Application: A.25-08-009
Exhibit No.: SCG/Lakeside-05
Witness: M. Pacheco

Application of Southern California Gas Company (U 904 G) and Lakeside Pipeline LLC to Initiate Reasonableness Review and Recovery of Lakeside Maas Energy Works Dairy Biomethane Pilot Project Costs.	A.25-08-009 (Filed August 15, 2025)

SUPPLEMENTAL TESTIMONY OF

MARITZA PACHECO

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

(PROJECT EXECUTION COST)

[PUBLIC VERSION]

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

January 27, 2026

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SUPPLEMENTAL TESTIMONY OF
M. PACHECO
(PROJECT EXECUTION COST)

I. INTRODUCTION AND PURPOSE

The purpose of this supplemental testimony on behalf of Southern California Gas Company (SoCalGas) is to respond to the Administrative Law Judge Maria Sotero's request at the November 24, 2025 Prehearing Conference for additional information, specifically engineering and design documentation. This supplemental testimony summarizes additional details of engineering and design for the compression system in the following three categories: (1) compressor foundation design modifications required to satisfy soil bearing, seismic, and anchorage criteria; (2) Power Distribution Center (PDC) and associated electrical load-driven scope increases; and (3) the required instrumentation and control (I&C) system additions. All engineering design decisions described in this supplemental testimony are consistent with standard utility engineering practice and reflect prudent project management based on information reasonably available at the time each decision was made. As further detailed in the attached engineering calculations and design packages, the cost increases were the direct result of engineering requirements, vendor-specified equipment loads, and/or safety system expansions necessary to meet applicable codes, standards, and operational requirements.

The engineering documentation supporting these changes is included as confidential attachments:

- SoCalGas Lakeside Facility Issued for Construction (IFC) Drawing Package which contains all engineering design drawings reviewed for construction, (Lakeside Facility IFC Drawing Package);
- Civil/Structural design packages at the 30%, 60%, and 90% design stages (Civil–Structural IFR-30/60/90);
- Electrical design packages at the 30%, 60%, and 90% design stages (Electrical IFR-30/60/90);
- Mechanical design plot plans at 10%, 60%, and 90% (Mechanical Plot Plan 10/60/90);
- Structural calculations for the foundation static design and analysis of the anchorage requirement for the Compressor skid (Compressor Foundation Design);

- The Soil-Structure-Interaction (SSI) analysis evaluates the collective response of the structure, foundation, and the geological media underlying and surrounding the foundation, to a specified free-field ground motion (Hanford/Lakeside SSI Analysis for Foundation Design for Compressors); and
- PDC structural and load evaluation calculations (PDC Drawings with Calculations).

II. BACKGROUND

In order to develop the preliminary scope and cost estimates for the Facility in 2018, SoCalGas relied on historical data, information known about the Project at the time, and assumptions about Facility design and execution activities typical for renewable natural gas point-of-receipt and pipeline extension project scopes. Given the short timeframe provided in D.17-12-004 for SoCalGas to develop the Facility cost estimate (SoCalGas had not undertaken detailed designs normally used for estimation with engineering design at 30%), SoCalGas created a conceptual plot plan as shown in Figure 10 of the SoCalGas's Facility workpaper (Plot Plan) with available engineering data at the time.[1] The data and information used for the estimate did not contain details of the compression system and additional engineering, design, and necessary construction and fabrication activities for the completion of the Facility, as this requires equipment specifications and vendor details that result from detailed engineering, which had not occurred at the time of the estimation. As the engineering and design progressed, technical and safety information/requirements were addressed and incorporated into the design. As a result, the structural and electrical drawing packages were revised and completed, reflecting the refined complex compression system scope.[2]

At the time of estimation, the level of design maturity (percentage of engineering completed) was in the 1-15% range, which did not fully identify all detailed scope elements for the Facility. The engineering design process consists of continuous design development and engineering decisions that are captured for the critical design review stages. The design

[1] SCG-03-WP, Final Report for Lakeside Mass Energy Works Dairy Biomethane Pilot Project (Lanes 4-6) Workpaper at WP-22.

[2] All sealing and signing of such documents were done in accordance with the Professional Engineers Act (Business and Professional Code §§ 6700-6799) and Board Rules (Title 16, California Code of Regulations §§ 400-476).

drawings were reviewed at the 30% conceptual review, 60% design refinement review, and 90% finalization and validation review prior to finalizing the Issued For Construction (IFC) drawings.

Both the structural and electrical review packages reflect the engineering and design complexities of the Facility. Additionally, the Facility mechanical plot plans change from preliminary 10% and the IFC drawings to illustrate the progress made through the engineering process. The compressor foundation sizes increased as additional vendor information was obtained, and the geotechnical report was finalized. The proposed Electrical and Control Shelter was later revised to reflect the required PDC for Facility power load demands. The instrumentation cabinets and air compressors details were later identified to reflect vendor information and final system design for safe and remote operation.

III. COMPRESSION SYSTEM DESIGN

A. A Description of Original Compressor and Foundation Design Assumptions

The preliminary compressor design assumptions were based on typical compressor equipment, site soil conditions and site equipment layout. The initial compressor foundation designs were not based on selected equipment rather it was estimated on the conceptual equipment sizes. The evaluation of site soil conditions were pending at the time of estimate as the geotechnical report had not been completed. Although the compressor locations did not significantly change from the proposed equipment layout, the foundation design, soil conditions and piping and electrical connections could not be finalized until compressor selection.

B. Final Facility Compression Specification and Decisions

Upon authorization of the Project, the Facility design moved forward with verifying required equipment and execution of a site soils report for confirming the requirements for the site foundation pads and pipe supports and detailed design.

The 30% conceptual review (Sheet 33906-5008-D-ELC) confirmed the equipment requirement to support the compression system.[3] This equipment included the gas cooling system with coolant chiller and pump, the instrument air compressors and the replacement of the assumed electrical and control shelter with the need for a PDC building noted Electrical-Pkg_IFR-30 (sheet 33906-5008-D-ELC). Vendor selection was confirmed through competitive

[3] Attachment 5, Electrical-Pkg_ IFR-30 at 5.

bidding and once selected, the vendor provided general equipment requirements. The vendor information was incorporated into the preliminary design and matured through to the Lakeside Facility IFC Package (Sheet 33906-5007-D-ELC).[4]

In parallel, the civil and structural design package was created to reflect approximate foundation sizing based on vendor information as well as SoCalGas's engineering and design standards as shown in the Civil-Structural-Pkg_IFR-30 (sheet 33906-4009-D-STR).[5] Once the geotechnical report was completed, the results identified soil conditions that required an update to the civil and structural design assumptions, particularly the increase sizing, reinforcing steel requirements and configuration for the foundations.[6] For example, the geotechnical report Section 5.4 Summary recommended each of the reciprocating compressors be supported by an individual 24' length x 10' wide x 5' height mat foundation, embedded 5 feet below ground surface.[7] The Compressor Foundation Design package included the recommended foundation dimensions as the design input to provide "structural calculations for the foundation static design and analysis of the anchorage requirements."[8] As a result, the recommended foundation sizing as showing in the Civil-Structural-Pkg-IFR-30 (sheet 33906-4009-D-STR),[9] including required rebar reflected in the Lakeside Facility IFC Package (sheet 33906-4009-D-STR),[10] replaced the preliminary foundation footprint used for early estimating which consisted of a single 48-foot by 20-foot compression skid foundation.[11]

In addition, with the compressors selected and vendor equipment calculations received, SoCalGas proceeded to update the structural drawings. Within this revision, it was determined that the SoCalGas standard pipe supports design would not be acceptable to address the pipe vibration due to the pulsation of the compressor. Additional pipe support calculations were

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4 Attachment 1, Lakeside Facility IFC – Sheet 33906-5007-D-ELC at 144.

5 Attachment 2, Civil-Structural-Pkg_IFR-30 at 5.

6 Attachment 12, Hanford/Lakeside SSI Analysis for Foundation Design for Compressors at 9.

7 Attachment 12, Hanford/Lakeside SSI Analysis for Foundation Design for Compressors at 10.

8 Attachment 11, Compressor Foundation Design at 4 and 13.

9 Attachment 2, Civil-Structural-Pkg_IFR-30 at 5.

10 Attachment 1, Lakeside Facility IFC – Sheet 33906-4009-D-ELC at 108.

11 SCG-03-WP, Final Report for Lakeside Mass Energy Works Dairy Biomethane Pilot Project (Lanes 4-6) Workpaper at 22.

performed to confirm the acceptable pile depth and site-specific pipe support designs to not exceed the API 618[12] recommended limit in the Lakeside Facility IFC Package (sheet 33906-4023-4025).[13]

Once the finalized vendor information was received and all equipment sizing was confirmed, the IFC drawing package was completed. The IFC drawing package was then submitted to the contractor to update their construction schedule and costs.

IV. POWER DISTRIBUTION SYSTEM REDESIGN AND UPSIZING

A. Description of the Original Electrical Equipment and PDC Assumptions

For the preliminary estimate, the electrical equipment assumptions were based on typical RNG equipment, including but not limited to analyzers and control panels, as well as a general Electrical and Control Shelter for the compressor functional needs. The compression system was depicted as a general design, but the equipment sizing and control requirements would be dependent on the actual equipment selected.

B. Final Electrical Equipment and Required PDC

After project authorization, as the vendor equipment information was received, additional equipment, panels, connections, and controls necessary to operate the Facility were confirmed. The initial Electrical and Control Shelter was insufficient in size for the additional control and power equipment. The design needed to include a PDC to house all major electrical and control equipment including the Motor Start Panels (MSP), control panels, and Uninterruptible Power Supply, (UPS) as shown in the PDC Drawings with Calculations Sheet drawing number 51826-S03 Base Plan View. The vendor information was incorporated into the preliminary design (Electrical-Pkg_IFR-30, sheet 33906-5005-D-ELC)[14] and matured through to the Lakeside Facility IFC package (33906-5005-D-ELC).[15]

As the engineering process progressed, additional spacing requirements exceeded the size of the proposed Electrical and Control Shelter. The proposed electrical and control shelter was

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[12] Reciprocating Compressors for Petroleum, Chemical, and Gas Industry Services.

[13] Attachment 1, Lakeside Facility IFC – Sheet 33906-4023-D-ELC through Sheet 33906-4025-D-ELC at 122-124.

[14] Attachment 5, Lakeside Facility IFC – Electrical-Pkg_IFR-30, sheet 33906-5005-D-ELC at 4.

[15] Attachment 1, Lakeside Facility IFC – Sheet 33906-5005-D-ELC at 142.

planned to house an UPS and Remote Terminal Unit (RTU) for remote site monitoring. However, the PDC building was sized to house the MSPs, the control panels to support site remote operation, the motor control cabinets for the auxiliary equipment and, the increase in the number of UPS battery cabinets. The increase in equipment and spacing requirements necessitated a larger PDC configuration to safely and reliably serve the Facility's electrical requirements and safeguard equipment against environmental exposure.

In particular, the compression system operation required the installation of an individual MSPs for each compressor. It is typical for critical mechanical rotating equipment, to operate with a primary and backup function. This design philosophy avoids Facility downtime should the primary compressor be inoperable. The MSP included a Variable Frequency Drive (VFD) to allow either compressor to adjust the motor speed to match the process requirements. As a result, the installation of the VFDs would reduce the power consumption by running the motor at optimal speeds. The VFDs and the previously mentioned control equipment drove the spacing requirements within the electrical shelter.

Ultimately, the PDC building design was revised to be approximately four (4) times the size and weight of the originally proposed electrical shelter.[16] The preliminary foundation length of the Electrical and Control Shelter was estimated at 26 feet long. The final design, to accommodate the equipment and spacing requirements, increased the PDC footprint to approximately 48 feet with a width of 16 feet to accommodate physical spacing of all the equipment necessary for the Facility (Lakeside Facility IFC - sheet 33906-4017-D-STR).[17] For illustrative purposes Figure 1 below is the installed PDC.

[16] Attachment 13, PDC Drawings with Calculations – drawing number 51826-S03 – Base Plan View at 3.

[17] Attachment 1, Lakeside Facility IFC – Sheet 33906-4017-D-ELC at 116.

Figure 1 - Lakeside PDC



V. INSTRUMENTATION AND CONTROLS EXPANSION

A. Description of the Original Instrumentation and Control Assumptions

Instrumentation and Control refer to the specific devices and systems that measure and control the site operation. The preliminary instrumentation and controls assumptions included the typical RNG site monitoring equipment, including the UPS and RTU. What was not known at the time of estimate was the detailed design requirements needed for automation and remote monitoring of the Facility and as a result, increasing the amount of conduit and cabling required for the PDC.[18]

B. Final Instrumentation and Control Specification and Decisions

The compression system design required the use of three control panels (field instrumentation,[19] Supervisory Control and Data Acquisition (SCADA),[20] and fire/gas[21]). Each panel provides monitoring and control for the necessary function for the remote operation and

[18] Attachment 1, Lakeside Facility IFC – Sheets 33906-5010-D-ELC through 33906-5015-D-ELC, Sheet 33906-5047-D-ELC and Sheet 33906-5048-D-ELC at 147 – 152, 179, 180.

[19] Attachment 1, Lakeside Facility IFC – Sheet 33906-5101-D-ELC at 188.

[20] Attachment 1, Lakeside Facility IFC – Sheet 33906-5103-D-ELC at 190.

[21] Attachment 1. Lakeside Facility IFC – Sheet 33906-5101-D-ELC at 188.

the safety of the Facility.[22] The field instrumentation control panel monitors and controls equipment without independent controllers (*e.g.,* chiller or heat exchanger) and enables remote-stop of equipment that has its own controller (*e.g.,* compressors) in the event of an emergency. Furthermore, the instrumentation control panel is equipped to deliver notifications regarding the operational status of the site, encompassing alarms and prevailing site conditions. The SCADA control panel receives the signals for the inlet gas analyzers as well as gas processing equipment instrumentation and controls to monitor Facility operation. Finally, the fire and gas control panel monitors the facility and receives signals for the Emergency Shutdown (ESD) which incorporates the methane detectors and gas monitors. The increased I/O (Input/Output) counts and PLC hardware, that was unknown at the time of the preliminary estimate, reflect compliance with these required safety protocols, not elective enhancements.[23] The Lakeside Facility IFC (Sheet 33906-5032-D-ELC) displays the finalized instrumentation design for the safe remote operation of the Facility.[24] In addition, Lakeside Facility IFC (Sheets 33906-5051-D-ELC through 33906-5054-D-ELC) outline the instrumentation installation.[25]

VI. CONCLUSION

The engineering drawings and calculations included with this supplemental testimony document the technical basis for the design progression that led to the cost increases identified in A.25-08-009. These changes were driven by updated vendor requirements, geotechnical conditions, electrical load confirmations, and/or mandatory safety system expansions. SoCalGas implemented these changes in a prudent and reasonable manner consistent with utility engineering standards and regulatory requirements.

This concludes my supplemental testimony.

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[22] Attachment 1, Lakeside Facility IFC Sheet 33906-5020-D-ELC through Sheet 33906-5022-D-ELC at 157-159.

[23] Regulated by ISO 13631, SoCalGas safety standards, and NFPA 72/NEC Class I, Division 2 requirements.

[24] Attachment 1, Lakeside Facility IFC – Sheet 33906-5032-D-ELC at 169.

[25] Attachment 1, Lakeside Facility IFC Sheet 33906-5051-D-ELC through Sheet 33906-5054-D-ELC at 183-186.

BEFORE THE PUBLIC UTILITIES
COMMISSION OF THE STATE OF CALIFORNIA

DECLARATION OF RENE GARCIA
REGARDING CONFIDENTIALITY OF CERTAIN DATA
PURSUANT TO D.21-09-020

I, Rene Garcia, do declare as follows:

1. I am the Project Delivery Strategy and Controls Director in the Infrastructure Project Delivery organization for Southern California Gas Company (SoCalGas). I have been delegated authority to sign this declaration by Devin Zornizer, Vice President of Infrastructure Project Delivery for SoCalGas. I have reviewed the attachments to the Supplemental Testimony of Maritza Pacheco on Behalf of Southern California Gas Company (Supplemental Testimony) that SoCalGas provides in response to the Administrative Law Judge Maria Sotero's request at the November 24, 2025 Prehearing Conference for additional information

2. I am personally familiar with the facts in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or information and belief.

3. I hereby provide this Declaration in accordance with Decision ("D.") 21-09-020 and General Order ("GO") 66-D, Revision 2 to demonstrate that the confidential information ("Protected Information") provided and highlighted with a red box in the attachments to the Supplemental Testimony falls within the scope of data protected as confidential under applicable law.

4. For the reasons set forth in the narrative justification provided in Attachment A, the Protected Information should be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge. Executed this 26th day of January 2026, at Los Angeles, California.

E-SIGNED by Rene Garcia
on 2026-01-26 16:30:35 PST

_____

Rene Garcia
Infrastructure Project Delivery
SoCalGas

ATTACHMENT A

SCG Request for Confidentiality on the following information in the attachments to the Supplemental Testimony of Maritza Pacheco on Behalf of Southern California Gas Company

Location of Protected Information	Legal Citations	Narrative Justification
All information highlighted in a red box in the following attachments: Attachment 1 Lakeside Facility IFC Package Attachment 2 Civil-Structural-Pkg_IFR-30 Attachment 3 Civil-Structural-Pkg_IFR-60 Attachment 4 Civil-Structural-Pkg_IFR-90 Attachment 5 Electrical-Pkg_IFR-30 Attachment 6 Electrical-Pkg_IFR-60 Attachment 7 Electrical-Pkg_IFR-90 Attachment 8 Mechanical Plot Plan 10% Attachment 9 Mechanical Plot Plan 60% Attachment 10 Mechanical Plot Plan 90% Attachment 11 Compressor Foundation Design Attachment 12 Hanford/Lakeside SSI Analysis for Foundation Design for Compressors	California Public Records Act (CPRA) Exemption, Gov't Code § 7929.205 ("Critical infrastructure information, as defined in Section 131(3) of Title 6 of the United States Code, that is voluntarily submitted to the Office of Emergency Services for use by that office") CPRA Exemption, Gov't Code § 7927.705 ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") • 6 U.S.C. §§ 131(3) (defining CII) & 133(a)(1)(E) (CII is protected) • 6 CFR §§ 29.2(b) & 29.8 (defining CII and restricting its disclosure) • 42 U.S.C. § 5195c (defining critical infrastructure) • Cal. Pub. Util. Code § 364(d) ("The commission may, consistent with other provisions of law, withhold from the public information generated or obtained pursuant to this section that it deems would pose a security threat to the public if disclosed.") D.20-08-031 (providing protection for CII under G.O. 66-D when the CII is not customarily in the public domain by (1) stating that the subject information is not related to the location of a physical structure that is visible with the naked eye or is available publicly online or in print; and (2) the subject information either: could allow a bad actor to attack, compromise or incapacitate physically or electronically a facility providing critical utility service; or discusses vulnerabilities of a facility providing critical utility service.) CPRA Exemption, Gov't Code § 7922.000 (Balancing Test)	It is SoCalGas' practice to designate certain data as confidential because this data is similar to data protected by CII regulations and, if made publicly available, could potentially present a risk to public and pipeline safety. The designated CII is (1) is not customarily in the public domain, is not related to the location of a physical structure that is visible with the naked eye or is available publicly online or in print; and (2) the subject information either: could allow a bad actor to attack, compromise or incapacitate physically or electronically a facility providing critical utility service; or discusses vulnerabilities of a facility providing critical utility service.

Attachment 13 PDC Drawings with Calculations		
All information highlighted in a red box in the following attachments: Attachment 1 Lakeside Facility IFC Package Attachment 2 Civil-Structural-Pkg_IFR-30 Attachment 3 Civil-Structural-Pkg_IFR-60 Attachment 4 Civil-Structural-Pkg_IFR-90 Attachment 5 Electrical-Pkg_IFR-30 Attachment 6 Electrical-Pkg_IFR-60 Attachment 7 Electrical-Pkg_IFR-90 Attachment 8 Mechanical Plot Plan 10% Attachment 9 Mechanical Plot Plan 60% Attachment 10 Mechanical Plot Plan 90% Attachment 11 Compressor Foundation Design Attachment 12 Hanford/Lakeside SSI Analysis for Foundation Design for Compressors Attachment 13 PDC Drawings with Calculations	CPRA Exemption, Gov't Code § 7927.705 ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") • 18 CFR § 388.113(c) (defining CEII) • FERC Order Nos. 630, 643, 649, 662, 683, and 702 (defining CEII) • FAST Act - Critical Electric Infrastructure Security, Pub. L. 114-94, amended December 4, 2015 (protecting **electric** infrastructure) • FERC Order 833 (including amendments to the CEII regulations, required by The FAST Act) • Critical Energy Infrastructure Information, 68 Fed. Reg. 9857, 9862 (Dep't of Energy Mar. 3, 2003) (final rule) (listing what **gas** information qualifies as CEII) • FERC's Guidelines for Filing Critical Energy/Electric Infrastructure Information, (Feb. 21, 2017), *available at* https://www.ferc.gov/sites/default/files/2020-04/CEII-Filing-guidelines.pdf o Exhibits G, G-1, G-II of pipeline certificate applications. 18 CFR § 157.14 o Exhibit V of abandonment applications. 18 CFR § 157.18 o FERC Form 567. 18 CFR § 260.8 • CPUC Res. L-436, at 8 (stating CPUC will "refrain from making available to the public detailed maps and schematic diagrams showing the location of specific utility regulator stations, valves, and similar facilities") • Cal. Pub. Util. Code § 364(d) ("The commission may, consistent with other provisions of law, withhold from the public information generated or obtained pursuant to this section that it deems would pose a security threat to the public if disclosed.")	It is SoCalGas's practice to designate certain data as confidential because this data is similar to data protected by CEII regulations and, if made publicly available, could potentially present a risk to public and pipeline safety

	CPRA Exemption, Gov't Code § 7922.000 (Balancing Test)	
All employee information (i.e. SoCalGas employee names) highlighted in a red box in the following attachments Attachment 1 Lakeside Facility IFC Package Attachment 2 Civil-Structural-Pkg_IFR-30 Attachment 3 Civil-Structural-Pkg_IFR-60 Attachment 4 Civil-Structural-Pkg_IFR-90 Attachment 5 Electrical-Pkg_IFR-30 Attachment 6 Electrical-Pkg_IFR-60 Attachment 7 Electrical-Pkg_IFR-90 Attachment 8 Mechanical Plot Plan 10% Attachment 9 Mechanical Plot Plan 60% Attachment 10 Mechanical Plot Plan 90%	CPRA Exemption, Gov't Code § 7927.700 ("disclosure of which would constitute an unwarranted invasion of personal privacy"). CPRA Exemption, Gov't Code § 7927.705 ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") • Cal. Civil Code § 1798.21 (requiring agencies to "ensure the security and confidentiality of" personal data); • Cal. Civil Code § 1798.24 (limiting disclosure of personal information); • Cal. Civ. Proc. Code § 1985.3, 1985.6 (identifying types of protected records (including employment records, the process for subpoenaing employee records and requiring notice and opportunity to object); • *Britt v. Superior Court*, 20 Cal. 3d 844, 855-856 (1978) (even highly relevant information may be shielded from discovery if its disclosure would impair a person's inalienable right of privacy provided by the California Constitution); • *Alch v. Superior Court*, 165 Cal. App. 4th 1412, 1428 (2008) (recognizing that name and work history information can implicate privacy interests); • *Pioneer Elecs. (USA), Inc. v. Superior Court*, 40 Cal. 4th 360, 366 (2007) ("protecting disclosure of an individual's name and other identifying information is a matter embraced within the state Constitution's privacy provision (Cal. Const., art. I, § 1)"); • *Sehlmeyer v. Dept. of General Services*, 17 Cal. App. 4th 1072, 1079-1080 (1993) (applying civil litigation privacy protections to administrative proceedings). CPRA Exemption, Gov't Code § 7922.000 (Balancing Test)	Disclosing employee names is an unwarranted invasion of personal privacy and could pose a risk to employee safety. Additionally, disclosure of such information increases the risks of cyber-attacks, phishing attempts, incessant robo-calls, targeted calls, identity theft and malicious emails.

Attachment 1

Lakeside Facility IFC Package

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

LAKESIDE DAIRY PILOT
SENATE BILL 1383
I/O#: 300797008 / WOA#: 93365.001

15610 7TH AVE., HANFORD, CA 93230

CONSTRUCTION DRAWING LIST

DRAWING NO.	DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

P&ID

33906-0201-D-PFD	PFD – PROCESS FLOW DIAGRAM
33906-0202-D-PFD	PFD – DRAINS AND WASTES DIAGRAM
33906-0203-D-PFD	PFD – MATERIAL SELECTION DIAGRAM
33906-0204-D-PFD	PFD – UTILITY FLOW DIAGRAM
33906-2001-D-PID	P&ID – PLANT INLET PIPING
33906-2002-D-PID	P&ID – INLET FILTER SEPARATOR
33906-2003-D-PID	P&ID – COMPRESSOR C-1200
33906-2004-D-PID	P&ID – COMP. LUBRICATION CKT C-1200
33906-2005-D-PID	P&ID – COMPRESSOR C-1300
33906-2006-D-PID	P&ID – COMP. LUBRICATION CKT C-1300
33906-2007-D-PID	P&ID – CHILLER & TRIM COOLER
33906-2008-D-PID	P&ID – OUTLET FILTER SEPARATOR
33906-2009-D-PID	P&ID – METER SET ASSEMBLY
33906-2010-D-PID	P&ID – ODORANT SKID
33906-2011-D-PID	P&ID – I.A. COMP. SKID & RECEIVER
33906-2012-D-PID	P&ID – FIRE AND GAS SYSTEM
33906-2013-D-PID	P&ID – INSTR. AIR DISTRIBUTION HEADER

PIPING

33906-3001-D-PIP	SITE PLAN/EQUIPMENT LOCATION PLAN
33906-3002-D-PIP	KEY PLAN
33906-3003-D-PIP	PIPING PLAN AREA "A"
33906-3004-D-PIP	PIPING PLAN AREA "B"
33906-3005-D-PIP	PIPING PLAN AREA "C"
33906-3006-D-PIP	PIPING SECTIONS
33906-3007-D-PIP	PIPING SECTIONS
33906-3008-D-PIP	PIPING SECTIONS
33906-3009-D-PIP	PIPING SECTIONS
33906-3010-D-PIP	PIPING SECTIONS
LKAI1044	PIPING ISOMETRIC AND BOM
LKAI1045	PIPING ISOMETRIC AND BOM
LKAI1046 SH 1	PIPING ISOMETRIC AND BOM
LKAI1046 SH 2	PIPING ISOMETRIC AND BOM
LKAI1085	PIPING ISOMETRIC AND BOM
LKAI1086	PIPING ISOMETRIC AND BOM
LKGB1025	PIPING ISOMETRIC AND BOM
LKGN1000 SH 1	PIPING ISOMETRIC AND BOM
LKGN1000 SH 2	PIPING ISOMETRIC AND BOM
LKGN1000 SH 3	PIPING ISOMETRIC AND BOM
LKGN1000 SH 4	PIPING ISOMETRIC AND BOM
LKGN1001	PIPING ISOMETRIC AND BOM
LKGN1002 SH 1	PIPING ISOMETRIC AND BOM
LKGN1002 SH 2	PIPING ISOMETRIC AND BOM
LKGN1003	PIPING ISOMETRIC AND BOM
LKGN1008	PIPING ISOMETRIC AND BOM
LKGN1009	PIPING ISOMETRIC AND BOM
LKGN1010 SH 1	PIPING ISOMETRIC AND BOM
LKGN1010 SH 2	PIPING ISOMETRIC AND BOM
LKGN1011	PIPING ISOMETRIC AND BOM
LKGN1013	PIPING ISOMETRIC AND BOM
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LKGN1018	PIPING ISOMETRIC AND BOM
LKGN1019	PIPING ISOMETRIC AND BOM
LKGN1020	PIPING ISOMETRIC AND BOM
LKGN1021	PIPING ISOMETRIC AND BOM
LKGN1022	PIPING ISOMETRIC AND BOM
LKWC1015	PIPING ISOMETRIC AND BOM
LKWC1080	PIPING ISOMETRIC AND BOM
LKXX1004	PIPING ISOMETRIC AND BOM
LKXX1035	PIPING ISOMETRIC AND BOM
LKXX1036	PIPING ISOMETRIC AND BOM
LKXX1051	PIPING ISOMETRIC AND BOM
LKXX1052	PIPING ISOMETRIC AND BOM
LKXX1053	PIPING ISOMETRIC AND BOM
LKXX1054	PIPING ISOMETRIC AND BOM
LKXX1055	PIPING ISOMETRIC AND BOM
LKXX1056	PIPING ISOMETRIC AND BOM
LKXX1057	PIPING ISOMETRIC AND BOM
LKXX1060	PIPING ISOMETRIC AND BOM
LKXX1061	PIPING ISOMETRIC AND BOM
LKXX1062	PIPING ISOMETRIC AND BOM
LKXX1063	PIPING ISOMETRIC AND BOM
LKXX1064	PIPING ISOMETRIC AND BOM
LKXX1065	PIPING ISOMETRIC AND BOM
LKXX1066	PIPING ISOMETRIC AND BOM
LKXX1067	PIPING ISOMETRIC AND BOM
LKXX1069	PIPING ISOMETRIC AND BOM
LKXX1070	PIPING ISOMETRIC AND BOM
LKXX1073	PIPING ISOMETRIC AND BOM
LKXX1074	PIPING ISOMETRIC AND BOM
LKXX1075	PIPING ISOMETRIC AND BOM
LKXX1106	PIPING ISOMETRIC AND BOM
LKXX1107	PIPING ISOMETRIC AND BOM
LKXX1108	PIPING ISOMETRIC AND BOM
LKXX1109	PIPING ISOMETRIC AND BOM
LKXX1110	PIPING ISOMETRIC AND BOM
LKXX1111	PIPING ISOMETRIC AND BOM
LKXX1112	PIPING ISOMETRIC AND BOM
LKXX1113	PIPING ISOMETRIC AND BOM
LKXX1114	PIPING ISOMETRIC AND BOM
LKXX1120	PIPING ISOMETRIC AND BOM
LKXX1121	PIPING ISOMETRIC AND BOM
LKXX1122	PIPING ISOMETRIC AND BOM
LKXX1123	PIPING ISOMETRIC AND BOM

CIVIL/STRUCTURAL

33906-4001-D-STR	GENERAL NOTES (1) STRUCTURAL
33906-4002-D-STR	GENERAL NOTES (2) STRUCTURAL
33906-4003-D-STR	SITE LOCATION PLAN STRUCTURAL
33906-4004-D-STR	FOUNDATION LOCATION PLAN STRUCTURAL
33906-4005-D-STR	PIPE SUPPORT LOCATION PLAN STRUCTURAL
33906-4006-D-STR	OVER-EXCAVATION PLAN CIVIL
33906-4007-D-STR	FENCING & BOLLARD PLAN CIVIL
33906-4008-D-STR	DRAWING NOT USED
33906-4009-D-STR	GAS COMPRESSOR C-1200 & C-1300 FOUNDATION STRUCTURAL
33906-4010-D-STR	HEAT EXCHANGER E-1700 FOUNDATION STRUCTURAL
33906-4011-D-STR	CHILLER CH-1700 FOUNDATION STRUCTURAL
33906-4012-D-STR	FILTER SEPARATOR V-1100 & V-1800 FOUNDATION STRUCTURAL
33906-4013-D-STR	ODORIZOR V-2100 & CANOPY SHED FOUNDATION STRUCTURAL
33906-4014-D-STR	CANOPY SHED SECTIONS & DETAILS STRUCTURAL
33906-4015-D-STR	SERVICE/MONITOR PANEL FOUNDATION STRUCTURAL
33906-4016-D-STR	ANALYZER SHELTER FOUNDATION STRUCTURAL
33906-4017-D-STR	PDC SHELTER FOUNDATION STRUCTURAL
33906-4018-D-STR	INSTRUMENT AIR COMPRESSOR C-9100A/B – FOUNDATION PLAN & SECTIONS
33906-4019-D-STR	PRECISE GRADING PLAN CIVIL
33906-4020-D-STR	FILTER SEPARATOR FOUNDATION DETAILS STRUCTURAL
33906-4021-D-STR	BOLLARD DETAILS STRUCTURAL
33906-4022-D-STR	INSTRUMENT AIR COMPRESSOR C-9100A/B – FOUNDATION DETAILS & SECTION
33906-4023-D-STR	PIPE SUPPORT TYPES A-D – PLAN VIEWS & ELEVATIONS
33906-4024-D-STR	PIPE SUPPORT TYPES E-H – PLAN VIEWS & ELEVATIONS
33906-4025-D-STR	PIPE SUPPORT TYPES – DETAILS & SECTIONS
33906-4026-D-STR	GATES AND FENCING DETAILS STRUCTURAL
33906-4027-D-STR	SWITCHBOARD SWBD-01-FOUNDATION PLAN, SECTION & DETAIL
33906-4028-D-STR	GENERAL NOTES (3) CIVIL
33906-4029-D-STR	CIVIL DEVELOPMENT PLAN CIVIL
33906-4030-D-STR	GRADING SECTIONS CIVIL
33906-4031-D-STR	DETAILS CIVIL
33906-4032-D-STR	EROSION CONTROL PLAN CIVIL
33906-4033-D-STR	LIGHT POLE – DETAILS & SECTIONS
33906-4034-D-STR	STILE – PLAN VIEWS & SECTIONS
33906-4035-D-STR	STILE – DETAILS
33906-4036-D-STR	MISCELLANEOUS EQUIPMENT LOCATION PLAN CIVIL

ELECTRICAL

33906-5001-D-ELC	GENERAL NOTES
33906-5002-D-ELC	ONE-LINE DIAGRAM
33906-5003-D-ELC	ONE-LINE DIAGRAM
33906-5004-D-ELC	UPS ONE-LINE DIAGRAM
33906-5005-D-ELC	LOAD SCHEDULES
33906-5006-D-ELC	ELECTRICAL EQUIPMENT ELEVATION – MTS-01 & MCC-01
33906-5007-D-ELC	PLOT PLAN
33906-5008-D-ELC	HAZARDOUS AREA CLASSIFICATION PLAN
33906-5009-D-ELC	GROUNDING PLAN
33906-5010-D-ELC	CONDUIT & CABLE ROUTING – KEY PLAN
33906-5011-D-ELC	CONDUIT & CABLE ROUTING – AREA "A"
33906-5012-D-ELC	CONDUIT & CABLE ROUTING – AREA "B"
33906-5013-D-ELC	CONDUIT & CABLE ROUTING – AREA "C"
33906-5014-D-ELC	CONDUIT & CABLE ROUTING – AREA "D"
33906-5015-D-ELC	CONDUIT & CABLE ROUTING – ENLARGED DETAIL
33906-5016-D-ELC	LIGHTING PLAN PHOTOMETRICS
33906-5017-D-ELC	LIGHTING WIRING SCHEMATIC
33906-5018-D-ELC	FIRE & GAS DETECTION PLAN
33906-5019-D-ELC	SECURITY SYSTEM & CAMERA PLAN
33906-5020-D-ELC	CABLE SCHEDULE
33906-5021-D-ELC	CABLE SCHEDULE
33906-5022-D-ELC	CABLE SCHEDULE
33906-5023-D-ELC	CONDUIT SCHEDULE
33906-5024-D-ELC	CONDUIT SCHEDULE
33906-5025-D-ELC	JUNCTION BOX LAYOUT – JB-01
33906-5026-D-ELC	JUNCTION BOX WIRING DIAGRAM – JB-01
33906-5027-D-ELC	JUNCTION BOX LAYOUT – JB-02
33906-5028-D-ELC	JUNCTION BOX WIRING DIAGRAM – JB-02
33906-5029-D-ELC	JUNCTION BOX LAYOUT – JB-03
33906-5030-D-ELC	JUNCTION BOX POWER DISTRIBUTION – JB-03
33906-5031-D-ELC	JUNCTION BOX WIRING DIAGRAM – JB-03
33906-5032-D-ELC	INSTRUMENT LOCATION PLAN
33906-5033-D-ELC	CATHODIC PROTECTION PLAN
33906-5034-D-ELC	DRAWING NOT USED
33906-5035-D-ELC	DRAWING NOT USED
33906-5036-D-ELC	DRAWING NOT USED
33906-5037-D-ELC	DRAWING NOT USED
33906-5038-D-ELC	DRAWING NOT USED
33906-5039-D-ELC	ELECTRICAL DETAILS – MOTOR HANDSWITCH SCHEMATICS
33906-5040-D-ELC	ELECTRICAL DETAILS – HAZARDOUS AREA CLASSIFICATION

ELECTRICAL (CONT'D.)

33906-5041-D-ELC	ELECTRICAL DETAILS – GROUNDING
33906-5042-D-ELC	ELECTRICAL DETAILS – GROUNDING
33906-5043-D-ELC	ELECTRICAL DETAILS – LIGHTING
33906-5044-D-ELC	ELECTRICAL DETAILS – DUCT BANKS
33906-5045-D-ELC	ELECTRICAL DETAILS – DUCT BANKS
33906-5046-D-ELC	ELECTRICAL DETAILS – CONDUIT STUB-UPS
33906-5047-D-ELC	ELECTRICAL DETAILS – CABLE & CONDUIT INSTALLATION
33906-5048-D-ELC	ELECTRICAL DETAILS – CABLE & CONDUIT INSTALLATION
33906-5049-D-ELC	ELECTRICAL DETAILS – MISCELLANEOUS
33906-5050-D-ELC	ELECTRICAL DETAILS – MISCELLANEOUS
33906-5051-D-ELC	ELECTRICAL DETAILS – INSTRUMENTATION INSTALLATION
33906-5052-D-ELC	ELECTRICAL DETAILS – INSTRUMENTATION INSTALLATION
33906-5053-D-ELC	ELECTRICAL DETAILS – INSTRUMENTATION INSTALLATION
33906-5054-D-ELC	ELECTRICAL DETAILS – INSTRUMENTATION INSTALLATION

CONTROLS

33906-5101-D-ELC	CONTROL BLOCK DIAGRAM SHT. 1
33906-5102-D-ELC	CONTROL BLOCK DIAGRAM SHT. 2
33906-5103-D-ELC	CONTROL BLOCK DIAGRAM SHT. 3
33906-5104-D-ELC	DRAWING NOT USED
33906-5105-D-ELC	DRAWING NOT USED
33906-5106-D-ELC	CP-1 (BOP) CONTROL PANEL – EXTERIOR LAYOUT
33906-5107-D-ELC	CP-1 (BOP) CONTROL PANEL – INTERIOR LAYOUT
33906-5108-D-ELC	CP-1 (BOP) CONTROL PANEL – TERMINAL BLOCK DETAIL SHT. 1
33906-5109-D-ELC	CP-1 (BOP) CONTROL PANEL – TERMINAL BLOCK DETAIL SHT. 2
33906-5110-D-ELC	CP-1 (BOP) CONTROL PANEL – NETWORK CONNECTION DIAGRAM
33906-5111-D-ELC	CP-1 (BOP) CONTROL PANEL – 120VAC SCHEMATICS
33906-5112-D-ELC	CP-1 (BOP) CONTROL PANEL – 24VDC SCHEMATICS
33906-5113-D-ELC	CP-1 (BOP) CONTROL PANEL – RELAY WIRING DIAGRAM SHT. 1
33906-5114-D-ELC	CP-1 (BOP) CONTROL PANEL – RELAY WIRING DIAGRAM SHT. 2
33906-5115-D-ELC	CP-1 (BOP) CONTROL PANEL – RELAY WIRING DIAGRAM SHT. 3
33906-5116-D-ELC	CP-1 (BOP) CONTROL PANEL – MODBUS CONNECTION DIAGRAM (SLOT 1)
33906-5117-D-ELC	CP-1 (BOP) CONTROL PANEL – MODBUS CONNECTION DIAGRAM (SLOT 2)
33906-5118-D-ELC	CP-1 (BOP) CONTROL PANEL – ETHERNET CONNECTION DIAGRAM (SLOT 3)
33906-5119-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 4)
33906-5120-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 5)
33906-5121-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 6)
33906-5122-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 7)
33906-5123-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 8 SHT. 1)
33906-5124-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 8 SHT. 2)
33906-5125-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 9)
33906-5126-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 10)
33906-5127-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 11 SHT. 1)
33906-5128-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 11 SHT. 2)
33906-5129-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 12 SHT. 1)
33906-5130-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 12 SHT. 2)
33906-5131-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 13 SHT. 1)
33906-5132-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 13 SHT. 2)
33906-5133-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 14)
33906-5134-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 15)
33906-5135-D-ELC	CP-1 (BOP) CONTROL PANEL – WIRING DIAGRAM (SLOT 16)
33906-5136-D-ELC	DRAWING NOT USED
33906-5137-D-ELC	DRAWING NOT USED
33906-5138-D-ELC	DRAWING NOT USED
33906-5139-D-ELC	CP-2 SCADAPACK PANEL – EXTERIOR LAYOUT
33906-5140-D-ELC	CP-2 SCADAPACK PANEL – LAYOUT & BOM
33906-5141-D-ELC	CP-2 SCADAPACK PANEL – PWR DIST DIAGRAM
33906-5142-D-ELC	CP-2 SCADAPACK PANEL – I/O SCHEMATIC
33906-5143-D-ELC	DRAWING NOT USED
33906-5144-D-ELC	DRAWING NOT USED
33906-5145-D-ELC	DRAWING NOT USED
33906-5146-D-ELC	DRAWING NOT USED
33906-5147-D-ELC	DRAWING NOT USED
33906-5148-D-ELC	DRAWING NOT USED
33906-5149-D-ELC	DRAWING NOT USED

INSTRUMENTATION

33906-6050-D-INT	TOTAL FLOW AND CONDENSATE POST TUBING CONNECTION DETAIL
33906-6051-D-INT	NGC PROBE AND SAMPLE LINE DETAILS AND MATERIAL LIST
33906-6052-D-INT	PILOT SUPPLY FOR MONITOR CONTROL VALVE
33906-6053-D-INT	PILOT SUPPLY FOR SERVICE CONTROL VALVE
33906-6054-D-INT	ODORANT SUPPLY REGULATION INJECTION TAP & BOTTOM
33906-6055-D-INT	CONTROL SYSTEM ISO AND MATERIAL LIST
33906-6056-D-INT	DRAWING NOT USED
33906-6057-D-INT	AIR COMPRESSOR PAD DRAIN TUBING DETAIL
33906-6058-D-INT	DRAWING NOT USED
33906-6059-D-INT	INSTRUMENTATION TUBING DETAIL NOTES
33906-6060-D-INT	INSTRUMENT TUBING DETAILS

MISCELLANEOUS DRAWINGS

33906-3801-D-PIP	STRENGTH TEST RECORD LOG
33906-3802-D-PIP	STRENGTH TEST RECORD LOG
–	CATHODIC PROTECTION, FIGURES 1-4

STANDARD DRAWINGS (NOTE 1)

0101-D.STD	PFD/P&ID SYMBOLS & ABBREVIATIONS
0102-D.STD	PFD/P&ID INSTRUMENT IDENTIFICATION TAG
0103-D.STD	PFD/P&ID EQUIPMENT SYMBOLS
0107-D.STD	PFD/P&ID EQUIPMENT SYMBOLS
0301-D.STD	PIPING PLAN SYMBOLS
0413-D.STD	GUARD POST AND BOLLARD DETAILS
0429-D.STD	GATES AND FENCING DETAILS
0430-D.STD	DOUBLE LEAF GATE PLAN, SECTIONS AND DETAILS
0431-D.STD	ACCESS GATE PLAN, ELEV., SECTIONS & DETAILS
0501-D.STD	ELECTRICAL DESIGN STANDARDS – SYMBOLS & ABBREVIATIONS
33906-0681-D-STD	COMPOSITE BOTTLE GAS SAMPLER SYSTEM
33906-0302-B-STD	MISCELLANEOUS PIPING DETAILS – MECHANICAL
33906-0303-B-STD	MISCELLANEOUS PIPING DETAILS – MECHANICAL

NOTE:

1. STANDARD DRAWINGS ARE INCLUDED IN THE INDIVIDUAL DISCIPLINE PACKAGES.

REV. NO.	DRW.	CHK	PROJECT APPROVED	SCG APPROVED	JOB FILE NO.	DATE	DESCRIPTION
0	JH	TCS	MPB	HG	E18037	08/05/2020	ISSUED FOR CONSTRUCTION

CONTRACTOR NAME & PROJECT NUMBER

	BY	DATE
DESIGNED	[redacted]	05/11/2020
DRAWN	[redacted]	05/11/2020
CHK'D.	[redacted]	08/05/2020
APPR'D.	[redacted]	08/05/2020
JOB FILE NO.	E18037	
W.O.A.	93365.001	
DIST.	412	
CLASS	39	

Southern California Gas Company
GAS ENGINEERING — LOS ANGELES

LAKESIDE DAIRY PILOT
SENATE BILL 1383
DRAWING LIST

SCALE: AS NOTED

DRAWING NO.: 33906-1001-D-PIP

REV.: 0

\\cabak07fs01\PCG\Projects\460090_SCG_DP_LAKESIDE\ENGR\CAD\PIP\Drawing List\08-05-20_IFC\33906-1001-D-PIP.dwg, 8/5/2020 6:56 AM [redacted]



STREAM NUMBER		[redacted]
DESCRIPTION		
TEMPERATURE	(°F)	
PRESSURE	(PSIG)	
STD GAS FLOW	(MMSCFD)	
MASS FLOW	(LB/HR)	
ACTUAL GAS FLOW	(ACFM)	
MASS ENTALPHY	(BTU/LB)	
CP/CV		
MOLECULAR WEIGHT		
MASS DENSITY	(LB/FT3)	
COMPRESSIBILITY		
VISCOSITY	(CP)	
THERMAL CONDUCTIVITY	(BTU/HR.FT.°F)	
VAPOR FRACTION		
STD LIQUID FLOW	(USGPM)	
VELOCITY	(FT/S)	
NOMINAL PIPE SIZE	(IN)	
COMPONENT NAME		GAS COMPOSITION / LIQUID COMPOSITION
METHANE	(MOLE %)	[redacted]
ETHANE	(MOLE %)	
H2O	(MOLE %)	
NITROGEN	(MOLE %)	
CO2	(MOLE %)	
PROPYLENE GLYCOL	(MASS %)	
MERCAPTAN	(MOLE %)	

NOTES:

1. MINIMUM FLOWRATE AT INITIAL FACILITY START-UP IS [redacted] MMSCFD.
2. THE MAX ASSUMED PRESSURE DROP PER EACH EQUIPMENT IS AS FOLLOWS:
   [redacted]
3. COMPRESSOR MAXIMUM DISCHARGE PRESSURE.
4. [redacted]
5. GAS TEMPERATURE WILL BE CONTROLLED AT 98°F, AS RULE 30 LIMITS THE TEMPERATURE TO 105°F.
6. [redacted]

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08/05/2020

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0	08/05/2020	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365

[redacted]

[redacted]

NOTES:

1. MANUAL DRAIN BY OPERATORS.
2. AUTO DRAIN TO FOUNDATION SUMP.
3. ASSUMED 20°F ABOVE AMBIENT TEMPERATURE.
4. FROM [redacted] ON THE [redacted]
5. FROM [redacted] ON THE [redacted]

ISSUED FOR CONSTRUCTION
08/05/2020

STREAM NUMBER	[redacted]
QUANTITY (GAL)	
LIQUID	
PRESSURE (PSIG)	
TEMPERATURE (°F)	

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365

[redacted]

[redacted]

NOTES:

1. INTERNAL PROCESS PIPING WILL BARE CARBON STEEL.
2. EXTERNAL PROCESS PIPING, ABOVE GRADE, WILL BE CORROSION PROTECTED IN ACCORDANCE WITH SCG SPECIFICATION 186.0104.
3. EXTERNAL PROCESS PIPING, BELOW GRADE WILL BE CORROSION PROTECTED IN ACCORDANCE WITH SCG SPECIFICATION 186.0103.
4. INTERNAL LININGS OF VESSELS WILL BE CORROSION PROTECTED IN ACCORDANCE WITH SCG SPECIFICATION 186.0109.
5. EXTERNAL OF VESSELS WILL BE CORROSION PROTECTED IN ACCORDANCE WITH SCG SPECIFICATION 186.0108.
6. DESIGN LIFE OF PIPING AND EQUIPMENT SHALL BE 30 YEARS.
7. STAINLESS STEEL MATERIALS ARE RESISTANT TO CORROSION IN THESE SERVICES, THEREFORE NO COUPONS, PROBES, ETC. ARE REQUIRED.
8. THIS DRAWING IS FOR METALLURGICAL PURPOSES ONLY, ALL OTHER DATA REFER TO PFD.
9. MATERIALS OF CONSTRUCTION SHOWN ARE OFTEN MINIMUM REQUIREMENTS. ACTUAL PIPING MATERIALS OF CONSTRUCTION WILL BE SHOWN ON EQUIPMENT DATA SHEETS AND/OR DRAWINGS. ACTUAL PIPING MATERIALS WILL BE SHOWN BY LINES CLASS ON PIPING ISOMETRICS.
10. THE FOLLOWING LIMITS ARE APPLIED TO ALL PRESSURE CONTAINING PARTS EXPOSED TO ATMOSPHERE:
    CARBON STEEL [redacted]
    CARBON STEEL
    CARBON STEEL
    CARBON STEEL
    S.S. TUBING

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NOTES:

11. CA = CORROSION ALLOWANCE
12. [redacted]
    = 150# CARBON STEEL + 0.0625" C.A.
    = 150# CARBON STEEL + 0.0" C.A.
    = 300# CARBON STEEL + 0.0625" C.A.
    = 300# CARBON STEEL + 0.0" C.A.
    = STAINLESS STEEL + 0.0" C.A.
13. THE PIPE SPEC. OF THE [redacted] AND THE [redacted]
14. THE PIPE SPEC. OF THE [redacted] SECTION AND THE [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION
08/05/2020

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365

[redacted]

[redacted]

NOTES:

1. [redacted]
2. ROTAMETER – ADJUST FOR 50ml/min GAS FLOW.
3. [redacted]
4. SITE CONTROLLERS AND THEIR RELATED FUNCTIONS:

   [redacted]

5. CRITICAL MONITORING INSTRUMENTS AND SWITCHES CONNECTED TO THE FIRE AND GAS SYSTEM THAT EITHER DETECT EMERGENCY SHUTDOWN CONDITIONS, INITIATE THEM, OR TRIGGER THE SHUTDOWN OF EMERGENCY DEVICES, SHALL BE HARDWIRED (CLASS A) BACK TO THE FIRE AND GAS PANEL CONTROLLER (CP–3).
6. FIRE AND GAS PANEL DESIGN, F&G MONITORING INSTRUMENTS, ALONG WITH MOUNTING LOCATIONS OF F&G INSTRUMENTS TO BE SUPPLIED/REVIEWED BY 3RD PARTY VENDOR AND COORDINATED BY [redacted]
7. ALL AUTOMATED VALVES SHALL INCLUDE MANUAL OVERRIDES.
8. DETAIL OF PROCESS TUBING IS NOT SHOWN, REFERENCE SCG STD DWG 0661–D–INT FOR NGC.
9. [redacted] FOR CORROSION COUPON.
10. WIRELESS CELLULAR CONNECTION TO SCG/MDO NETWORK.
11. GAS COMMISSIONING CONNECTION.

