED] <[\[REDACTED\]@burnsmcd.com](mailto:[REDACTED]@burnsmcd.com)>
Subject: [EXTERNAL] FW: SoCalGas Ventura CPCN - Gas Piping Tie-In/Drawing

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Hey [REDACTED] –

I am working to get the team set loose on working this gas piping tie-in drawing request. A couple high level questions to makes sure we are starting off on the right foot. When you respond, can you be sure to include Banks/Rizo in the response?

I am thinking that we use previous plot plan -1901 we last updated in May 2023 as our starting point:

- Is there any need for the aerial / satellite image back drop? – **No need for the aerial overlay**
- Are we to show Plant 1 / existing infrastructure in this sketch or represent post-decommissioning/demo? – **Maintain above grade plant 1 features (compressor building, pipe sleeper way etc.)**
- Any issues in BMcD deleting the equipment list on the right-hand side of the drawing? – **No issue**

Thanks,

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