LK–GN–S01–004

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ. APV	SCG APV	ENG. FILE NO.	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. VALVE IS SPRING LOADED VALVE, AND IS PROVIDED BY VENDOR.
2. SEE DWG. No. 33906-2004-D-PID FOR MOTOR DETAILS.
3. VALVE IS OPEN DURING NORMAL OPERATION. VALVE IS CLOSED DURING BLOWDOWN.
4. VALVE IS CLOSED DURING COMPRESSION WHEN THE COMPRESSOR IS OPERATING AT 50% OR MORE OF MAXIMUM SPEED. VALVE IS OPEN DURING COMPRESSION WHEN THE COMPRESSOR IS OPERATING BELOW 50% OF THE MAXIMUM SPEED.
5. VALVE IS CLOSED DURING NORMAL OPERATION. VALVE IS OPEN DURING BLOWDOWN.
6. THE LEVEL GAUGE IS PROVIDED BY VENDOR.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

NOTE:

1. RATE OF RISE AND COMBUSTIBLE GAS DETECTION EQUIPMENT SUPPLIED AND INSTALLED BY [redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

1. VALVE IS SPRING LOADED VALVE, AND IS PROVIDED BY VENDOR.
2. SEE DWG. No. 33906-2006-D-PID FOR MOTOR DETAILS.
3. VALVE IS OPEN DURING NORMAL OPERATION. VALVE IS CLOSED DURING BLOWDOWN.
4. VALVE IS CLOSED DURING COMPRESSION WHEN THE COMPRESSOR IS OPERATING AT 50% OR MORE OF MAXIMUM SPEED. VALVE IS OPEN DURING COMPRESSION WHEN THE COMPRESSOR IS OPERATING BELOW 50% OF MAXIMUM SPEED.
5. VALVE IS CLOSED DURING NORMAL OPERATION. VALVE IS OPEN DURING BLOWDOWN.
6. THE LEVEL GAUGE IS PROVIDED BY VENDOR.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

NOTE:

1. RATE OF RISE AND COMBUSTIBLE GAS DETECTION EQUIPMENT SUPPLIED AND INSTALLED BY [redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. [redacted]
2. [redacted] AND VENDOR SCOPE TO BE VERIFIED AFTER RECEIPT OF FINAL DRAWINGS.
3. [redacted]
4. INSTRUMENT AIR SUPPLY PRESSURE REQUIRED IS [redacted]
5. [redacted] FOR CORROSION COUPON.

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DESIGN:
OPERATING:
CAPACITY:

[redacted]

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ. APV	SCG APV	ENG. FILE NO.	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

NOTES:

1. REFER TO VENDOR DRAWING FOR EXACT METER RUN LENGTH.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:
1. SEE LOGIC DIAGRAM OF METERING STATION.
2. LOCATE AT TRUCK CONNECTION.
3. OVERFLOW PROTECTION WITH PRESSURE RELIEF IN THE CAP ASSEMBLY SET TO [redacted]
4. ADJUST VALVE AS NEEDED.
5. EXPANSION TANK IS A [redacted]
6. VALVE IS OPEN DURING PURGING AND VENTING EVENT.
7. VALVE IS OPEN DURING START–UP AND CLOSED FOR NORMAL OPERATION.
8. VALVE "V4" IS OPENED DURING START–UP TO PRESSURIZE THE EXPANSION TANK TO [redacted] VALVE IS THEN CLOSED AND REMAINS CLOSED DURING NORMAL OPERATION.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

[redacted]

NOTES:

1. AUTOMATIC DRAIN VALVE IS OPENED PERIODICALLY FOR A SET PERIOD OF TIME.
2. FILTER HAS BUILT IN AUTO DRAIN.
3. AIR DRYER HAS AUTO DRAIN.
4. [redacted]
5. [redacted]
6. [redacted]
7. CHECK VALVE IS SPRING LOADED WITH [redacted] BACK PRESSURE ON THE OIL SUMP.
8. OIL FILTER INTERNAL PSV, [redacted]
9. SHUTTLE VALVE.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

[redacted]

NOTES:

1. SITE CONTROLLERS AND THEIR RELATED FUNCTIONS:
   [redacted]
2. CRITICAL DISCRETE I/O SOLENOIDS, AND SWITCHES CONNECTED TO THE FIRE AND GAS SYSTEM THAT EITHER DETECT EMERGENCY SHUTDOWN CONDITIONS, INITIATE THEM, OR TRIGGER THE SHUTDOWN OF EMERGENCY DEVICES SHALL BE HARDWIRED (CLASS A) BACK TO THE FIRE AND GAS PANEL CONTROLLER (CP-3). OTHER NON CRITICAL I/O MAY BE WIRED CLASS B TO THE F&G PANEL. ESD PULL STATIONS, COMPRESSOR ENCLOSURE HIGH TEMPERATURE SWITCHES AND ESD VALVE DISCRETE OUTPUTS WILL BE (CLASS A) WIRING.
3. CRITICAL TRANSMITTERS CONNECTED TO THE FIRE AND GAS SYSTEM THAT DETECT EMERGENCY SHUTDOWN CONDITIONS SHALL BE CONNECTED TO THE FIRE AND GAS PANEL THROUGH THE LOCAL OPERATING NETWORK (LON) RING.
4. F&G PANEL DESIGN, F&G MONITORING INSTRUMENTS, ALONG WITH MOUNTING LOCATIONS OF F&G INSTRUMENTS TO BE SUPPLIED/ REVIEWED BY 3RD PARTY VENDOR AND COORDINATED BY [redacted]
5. RATE OF RISE AND COMBUSTIBLE GAS DETECTION EQUIPMENT SUPPLIED AND INSTALLED BY [redacted] AND TIED TO THE F&G PANEL.
6. [redacted] IS LOCATED IN THE PLANT.

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ. APV	SCG APV	ENG. FILE NO.	DESCRIPTION	WOA
0	08/05/2020	JH	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

TYPICAL CONNECTION–ANY VARIABLE

VALVE SYMBOLS (CONT'D)

INSTRUMENTATION

MISCELLANEOUS PIPING

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

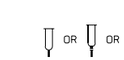
EJECTOR OR EDUCTOR

REDUCER

WELD CAP

SCREWED CAP

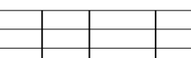
HOSE CONNECTION (COUPLER OR ADAPTOR)



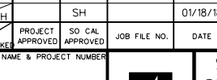
VENT TO ATMOSPHERE W/180° RETURN

OPEN DRAIN AND FUNNEL

SPECIALTY ITEM
= SPECIALTY ITEM NUMBER



IN-LINE SILENCER



SPECTACLE BLIND



IN-LINE MIST SEPARATOR



VENT TO ATMOSPHERE

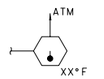
WASTE CONE W/ SIGHT GLASS



FLOW ARROW

INSTRUMENTATION ARROW

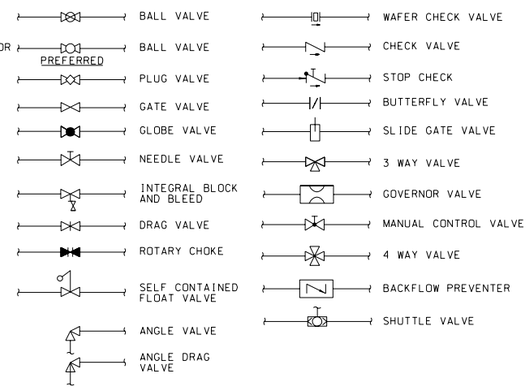
AIR VENT



HEAT DETECTOR–FIXED TEMPERATURE

PULSATION/HAMMER DAMPENER

VALVE SYMBOLS



REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO. CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
G	JD / SH		SH		01/18/18	GENERAL UPDATE

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	01-01-97
	01-01-97
	01-01-97
	01-01-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

Southern California Gas Company
GAS ENGINEERING — LOS ANGELES

The Gas Company

PIPING DESIGN STANDARDS PFD/P&ID SYMBOLS & ABBREVIATIONS

SCALE: NONE

DRAWING NO. 0101-D.STD

REV. G

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

INSTRUMENTATION-TYPICAL LETTER COMBINATIONS

FIRST LETTER	INITIATING OR MEASURED VARIABLES	CONTROLLERS				READOUT DEVICES		ALARM DEVICES					SWITCH DEVICES					TRANSMITTERS			SOLENOIDS, RELAYS, COMPUTING DEVICES	PRIMARY ELEMENT	TEST POINT	WELL OR PROBE	VIEWING DEVICE, GLASS	SAFETY DEVICE	FINAL ELEMENT
		RECORDING	INDICATING	BLIND	SELF-ACTUATED CONTROL VALVES	RECORDING	INDICATING	HIGH	HIGH/ HIGH	LOW	LOW/ LOW	COMB	HIGH	HIGH/ HIGH	LOW	LOW/ LOW	COMB	RECORDING	INDICATING	BLIND							
[redacted]																											

INSTRUMENTS AND PIPING SYMBOLS

FA 3 — INSTRUMENT CODE / INSTRUMENT NUMBER

(1/2") — LOCAL INSTRUMENT INCLUDING TRANSMITTER FOR SINGLE MEASURED VARIABLE

LOCAL INSTRUMENT FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION

PANEL OR RACK MOUNTED INSTRUMENT
** PANEL IDENTIFIER IF USED

INSTRUMENT MOUNTED AT LOCAL PANEL (AUXILIARY LOCATION)
** PANEL IDENTIFIER IF USED

INSTRUMENT MOUNTED BEHIND MAIN PANEL OR RACK MOUNTED (NORMALLY INACCESSIBLE)
** PANEL IDENTIFIER IF USED

INSTRUMENT MOUNTED BEHIND LOCAL PANEL OR RACK MOUNTED (NORMALLY INACCESSIBLE)
** PANEL IDENTIFIER IF USED

PLC-NORMALLY ACCESSIBLE TO OPERATOR (PRIMARY LOCATION)

PLC-NORMALLY ACCESSIBLE TO OPERATOR (AUXILIARY LOCATION)
** PLC INDENTIFIER

PLC-NORMALLY INACCESSIBLE TO OPERATOR (PRIMARY LOCATION)

PLC-NORMALLY INACCESSIBLE TO OPERATOR (AUXILIARY LOCATION)
** PLC INDENTIFIER

COMPUTATION / SIGNAL CONDITIONING WITHIN A COMPUTER - FIELD MOUNTED

COMPUTATION/SIGNAL CONDITIONING WITHIN A COMPUTER PRIMARY LOCATION AND ACCESSIBLE TO OPERATOR

COMPUTATION/SIGNAL CONDITIONING WITHIN A COMPUTER AUXILIARY LOCATION AND ACCESSIBLE TO OPERATOR
** COMPUTER INDENTIFIER

SHARED DISPLAY; SHARED CONTROL PRIMARY LOCATION AND ACCESSIBLE TO OPERATOR

SHARED DISPLAY; SHARED CONTROL AUXILIARY LOCATION AND ACCESSIBLE TO OPERATOR
** SHARED INDENTIFIER

(1/4") — GENERAL SYMBOL FOR COMPLEX INTERCONNECTING LOGIC OR SEQUENTIAL CONTROL
* IDENTIFIER

(7/16") — PANEL MOUNTED PATCHBOARD OR MATRIX CONNECTION

(1/4") — MANUAL RESET FOR LATCH TYPE ACTUATOR

(1/4") — REMOTE RESET

(1/4") — PURGE OR FLUSHING DEVICE

(1/2") — RELAY (VOLUME BOOSTER)
* = F,P,L,T..... PROCESS VARIABLE

HIGH SIGNAL SELECTING RELAY
IF LOW SIGNAL SELECTOR SHOW AS
* = F,P,L,T..... PROCESS VARIABLE

SQUARE ROOT EXTRACTOR
* = F,P,L,T..... PROCESS VARIABLE

CURRENT TO PRESSURE TRANSDUCER
* = F,P,L,T..... PROCESS VARIABLE

HC — HAND LOADING STATION

-K — AUTO MANUAL CONTROL

R — PILOT LIGHT
R=RED, G=GREEN, A=AMBER, W=WHITE

HORN OR SIREN

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

OTHER POSSIBLE COMBINATIONS:

FO	(RESTRICTION ORIFICE)
FRK,HIK	(CONTROL STATIONS)
FX	(ACCESSORIES)
TJR	(SCANNING RECORDER)
LLH	(PILOT LIGHT)
PFR	(RATIO)
KQI	(RUNNING TIME INDICATOR)
QQI	(INDICATOR COUNTER)
WKIC	(RATE-OF-WEIGHT-LOSS CONTROLLER)
HMS	(HAND MOMENTARY SWITCH)
ZSO	(OPEN LIMIT SWITCH)
ZSC	(CLOSED LIMIT SWITCH)

NOTE: THIS TABLE IS NOT ALL-INCLUSIVE
* THE LETTERS H AND L MAY BE OMITTED IN THE UNDEFINED CASE.

LINES

- FLOW DIAGRAM CONTINUATION
- MAIN PROCESS
- SECONDARY PROCESS
- INSTRUMENT CAPILLARY TUBING
- INSTRUMENT GAS SIGNAL
- INSTRUMENT AIR SIGNAL
- INSTRUMENT ELECTRICAL LEAD
- FIBER OPTIC LINE
- SOFTWARE OR DATA LINK
- ELECTROMAGNETIC (RADIO TRANSMISSION) LINE (NOT GUIDED)
- ELECTROMAGNETIC (GUIDED)
- MECHANICAL LINK
- HYDRAULIC LINE

FLOW DIAGRAM ABBREVIATIONS

NV	NEEDLE VALVE
CSO	CAR SEAL OPEN
CSC	CAR SEAL CLOSED
LO	LOCK OPEN
LC	LOCK CLOSED
SC	SAMPLE CONNECTION
PO	PUMP OUT
SO	STEAM OUT
(F)	FURNISHED BY OTHERS (REMOVE FOR AS-BUILT)
(E)	EXISTING (REMOVE FOR AS-BUILT)
DF	DRAIN FUNNEL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
FC	FAIL CLOSED
FO	FAIL OPEN
FI	FAIL INDETERMINATE
FL	FAIL LAST
FP	FULL PORT

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO. CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
D	JD / SH		SH		10/05/16	GENERAL UPDATE

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	01-01-97
	01-01-97
	01-01-97
	01-01-97

JOB FILE NO.
G.W.O.
DIST. 500
CLASS 13

Southern California Gas Company
GAS ENGINEERING — LOS ANGELES

PIPING DESIGN STANDARDS PFD/P&ID INSTRUMENT IDENTIFICATION TAG

SCALE: NONE
DRAWING NO.: 0102-D.STD
REV.: D

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

PUMPS

PUMPS (CONT.)

HEAT EXCHANGERS

[redacted]

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

[redacted]

REV. NO.	DRAWN / CHECKER	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
E	JH / TM		TM		06-11-18	ADDED METERING PUMP & CHEMICAL LOADING PUMP
D	JD / SH		SH		09-02-16	GENERAL UPDATE

CONTRACTOR NAME & PROJECT NUMBER

[redacted]

DATE
08-23-02
08-23-02
08-23-02
08-23-02

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company

GAS ENGINEERING — LOS ANGELES

PIPING DESIGN STANDARDS
PFD/P&ID
EQUIPMENT SYMBOLS

SCALE: NONE

DRAWING NO.: 0103-D.STD

REV.: E

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

MISCELLANEOUS

VESSELS

TANKS



REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
B	JD / SH		SH		09-02-16	GENERAL UPDATE

CONTRACTOR NAME & PROJECT NUMBER

	BY	DATE
DESIGNED	[redacted]	08-23-02
DRAWN		08-23-02
CHK'D.		08-23-02
APPR'D.		08-23-02

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
GAS ENGINEERING — LOS ANGELES

PIPING DESIGN STANDARDS
PFD/P&ID
EQUIPMENT SYMBOLS

SCALE NONE

DRAWING NO. 0107-D-STD

REV. B

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

[redacted]

LEGEND:

1. PERMANENT GUARD POST
2. FE FIRE EXTINGUISHER 15.5 LB. TYPE: 2A: 10BC WITH FIBERGLASS CABINET FOR OUTDOOR LOCATIONS.
3. POLE MOUNTED AREA LIGHTING POLE
4. ESD
5. SECURITY CAMERA
6. WIND SOCK
7. FIRE EYE FLAME DETECTOR (x2)
8. LASER GAS DETECTOR

ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

0 5' 10' 20'

SCALE: 1/8" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

PLANT

N

DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT

[redacted]

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

0 5' 10' 20'

SCALE: 1/8" = 1'-0"

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

GENERAL NOTES:

1. DO NOT SCALE FROM THIS DRAWING.
2. FOR MATERIAL SUBSTITUTION. DIMENSIONAL CHANGE OR DEVIATION FROM THE DESIGN DRAWING. CONTACT THE DESIGNER SHOWN IN TITLE BLOCK.
3. WHERE MSA OR REGULATOR STATIONS ARE EXPOSED TO VEHICULAR TRAFFIC. INSTALL REQUIRED GUARD POSTS PER GAS STANDARD 185.0008 AND STANDARD DRAWING 0413-D. STD TO PREVENT DAMAGE.
4. DO NOT VENT GAS NEAR BUILDING OPENINGS, WALLS, WINDOWS, DOORS OR NEAR OVERHEAD POWER LINES.
5. APPLY PROTECTIVE COATING TO BURIED PIPE IN ACCORDANCE WITH GAS STANDARD 186.0100.
6. FACILITY TO BE CONSTRUCTED IN COMPLIANCE WITH THE FOLLOWING GAS STANDARD.
   1) 180.0020 : FLANGES - SELECTION. TORQUE AND INSTALLATION REQUIREMENTS
   2) 182.0170 : STRENGTH TESTING - PIPELINES AND FACILITIES.
   3) 186.0106 : EXTERNAL SURFACE PREPARATION AND FIELD-APPLIED COATING FOR ABOVE GROUND PIPE SPANS
   4) 187.0055 : GENERAL WELDING REQUIREMENTS
7. CAD SYSTEM SPECIFIES EXACT PIPE LENGTH FOR DESIGN. NO ALLOWANCE FOR SHRINKAGE OR WASTE DUE TO FIELD ADJUSTMENTS ETC. ADJUST ORDERED LENGTH AS NECESSARY.
8. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.
9. CONTRACTOR SHALL APPLY FLOW ARROW, COMMODITY COLOR, AND LINE NUMBER PER ASME A13.1
10. REFER TO SB 1383 - CATHODIC PROTECTION FOR COMPRESSOR FACILITIES, FIGURES 1-4 FOR DETAILS ON UNDERGROUND LINE PROTECTION.
11. REFERENCE DRAWING # 33906-0302-B-STD FOR RFP PLATE, CLAMP AND SHOE DETAILS WHERE REQUIRED.
12. REFERENCE DRAWING # 33906-6060-D-INT FOR INSTRUMENTATION TUBING DETAILS, TYPICAL FOR ALL TIT'S, PIT'S, LIT'S AND PDIT'S WHERE NOT SPECIFICALLY INDICATED.
13. REFERENCE DRAWING # 33906-6060-D-INT FOR INSTRUMENTATION TUBING DETAILS, TYPICAL FOR ALL HV'S AND XV'S WHERE NOT SPECIFICALLY INDICATED.
14. REFERENCE DRAWING # 33906-0303-B-STD FOR UNISTRUT SUPPORT.
15. REFERENCE DRAWING # 33906-6051-D-INT FOR NGC PROBE CONNECTION

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

ISSUED FOR CONSTRUCTION

0 1' 2' 4' 6'

SCALE: 3/8" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

GENERAL NOTES:

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3. WHERE MSA OR REGULATOR STATIONS ARE EXPOSED TO VEHICULAR TRAFFIC. INSTALL REQUIRED GUARD POSTS PER GAS STANDARD 185.0008 AND STANDARD DRAWING 0413-D. STD TO PREVENT DAMAGE.

4. DO NOT VENT GAS NEAR BUILDING OPENINGS, WALLS, WINDOWS, DOORS OR NEAR OVERHEAD POWER LINES.

5. APPLY PROTECTIVE COATING TO BURIED PIPE IN ACCORDANCE WITH GAS STANDARD 186.0100.

6. FACILITY TO BE CONSTRUCTED IN COMPLIANCE WITH THE FOLLOWING GAS STANDARD.
   1) 180.0020 : FLANGES - SELECTION. TORQUE AND INSTALLATION REQUIREMENTS
   2) 182.0170 : STRENGTH TESTING - PIPELINES AND FACILITIES.
   3) 186.0106 : EXTERNAL SURFACE PREPARATION AND FIELD-APPLIED COATING FOR ABOVE GROUND PIPE SPANS
   4) 187.0055 : GENERAL WELDING REQUIREMENTS

7. CAD SYSTEM SPECIFIES EXACT PIPE LENGTH FOR DESIGN. NO ALLOWANCE FOR SHRINKAGE OR WASTE DUE TO FIELD ADJUSTMENTS ETC. ADJUST ORDERED LENGTH AS NECESSARY.

8. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

9. CONTRACTOR SHALL APPLY FLOW ARROW, COMMODITY COLOR, AND LINE NUMBER PER ASME A13.1

10. REFER TO SB 1383 - CATHODIC PROTECTION FOR COMPRESSOR FACILITIES, FIGURES 1-5 FOR DETAILS ON UNDERGROUND LINE PROTECTION.

11. REFERENCE DRAWING # 33906-0302-B-STD FOR FRP PLATE, CLAMP AND SHOE DETAILS WHERE REQUIRED.

12. REFERENCE DRAWING # 33906-6060-D-INT FOR INSTRUMENTATION TUBING DETAILS, TYPICAL FOR ALL TIT'S, PIT'S, LIT'S AND PDIT'S WHERE NOT SPECIFICALLY INDICATED.

13. REFERENCE DRAWING # 33906-6060-D-INT FOR INSTRUMENTATION TUBING DETAILS, TYPICAL FOR ALL HV'S AND XV'S WHERE NOT SPECIFICALLY INDICATED.

LEGEND:

1. → DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

OR

ISSUED FOR CONSTRUCTION

0 1' 2' 4' 6'

SCALE: 3/8" = 1'-0"

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

PLANT

N

[redacted]

DRAWING LIMIT

GENERAL NOTES:

1. DO NOT SCALE FROM THIS DRAWING.

2. FOR MATERIAL SUBSTITUTION. DIMENSIONAL CHANGE OR DEVIATION FROM THE DESIGN DRAWING. CONTACT THE DESIGNER SHOWN IN TITLE BLOCK.

3. WHERE MSA OR REGULATOR STATIONS ARE EXPOSED TO VEHICULAR TRAFFIC. INSTALL REQUIRED GUARD POSTS PER GAS STANDARD 185.0008 AND STANDARD DRAWING 0413-D. STD TO PREVENT DAMAGE.

4. DO NOT VENT GAS NEAR BUILDING OPENINGS, WALLS, WINDOWS, DOORS OR NEAR OVERHEAD POWER LINES.

5. APPLY PROTECTIVE COATING TO BURIED PIPE IN ACCORDANCE WITH GAS STANDARD 186.0100.

6. FACILITY TO BE CONSTRUCTED IN COMPLIANCE WITH THE FOLLOWING GAS STANDARD.
   1) 180.0020 : FLANGES - SELECTION. TORQUE AND INSTALLATION REQUIREMENTS
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   3) 186.0106 : EXTERNAL SURFACE PREPARATION AND FIELD-APPLIED COATING FOR ABOVE GROUND PIPE SPANS
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8. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

9. CONTRACTOR SHALL APPLY FLOW ARROW, COMMODITY COLOR, AND LINE NUMBER PER ASME A13.1

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

ISSUED FOR CONSTRUCTION

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

0 1' 2' 4' 6'

SCALE: 3/8" = 1'-0"

[redacted]

ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

0 1' 2' 3'

SCALE: 3/4" = 1'-0"

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

0 1' 2' 3'

SCALE: 3/4" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

[redacted]

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

0 1' 2' 3'

SCALE: 3/4" = 1'-0"

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

[redacted]

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

0 1' 2' 3'

SCALE: 3/4" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

[redacted]

LEGEND:

1. DENOTES DIRECTION OF FLOW.
2. INSULATION KIT.
3. DENOTES TIE-IN.
4. L.C. = LOCKED CLOSED
5. L.O. = LOCKED OPEN
6. N.C. = NORMALLY CLOSED
7. N.O. = NORMALLY OPEN

0 1' 2' 3'

SCALE: 3/4" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.
4	8

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1		[redacted]					
2	1						
3	1						
4	2						
5	1						
6	4						
7	1						
8	1						
9	3						
10	2						
11	6						
12	6						
13	1						
14	1						
15	3						
16	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
17	1	[redacted]					
18	4						
19	16						

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	54'-6"	[redacted]					
2	2						
3	1						
4	4						
5	3						
6	1						
7	1						
8	1						
9	4						
10	1						
11	5						
12	6						
13	2						
14	1						
15	4						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
16	4	[redacted]					
17	16						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	126'-4 15/16"	[redacted]					
2	7						
3	5						
4	1						
5	1						
6	1						
7	2						
8	1						
9	5						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
10	8	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	5						
3	4						
4	1						
5	1						
6	1						
7	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
8	15'-8"	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	5						
3	4						
4	1						
5	1						
6	1						
7	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
8	15'-7 7/8"	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	4"	[redacted]					
2	1						
3	1						
4	1						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	4'-10 15/16"	[redacted]					
2	1						
3	1						
4	2						
5	1						
6	2						
7	2						
8	2						
9	2						
10	3						
11	1						
12	1						
13	1						
14	3						
15	1						
16	2						
17	1						
18	1						
19	1						
20	2						
21	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
22	8	[redacted]					
23	8						
24	4						
25	4						

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	4'-11"	[redacted]					
2	1						
3	1						
4	1						
5	1						
6	1						
7	2						
8	1						
9	2						
10	1						
11	1						
12	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
13	8	[redacted]					
14	4						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	5'-1 5/8"	[redacted]					
2	8"						
3	2						
4	3						
5	3						
6	1						
7	1						
8	1						
9	2						
10	1						
11	1						
12	1						
13	3						
14	2						
15	2						
16	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
17	12	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	10'-8 1/4"	[redacted]					
2	2						
3	2						
4	2						
5	2						
6	2						
7	4						
8	2						
9	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
10	32	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1'-0 1/2"	[redacted]					
2	2						
3	2						
4	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
5	16	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	9'-3 1/4"	[redacted]					
2	2						
3	1						
4	1						
5	1						
6	1						
7	1						
8	2						
9	2						
10	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
11	8	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2'-10 3/16"			[redacted]			
2	1						
3	1						
4	1						
5	1						
6	1						
7	1						
8	1						
9	2						
10	2						
11	3						
12	3						
13	1						
14	1						
15	1						
16	1						
17	1						
18	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
19	8			[redacted]			
20	8						

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	45'-8 1/2"	[redacted]					
2	1						
3	2						
4	1						
5	1						
6	1						
7	1						
8	1						
9	1						
10	1						
11	1						
12	1						
13	4						
14	1						
15	5						
16	2						
17	1						
18	1						
19	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
20	40	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	3'-3 5/8"	[redacted]					
2	20'-2 5/16"						
3	2						
4	1						
5	5						
6	2						
7	2						
8	7						
9	4						
10	2						
11	1						
12	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
13	8	[redacted]					
14	4						
15	8						

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	4'-0"						
2	20'-1 11/16"						
3	2						
4	6						
5	1						
6	2						
7	2						
8	7						
9	4						
10	2						
11	1						
12	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
13	8						
14	4						
15	8						

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	24'-8 1/16"						
2	10'-10 9/16"						
3	1						
4	1						
5	2						
6	5						
7	1						
8	1						
9	1						
10	2						
11	2						
12	2						
13	2						
14	7						
15	1						
16	2						
17	4						
18	1						
19	1						
20	2						
21	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
22	16						
23	8						
24	16						

[redacted]

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	27'-3 11/16"						
2	4'-10"						
3	2						
4	2						
5	3						
6	1						
7	1						
8	1						
9	1						
10	1						
11	3						
12	3						
13	1						
14	1						
15	4						
16	1						
17	2						
18	1						
19	1						
20	4						
21	2						
22	1						
23	1						
24	1						
25	1						
26	1						
27	2						
28	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
29	32						
30	16						
31	8						

ISSUED FOR CONSTRUCTION

NOTES:

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2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	5'-6 1/2"	[redacted]					
2	10'-10 9/16"						
3	1						
4	2						
5	4						
6	1						
7	1						
8	1						
9	2						
10	2						
11	2						
12	2						
13	7						
14	1						
15	2						
16	4						
17	1						
18	1						
19	2						
20	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
21	16	[redacted]					
22	8						
23	16						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	16	[redacted]					

NOTES:

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3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	37'-0 5/16"						
2	4"						
3	1						
4	2						
5	2						
6	4						
7	3						
8	1						
9	1						
10	1						
11	1						
12	4						
13	4						
14	1						
15	5						
16	2						
17	5						
18	1						
19	2						
20	1						
21	4						
22	16						
23	40						

NOTES:

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2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	5'-1 3/16"	[redacted]					
2	1						
3	1						
4	1						
5	2						
6	1						
7	2						
8	2						
9	1						
10	2						
11	1						
12	2						
13	2						
14	1						
15	1						
16	1						
17	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
18	16	[redacted]					
19	16						
20	8						

ISSUED FOR CONSTRUCTION

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2'-7"	[redacted]					
2	1						
3	2						
4	1						
5	2						
6	1						
7	4						
8	4						
9	1						
10	1						
11	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
12	32	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1'-2 3/4"	[redacted]					
2	2						
3	2						
4	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
5	16	[redacted]					

NOTES:

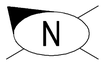
1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]



FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
				PIPE			
1	10 7/16"	2	XS	PIPE SMLS ASTM A106-B	41-06.1	0.218"	N407549
				FITTINGS			
2	1	2 x 1/2	3000CL	SOCKOLET ASTM A105	52-83	---	N529736
3	1	1/2	XS	NIPPLE 3"LG SMLS PBE ASTM A106-B	50-15	0.147"	---
4	1	1/2	SOLID	PLUG SQ HEAD THD ASTM A105	54-37	---	N549506
				FLANGES			
5	2	2	300CL	FLANGE RF WN SCH XS ASTM A105	54-17	0.218"	N549619
				GASKETS			
6	2	2	300CL	GASKET SPIRAL WOUND 1/8" THK 304SS FLEXIBLE GRAPHITE FILLER	76-46.3	---	N479702
				VALVES			
7	1	1/2	3000WOG	VALVE BALL SW x FNPT FULL PORT FLOATING BALL WRENCH OPERATED ASTM A105 BODY, SS BALL AND TRIM, PEEK SEAL, NACE, FIRE SAFE	58-15.1	---	N581681

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
				BOLTS			
8	16	5/8	---	3.3/4 " LONG STUD BOLT ASTM A193-B7 BLACK W/ 2 HEAVY HEX NUTS ASTM A194-2H BLACK	24-19	---	N243310

NOTES:

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ISSUED FOR CONSTRUCTION

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

	BY	DATE
DESIGNED:	J. MONTOYA	02/24/20
DRAWN:	J. MONTOYA	04/28/20
CHECKED:	D. JACKSON	08/05/20
PROJ APV:	M. BUENVIAJE	08/05/20
SCG ENG APV:	H. GREGORCHUK	08/05/20
ENG FILE NO:	E18037	
WOA:	93365.001	

SoCalGas
A Sempra Energy utility

DWG CLASS: 09 DWG DIST: 102
SCALE: NONE

LAKESIDE DAIRY PILOT
SENATE BILL 1383
NATURAL GAS FROM V-1800
PIPING ISOMETRIC AND BOM

DRAWING NUMBER: LKGN1021

DWG 1 OF 1

REV 0

LAST RUN: 08/05/2020

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
				PIPE			
1	2'-10 7/8"	3	STD	PIPE EW API 5L-B	41-06.1	0.216"	N406533
2	5'-7 7/16"	2	XS	PIPE SMLS ASTM A106-B	41-06.1	0.218"	N407549
				FITTINGS			
3	1	3 x 2	STD x XS	REDUCER ECC BW ASTM A234-WPB	52-96	0.216" x 0.218"	N554485
4	1	3 x 3/4	3000CL	THREDOLET ASTM A105	52-83	---	N529757
5	2	3 x 3/4	3000CL	SOCKOLET ASTM A105	52-83	---	N529729
6	2	2 x 3/4	3000CL	SOCKOLET ASTM A105	52-83	---	N529738
7	3	2 x 1/2	3000CL	SOCKOLET ASTM A105	52-83	---	N529736
8	1	3	300CL	BLIND RF SPECTACLE ASTM A516-70	---	---	N547612
9	3	3/4	XS	NIPPLE 3"LG SMLS PBE ASTM A106-B	---	0.154"	---
10	3	3/4	SOLID	PLUG SQ HEAD THD ASTM A105	54-37	---	N549511
11	3	1/2	XS	NIPPLE 3"LG SMLS PBE ASTM A106-B	50-15	0.147"	---
12	1	1/2	SOLID	PLUG SQ HEAD THD ASTM A105	54-37	---	N549506
13	2	1/4	XS	NIPPLE 3" LG SMLS TBE ASTM A106-B	50-15	0.095"	N505721
14	2	1/4	SOLID	PLUG SQ HEAD THD ASTM A105	54-37	---	N543304
				FLANGES			
15	1	3	600CL	JACKSCREW UNION ASSY WELD ENDS PER STD DWG 0326-D.STD	54-17	---	N548022
16	3	3	300CL	FLANGE RF WN SCH STD ASTM A105	54-17	0.216"	---
17	5	2	300CL	FLANGE RF WN SCH XS ASTM A105	54-17	0.218"	N549619
				GASKETS			
18	2	3	300CL	GASKET SPIRAL WOUND 1/8" THK 304SS FLEXIBLE GRAPHITE FILLER	76-46.3	---	N479703
19	1	3	300CL	ISOLATION FLANGE KIT FLAT RING CLASS "F"	47-58	---	---
20	5	2	300CL	GASKET SPIRAL WOUND 1/8" THK 304SS FLEXIBLE GRAPHITE FILLER	76-46.3	---	N479702
				VALVES			
21	1	3	600CL	VALVE CHECK WAFER RF FLG CS ASTM A216-WCB BODY, SS316 PLATE/SEAT/PIN, VITON-B® SEAL	58-20	---	N589662
22	1	2	300CL	VALVE BALL RF FULL PORT FLOATING BALL CS WRENCH OPERATED ASTM A105/A216-WCB BODY SS316 TRIM (BALL AND STEM) RTFE SEAL, FIRE SAFE	58-15.2	---	N539980
23	3	3/4	3000WOG	VALVE BALL SW x FNPT FULL PORT FLOATING BALL WRENCH OPERATED ASTM A105 BODY, SS BALL AND TRIM, PEEK SEAL, NACE, FIRE SAFE	58-15.1	---	N581557
24	3	1/2	3000WOG	VALVE BALL SW x FNPT FULL PORT FLOATING BALL WRENCH OPERATED ASTM A105 BODY, SS BALL AND TRIM, PEEK SEAL, NACE, FIRE SAFE	58-15.1	---	N581681
25	2	1/4	10000psig	VALVE NEEDLE ZINC PLTD CS BODY FNPT STRAIGHT BODY ASTM A108 GRADE 1213 BODY INTREGAL UNION BONNET 3" YELLOW ZINC PLTD CS HANDLE OPERATED 416 CS ASTM A582 STEM VIRGIN TEFLON PACKING	58-63	---	N586305

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
26	8						
27	8						
28	40						

[redacted]

ISSUED FOR CONSTRUCTION

NOTES:

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3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	13'-3 3/8"			[redacted]			
2	1						
3	1						
4	3						
5	2						
6	1						
7	1						
8	1						
9	1						
10	2						
11	2						
12	1						
13	1						
14	2						
15	1						
16	1						
17	2						
18	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
19	1'-10 3/16"			[redacted]			
20	4						
21	4						

ISSUED FOR CONSTRUCTION

NOTES:

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[redacted]

THERMAL INSULATION SPEC: P

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	17'-11 5/16"	[redacted]					
2	1						
3	1						
4	2						
5	3						
6	1						
7	1						
8	1						
9	1						
10	2						
11	2						
12	1						
13	2						
14	1						
15	1						
16	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
17	1'-10 3/16"	[redacted]					
18	4						
19	4						

NOTES:

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[redacted]

THERMAL INSULATION SPEC: P

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	5 1/2"	[redacted]					
2	1'-4 5/8"						
3	1						
4	1						
5	1						
6	1						
7	1						
8	1						
9	1						
10	2						
11	1						
12	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
13	8	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	11 11/16"	[redacted]					
2	2						
3	3						
4	10						
5	2						
6	2						
7	1						
8	6						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	3						
3	12						
4	2						
5	2						
6	1						
7	6						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
8	11 11/16"	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	6						
4	8						
5	2						
6	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
7	32	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	6						
4	8						
5	2						
6	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
7	32	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	8	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	8	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	8	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	8	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

DESIGN FACTOR:
SPEC: A21
MIN. TEST PRESSURE:
INSUL: THK: TRACE: NO
STRESS: NO PWHT: NO
3D DATA BASE
ZONE: V-1100
DB REFN: =19586/19553

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	6						
4	8						
5	2						
6	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
7	56	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	2	[redacted]					
2	2						
3	6						
4	8						
5	2						
6	2						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
7	56	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	16	[redacted]					

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR	MATERIAL DESCRIPTION	MSP	WALL	MATERIAL
4	16	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	16	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	2						
3	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
4	16	[redacted]					

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHKD	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

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2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						
3	2						
4	1						
5	1						

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	5 1/2"			[redacted]			
2	1'-1 7/8"						
3	1						
4	1						
5	1						
6	1						
7	1						
8	1						
9	1						
10	2						
11	1						
12	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
13	16			[redacted]			

ISSUED FOR CONSTRUCTION

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						
3	2						
4	2						
5	1						
6	1						
7	1						
8	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
9	1'-5 3/8"	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	4	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	4	[redacted]					

NOTES:

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[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
2. ALL FABRICATION, WELDING, INSTALLATION, CLEANING, COATING, INSPECTION, AND TESTING WILL BE PERFORMED PER SOCAL GAS SPECIFICATIONS: SEE CONSTRUCTION SCOPE OF WORK.
3. "FFU" DENOTES AN ADDITIONAL 6" OF PIPE WITH PLAIN END. TO BE UTILIZED FOR FIT UP OF PIPE SPOOL IN THE FIELD.

[redacted]

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	8	[redacted]					

NOTES:

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[redacted]

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[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	8	[redacted]					

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[redacted]

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N

[redacted]

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[redacted]

N

[redacted]

FABRICATION MATERIALS

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[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

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[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					

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ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	4	[redacted]					

NOTES:

1. THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS AFFECTING THEIR WORK AND ASSUME THE RESPONSIBILITY FOR THEIR CORRECTNESS.
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ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
2	1						

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	4	[redacted]					

NOTES:

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ISSUED FOR CONSTRUCTION

[redacted]

N

[redacted]

FABRICATION MATERIALS

ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
1	1	[redacted]					
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ITEM NO.	QTY.	SIZE	SCH. OR RATING	MATERIAL DESCRIPTION	MSP	WALL THK.	MATERIAL CODE
3	8	[redacted]					

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[redacted]

N

[redacted]

FABRICATION MATERIALS

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[redacted]							

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ISSUED FOR CONSTRUCTION

[redacted]

TYPE OF CONNECTION	SINGLE LINE	DOUBLE LINE
PIPE WELD		
STUB-IN		
STUB-IN REINFORCED PAD		
STUB-IN SADDLE		
FULL ENCIRCLEMENT SADDLE		
WELDOLET THREDOLET SOCKOLET		
ELBOLET		
LATROLET		
HALF COUPLING FLANGE		
WELD NECK FLANGE		
SLIP-ON FLANGE		
LAP JOINT FLANGE		
THREADED FLANGE		
BLIND FLANGE		
ORIFICE FLANGE (WELD NECK SHOWN)		

TYPE OF FITTING		WELDED SINGLE LINE	WELDED DOUBLE LINE	SCREWED OR SOCKET WELD
90° ELL NOTE 7	TOP			
	SIDE			
	BOTTOM			
90° REDUCING ELL	TOP			
	SIDE			
	BOTTOM			
45° ELL	TOP			
	SIDE			
	BOTTOM			
TEE NOTE 8	TOP			
	SIDE			
	BOTTOM			
LATERAL	TOP			
	SIDE			
	BOTTOM			
REDUCERS & SWAGES	CONC.			
	ECC. NOTE 9			
CAP				
PLUG				
UNION				

PIPE SUPPORTS, ANCHORS, GUIDES, FIELD WELDS ETC.

PIPE SUPPORT — P.S.#

F.W. — FIELD WELD

PIPE GUIDE

PIPE ANCHOR

PIPE GUIDED AND ANCHORED

END CONNECTION SYMBOLS

	SINGLE LINE	DOUBLE LINE
SCREWED OR SOCKET WELD		
FLANGED		
WELD END		
WELD BY FLANGE		

VALVES AND SPECIALTY ITEMS

- GATE VALVE
- BALL VALVE
- PLUG VALVE
- CHECK VALVE
- WAFER CHECK VALVE
- GLOBE VALVE
- NEEDLE VALVE
- BUTTERFLY VALVE
- RELIEF VALVE (IN LINE)
- RELIEF VALVE, ANGLE (PLAN)
- RELIEF VALVE, ANGLE (ELEVATION)
- REGULATOR (GROVE WAFER) 1½" THROUGH 3"
- REGULATOR (GROVE FLANGED) 4" AND LARGER
- REGULATOR (MOONEY FLANGED)
- REGULATOR (MOONEY WELDED)
- REGULATOR (FISHER 298 SERIES)
- REGULATOR (FISHER 1098 SERIES)
- CONTROL VALVE (ELEVATION)
- TURBINE METER
- ROTARY METER
- STRAIGHTENING VANE
- FLOW NOZZLE
- TEE STRAINER, FLG. X FLG. (PLAN)
- TEE STRAINER, FLG. X FLG. (ELEVATION) (CONVEX OF BASKET FACES UPSTREAM)
- TEE STRAINER, WELD X WELD (PLAN)
- (CONVEX OF BASKET FACES UPSTREAM)
- TEE STRAINER, WELD X WELD (ELEVATION) TEE STRAINER, FLG. X WELD (PLAN)
- TEE STRAINER, FLG. X WELD (ELEVATION) (CONVEX OF BASKET FACES UPSTREAM)
- TEMPORARY SUCTION STRAINER
- "Y" STRAINER
- INSULATING KIT
- SPACER RING
- BLEED RING (VERIFY VALVE TYPE)
- SPECTACLE BLIND (OPEN)
- SPECTACLE BLIND (CLOSED)
- DIAPHRAGM METER
- ORIFICE METER

FILTERS

FLANGED — WELDED — W/DAVIT — TOP — SIDE

PECO 30F FILTERS

PECO 30 FILTERS — TOP — SIDE

SAFECO GFD FILTERS — TOP — SIDE

SAFECO GFT FILTERS — TOP — SIDE

HANDWHEELS AND GEAR OPERATORS

HANDWHEEL ON GATE VALVE — TOP — SIDE — END

GEAR OPERATOR ON PLUG VALVE — TOP — SIDE — END

GEAR OPERATOR ON BALL VALVE — TOP — SIDE — END

ABBREVIATIONS

BBE — BEVEL BOTH ENDS
BF — BOTTOM FLAT
BLE — BEVEL LARGE END
BOM — BILL OF MATERIAL
BOP — BOTTOM OF PIPE
BW — BUTTWELD
BLD — BLIND

CH OP — CHAIN OPERATOR
CS — CARBON STEEL

DWG — DRAWING

ECC — ECCENTRIC
EL — ELEVATION
EOL — ELBOLET
ET — ELECTRIC TRACE

FLD — FIELD
FLG — FLANGE
FM — FITTING MAKE-UP
FOF — FACE OF FLANGE
FTF — FACE TO FACE
FW — FIELD WELD

HT — HEAT TRACED

IC — INSULATION COLD
IH — INSULATION HOT
INV — INVERT
IPS — IRON PIPE SIZE
IS — INSULATED SAFETY

NTS — NOT TO SCALE

PBE — PLAIN BOTH ENDS
PLATF — PLATFORM

RED — REDUCER
RF — RAISED FACE

SCH — SCHEDULE
SCRD — SCREWED
SJ — STEAM JACKETED
SO — SLIP ON
SOL — SOCKOLET
SR — SHORT RADIUS
ST — STEAM TRACED
SW — SOCKETWELD

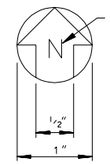
TBE — THREADED BOTH ENDS
THRD — THREADED
TF — TOP FLAT
TLE — THREADED LARGE END
TOE — THREADED ONE END
TOL — THREADOLET
TOS — TOP OF STEEL
TSE — THREADED SMALL END
TYP — TYPICAL

WN — WELDNECK
WOL — WELDOLET

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

NOTES

1. ALL VALVES, HANDWHEELS AND WRENCHES SHALL BE REPRESENTED PER MANUFACTURER'S DIMENSIONAL OUTLINES.
2. VALVE HANDWHEELS AND WRENCHES SHALL BE SHOWN ONLY WHERE REQUIRED FOR CLEARNCES OR SPECFIC ORENTATION.
3. PIPE SHALL BE DRAWN SINGLE LINE, EXCEPT 12" & LARGER OR IN AREAS WHERE DOUBLE LINE IS REQUIRED TO SHOW CLEARNCES.
4. CONTROL VALVE SYMBOLS SHALL CONSIST OF THE APPROPRIATE BODY AND ACTUATOR SYMBOLS.
5. CONTROL VALVE MANIFOLD DETAILS SHALL SHOW APPROPRIATE PIPING COMPONENTS.
6. ALL CONTROL VALVES SHALL HAVE VALVE TAG NUMBER SHOWN.
7. CALLOUT "SR" FOR SHORT ELL.
8. CALLOUT SIZES FOR SWAGES, REDUCERS & REDUCING TEES ONLY.
9. CALLOUT "BF" FOR FLAT ON BOTTOM, "TF" FOR FLAT ON TOP.



ARROW IS TO BE IN UPPER LEFT HAND CORNER OF DRAWING. PLANS SHOULD PREFERABLY BE ORIENTATED SO THAT ARROW POINTS TOWARD TOP OR TO LEFT HAND SIDE OF DRAWING. (EXCEPTIONS WILL BE MADE ONLY WHERE REQUIRED TO CONFORM TO ORIENTATION OF PRIOR DRAWINGS OF AN INSTALLATION.)

NOZZLE DESCRIPTIONS FOR VESSELS AND TANKS

A — INLET
B — OUTLET
D — DRAIN
G — LEVEL GAGE
H — HANDHOLE
L — LEVEL INSTRUMENT
M — MANHOLE
O — OVERFLOW
P — PRESSURE INSTRUMENT
R — RELIEF VALVE
S — SAMPLE CONNECTION
SA — SKIRT ACCESS
SV — SKIRT VENT
T — TEMPERATURE INSTRUMENT
V — VENT

WHEN MULTIPLE CONNECTIONS OF THE SAME PROCESS ARE REQUIRED, A NUMERIC VALUE SHOULD BE ADDED TO THE NOZZLE. NUMBERING SHOULD BEGIN WITH THE LOWEST NOZZLE ON THE VESSEL AND CONTINUE UPWARD (A1, A2, A3, ETC.)

REV. NO.	DRAWN	CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	JL	JL		JAL		5-15-98	

[redacted]

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT — LOS ANGELES

PIPING DESIGN STANDARDS PIPING PLAN SYMBOLS

SCALE: NONE

DRAWING NO.: 0301-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$sytime$$$$$$

[redacted]

END VIEW

[redacted]

SIDE VIEW

PIPE SHOE
2" THRU 6" PIPE

ITEM	QTY	MATERIAL DESCRIPTION
①	2	[redacted]
②	2	
③	1	

[redacted]

ITEM	NOMINAL PIPE SIZE	H
①	[redacted]	
①		
①		

NOTES:

1. AVOID INTEFERENCE WITH ADJACENT GUIDES.
2. [redacted]

GUIDE WITH NON-METALLIC PADS
3" THRU 6"

[redacted]

NOTES:

[redacted]

2. OFFSET CLAMP SO THE BOLTS MISS THE WEB.

PIPE ANTI VIBRATION CLAMP
AND NON-METALLIC WEAR PADS

ISSUED FOR CONSTRUCTION
08/05/20

REF DRAWING NO	REF DRAWING DESCRIPTION

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[redacted]

ITEM	QTY.	MATERIAL DESCRIPTION
①	2	[redacted]
②	2	

[redacted]

ELEVATIONS

[redacted]

ITEM	ALLOWABLE LOAD
①	[redacted]
②	

NOTES:

1. FIELD TO TRIM ITEM 1 TO MATCH O.D. OF PIPE REDUCE TABULATED CAPACITY BY 1/3 FOR TRIMMED WT.
2. 3/8" STIFFENER PLATES REQUIRED FOR STRUCTURAL STEEL SUPPORT.
3. USE THIS DESIGN FOR CARBON STEEL PIPE ONLY.
4. FULL ENCIRCLEMENT BANDS ARE REQUIRED ON GAS PIPING.
5. CIVIL/STRUCTURAL ENGINEERING APPROVAL IS REQUIRED FOR ANCHOR LOADS EXCEEDING 1,000 LBS.

DIRECTIONAL ANCHOR

[redacted]

ITEM	QTY	SIZE	MATERIAL DESCRIPTION	NOTE
①	1	[redacted]		
②	2			
③	1			
④	2			

[redacted]

UNISTRUT BRACING [redacted]

ITEM	QTY	SIZE	MATERIAL DESCRIPTION	NOTE
①	1	[redacted]		
②	1			
③	2			

[redacted]

UNISTRUT SUPPORT [redacted]

ISSUED FOR CONSTRUCTION
08/05/20

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[redacted]

STRUCTURAL GENERAL NOTES

GENERAL

1. CONTRACTOR TO BE APPROVED BY THE CITY, OR OTHER GOVERNMENT AGENCY HAVING JURISDICTION OVER THIS DEVELOPMENT.
2. DESIGN CODE AND GENERAL REQUIREMENTS:
   A.) CALIFORNIA BUILDING CODE, 2019.
   B.) CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS ACT. (OSHA)
   C.) CALIFORNIA STATE INDUSTRIAL SAFETY ORDERS.
   D.) KING'S COUNTY ORDINANCES AND REGULATIONS.
   E.) ASCE 7-16.
3. COORDINATE ALL WORK WITH THE PLANT CONSTRUCTION COORDINATOR.
4. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION DIMENSIONS. CONTRACTOR SHALL CONTACT ENGINEERING FOR ANY INCORRECT OR MISSING DIMENSIONS.
5. THE LOCATIONS OF THE SUBSTRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS. THERE IS NO ASSURANCE THAT THE RECORD INFORMATION IS ACCURATE, OR THAT ALL EXISTING SUBSTRUCTURES ARE SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE SUBSTRUCTURES SHOWN AND ANY OTHER SUBSTRUCTURES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. THE OWNER SHALL HAVE THE RIGHT TO MAKE CERTAIN CHANGES IN THE WORK AND THE CONTRACT AMOUNT SHALL BE ADJUSTED ACCORDINGLY. ALL SUGGESTED CHANGES OR MODIFICATIONS TO THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS MUST HAVE WRITTEN APPROVAL FROM AN OWNER REPRESENTATIVE PRIOR TO MAKING ANY SUCH MODIFICATIONS. THE CONTRACTOR IS INSTRUCTED NOT TO ACCEPT VERBAL AUTHORIZATIONS AND ASSUMES ANY AND ALL LIABILITY FOR NOT COMPLYING WITH THIS PROCEDURE IN ITS ENTIRETY. AS A RESULT, THE CONTRACTOR MAY BE REQUIRED TO REVAMP ANY UNAUTHORIZED MODIFICATIONS TO COMPLY WITH THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS, AT NO ADDITIONAL COST. NO EXCEPTIONS WILL BE PERMITTED.
7. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS PRIOR TO BIDDING AND COMMENCING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING THAT OF ALL SUB-TRADES.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER (ENGINEER OF RECORD) IMMEDIATELY OF ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS.
10. CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS ACCUMULATED AS A RESULT OF THEIR OPERATION. ALL SCRAP, DEBRIS, AND OTHER EXCESS MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE.
11. CONTRACTOR SHALL FURNISH ALL MATERIALS AS SHOWN HEREIN UNLESS EQUAL ALTERNATES ARE APPROVED IN WRITING BY THE OWNER AND ENGINEER.
12. ANY REFERENCE TO THE WORDS APPROVE, APPROVED, OR APPROVAL IN THESE DOCUMENTS SHALL BE HEREIN DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUBCONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
13. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO, BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING THE CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, AND FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING COMPLIANCE WITH CONTRACT DOCUMENTS, DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
14. CONTRACTOR SHALL VERIFY AND DOCUMENT THE LOCATION OF ALL UNDERGROUND LINES WITHIN THE AREAS OF PROPOSED CONSTRUCTION.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PER SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT RULE 4651 REQUIREMENTS.
16. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY TO COMPLETELY EXPLAIN AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT TO OWNER'S REPRESENTATIVE ONE COMPLETE SET OF DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
17. NOTES AND DETAILS ON DESIGN DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES, STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

SHORING

1. ALL SHORING SHALL COMPLY WITH CAL/OSHA.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND PROVIDING BRACING DURING CONSTRUCTION AND/OR ERECTION TO SUPPORT ALL LOADS TO WHICH THE STRUCTURE AND SUPPORTING SOIL MAY BE SUBJECTED.

FIRE DEPARTMENT REQUIREMENTS

1. ALL NEW CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FIRE DEPARTMENT REGULATIONS.
2. ALL PIPING SYSTEMS SHALL BE LABELED IN ACCORDANCE WITH SPECIFICATIONS.
3. VEHICULAR ACCESS SHALL BE MAINTAINED DURING CONSTRUCTION.

SOILS AND FOUNDATION

1. ALL FOUNDATION AND EARTHWORK SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION PREPARED BY [redacted] DATED NOVEMBER 13, 2019. THE GEOTECHNICAL INVESTIGATION (PROJECT NO. SC1017-04), ALL ASSOCIATED ADDENDUM, AND ALL REQUIREMENTS AND RECOMMENDATIONS THEREIN, SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. IF NOT PROVIDED, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING A COPY OF THE INVESTIGATION PRIOR TO SUBMITTING HIS BID.
2. ALL EARTHWORK SHALL BE DONE IN A SAFE MANNER, COMPLYING WITH CAL/OSHA REQUIREMENTS AND IN STRICT ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. ALL EARTHWORK SHALL BE DONE UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. FILL MATERIAL SHOULD BE FREE FROM ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHOULD NOT CONTAIN ROCKS OR LUMPS OVER 4 INCHES IN GREATEST DIMENSION. NO MORE THAN 50 PERCENT OF THE FILL MATERIAL SHOULD PASS THE NO. 200 SIEVE AND THE MATERIAL SHOULD HAVE A LOW EXPANSION POTENTIAL. AS EVIDENCED BY A PLASTICITY INDEX OF 15 OR LESS OR EXPANSION INDEX OF 20 OR LESS. IMPORT SOIL SHOULD BE NON-EXPANSIVE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE (CBC) SECTION 1803A.5.3 AND SHOULD HAVE LOW POTENTIAL FOR CORROSIVITY AND HIGH RESISTIVITY. THE PH, CHLORIDE CONTENT, AND SULFATE CONTENT OF THE FILL MATERIALS SHOULD NOT BE DELETERIOUS TO THE MATERIALS USED TO CONSTRUCT THE FOUNDATION SYSTEM AND OTHER IMPROVEMENTS (I.E., CONCRETE OR STEEL). CLASS 2 AGGREGATE BASE MAY BE UTILIZED FOR CONSTRUCTION OF ACCESS ROADS OR PADS AND SHOULD CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) "STANDARD SPECIFICATIONS" SECTION 26-1.02B. FILL SHOULD BE MOISTURE CONDITIONED AND COMPACTED BETWEEN 0 AND 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENTS IN LAYERS THAT DO NOT EXCEED 8-INCH LOOSE LIFTS FOR HEAVY EQUIPMENT COMPACTION. EACH LIFT OF FILL SHOULD BE COMPACTED TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION UNLESS OTHERWISE SPECIFIED. RELATIVE COMPACTION IS DEFINED AS THE RATIO (IN PERCENT) OF THE INPLACE DRY DENSITY TO THE MAXIMUM DRY DENSITY DETERMINED USING THE LATEST VERSION OF ASTM D1557 AS THE COMPACTION STANDARD. CLASS 2 AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95 PERCENT.
4. EXCAVATED ON SITE SOILS MEETING THE ABOVE REQUIREMENTS MAY ONLY BE REUSED WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER.
5. EXISTING UNDERGROUND UTILITIES AND FOUNDATIONS SHALL BE LOCATED BY CAREFUL EXCAVATION INCLUDING AS REQUIRED, EXCAVATION BY HAND BEFORE STARTING FOUNDATION EXCAVATION WORK. SUPPORT AND PROTECTION OF THESE UTILITIES AND FOUNDATIONS SHALL BE PROVIDED DURING EARTHWORK OPERATIONS IF THEY ARE TO REMAIN IN PLACE. SHOULD UNCHARTED OR INCORRECTLY CHARTED UNDERGROUND UTILITIES AND FOUNDATIONS BE ENCOUNTERED DURING EXCAVATION, CONSULT THE OWNER'S CONSTRUCTION COORDINATOR IMMEDIATELY FOR DIRECTIONS.
6. ALL EXCAVATED MATERIAL MUST BE PLACED ON PLASTIC SHEETING OR AS DIRECTED BY OWNER UNTIL DETERMINED NOT TO BE CONTAMINATED.
7. EXCAVATED CONTAMINATED SOIL SHALL BE PACKAGED, LABELED AND DISPOSED OF AS DIRECTED BY OWNER. OWNER WILL BE RESPONSIBLE FOR COST OF DISPOSAL.
8. ALL UNDERGROUND PIPING, ELECTRICAL GROUNDING AND DUCT BANKS SHALL BE IN PLACE PRIOR TO POURING FOUNDATIONS AND PAVING.
9. CONTINUOUS INSPECTION BY GEOTECHNICAL ENGINEER IS REQUIRED FOR EXCAVATION, REMOVAL AND RECOMPACTING.
10. NO FILL SHALL BE PLACED UNTIL THE GEOTECHNICAL ENGINEER HAS INSPECTED AND APPROVED THE BOTTOM EXCAVATION.
11. THE SOILS ENGINEER OF RECORD SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS BEFORE STEEL OR CONCRETE IS PLACED.
12. THE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED 72 HOURS IN ADVANCE AND OBSERVE FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR REINFORCEMENT. HE SHALL VERIFY THAT THE SUBGRADE SOILS UNDERLYING PROPOSED CONCRETE FOUNDATIONS HAVE BEEN MOISTURE CONDITIONED FOR 24 HOURS PRIOR TO PLACEMENT OF CONCRETE. HE SHALL APPROVE THE SOIL CONDITIONS, DEPTH OF EXCAVATIONS AND CONDITION OF EXCAVATION PRIOR TO PLACEMENT OF REINFORCEMENT, FILLING, AND COMPACTING OPERATIONS.
13. ALL FILL AND BACKFILL MATERIALS SHALL BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH, IN ADDITION TO THE SPECIFICATIONS, THE LATEST ADOPTED EDITION OF THE FOLLOWING ACI CODES: ACI 318 BUILDING REQUIREMENTS FOR REINFORCED STRUCTURES, ACI 304 GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE, CONCRETE, ACI 315R MANUAL OF ENGINEERING AND PLACEMENT DRAWINGS FOR REINFORCED CONCRETE ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
2. CEMENT SHALL BE TYPE II / V AND CONFORM TO ASTM C150, UNLESS OTHERWISE SPECIFIED OR REQUIRED.
3. PORTLAND BLAST-FURNACE SLAG CEMENT OR PORTLAND-POZZOLAN CEMENT SHALL CONFORM TO ASTM C595, "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS".
4. MIXING WATER SHALL CONFORM TO ASTM C94. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45. MAXIMUM ALLOWABLE SLUMP IS 4 INCHES ±1 INCH.
5. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES".
6. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330 "SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE".
7. THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN 1 1/2". THESE LIMITATIONS MAY BE WAIVED IF, IN THE JUDGMENT OF THE ENGINEER, WORKABILITY AND METHODS OF CONSOLIDATION ARE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMB OR VOIDS. WAIVER MUST BE IN WRITING.
8. ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
9. CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY, CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION AND, WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.
10. THE SPECIFIED COMPRESSIVE STRENGTH OF THE CONCRETE (fc') FOR EACH PORTION OF THE STRUCTURE SHALL BE AS DESIGNATED BELOW. STRENGTH REQUIREMENTS SHALL BE BASED ON 28-DAY COMPRESSIVE STRENGTH, UNLESS NOTED OTHERWISE.
    * ALL REINFORCED CONCRETE SHALL BE fc' = 4000 PSI CONCRETE MIN. OR BETTER.
11. ALL REINFORCING STEEL, WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING INSPECTOR PRIOR TO PLACING OF CONCRETE.
12. EXPOSED HORIZONTAL CONCRETE SURFACES SHALL BE WOOD FLOATED TO DEPRESS COARSE AGGREGATE AND STEEL TROWELED TO A SMOOTH SURFACE. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH. ALL WALKING SURFACES SHALL HAVE A LIGHT BROOM FINISH.
13. CONCRETE SURFACES SHALL BE PROTECTED DURING CURING AGAINST EARLY EVAPORATION OF WATER, ACTION BY SUN, RAIN, WATER, FROST AND CRACKING BY USE OF A PLASTIC MEMBRANE OR SPRAY ON CURING AGENT.
14. ANCHOR BOLTS, NUTS AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED AND SHALL BE FURNISHED AND ERECTED BY THE CONCRETE CONTRACTOR.
15. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/4" AND SHALL COMPLY TO ASTM 1751. JOINT SEALANT SHALL BE "SIKAFLEX-2C" AND SHALL BE 1/4" DEEP MINIMUM.
16. STANDARD GROUT SHALL BE NON-SHRINK CEMENTITIOUS STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL WITH MINIMUM 5,000 PSI COMPRESSIVE STRENGTH. SEE DESIGN DRAWINGS FOR SPECIALTY GROUT WHEN SPECIFIED.
17. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 48 HOURS PRIOR TO THE CONTRACTOR REQUESTING STRUCTURAL OBSERVATION OR SPECIAL INSPECTION OF FOUNDATIONS:
    A. CONCRETE MIX DESIGN.
    B. SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL, ANCHOR BOLTS, AND ITEMS EMBEDDED IN CONCRETE.
    C. [redacted] NSPECTION REPORT FOR BOTTOM OF EXCAVATION.
18. FOR ELECTRICAL STUB-UPS AND GROUNDING REQUIREMENTS SEE ELECTRICAL PLANS PRIOR TO SETTING FORMS.
19. CONCRETE CURING AND FORM STRIPPING:
    THE FOLLOWING CONSTRUCTION ACTIVITIES SHALL NOT BE PERFORMED UNTIL THE CRITERIA LISTED BELOW HAVE BEEN MET. THE SPECIFIED PERCENTAGES ARE RELATIVE TO THE DESIGN COMPRESSIVE STRENGTH OF CONCRETE. COMPRESSIVE STRENGTH SHALL BE DETERMINED BASED ON THE RESULTS OF CYLINDER BREAK TESTS PERFORMED IN ACCORDANCE WITH ACI 318 REQUIREMENTS AND TAKE PRECEDENCE OVER THE CURE DURATION WHEN TEST RESULTS ARE AVAILABLE. THESE PROVISIONS ARE FOR GUIDANCE ONLY AND ALL ACTIVITIES BASED ON CURE TIMES LESS THAN THOSE LISTED BELOW REQUIRE APPROVAL OF THE ENGINEER OF RECORD. IN ALL CASES CONCRETE SHALL BE PROTECTED DURING CURING BY USE OF A PLASTIC MEMBRANE AND/OR SPRAY ON CURING AGENT TO PREVENT CRACKING OR DAMAGE.
    A. STRIPPING OF FORMS (GENERAL). . . . . 75% OR 7 DAYS
    B. STRIPPING OF FORMS (RETAINING WALLS AND ELEVATED SLABS). . . . . 100% AND 28 DAYS
    C. SETTING OF SKID MOUNTED EQUIPMENT . . . . . 75% OR 7 DAYS
    D. SETTING OF SHOP FABRICATED TANKS OR VESSELS . . . . . 100% AND 14 DAYS
    E. BACKFILLING RETAINING WALLS AND TANK RING FOUNDATIONS . . . . . 100% AND 28 DAYS
    F. INSTALLATION OF POST INSTALLED MECHANICAL ANCHORS . . . . . 100% OR 21 DAYS
    G. INSTALLATION OF POST INSTALLED EPOXY ANCHORS (PER ACI 318) . . . 21 DAYS AND 100%
20. WHEN CONCRETE IS PLACED AGAINST PREVIOUSLY HARDENED CONCRETE, THE INTERFACE (COLD, OR CONSTRUCTION, JOINT) SHALL BE CLEAN OF OIL, DEBRIS, AND CONCRETE LAITANCE AND ROUGHENED TO AN EXPOSED AGGREGATE SURFACE WITH AN AMPLITUDE OF 1/4". [redacted] BONDING AGENT SHALL BE APPLIED AT THE JOINT SURFACE PER MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE. COLD JOINTS MAY ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR WHEN APPROVED IN WRITING BY THE ENGINEER OF RECORD.

REINFORCING STEEL

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, UNLESS NOTED OTHERWISE. ASTM A706 OR DUAL SPECIFICATION (W/S) REBAR IS NOT AN ACCEPTABLE SUBSTITUTE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO ACI DETAILING MANUAL.
2. REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVER:
    A. CONCRETE CAST AGAINST EARTH. . . . . 3"
    B. EXPOSED TO EARTH OR WEATHER:
       NO. 5 AND SMALLER . . . . . 1 1/2"
       NO. 6 AND LARGER . . . . . 2"
    C. PRECAST CONCRETE EXPOSED TO EARTH OR WEATHER:
       NO. 11 OR SMALLER . . . . . 3/4"
       NO. 14 & NO. 18. . . . . 1 1/2"
3. DOWELS SHALL BE PROVIDED AT POUR AND CONSTRUCTION JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCING SHOWN FOR THE SUBSEQUENT CONSTRUCTION, UNLESS OTHERWISE NOTED.
4. BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BONDING.
5. ALL REBAR SHALL BE BENT COLD IN ACCORDANCE WITH ACI 318 CURRENT EDITION.
6. ALL REINFORCING STEEL LAPS OR SPLICES SHALL BE AS INDICATED ON PLANS. WHERE LAP OR SPLICE LOCATIONS ARE NOT SPECIFIED, LAPS OR SPLICES SHALL BE WELL STAGGERED AND LAP SHALL BE 12" MINIMUM.
7. CONTINUOUS INSPECTION OF CONCRETE SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES, AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE ASTM SPECIFICATION AND SHALL BE FABRICATED BY BUILDING DEPARTMENT LICENSED FABRICATOR AND ERECTED ACCORDING TO AISC PRACTICE AND SPECIFICATIONS FOR BUILDINGS AS SPECIFIED IN THE LATEST AISC MANUAL OF STEEL CONSTRUCTION.
2. W & WT SHAPES SHALL CONFORM TO ASTM A572 GR50 OR A992 (50 KSI). OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. TUBE MEMBERS SHALL CONFORM TO ASTM A500, GRADE B (FY = 46 KSI). PIPE COLUMNS SHALL CONFORM TO ASTM A53, GRADE B (FY = 35 KSI).
4. GUSSET PLATES SHALL BE 3/8" THICK OR GREATER.
5. ALL PLATFORMING MATERIALS SHALL BE HOT DIP GALVANIZED, SERRATED, WELDED, BAR GRATING WITH 1 1/4"x 3/16" BEARING BARS AT 1 3/16" CENTERS AND CROSSBARS AT 4" CENTERS, UNLESS NOTED OTHERWISE. BAND ALL EDGES AND OPENINGS. ATTACHMENT OF GRATING AT SUPPORTS NORMAL TO PANEL SPAN SHALL BE BY CLIPS AT EVERY 6TH BEARING BAR AND AT EACH END OF PANEL. (MIN IS 4 CLIPS PER PANEL)
6. WELDING SHALL CONFORM WITH THE LATEST EDITION OF THE WELDING CODE AWS D1.1. WELDING SHALL BE PERFORMED BY BUILDING DEPARTMENT APPROVED CERTIFIED WELDERS. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY A REGISTERED DEPUTY INSPECTOR AT THE EXPENSE OF THE OWNER.
7. WELD ELECTRODES SHALL BE E70XX.
8. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH. 1/8" RADIUS ALL SHARP EDGES.
9. ALL WELDS SHALL BE UNIFORM IN APPEARANCE AND BE FREE OF UNDERCUTTING. REMOVE ALL SLAG AND ARC SPATTER PRIOR TO BEING GALVANIZED.
10. UNLESS OTHERWISE NOTED, ALL SHOP AND FIELD BOLTED CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS, CONFORMING TO ASTM F3125 (GR. A325) (GALVANIZED), NUTS TO BE ASTM A563 (GALVANIZED) AND WASHERS TO BE ASTM F436 (GALVANIZED). CONNECTIONS SHALL CONFORM TO THE LATEST EDITION OF AISC MANUAL OF STEEL CONSTRUCTION AND SHALL BE INSTALLED AS SNUG-TIGHTENED JOINTS USING THE MAXIMUM NUMBER OF BOLTS FOR EACH BEAM DEPTH.
11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER OF RECORD OR OWNER'S ASSIGNEE PRIOR TO FABRICATION.
12. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THE ENGINEER.
13. ALL STRUCTURAL STEEL, ANCHOR BOLTS AND EMBEDS ARE TO BE HOT DIP GALVANIZED PER ASTM F2329. ALL REPAIRS SHALL CONFORM TO ASTM A780.
14. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING. USE RUST-OLEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
15. GROUTING SHALL BE DONE AFTER STRUCTURAL STEEL IS IN ITS FINAL POSITION WITH NON-SHRINK STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL. GROUT SHALL BE PLACED PER MANUFACTURER RECOMMENDATIONS IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.

STRUCTURAL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH AWS D1.1, LATEST EDITION.
2. COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS MINIMUM AT -20°F. WELD METAL FOR CONTINUITY PLATES SHALL ALSO MEET THIS NOTCH-TOUGH REQUIREMENT. ALL SHIELDED METAL ARC WELDING (SMAW) ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE.
3. A WELDING PROCEDURE SPECIFICATION (WPS) AND PROCEDURE QUALIFICATION RECORDS (PQR) PER AWS D1.1 SHALL BE DEVELOPED BY THE FABRICATOR FOR SHOP WELDING AND THE ERECTOR FOR FIELD WELDING AND BE REVIEWED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE WPS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER. THE WELDING ELECTRODE MANUFACTURER'S SPECIFICATIONS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.
4. DEPUTY INSPECTORS ARE TO BE CERTIFIED DEPUTY STEEL INSPECTORS APPROVED BY THE LOCAL GOVERNMENT BUILDING AUTHORITY.
5. THE DEPUTY INSPECTOR'S REPORT SHALL DOCUMENT THAT THE WPS REQUIREMENTS WERE FOLLOWED, THAT PROPER AMPERAGE AND VOLTAGE IS USED IN THE WELDING PROCESS, AND THAT TRAVEL SPEED AND ELECTRODE STICK OUT COMPLY WITH THE APPROVED WPS. A HAND-HELD CALIBRATED AMP-AND VOLT METER SHALL BE USED BY THE FABRICATOR, ERECTOR, AND DEPUTY INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
6. THE PREHEAT AND INTERPASS TEMPERATURES REQUIRED IN AWS D1.1 SHALL BE STRICTLY OBSERVED.
7. AFTER WELDING, BACKING BARS SHALL BE REMOVED FROM THE BOTTOM FLANGE. A REINFORCING FILLET WELD SHALL BE PLACED WHERE THE BACK-UP BAR WAS REMOVED. WELD EXTENSION TABS SHALL BE REMOVED FROM THE TOP AND BOTTOM FLANGE. OTHER BACKING BARS AND WELD EXTENSION TABS NEEDED FOR WELDS IN THE CONNECTION, SUCH AS WELDS FOR CONNECTING PLATES, SHALL BE REMOVED IF THESE BARS AND TABS WERE REMOVED FROM TESTED CONNECTIONS. THE ENGINEER OF RECORD SHALL INCLUDE NOTES OR DETAILS ON THE PLANS THAT SPECIFY WHICH BACKING BARS AND WELD EXTENSION TABS MUST BE REMOVED AND WHICH MAY REMAIN, AND WHERE REINFORCING FILLET WELDS ARE REQUIRED, FOR ALL WELDS IN THE AREA OF BEAM-TO-COLUMNS CONNECTIONS.
8. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL WELDED MOMENT CONNECTIONS. ANY OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR CONTRACTOR AND THE BUILDING OFFICIAL.

SCAFFOLDING PROTECTION

1. SCAFFOLDING SHALL COMPLY WITH PROVISIONS OF THE CAL/OSHA.
2. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL SCAFFOLDING, STAGING, TRESTLES AND PLANKING FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL MAINTAIN ALL FORMS OF PROTECTION, AS REQUIRED, TO PRESERVE THE WORK IN PERFECT CONDITION.

ANCHOR BOLTS

1. CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 WITH HEAVY HEX NUTS PER ASTM A563 GRADE A AND WASHERS PER ASTM F436 TYPE 1 (UNLESS NOTED OTHERWISE).
2. FIT OF NUTS ON THREADS OF ANCHOR BOLTS SHALL BE VERIFIED BEFORE SHIPMENT.
3. ANCHOR BOLT, NUT AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED PER ASTM A153 OR F2329. COLD GALVANIZING SPRAY IS NOT AN ACCEPTABLE SUBSTITUTE TO HOT DIP GALVANIZING. FIELD CUT THREADED RODS MAY NOT BE SUBSTITUTED FOR SPECIFIED HOT DIP GALVANIZED ANCHOR BOLT ASSEMBLIES.
4. ANCHOR BOLTS TO BE ENCLOSED WITH #4 TIES UNLESS NOTED OTHERWISE.
5. HEADED ANCHOR BOLTS MAY BE USED WITH APPROVAL OF ENGINEER.
6. PLASTIC ANCHOR BOLT SLEEVES, WHEN SPECIFIED, SHALL BE WILSON ANCHOR BOLT SLEEVES AS MANUFACTURED BY SINCO PRODUCTS INC. SLEEVE DIMENSIONS ARE CRITICAL FOR CLEARANCE. ALTERNATE SLEEVE MANUFACTURER MUST BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
7. ADHESIVE ANCHORS SHALL NOT BE INSTALLED IN CONCRETE HAVING AN AGE LESS THAN 21 DAYS AT TIME OF INSTALLATION, PER ACI 318-14 SECTION 17.1.2. ADHESIVE ANCHORS SHALL NOT BE TENSIONED OR TORQUED UNTIL 48 HOURS AFTER INSTALLATION TO ALLOW FOR REQUIRED EPOXY CURE.
8. WHERE HILTI THREADED "HAS" RODS ARE SPECIFIED, GENERIC THREADED RODS ARE NOT AN ACCEPTABLE SUBSTITUTE. "HAS" RODS SHALL BE DELIVERED ONSITE WITH CERTIFIED VERIFICATION DOCUMENT.
9. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ AND COMPLY WITH ICC-ES REPORT 1917 (ESR-1917).

DESIGN CRITERIA

1. REFERENCE DOCUMENT: SITE SPECIFIC DESIGN CRITERIA NO: DS-460090-04000-29. (REV. 3)
2. LOADS

2.1 DEAD LOADS:	AS CALCULATED
2.2 LIVE LOADS: ROOF LIVE LOAD	[redacted]
FLOOR LIVE LOAD	
2.3 WIND LOADS: BASIC WIND SPEED (3 SECOND GUST)	[redacted]
EXPOSURE CATEGORY	
RISK CATEGORY	
2.4 SEISMIC LOADS: SITE CLASS	[redacted]
RISK CATEGORY	
IMPORTANCE FACTOR	
Ss (g)	
Fa (g)	
Fv (g)	
Sws (g)	
Sps (g)	
TL	

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

STRUCTURAL GENERAL NOTES

GENERAL NOTES FOR STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL PORTIONS OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
2. THE OWNER SHALL EMPLOY A CIVIL OR STRUCTURAL ENGINEER OR ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION. THE ENGINEER OR ARCHITECT SHALL BE REGISTERED OR LICENSED IN THE STATE OF CALIFORNIA. THE DEPARTMENT OF BUILDING AND SAFETY RECOMMENDS THE USE OF THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN WHEN THEY ARE INDEPENDENT OF THE CONTRACTOR.
3. THE STRUCTURAL OBSERVER SHALL PROVIDE PROOF OF EMPLOYMENT BY THE OWNER. A LETTER FROM THE OWNER OR A COPY OF THE AGREEMENT FOR SERVICES SHALL BE SENT TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. THE OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
5. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

	CONSTRUCTION STAGES		ELEMENTS/CONNECTIONS TO BE OBSERVED
A)	PRIOR TO POURING FOUNDATIONS	/	REINFORCING STEEL, DOWELS, EMBEDS, AND ANCHOR BOLTS
B)	AFTER SETTING OF EQUIPMENT	/	GROUTING
C)	AFTER INSTALLATION OF PIPE SUPPORTS	/	SIZE, TYPE, CONNECTIONS, AND GROUTING

6. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS NEED NOT BE SEALED BUT SHALL BE SIGNED BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THEIR DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR AND DEPUTY INSPECTOR.
7. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.
8. WHEN THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
   A) NOTIFY THE BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
   B) CALL AN ADDITIONAL PRECONSTRUCTION MEETING.
   C) FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS. THE REPLACEMENT STRUCTURAL OBSERVER SHALL APPROVE THE CORRECTION OF THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY PLAN CHECK SUPERVISION. THE POLICY OF THE DEPARTMENT SHALL BE TO CORRECT ANY PROPERLY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.
9. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. THE BUILDING DEPARTMENT SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

SPECIAL INSPECTION (PER 2019 CBC, CHAPTER 17)

1. SPECIAL INSPECTION BY A DEPUTY REGISTERED INSPECTOR APPROVED BY THE BUILDING DEPARTMENT SHALL BE PROVIDED FOR THE FOLLOWING (UNLESS NOTED OTHERWISE):
   - A. CONTINUOUS INSPECTION FOR ALL CONCRETE WORK, INCLUDING REBAR PLACEMENT, FOR CONCRETE STRENGTHS GREATER THAN 2500 PSI DESIGN (U.N.O.).
   - B. SLIP-CRITICAL HIGH STRENGTH BOLTING.
   - C. SHOP WELDING, IF NOT DONE BY AN APPROVED FABRICATOR, & FIELD WELDING.
   - D. ALL EPOXY OR EXPANSION TYPE ANCHORS.
   - E. BUILDING DEPARTMENT LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.
   - F. CAST-IN-PLACE DEEP FOUNDATION PER TABLE 1705.8 OF CBC.
     1. CONTINUOUS INSPECTION OF DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.
     2. CONTINUOUS INSPECTION OF PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.
     3. CONTINUOUS INSPECTION FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS INCLUDING BUT NOT LIMITED TO REBAR AND ANCHOR BOLTS IN ACCORDANCE WITH SECTION 1705.3 OF CBC.
   - G. DEPUTY INSPECTOR SHALL VALIDATE CONTRACTOR'S PROCEDURE FOR GROUT INSTALLATION AT STRUCTURAL STEEL AND EQUIPMENT BASE PLATES TO ENSURE THAT THE GROUTED ELEMENT IS SET CORRECTLY IN PLACE PRIOR TO GROUTING AND THAT THE GROUT IS PLACED IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.
2. THE PERMIT APPLICANT SHALL RETAIN A RESPONSIBLE ENGINEER APPROVED BY THE BUILDING OFFICIAL TO ENSURE THAT:
   - A. ALL ELEMENTS OF CONSTRUCTION WHICH REQUIRE SPECIAL INSPECTION ARE INSPECTED BY QUALIFIED DEPUTY INSPECTORS APPROVED BY THE BUILDING OFFICIAL; AND
   - B. ALL CODE DEFICIENCIES DETECTED AND DEVIATIONS FROM THE APPROVED PLANS ARE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF NOT CORRECTED, REVISED DESIGNS TO OVERCOME THE DEFICIENCY SHALL BE PREPARED BY THE DESIGN ENGINEER OR ARCHITECT OF RECORD FOR APPROVAL BY THE BUILDING OFFICIAL; AND
   - C. ALL CORRECTIVE WORK REQUIRED IS COMPLETED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS, AND CITY ADOPTED CODES.
3. A FINAL INSPECTION REPORT, SIGNED BY THE SPECIAL INSPECTOR AND THE RESPONSIBLE ENGINEER, IS SUBMITTED TO THE BUILDING OFFICIAL UPON THE COMPLETION OF EACH ELEMENT REQUIRING SPECIAL INSPECTION. THE REPORT MUST CERTIFY THAT THE WORK WAS IN COMPLIANCE WITH APPROVED PLANS, SPECIFICATIONS AND APPLICABLE CITY CODES, INCLUDING ANY AUTHORIZED CHANGES TO THE PLAN. THE FINAL REPORT SHALL BE SUBMITTED WITHIN 7 DAYS OF INSPECTION. A COPY OF THE REPORT SHALL BE PROVIDED FOR ENGINEER OF RECORD, OWNER AND CONTRACTOR.

CONCRETE TESTING

1. INSPECTOR SHALL BE PRESENT DURING TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE. CONTRACTOR TO COORDINATE WITH OWNER FOR AVAILABILITY OF OWNER HIRED INSPECTOR PRIOR TO CONSTRUCTION.
2. INSPECT EXCAVATION, REINFORCEMENT, AND OTHER EMBEDDED ITEMS PRIOR TO PLACING CONCRETE TO ENSURE COMPLIANCE WITH APPROVED DRAWINGS.
3. FREQUENCY OF CONCRETE TESTING:
   THE FOLLOWING CRITERIA SHALL ESTABLISH THE REQUIRED MINIMUM SAMPLING FREQUENCY FOR EACH CLASS OF CONCRETE.
   - A. ONCE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN
   - B. ONCE FOR EACH 150 CU YD OF EACH CLASS PLACED EACH DAY, NOR LESS THAN
   - C. ONCE FOR EACH 5000 SQ FT OF SLAB OR WALL SURFACE AREA PLACED EACH DAY.
   - D. A SET OF TESTS WILL CONSIST OF 4 CYLINDERS MINIMUM.

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES

THE FOLLOWING MINIMUM STANDARDS OF GOOD HOUSEKEEPING MUST BE IMPLEMENTED BY THE CONTRACTOR ON THE CONSTRUCTION SITE.

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BE WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. PROVIDE A MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT AND/ OR WEATHER PROTECTION. NOTE THE MAINTENANCE PRACTICES AND SCHEDULE PROPOSED FOR THIS AREA.
9. HAZARDOUS MATERIALS, FERTILIZERS, PESTICIDES, PLASTERS, SOLVENTS, PAINTS, AND OTHER COMPOUNDS MUST BE PROPERLY HANDLED IN ORDER TO REDUCE THE RISK OF POLLUTION OR CONTAMINATION. TRAINING AND INFORMATION ON PROCEDURES FOR THE PROPER USE OF ALL MATERIALS MUST BE AVAILABLE TO THE EMPLOYEES THAT APPLY SUCH MATERIALS.
10. IDENTIFY SPILL PREVENTION AND CONTROL MEASURES THAT WILL BE TAKEN FOR ALL PROPOSED MATERIALS. IDENTIFY THE METHODS, BY WHICH ACCIDENTAL SPILLS WILL BE CLEANED AND PROPERLY DISPOSED OF.
11. PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR DISPOSAL. PROVIDE COVERED STORAGE WITH SECONDARY CONTAINMENT. CONTAINERS ARE REQUIRED TO PROTECT WASTE FROM RAIN TO PREVENT WATER POLLUTION AND PREVENT WIND DISPERSAL.
12. HAZARDOUS MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. IDENTIFY THE PROPOSED METHODS OF DISPOSAL AND ANY SPECIAL HANDLING CONTRACTS THAT MAY BE APPLICABLE.
13. A STABILIZED ENTRANCE IS REQUIRED FOR ALL CONSTRUCTION SITES TO ENSURE THAT DIRT AND DEBRIS ARE NOT TRACKED ONTO THE ROAD OR ADJACENT PROPERTY. MAINTENANCE OF SUCH A SYSTEM IS REQUIRED FOR THE DURATION OF THE PROJECT. SUCH STABILIZATION MAY BE OF ROCK OR PAVED.
14. ERODED SEDIMENTS MUST BE RETAINED ON SITE AND NOT PERMITTED TO ENTER THE DRAINAGE SYSTEM.
15. PROPER DISPOSAL OF ALL WASTES IS REQUIRED TO KEEP POLLUTANTS FROM THE STORM WATER RUNOFF WHICH WILL BE CONVEYED INTO THE STORM DRAIN SYSTEM. THE PROPER HANDLING OF ALL MATERIALS IS REQUIRED.
16. STORE DRY AND WET MATERIALS UNDER COVER. AVOID ON-SITE WASHOUT EXCEPT IN DESIGNATED AREAS AWAY FROM DRAINS, DITCHES, STREETS, AND STREAMS. CONCRETE WASTE DEPOSITED ON SITE SHALL SET-UP, BE BROKEN APART, AND DISPOSED OF PROPERLY. CONTAINMENT AND PROPER DISPOSAL IS REQUIRED FOR ALL CONCRETE WASTE.
17. UNTREATED RAW WASTEWATER IS NOT TO BE DISCHARGED OR BURIED. SANITARY SEWER FACILITIES ON SITE ARE REQUIRED TO BE IN COMPLIANCE WITH LOCAL HEALTH AGENCY REQUIREMENTS. SANITARY OR SEPTIC WASTES MUST BE TREATED OR DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
18. IDENTIFY THE AREA IN WHICH EXISTING VEGETATION WILL REMAIN UNDISTURBED. SENSITIVE AREAS WHICH MAY REQUIRE PRESERVATION INCLUDE STEEP SLOPES, WATERCOURSES, AND WOODED SITES. PROTECTION IS REQUIRED FOR VERNAL POOLS, WETLANDS, MARSHES, AND OAK TREE SITES.
19. IDENTIFY THE SPECIFIC LOCATIONS THAT MULCHING WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE MIXTURE THAT THE MULCH WILL CONSIST OF.
20. IDENTIFY THE SPECIFIC LOCATIONS THAT GEOTEXTILE MATS WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE SPECIFICATIONS FOR THE BRAND OF MATTING TO BE USED.
21. DUST CONTROL IS REQUIRED FOR CLEARING, GRADING, CONSTRUCTION, SOIL STOCKPILING, AND SITE WORK DURING DRY WEATHER, AS WELL AS FOR UNIMPROVED ROADWAYS. IDENTIFY THE MEANS BY WHICH DUST CONTROL WILL BE PERFORMED ON SITE AND NOTE THE FREQUENCY IN WHICH IT WILL OCCUR. NON-COMPLIANCE WILL BE REPORTED TO THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR ADDITIONAL ENFORCEMENT.
22. CHECK DAMS ARE REQUIRED TO REDUCE THE VELOCITY OF CONCENTRATED FLOW. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
23. A SILT FENCE IS USEFUL FOR RETENTION OF SEDIMENT IN THE LOCATION OF SHEET FLOW OR WIND EROSION. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
24. IDENTIFY THE SPECIFIC LOCATIONS WHERE STRAW BALES WILL BE USED FOR SEDIMENT RETENTION OR VELOCITY REDUCERS. A MAINTENANCE SCHEDULE IS REQUIRED FOR SUCH DEVICES.
25. SAND BAG BARRIERS ARE USEFUL IN A GREAT VARIETY OF LOCATIONS FOR THE CONTROL OF EROSION. SAND BAGS WILL FUNCTION IN A SIMILAR MANNER AS CHECK DAMS, BARRIERS, CLARIFIERS AND MANY OTHER TYPES OF EROSION CONTROL DEVICES WITH SIMILAR USES. SAND BAG DEVICES MAY APPLY TO A GREATER NUMBER OF SITES FOR REASONS OF VERSATILITY AND STANDARD USE. IDENTIFY THE SPECIFIC LOCATIONS AND DESIGN OF SAND BAG BARRIERS AND NOTE THE SCHEDULE BY WHICH THEY WILL BE MAINTAINED.
26. BRUSH OR ROCK FILTERS REQUIRE SPECIAL APPROVAL FOR PROPER APPLICATION AND CONSTRUCTION. THE DESIGN ENGINEER MUST APPROVE THE APPLICATION, ON SITE, BEFORE THE COUNTY INSPECTION IN ORDER TO ENSURE THE MINIMUM QUALITY OF CONSTRUCTION. SUCH DEVICES WILL ONLY BE CONSIDERED FOR APPROVAL ON MINOR APPLICATIONS.
27. ALL INLETS WHICH RECEIVE SEDIMENT LADEN RUNOFF REQUIRE STORM DRAIN INLET PROTECTION. SEDIMENT TRAPS, FILTERS FABRIC FENCES, SAND BAG FILTERS, GRAVEL AND WIRE MESH FILTERS, ARE EXAMPLES OF INLET PROTECTION WHICH MAY BE APPLIED AT SUCH LOCATIONS. IDENTIFY THE METHODS OF PROTECTING EACH INLET.

ENGINEERED FILL – REFER TO STRUCTURAL GENERAL NOTES (1), SOILS AND FOUNDATION ITEM NO. 3, DWG. NO. 33906-4001-D-STR.

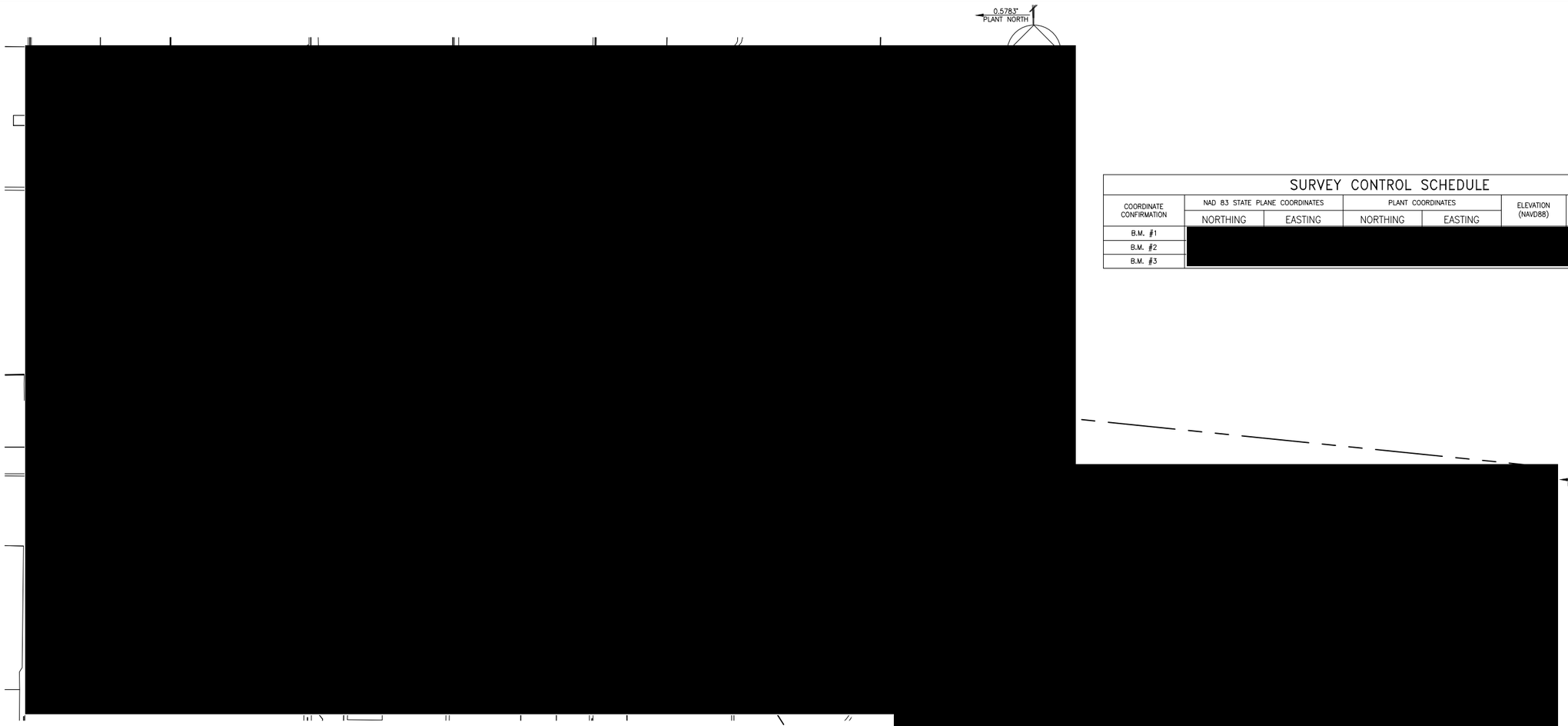
[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]



SURVEY CONTROL SCHEDULE

COORDINATE CONFIRMATION	NAD 83 STATE PLANE COORDINATES		PLANT COORDINATES		ELEVATION (NAVD88)	REMARKS
	NORTHING	EASTING	NORTHING	EASTING		
B.M. #1	[redacted]					
B.M. #2						
B.M. #3						

GRAPHIC SCALE

1000' 0 500' 1000' 2000' 4000'

(IN FEET)
1 inch = 1000 ft.

GRAPHIC SCALE

50 0 25 50 100 400

(IN FEET)
1 inch = 50 ft.

LEGEND:

- SECTION LINE
- MID-SECTION LINE
- PROPERTY BOUNDARY FOR APN 028-080-016
- PROJECT AREA
- BENCH MARK (B.M.)

NOTE:

THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY MAAS ENERGY WORKS. THEIR FILENAME:- MT_01.25.19.DWG, DATED JANUARY, 2020. THIS SURVEY WAS COLLECTED IN THE NAD83 STATE PLANE, ZONE 4 CALIFORNIA STATE PLANE COORDINATE SYSTEM & NAVD88

REGISTERED PROFESSIONAL ENGINEER
JOHN T. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCALGAS CONSTRUCTION REPRESENTATIVE.

PARSONS CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCALGAS SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF SOCALGAS SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCALGAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

WORK POINT SCHEDULE *

WP#	NORTHING	EASTING	F.G. ELEV.	T.O.C. ELEV.
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28				
29				
30				

* COORDINATES LISTED ARE IN THE NAD83 ZONE 4 STATE PLANE COORDINATE SYSTEM & NAVD VERTICAL DATUM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH LOCAL PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING LIMITS

DRAWING LIMITS

[redacted]

DRAWING LIMITS

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCALGAS CONSTRUCTION REPRESENTATIVE.

PARSONS CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCALGAS SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF SOCALGAS SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCALGAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

PIPE SUPPORT SCHEDULE *

PS#	PS TYPE	NORTHING	EASTING	F.G. ELEV.	T.O.C. ELEV.	T.O.S. ELEV.
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34						
35						

* COORDINATES LISTED ARE IN THE NAD83 ZONE 4 STATE PLANE COORDINATE SYSTEM & NAVD VERTICAL DATUM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH LOCAL PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

[redacted]

DRAWING LIMITS

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING LIMITS

WORK POINT SCHEDULE

WP#	NORTHING	EASTING	ELEV	DESCRIPTION
101	[redacted]			
102				
103				
104				
105				
106				
107				
108				
109				
110				
111				
112				
113				
114				

WORK POINT SCHEDULE

WP#	NORTHING	EASTING	ELEV	DESCRIPTION
[redacted]				

[redacted]

DRAWING LIMITS

DRAWING LIMITS

[redacted]

EARTHWORK VOLUMES:

EXCAVATION QUANTITIES:
CUT (CU. YDS.)
FILL* (CU. YDS.)
* INCLUDES 30% SHRINKAGE

[redacted]

NOTES:

1. EXPOSED SUBGRADE SOILS SHALL BE SCARIFIED AND MOISTURE – CONDITIONED AS NECESSARY AND RECOMPACTED PRIOR TO PLACEMENT OF ENGINEERED FILL

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT [redacted] IMMEDIATELY.

[redacted]

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted] THEIR FILENAME: [redacted] DATED JANUARY, 2020. THIS SURVEY WAS COLLECTED IN THE [redacted]

EXISTING CONTOUR INTERVAL = 1'–0"
DESIGN GRADE CONTOUR INTERVAL = 1'–0"

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'–0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	MK	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

NOTES:

1. FOR GENERAL NOTES, SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. FOR SURVEY CONTROL SEE SITE PLAN DWG. NO. 33906-4003-D-STR.
3. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VISIT SITE TO ASSESS EXISTING CONDITIONS, OBSTRUCTIONS, WORK AREA ACCESSIBILITY AND CONSTRUCTABILITY.
4. CONTRACTOR SHALL LOCATE EXISTING BURIED PIPES BY CAREFUL EXCAVATION AND POTHOLING. COORDINATE WITH THE OWNER REGARDING REROUTING, DEMOLITION OR ABANDONMENT OF ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION.
5. FOR EQUIPMENT FOUNDATION LOCATIONS SEE FOUNDATION LOCATION PLAN, DWG. NO. 33906-4004-D-STR.
6. FOR GUARD POST & BOLLARD DETAILS SEE DWG. NO. 33906-4021-D-STR.
7. FOR GATES AND FENCING DETAILS, SEE DWG. NO. 33906-4026-D-STR.
8. CONTRACTOR TO SUBMIT ALL GATE AND FENCING VENDOR DOCUMENTS AND SPECIFICATIONS FOR APPROVAL AND COMPLIANCE WITH CLIENT STANDARDS PRIOR TO INSTALLATION. IF SUBMITTED ITEMS REQUIRED MODIFICATION OF GENERAL DETAILS PROVIDED ON DWG. NO. 33906-4026-D-STR, NOTIFY ENGINEER FOR DIRECTION PRIOR TO INSTALLATION.
9. FENCE POST COORDINATES SHOWN ARE IN THE GLOBAL COORDINATE SYSTEM. FENCE CONSTRUCTION SHALL VERIFY SITE FOR ABOVE AND UNDERGROUND CONDITIONS AND NOTIFY GENERAL CONTRACTOR FOR ANY ADJUSTMENTS NEEDED TO FENCE POST LOCATIONS.

LEGEND:

——x—— = NEW FENCE (SEE NOTE 7)

◎ = NEW BOLLARD

o = NEW FENCE POST

(E) = EXISTING

FENCE POST SCHEDULE *

FP#	NORTHING	EASTING
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FENCE POST SCHEDULE *

FP#	NORTHING	EASTING
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* COORDINATES LISTED ARE IN CALIFORNIA STATE PLANE NAD83 ZONE 4, REFER TO DWG. NO. 33906-4003-D-STR FOR SURVEY CONTROL INFORMATION.

REGISTERED PROFESSIONAL ENGINEER
JOHN F. RANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT [redacted] IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted] THEIR FILENAME– [redacted]

EXISTING CONTOUR INTERVAL = 1'–0"
DESIGN GRADE CONTOUR INTERVAL = 1'–0"

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'–0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	MK	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
4. ALL ANCHOR BOLT SLEEVES SHALL BE COMPLETELY FILLED WITH EXPANSIVE OR NON-SHRINK GROUT AFTER INSTALLATION IS COMPLETED.
5. COMPRESSOR FOUNDATION CONCRETE BLOCK SIZE IS DETERMINED BASED ON [redacted] DYNAMIC ANALYSIS, PROJECT NUMBER SC1017-04, DATED NOVEMBER 13, 2019
6. FOR COMPRESSOR VENDOR INFORMATION REFER TO THE FOLLOWING DRAWING NOS. BY [redacted] RELEASED 13-JAN-20
   - UNIT #1 (C-1200)
     DWG NO. A05-10-50754-01, REV. E, DATED 01/13/2020.
   - UNIT #2 (C-1300)
     DWG NO. A05-10-50754-02, REV. D, DATED 01/13/2020.
7. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 6 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCS APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR HEAT EXCHANGER VENDOR INFORMATION REFER TO THE FOLLOWING DWG NO. BY [redacted]
   - DWG NO. GAD-A05-21-50754, REV. F, DATED 05/04/2020 (3 SHEETS). [redacted] RELEASED 06-MAY-20.
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

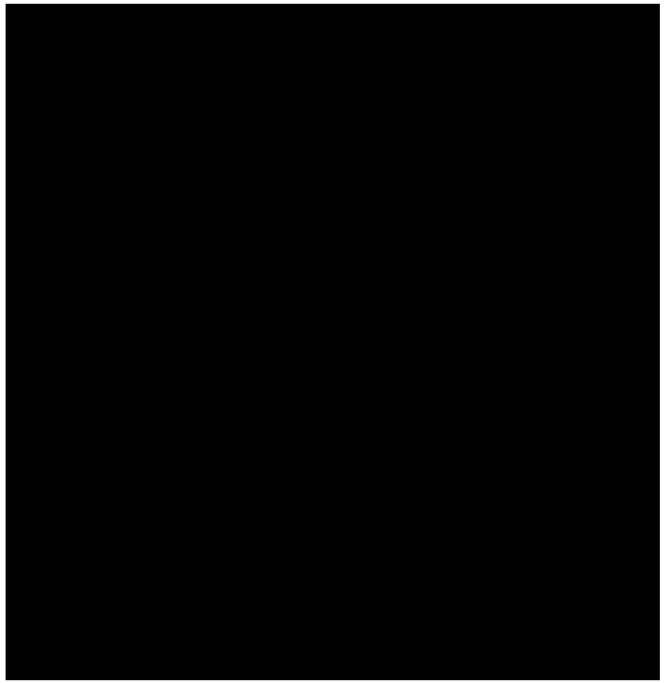
[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001





NOTES:

1. FOR GENERAL NOTES SEE DWG NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT ON-SITE PRIOR TO DRILLING INTO OR POURING CONCRETE.
3. POST-INSTALLED HILTI KWIK BOLT TZ ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. AND IN ACCORDANCE WITH ICC-ES REPORT 1917 (ESR-1917).
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS AND LOCATIONS PRIOR TO CONCRETE POUR.
5. ALL CONCRETE SURFACES IN CONTACT WITH GROUT SHALL BE CLEANED, MECHANICALLY ROUGHENED AND PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. GROUT SHALL BE PLACED AFTER EQUIPMENT HAS BEEN SECURED INTO ITS FINAL POSITION.
6. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
7. FOR [redacted] VENDOR INFORMATION REFER TO SUBMITTAL LETTER BY ACCESS INC. TO [redacted] FOR APPROVAL, 11/22/19, CUT SHEET, OPC12-A7-E7197, REVISED NOV 21, 2019.
8. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

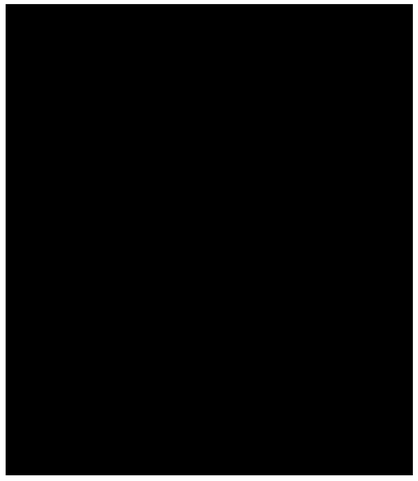
ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 7 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.











ISSUED FOR CONSTRUCTION



REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001



[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR [redacted] VENDOR INFORMATION, REFER TO THE FOLLOWING DRAWINGS:
   [redacted]
   DOC NO: HSFP-12X-270CS-001-02C REV. 5, DATED 02/21/20 (2 SHEETS), CERTIFIED.
   [redacted]
   DOC NO: HSFP-12X-710CS-001-02C REV. 6, DATED 02/21/20. (3 SHEETS), CERTIFIED.
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 6 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ODORIZOR VENDOR INFORMATION REFER DWG. NO. 1Q-2173, REV. 00, BY MILTON ROY
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

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ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

10"

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. ALL STRUCTURAL STEEL, NUTS, BOLTS, WASHERS AND ROOFING SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ. APV	SOG. APV	ENG. FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS, AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR SERVICE/MONITOR PANEL VENDOR REFER TO DWG. NO. CD-2389 REV. A, DATED 01/08/2020 BY VRG CONTROLS.
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS, AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ANALYZER SHELTER VENDOR INFORMATION REFER TO DWG. NOS. "BASE FOUNDATION DETAIL" REV. D, DATED 02/06/2020 (SHEET 8 OF 8) BY [redacted]
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

[redacted]

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCS APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

PL

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR PDC BUILDING VENDOR INFORMATION REFER TO DWG. NO. 51826-S06-1, REV. B, DATED 02/19/20 BY [redacted]
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCS APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

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PLANT I

NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT ON-SITE PRIOR TO INSTALLING INTO OR POURING CONCRETE.
3. POST-INSTALLED HILTI KWIK BOLT TZ ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS AND LOCATIONS PRIOR TO CONCRETE POUR.
5. ALL CONCRETE SURFACES IN CONTACT WITH GROUT SHALL BE CLEANED, MECHANICALLY ROUGHENED AND PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. GROUT SHALL BE PLACED AFTER EQUIPMENT HAS BEEN SECURED INTO ITS FINAL POSITION.
6. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
7. FOR AIR RECEIVER INFORMATION REFER TO DRAWING NO. 6220563-04, REV. 0, DATED 05/01/20, BY [redacted]
8. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 7 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

EARTHWORK VOLUMES:

[redacted]

PLANT NORTH

CONTROL POINT SCHEDULE *

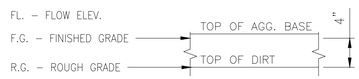
CP#	NORTHING	EASTING	R.G. ELEV.	F.G. ELEV.	DESCRIPTION
101	[redacted]				
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* COORDINATES LISTED ARE IN THE NAD83 ZONE 4 STATE PLANE COORDINATE SYSTEM & NAVD VERTICAL DATUM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH LOCAL PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

LEGEND:

- CONTROL POINT
- EXISTING GRADE CONTOUR
- MAAS ROUGH GRADING CONTOUR

FL. – FLOW ELEV.
F.G. – FINISHED GRADE
R.G. – ROUGH GRADE





NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted] THEIR FILENAME– [redacted] DATED [redacted]

EXISTING CONTOUR INTERVAL = 1'–0"
DESIGN GRADE CONTOUR INTERVAL = 1'–0"

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GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'–0"

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0	08/05/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

ISSUED FOR CONSTRUCTION

[redacted]

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[redacted]

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NOTES

THIS DRAWING IS BASED ON SOCAL'S DWG. 0429-D. STD

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NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. ALL STRUCTURAL STEEL, NUTS, BOLTS, AND WASHERS SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
5. FOR W.P. COORDINATES & ELEVATIONS REFER TO PIPE SUPPORT SCHEDULE DWG. NO. 33906-4005-D-STR.
6. REFER TO DWG. NO. 33906-4025-D-STR FOR TYPICAL DETAILS.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

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GENERAL NOTES

1. LOCATION OF FENCE AND GATES ARE TO BE SHOWN ON THE SITE PLAN WHICH IS PROVIDED BY THE GAS COMPANY OR COMPANY REPRESENTATIVE. THE TOPOGRAPHY OF THE SITE CONSIDERING SLOPE AND TYPE OF SURFACE (CONCRETE, BLACKTOP, DIRT, ROCKS) MUST BE CONSIDERED BY THE ENGINEERING ARCHITECT AND CONTRACTOR.
2. THE FENCING, INCLUDING THE EXTENSION ARMS SUPPORTING THE BARBED WIRE, SHALL ONLY BE INSTALLED ON AND OVER COMPANY PROPERTY. SPACE SHALL BE PROVIDED FOR OPERATION OF THE GATES CONSIDERING SAFETY AND CLEARANCE. ALL BUILDING ENTRANCES AND WINDOWS ARE TO BE WITHIN THE FENCED AREA EXCEPT WHEN SPECIFIED OTHERWISE.
3. POSTS SHALL NOT BE INSTALLED ON TOP OF ANY BURIED GAS SERVICES, MAINS, PIPELINES, OR OTHER UTILITIES. MAXIMUM SPACING SHALL BE 10 FEET, MEASURED PARALLEL TO THE GRADE OF THE FENCE BETWEEN POST CENTERS.
4. ALL MATERIAL SHALL BE NEW.
5. THE OPERATING AND SENSING MECHANISMS FOR OPENING, CLOSING, AND POSITIONING THE GATE(S) SHALL BE SELECTED FOR THE SPECIFIC OPERATION AND INSTALLED AS SPECIFIED BY THE MANUFACTURER.
6. WHEN A DISTRIBUTION OR TRANSMISSION ELECTRIC POWER LINE RUNS PARALLEL TO AND/OR WITHIN 100 FEET OF THE FENCE, THE NEED FOR SPECIAL GROUNDING OF EACH FENCE SECTION SHALL BE REVIEWED AND THE DESIGN APPROVED BY A REGISTERED ELECTRICAL ENGINEER.
7. THE SLIDING GATES ARE TO BE DESIGNED SO THAT THE GATE CANNOT FALL. THIS CAN BE DONE WITH A RESTRAINT COLLAR USED IN CONJUNCTION WITH THE TRACK AND CARRIER GUIDE OR WITH SPECIAL SUPPORTS.
8. WHEN VEHICULAR AND PEDESTRIAN GATES ARE TO BE LOCATED NEAR EACH OTHER, PERSONNEL SAFETY MUST BE CONSIDERED.
9. THE GATE MUST BE CAPABLE OF BEING LOCKED IN THE CLOSED POSITION. THE GAS COMPANY WILL FURNISH A PADLOCK WHEN REQUIRED.
10. THE GATE FRAME, HINGES, AND SUPPORT POSTS MUST BE STRUCTURALLY SOUND, PROVIDE RIGIDITY AND BE FREE FROM SAGGING OR TWISTING. ALL JOINTS ARE TO BE WELDED.
11. EACH FENCE AROUND A COMPRESSOR STATION SHALL HAVE AT LEAST TWO GATES LOCATED SO AS TO PROVIDE A CONVENIENT OPPORTUNITY FOR ESCAPE TO A PLACE OF SAFETY, OR HAVE OTHER FACILITIES AFFORDING A SIMILARLY CONVENIENT EXIT FROM THE AREA. EACH GATE LOCATED WITHIN 200 FEET OF ANY COMPRESSOR PLANT BUILDING MUST OPEN OUTWARD AND, WHEN OCCUPIED, MUST BE ACCESSIBLE FROM THE INSIDE WITHOUT A KEY.
12. ALL POSTS ARE TO HAVE CONCRETE FOOTINGS WHICH ARE CROWNED TO SHED WATER. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AFTER 28 DAYS.
13. ALL PARTS ARE TO BE GALVANIZED. ALL FIELD WELDS SHALL BE GROUND SMOOTH AND FIELD COATED WITH GALVALLOY OR EQUIVALENT MATERIAL.
14. THE FENCING SHALL BE INSTALLED IN CONFORMITY WITH ASTM F567 'INSTALLATION OF CHAIN-LINK FENCE'.
15. ALL PIPE POSTS ARE TO BE CAPPED TO PREVENT WATER INFILTRATION.
16. THE FABRIC SHALL BE INSTALLED ON THE OUTSIDE OF THE FENCE LINE AND BE CONTINUOUS BETWEEN POSTS.
17. THE ROLLING GATES MUST ROLL ON A CONCRETE STRIP. THE GATE TRACK MUST BE INCORPORATED INTO THE CONCRETE STRIP.
18. THE FENCE SHALL BE INSPECTED BY A GAS COMPANY REPRESENTATIVE AND ACCEPTED AFTER ALL MATERIAL REQUIREMENTS AND CONSTRUCTION CONDITIONS HAVE BEEN MET.
19. OPTIONAL RAZOR WIRE TO BE INSTALLED AT REMOTE SITES ONLY.
20. FOR GUARDED SOCAL GAS PROPERTY, 6'-0" HIGH FENCE MAY BE USED. AT REMOTE SITES, 8'-6" HIGH FENCE SHALL BE USED. FENCES HIGHER THAN 8'-6" ARE NOT COVERED BY THIS STANDARD DRAWING AND REQUIRE ENGINEERING APPROVAL.

MIN FTG DEPTH		MIN FTG DIA	
FENCE HEIGHT	FTG DEPTH	POST ø	FTG DIA
8'-6"	5'-0"	4"	16"
8'-6"	6'-0"	4"	16"

FOR SOUTH FENCE ONLY

[redacted]

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

NOTE: TYPICAL STRUCTURAL DETAILS ARE INTENDED FOR THE USE OF THE DESIGN ENGINEER WHENEVER IT IS DETERMINED THAT BY THEIR USE, THE STRENGTH AND SERVICEABILITY REQUIREMENTS OF THE STRUCTURE BEING DESIGNED ARE MET.

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NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR [redacted] VENDOR REFER TO [redacted]
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. THE EQUIPMENT VENDOR INFORMATION, REFER TO NOTE 5 (ABOVE) IS THE LATEST DRAWING THAT HAS BEEN OBTAINED, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN THE LATEST VENDOR INFORMATION AND VERIFY ANCHOR BOLT LAYOUT AND SIZE, PRIOR TO POURING OF CONCRETE & INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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SITE PREPARATION AND GRADING PLAN FOR SOCALGAS

1. ESTIMATED CONSTRUCTION QUANTITIES:

EXCAVATION
FILL
4" CLASS II AGGREGATE BASE AREA
4" CLASS II AGGREGATE BASE
12" COMPACTED ENGINEERED FILL ARE
12" COMPACTED ENGINEERED FILL
ENGINEERED PERMEABLE FILL AREA
ENGINEERED PERMEABLE FILL
6" CONCRETE RIP-RAP
6" CONCRETE RIP-RAP
WEED BARRIER AREA
FACILITY FENCE (DWG 33906-4007-D-ST
ACCESS GATES (DWG 33906-4026-D-ST

[redacted]

TOTAL AREA DISTURBED – [redacted]

A. EARTHWORK QUANTITIES SHOWN FOR PERMIT PURPOSES ONLY

B. CONTRACTOR SHALL CALCULATE THE EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF CONSTRUCTION OR BIDDING. CONSOLIDATION, LOSSES DUE TO CLEARING OPERATIONS, UTILITY TRENCHES, SUB-GRADE STABILIZATION, OR FACTORS FOR GRADING MEANS AND METHODS ARE NOT INCLUDED AND EARTHWORK QUANTITIES MAY VARY ACCORDING TO THESE FACTORS.

2. EQUIPMENT, SERVICES AND MATERIALS BY CONTRACTOR

CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND SUPERVISION NECESSARY TO PERFORM THE WORK SHOWN ON THE PLAN WHICH WILL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

A. EXCAVATION, BACKFILL AND COMPACTION;
B. WATER FOR MOISTURE CONDITIONING AND DUST CONTROL;
C. MEASURES NECESSARY TO PREVENT EROSION AND PONDING;
D. ALL SURVEYING ASSOCIATED WITH THIS WORK;

3. EQUIPMENT, SERVICES AND MATERIAL PROVIDED BY COMPANY

A. MATERIAL FOR USE AS ENGINEERED FILL;
B. ALL SOIL TESTING.

4. CODES AND STANDARDS

CONTRACTOR SHALL PERFORM AND COMPLETE CONSTRUCTION IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS, ORDINANCES AND REGULATIONS.

A. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

- D-1557 MOISTURE-DENSITY RELATIONSHIP OF SOIL AND SOIL-AGGREGATE MIXTURES USING A 10-LB. HAMMER AND 18-INCH DROP.
- D-1556 DENSITY OF SOIL IN PLACE BY SAND-CONE METHOD.
- D-2937 DENSITY OF SOIL IN PLACE BY THE DRIVE CYLINDER METHOD.
- D-6938 DENSITY OF SOIL AND SOIL-AGGREGATE MIXTURES IN PLACE BY NUCLEAR METHOD.

B. KINGS COUNTY "TITLE 16 BUILDING AND CONSTRUCTION STANDARDS," CHAPTER 16.82 – CLEARING AND GRADING

C. 2019 CALIFORNIA BUILDING CODE.

D. "GEOTECHNICAL INVESTIGATION" PREPARED BY [redacted]

5. GENERAL PROVISIONS REQUIRED OF CONTRACTOR

A. PROTECTION OF EXISTING FACILITIES

- EXISTING COMPANY FACILITIES SHALL BE PROTECTED. IF DAMAGED BY CONTRACTOR, FACILITIES SHALL BE REPAIRED AND/OR RESTORED AT CONTRACTOR'S EXPENSE.
- COMPANY RESERVES THE RIGHT TO ENTER THE SITE TO MAKE ANY REPAIRS OR ALTERATIONS TO EXISTING EQUIPMENT.
- EXTREME CARE SHOULD BE EXERCISED WHEN EXCAVATING AT THIS SITE. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION SHALL BE BROUGHT TO THE ATTENTION OF COMPANY REPRESENTATIVE. THESE ITEMS SHALL NOT BE DISTURBED UNTIL INSTRUCTION IS RECEIVED FROM COMPANY REPRESENTATIVE.

B. SAFETY

- CONTRACTOR SHALL PROVIDE PROTECTIVE EQUIPMENT AND ENSURE THAT THIS EQUIPMENT IS PROPERLY USED WHEN REQUIRED FOR THE SAFETY OF HIS EMPLOYEES. HARD HATS, SAFETY SHOES, AND SAFETY GLASSES WITH SIDE SHIELDS SHALL BE WORN AT ALL TIMES ON THE CONSTRUCTION SITE.
- WORK WILL BE PERFORMED ACCORDING TO THE TERMS AND CONDITIONS OF THE CONTRACT AND APPLICABLE STATE AND FEDERAL REGULATIONS.
- EXTREME CARE MUST BE EXERCISED WHEN OPERATING ANY EQUIPMENT NEAR OVERHEAD POWER LINES. CONTRACTOR MUST NOT ALLOW ANY EQUIPMENT OR PERSONNEL TO CONTACT ANY OVERHEAD LINE.
- EXCAVATING MUST BE ACCOMPLISHED SO AS TO AVOID ALL UNDERGROUND UTILITIES AND LINES.
- THE SIZE, NUMBER, LOCATION AND DEPTH OF ANY BURIED UTILITIES SHOWN ON THE PLAN ARE BASED ON THE BEST INFORMATION AVAILABLE; HOWEVER, EXTREME CARE SHOULD BE TAKEN DURING EXCAVATION SINCE LOCATION AND DEPTH ALLOWANCES MAY NOT BE SHOWN ON THE SOURCE PLANS FOR THIS DRAWING.

CIVIL GENERAL NOTES

- NO PERSON SHALL ENTER ANY EXCAVATION UNLESS PROTECTED FROM CAVE-INS IN ACCORDANCE WITH THE REQUIREMENTS OF "CFR 29 (OSHA), PART 1926.652 (REQUIREMENTS FOR PROTECTIVE SYSTEMS)" AND "CCR TITLE 8 (CALOSHA) SECTION 1541.1 (REQUIREMENTS FOR PROTECTIVE SYSTEMS)". DESIGN OF THE PROTECTIVE SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- IN EXCAVATION AREAS IMMEDIATELY ADJACENT TO EXISTING FOUNDATIONS WHERE VERTICAL CUT SIDE SLOPES ARE REQUIRED, EXCAVATION WIDTH SHALL NOT EXCEED 7'. THESE AREAS SHALL BE BACKFILLED AS SOON AS POSSIBLE TO MINIMIZE EXPOSURE OF THE EXISTING FOUNDATION(S). IF THESE AREAS ARE LEFT UNATTENDED AT ANY POINT DURING THE EXCAVATION OR BACKFILL, THE AREA SHALL BE CORDONED OFF WITH CAUTION TAPE AND BARRICADES TO PREVENT UNAUTHORIZED ACCESS.

C. INJURIES

- CONTRACTOR SHALL IMMEDIATELY NOTIFY COMPANY REPRESENTATIVES OF ANY INJURY OCCURRING ON COMPANY PROPERTY. A WRITTEN REPORT CONCERNING THE INJURY SHALL BE PROVIDED TO COMPANY WITHIN 24 HOURS OF OCCURRENCE OF INJURY.
- CONTRACTOR SHALL PROVIDE ALL FIRST AID AND EMERGENCY TREATMENT, AMBULANCE, HOSPITAL SERVICES, ETC. FOR ANY INJURY OCCURRING TO HIS EMPLOYEES ON COMPANY PROPERTY.

D. PERSONNEL FACILITIES

- CONTRACTOR SHALL PROVIDE ALL FACILITIES REQUIRED FOR HIS PERSONNEL. THESE INCLUDE PORTABLE TOILETS, DRINKING WATER,CLEAN-UP FACILITIES, ETC.

E. GRADES, LINES, LEVELS AND BENCHMARK REFERENCES

- SITE BENCHMARKS ARE PROVIDED TO THE CONTRACTOR. CONTRACTOR WILL BE RESPONSIBLE FOR PROPER ELEVATIONS AND LOCATIONS OF THE WORK AS REFERENCED TO THE BENCHMARKS.
- CONTRACTOR SHALL LAYOUT ALL WORK, ESTABLISH MARKERS, STAKES, ETC. AND BE RESPONSIBLE FOR THEIR ACCURACY. COMPANY MAY CHOOSE TO USE AN INDEPENDENT SURVEYOR TO CHECK CONTRACTOR'S WORK.

F. COMPANY OPERATION OF EXISTING FACILITIES

- COMPANY INTENDS TO OPERATE EXISTING EQUIPMENT AND FACILITIES IN THE VICINITY OF THE CONSTRUCTION SITE DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE HIS WORK WITH COMPANY FIELD OPERATIONS THROUGH COMPANY REPRESENTATIVE.
- CONTRACTOR WILL COORDINATE AND FULLY COOPERATE WITH ANY TESTING AGENCY TO ENSURE ALL TESTS ARE COMPLETED AND DOCUMENTED IN A TIMELY AND EFFICIENT MANNER.

6. GRADING AND EXCAVATION – CIVIL

A. GENERAL GRADING

- ELEVATIONS PRESENTED ON THE DRAWINGS INDICATE FINAL GRADE ELEVATIONS. FINAL GRADED SURFACE SHALL BE SLOPED UNIFORMLY BETWEEN SUCH POINTS AND NATURAL GRADE.
- TOLERANCES FROM FINAL GRADE SHALL BE +-0.1 FOOT. IN NO CASE HOWEVER SHOULD FINAL GRADE ALLOW PONDING OR DRAINAGE NOT INDICATED ON THE PLANS.
- ALL DEBRIS, VEGETATION, ROCK AND LUMPS GREATER THAN 3 INCHES IN ITS LARGEST DIMENSION AND OTHER OBJECTIONABLE MATERIAL SHALL BE COLLECTED, PILED AND DISPOSED OF BY THE CONTRACTOR SO AS TO LEAVE THE AREAS THAT HAVE BEEN CLEARED WITH A NEAT AND FINISHED APPEARANCE.

B. GRADING INSPECTION

- PROFESSIONAL INSPECTION OF GRADING OPERATIONS SHALL BE PROVIDED BY THE CIVIL ENGINEER OR SOILS ENGINEER.
- CIVIL ENGINEER SHALL INSPECT SITE AT COMPLETION OF ALL GRADING ACTIVITIES.
- GRADING OPERATIONS FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE GRADING OFFICIAL.
- BUILDING PADS SHALL HAVE A DRAINAGE GRADIENT OF 2 PERCENT TOWARD APPROVED DRAINAGE FACILITIES,UNLESS WAIVED BY THE GRADING OFFICIAL.

C. EXCAVATIONS

- ALL EXCAVATIONS SHALL BE PERFORMED IN A MANNER TO ASSURE DRAINAGE DURING THE COURSE OF THE WORK. FLOODED EXCAVATIONS SHALL BE DEWATERED AND ALL MUCK REMOVED BEFORE PROCEEDING WITH THE WORK.
- AFTER EXCAVATION, SCARIFY THE ENTIRE AREA EXPOSED AS PER SOILS REPORT, MOISTURE CONDITION AND RECOMPACT AS ENGINEERED FILL AND PROOF ROLLED PRIOR TO COMPACTING NEW FILL.
- OVER-EXCAVATE EXISTING SOIL IN LOCATIONS WHERE UNSUITABLE MATERIAL EXISTS AS DIRECTED BY THE COMPANY REPRESENTATIVE AND SOIL ENGINEER. BACKFILL WITH ENGINEERED FILL COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY AT +2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557.
- SOILS ENGINEER SHALL INSPECT THE BOTTOM OF EXCAVATION PRIOR TO PLACEMENT OF BACKFILL. FINAL DEPTH OF EXCAVATION TO BE DETERMINED BY SOILS ENGINEER. CIVIL ENGINEER SHALL INSPECT SITE AT COMPLETION OF ALL GRADING ACTIVITIES.
- PERMEABLE ENGINEERED FILL FOR THE INFILTRATION AREAS SHALL MEET THE PERMEABLE INFILTRATION RATES OF THE PERMEABLE LAYER SHOWN IN THE GEOTECHNICAL REPORT.

7. FILLS

A. PREPARATION OF GROUND

- FILL SLOPES SHALL NOT BE CONSTRUCTED ON NATURAL SLOPES STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE). THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, NON-COMPLYING FILL, TOPSOIL AND OTHER UNSUITABLE MATERIALS SCARIFYING TO PROVIDE A BOND WITH THE NEW FILL AND, WHERE SLOPES ARE STEEPER THAN 1 UNIT VERTICAL IN 5 UNITS HORIZONTAL (20% SLOPE) AND THE HEIGHT IS GREATER THAN 5 FEET, BY BENCHING INTO SOUND BEDROCK OR OTHER COMPETENT MATERIAL AS DETERMINED BY THE SOILS ENGINEER. THE BENCH UNDER THE TOE OF A FILL ON A SLOPE STEEPER THAN 1 UNIT VERTICAL IN 5 UNITS HORIZONTAL (20% SLOPE) SHALL BE AT LEAST 10 FEET WIDE. THE AREA BEYOND THE TOE OF FILL SHALL BE SLOPED FOR SHEET OVERFLOW OR A PAVED DRAIN SHALL BE PROVIDED. WHEN FILL IS TO BE PLACED OVER A CUT, THE BENCH UNDER THE TOE OF FILL SHALL BE AT LEAST 10 FEET WIDE BUT THE CUT SHALL BE MADE BEFORE PLACING THE FILL AND ACCEPTANCE BY THE SOILS ENGINEER OR ENGINEERING GEOLOGIST OR BOTH AS A SUITABLE FOUNDATION FOR FILL.

B. FILL MATERIAL & PLACEMENT

- FILL MATERIAL SHOULD BE FREE FROM ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHOULD NOT CONTAIN ROCKS OR LUMPS OVER 4 INCHES IN GREATEST DIMENSION. NO MORE THAN 50 PERCENT OF THE FILL MATERIAL SHOULD PASS THE NO. 200 SIEVE, AND THE MATERIAL SHOULD HAVE A LOW EXPANSION POTENTIAL, AS EVIDENCED BY A PLASTICITY INDEX OF 15 OR LESS OR EXPANSION INDEX OF 20 OR LESS. IMPORT SOIL SHOULD BE NON-EXPANSIVE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE (CBC) SECTION 1803A.5.3 AND SHOULD HAVE LOW POTENTIAL FOR CORROSIVITY AND HIGH RESISTIVITY. THE PH, CHLORIDE CONTENT, AND SULFATE CONTENT OF THE FILL MATERIALS SHOULD NOT BE DELETERIOUS TO THE MATERIALS USED TO CONSTRUCT THE FOUNDATION SYSTEM AND OTHER IMPROVEMENTS (I.E., CONCRETE OR STEEL). CLASS 2 AGGREGATE BASE MAY BE UTILIZED FOR CONSTRUCTION OF ACCESS ROADS OR PADS AND SHOULD CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) "STANDARD SPECIFICATIONS" SECTION 26-1.02B. WHERE INDICATED, FILL SHOULD BE MOISTURE CONDITIONED AND COMPACTED BETWEEN 0 AND 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENTS IN LAYERS THAT DO NOT EXCEED 8-INCH LOOSE LIFTS FOR HEAVY EQUIPMENT COMPACTION. EACH LIFT OF FILL SHOULD BE COMPACTED TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION UNLESS OTHERWISE SPECIFIED. RELATIVE COMPACTION IS DEFINED AS THE RATIO (IN PERCENT) OF THE INPLACE DRY DENSITY TO THE MAXIMUM DRY DENSITY DETERMINED USING THE LATEST VERSION OF ASTM D1557 AS THE COMPACTION STANDARD. CLASS 2 AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95 PERCENT.
- ALL IMPORTED FILL MATERIAL SHALL BE APPROVED BY THE SOIL ENGINEER PRIOR TO PLACEMENT AT THE SITE.
- DETRIMENTAL AMOUNTS OF ORGANIC MATERIAL SHALL NOT BE PERMITTED IN FILLS. EXCEPT AS PERMITTED BY THE GRADING OFFICIAL, NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 4 INCHES SHALL BE BURIED OR PLACED IN FILLS.
- PLACE FILL SOIL IN CONTINUOUS HORIZONTAL LOOSE LIFTS THAT DO NOT EXCEED 8 INCHES FOR HEAVY EQUIPMENT COMPACTION AND 4 INCH IN THICKNESS LOOSE LIFTS FOR HAND HELD EQUIPMENT COMPACTION. DO NOT PLACE FILL UNTIL REMOVAL OF UNSUITABLE MATERIAL HAS BEEN INSPECTED AND APPROVED BY THE SOIL ENGINEER.

C. COMPACTION

- FILL SHALL BE COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. MOISTURE CONTENT OF COMPACTED FILL SHALL BE 0 AND 3% ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557.
- SOIL USED FOR COMPACTED FILL SHALL CONTAIN NO ROCK OR HARD LUMPS GREATER THAN 4 INCHES IN ITS LARGEST DIMENSION. NO ORGANIC, PERISHABLE, SPONGY OR OTHER IMPROPER MATERIAL SHALL BE USED IN FILLING.
- THE UPPER 12 INCHES BENEATH FOUNDATIONS SHALL CONSIST OF CLASS II AGGREGATE BASE COMPACTED TO MIN 95% OF MAX DENSITY BASED ON ASTM D-1557.
- COMPACTION OF THE ENGINEERED PERMEABLE FILL SHALL NOT EXCEED THE REQUIREMENTS NEEDED TO MAINTAIN PERMEABILITY.

D. SLOPES

- THE SLOPE OF FILL SURFACES SHALL BE NO STEEPER THAN IS SAFE FOR THE INTENDED USE. FILL SLOPES SHALL BE NO STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE).
- WHERE EXISTING SLOPES ARE STEEPER THAN 5 HORIZONTAL:1 VERTICAL AND THE HEIGHT IS GREATER THAN 5 FEET, THE SURFACE SHALL BE PREPARED FOR FILL BY BENCHING INTO COMPETENT MATERIAL AS DETERMINED BY THE SOILS ENGINEER.

8. DRAINAGE AND TERRACING

UNLESS OTHERWISE INDICATED ON THE APPROVED GRADING PLAN, DRAINAGE FACILITIES AND TERRACING SHALL CONFORM TO THE PROVISIONS OF THIS SECTION FOR CUT OR FILL SLOPES STEEPER THAN 1 UNIT VERTICAL IN 3 UNITS HORIZONTAL (33.3% SLOPE).

TERRACES AT LEAST 6 FEET IN WIDTH SHALL BE ESTABLISHED AT NOT MORE THAN 30-FOOT VERTICAL INTERVALS ON ALL CUT OR FILL SLOPES TO CONTROL SURFACE DRAINAGE AND DEBRIS EXCEPT THAT WHERE ONLY ONE TERRACE IS REQUIRED, IT SHALL BE AT MID-HEIGHT. FOR CUT OR FILL SLOPES GREATER THAN 60 FEET AND UP TO 120 FEET IN VERTICAL HEIGHT, ONE TERRACE AT APPROXIMATELY MID-HEIGHT SHALL BE 12 FEET IN WIDTH.

9. EROSION, DUST, AND RUNOFF CONTROL

A. EROSION CONTROL MEASURES

- THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL AGAINST EROSION. THIS CONTROL MAY CONSIST OF EFFECTIVE PLANTING. THE PROTECTION FOR THE SLOPES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND PRIOR TO CALLING FOR FINAL APPROVAL. WHERE CUT SLOPES ARE NOT SUBJECT TO EROSION DUE TO THE EROSION-RESISTANT CHARACTER OF THE MATERIALS, SUCH PROTECTION MAY BE OMITTED.
- WHERE REQUIRED, CONTRACTOR SHALL PROVIDE SUFFICIENT EROSION CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, INSTALLATION OF ENERGY DISSIPATING RIP-RAP, SILT FENCING AND/OR HAY BALES.

B. DUST CONTROL MEASURES

- CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES, WHICH CONSIST OF WATER SPRAYING ALL GRADED AREAS AND ROADWAYS TO ALLEVIATE OR PREVENT DUST NUISANCE.

B. RUNOFF CONTROL MEASURES

- ALL STORMWATER TO BE RETAINED ON SITE DURING CONSTRUCTION. IMPLEMENT RUNOFF CONTROL AS INDICATED ON PLANS AND IN ACCORDANCE WITH KINGS COUNTY GRADING ORDINANCE.

REGISTERED PROFESSIONAL ENGINEER
JOHN F. NANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	07/29/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING LIMITS

PLANT NORTH

LEGEND:

— — — – EXISTING GRADE CONTOUR

— — — – MAAS ROUGH GRADING CONTOUR

– EARTHEN BERM

– CONCRETE SWALE – [redacted]

– 6" CRUSHED GRAVEL (3/4" – 1" IN SIZE) – [redacted]

– 4" CLASS II AGGREGATE BASE/WEED BARRIER (SINGLE LAYER) OF PP MYRAFIM, [redacted]
SURFACE AREA – [redacted]
4" CLASS II AGGREGATE BASE QUANTITY – [redacted]

12" COMPACTED ENGINEERED FILL
AREA
QUANTITY [redacted]

ENGINEERED PERMEABLE FILL (INFILTRATION AREA'S)
AREA
QUANTITY [redacted]

[redacted]

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted]
THEIR FILENAME [redacted]

EXISTING CONTOUR INTERVAL = 1'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND:

— — — — MAAS GRADING PROFILE

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCS APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]



[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCS APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING LIMITS

LEGEND:

CALIFORNIA STORM WATER QUALITY ASSOCIATION

EC-1	SCHEDULING
EC-2	PRESERVATION OF EX VEGETATION
EC-3	HYDRAULIC MULCH
EC-7	GEOTEXTILES AND MATS
EC-9	EARTH DIKE AND DRAINAGE SWALES
EC-11	SLOPE DRAINS
SE-1	SILT FENCE
SE-3	SEDIMENT TRAPS
SE-5	FIBER ROLLS
SE-7	STREET SWEEPING AND VACUUMING
SE-9	STRAW BALE BARRIER
SE-10	STORM DRAIN INLET PROTECTION
TC-1	STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC-2	STABILIZED CONSTRUCTION ROADWAY
WM-1	MATERIAL DELIVERY AND STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION AND CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-7	CONTAMINATED SOIL MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT
WE-1	WIND EROSION CONTROL
NS-1	WATER CONSERVATION PRACTICES
NS-3	PAVING AND GRINDING OPERATIONS
NS-5	CLEAR WATER DIVERSION
NS-8	VEHICLE AND EQUIPMENT CLEANING
NS-9	VEHICLE AND EQUIPMENT FUELING
NS-10	VEHICLE AND EQUIPMENT MAINTENANCE
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING

NOTES:

1. BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED TO CONTROL EROSION.
2. BEST MANAGEMENT PRACTICES (BMP'S) CONTAINED HEREIN REFLECT MINIMUM REQUIREMENTS. ALTERNATE METHODS PROVIDING EQUAL OR GREATER PROTECTION MAY BE UTILIZED. FOR ADDITIONAL BMP'S REFER TO CALIFORNIA STORMWATER BMP HANDBOOKS, AVAILABLE AT WWW.CABMPHANDBOOKS.COM.
3. VEGETATION REMOVAL SHALL NOT PRECEDE SUBSEQUENT GRADING BY MORE THAN 15 DAYS.
4. ALL DISTURBED SURFACES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION.
5. EROSION CONTROL MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKDAY.
6. MANY ASPECTS OF THE CONSTRUCTION SEQUENCING ARE YET TO BE DETERMINED. AS SUCH, THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE PROPER BMP'S FOR ALL SEQUENCES.
7. ANY DISTURBED SURFACE THAT REMAINS INACTIVE FOR MORE THEN 7 DAYS SOIL BINDER SHALL BE ADDED.
8. PORTABLE SANITARY FACILITIES SHALL BE LOCATED ON RELATIVELY LEVEL GROUND AWAY FROM TRAFFIC AREAS, DRAINAGE COURSES, AND STORM DRAIN INLETS.
9. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
10. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
11. BMP'S PER 2019 CALIFORNIA GREEN BUILDING STANDARDS.

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted] THEIR FILENAME- [redacted]

EXISTING CONTOUR INTERVAL = 2'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NOS. 33906-4001-D-STR & 33906-4002-D-STR.
2. ALL STRUCTURAL STEEL, NUTS, BOLTS, AND WASHERS SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
5. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

N

PLANT NORTH

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. ALL STRUCTURAL STEEL, NUTS, BOLTS AND WASHERS SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
5. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS, AND IN ACCORDANCE WITH I.B.C. ESR-1917.
6. FOR W.P. COORDINATES & ELEVATIONS REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LM	RGA	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

[redacted]

[redacted]

[redacted]

PLANT NORTH

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCALGAS CONSTRUCTION REPRESENTATIVE.

PARSONS CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCALGAS SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF SOCALGAS SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCALGAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

MISCELLANEOUS EQUIPMENT SUPPORT SCHEDULE *

TAG NO.	NORTHING	EASTING	F.G. ELEV.	T.O.C. ELEV.	EQUIP. DESCRIPTION	REF. DWG. NO.
LP-01	[redacted]					
LP-02						
LP-03						
LP-04						
LP-05						
CAM POLE						
AT-1054A						
AT-1054B						
RR-1						
RR-2						
HS-1051B						
HS-1051C						
HS-1051D						
HS-1051E						
JB-01						
JB-02						
JB-03						
IS-01						
IS-02						
IS-03						
JOA'S						
JOA'S						
WS						
VAULT-NW						
VAULT-SE						

* COORDINATES LISTED ARE IN CALIFORNIA STATE PLANE NAD83 ZONE 4

1. REFER TO DWG. NO. 33906-4003-D-STR FOR SURVEY CONTROL INFORMATION.
2. CONTRACTOR TO ESTABLISH T.O.C. TO BE 6 IN ABOVE FINISH GRADE.

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT [redacted] IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY [redacted] THEIR FILENAME= [redacted]

EXISTING CONTOUR INTERVAL = 1'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

DRAWING LIMITS

ISSUED FOR CONSTRUCTION

GRAPHIC SCALE
10' 0 5' 10' 20' 40'
(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	DWR	MK	JFH	KN	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

[redacted]

DRAWING INDEX	
PROJECT #:	460090-04000
CLIENT:	SOUTHERN CALIFORNIA GAS COMPANY
PROJECT:	SENATE BILL 1383 DAIRY PILOT
SITE:	LAKESIDE
DISCIPLINE:	ELECTRICAL
ISSUED FOR:	ISSUED FOR CONSTRUCTION
ISSUE DATE:	8/5/2020

GENERAL DRAWINGS			
DRAWING #	**REV**	**DESCRIPTION**	**FILE NAME**
33906-5001-D-ELC	0	GENERAL NOTES	33906-5001-D-ELC
33906-5002-D-ELC	0	ONE-LINE DIAGRAM	33906-5002-D-ELC
33906-5003-D-ELC	0	ONE-LINE DIAGRAM	33906-5003-D-ELC
33906-5004-D-ELC	0	UPS ONE-LINE DIAGRAM	33906-5004-D-ELC
33906-5005-D-ELC	0	LOAD SCHEDULES	33906-5005-D-ELC
33906-5006-D-ELC	0	ELECTRICAL EQUIPMENT ELEVATION - MTS-01 & MCC-01	33906-5006-D-ELC
33906-5007-D-ELC	0	PLOT PLAN	33906-5007-D-ELC
33906-5008-D-ELC	0	HAZARDOUS AREA CLASSIFICATION PLAN	33906-5008-D-ELC
33906-5009-D-ELC	0	GROUNDING PLAN	33906-5009-D-ELC
33906-5010-D-ELC	0	CONDUIT & CABLE ROUTING - KEY PLAN	33906-5010-D-ELC-MS
33906-5011-D-ELC	0	CONDUIT & CABLE ROUTING - AREA "A"	33906-5011-D-ELC-MS
33906-5012-D-ELC	0	CONDUIT & CABLE ROUTING - AREA "B"	33906-5011-D-ELC-MS
33906-5013-D-ELC	0	CONDUIT & CABLE ROUTING - AREA "C"	33906-5011-D-ELC-MS
33906-5014-D-ELC	0	CONDUIT & CABLE ROUTING - AREA "D"	33906-5011-D-ELC-MS
33906-5015-D-ELC	0	CONDUIT & CABLE ROUTING - ENLARGED DETAIL	33906-5015-D-ELC
33906-5016-D-ELC	0	LIGHTING PLAN PHOTOMETRICS	33906-5016-D-ELC
33906-5017-D-ELC	0	LIGHTING WIRING SCHEMATIC	33906-5017-D-ELC
33906-5018-D-ELC	0	FIRE & GAS DETECTION PLAN	33906-5018-D-ELC
33906-5019-D-ELC	0	SECURITY SYSTEM & CAMERA PLAN	33906-5019-D-ELC
33906-5020-D-ELC	0	CABLE SCHEDULE	33906-5020-D-ELC-MS
33906-5021-D-ELC	0	CABLE SCHEDULE	33906-5020-D-ELC-MS
33906-5022-D-ELC	0	CABLE SCHEDULE	33906-5020-D-ELC-MS
33906-5023-D-ELC	0	CONDUIT SCHEDULE	33906-5020-D-ELC-MS
33906-5024-D-ELC	0	CONDUIT SCHEDULE	33906-5020-D-ELC-MS
33906-5025-D-ELC	0	JUNCTION BOX LAYOUT - JB-01	33906-5025-D-ELC
33906-5026-D-ELC	0	JUNCTION BOX WIRING DIAGRAM - JB-01	33906-5026-D-ELC
33906-5027-D-ELC	0	JUNCTION BOX LAYOUT - JB-02	33906-5027-D-ELC
33906-5028-D-ELC	0	JUNCTION BOX WIRING DIAGRAM - JB-02	33906-5028-D-ELC
33906-5029-D-ELC	0	JUNCTION BOX LAYOUT - JB-03	33906-5029-D-ELC
33906-5030-D-ELC	0	JUNCTION BOX POWER DISTRIBUTION - JB-03	33906-5030-D-ELC
33906-5031-D-ELC	0	JUNCTION BOX WIRING DIAGRAM - JB-03	33906-5031-D-ELC
33906-5032-D-ELC	0	INSTRUMENT LOCATION PLAN	33906-5032-D-ELC
33906-5033-D-ELC	0	CATHODIC PROTECTION PLAN	33906-5033-D-ELC
33906-5034-D-ELC	-	DRAWING NOT USED	33906-5034-D-ELC
33906-5035-D-ELC	-	DRAWING NOT USED	33906-5035-D-ELC
33906-5036-D-ELC	-	DRAWING NOT USED	33906-5036-D-ELC
33906-5037-D-ELC	-	DRAWING NOT USED	33906-5037-D-ELC
33906-5038-D-ELC	-	DRAWING NOT USED	33906-5038-D-ELC
33906-5039-D-ELC	0	ELECTRICAL DETAILS - MOTOR HANDSWITCH SCHEMATICS	33906-5039-D-ELC
33906-5040-D-ELC	0	ELECTRICAL DETAILS - HAZARDOUS AREA CLASSIFICATION	33906-5040-D-ELC
33906-5041-D-ELC	0	ELECTRICAL DETAILS - GROUNDING	33906-5041-D-ELC-MS
33906-5042-D-ELC	0	ELECTRICAL DETAILS - GROUNDING	33906-5041-D-ELC-MS
33906-5043-D-ELC	0	ELECTRICAL DETAILS - LIGHTING	33906-5043-D-ELC
33906-5044-D-ELC	0	ELECTRICAL DETAILS - DUCT BANKS	33906-5044-D-ELC-MS
33906-5045-D-ELC	0	ELECTRICAL DETAILS - DUCT BANKS	33906-5044-D-ELC-MS
33906-5046-D-ELC	0	ELECTRICAL DETAILS - CONDUIT STUB-UPS	33906-5046-D-ELC

33906-5047-D-ELC	0	ELECTRICAL DETAILS - CABLE & CONDUIT INSTALLATION	33906-5047-D-ELC
33906-5048-D-ELC	0	ELECTRICAL DETAILS - CABLE & CONDUIT INSTALLATION	33906-5048-D-ELC
33906-5049-D-ELC	0	ELECTRICAL DETAILS - MISCELLANEOUS	33906-5049-D-ELC
33906-5050-D-ELC	0	ELECTRICAL DETAILS - MISCELLANEOUS	33906-5050-D-ELC
33906-5051-D-ELC	0	ELECTRICAL DETAILS - INSTRUMENTATION INSTALLATION	33906-5051-D-ELC
33906-5052-D-ELC	0	ELECTRICAL DETAILS - INSTRUMENTATION INSTALLATION	33906-5052-D-ELC
33906-5053-D-ELC	0	ELECTRICAL DETAILS - INSTRUMENTATION INSTALLATION	33906-5053-D-ELC
33906-5054-D-ELC	0	ELECTRICAL DETAILS - INSTRUMENTATION INSTALLATION	33906-5054-D-ELC

STANDARD DRAWINGS			
DRAWING #	**REV**	**DESCRIPTION**	**FILE NAME**
0501-D.STD	A	ELECTRICAL DESIGN STANDARDS - SYMBOLS & ABBREVIATIONS	0501-D.STD

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

ELECTRICAL GENERAL NOTES

GENERAL REQUIREMENTS

1.0. THIS ELECTRICAL GENERAL NOTES SHEET DEFINES THE GENERAL REQUIREMENTS, APPLICABLE CODES AND STANDARDS, AS WELL AS MATERIALS, INSTALLATION REQUIREMENTS, AND GENERAL PROCEDURES FOR GROUNDING, CONDUIT AND CABLE THAT SHALL BE ADHERED TO BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, SAFE, AND ACCEPTABLE ELECTRICAL SYSTEM AS DEFINED BY THESE ELECTRICAL GENERAL NOTES AND/OR THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL CONSTRUCTION DRAWINGS.

1.1. ALL CONTRACTOR PURCHASED ITEMS, INSTALLATION TECHNIQUES, AND CONSTRUCTION SHALL BE IN COMPLETE ACCORDANCE WITH ALL LOCAL LAWS AND/OR ORDINANCES HAVING JURISDICTION AND ALSO THE LATEST EDITIONS AND SUPPLEMENTS THERETO OF THE "NATIONAL ELECTRICAL CODE" (NEC), THE "CALIFORNIA ELECTRICAL CODE" (CEC), THE "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION" (NEMA), THE "AMERICAN NATIONAL STANDARDS INSTITUTE" (ANSI), THE "INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS" (IEEE), THE FEDERAL "OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION" (OSHA) RULES AND REGULATIONS, THE "NATIONAL ELECTRICAL SAFETY CODE" (NESC), THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE AMERICAN PETROLEUM INSTITUTE (API), THE INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA), THE UNDERWRITER'S LABORATORIES (UL), AND THE UNIFORM BUILDING CODE (UBC). IF A CONFLICT IS NOTED BETWEEN THESE DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

1.2. THE ABOVE LOCAL LAWS AND STANDARDS SHALL CONSTITUTE THE MINIMUM ELECTRICAL STANDARDS TO BE FOLLOWED BY THE CONTRACTOR IN FULFILLING THE OBLIGATIONS OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS MADE AS PART OF THIS CONTRACT. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL WORK PERFORMED TO GUARANTEE A SAFE AND RELIABLE ELECTRICAL SYSTEM.

1.3. ALL MATERIALS AND/OR EQUIPMENT SUPPLIED BY THE CONTRACTOR SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) LISTED. OR BY A QUALIFIED ELECTRICAL TESTING LABORATORY RECOGNIZED BY THE BODY HAVING LEGAL JURISDICTION OVER ELECTRICAL INSTALLATIONS, EXCEPT FOR CLASSES OF MATERIALS AND EQUIPMENT NOT AVAILABLE WITH SUCH LISTING.

1.4. ALL MATERIALS REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION, AS DEFINED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE ELECTRICAL DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

1.5. HANDLING AND STORAGE OF ALL MATERIAL FURNISHED BY THE CONTRACTOR, INCLUDING MATERIAL FURNISHED BY OTHERS FOR CONTRACTOR USE, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.6. THE CONTRACTOR SHALL REPLACE AND/OR REPAIR EQUIPMENT AND MATERIALS THAT GET DEFORMED AND/OR DAMAGED DURING CONSTRUCTION, AS DETERMINED BY OWNER.

1.7. ALL WORK SHALL BE PERFORMED AS INDICATED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.8. THE CONTRACTOR SHALL FURNISH ALL MANPOWER, TOOLS AND INSTRUMENTS REQUIRED TO PROPERLY INSTALL, INSPECT AND TEST ALL ELECTRICAL SYSTEMS OR EQUIPMENT AS DESCRIBED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE AFOREMENTIONED STANDARDS, CODES, SPECIFICATIONS AND THE APPROVED CONSTRUCTION DRAWINGS. DISCREPANCIES SHOWN ON DIFFERENT PLANS, OR BETWEEN PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SOUTHERN CALIFORNIA GAS COMPANY FOR PROMPT RESOLUTION.

GROUNDING

2.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE GROUNDING SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

2.1. THE CONTRACTOR SHALL INSTALL A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS. THE GROUNDING SHALL COMPLY WITH THE LATEST EDITION OF THE NEC.

2.2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.

2.3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.

2.4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.

2.5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.

2.6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.

2.7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.

2.8. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.

2.9. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.

2.10. WHERE GROUND CONDUCTORS ARE INSTALLED IN A COMMON TRENCH WITH UNDERGROUND METAL PIPING OF ANY TYPE, ADEQUATE SEPARATION SHALL BE MAINTAINED. THE GROUND CONDUCTOR SHALL NOT BE ALLOWED ANY DIRECT CONTACT WITH ANY OF THE METAL PIPING. IF CONTACT CAN NOT BE AVOIDED, A GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED.

2.11. CABLE TRAY GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND NEMA VE2 STANDARDS. A SEPARATE #2/0 AWG GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OR ON OUTER EDGE OF CABLE TRAY AND SHALL BE BONDED TO EACH SECTION OF CABLE TRAY USING UL LISTED GROUND CLAMPS.

2.12. THE CONTRACTOR SHALL MEASURE THE GROUND RESISTANCE OF THE GROUNDING SYSTEM. USING A PROFESSIONAL QUALITY GROUND TESTER. TESTS SHALL BE MADE IN THREE WIDELY SEPARATED LOCATIONS AS SPECIFIED BY THE OWNER AND SHALL SHOW A RESISTANCE OF 1 OHM OR LESS. A MEGGER INSULATION TESTER IS NOT SUITABLE FOR THIS APPLICATION. UPON COMPLETION OF TESTING, THE CONTRACTOR SHALL SUBMIT ALL READINGS TO SOUTHERN CALIFORNIA GAS COMPANY.

CONDUIT

3.0. CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE CONDUIT SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

3.1. THE CONTRACTOR SHALL INSTALL A COMPLETE UNDERGROUND AND ABOVEGROUND CONDUIT SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

3.2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.

3.3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC-COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH DIAMETER.

3.4. RIGID METAL CONDUIT SHALL BE OF HIGH DUCTILE QUALITY, HOT DIPPED GALVANIZED INSIDE AND OUT, INCLUDING THREADS, AND LACQUER FINISHED CONFORMING TO ANSI C80.1.

3.5. FLEXIBLE CONDUIT SHALL BE GALVANIZED STEEL, LIQUID TIGHT, AND APPROVED FOR THE HAZARD CLASSIFICATION OF THE AREA IN WHICH IT IS INSTALLED. EXTERNAL BONDING JUMPERS WITH UL APPROVED CONNECTORS SHALL BE USED WITH FLEXIBLE CONDUITS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR ALL HAZARDOUS AREA APPLICATIONS. ALL CONNECTORS AND FITTING SHALL BE LIQUID-TIGHT, COMPRESSION SEALED, FERROUS CONNECTIONS.

3.6. CONDUIT FITTINGS SHALL BE VAPOR-PROOF CROUSE-HINDS FORM8, APPLETON FM8 OR APPROVED EQUAL. EXPANSION FITTINGS SHALL BE INSTALLED IN LONG CONDUIT RUNS TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

3.7. CONDUIT SEALS SHALL BE CROUSE-HINDS TYPE "EYSX" SIZED PER UL STD. 886.

3.8. CONCRETE ENCASEMENTS SHALL BE READY-MIXED RED CONCRETE OR COLORED RED BY SPRINKLING RED OXIDE ON THE FRESHLY-POURED CONCRETE, EXCEPT WITHIN THE CONFINES OF FOUNDATIONS.

3.9. CONCRETE ENCASEMENTS WHEN SUBJECT TO HEAVY TRAFFIC, SUCH AS ROADWAY CROSSINGS SHALL BE REINFORCED WITH STEEL REBAR ON THE TOP OF THE ENCASEMENT.

3.10. THE CONTRACTOR SHALL FOLLOW THE CONDUIT TYPES AND SIZES AS LISTED ON THE ELECTRICAL CONDUIT SCHEDULE IN THE CONSTRUCTION DRAWINGS.

3.11. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE SMALLER CONDUITS THAN THOSE CALLED FOR IN THE ELECTRICAL CONDUIT SCHEDULE AND/OR ELECTRICAL CONDUIT ROUTING PLAN CONSTRUCTION DRAWINGS.

3.12. ALL CONDUITS INSTALLED UNDERGROUND SHALL BE A MINIMUM OF 36 INCHES BELOW FINISHED GRADE FOR AREAS OF VEHICULAR ACCESS AND 24 INCHES FOR NON-VEHICULAR ACCESS AREAS, UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DRAWINGS.

3.13. EACH TRENCH CONDUIT SHALL BE SEPARATED BY A MINIMUM OF 3 INCHES. TRENCH AND FILL DETAILS SHALL FULLY COMPLY WITH THE SOUTHERN CALIFORNIA GAS COMPANY DETAILS STANDARDS AND CONSTRUCTION DRAWINGS.

3.14. CONDUITS INSTALLED UNDER VEHICULAR TRAFFIC AREAS/ROADS AND SHALL BE ENCASED IN CONCRETE.

3.15. UNDERGROUND CONDUITS AND DUCT BANKS SHALL BE ENCASED IN A 2000 PSI CONCRETE ENVELOPE FREE OF VOIDS WITH A MINIMUM ENCASEMENT OF 3 INCHES ON ALL SIDES UNLESS OTHERWISE NOTED. THE TOP OF THE ENCASEMENT SHALL BE A MINIMUM OF 18 INCHES BELOW FINISHED GRADE UNLESS NOTED.

3.16. ALL CONDUITS SHALL HAVE CONDUIT SEALS WHEN REQUIRED BY THE NEC. SEAL LOCATION SHALL BE AS DESCRIBED IN THE HAZARDOUS AREA CLASSIFICATION PLAN AND DETAIL DRAWINGS AND ASSOCIATED NOTES. ALL SEALS SHALL BE POURED AFTER THE INSTALLATION HAS BEEN COMPLETED AND INSPECTED.

3.17. FLEXIBLE CONDUIT SHALL BE USED TO CONNECT EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT, AND SHALL BE LIMITED TO A MAXIMUM LENGTH OF 18 INCHES.

3.18. UNDERGROUND CONDUITS SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY PROCESS PIPELINE. UNDERGROUND CONDUIT CROSSING PROCESS PIPELINES SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BELOW THE BOTTOM OF PROCESS PIPES WHERE PRACTICAL. UNDERGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 2 FEET FROM ANY HIGH TEMPERATURE PIPE, PETROLEUM OR NATURAL GAS PIPELINES.

3.19. ABOVEGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY INSULATED PIPE. CONDUIT SHALL BE ROUTED FOR MAXIMUM PRACTICAL ACCESSIBILITY OF JUNCTION AND PULL BOXES FROM PLATFORMS OR STRUCTURES WITHOUT USE OF SCAFFOLDING OR LADDERS. CONDUIT RUNS SHALL AVOID CREATING OBSTRUCTIONS AND UNNECESSARY BENDS.

3.20. WHERE CONDUITS ENTER BUILDING FOUNDATIONS, FLOOR SLABS OR EQUIPMENT FOUNDATIONS, THESE CONDUITS SHALL BE PLACED BEFORE CONCRETE FOUNDATIONS ARE POURED.

3.21. AFTER CONDUITS ARE INSTALLED, THE CONTRACTOR SHALL PULL A FLEXIBLE MANDREL, SIZED .25 INCH LESS IN DIAMETER THAN THE BORE OF THE CONDUIT, THROUGH THE CONDUIT TO CLEAN OUT ANY OBSTRUCTIONS. THE CONTRACTOR SHALL INSTALL A #9 NYLON FISH-WIRE IN EACH CONDUIT UPON COMPLETION.

3.22. THE CONTRACTOR SHALL PLUG ALL CONDUITS AND DUCTS TO PREVENT THE ENTRANCE OF DIRT OR FOREIGN PARTICLES.

3.23. FOR CONDUIT STUB-UP DETAILS AND DIMENSIONS, REFER TO THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS.

3.24. CONDUIT UNIONS ARE NOT SHOWN ON DRAWINGS. ALL CONNECTIONS TO ELECTRICAL DEVICES SHALL BE MADE WITH CROUSE-HINDS TYPE "UNY" UNIONS.

3.25. ALL UNDERGROUND CONDUIT AND DUCT BANKS SHALL BE LOCATED AS SHOWN ON THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS. ANY REROUTING OF UNDERGROUND CONDUIT OR DUCT BANKS WILL REQUIRE THE SOUTHERN CALIFORNIA GAS COMPANY ENGINEER'S APPROVAL. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING THE LOCATION OF ALL UNDERGROUND DUCT BANKS AND MANHOLES.

3.26. THE NUMBER OF 90° BENDS ALLOWED BETWEEN PULLING POINTS SHALL NOT EXCEED 4 (UP TO 100 FEET), 3 (100 TO 300 FEET) AND 2 (ABOVE 300 FEET). NOTE THAT TWO 45° BENDS ARE EQUIVALENT TO ONE 90° BEND.

3.27. REFER TO THE "ELECTRICAL CONDUIT SCHEDULE" FOR CONDUIT ROUTING, AND IDENTIFICATION NUMBERS.

3.28. PVC COATED STEEL CONDUIT SHALL BE USED FOR ALL FACTORY BENDS, STUB-UP ELBOWS, AND VERTICAL RISERS PENETRATING THROUGH CONCRETE OR UNPAVED SURFACES.

3.29. ALL UNDERGROUND CONDUITS CONTAINING HIGH VOLTAGE CABLES (5KV OR GREATER) SHALL BE ENCASED IN CONCRETE.

3.30. ALL CONDUITS IDENTIFIED BY NUMBERS ON THE SOUTHERN CALIFORNIA GAS COMPANY "ELECTRICAL CONDUIT SCHEDULE" SHALL ALSO BE IDENTIFIED AT BOTH ENDS USING STAINLESS STEEL TAGS, SECURELY FASTENED TO THE CONDUIT WITH A STAINLESS STEEL WIRE. ALL TAGS SHALL HAVE CLEARLY READABLE LETTERS AND NUMBERS NO SMALLER THAN .375 INCH IN HEIGHT.

3.31. UNDERGROUND CONDUIT RUNS GOING TO AND FROM THE ELECTRICAL VAULT SHALL BE INSTALLED WITH A SLOPE OF 4 INCHES PER 100 FEET (1/3 PERCENT SLOPE) DOWN TOWARDS THE VAULT.

CABLE

4.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER". THE FOLLOWING MATERIALS ARE THE MAJOR ITEMS REQUIRED. ADDITIONAL MATERIAL REQUIREMENTS ARE SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.1. THE CONTRACTOR SHALL INSTALL CABLE AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.2. LOW VOLTAGE CABLES SHALL BE RATED 600V, SHALL HAVE A MINIMUM TEMPERATURE RATING OF 90°C AND SHALL CONFORM TO UL STANDARDS ACCORDING TO THE PARTICULAR TYPE.

4.3. ALL SINGLE WIRES FOR 600V SERVICE AND BELOW SHALL BE TYPE THHN/THWN WITH 600V INSULATION, UNLESS A SPECIFIC APPLICATION REQUIRES MORE STRINGENT INSULATION REQUIREMENTS.

4.4. VFD DRIVEN MOTORS SHALL USE VFD RATED POWER CABLES.

4.5. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR CONTROL.

4.6. SINGLE PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #18 AWG SOLID CONDUCTORS, TWISTED AND SHIELDED.

4.7. MULTI-PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #20 AWG SOLID CONDUCTOR, EACH PAIR NUMBERED, TWISTED WITH AN OVERALL SHIELD JACKET. THE INSULATION SHALL BE POLYVINYL CHLORIDE WITH POLYVINYL CHLORIDE JACKET FOR TEMPERATURES 105°C AND BELOW.

4.8. SINGLE PAIR INSTRUMENT WIRE (RED/BLACK) SHALL BE #16 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, TWISTED, SHIELDED, AND A POLYVINYL CHLORIDE OUTER JACKET.

4.9. MULTI-PAIR ELECTRONIC INSTRUMENT WIRE SHALL BE #18 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, EACH PAIR IDENTIFIED BY AN ACCEPTABLE METHOD PER IPCEA, TWISTED AND CABLED WITH AN OVERALL SHIELD AND POLYVINYL CHLORIDE OUTER JACKET.

4.10. ETHERNET COMMUNICATION SHOULD BE VIA CAT 6 CABLE FOR LESS THAN 100 METER OR FIBER OPTICS FOR LONGER DISTANCE.

4.11. THE CONTRACTOR SHALL FOLLOW THE CABLE TYPES AND SIZES AS LISTED ON THE ELECTRICAL CABLE SCHEDULE IN THE CONSTRUCTION DRAWINGS.

4.12. SPLICING OF CONDUCTORS SHALL NOT BE ALLOWED FOR INSTRUMENT WIRE AND CABLE.

4.13. CONTRACTOR SHALL LABEL EACH PAIR IN A MULTI-PAIR WIRE.

4.14. SHIELD AND/OR SHIELD DRAIN WIRE FOR ELECTRONIC INSTRUMENT AND THERMOCOUPLE CABLES SHALL BE CUT AND TAPED AT THE SENSING ELEMENT AND GROUNDED ONLY TO THE PLC PANEL GROUND AT A SINGLE POINT.

4.15. ANALOG AND DIGITAL SIGNAL WIRING SHALL BE IN SEPARATE CONDUITS AND RACEWAYS FROM THEMSELVES AND FROM POWER WIRING. CABLES FOR DC ALARM SIGNALS AND LOW ENERGY DC CONTROL MAY BE INSTALLED IN THE SAME CONDUIT OR TERMINAL BOX. THERMOCOUPLE EXTENSION WIRE SHALL NOT BE INSTALLED IN CONDUITS OR TERMINAL BOXES WITH OTHER SYSTEMS. TERMINAL BLOCKS SHALL BE USED IN LIEU OF SPLICES. NOTE THAT TERMINALS FOR THERMOCOUPLE EXTENSION WIRE SHOULD BE OF LIKE MATERIAL.

4.16. ALL CABLES ROUTED THROUGH CABLE TRAY SHALL BE TRAY CABLE (TC) RATED. CABLES ROUTED FROM TRAY TO EQUIPMENT WITHOUT A CONDUIT OR SUPPORT SHALL BE TRAY CABLE EXPOSED RUN (TC-ER) RATED.

[redacted]

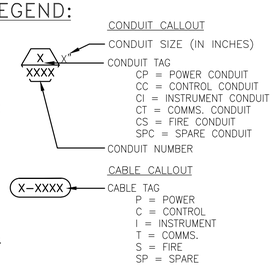
REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. PACIFIC GAS & ELECTRIC (PG&E) SERVICE EQUIPMENT UPSTREAM OF THE NEW PG&E TRANSFORMER IS UNKNOWN.
3. MOTOR STARTER PANELS [redacted] SHALL BE PROVIDED BY VENDOR [redacted]
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
5. MCC SHALL BE [redacted] IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
6. THE GLYCOL CHILLER SKID WILL CONSIST OF MULTIPLE MOTORS WITH ONE OVERALL PRIMARY FEED FROM THE MCC.
7. HVAC UNITS (BARD #W72A-C09XP4XXJ) ARE MOUNTED ON EXTERIOR WALL OF THE PDC, WITH LEAD/LAG CONTROLLER INSIDE THE PDC.
8. PG&E TRANSFORMER SIZE HAS BEEN PROVIDED BY PG&E. PG&E WILL SET TRANSFORMER ON PAD INSTALLED BY CONTRACTOR.
9. THE GENERATOR CABLE CONNECTION POINT TO THE GENERATOR CONNECTION PANEL CAN BE ACCESSED FROM THE EXTERIOR SIDE OF PDC.

LEGEND:



DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
6504715773-000100	[redacted] CONTROL CENTER (MCC) DRAWINGS
R1USG01856	[redacted] STARTER PANEL (MSP) DRAWINGS
50754	[redacted] COMPRESSOR PACKAGE DRAWINGS
33906-5039-D-ELC	MOTOR HANDSWITCH SCHEMATIC

[redacted]

PANEL

PANEL

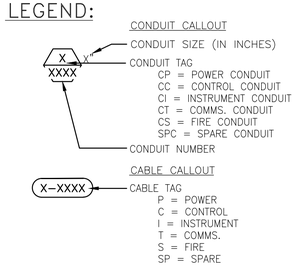
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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
6504715773-000100	[redacted] CONTROL CENTER (MCC) DRAWINGS
R1USG01856	[redacted] STARTER PANEL (MSP) DRAWINGS
50754	[redacted] COMPRESSOR PACKAGE DRAWINGS
33906-5017-D-ELC	LIGHTING WIRING SCHEMATIC

[redacted]

LEGEND:



NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEM SHOWN ON SEPARATE UPS ONE-LINE DIAGRAM, SEE DWG. 33906-5004-D-ELC.
3. MCC SHALL BE [redacted] IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
4. FOR [redacted] SCHEDULES SEE DWG. 33906-5005-D-ELEC.
5. [redacted] SHALL INCLUDE INTERNAL [redacted] MAIN BREAKER.

[redacted]

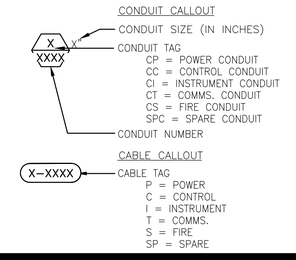
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
P-164000669	[redacted] USER'S GUIDE
P-164000628	[redacted] POWER MODULE (BPM) USER'S GUIDE

LEGEND:



[redacted]

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
D	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

MCC-01 LOAD SCHEDULE

[redacted]

PP-01 LOAD SCHEDULE

[redacted]

UPSP-01 LOAD SCHEDULE

(UPS DISTRIBUTION PANEL)

[redacted]

[redacted]

NOTES:

1. TRANSFORMER LOADING IS BASED ON PG&E TRANSFORMER SIZE OF 300kVA. THE LOADING INCLUDES THE OPERATION OF BOTH COMPRESSORS (CM-1200 AND CM-1300), AS THERE IS NO INTERLOCK PREVENTING THIS FROM HAPPENING.
2. THIS TRANSFORMER FUTURE LOADING PERCENTAGE OF 235% IS BASED ON THE ADDITION OF A 3RD COMPRESSOR AND 20% FUTURE LOAD. IF A 3RD COMPRESSOR OR ADDITIONAL LOADS ARE ADDED THE UTILITY MAY REPLACE THE PLANNED 300kVA TRANSFORMER. SECONDARY CONDUCTORS WILL NEED TO BE REVIEWED AT THAT TIME.
3. THE PG&E TRANSFORMER SIZE HAS BEEN PROVIDED BY PG&E. FINAL TRANSFORMER NAMEPLATE INFO TO BE PROVIDED BY PG&E PRIOR TO CONSTRUCTION.
4. THE TWO-POLE CIRCUIT (7/9) IN PANEL PP-01 FEEDING THE TEST VAN RECEPTACLE MUST BE GFCI PROTECTED.

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
6504715773-000100	[redacted]

[redacted]

[redacted]

GRAPHIC SCALE

1' 0 6" 1' 2' 4'

(IN FEET)
1"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5018-D-ELC	FIRE & GAS DETECTION PLAN
33906-5019-D-ELC	SECURITY SYSTEM AND CAMERA PLAN

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
	DUCT BANK
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]
5. [redacted]
6. BOLLARDS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL DRAWINGS FOR BOLLARD DETAILS AND LOCATIONS.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5040-D-ELC	ELECTRICAL DETAILS – HAZARDOUS AREA CLASSIFICATION

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA
- DUCT BANK

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).
8. ELECTRICAL VAULT MUST BE INSTALLED COMPLETELY OUTSIDE OF THE AREA CLASS BOUNDARIES.
9. THE GLYCOL CHILLER AND INSTRUMENT AIR COMPRESSOR INSTALLATIONS MUST BE OUTSIDE THE AREA CLASS BOUNDARIES AND BE A MINIMUM OF 15FT FROM ANY INSTALLED FLANGE.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

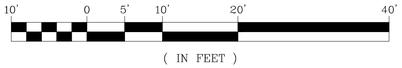
(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

GRAPHIC SCALE



(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT

N

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
51826	[redacted] POWER DISTRIBUTION CENTER (PDC) DRAWINGS
33906-5046-E-ELC	CONDUIT STUB-UP PLAN
33906-5047-E-ELC	PDC EXTERIOR CONDUIT INSTALL DETAILS
33906-5049-E-ELC	PDC EXTERIOR EQUIPMENT MOUNTING DETAILS

DRAWING LIMITS

[redacted]

CONTINUED ON AREA "B" DWG. 33906-5012-D-ELC

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5013-D-ELC

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS

[redacted]

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

DRAWING LIMITS

[redacted]

DRAWING LIMITS

CONTINUED ON AREA "A" DWG. 33906-5011-D-ELC

LEGEND:

- PG&E UTILITY OVERHEAD LINE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.

[redacted]

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
DS-04000-19	ENGINEERED AIR INC. INSTRUMENT AIR COMPRESSOR DRAWINGS
OPC9-A7 (50754)	[redacted] CHILLER DRAWINGS

[redacted]

DRAWING LIMITS

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. FOR CABLE AND CONDUIT INSTALLATION DETAILS SEE DRAWING 33906-5047-D-ELC.
6. BOLLARDS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL DRAWINGS FOR BOLLARD DETAILS AND LOCATIONS.

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
50754	[redacted] COMPRESSOR PACKAGE DRAWING
CAS-SEMPRA-REV-D2	CONSOLIDATED ANALYTICAL SYSTEMS (CAS) ANALYZER SHELTER

33906-5044-D-E

CONTINUED ON AREA "D" DWG. 33906-5013-D-ELC

[redacted]

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5013-D-ELC

LEGEND:

- PG&E UTILITY OVERHEAD LINE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG (X-XXXX)
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. SEE ANALYZER SHELTER VENDOR DRAWINGS FOR EXACT ROUTING TO INSTRUMENTATION. CURRENTLY ONLY SHOWING WIRING TO THE ANALYZER SHELTER JUNCTION BOXES SB-1 AND PB-1.
6. SEE COMPRESSOR VENDOR DRAWINGS FOR EXACT ROUTING TO INSTRUMENTATION.
7. FOR CABLE AND CONDUIT INSTALLATION DETAILS SEE DRAWING 33906-5047-D-ELC.
8. CONDUIT WILL BE ROUTED UNDERNEATH DUCT BANK.

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
51874	PIONEER POWER DISTRIBUTION CENTER (PDC) DRAWING
33906-5048-D-ELC	CABLE AND CONDUIT DROP INSTALL DETAILS
33906-5101-D-ELC TO 5142	CONTROLS PANEL [redacted] DRAWINGS
------	DET-TRONICS CONTROL PANEL [redacted] DRAWINGS
------	[redacted] CONTROL PANEL CP-400 DRAWINGS
R1USG01856	[redacted] MOTOR STARTER PANEL (MSP) DRAWINGS
A80-50-50754	[redacted] SITE INTERCONNECTION DRAWINGS
6504715773-000100	[redacted] MOTOR CONTROL CENTER (MCC) DRAWINGS

[redacted]

[redacted]

LEGEND:

CONDUIT GOING DOWN OR AWAY FROM OBSERVER

CABLE GLAND CONNECTION

CONDUIT CALLOUT

CONDUIT SIZE (IN INCHES)

CONDUIT TAG
- CP = POWER CONDUIT
- CC = CONTROL CONDUIT
- CI = INSTRUMENT CONDUIT
- CT = COMMS. CONDUIT
- CS = FIRE CONDUIT
- SPC = SPARE CONDUIT

CONDUIT NUMBER

CABLE CALLOUT

CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

GRAPHIC SCALE

2' 0 1' 2' 4'

(IN FEET)
3/4"=1'-0"

DRAWING LIMITS

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS/CABLES AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. CONTRACTOR IS RESPONSIBLE FOR CABLE AND CONDUIT ROUTING AND WIRING TO, FROM, AND WITHIN THE PDC. ALL WIRING THAT WILL BE BY OTHERS IS IDENTIFIED ON THE CONDUIT/CABLE SCHEDULE. CONTRACTOR WIRING WITHIN THE PDC WILL INCLUDE CABLE IN TRAY AND CABLE IN CONDUIT.
6. ALL CABLES UNLESS OTHERWISE SHOWN WILL EXIT PDC CABLE TRAY VIA ROXTEC CABLE GLANDS AND INTO PDC MOUNTED PULLBOX/CABLE CABINET BEFORE ENTERING UNDERGROUND DUCTBANK.
7. SEE CONDUIT & CABLE ROUTING AREA "A" 33906-5011-D-ELC FOR CONTINUATION.
8. CONDUIT LEAVING PDC SHALL BE SUPPORTED PER NEC REQUIREMENTS. SEE CONDUIT SUPPORT DETAILS ON DRAWING 33906-5047-D-ELC.
9. [redacted]
10. [redacted]
11. [redacted]
12. SEE PDC MANUFACTURER [redacted] CERTIFIED AS-BUILT DRAWINGS FOR REFERENCE.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5043-D-ELC	ELECTRICAL DETAILS – LIGHTING

[redacted]

PLANT

N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR AREA LIGHTING CONDUIT & CABLE ROUTING SEE CONDUIT & CABLE ROUTING PLANS DWG. 33906-5011-D-ELC THROUGH 33906-5015-D-ELC.
2. LIGHTING LEVELS SHOWN ONLY ACCOUNT FOR LIGHT POLES LP-01, 02, 03, 04, 05 AND DO NOT INCLUDE LIGHTING ON THE EXTERIOR OF PDC OR OTHER STRUCTURES LIGHTING.
3. FOR COMPLETE LIGHT POLES, FOOTING, AND FIXTURE INSTALLATION DETAILS SEE DRAWING 33906-5043-D-ELC.
4. [redacted]

BILL OF MATERIAL

QTY	DESCRIPTION
4	[redacted]
4	
4	
6	
6	
5	
5	

STATISTICS

DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
CALC ZONE #1	+	8.5 FC	28.0 FC	0.8 FC	35.0:1	10.6:1

SCHEDULE

SYMBOL	LABEL	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	NUMBER LAMPS	FILENAME	LUMENS PER LAMP	LIGHT LOSS FACTOR	WATTS PER LIGHT POLE
	LP-01 LP-04 LP-05	3	[redacted]			6	PSLED_PK4_XXXX_MLF_40K_50K,_UBV.ies	ABSOLUTE	0.94	308
	LP-02 LP-03	2				4	HPFM_4_4K_10A_65.ies	ABSOLUTE	1	330

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

LP-XX
LIGHT POLE MOUNTED FLOOD LIGHT
NON-HAZARDOUS AREA FIXTURE
120V, 154W, LED

LP-XX
LIGHT POLE MOUNTED FLOOD LIGHT
HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURE
120V, 165W, LED

NOTES:

1. FOR LIGHTING PHOTOMETRIC PLAN SEE DRAWING 33906-5016-D-ELC.
2. FOR LIGHTING ROUTING SEE CONDUIT AND CABLE PLAN DRAWING 33906-5011-D-ELEC THRU 33906-5015-D-ELC.
3. [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-4024-D-STR	LASER METHANE DETECTOR EQUIPMENT STAND

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

—— E ——	PG&E UTILITY OVERHEAD LINE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
F	FIRE DETECTOR
G	GAS DETECTOR
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. [redacted]
2. [redacted]
3. [redacted]

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5043-D-ELC	ELECTRICAL DETAILS – LIGHTING

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
	180° CCTV CAMERA ON POLE AT 18FT
	FIX DOME CAMERA ON POLE AT 18FT
NVR	NETWORK VIDEO RECORDER
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

TYPE	DESCRIPTION
AA	[redacted]
BA	
BB	
BC	
CB	
CC	
GA	
GB	
HB	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.

[redacted]

3. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

TYPE	DESCRIPTION
AA	[redacted]
BA	
BB	
BC	
CB	
CC	
GA	
GB	
HB	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	

[redacted]

TYPE	DESCRIPTION
A	RIGID STEEL GALVANIZED W/40MIL PVC COATING
B	RIGID STEEL GALVANIZED
C	PVC CONDUIT, SCHEDULE 40

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. [redacted]
3.
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	

[redacted]

CONDUIT LEGEND

TYPE	DESCRIPTION
A	RIGID STEEL GALVANIZED W/40MIL PVC COATING
B	RIGID STEEL GALVANIZED
C	PVC CONDUIT, SCHEDULE 40

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. [redacted]
3. [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	100	
4	15	
5	3	
6	4	
7	1	
8	4	
9	1	
10	AS REQ	
11	–	–
12	–	–

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			–
B	3"X1"				–
C	3"X1"				–
D	–				–
E	–	–	–	–	–

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND PER SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

CABLE CALLOUT

X-XXXX — CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR [redacted] JUNCTION BOX LAYOUT REFER TO DWG. 33906-5025-D-ELC.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	100	
4	15	
5	3	
6	4	
7	1	
8	4	
9	1	
10	AS REQ	
11	–	–
12	–	–

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			–
B	3"X1"				–
C	3"X1"				–
D	–				–
E	–	–	–	–	–

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND PER SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

CABLE CALLOUT

X-XXXX — CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR [redacted] JUNCTION BOX LAYOUT REFER TO DWG. 33906-5027-D-ELC.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR CONSTRUCTION	93365.0

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	2	
5	31	
6	14	
7	1	
8	2	
9	5	
10	12	
11	5	
12	1	
13	1	
14	1	
15	1	
16	1	
17	AS REQ	
18	1	
19	1	
20	3	
21	–	

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			
B	3"X1"				
C	3"X1"				
D	3"X1"				
E	–				

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

LEGEND:

PANEL WIRING

FIELD WIRING

TBAC-FXX — FUSED TERMINAL #

FUSE AMPERAGE — XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

CABLE CALLOUT

X-XXXX — CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

TBAC-FXX — FUSED TERMINAL #

XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

CABLE CALLOUT

X-XXXX — CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR [redacted] JUNCTION BOX LAYOUT REFER TO DWG. 33906-5029-D-ELC.
2. CABLE TO BE PROVIDED BY VENDOR.
3. SPARE CONDUCTOR ARE TO BE RESERVED FOR FOR FUTURE I/O.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- PG&E POWER POLE
- INSTRUMENT TAG

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. FOR SKID MOUNTED INSTRUMENTATION REFER TO SKID VENDOR CERTIFIED DRAWINGS.

GRAPHIC SCALE

0 8' 16' 32'

(IN FEET)
1/8"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
N/A	SB-1383 CATHODIC PROTECTION FOR COMPRESSOR FACILITIES FIGURES 1-4

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

[redacted]

PLANT N

LEGEND:

	CATHODIC PROTECTION SYSTEM CONDUIT
E	PG&E UTILITY OVERHEAD LINE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DWG 33906-5001-D-ELC.
2. SOCALGAS WILL PROVIDE ALL CATHODIC PROTECTION MATERIALS TO THE ELECTRICAL CONTRACTOR FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL INSTALL THE COMPLETE CATHODIC PROTECTION SYSTEM PER THIS DRAWING AND THE INCLUDED SOCALGAS SB 1383 – CATHODIC PROTECTION FOR COMPRESSOR FACILITIES, FIGURES 1-4. THE INSTALLATION SHALL INCLUDE ALL WIRING, CONDUIT, VAULTS, ANODES, SHUNT BOX, AND SHUNT BOX FOUNDATION.
4. THE CONTRACTOR SHALL PERFORM PIN BRAZING OF ALL CATHODIC PROTECTION SYSTEM WIRING TO THE PIPING.
5. THE SOCALGAS DISTRICT CP PERSONNEL ARE RESPONSIBLE FOR ALL WIRING CONNECTIONS AT THE SHUNT BOX.
6. ALL CATHODIC PROTECTION SYSTEM WIRING SHALL BE [redacted]
7. CATHODIC PROTECTION SYSTEM VAULT IS AN UNDERGROUND PULLBOX.
8. [redacted]
9. [redacted]

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5050-D-ELC	ELECTRICAL DETAILS – [redacted]
R1USG01856	[redacted] DRAWINGS
A80-50-50754	[redacted] SITE INTERCONNECTION DRAWINGS
33906-5002-D-ELC	ONE-LINE DIAGRAM

[redacted]

NOTES:

1. THE [redacted] CONTROL PANELS (CP-1200 & CP-1300) ARE LOCATED WITHIN THE COMPRESSOR PACKAGE ENCLOSURE.
2. SEE [redacted] MOTOR STARTER PANEL (MSP) DRAWINGS AND ANGI SITE INTERCONNECTION DRAWINGS FOR ADDITIONAL DETAIL.
3. SEE [redacted] REFERENCE MANUAL FOR ADDITIONAL WIRING AND DRIVE CONFIGURATION DETAILS.
4. [redacted]
5. [redacted]
6.
7.

[redacted]

NOTES:

1. THE [redacted] CONTROL PANELS (CP-1200 & CP-1300) ARE LOCATED WITHIN THE COMPRESSOR PACKAGE ENCLOSURE.
2. SEE [redacted] MOTOR STARTER PANEL (MSP) DRAWINGS AND ANGI SITE INTERCONNECTION DRAWINGS FOR ADDITIONAL DETAIL.
3. SEE [redacted] REFERENCE MANUAL FOR ADDITIONAL WIRING AND DRIVE CONFIGURATION DETAILS.

[redacted]

NOTES:

1. THE [redacted] CONTROL PANELS (CP-1200 & CP-1300) ARE LOCATED WITHIN THE COMPRESSOR PACKAGE ENCLOSURE.
2. SEE [redacted] DRAWINGS AND [redacted] DRAWINGS FOR ADDITIONAL DETAIL.
3. [redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

CABLE CALLOUT

X-XXXX — CABLE TAG
P = POWER
C = CONTROL
I = INSTRUMENT
T = COMMS.
S = FIRE
SP = SPARE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5008-D-ELC	HAZARDOUS AREA CLASSIFICATION PLAN

[redacted]

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5009-D-ELC	GROUNDING PLAN

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	AS REQ'D	
5	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
9. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
10. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
11. THE PDC MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
12. GROUNDING OF THE PG&E TRANSFORMER SHALL BE PROVIDED AND INSTALLED BY PG&E DURING TRANSFORMER INSTALLATION.
13. PG&E TRANSFORMER SHALL INCLUDE GROUND ROD INTO THE PADS SECONDARY WINDOW. GROUND WIRE SHALL BE A CONTINUOUS WIRE RUNNING FROM NEARBY GROUND ROD, UNDER PAD, TO PRIMARY WINDOW, THEN ABOVE PAD FROM PRIMARY WINDOW THROUGH SECONDARY WINDOW, TO SECONDARY WINDOW GROUND ROD.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5009-D-ELC	GROUNDING PLAN

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	1	
3	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	2	
3	2	
4	2	
5	1	

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
9. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
10. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
11. THE PDC MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
12. GROUNDING OF THE PG&E TRANSFORMER SHALL BE PROVIDED AND INSTALLED BY PG&E DURING TRANSFORMER INSTALLATION.
13. PG&E TRANSFORMER SHALL INCLUDE GROUND ROD INTO THE PADS SECONDARY WINDOW. GROUND WIRE SHALL BE A CONTINUOUS WIRE RUNNING FROM NEARBY GROUND ROD, UNDER PAD, TO PRIMARY WINDOW, THEN ABOVE PAD FROM PRIMARY WINDOW THROUGH SECONDARY WINDOW, TO SECONDARY WINDOW GROUND ROD.

[redacted]

REV	DATE	DRWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5047-D-ELC	DUCTBANK DETAIL

[redacted]

[redacted]

NOTES:

FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.

FOR ADDITIONAL DUCTBANK INSTALLATION REQUIREMENTS SEE DETAIL 4 AND ASSOCAITED NOTES ON DWG. 33906-5047-D-ELC.

UNDERGROUND CONDUIT RUNS GOING TO AND FROM THE ELECTRICAL VAULT SHALL BE INSTALLED WITH SLOPE OF 4 INCHES PER 100 FEET (1/3 PERCENT SLOPE) DOWN TOWARDS THE VAULT.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5047-D-ELC	DUCTBANK DETAIL

[redacted]

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. FOR ADDITIONAL DUCTBANK INSTALLATION REQUIREMENTS SEE DETAIL 4 AND ASSOCAITED NOTES ON DWG. 33906-5047-D-ELC.
3. UNDERGROUND CONDUIT RUNS GOING TO AND FROM THE ELECTRICAL VAULT SHALL BE INSTALLED WITH SLOPE OF 4 INCHES PER 100 FEET (1/3 PERCENT SLOPE) DOWN TOWARDS THE VAULT.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

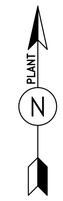
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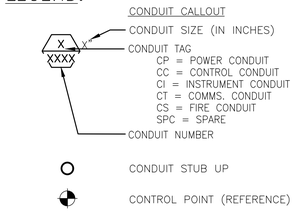
DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-4017-D-STR	PDC SHELTER – FOUNDATION PLAN, SECTIONS & DETAILS

[redacted]

[redacted]

LEGEND:





NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK.
2. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

[redacted]

GRAPHIC SCALE



(IN FEET)
1/2"=1'-0"

[redacted]

D	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001	
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA	

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	1	
4	2	
5	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	AS REQ'D	
5	AS REQ'D	
6	AS REQ'D	
7	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	AS REQ'D	
3	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	2	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
* CONDUIT		

[redacted]

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. THE MINIMUM 3" COVER OF CONCRETE ON TOP & SIDES OF CONDUITS SHALL BE MEASURED FROM THE INSIDE DIAMETER OF THE CONDUIT DUCT SPACER. CONDUIT SEPARATION OF 1" MINIMUM (HORIZONTAL & VERTICAL ROWS) SHALL BE ENSURED BY THE USE OF THE PROPER CONDUIT SPACER AS REQUIRED BY THE CATALOG NUMBER LISTED BELOW.

[redacted]

3. CONDUIT DUCT SECTIONS SHALL SHOW SPACER ARRANGEMENT. CONDUIT SHALL REST ON BOTTOM OF SPACERS.
4. #4/0 STRANDED BARE COPPER GROUND CABLE SHALL BE RUN ON TOP OF CONDUIT DUCT BANK
5. STEEL REINFORCING BARS SHALL BE INSTALLED IN ALL DUCTBANKS UNDER ALL ROADWAYS/PAVED AREAS AT A MINIMUM AND AS INDICATED ON PLAN DRAWINGS.

CONDUIT CLAMP SIZE CHART	
CONDUIT SIZE	CONDUIT CLAMP CAT#
[redacted]	

[redacted]

REV	DATE	DRWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5106-D-ELC	[redacted]
33906-5139-D-ELC	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	A/R	[redacted]
2	A/R	
3	A/R	
4	A/R	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	A/R	[redacted]
2	A/R	
3	A/R	
4	A/R	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	A/R	[redacted]
2	A/R	
3	A/R	
4	A/R	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	A/R	[redacted]
2	A/R	

[redacted]

NOTES:

1. CONTRACTOR IS TO FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE.
2. THIS DRAWING IS DIAGRAMMATIC AND DOES NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
3. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION.
4. CONTRACTOR TO VERIFY THAT ALL ABOVE GROUND CONDUITS ARE SUPPORTED AT INTERVALS NOT EXCEEDING 10FT. PER NEC ARTICLE 344.30B.
5. CONDUIT INSTALLATION DETAILS ARE GENERALIZED AND DO NOT EXACTLY REFLECT ANY ONE AREA. CONTRACTOR TO UTILIZE FEATURES OF THESE DETAILS AS REQUIRED WITH REFERENCE TO CONDUIT ROUTING PLAN DRAWINGS.
6. REFERENCE [redacted] FOR CONDUIT STUB-IN PENETRATIONS. SEE CONTROLS DRAWING 33906-5106-D-ELC AND 33906-5139-D-ELC.

CONDUIT GROUNDING BUSHING SIZE CHART	
CONDUIT SIZE	GROUNDING BUSHING CAT#
[redacted]	

CONDUIT CLAMP SIZE CHART	
CONDUIT SIZE	CONDUIT CLAMP CAT#
[redacted]	

MYERS HUB SIZE CHART	
CONDUIT SIZE	CONDUIT CLAMP CAT#
[redacted]	

CABLE GLAND SIZE CHART		
SIZE	O.D. RANGE	CONDUIT CLAMP CAT#
[redacted]		

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
51826	PIONEER POWER DISTRIBUTION CENTER (PDC) DRAWINGS

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	2	
6	2	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	2	
5	2	

NOTE:
1. INSTALLATION DETAIL IS TYPICAL FOR AMBER AND RED BEACONS

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
33906-5025-D-ELC	[redacted]
33906-5027-D-ELC	
33906-5029-D-ELC	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	AS REQ'D	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	3	
3	3	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	

[redacted]

NOTES:

1. REFERENCE JUNCTION BOX LAYOUTS DWG. 33906-5025-D-ELC, 33906-5027-D-ELC AND 33906-5029-D-ELC.
2. FOR POST FOOTING USE CONCRETE WITH A MINIMUM 3000 PSI 28 DAYS COMPRESSION STRENGTH.
3. FOR EXACT LOCATION OF STAND FOOTING SEE STRUCTURAL DWG. 33906-4036-D-STR.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	KRM	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:
1. CONDUIT SEALS ARE REQUIRED FOR ANY INSTRUMENT THAT IS NOT FACTORY SEALED OR EXPLOSION PROOF AND LISTED FOR INSTALLATION IN THE REQUIRED HAZARDOUS AREA CLASSIFICATION.

* ALL ITEMS AS IS OR APPROVED EQUAL

ITEM	DESCRIPTION	QTY
1	[redacted]	2
2		AS REQ'D
3		AS REQ'D
4		1
5		1
6		1
7		1

4 INSTRUMENT CONNECTION DETAIL
THIS DWG. SCALE: N.T.S.

[redacted]

NOTES:
1. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL DISCONNECT SWITCHES PER NEC ARTICLE 404. THE SWITCHES SHALL BE SUPPORTED/MOUNTED IN A LOCATION EASILY ACCESSIBLE TO THE OPERATOR.
2. CONDUIT SEALS ARE REQUIRED FOR ANY INSTRUMENT THAT IS NOT FACTORY SEALED OR EXPLOSION PROOF AND LISTED FOR INSTALLATION IN THE REQUIRED HAZARDOUS AREA CLASSIFICATION.

* ALL ITEMS AS IS OR APPROVED EQUAL

ITEM	DESCRIPTION	QTY
1	[redacted]	AS REQ'D
2		1
3		1
4		1
5		1
6		1

5 ELECTRONIC LEVEL SWITCH
THIS DWG. SCALE: N.T.S.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	CD	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	CD	JPC	SAD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	CD	JPC	SD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST

[redacted]

NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL DISCONNECT SWITCHES PER NEC ARTICLE 404. THE SWITCHES SHALL BE SUPPORTED/MOUNTED IN A LOCATION EASILY ACCESSIBLE TO THE OPERATOR.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	CD	JPC	SD	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

GROUNDING SYMBOLS

- GROUND WELL
- GROUND ROD
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND WIRE (SEE PLAN DWG FOR CONDUCTOR SIZE)
- GROUND BAR

LIGHTING SYMBOLS

- RECEPTACLE 120V
- 120V LIGHT SWITCH
- EMERGENCY LIGHTING UNIT
- FLOODLIGHT WALL MOUNTED
- FLOODLIGHT POLE MOUNTED
- S — FLUORESCENT FIXTURE NORMAL POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- R — FLUORESCENT FIXTURE EMERGENCY POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- (S) — LIGHTING FIXTURE (HPS or MERCURY VAPOR)
  - B = BRACKET OR WALL MOUNTED
  - C = CEILING MOUNTED
  - P = PENDANT MOUNTED
  - S = STANCHION MOUNTED
- EXIT LIGHT FIXTURE
- LP-01 — LIGHTING PANEL

POWER & CONTROL SYMBOLS

- PUSHBUTTON
- SELECTOR SWITCH
- WELDING RECEPTACLE
- JUNCTION BOX
- MOV — MOTOR OPERATED VALVE
- PP-01 — POWER OR DISTRIBUTION PANEL

COMMUNICATION & INSTRUMENTATION SYMBOLS

- HORN OR SPEAKER
- BELL
- BUZZER
- FIRE/GAS DETECTOR
- TELEPHONE OUTLET
- BEACON
- S — SOLENOID VALVE
- INSTRUMENT SYMBOL
- IP-01 — INSTRUMENT PANEL OR TELEPHONE CABINET
- INSTRUMENT CALLOUT

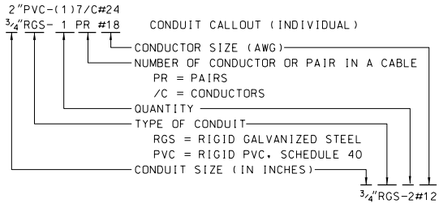
PT 101
- INSTRUMENT CODE – INSTRUMENT OR DEVICE. REFER TO PROCESS INSTRUMENT DIAGRAM FOR IDENTIFICATION AND NUMBER DESIGNATION
- INSTRUMENT NUMBER

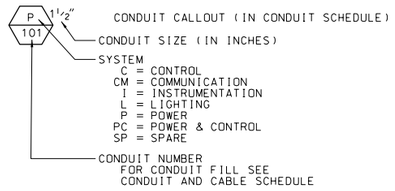
WIRE COLOR ABBREVIATION

B = BLACK
BL = BLUE
BR = BROWN
CL = CLEAR
G = GREEN
GR = GRAY
O = ORANGE
R = RED
V = VIOLET
W = WHITE
Y = YELLOW

CONDUIT FITTING SYMBOLS

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT





AREA CLASSIFICATION

- CLASS 1, DIV.1 HAZARDOUS AREA
- CLASS 1, DIV.2 HAZARDOUS AREA
- NON HAZARDOUS AREA

WIRE/CABLE LEGEND

TYPE	CALLOUT	MANUFACTURER	TRADE #	DESCRIPTION
GND	#2/0	HOUSTON	105020101	GROUND WIRE BARE COPPER STRANDED FOR GROUND GRID
GND	#2	HOUSTON	131000201	PVC/NYLON COPPER CONDUCTOR, GREEN INS, 600V RATED, TYPE THHN/THWN FOR EQUIPMENT & STRUCTURE GROUND
PWR	3#2	HOUSTON		PVC/NYLON COPPER COND., RED/BLACK/WHITE INSULATED, 600V RATED, TYPE THHN/THWN FOR UTILITY POWER TO DISTRIBUTION PANEL
PWR	3#10	HOUSTON		PVC/NYLON COPPER COND., BLACK/RED/GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR 220V AC FOR ANALYZER SHELTER A/C
PWR	2#10 & 1#12G	HOUSTON		PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR DISTRIBUTION PANEL TO UPS SYSTEM
PWR	2#12 & 1#14G	HOUSTON		PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN, UPS/NORMAL PWR, DISTRIBUTION PANEL TO EQUIPMENTS
24V DC	2#14	HOUSTON		PVC/NYLON COPPER COND., RED/BLACK INSULATED, 600V RATED, TYPE THHN/THWN, 24V DC POWER TO SOLENOIDS
INSTR AI/AO DI/DO	1PR#18	BELDEN	88760	TINNED COPPER, FEP INSULATED, TWISTED PAIR, 100% BELDFOIL ALUMINUM-POLYESTER SHIELD, 20AWG, STRANDED TINNED COPPER DRAIN WIRE, RED FEP JACKET, COLOR CODE: BLACK/RED
COMM	4#24	BELDEN	9927	TINNED COPPER, DATALENE INSULATED, MULTI CONDUCTOR, OVERALL BELDFOIL ALUMINUM-POLYESTER,+ 65% MINIMUM TINNED COPPERBRAID SHLD, 24AWG STRANDE TINNED COPPER DRAIN WIRE, CHROME PVC JACKET, COLOR CODE: RED/WHITE/BLACK/GREEN
TEL	6PR#22	BELDEN	8743	TINNED COPPER, PVC INSULATED, TWISTED PAIR, CHROME PVC JACKET, COLOR CODE:(1) B/R, (2) B/W, (3) B/G, (4) B/BL, (5) B/Y, (6) B/BR
CAT 6	4PR#24	BLACK BOX	EYN770A-RL	23AWG 4PR, PVC POLYOLEFIN(PF) FEP, LSOH/PVC JACKET ALUMINUM/MYLARDIELECTRIC TAPE COLOR CODE: (1) B/W, (2) R/W, (3) BL/W, (4) G/W

SINGLE LINE DIAGRAM SYMBOLS

- SINGLE LINE BUS
- SINGLE LINE FEEDER
- SINGLE LINE CONTROL CIRCUIT
- POWER TRANSFORMER
- GROUND SYMBOL
- POTENTIAL TRANSFORMER
- GROUND OR ZERO SEQUENCE
- CURRENT TRANSFORMER
- CIRCUIT BREAKER MOLDED CASE
- OIL OR VACUUM CIRCUIT BREAKER
- DRAWOUT OR PLUG IN TYPE
- DISCONNECT SWITCH
- FUSE
- THERMAL OVERLOAD DEVICE
- FUSED DISCONNECT SWITCH
- AUTOMATIC TRANSFER SWITCH
- BATTERY
- POTHEAD
- BUS DUCT
- OPEN CONTACT
- CLOSED CONTACT
- M — INDUCTION MOTOR
- DELTA WYE CONNECTION
- DELTA WYE CONNECTION W/GROUND
- DELTA WYE CONNECTION W/NEUTRAL
- DELTA CONNECTION
- WYE CONNECTION
- DIODE
- CAPACITOR
- INDUCTOR OR REACTOR
- CURRENT TRANSFORMER BUSHING TYPE
- K — KEY INTERLOCK

SCHEMATIC AND WIRING SYMBOLS

- SINGLE POLE SINGLE THROW SWITCH
- SINGLE POLE DOUBLE THROW SWITCH
- LIMIT SWITCH NORMALLY CLOSED HELD OPEN
- LIMIT SWITCH NORMALLY OPEN HELD CLOSED

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- LIMIT SWITCH NORMALLY CLOSED
- FLOW SWITCH CLOSES ON INCREASE
- FLOW SWITCH OPENS ON INCREASE
- LEVEL SWITCH CLOSES ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID INCREASE
- LEVEL SWITCH CLOSES ON LIQUID INCREASE
- PRESSURE SWITCH OPENS ON INCREASE
- PRESSURE SWITCH CLOSES ON INCREASE
- OFF DELAY RELAY NORMALLY OPEN SWITCH
- OFF DELAY RELAY NORMALLY CLOSED SWITCH
- ON DELAY RELAY NORMALLY OPEN SWITCH
- ON DELAY RELAY NORMALLY CLOSED SWITCH
- TEMPERATURE SWITCH CLOSES ON RISING TEMP.
- TEMPERATURE SWITCH CLOSES ON DROPPNG TEMP.
- NORMALLY OPEN CONTACT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- NORMALLY CLOSED CONTACT
- OPEN TORQUE SWITCH
- CLOSED TORQUE SWITCH
- VIBRATION SWITCH OPENS ON VIBRATION
- VIBRATION SWITCH CLOSES ON VIBRATION
- NORMALLY CLOSED MOMENTARY STOP PUSHBUTTON
- NORMALLY OPEN MOMENTARY START PUSHBUTTON
- LOCKOUT PUSHBUTTON
- SOLENOID COIL
- VOLTAGE SUPRESSOR
- R — ELECTRICAL RELAY OR COIL
- A — INDICATING LIGHT – A=AMBER, B=BLUE, C=CLEAR, G=GREEN, R=RED, W=WHITE, Y=YELLOW
- 2 POSITION SELECTOR SWITCH
- OFF / HAND / AUTO — HAND OFF AUTO SELECTOR SWITCH
- SPACE HEATER
- RESISTOR

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- RHEOSTAT
- 16A — CIRCUIT BREAKER RATING
- FUSE
- COIL SPARE WIRE
- MCC OR MOTOR STARTER TERMINAL BLOCKS
- RELAY TERMINAL BLOCKS
- PLC TERMINAL BLOCKS
- DEVICE TERMINAL BLOCKS
- SCADA, BRISTOL & OMNI TERMINAL BLOCKS
- 1 — TERMINAL BLOCKS

ELECTRICAL ABBREVIATIONS

A OR AMP	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONER
AF	AMPERAGE FRAME SIZE
AT	AMPERAGE TRIP RATING
AI	ANALOG INPUT
AO	ANALOG OUTPUT
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONTR	CONTROL
DC	DIRECT CURRENT
DISC SW	DISCONNECT SWITCH
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE, DOUBLE THROW
EMERG	EMERGENCY
FTG	FITTING
GND	GROUND
HOA	HAND-OFF-AUTO
HP	HORSE POWER
INSTR	INSTRUMENTATION
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
M OR MTR	MOTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PB	PUSHBUTTON
PH OR ø	PHASE
PNL	PANEL
PVC	POLYVINYLCHLORIDE OR RIGID (PVC) SCHED 40(CONDUIT)
PWR	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
S/D	SHUTDOWN
SPDT	SINGLE POLE, DOUBLE THROW
SPST	SINGLE POLE, SINGLE THROW
SEL	SELECTOR
S/S	START/STOP
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SW	SWITCH
TB	TERMINAL BLOCK
UPS	UNINTERRUPTIBLE POWER SUPPLY
W	WATTS
V	VOLTS
XFMR	TRANSFORMER

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
A	ST / JL		JAL		3-16-06	GENERAL REVISION

Southern California Gas Company
ENGINEERING & FIELD SUPPORT — LOS ANGELES

ELECTRICAL DESIGN STANDARDS SYMBOLS & ABBREVIATIONS

The Gas Company

G.W.O.	
DIST.	500
CLASS	21

SCALE: NONE
DRAWING NO.: 0501-D.STD
REV.: A

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

[redacted]

LEGEND

ETHERNET NETWORK OVER FIBER OPTIC CABLE (FX)	▷——▷	ETHERNET 10/100 BASE TX (TCP/IP)	– – – – – – –
MODBUS (COPPER)	◇——◇	FIELD WIRING	———
ETHERNET (MODBUS TCP/IP)	℄——℄	LON RING	– – – – – – –

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

ETHERNET NETWORK OVER FIBER OPTIC CABLE (FX)	——▷——▷——	ETHERNET 10/100 BASE TX (TCP/IP)	– – – – – – – –
MODBUS (COPPER)	——◇——◇——	FIELD WIRING	————————
ETHERNET (MODBUS TCP/IP)	——ℓ——ℓ——	LON RING	– – – – – – – –

NOTES:

1. TBD/CONFIRMED BY [redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

ETHERNET NETWORK OVER FIBER OPTIC CABLE (FX)	——▷——▷——	ETHERNET 10/100 BASE TX (TCP/IP)	– – – – – – –
MODBUS (COPPER)	——◇——◇——	FIELD WIRING	————————
ETHERNET (MODBUS TCP/IP)	——E——E——	LON RING	[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	2	
4	1	
5	1	
6	1	
7	1	

NAME PLATE SCHEDULE (NOTE 3)

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			
B	7"x3"				
C	5"x2"				
D	5"x2"				
E	5"x2"				

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA–70, N.E.C.), ALL STATE & LOCAL CODES, AND PER CLIENT SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL INSTALL ITEM #2 IN A 12.28" W X 8.58" H CUTOUT CENTERED IN LEFT DOOR, AT THE GIVEN ELEVATION.
5. ACTUAL LOCATION OF PANEL LIGHT DOOR SWITCH, ITEM #7, TO BE DETERMINED BY PANEL BUILDER.

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
63	2	
64	1	
65	2	
66	AS REQ	
67	1	
68	1	
69	1	
70	1	
71	1	
72	2	
73	2	
74	1	

NAME PLATE SCHEDULE (NOTE 3)

	ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE
	A	3"x1"	[redacted]		
	B	3"x1"			
	C	3"x1"			
	D	3"x1"			
	E	3"x1"			
	F	3"x1"			
	G	3"x1"			
	H	3"x1"			
	J	3"x1"			
	K	3"x1"			
	L	3"x1"			
(FUT.)	M	3"x1"			
	N	3"x1"			
	P	3"x1"			
(FUT.)	Q	3"x1"			
	R	3"x1"			
(FUT.)	S	3"x1"			
(FUT.)	T	3"x1"			
	U	3"x1"			
	V	3"x1"			
	W	3"x1"			
	Y	2"x2"			
	Z	–			
	AA	3"x2"			
	AB	3"x2"			
	AC	2"x1"			
	AD	2"x1"			
	AE	2"x1"			

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART3), LOCAL CODES, AND PER CLIENT SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PLAN.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. (ORIENTATION AS REQUIRED). ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.
6. REFER TO DETAILS ON DRAWINGS (33906-5108-D-ELC & 33906-5109-D-ELC) FOR AN ENLARGED VIEW OF TERMINAL BLOCK DISTRIBUTION STRIPS (TB-DC2, TB-P1, TB-UPS, TB-AC, TB-DC, TB-MB1, TB-R1, & TB-R2) AND CONTROL RELAYS (CR-B1, CR-SP1, & CR-SP2).
7. REFER TO NETWORK CONNECTION DIAGRAM, DRAWING #33906-5110-D-ELC FOR BOM ITEMS 67, 68, & 69.

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	
7	3	
8	1	
9	1	
10	2	
11	1	
12	5	
13	1	
14	2	
15	1	
16	7	
17	2	
18	65	
19	32	
20	11	
21	40	
22	10	
23	42	
24	1	
25	2	
26	1	
27	3	
28	3	
29	1	
30	1	
31	1	
32	1	
33	2	
34	2	
35	1	
36	1	
37	13	
38	30	
39	17	
40	54	
41	32	
42	32	
43	–	
44	5	
45	5	
46	3	
47	3	
48	3	
49	2	
50	2	
51	2	
52	2	
53	2	
54	2	
55	26	
56	6	
57	11	
58	3	
59	7	
60	3	
61	3	
62	1	

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
D	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. REFER TO DRAWING #33906-5107-D-ELC FOR BILL OF MATERIALS AND CONTROL PANEL LAYOUT ELEVATION.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

NOTES:

1. REFER TO DRAWING #33906-5107-D-ELC FOR BILL OF MATERIALS AND CONTROL PANEL LAYOUT ELEVATION.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NETWORK SWITCH	
PORT	[redacted]
1	
2	
3	
4	
5	
6	

NETWORK SWITCH	
PORT	[redacted]
1	
2	
3	
4	
5	
6	

LEGEND

ETHERNET NETWORK OVER FIBER OPTIC CABLE (FX)	▷——▷	ETHERNET 10/100 BASE TX (TCP/IP)	– – – – – –
MODBUS (COPPER)	◇——◇	FIELD WIRING	———
ETHERNET (MODBUS TCP/IP)	E——E	LON RING	– – L – L – L –
CABLE CALLOUT	XX		

NOTES:

1. FOR BILL OF MATERIALS (BOM) REFER TO DRAWING #33905-5107-D-ELC.
2. AN UNBALANCED NON-TWISTED CABLE IS RECOMMENDED FOR RS-232 PROTOCOLS

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

LEGEND

PANEL WIRING

FIELD WIRING

TERMINAL ON DEVICE

TERMINAL IN MCC

TERMINAL IN JUNCTION BOX

TERMINAL IN VFD

FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

NOTES

1. REFER TO ELECTRICAL DRAWING DWG# 33906-5026-D-ELC & 33906-5028-D-ELC FOR JUNCTION BOX DETAILS.

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC
- FUSE AMPERAGE — TBAC-FXX — FUSED TERMINAL #
- XA — FUSED TERMINAL
- NXX — FEED THRU TERMINAL
- G10 — GROUND TERMINAL

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

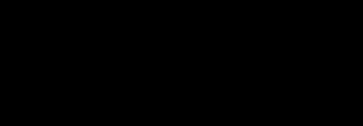
[redacted]

[redacted]

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- ⊘ TERMINAL ON DEVICE
- ⊠ TERMINAL IN MCC
- ⊘ TERMINAL IN JUNCTION BOX
- ⊘ TERMINAL IN VFD
- □ FEED THRU TERMINAL IN PLC



NOTES

1. REFER TO ELECTRICAL DRAWING DWG# 33906-5031-D-ELC FOR JUNCTION BOX DETAILS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

LEGEND

PANEL WIRING

FIELD WIRING

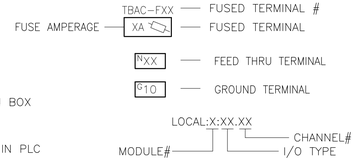
TERMINAL ON DEVICE

TERMINAL IN MCC

TERMINAL IN JUNCTION BOX

TERMINAL IN VFD

FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

———	PANEL WIRING
— — — — —	FIELD WIRING
⊘	TERMINAL ON DEVICE
⊠	TERMINAL IN MCC
⊠	TERMINAL IN JUNCTION BOX
⊠	TERMINAL IN VFD
□	FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA — TBAC–FXX — FUSED TERMINAL #, FUSED TERMINAL

NXX — FEED THRU TERMINAL

10 — GROUND TERMINAL

LOCAL:X:XX.XX — MODULE#, CHANNEL#, I/O TYPE

1. CR–16 AND CR–17 RELAYS ARE RESERVED FOR FUTURE I/O FROM CP–1500 AND CP–1600 COMPRESSORS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC
- XX — CABLE CALLOUT

TBAC-FXX — FUSED TERMINAL #

FUSE AMPERAGE — XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE# — CHANNEL#

I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

LEGEND

———	PANEL WIRING
— — — — —	FIELD WIRING
⊘	TERMINAL ON DEVICE
⊠	TERMINAL IN MCC
⊠	TERMINAL IN JUNCTION BOX
⊠	TERMINAL IN VFD
□	FEED THRU TERMINAL IN PLC
(XX)	CABLE CALLOUT

FUSE AMPERAGE — XA — TBAC-FXX — FUSED TERMINAL #; FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX — MODULE#; CHANNEL#; I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

———	PANEL WIRING
– – – – – –	FIELD WIRING
⊘	TERMINAL ON DEVICE
⊠	TERMINAL IN MCC
⊠	TERMINAL IN JUNCTION BOX
⊠	TERMINAL IN VFD
□	FEED THRU TERMINAL IN PLC
(XX)	CABLE CALLOUT

TBAC-FXX — FUSED TERMINAL #

FUSE AMPERAGE — XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE# — CHANNEL#

I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

LEGEND

PANEL WIRING

FIELD WIRING

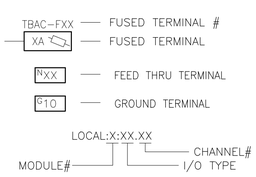
TERMINAL ON DEVICE

TERMINAL IN MCC

TERMINAL IN JUNCTION BOX

TERMINAL IN VFD

FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

24VDC DISTRIBUTION
(SEE DWG. #33906-5112-D-ELC)

[redacted]

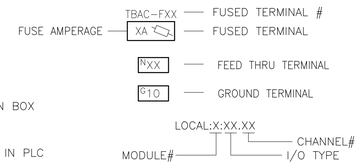
REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

24VDC DISTRIBUTION
(SEE DWG. #33906-5112-D-ELC)

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC



NOTES:

1. REFER TO ELECTRICAL DRAWING DWG# 33906-5026-D-ELC & 33906-5028-D-ELC FOR JUNCTION BOX DETAILS.

[redacted]

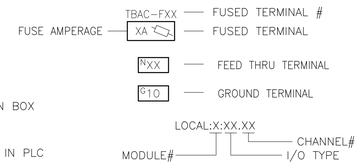
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	–	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

———	PANEL WIRING
— — — — —	FIELD WIRING
⊘	TERMINAL ON DEVICE
⊠	TERMINAL IN MCC
⊠	TERMINAL IN JUNCTION BOX
⊠	TERMINAL IN VFD
□	FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

LEGEND

- ⊘ TERMINAL ON DEVICE
- ⊠ TERMINAL IN MCC
- ⊠ TERMINAL IN JUNCTION BOX
- ⊠ TERMINAL IN VFD
- □ FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — TBAC-FXX — FUSED TERMINAL #
XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

PANEL WIRING
FIELD WIRING

LOCAL:X:XX.XX
MODULE#
CHANNEL#
I/O TYPE

NOTES

1. CR-5 AND CR-6 RELAYS ARE RESERVED FOR FUTURE I/O FROM CP-1500 AND CP-1600 COMPRESSORS.

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

- ☒ TERMINAL IN MCC
- ☒ TERMINAL IN JUNCTION BOX
- ☒ TERMINAL IN VFD
- ☒ FEED THRU TERMINAL IN PLC

TBAC-FXX — FUSED TERMINAL #

FUSE AMPERAGE — XA — FUSED TERMINAL

XX — FEED THRU TERMINAL

P10 — GROUND TERMINAL

PANEL WIRING

FIELD WIRING

LOCAL:X:XX.XX

CHANNEL#

MODULE#

I/O TYPE

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	–	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

LEGEND

———	PANEL WIRING
– – – – – –	FIELD WIRING
⊘	TERMINAL ON DEVICE
⊠	TERMINAL IN MCC
⊠	TERMINAL IN JUNCTION BOX
⊠	TERMINAL IN VFD
□	FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA — TBAC–FXX — FUSED TERMINAL #; FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX — MODULE#; I/O TYPE; CHANNEL#

NOTES

1. REFER TO ELECTRICAL DRAWING DWG# 33906–5026–D–ELC FOR JUNCTION BOX DETAILS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

LEGEND

PANEL WIRING

FIELD WIRING

TERMINAL ON DEVICE

TERMINAL IN MCC

TERMINAL IN JUNCTION BOX

TERMINAL IN VFD

FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

FUSED TERMINAL

NXX — FEED THRU TERMINAL

G-10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE#

I/O TYPE

CHANNEL#

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. CONTRACTOR TO INSTALL JUMPER TO TERMINAL J1-1 AND J1-2 TO TIE V COM TO RTN.
2. REFER TO ELECTRICAL DRAWING DWG# 33906-5026-D-ELC FOR JUNCTION BOX DETAILS.

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA — TBAC-FXX — FUSED TERMINAL #; FUSED TERMINAL

NXX — FEED THRU TERMINAL

G:10 — GROUND TERMINAL

LOCAL:X:XX.XX — MODULE#; CHANNEL#; I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

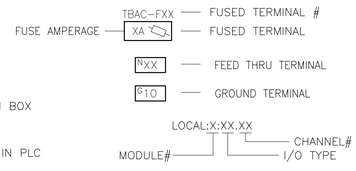
[redacted]

NOTES:

1. REFER TO ELECTRICAL DRAWING DWG. #33906-5028-D-ELC FOR JUNCTION BOX DETAILS.

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

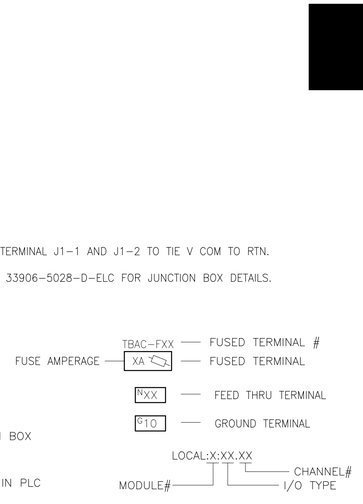
[redacted]

NOTES:

1. CONTRACTOR TO INSTALL JUMPER TO TERMINAL J1-1 AND J1-2 TO TIE V COM TO RTN.
2. REFER TO ELECTRICAL DRAWING DWG# 33906-5028-D-ELC FOR JUNCTION BOX DETAILS.

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

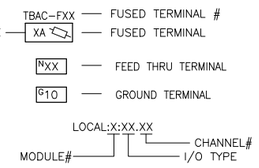
[redacted]

NOTES:

1. REFER TO ELECTRICAL DRAWING DWG# 33905-5028-D-ELC FOR JUNCTION BOX DETAILS.

LEGEND

- PANEL WIRING
- FIELD WIRING
- ⊘ TERMINAL ON DEVICE
- ⊠ TERMINAL IN MCC
- ⊠ TERMINAL IN JUNCTION BOX
- ⊠ TERMINAL IN VFD
- □ FEED THRU TERMINAL IN PLC



[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

CONTINUATION TO SEE DWG 33906-5132-D-ELC

LEGEND

- PANEL WIRING
- FIELD WIRING
- ⊘ TERMINAL ON DEVICE
- ⊠ TERMINAL IN MCC
- ◪ TERMINAL IN JUNCTION BOX
- ◪ TERMINAL IN VFD
- □ FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE# — CHANNEL#

I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

[redacted]

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE#

CHANNEL#

I/O TYPE

[redacted]

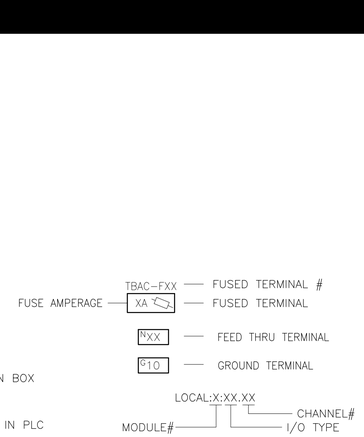
REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	–	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- TERMINAL ON DEVICE
- TERMINAL IN MCC
- TERMINAL IN JUNCTION BOX
- TERMINAL IN VFD
- FEED THRU TERMINAL IN PLC



NOTES:

1. REFER TO ELECTRICAL DRAWING DWG# 33906-5028-D-ELC FOR JUNCTION BOX DETAILS.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

LEGEND

- PANEL WIRING
- FIELD WIRING
- ⊘ TERMINAL ON DEVICE
- ⊠ TERMINAL IN MCC
- ⊘ TERMINAL IN JUNCTION BOX
- ⊘ TERMINAL IN VFD
- □ FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G-10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE# — CHANNEL#

I/O TYPE

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

LEGEND

PANEL WIRING

FIELD WIRING

TERMINAL ON DEVICE

TERMINAL IN MCC

TERMINAL IN JUNCTION BOX

TERMINAL IN VFD

FEED THRU TERMINAL IN PLC

FUSE AMPERAGE — XA

TBAC-FXX — FUSED TERMINAL #

FUSED TERMINAL

NXX — FEED THRU TERMINAL

S10 — GROUND TERMINAL

LOCAL:X:XX.XX

MODULE#

CHANNEL#

I/O TYPE

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NO.	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
CAS-SEMPRA-REV-D2	CONSOLIDATED ANALYTICAL SYSTEMS – ANALYZER SHELTER DRAWINGS

NAME PLATE SCHEDULE (NOTE 3)

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]	[redacted]	–	–
B	7"x3"	CAUTION	ONLY AUTHORIZED AND	QUALIFIED ELECTRICIANS	SHALL OPEN PANEL
C	5"x2"	[redacted]	–	–	–
D	5"x2"		–	–	–
E	5"x2"	WARNING	FOREIGN VOLTAGE	–	–

NOTES:

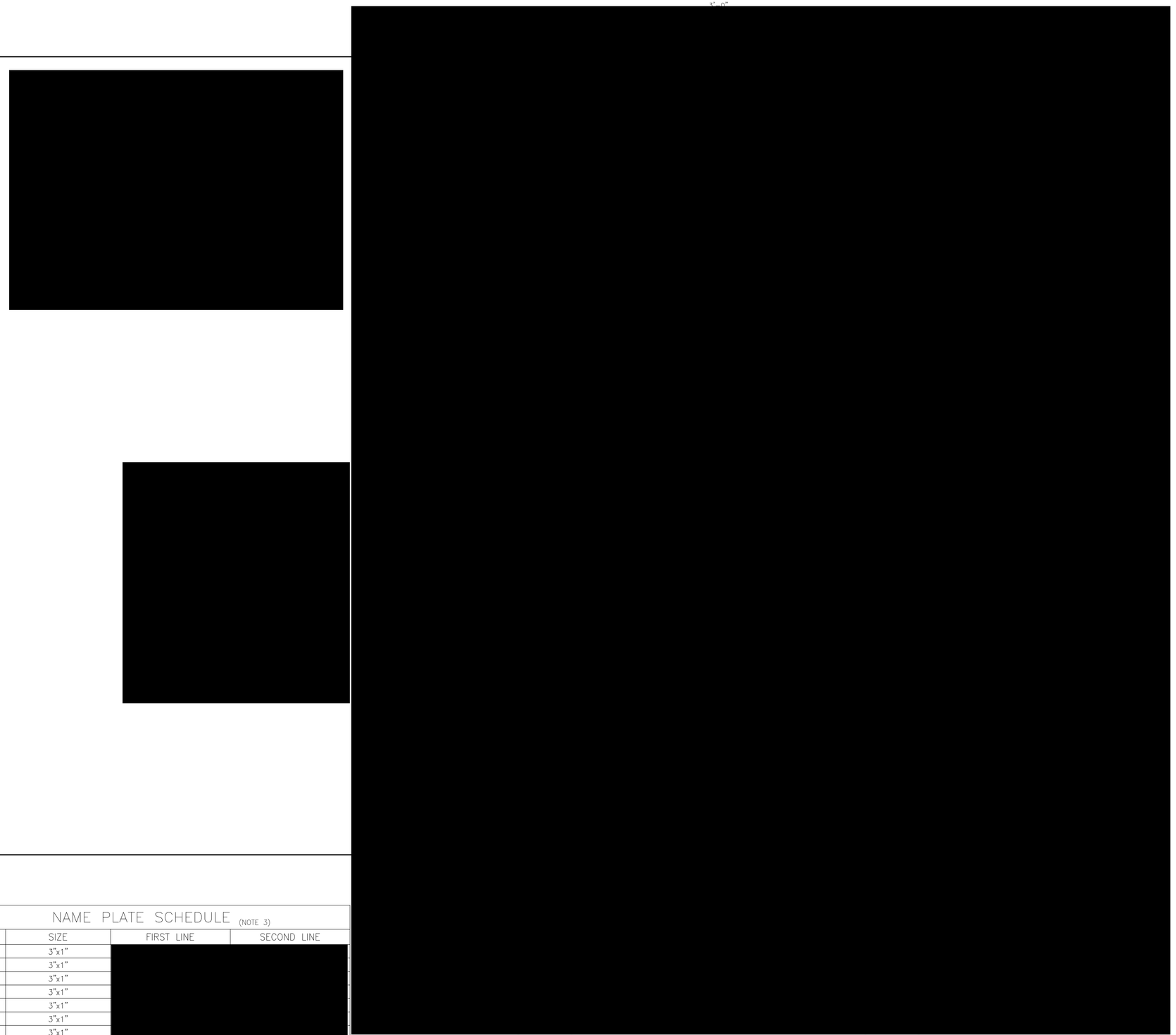
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA-70, N.E.C.), ALL STATE & LOCAL CODES, AND PER CLIENT SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL INSTALL THE OIT (ITEM #5) IN A 9.25" W X 7.07" H CUTOUT CENTERED IN LEFT DOOR, AT THE GIVEN ELEVATION.
5. CONTRACTOR TO INSTALL EXHAUST VENTS (ITEMS #36) IN A 7.16"W X 7.6"H CUTOUT AT THE GIVEN DIMENSIONS.
6. REFER TO DRAWING 33906-5140-D-ELC FOR BILL OF MATERIALS.

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	05/08/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]



DRAWING NO.	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
CAS-SEMPRA-REV-D2	CONSOLIDATED ANALYTICAL SYSTEMS – ANALYZER SHELTER DRAWINGS

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART3), LOCAL CODES, AND PER CLIENT SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PLAN.
5. DRAWING CREATED FROM SCG SAMPLE DRAWING #5009-D-ELC.
6. LOCATION OF ANTENNA IS TO BE GIVEN BY SO CAL GAS IT DEPARTMENT.

BILL OF MATERIAL

	ITEM	QTY.	DESCRIPTION
	1	1	
	2	1	
	3	–	
	4	1	
	5	1	
	6	1	
	7	1	
	8	1	
	9	1	
*	10	2	
*	11	2	
*	12	2	
	13	–	
	14	1	
	15	1	
	16	1	
	17	12	
	18	7	
	19	10	
	20	1	
	21	3	
	22	4	
	23	22	
	24	16	
	25	12	
	26	118	
	27	35	
	28	5	
	29	11	
	30	24	
	31	AS REQ'D	
	32	6	
	33	1	
	34	1	
	35	–	–
	36	2	
	37	1	
	38	1	
	39	1	
*	40	2	
	41	–	
	42	3	
	43	1	
	44	1	
	45	1	
	46	1	
	47	1	
	48	–	
	49	16	
	50	22	
	51	12	

* DENOTES ITEMS TO BE SUPPLIED BY SO. CAL. GAS.

NAME PLATE SCHEDULE (NOTE 3)

ITEM	SIZE	FIRST LINE	SECOND LINE
A	3"x1"		
B	3"x1"		
C	3"x1"		
D	3"x1"		
E	3"x1"		
F	3"x1"		
G	3"x1"		
H	3"x1"		
J	3"x1"		
K	3"x1"		
L	3"x1"		
M	3"x1"		
N	3"x1"		
P	3"x1"		

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

DRAWING NO.	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
CAS-SEMPRA-REV-D2	CONSOLIDATED ANALYTICAL SYSTEMS – ANALYZER SHELTER DRAWINGS

NOTES:

TYPICAL DIP SWITCHES AND JUMPERS FOR THE FOLLOWING:

LEGEND: DIP SWITCHES



JUMPERS



1. SCADAPACK 32

DIP SWITCHES JUMPERS

[redacted]

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART3), LOCAL CODES, AND PER CLIENT SPECIFICATIONS.
2. DRAWING CREATED FROM SCG SAMPLE DRAWING #5007-D-ELC.

LEGEND

PANEL WIRING

FIELD WIRING

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

DRAWING NO.	REFERENCE DRAWING DESCRIPTION
33906-1001-D-PIP	DRAWING LIST
CAS-SEMPRA-REV-D2	CONSOLIDATED ANALYTICAL SYSTEMS – ANALYZER SHELTER DRAWINGS

[redacted]

LEGEND

WIRE COLOR

B = BLACK
BL = BLUE
CL = CLEAR
G = GREEN
GR = GRAY
O = ORANGE
R = RED
W = WHITE
Y = YELLOW

———— PANEL WIRING

— — — FIELD WIRING

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND PER CLIENT SPECIFICATION.
2. DRAWING CREATED FROM SCG SAMPLE DRAWING #5007-D-ELC.
3. [redacted]
4. [redacted]
5. [redacted]

TO FIELD INSTRUMENTS, SEE GAS ANALYZER SHELTER DRAWINGS

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
		JTC	CD	DRL		E18037		93365.001

[redacted]

[redacted]

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
				PIPE			
1	7			[redacted]			
2	1						
3	1						
* 4	* *						
* 5	1						
* 6	1						
7	1						
8	1						
9	2						
10	1						
11	1						
12	1						
13	1						
14	1						
15	2						
16	1						
17	1						

* ORDER FROM PREFERRED SWAGELOK SUPPLIER SUCH AS ORANGE VALVE & FITTING OR VENTURA VALVE & FITTING.

* * QUANTITY AS REQUIRED

NOTE:
PRIOR TO INSTALLING IN THE FIELD:
SHIP TO EAC FOR VERIFICATION
AND MODIFICATIONS OF DYNAPAK.

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

[redacted]

ITEM	QTY	SIZE	MATERIAL DESCRIPTION	STOCK #
1	AS REQ	[redacted]		
2	12			
3	4			
4	1			
5	4			
6	2			
7	2			
8	1			
9	2			
10	8'			
11	1			
12	1			

NOTES:

1. SUPPORT REGULATOR FROM PLATE, POST MOUNT PLATE. FOR POST FOOTING USE CONCRETE WITH A MINIMUM 4000 PSI 28 DAYS COMPRESSION STRENGTH.
2. ONCE POST IS SET IN CONCRETE AND CURED, WIRE BRUSH THE STEEL TO REMOVE SURFACE RUST,WIPE DOWN WITH COTTON RAGS. COMPLETE THE INSTALLATION OF SUPPORTED COMPONENTS, PAINT THE POST WITH ZERO RUST SPRAY (STOC CODE N3081.37). APPLY THIS GRAY PRIMER TO ANY BARE METAL THAT NEED PROTECTION. TAPE OFF OR SHIELD OTHER PORTIONS THAT WOULD BE HARMED BY OVER SPRAY.
3. HYLOCK FITTINGS MAY BE SUBSTITUED FOR SWAGELOCK FITTING. HOWEVER, FITTINGS ARE NOT INTERCHANGEABLE, THEY MUST BE CONSISTANT.
4. PROVIDE A 3.5 FEET COILED ITEM 12 (1/8" TUBING) ATTACHED TO THE OUTLET OF ITEM 18 (METERING VALVE).
5. REFERENCE STRUCTURAL DRAWING 33906-4036-D-STR.

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

NOTES:

1. SUPPORT REGULATORS FROM PLATE. POST MOUNT PLATE. FOR POST FOOTING USE CONCRETE WITH A MINIMUM 4000 PSI 28 DAY COMPRESSION STRENGTH.
2. ONCE POST IS SET IN CONCRETE AND CURED, WIRE BRUSH THE STEEL TO REMOVE SURFACE RUST. WIPE DOWN WITH COTTON RAGS. COMPLETE THE INSTALLATION OF SUPPORTED COMPONENTS. PAINT THE POST WITH ZERO
3. RUST SPRAY (STOCK CODE N308137). APPLY THIS GRAY PRIMER TO ANY BARE METAL THAT NEED PROTECTION. TAPE OFF OR SHIELD OTHER PORTIONS THAT WOULD BE HARMED BY OVERSPRAY.
4. COMPRESSION COUPLING TO ALLOW INSTALLATION OF TUBING UNION.
5. SEE STRUCTURAL DRAWING ND-33906-4036-D-STR FOR LOCATION OF PANEL FOOTING.

* ORDER FROM PREFERED SWAGELOK SUPPLIER SUCH AS ORANGE VALVE & FITTING OR VENTURA VALVE & FITTING.

** QUANTITY AS REQUIRED

*** ORDER PROBE LENGTH TO ACCOMODATE DEPTH OF PIPE PLUS 2'-5" PIPE

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
1	7'	[redacted]					
2	1						
3	2						
4	3						
5	4						
6	2						
7	1						
8	**						
9	5						
10	1						
11	**						
12	1						
13	1						
14	3						
15	1						
16	1						
17	1						
18	1						
18A	1						
19	**						
20	1'						
21	2						
22	**						
23	2						
24	2						
25	2						
26	1						

[redacted]

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
1	4						
2	3						
3	2						
4	11						
5	2						
6	**						
7	4						
8	5						
9	1						
10	1						
11	1						

[redacted]

[redacted]

[redacted]

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
1	4						
2	3						
3	2						
4	11						
5	2						
6	**						
7	4						
8	5						
9	1						
10	1						
11	1						

[redacted]

** QUANTITY AS NEEDED

[redacted]

[redacted]

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
1	4						
2	3						
3	2						
4	11						
5	2						
6	1						
7	**						
8	**						
9	4						
10	1						
11	1						
11A	1						
11B	1						
11C	2						
11D	2						
12	5						
13	1						
14	1						
15	1						
16	2						
17	3						
18	2						
19	2						
20	8						
21	**						
22	3						
23	3						
24	**						
25	4						
26	3						
27	4						

(THE QUANTITY OF MATERIAL ON THIS SHEET IS FOR ODORANT SUPPLY & INJECTION ONLY)

** QUANTITY AS NEEDED

NOTES:

1. COMPRESSION COUPLING TO ALLOW INSTALLATION OF TUBING UNION.
2. REGULATOR STAND LOCATED ON ODORANT SKID FOUNDATION.

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA

[redacted]

ITEM NO	QUAN.	SIZE	SCH OR RATING	MATERIAL DESCRIPTION	DESIGN PRESS.	TEST PRESS.	STOCK CODE
				SCREWED FITTINGS			
1	1	[redacted]					
2	**						
3	2						
4	6						
5	6						
6	12						

** QUANTITY AS NEEDED

LEGEND:

GALVANIZED INSTRUMENT AIR

CONDENSATE DRAIN LINE

NOTES:

1. SEE DWG. 33906-2011-D-PID.
2. SKID DRAWING IS BASED UPON INFORMATION OBTAINED FROM ENGINEERED AIR, INC., DWG. NO. EAS-2020-01.

ISSUED FOR CONSTRUCTION
08/05/20

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	LG	TCS	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

1.0 SCOPE

1.1 THIS SPECIFICATION COVERS THE INSTALLATION OF FIELD MOUNTED INSTRUMENTATION SYSTEMS THAT ARE NOT AN INTEGRAL PART OF A PIPING SYSTEM.

1.2 CONTROL SYSTEMS INSTALLATION INCLUDES:

1.2.1 ALL INSTRUMENT PROCESS AND PIPING COMPONENTS USED TO CONNECT INSTRUMENTS TO OTHER PIPING OR EQUIPMENT.

1.2.2 ALL INSTRUMENT AIR LINES, EXCEPT THE MAIN INSTRUMENT AIR HEADER AND ITS VALVED CONNECTIONS.

1.2.3 SUPPORT FOR INSTRUMENTS, TUBING, ETC.

2.0 EXCLUDED INSTRUMENTS

2.1 THE FOLLOWING INSTRUMENTS ARE EXCLUDED FROM THIS SPECIFICATION AND ARE COVERED BY THE GAS CO. STANDARD DRAWINGS AND/OR PROJECT PIPING PLANS.

FLOW METER RUNS

CONTROL VALVES - PROCESS PIPING ONLY

LIQUID LEVEL CONTROLLERS, LEVEL GAUGES AND LEVEL ALARMS

RELIEF VALVES

STEAM TRAPS AND DRIP POTS

RUPTURE DISKS

ROTAMETERS

3.0 CODES

3.1 ANSI/ASME CODE FOR PRESSURE PIPING, ANSI/ASME B31.8, LATEST EDITION "GAS PLANT FACILITIES".

4.0 ROUTING OF INSTRUMENT PIPING

4.1 INSTRUMENT PIPING SHALL GENERALLY BE ROUTED THROUGH PIPEWAYS AND AREAS PROVIDED FOR THE ROUTING OF PLANT PIPING, AND SHALL BE SUCH AS TO PROTECT THE PIPING FROM DAMAGE DURING PLANT OPERATION AND MAINTENANCE.

4.2 INSTRUMENT PIPING SHALL BE SUPPORTED FROM PIPE SUPPORTS OR ANY OTHER PERMANENT STRUCTURE, EXCEPT AS FOLLOWS:
INSTRUMENT PIPING MAY BE SUPPORTED FROM UNINSULATED PIPES OPERATING BETWEEN 40 DEGREES F AND 125 DEGREES F PROVIDED NO OTHER PRACTICAL WAY IS AVAILABLE. INSTRUMENT PIPING SUPPORTS SHALL NOT BE WELDED TO ANY PIPE OR MECHANICAL EQUIPMENT.

4.3 INSTRUMENT PIPING SUPPORTS SHALL BE SUFFICIENT TO MAINTAIN THE PIPING IN A NEAT MANNER, AT INTERVALS NOT EXCEEDING FIVE (5) FEET FOR HORIZONTAL RUNS AND SEVEN (7) FEET FOR VERTICAL RUNS.

4.4 TUBING SHALL BE GANGED VERTICALLY RATHER THAN HORIZONTALLY TO AVOID COLLECTION OF DIRT, CORROSIVES AND CONTAMINANTS.

4.5 INSTRUMENT PIPING SHALL BE ROUTED IN A MANNER THAT WILL NOT BLOCK ACCESSWAYS, VALVE HANDWHEELS, SAFETY EQUIPMENT, ETC.

5.0 TUBING AND TUBING FITTING INSTALLATION

5.1 ALL TUBING BENDS MUST BE PERFORMED WITH A HAND OR PRODUCTION BENDER, WITH THE PROPER MANDREL, TO PREVENT KINKING OR FLATTENING OF BEND RADIUS.

5.2 DO NOT ATTEMPT TO USE A BENDING RADIUS LESSER THAN THAT DICTATED BY THE WALL THICKNESS, BENDER OR TUBING MANUFACTURER FOR ANY GIVEN TUBING O.D.

5.3 TUBING CUTS SHALL BE MADE WITH A TUBING CUTTER AND ALL INSIDE EDGES CLEANED WITH A DEBURRING TOOL.

5.4 ALL STAINLESS TUBING SHALL NOT EXCEED A HARDNESS OF 80 HRB IN ORDER TO ATTAIN GOOD SEAL BETWEEN THE TUBE AND TUBING FITTING.

5.5 USE THE MANUFACTURER'S GAP INSPECTION GAUGE TO INSURE PROPER PULL-UP OF TUBING FITTING.

5.6 DO NOT INTERCHANGE TUBING FITTING COMPONENTS FROM DIFFERENT MANUFACTURER'S TUBE FITTINGS.

5.7 MINIMIZE TUBING LENGTH AND WHEN POSSIBLE CLOSE-COUPLE INSTRUMENT AT THE PRIMARY VALVE.

6.0 THREAD SEALERS

6.1 USE MANUFACTURERS RECOMMENDED THREAD SEALANT FOR ALL THREADED CONNECTIONS AS A SEALANT AND ANTI-SEIZE LUBRICANT.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/2020	JTC	CD	DRL	HG	E18037	ISSUED FOR CONSTRUCTION	93365.00

(1)PROJECT MANAGER/PLANNER: _____ INT:___

(2)FIELD INSPECTOR: _____ INT:___

(1)(2)PREPARED BY: _____ INT:___

DEPT HEAD/SUPERVISOR REVIEW: _____ INT:___

STRENGTH TEST ASSEMBLIES AND SUPPORTING DOCUMENTATION

REQUIREMENTS OF CFR TITLE 49, PART 192, SUBPART J, 192.517 RECORDS
PLEASE PRINT NEATLY : RECORD LOG MUST BE LEGIBLE AND COMPLETELY FILLED
DO NOT TRANSFER HANDWRITTEN INFORMATION TO CAD : THIS IS AN OFFICIAL HANDWRITTEN DOCUMENT THAT WILL BE SCANNED AND ARCHIVED

STRENGTH TEST RECORD LOG

STRENGTH TEST SUPPORTING DOCUMENTATION						STRENGTH TEST RESULTS TEST CHART INFORMATION								EMPLOYEE NAME SUPPORTING DOCUMENTATION				TEST COMPANY SUPPORTING DOCUMENTATION				ELEVATION VARIATIONS SUPPORTING DOCUMENTATION						LEAKS AND FAILURES SUPPORTING DOCUMENTATION			
(2)	(2)	(1)		(2)	(1)	(2)	(1)		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)		(2)	(2)	(1)		(2)	(2)	(2)	(2)	(1)		(2)		(1)	
TEST NUMBER*	DDS FILENAME* (ONE PER TIE-IN LOCATION)	PDMS DOC ID	PG	HYDRO/STRENGTH TEST LOG DESCRIPTION*	PDMS DOC ID PG	TEST CHART LOCATION* (AS NOTED IN THE LOCATION FIELD ON THE CHART STAMP)	PDMS DOC ID	PG	LOWEST PRESSURE (RECORDED WITHIN TEST DURATION)	TEST DATE	TEST DATE	TEST DURATION	SPIKE TEST PRESSURE	SPIKE TEST DURATION	NAME OF COMPANY EMPLOYEE/REPRESENTATIVE RESPONSIBLE FOR TESTING	DOC TYPE	PDMS DOC ID	PG	NAME OF TEST COMPANY (ANY TEST COMPANY USED)	DOC TYPE	PDMS DOC ID	PG	HIGHEST ELEVATION	LOWEST ELEVATION	RECORDING GAUGE ELEVATION	DOC TYPE	PDMS DOC ID	PG	LEAKS AND FAILURES NOTED AND THEIR DISPOSITION	DOC TYPE	PDMS DOC ID	PG
									[redacted]																						

*** INDICATE THE TEST NUMBER ON THIS DRAWING, THE DDS, THE TEST CHART, AND THE HYDROTEST LOG (IF APPLICABLE) FOR EACH ASSEMBLY INCLUDED IN THE STRENGTH TEST.**

[redacted]

(a) Each operator shall make, and retain for the useful life of the pipeline, a record of each test performed under 192.505 and 192.507. The record must contain at least the following information:
(1) The operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used.
(2) Test medium used.
(3) Test pressure.
(4) Test duration.
(5) Pressure recording charts, or other record of pressure readings.
(6) Elevation variations, whenever significant for the particular test.
(7) Leaks and failures noted and their disposition.

SUPPORTING DOCUMENT REQUIREMENT

NOTES:
ADD ONE OF THE REQUIRED DOC TYPES TO THE STRENGTH TEST RECORD LOG ABOVE

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES. SUPPORTING DOCUMENTS	DOC TYPE	EMPLOYEES	COMPANY	ELEVATION	LEAKS
DESIGN DATA SHEET	[redacted]				
HYDRO/STRENGTH TEST LOG					
TEST CHART					
STRENGTH TEST PROCEDURE					
DAILY INSPECTOR'S REPORT					
EMERGENCY INCIDENT REPORT					
CPUC/DOT REPORT					

NOTES

1.PLEASE PRINT NEATLY;THIS IS AN OFFICIAL DOCUMENT THAT WILL BE SCANNED AND ARCHIVED
2.RECORD LOG MUST BE COMPLETELY FILLED IN.
3.THE TEST NUMBER MUST BE UNIQUE.
4."DDS FILENAME" LOCATED AT THE BOTTOM RIGHT CORNER OF THE DDS.
5.THE "PDMS DOC ID" IS THE DOCUMENT IDENTIFICATION NUMBER IN THE PIPELINE DOCUMENT MANAGEMENT SYSTEM (PDMS)

DO NOT TRANSFER HANDWRITTEN INFORMATION TO CAD; THIS IS AN OFFICIAL HANDWRITTEN DOCUMENT THAT WILL BE SCANNED AND ARCHIVED

ISSUED FOR CONSTRUCTION

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

[redacted]

(1)PROJECT MANAGER/PLANNER: _____ INT:___

(2)FIELD INSPECTOR: _____ INT:___

(1)(2)PREPARED BY: _____ INT:___

DEPT HEAD/SUPERVISOR REVIEW: _____ INT:___

STRENGTH TEST ASSEMBLIES AND SUPPORTING DOCUMENTATION

REQUIREMENTS OF CFR TITLE 49, PART 192, SUBPART J, 192.517 RECORDS
PLEASE PRINT NEATLY : RECORD LOG MUST BE LEGIBLE AND COMPLETELY FILLED
DO NOT TRANSFER HANDWRITTEN INFORMATION TO CAD : THIS IS AN OFFICIAL HANDWRITTEN DOCUMENT THAT WILL BE SCANNED AND ARCHIVED

STRENGTH TEST RECORD LOG

STRENGTH TEST SUPPORTING DOCUMENTATION						STRENGTH TEST RESULTS TEST CHART INFORMATION									EMPLOYEE NAME SUPPORTING DOCUMENTATION			TEST COMPANY SUPPORTING DOCUMENTATION				ELEVATION VARIATIONS SUPPORTING DOCUMENTATION						LEAKS AND FAILURES SUPPORTING DOCUMENTATION			
(2)	(2)	(1)		(2)	(1)	(2)	(1)		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	(1)	(2)	(2)	(2)	(2)	(1)	(2)		(1)	
TEST NUMBER*	DDS FILENAME* (ONE PER TIE-IN LOCATION)	PDMS DOC ID	PG	HYDRO/STRENGTH TEST LOG DESCRIPTION*	PDMS DOC ID	PG	TEST CHART LOCATION* (AS NOTED IN THE LOCATION FIELD ON THE CHART STAMP)	PDMS DOC ID	PG	LOWEST PRESSURE (RECORDED WITHIN	TEST DATE	TEST DATE	TEST DURATION	SPIKE TEST	SPIKE TEST	NAME OF COMPANY EMPLOYEE/REPRESENTATIVE RESPONSIBLE FOR TESTING	DOC TYPE	PDMS DOC ID	PG	NAME OF TEST COMPANY (ANY TEST COMPANY USED)	DOC TYPE	PDMS DOC ID	PG	HIGHEST ELEVATION	LOWEST ELEVATION	RECORDING GAUGE ELEVATION	DOC TYPE	PDMS DOC ID	PG	LEAKS AND FAILURES NOTED AND THEIR DISPOSITION	DOC TYPE	PDMS DOC ID	PG
										[redacted]																					

*** INDICATE THE TEST NUMBER ON THIS DRAWING, THE DDS, THE TEST CHART, AND THE HYDROTEST LOG (IF APPLICABLE) FOR EACH ASSEMBLY INCLUDED IN THE STRENGTH TEST.**

IF TESTING A CONTINUOUS PIPELINE USING MULTIPLE STRENGTH TESTS, PLACE THE TEST SYMBOL AND APPROXIMATE STATIONING ON THE DRAWING TO DIFFERENTIATE EACH TEST.

[redacted]

GS 182.0170 / G7369
192.517 Records. (Sept 15, 2003)
(a) Each operator shall make, and retain for the useful life of the pipeline, a record of each test performed under 192.505 and 192.507. The record must contain at least the following information:
(1) The operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used.
(2) Test medium used.
(3) Test pressure.
(4) Test duration.
(5) Pressure recording charts, or other record of pressure readings.
(6) Elevation variations, whenever significant for the particular test.
(7) Leaks and failures noted and their disposition.

SUPPORTING DOCUMENT REQUIREMENT

ADD ONE OF THE REQUIRED DOC TYPES TO THE STRENGTH TEST RECORD LOG ABOVE

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES. SUPPORTING DOCUMENTS	DOC TYPE	EMPLOYEES	COMPANY	ELEVATION	LEAKS
DESIGN DATA SHEET	[redacted]				
HYDRO/STRENGTH TEST LOG					
TEST CHART					
STRENGTH TEST PROCEDURE					
DAILY INSPECTOR'S REPORT					
EMERGENCY INCIDENT REPORT					
CPUC/DOT REPORT					

NOTES

1.PLEASE PRINT NEATLY;THIS IS AN OFFICIAL DOCUMENT THAT WILL BE SCANNED AND ARCHIVED
2.RECORD LOG MUST BE COMPLETELY FILLED IN.
3.THE TEST NUMBER MUST BE UNIQUE.
4."DDS FILENAME" LOCATED AT THE BOTTOM RIGHT CORNER OF THE DDS.
5.THE "PDMS DOC ID" IS THE DOCUMENT IDENTIFICATION NUMBER IN THE PIPELINE DOCUMENT MANAGEMENT SYSTEM (PDMS)

DO NOT TRANSFER HANDWRITTEN INFORMATION TO CAD; THIS IS AN OFFICIAL HANDWRITTEN DOCUMENT THAT WILL BE SCANNED AND ARCHIVED

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
0	08/05/20	JJM	DBJ	MPB	HG	E18037	ISSUED FOR CONSTRUCTION	93365.001

ISSUED FOR CONSTRUCTION

[redacted]

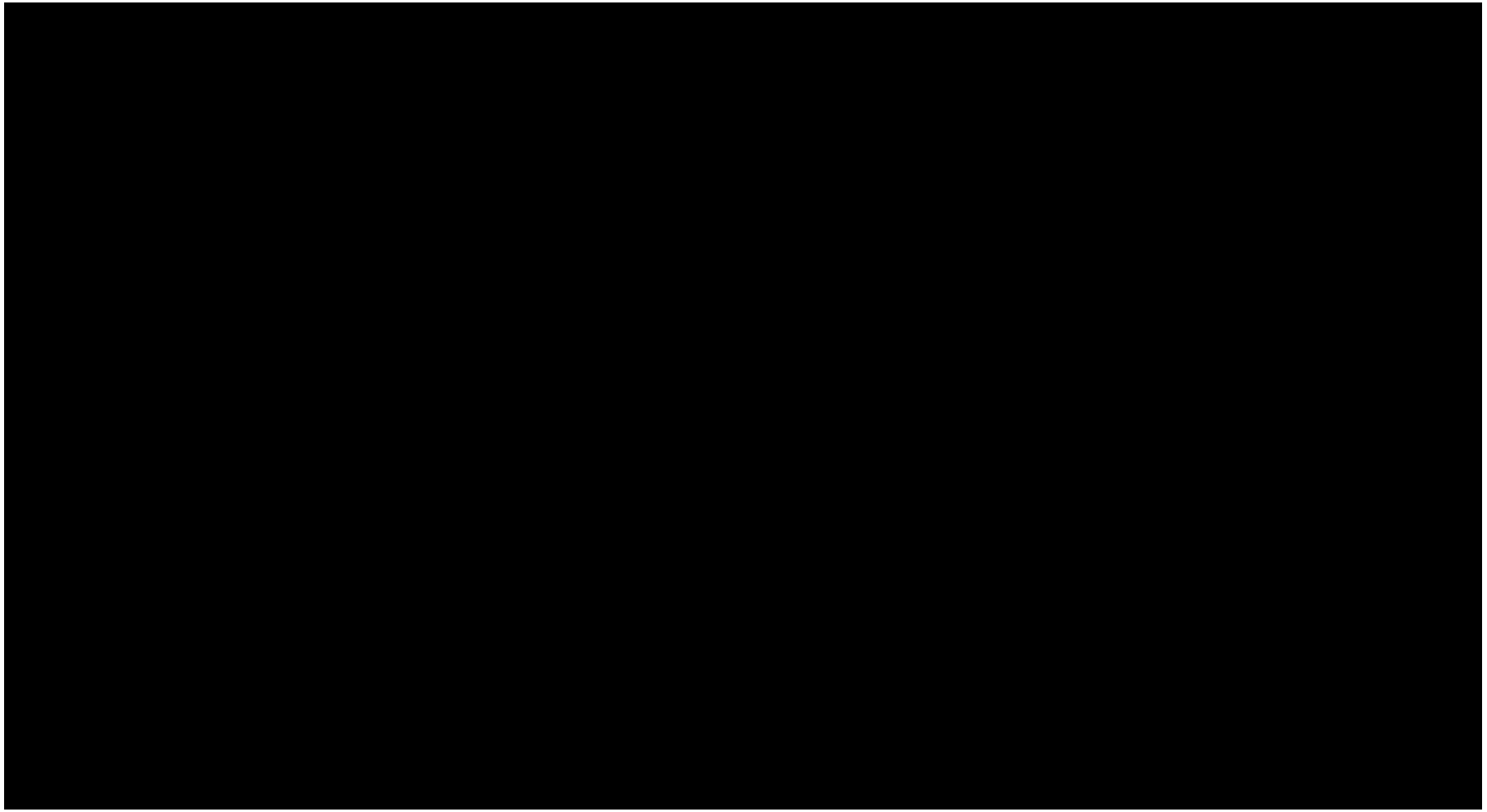
SB 1383: Compressor Locations
Side View



1. INSTALL STATIONARY REFERENCE ELECTRODE.
2. ALL LEADS TO BE PROPERLY LABLED FOR MONITORING AND BONDING.

(4) 8AWG STRUCTURE LEADS	PROJECT NAME: SB 1383	SoCalGas A Sempra Energy utility	PREPARED BY: P.I. CP REMEDIATION
(1) 8AWG STATIONARY REFERENCE ELECTRODE WIRE	DESCRIPTION: CP FOR COMPRESSOR FACILITIES	DATE: 4/17/2020	SHEET 1 OF 4

SB 1383: Vault Location
Aerial View



NOTES

1. INSTALL VAULT.

(8) 8AWG STRUCTURE LEADS	PROJECT NAME: SB 1383	SoCalGas A Sempra Energy utility	PREPARED BY: P.I. CP REMEDIATION
(2) STATIONARY REFERENCE ELECTRODE LEADS	DESCRIPTION: CP FOR COMPRESSOR FACILITIES	DATE: 4/17/2020	SHEET 2 OF 4

SB 1383: Tie-in Location
Aerial View

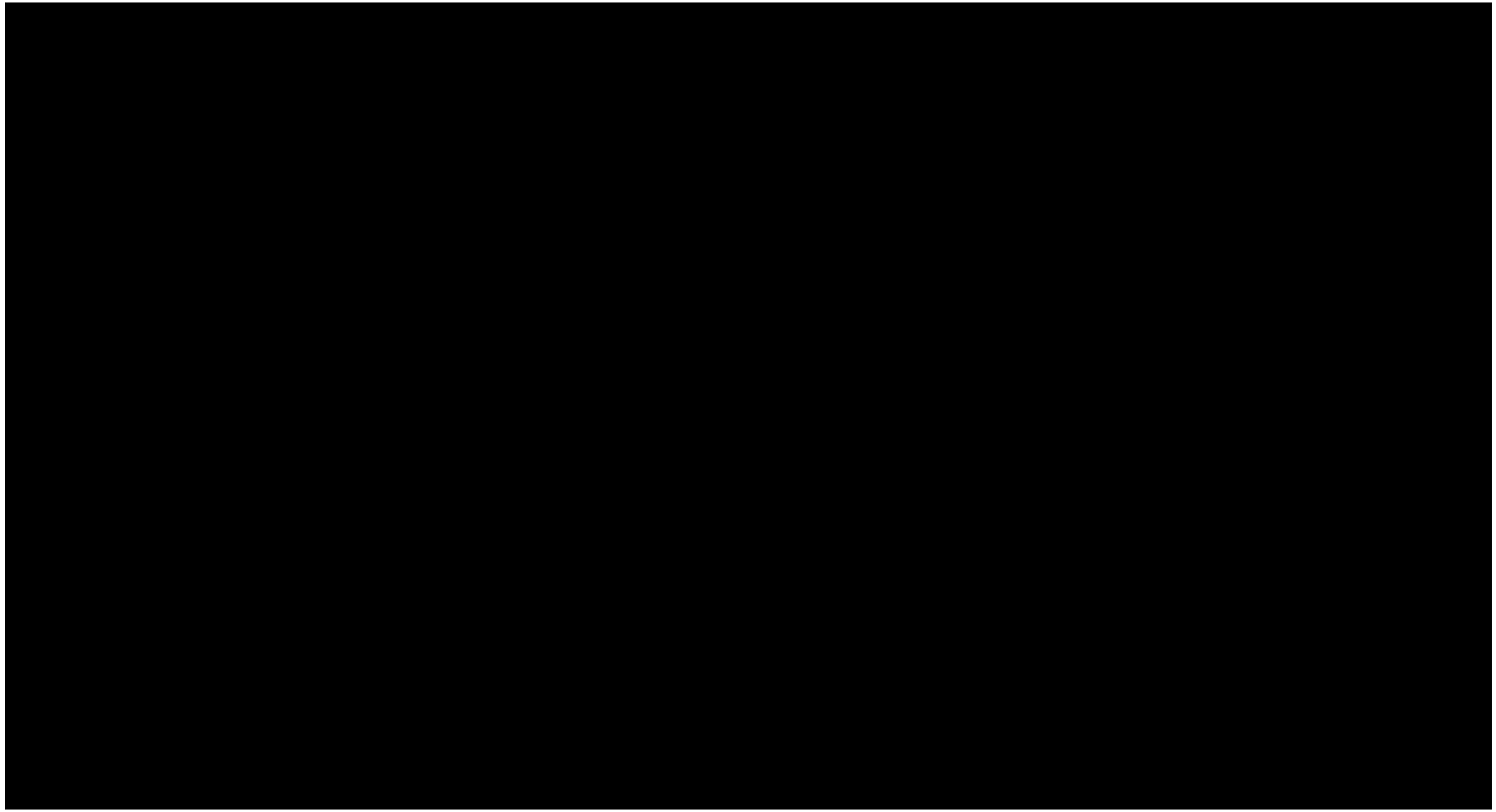


NOTES

1. INSTALL ELECTRIC TEST STATION PER GAS STANDARD [redacted]
2. INSTALL STATIONARY REFERENCE ELECTRODE.
3. ALL LEADS TO BE PROPERLY LABLED FOR MONITORING AND BONDING.

(2) 8AWG STRUCTURE LEADS	PROJECT NAME: SB 1383	SoCalGas A Sempra Energy utility	PREPARED BY: P.I. CP REMEDIATION
(1) 8AWG STATIONARY REFERENCE ELECTRODE WIRE	DESCRIPTION: CP FOR COMPRESSOR FACILITIES	DATE: 4/17/2020	SHEET 3 OF 4

SB 1383: Shunt Box Location
Side View



NOTES

1. INSTALL SHUNT BOX.
2. ALL LEADS TO BE PROPERLY LABLED FOR MONITORING.
3. INSTALL TWO ANODES HORIZONTALLY. ANODES TO BE INSTALLED PER GAS STANDARD [redacted]

(10) 8AWG STRUCTURE LEADS (2) 32LB ANODES (A1-2) WITH BLACK 8AWG TEST LEADS	PROJECT NAME: SB 1383	SoCalGas A Sempra Energy utility	PREPARED BY: P.I. CP REMEDIATION
(3) 8AWG STATIONARY REFERENCE ELECTRODE LEADS	DESCRIPTION: CP FOR COMPRESSOR FACILITIES	DATE: 4/17/2020	SHEET 4 OF 4

Attachment 2

Civil-Structural-Pkg_IFR-30

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CIVIL GENERAL NOTES

GENERAL

1. CONTRACTOR TO BE APPROVED BY THE CITY, OR OTHER GOVERNMENT AGENCY HAVING JURISDICTION OVER THIS DEVELOPMENT.
2. DESIGN CODE AND GENERAL REQUIREMENTS:
   A.) CALIFORNIA BUILDING CODE, 2019.
   B.) FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS ACT. (OSHA)
   C.) CALIFORNIA STATE INDUSTRIAL SAFETY ORDERS.
   D. KING'S COUNTY ORDINANCES AND REGULATIONS.
3. COORDINATE ALL WORK WITH THE PLANT CONSTRUCTION COORDINATOR.
4. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION DIMENSIONS. CONTRACTOR SHALL CONTACT ENGINEERING FOR ANY INCORRECT OR MISSING DIMENSIONS.
5. THE LOCATIONS OF THE SUBSTRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS. THERE IS NO ASSURANCE THAT THE RECORD INFORMATION IS ACCURATE, OR THAT ALL EXISTING SUBSTRUCTURES ARE SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE SUBSTRUCTURES SHOWN AND ANY OTHER SUBSTRUCTURES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. THE OWNER SHALL HAVE THE RIGHT TO MAKE CERTAIN CHANGES IN THE WORK AND THE CONTRACT AMOUNT SHALL BE ADJUSTED ACCORDINGLY. ALL SUGGESTED CHANGES OR MODIFICATIONS TO THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS MUST HAVE WRITTEN APPROVAL FROM AN OWNER REPRESENTATIVE PRIOR TO MAKING ANY SUCH MODIFICATIONS. THE CONTRACTOR IS INSTRUCTED NOT TO ACCEPT VERBAL AUTHORIZATIONS AND ASSUMES ANY AND ALL LIABILITY FOR NOT COMPLYING WITH THIS PROCEDURE IN ITS ENTIRETY. AS A RESULT, THE CONTRACTOR MAY BE REQUIRED TO REVAMP ANY UNAUTHORIZED MODIFICATIONS TO COMPLY WITH THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS, AT NO ADDITIONAL COST. NO EXCEPTIONS WILL BE PERMITTED.
7. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS PRIOR TO BIDDING AND COMMENCING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING THAT OF ALL SUB-TRADES.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS.
10. CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS ACCUMULATED AS A RESULT OF THEIR OPERATION. ALL SCRAP, DEBRIS, AND OTHER EXCESS MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE.
11. CONTRACTOR SHALL FURNISH ALL MATERIALS AS SHOWN HEREIN UNLESS EQUAL ALTERNATES ARE APPROVED IN WRITING BY THE OWNER AND ENGINEER.
12. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND PROVIDING BRACING DURING CONSTRUCTION AND/OR ERECTION TO SUPPORT ALL LOADS TO WHICH THE STRUCTURE AND SUPPORTING SOIL MAY BE SUBJECTED.
13. ANY REFERENCE TO THE WORDS APPROVE, APPROVED, OR APPROVAL IN THESE DOCUMENTS SHALL BE HEREIN DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUBCONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
14. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO, BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING THE CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, AND FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING COMPLIANCE WITH CONTRACT DOCUMENTS, DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
15. CONTRACTOR SHALL VERIFY AND DOCUMENT THE LOCATION OF ALL UNDERGROUND LINES WITHIN THE AREAS OF PROPOSED CONSTRUCTION.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PER SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT RULE 4651 REQUIREMENTS.
17. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY TO COMPLETELY EXPLAIN AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT TO OWNER'S REPRESENTATIVE ONE COMPLETE SET OF DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
18. NOTES AND DETAILS ON DESIGN DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES, STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

SHORING

1. ALL SHORING SHALL COMPLY WITH CAL/OSHA.

FIRE DEPARTMENT REQUIREMENTS

1. ALL NEW CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FIRE DEPARTMENT REGULATIONS.
2. ALL PIPING SYSTEMS SHALL BE LABELED IN ACCORDANCE WITH SPECIFICATIONS.
3. VEHICULAR ACCESS SHALL BE MAINTAINED DURING CONSTRUCTION.

SOILS AND FOUNDATION

1. ALL FOUNDATION AND EARTHWORK SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY GEOSYNTEC CONSULTANTS, DATED NOVEMBER 13, 2019. THE GEOTECHNICAL REPORT (FILE NO. SC1017-04), ALL ASSOCIATED ADDENDUM, AND ALL REQUIREMENTS AND RECOMMENDATIONS THEREIN, SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. IF NOT PROVIDED, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING A COPY OF THE REPORT PRIOR TO SUBMITTING HIS BID.
2. ALL EARTHWORK SHALL BE DONE IN A SAFE MANNER, COMPLYING WITH OSHA REQUIREMENTS AND IN STRICT ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. ALL EARTHWORK SHALL BE DONE UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. ONSITE MATERIALS ARE SUITABLE FOR RE-USE AS BACKFILL MATERIAL WITH APPROVAL OF THE GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE CLEAN, NON-EXPANSIVE, GRANULAR MATERIAL WITH AN EXPANSION INDEX LESS THAN 10 AS DETERMINED BY ASTM D4829. EXPOSED SURFACES TO RECEIVE FILL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6", MOISTURE CONDITIONED (2% TO 5% ABOVE OPTIMUM MOISTURE), AND COMPACTED IN PLACE. FILL MATERIALS SHOULD BE PLACED IN LIFTS NOT EXCEEDING 8" IN UNCOMPACTED THICKNESS, AND MECHANICALLY COMPACTED TO AT LEAST 92% RELATIVE COMPACTION PER ASTM D 1557. ALL FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE UNIFORMITY OF IMPORT MATERIAL.
4. ROAD BASE MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR CRUSHED AGGREGATE BASE SECTIONS 200-2.2, 301-1, AND 301-2 AND SHALL BE COMPACTED TO 95%. THE UPPER 12 INCHES OF SUBGRADE UNDER ALL CRUSHED BASE AND PAVEMENT AREAS SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
5. EXCAVATED ON SITE SOILS MEETING THE ABOVE REQUIREMENTS MAY ONLY BE REUSED WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER.
6. EXISTING UNDERGROUND UTILITIES AND FOUNDATIONS SHALL BE LOCATED BY CAREFUL EXCAVATION INCLUDING AS REQUIRED, EXCAVATION BY HAND BEFORE STARTING FOUNDATION EXCAVATION WORK. SUPPORT AND PROTECTION OF THESE UTILITIES AND FOUNDATIONS SHALL BE PROVIDED DURING EARTHWORK OPERATIONS IF THEY ARE TO REMAIN IN PLACE. SHOULD UNCHARTED OR INCORRECTLY CHARTED UNDERGROUND UTILITIES AND FOUNDATIONS BE ENCOUNTERED DURING EXCAVATION, CONSULT THE OWNER'S CONSTRUCTION COORDINATOR IMMEDIATELY FOR DIRECTIONS.
7. ALL EXCAVATED MATERIAL MUST BE PLACED ON PLASTIC SHEETING OR AS DIRECTED BY OWNER UNTIL DETERMINED NOT TO BE CONTAMINATED.
8. EXCAVATED CONTAMINATED SOIL SHALL BE PACKAGED, LABELED AND DISPOSED OF AS DIRECTED BY OWNER. OWNER WILL BE RESPONSIBLE FOR COST OF DISPOSAL.
9. ALL UNDERGROUND PIPING, ELECTRICAL GROUNDING AND DUCT BANKS SHALL BE IN PLACE PRIOR TO POURING FOUNDATIONS AND PAVING.
10. CONTINUOUS INSPECTION BY SOILS ENGINEER/GEOLOGIST IS REQUIRED FOR EXCAVATION, REMOVAL AND RECOMPACTING.
11. NO FILL SHALL BE PLACED UNTIL THE GEOTECHNICAL ENGINEER HAS INSPECTED AND APPROVED THE BOTTOM EXCAVATION.
12. THE SOILS ENGINEER OF RECORD SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS BEFORE STEEL OR CONCRETE IS PLACED.
13. THE SOILS ENGINEER SHALL BE NOTIFIED 72 HOURS IN ADVANCE AND OBSERVE FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR REINFORCEMENT. HE SHALL VERIFY THAT THE SUBGRADE SOILS UNDERLYING PROPOSED CONCRETE FOUNDATIONS HAVE BEEN MOISTURE CONDITIONED FOR 24 HOURS PRIOR TO PLACEMENT OF CONCRETE. HE SHALL APPROVE THE SOIL CONDITIONS, DEPTH OF EXCAVATIONS AND CONDITION OF EXCAVATION PRIOR TO PLACEMENT OF REINFORCEMENT, FILLING, AND COMPACTING OPERATIONS.
14. ALL FILL AND BACKFILL MATERIALS SHALL BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH, IN ADDITION TO THE SPECIFICATIONS, THE LATEST ADOPTED EDITION OF THE FOLLOWING ACI CODES: ACI 318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE, ACI 315R MANUAL OF ENGINEERING AND PLACEMENT DRAWINGS FOR REINFORCED CONCRETE STRUCTURES, ACI 304 GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE, ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
2. CEMENT SHALL BE TYPE II / V AND CONFORM TO ASTM C150, UNLESS OTHERWISE SPECIFIED OR REQUIRED.
3. PORTLAND BLAST-FURNACE SLAG CEMENT OR PORTLAND-POZZOLAN CEMENT SHALL CONFORM TO ASTM C595, "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS".
4. MIXING WATER SHALL CONFORM TO ASTM C94. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45. MAXIMUM ALLOWABLE SLUMP IS 4 INCHES ±1 INCH.
5. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES".
6. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330 "SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE".
7. THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN 1 1/2". THESE LIMITATIONS MAY BE WAIVED IF, IN THE JUDGMENT OF THE ENGINEER, WORKABILITY AND METHODS OF CONSOLIDATION ARE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMB OR VOIDS. WAIVER MUST BE IN WRITING.
8. ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
9. CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY, CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION AND, WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.
10. THE SPECIFIED COMPRESSIVE STRENGTH OF THE CONCRETE (F'C) FOR EACH PORTION OF THE STRUCTURE SHALL BE AS DESIGNATED BELOW. STRENGTH REQUIREMENTS SHALL BE BASED ON 28-DAY COMPRESSIVE STRENGTH, UNLESS NOTED OTHERWISE.
    * ALL REINFORCED CONCRETE SHALL BE 4000 PSI CONCRETE MIN. OR BETTER.
11. ALL REINFORCING STEEL, WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING INSPECTOR PRIOR TO PLACING OF CONCRETE.
12. EXPOSED HORIZONTAL CONCRETE SURFACES SHALL BE WOOD FLOATED TO DEPRESS COARSE AGGREGATE AND STEEL TROWELED TO A SMOOTH SURFACE. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH. ALL WALKING SURFACES SHALL HAVE A LIGHT BROOM FINISH.
13. CONCRETE SURFACES SHALL BE PROTECTED DURING CURING AGAINST EARLY EVAPORATION OF WATER, ACTION BY SUN, RAIN, WATER, FROST AND CRACKING BY USE OF A PLASTIC MEMBRANE OR SPRAY ON CURING AGENT.
14. ANCHOR BOLTS, NUTS AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED AND SHALL BE FURNISHED AND ERECTED BY THE CONCRETE CONTRACTOR.
15. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/4" AND SHALL COMPLY TO ASTM 1751. JOINT SEALANT SHALL BE "SIKAFLEX-2C" AND SHALL BE 1/4" DEEP MINIMUM.
16. STANDARD GROUT SHALL BE NON-SHRINK CEMENTITIOUS STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL WITH MINIMUM 5,000 PSI COMPRESSIVE STRENGTH. SEE DESIGN DRAWINGS FOR SPECIALTY GROUT WHEN SPECIFIED.
17. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 48 HOURS PRIOR TO THE CONTRACTOR REQUESTING STRUCTURAL OBSERVATION OR SPECIAL INSPECTION OF FOUNDATIONS:
    A. CONCRETE MIX DESIGN.
    B. SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL, ANCHOR BOLTS, AND ITEMS EMBEDDED IN CONCRETE.
    C. GEOTECHNICAL ENGINEER'S INSPECTION REPORT FOR BOTTOM OF EXCAVATION.
18. FOR ELECTRICAL STUB-UPS AND GROUNDING REQUIREMENTS SEE ELECTRICAL PLANS PRIOR TO SETTING FORMS.
19. CONCRETE CURING AND FORM STRIPPING:
    THE FOLLOWING CONSTRUCTION ACTIVITIES SHALL NOT BE PERFORMED UNTIL THE CRITERIA LISTED BELOW HAVE BEEN MET. THE SPECIFIED PERCENTAGES ARE RELATIVE TO THE DESIGN COMPRESSIVE STRENGTH OF CONCRETE. COMPRESSIVE STRENGTH SHALL BE DETERMINED BASED ON THE RESULTS OF CYLINDER BREAK TESTS PERFORMED IN ACCORDANCE WITH ACI 318 REQUIREMENTS AND TAKE PRECEDENCE OVER THE CURE DURATION WHEN TEST RESULTS ARE AVAILABLE. THESE PROVISIONS ARE FOR GUIDANCE ONLY AND ALL ACTIVITIES BASED ON CURE TIMES LESS THAN THOSE LISTED BELOW REQUIRE APPROVAL OF THE ENGINEER OF RECORD. IN ALL CASES CONCRETE SHALL BE PROTECTED DURING CURING BY USE OF A PLASTIC MEMBRANE AND/OR SPRAY ON CURING AGENT TO PREVENT CRACKING OR DAMAGE.
    A. STRIPPING OF FORMS (GENERAL). . . . . 75% OR 7 DAYS
    B. STRIPPING OF FORMS (RETAINING WALLS AND ELEVATED SLABS). . . . . 100% AND 28 DAYS
    C. SETTING OF SKID MOUNTED EQUIPMENT . . . . . 75% OR 7 DAYS
    D. SETTING OF SHOP FABRICATED TANKS OR VESSELS . . . . . 100% AND 14 DAYS
    E. BACKFILLING RETAINING WALLS AND TANK RING FOUNDATIONS . . . . . 100% AND 28 DAYS
    F. INSTALLATION OF POST INSTALLED MECHANICAL ANCHORS . . . . . 100% OR 21 DAYS
    G. INSTALLATION OF POST INSTALLED EPOXY ANCHORS (PER ACI 318) . . . 21 DAYS AND 100%
20. WHEN CONCRETE IS PLACED AGAINST PREVIOUSLY HARDENED CONCRETE, THE INTERFACE (COLD, OR CONSTRUCTION, JOINT) SHALL BE CLEAN OF OIL, DEBRIS, AND CONCRETE LAITANCE AND ROUGHENED TO AN EXPOSED AGGREGATE SURFACE WITH AN AMPLITUDE OF 1/4". MASTEREMACO ADH 326 BONDING AGENT SHALL BE APPLIED AT THE JOINT SURFACE PER MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE. COLD JOINTS MAY ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR WHEN APPROVED IN WRITING BY THE ENGINEER OF RECORD.

REINFORCING STEEL

1. **REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, UNLESS NOTED OTHERWISE.** ASTM A706 OR DUAL SPECIFICATION (W/S) REBAR IS NOT AN ACCEPTABLE SUBSTITUTE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO ACI DETAILING MANUAL.
2. REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVER:
    A. CONCRETE CAST AGAINST EARTH. . . . . 3"
    B. EXPOSED TO EARTH OR WEATHER:
       NO. 5 AND SMALLER . . . . . 1 1/2"
       NO. 6 AND LARGER . . . . . 2"
    C. PRECAST CONCRETE EXPOSED TO EARTH OR WEATHER:
       NO. 11 OR SMALLER . . . . . 3/4"
       NO. 14 & NO. 18. . . . . 1 1/2"
3. DOWELS SHALL BE PROVIDED AT POUR AND CONSTRUCTION JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCING SHOWN FOR THE SUBSEQUENT CONSTRUCTION, UNLESS OTHERWISE NOTED.
4. BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BONDING.
5. ALL REBAR SHALL BE BENT COLD IN ACCORDANCE WITH ACI 318 CURRENT EDITION.
6. ALL REINFORCING STEEL LAPS OR SPLICES SHALL BE AS INDICATED ON PLANS. WHERE LAP OR SPLICE LOCATIONS ARE NOT SPECIFIED, LAPS OR SPLICES SHALL BE WELL STAGGERED AND LAP SHALL BE 12" MINIMUM.
7. CONTINUOUS INSPECTION OF CONCRETE SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES, AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE ASTM SPECIFICATION AND SHALL BE FABRICATED BY BUILDING DEPARTMENT LICENSED FABRICATOR AND ERECTED ACCORDING TO AISC PRACTICE AND SPECIFICATIONS FOR BUILDINGS AS SPECIFIED IN THE LATEST AISC MANUAL OF STEEL CONSTRUCTION.
2. W & WT SHAPES SHALL CONFORM TO ASTM A572 GR50 OR A992 (50 KSI). OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. TUBE MEMBERS SHALL CONFORM TO ASTM A500, GRADE B OR ASTM A501 (FY = 46 KSI). PIPE COLUMNS SHALL CONFORM TO ASTM A53, GRADE B (FY = 35 KSI).
4. GUSSET PLATES SHALL BE 3/8" THICK OR GREATER.
5. ALL PLATFORMING MATERIALS SHALL BE HOT DIP GALVANIZED, SERRATED, WELDED, BAR GRATING WITH 1 1/4" x 3/16" BEARING BARS AT 1 3/16" CENTERS AND CROSSBARS AT 4" CENTERS, UNLESS NOTED OTHERWISE. BAND ALL EDGES AND OPENINGS. ATTACHMENT OF GRATING AT SUPPORTS NORMAL TO PANEL SPAN SHALL BE BY CLIPS AT EVERY 6TH BEARING BAR AND AT EACH END OF PANEL. (MIN IS 4 CLIPS PER PANEL)
6. WELDING SHALL CONFORM WITH THE LATEST EDITION OF THE WELDING CODE AWS D1.1. WELDING SHALL BE PERFORMED BY BUILDING DEPARTMENT APPROVED CERTIFIED WELDERS. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY A REGISTERED DEPUTY INSPECTOR AT THE EXPENSE OF THE OWNER.
7. WELD ELECTRODES SHALL BE E70XX.
8. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH. 1/8" RADIUS ALL SHARP EDGES.
9. ALL WELDS SHALL BE UNIFORM IN APPEARANCE AND BE FREE OF UNDERCUTTING. REMOVE ALL SLAG AND ARC SPATTER PRIOR TO BEING GALVANIZED.
10. UNLESS OTHERWISE NOTED, ALL SHOP AND FIELD BOLTED CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS, CONFORMING TO ASTM F3125 (GR. A325) (GALVANIZED), NUTS TO BE ASTM A563 (GALVANIZED) AND WASHERS TO BE ASTM F436 (GALVANIZED). CONNECTIONS SHALL CONFORM TO THE LATEST EDITION OF AISC MANUAL OF STEEL CONSTRUCTION AND SHALL BE INSTALLED AS SNUG-TIGHTENED JOINTS USING THE MAXIMUM NUMBER OF BOLTS FOR EACH BEAM DEPTH.
11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
12. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THE ENGINEER.
13. ALL STRUCTURAL STEEL, ANCHOR BOLTS AND EMBEDS ARE TO BE HOT DIP GALVANIZED PER ASTM F2329. ALL REPAIRS SHALL CONFORM TO ASTM A780.
14. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING. USE RUST-OLEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
15. GROUTING SHALL BE DONE AFTER STRUCTURAL STEEL IS IN ITS FINAL POSITION WITH NON-SHRINK STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL. GROUT SHALL BE PLACED PER MANUFACTURER RECOMMENDATIONS IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.

STRUCTURAL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH AWS D1.1, LATEST EDITION.
2. COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS MINIMUM AT -20°F. WELD METAL FOR CONTINUITY PLATES SHALL ALSO MEET THIS NOTCH-TOUGH REQUIREMENT. ALL SHIELDED METAL ARC WELDING (SMAW) ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE.
3. A WELDING PROCEDURE SPECIFICATION (WPS) AND PROCEDURE QUALIFICATION RECORDS (PQR) PER AWS D1.1 SHALL BE DEVELOPED BY THE FABRICATOR FOR SHOP WELDING AND THE ERECTOR FOR FIELD WELDING AND BE REVIEWED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE WPS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER. THE WELDING ELECTRODE MANUFACTURER'S SPECIFICATIONS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.
4. DEPUTY INSPECTORS ARE TO BE CERTIFIED DEPUTY STEEL INSPECTORS APPROVED BY THE LOCAL GOVERNMENT BUILDING AUTHORITY.
5. THE DEPUTY INSPECTOR'S REPORT SHALL DOCUMENT THAT THE WPS REQUIREMENTS WERE FOLLOWED, THAT PROPER AMPERAGE AND VOLTAGE IS USED IN THE WELDING PROCESS, AND THAT TRAVEL SPEED AND ELECTRODE STICK OUT COMPLY WITH THE APPROVED WPS. A HAND-HELD CALIBRATED AMP-AND VOLT METER SHALL BE USED BY THE FABRICATOR, ERECTOR, AND DEPUTY INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
6. THE PREHEAT AND INTERPASS TEMPERATURES REQUIRED IN AWS D1.1 SHALL BE STRICTLY OBSERVED.
7. AFTER WELDING, BACKING BARS SHALL BE REMOVED FROM THE BOTTOM FLANGE. A REINFORCING FILLET WELD SHALL BE PLACED WHERE THE BACK-UP BAR WAS REMOVED. WELD EXTENSION TABS SHALL BE REMOVED FROM THE TOP AND BOTTOM FLANGE. OTHER BACKING BARS AND WELD EXTENSION TABS NEEDED FOR WELDS IN THE CONNECTION, SUCH AS WELDS FOR CONNECTING PLATES, SHALL BE REMOVED IF THESE BARS AND TABS WERE REMOVED FROM TESTED CONNECTIONS. THE ENGINEER OF RECORD SHALL INCLUDE NOTES OR DETAILS ON THE PLANS THAT SPECIFY WHICH BACKING BARS AND WELD EXTENSION TABS MUST BE REMOVED AND WHICH MAY REMAIN, AND WHERE REINFORCING FILLET WELDS ARE REQUIRED, FOR ALL WELDS IN THE AREA OF BEAM-TO-COLUMNS CONNECTIONS.
8. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL WELDED MOMENT CONNECTIONS. ANY OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR CONTRACTOR AND THE BUILDING OFFICIAL.

SCAFFOLDING PROTECTION

1. SCAFFOLDING SHALL COMPLY WITH PROVISIONS OF THE CAL/OSHA.
2. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL SCAFFOLDING, STAGING, TRESTLES AND PLANKING FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL MAINTAIN ALL FORMS OF PROTECTION, AS REQUIRED, TO PRESERVE THE WORK IN PERFECT CONDITION.

ANCHOR BOLTS

1. CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 WITH HEAVY HEX NUTS PER ASTM A563 GRADE A AND WASHERS PER ASTM F436 TYPE 1 (UNLESS NOTED OTHERWISE).
2. FIT OF NUTS ON THREADS OF ANCHOR BOLTS SHALL BE VERIFIED BEFORE SHIPMENT.
3. ANCHOR BOLT, NUT AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED PER ASTM A153 OR F2329. COLD GALVANIZING SPRAY IS NOT AN ACCEPTABLE SUBSTITUTE TO HOT DIP GALVANIZING. FIELD CUT THREADED RODS MAY NOT BE SUBSTITUTED FOR SPECIFIED HOT DIP GALVANIZED ANCHOR BOLT ASSEMBLIES.
4. ANCHOR BOLTS TO BE ENCLOSED WITH #4 TIES UNLESS NOTED OTHERWISE.
5. HEADED ANCHOR BOLTS MAY BE USED WITH APPROVAL OF ENGINEER.
6. PLASTIC ANCHOR BOLT SLEEVES, WHEN SPECIFIED, SHALL BE WILSON ANCHOR BOLT SLEEVES AS MANUFACTURED BY SINCO PRODUCTS INC. SLEEVE DIMENSIONS ARE CRITICAL FOR CLEARANCE. ALTERNATE SLEEVE MANUFACTURER MUST BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
7. ADHESIVE ANCHORS SHALL NOT BE INSTALLED IN CONCRETE HAVING AN AGE LESS THAN 21 DAYS AT TIME OF INSTALLATION, PER ACI 318-14 SECTION 17.1.2. ADHESIVE ANCHORS SHALL NOT BE TENSIONED OR TORQUED UNTIL 48 HOURS AFTER INSTALLATION TO ALLOW FOR REQUIRED EPOXY CURE.
8. WHERE HILTI THREADED "HAS" RODS ARE SPECIFIED, GENERIC THREADED RODS ARE NOT AN ACCEPTABLE SUBSTITUTE. "HAS" RODS SHALL BE DELIVERED ONSITE WITH CERTIFIED VERIFICATION DOCUMENT.
9. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ AND COMPLY WITH ICC-ES REPORT 1917 (ESR-1917).

DESIGN CRITERIA

1. REFERENCE DOCUMENT: SITE SPECIFIC DESIGN CRITERIA NO: DS-460090-04000-29.
2. LOADS

2.1 DEAD LOADS:	AS CALCULATED
2.2 LIVE LOADS:	
ROOF LIVE LOAD	20 PSF
FLOOR LIVE LOAD	100 PSF
2.3 WIND LOADS:	
BASIC WIND SPEED (3 SECOND GUST)	105 mph
EXPOSURE CATEGORY	C
RISK CATEGORY	III / IV
2.4 SEISMIC LOADS:	
SITE CLASS	D
RISK CATEGORY	III
IMPORTANCE FACTOR	1.25
Ss (g)	0.74
Fa (g)	1.21
Fv (g)	1.81
Sms (g)	0.90
Sds (g)	0.60

PROGRESS PRINT

1

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	01/15/20	DWR	MK	JFH	SB	-	ISSUED FOR 30% REVIEW	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CIVIL GENERAL NOTES

GENERAL NOTES FOR STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL PORTIONS OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
2. THE OWNER SHALL EMPLOY A CIVIL OR STRUCTURAL ENGINEER OR ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION. THE ENGINEER OR ARCHITECT SHALL BE REGISTERED OR LICENSED IN THE STATE OF CALIFORNIA. THE DEPARTMENT OF BUILDING AND SAFETY RECOMMENDS THE USE OF THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN WHEN THEY ARE INDEPENDENT OF THE CONTRACTOR.
3. THE STRUCTURAL OBSERVER SHALL PROVIDE PROOF OF EMPLOYMENT BY THE OWNER. A LETTER FROM THE OWNER OR A COPY OF THE AGREEMENT FOR SERVICES SHALL BE SENT TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. THE OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
5. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

CONSTRUCTION STAGES	ELEMENTS/CONNECTIONS TO BE OBSERVED
A) PRIOR TO POURING FOUNDATIONS	/ REINFORCING STEEL, DOWELS, EMBEDS, AND ANCHOR BOLTS
B) AFTER SETTING OF EQUIPMENT	/ GROUTING
C) AFTER INSTALLATION OF PIPE SUPPORTS	/ SIZE, TYPE, CONNECTIONS, AND GROUTING

6. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS NEED NOT BE SEALED BUT SHALL BE SIGNED BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THEIR DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR AND DEPUTY INSPECTOR.
7. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.
8. WHEN THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
   A) NOTIFY THE BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
   B) CALL AN ADDITIONAL PRECONSTRUCTION MEETING.
   C) FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS. THE REPLACEMENT STRUCTURAL OBSERVER SHALL APPROVE THE CORRECTION OF THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY PLAN CHECK SUPERVISION. THE POLICY OF THE DEPARTMENT SHALL BE TO CORRECT ANY PROPERLY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.
9. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. THE BUILDING DEPARTMENT SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

SPECIAL INSPECTION (PER 2019 CBC, CHAPTER 17)

1. SPECIAL INSPECTION BY A DEPUTY REGISTERED INSPECTOR APPROVED BY THE BUILDING DEPARTMENT SHALL BE PROVIDED FOR THE FOLLOWING (UNLESS NOTED OTHERWISE):
   A. CONTINUOUS INSPECTION FOR ALL CONCRETE WORK, INCLUDING REBAR PLACEMENT, FOR CONCRETE STRENGTHS GREATER THAN 2500 PSI DESIGN (U.N.O.).
   B. SLIP-CRITICAL HIGH STRENGTH BOLTING.
   C. SHOP WELDING, IF NOT DONE BY AN APPROVED FABRICATOR, & FIELD WELDING.
   D. ALL EPOXY OR EXPANSION TYPE ANCHORS.
   E. BUILDING DEPARTMENT LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.
   F. CAST-IN-PLACE DEEP FOUNDATION PER TABLE 1705.8 OF CBC.
      1. CONTINUOUS INSPECTION OF DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.
      2. CONTINUOUS INSPECTION OF PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.
      3. CONTINUOUS INSPECTION FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS INCLUDING BUT NOT LIMITED TO REBAR AND ANCHOR BOLTS IN ACCORDANCE WITH SECTION 1705.3 OF CBC.
   G. DEPUTY INSPECTOR SHALL VALIDATE CONTRACTOR'S PROCEDURE FOR GROUT INSTALLATION AT STRUCTURAL STEEL AND EQUIPMENT BASE PLATES TO ENSURE THAT THE GROUTED ELEMENT IS SET CORRECTLY IN PLACE PRIOR TO GROUTING AND THAT THE GROUT IS PLACED IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.
2. THE PERMIT APPLICANT SHALL RETAIN A RESPONSIBLE ENGINEER APPROVED BY THE BUILDING OFFICIAL TO ENSURE THAT:
   A. ALL ELEMENTS OF CONSTRUCTION WHICH REQUIRE SPECIAL INSPECTION ARE INSPECTED BY QUALIFIED DEPUTY INSPECTORS APPROVED BY THE BUILDING OFFICIAL; AND
   B. ALL CODE DEFICIENCIES DETECTED AND DEVIATIONS FROM THE APPROVED PLANS ARE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF NOT CORRECTED, REVISED DESIGNS TO OVERCOME THE DEFICIENCY SHALL BE PREPARED BY THE DESIGN ENGINEER OR ARCHITECT OF RECORD FOR APPROVAL BY THE BUILDING OFFICIAL; AND
   C. ALL CORRECTIVE WORK REQUIRED IS COMPLETED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS, AND CITY ADOPTED CODES.
3. A FINAL INSPECTION REPORT, SIGNED BY THE SPECIAL INSPECTOR AND THE RESPONSIBLE ENGINEER, IS SUBMITTED TO THE BUILDING OFFICIAL UPON THE COMPLETION OF EACH ELEMENT REQUIRING SPECIAL INSPECTION. THE REPORT MUST CERTIFY THAT THE WORK WAS IN COMPLIANCE WITH APPROVED PLANS, SPECIFICATIONS AND APPLICABLE CITY CODES, INCLUDING ANY AUTHORIZED CHANGES TO THE PLAN. THE FINAL REPORT SHALL BE SUBMITTED WITHIN 7 DAYS OF INSPECTION. A COPY OF THE REPORT SHALL BE PROVIDED FOR ENGINEER OF RECORD, OWNER AND CONTRACTOR.

CONCRETE TESTING

1. INSPECTOR SHALL BE PRESENT DURING TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE. CONTRACTOR TO COORDINATE WITH OWNER FOR AVAILABILITY OF OWNER HIRED INSPECTOR PRIOR TO CONSTRUCTION.
2. INSPECT EXCAVATION, REINFORCEMENT, AND OTHER EMBEDDED ITEMS PRIOR TO PLACING CONCRETE TO ENSURE COMPLIANCE WITH APPROVED DRAWINGS.
3. FREQUENCY OF CONCRETE TESTING:
   THE FOLLOWING CRITERIA SHALL ESTABLISH THE REQUIRED MINIMUM SAMPLING FREQUENCY FOR EACH CLASS OF CONCRETE.
   A. ONCE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN
   B. ONCE FOR EACH 150 CU YD OF EACH CLASS PLACED EACH DAY, NOR LESS THAN
   C. ONCE FOR EACH 5000 SQ FT OF SLAB OR WALL SURFACE AREA PLACED EACH DAY.
   D. A SET OF TESTS WILL CONSIST OF 4 CYLINDERS MINIMUM.

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES

THE FOLLOWING MINIMUM STANDARDS OF GOOD HOUSEKEEPING MUST BE IMPLEMENTED BY THE CONTRACTOR ON THE CONSTRUCTION SITE.

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BE WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. PROVIDE A MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT AND/ OR WEATHER PROTECTION. NOTE THE MAINTENANCE PRACTICES AND SCHEDULE PROPOSED FOR THIS AREA.
9. HAZARDOUS MATERIALS, FERTILIZERS, PESTICIDES, PLASTERS, SOLVENTS, PAINTS, AND OTHER COMPOUNDS MUST BE PROPERLY HANDLED IN ORDER TO REDUCE THE RISK OF POLLUTION OR CONTAMINATION. TRAINING AND INFORMATION ON PROCEDURES FOR THE PROPER USE OF ALL MATERIALS MUST BE AVAILABLE TO THE EMPLOYEES THAT APPLY SUCH MATERIALS.
10. IDENTIFY SPILL PREVENTION AND CONTROL MEASURES THAT WILL BE TAKEN FOR ALL PROPOSED MATERIALS. IDENTIFY THE METHODS, BY WHICH ACCIDENTAL SPILLS WILL BE CLEANED AND PROPERLY DISPOSED OF.
11. PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR DISPOSAL. PROVIDE COVERED STORAGE WITH SECONDARY CONTAINMENT. CONTAINERS ARE REQUIRED TO PROTECT WASTE FROM RAIN TO PREVENT WATER POLLUTION AND PREVENT WIND DISPERSAL.
12. HAZARDOUS MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. IDENTIFY THE PROPOSED METHODS OF DISPOSAL AND ANY SPECIAL HANDLING CONTRACTS THAT MAY BE APPLICABLE.
13. A STABILIZED ENTRANCE IS REQUIRED FOR ALL CONSTRUCTION SITES TO ENSURE THAT DIRT AND DEBRIS ARE NOT TRACKED ONTO THE ROAD OR ADJACENT PROPERTY. MAINTENANCE OF SUCH A SYSTEM IS REQUIRED FOR THE DURATION OF THE PROJECT. SUCH STABILIZATION MAY BE OF ROCK OR PAVED.
14. ERODED SEDIMENTS MUST BE RETAINED ON SITE AND NOT PERMITTED TO ENTER THE DRAINAGE SYSTEM.
15. PROPER DISPOSAL OF ALL WASTES IS REQUIRED TO KEEP POLLUTANTS FROM THE STORM WATER RUNOFF WHICH WILL BE CONVEYED INTO THE STORM DRAIN SYSTEM. THE PROPER HANDLING OF ALL MATERIALS IS REQUIRED.
16. STORE DRY AND WET MATERIALS UNDER COVER. AVOID ON-SITE WASHOUT EXCEPT IN DESIGNATED AREAS AWAY FROM DRAINS, DITCHES, STREETS, AND STREAMS. CONCRETE WASTE DEPOSITED ON SITE SHALL SET-UP, BE BROKEN APART, AND DISPOSED OF PROPERLY. CONTAINMENT AND PROPER DISPOSAL IS REQUIRED FOR ALL CONCRETE WASTE.
17. UNTREATED RAW WASTEWATER IS NOT TO BE DISCHARGED OR BURIED. SANITARY SEWER FACILITIES ON SITE ARE REQUIRED TO BE IN COMPLIANCE WITH LOCAL HEALTH AGENCY REQUIREMENTS. SANITARY OR SEPTIC WASTES MUST BE TREATED OR DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
18. IDENTIFY THE AREA IN WHICH EXISTING VEGETATION WILL REMAIN UNDISTURBED. SENSITIVE AREAS WHICH MAY REQUIRE PRESERVATION INCLUDE STEEP SLOPES, WATERCOURSES, AND WOODED SITES. PROTECTION IS REQUIRED FOR VERNAL POOLS, WETLANDS, MARSHES, AND OAK TREE SITES.
19. IDENTIFY THE SPECIFIC LOCATIONS THAT MULCHING WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE MIXTURE THAT THE MULCH WILL CONSIST OF.
20. IDENTIFY THE SPECIFIC LOCATIONS THAT GEOTEXTILE MATS WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE SPECIFICATIONS FOR THE BRAND OF MATTING TO BE USED.
21. DUST CONTROL IS REQUIRED FOR CLEARING, GRADING, CONSTRUCTION, SOIL STOCKPILING, AND SITE WORK DURING DRY WEATHER, AS WELL AS FOR UNIMPROVED ROADWAYS. IDENTIFY THE MEANS BY WHICH DUST CONTROL WILL BE PERFORMED ON SITE AND NOTE THE FREQUENCY IN WHICH IT WILL OCCUR. NON-COMPLIANCE WILL BE REPORTED TO THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR ADDITIONAL ENFORCEMENT.
22. CHECK DAMS ARE REQUIRED TO REDUCE THE VELOCITY OF CONCENTRATED FLOW. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
23. A SILT FENCE IS USEFUL FOR RETENTION OF SEDIMENT IN THE LOCATION OF SHEET FLOW OR WIND EROSION. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
24. IDENTIFY THE SPECIFIC LOCATIONS WHERE STRAW BALES WILL BE USED FOR SEDIMENT RETENTION OR VELOCITY REDUCERS. A MAINTENANCE SCHEDULE IS REQUIRED FOR SUCH DEVICES.
25. SAND BAG BARRIERS ARE USEFUL IN A GREAT VARIETY OF LOCATIONS FOR THE CONTROL OF EROSION. SAND BAGS WILL FUNCTION IN A SIMILAR MANNER AS CHECK DAMS, BARRIERS, CLARIFIERS AND MANY OTHER TYPES OF EROSION CONTROL DEVICES WITH SIMILAR USES. SAND BAG DEVICES MAY APPLY TO A GREATER NUMBER OF SITES FOR REASONS OF VERSATILITY AND STANDARD USE. IDENTIFY THE SPECIFIC LOCATIONS AND DESIGN OF SAND BAG BARRIERS AND NOTE THE SCHEDULE BY WHICH THEY WILL BE MAINTAINED.
26. BRUSH OR ROCK FILTERS REQUIRE SPECIAL APPROVAL FOR PROPER APPLICATION AND CONSTRUCTION. THE DESIGN ENGINEER MUST APPROVE THE APPLICATION, ON SITE, BEFORE THE COUNTY INSPECTION IN ORDER TO ENSURE THE MINIMUM QUALITY OF CONSTRUCTION. SUCH DEVICES WILL ONLY BE CONSIDERED FOR APPROVAL ON MINOR APPLICATIONS.
27. ALL INLETS WHICH RECEIVE SEDIMENT LADEN RUNOFF REQUIRE STORM DRAIN INLET PROTECTION. SEDIMENT TRAPS, FILTERS FABRIC FENCES, SAND BAG FILTERS, GRAVEL AND WIRE MESH FILTERS, ARE EXAMPLES OF INLET PROTECTION WHICH MAY BE APPLIED AT SUCH LOCATIONS. IDENTIFY THE METHODS OF PROTECTING EACH INLET.

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

PROPERTY BOUNDARY FOR APN 028-080-016

PROJECT AREA

BENCH MARK (B.M.)

GRAPHIC SCALE

50 0 25 50 100 400

(IN FEET)
1 inch = 50 ft.

PROGRESS PRINT

3

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DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE AERA CONSTRUCTION REPRESENTATIVE.

[redacted] CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE AERA SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF AERA SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL AERA SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

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[redacted]

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[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
4. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
5. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CERTIFIED EQUIPMENT DRAWINGS ARE NOT AVAILABLE AT THIS TIME. DETAILS SHOWN ON THIS DRAWING ARE SUBJECT TO REVISIONS ONCE FINAL INFORMATION BECOMES AVAILABLE FROM THE SELECTED VENDOR. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
2. B.) CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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N

PLANT NORTH

[redacted]

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

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2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT ON-SITE PRIOR TO DRILLING INTO OR POURING CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS AND LOCATIONS PRIOR TO CONCRETE POUR.
5. ALL CONCRETE SURFACES IN CONTACT WITH GROUT SHALL BE CLEANED, MECHANICALLY ROUGHENED AND PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. GROUT SHALL BE PLACED AFTER EQUIPMENT HAS BEEN SECURED INTO ITS FINAL POSITION.
6. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.

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[redacted]

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4. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

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NOTES TO CONTRACTOR:

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2. B.) CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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Attachment 3

Civil-Structural-Pkg_IFR-60

STRUCTURAL GENERAL NOTES

GENERAL

1. CONTRACTOR TO BE APPROVED BY THE CITY, OR OTHER GOVERNMENT AGENCY HAVING JURISDICTION OVER THIS DEVELOPMENT.
2. DESIGN CODE AND GENERAL REQUIREMENTS:
   A.) CALIFORNIA BUILDING CODE, 2019.
   B.) CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS ACT. (OSHA)
   C.) CALIFORNIA STATE INDUSTRIAL SAFETY ORDERS.
   D. KING'S COUNTY ORDINANCES AND REGULATIONS.
3. COORDINATE ALL WORK WITH THE PLANT CONSTRUCTION COORDINATOR.
4. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION DIMENSIONS. CONTRACTOR SHALL CONTACT ENGINEERING FOR ANY INCORRECT OR MISSING DIMENSIONS.
5. THE LOCATIONS OF THE SUBSTRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS. THERE IS NO ASSURANCE THAT THE RECORD INFORMATION IS ACCURATE, OR THAT ALL EXISTING SUBSTRUCTURES ARE SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE SUBSTRUCTURES SHOWN AND ANY OTHER SUBSTRUCTURES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. THE OWNER SHALL HAVE THE RIGHT TO MAKE CERTAIN CHANGES IN THE WORK AND THE CONTRACT AMOUNT SHALL BE ADJUSTED ACCORDINGLY. ALL SUGGESTED CHANGES OR MODIFICATIONS TO THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS MUST HAVE WRITTEN APPROVAL FROM AN OWNER REPRESENTATIVE PRIOR TO MAKING ANY SUCH MODIFICATIONS. THE CONTRACTOR IS INSTRUCTED NOT TO ACCEPT VERBAL AUTHORIZATIONS AND ASSUMES ANY AND ALL LIABILITY FOR NOT COMPLYING WITH THIS PROCEDURE IN ITS ENTIRETY. AS A RESULT, THE CONTRACTOR MAY BE REQUIRED TO REVAMP ANY UNAUTHORIZED MODIFICATIONS TO COMPLY WITH THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS, AT NO ADDITIONAL COST. NO EXCEPTIONS WILL BE PERMITTED.
7. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS PRIOR TO BIDDING AND COMMENCING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING THAT OF ALL SUB-TRADES.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS.
10. CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS ACCUMULATED AS A RESULT OF THEIR OPERATION. ALL SCRAP, DEBRIS, AND OTHER EXCESS MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE.
11. CONTRACTOR SHALL FURNISH ALL MATERIALS AS SHOWN HEREIN UNLESS EQUAL ALTERNATES ARE APPROVED IN WRITING BY THE OWNER AND ENGINEER.
12. ANY REFERENCE TO THE WORDS APPROVE, APPROVED, OR APPROVAL IN THESE DOCUMENTS SHALL BE HEREIN DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUBCONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
13. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO, BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING THE CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, AND FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING COMPLIANCE WITH CONTRACT DOCUMENTS, DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
14. CONTRACTOR SHALL VERIFY AND DOCUMENT THE LOCATION OF ALL UNDERGROUND LINES WITHIN THE AREAS OF PROPOSED CONSTRUCTION.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PER SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT RULE 4651 REQUIREMENTS.
16. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY TO COMPLETELY EXPLAIN AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT TO OWNER'S REPRESENTATIVE ONE COMPLETE SET OF DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
17. NOTES AND DETAILS ON DESIGN DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES, STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

SHORING

1. ALL SHORING SHALL COMPLY WITH CAL/OSHA.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND PROVIDING BRACING DURING CONSTRUCTION AND/OR ERECTION TO SUPPORT ALL LOADS TO WHICH THE STRUCTURE AND SUPPORTING SOIL MAY BE SUBJECTED.

FIRE DEPARTMENT REQUIREMENTS

1. ALL NEW CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FIRE DEPARTMENT REGULATIONS.
2. ALL PIPING SYSTEMS SHALL BE LABELED IN ACCORDANCE WITH SPECIFICATIONS.
3. VEHICULAR ACCESS SHALL BE MAINTAINED DURING CONSTRUCTION.

SOILS AND FOUNDATION

1. ALL FOUNDATION AND EARTHWORK SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION PREPARED BY GEOSYNTEC CONSULTANTS, DATED NOVEMBER 13, 2019. THE GEOTECHNICAL INVESTIGATION (PROJECT NO. SC1017-04), ALL ASSOCIATED ADDENDUM, AND ALL REQUIREMENTS AND RECOMMENDATIONS THEREIN, SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. IF NOT PROVIDED, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING A COPY OF THE INVESTIGATION PRIOR TO SUBMITTING HIS BID.
2. ALL EARTHWORK SHALL BE DONE IN A SAFE MANNER, COMPLYING WITH CAL/OSHA REQUIREMENTS AND IN STRICT ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. ALL EARTHWORK SHALL BE DONE UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. FILL MATERIAL SHOULD BE FREE FROM ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHOULD NOT CONTAIN ROCKS OR LUMPS OVER 4 INCHES IN GREATEST DIMENSION. NO MORE THAN 50 PERCENT OF THE FILL MATERIAL SHOULD PASS THE NO. 200 SIEVE AND THE MATERIAL SHOULD HAVE A LOW EXPANSION POTENTIAL. AS EVIDENCED BY A PLASTICITY INDEX OF 15 OR LESS OR EXPANSION INDEX OF 20 OR LESS. IMPORT SOIL SHOULD BE NON-EXPANSIVE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE (CBC) SECTION 1803A.5.3 AND SHOULD HAVE LOW POTENTIAL FOR CORROSIVITY AND HIGH RESISTIVITY. THE PH, CHLORIDE CONTENT, AND SULFATE CONTENT OF THE FILL MATERIALS SHOULD NOT BE DELETERIOUS TO THE MATERIALS USED TO CONSTRUCT THE FOUNDATION SYSTEM AND OTHER IMPROVEMENTS (I.E., CONCRETE OR STEEL). CLASS 2 AGGREGATE BASE MAY BE UTILIZED FOR CONSTRUCTION OF ACCESS ROADS OR PADS AND SHOULD CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) "STANDARD SPECIFICATIONS" SECTION 26-1.02B. FILL SHOULD BE MOISTURE CONDITIONED AND COMPACTED BETWEEN 0 AND 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENTS IN LAYERS THAT DO NOT EXCEED 8-INCH LOOSE LIFTS FOR HEAVY EQUIPMENT COMPACTION. EACH LIFT OF FILL SHOULD BE COMPACTED TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION UNLESS OTHERWISE SPECIFIED. RELATIVE COMPACTION IS DEFINED AS THE RATIO (IN PERCENT) OF THE INPLACE DRY DENSITY TO THE MAXIMUM DRY DENSITY DETERMINED USING THE LATEST VERSION OF ASTM D1557 AS THE COMPACTION STANDARD. CLASS 2 AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95 PERCENT.
4. EXCAVATED ON SITE SOILS MEETING THE ABOVE REQUIREMENTS MAY ONLY BE REUSED WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER.
5. EXISTING UNDERGROUND UTILITIES AND FOUNDATIONS SHALL BE LOCATED BY CAREFUL EXCAVATION INCLUDING AS REQUIRED, EXCAVATION BY HAND BEFORE STARTING FOUNDATION EXCAVATION WORK. SUPPORT AND PROTECTION OF THESE UTILITIES AND FOUNDATIONS SHALL BE PROVIDED DURING EARTHWORK OPERATIONS IF THEY ARE TO REMAIN IN PLACE. SHOULD UNCHARTED OR INCORRECTLY CHARTED UNDERGROUND UTILITIES AND FOUNDATIONS BE ENCOUNTERED DURING EXCAVATION, CONSULT THE OWNER'S CONSTRUCTION COORDINATOR IMMEDIATELY FOR DIRECTIONS.
6. ALL EXCAVATED MATERIAL MUST BE PLACED ON PLASTIC SHEETING OR AS DIRECTED BY OWNER UNTIL DETERMINED NOT TO BE CONTAMINATED.
7. EXCAVATED CONTAMINATED SOIL SHALL BE PACKAGED, LABELED AND DISPOSED OF AS DIRECTED BY OWNER. OWNER WILL BE RESPONSIBLE FOR COST OF DISPOSAL.
8. ALL UNDERGROUND PIPING, ELECTRICAL GROUNDING AND DUCT BANKS SHALL BE IN PLACE PRIOR TO POURING FOUNDATIONS AND PAVING.
9. CONTINUOUS INSPECTION BY SOILS ENGINEER/GEOLOGIST IS REQUIRED FOR EXCAVATION, REMOVAL AND RECOMPACTING.
10. NO FILL SHALL BE PLACED UNTIL THE GEOTECHNICAL ENGINEER HAS INSPECTED AND APPROVED THE BOTTOM EXCAVATION.
11. THE SOILS ENGINEER OF RECORD SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS BEFORE STEEL OR CONCRETE IS PLACED.
12. THE SOILS ENGINEER SHALL BE NOTIFIED 72 HOURS IN ADVANCE AND OBSERVE FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR REINFORCEMENT. HE SHALL VERIFY THAT THE SUBGRADE SOILS UNDERLYING PROPOSED CONCRETE FOUNDATIONS HAVE BEEN MOISTURE CONDITIONED FOR 24 HOURS PRIOR TO PLACEMENT OF CONCRETE. HE SHALL APPROVE THE SOIL CONDITIONS, DEPTH OF EXCAVATIONS AND CONDITION OF EXCAVATION PRIOR TO PLACEMENT OF REINFORCEMENT, FILLING, AND COMPACTING OPERATIONS.
13. ALL FILL AND BACKFILL MATERIALS SHALL BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH, IN ADDITION TO THE SPECIFICATIONS, THE LATEST ADOPTED EDITION OF THE FOLLOWING ACI CODES: ACI 318 BUILDING REQUIREMENTS FOR REINFORCED STRUCTURES, ACI 304 GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE, CONCRETE, ACI 315R MANUAL OF ENGINEERING AND PLACEMENT DRAWINGS FOR REINFORCED CONCRETE ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
2. CEMENT SHALL BE TYPE II / V AND CONFORM TO ASTM C150, UNLESS OTHERWISE SPECIFIED OR REQUIRED.
3. PORTLAND BLAST-FURNACE SLAG CEMENT OR PORTLAND-POZZOLAN CEMENT SHALL CONFORM TO ASTM C595, "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS".
4. MIXING WATER SHALL CONFORM TO ASTM C94. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45. MAXIMUM ALLOWABLE SLUMP IS 4 INCHES ±1 INCH.
5. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES".
6. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330 "SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE".
7. THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN 1 1/2". THESE LIMITATIONS MAY BE WAIVED IF, IN THE JUDGMENT OF THE ENGINEER, WORKABILITY AND METHODS OF CONSOLIDATION ARE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMB OR VOIDS. WAIVER MUST BE IN WRITING.
8. ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
9. CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY, CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION AND, WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.
10. THE SPECIFIED COMPRESSIVE STRENGTH OF THE CONCRETE (fc') FOR EACH PORTION OF THE STRUCTURE SHALL BE AS DESIGNATED BELOW. STRENGTH REQUIREMENTS SHALL BE BASED ON 28-DAY COMPRESSIVE STRENGTH, UNLESS NOTED OTHERWISE.
    * ALL REINFORCED CONCRETE SHALL BE fc' = 4000 PSI CONCRETE MIN. OR BETTER.
11. ALL REINFORCING STEEL, WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING INSPECTOR PRIOR TO PLACING OF CONCRETE.
12. EXPOSED HORIZONTAL CONCRETE SURFACES SHALL BE WOOD FLOATED TO DEPRESS COARSE AGGREGATE AND STEEL TROWELED TO A SMOOTH SURFACE. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH. ALL WALKING SURFACES SHALL HAVE A LIGHT BROOM FINISH.
13. CONCRETE SURFACES SHALL BE PROTECTED DURING CURING AGAINST EARLY EVAPORATION OF WATER, ACTION BY SUN, RAIN, WATER, FROST AND CRACKING BY USE OF A PLASTIC MEMBRANE OR SPRAY ON CURING AGENT.
14. ANCHOR BOLTS, NUTS AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED AND SHALL BE FURNISHED AND ERECTED BY THE CONCRETE CONTRACTOR.
15. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/4" AND SHALL COMPLY TO ASTM 1751. JOINT SEALANT SHALL BE "SIKAFLEX-2C" AND SHALL BE 1/4" DEEP MINIMUM.
16. STANDARD GROUT SHALL BE NON-SHRINK CEMENTITIOUS STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL WITH MINIMUM 5,000 PSI COMPRESSIVE STRENGTH. SEE DESIGN DRAWINGS FOR SPECIALTY GROUT WHEN SPECIFIED.
17. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 48 HOURS PRIOR TO THE CONTRACTOR REQUESTING STRUCTURAL OBSERVATION OR SPECIAL INSPECTION OF FOUNDATIONS:
    A. CONCRETE MIX DESIGN.
    B. SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL, ANCHOR BOLTS, AND ITEMS EMBEDDED IN CONCRETE.
    C. GEOTECHNICAL ENGINEER'S INSPECTION REPORT FOR BOTTOM OF EXCAVATION.
18. FOR ELECTRICAL STUB-UPS AND GROUNDING REQUIREMENTS SEE ELECTRICAL PLANS PRIOR TO SETTING FORMS.
19. CONCRETE CURING AND FORM STRIPPING:
    THE FOLLOWING CONSTRUCTION ACTIVITIES SHALL NOT BE PERFORMED UNTIL THE CRITERIA LISTED BELOW HAVE BEEN MET. THE SPECIFIED PERCENTAGES ARE RELATIVE TO THE DESIGN COMPRESSIVE STRENGTH OF CONCRETE. COMPRESSIVE STRENGTH SHALL BE DETERMINED BASED ON THE RESULTS OF CYLINDER BREAK TESTS PERFORMED IN ACCORDANCE WITH ACI 318 REQUIREMENTS AND TAKE PRECEDENCE OVER THE CURE DURATION WHEN TEST RESULTS ARE AVAILABLE. THESE PROVISIONS ARE FOR GUIDANCE ONLY AND ALL ACTIVITIES BASED ON CURE TIMES LESS THAN THOSE LISTED BELOW REQUIRE APPROVAL OF THE ENGINEER OF RECORD. IN ALL CASES CONCRETE SHALL BE PROTECTED DURING CURING BY USE OF A PLASTIC MEMBRANE AND/OR SPRAY ON CURING AGENT TO PREVENT CRACKING OR DAMAGE.
    A. STRIPPING OF FORMS (GENERAL) . . . . . 75% OR 7 DAYS
    B. STRIPPING OF FORMS (RETAINING WALLS AND ELEVATED SLABS) . . . . 100% AND 28 DAYS
    C. SETTING OF SKID MOUNTED EQUIPMENT . . . . . 75% OR 7 DAYS
    D. SETTING OF SHOP FABRICATED TANKS OR VESSELS . . . . . 100% AND 14 DAYS
    E. BACKFILLING RETAINING WALLS AND TANK RING FOUNDATIONS . . . . . 100% AND 28 DAYS
    F. INSTALLATION OF POST INSTALLED MECHANICAL ANCHORS . . . . . 100% OR 21 DAYS
    G. INSTALLATION OF POST INSTALLED EPOXY ANCHORS (PER ACI 318) . . . 21 DAYS AND 100%
20. WHEN CONCRETE IS PLACED AGAINST PREVIOUSLY HARDENED CONCRETE, THE INTERFACE (COLD, OR CONSTRUCTION, JOINT) SHALL BE CLEAN OF OIL, DEBRIS, AND CONCRETE LAITANCE AND ROUGHENED TO AN EXPOSED AGGREGATE SURFACE WITH AN AMPLITUDE OF 1/4". MASTEREMACO ADH 326 BONDING AGENT SHALL BE APPLIED AT THE JOINT SURFACE PER MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE. COLD JOINTS MAY ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR WHEN APPROVED IN WRITING BY THE ENGINEER OF RECORD.

REINFORCING STEEL

1. **REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, UNLESS NOTED OTHERWISE.** ASTM A706 OR DUAL SPECIFICATION (W/S) REBAR IS NOT AN ACCEPTABLE SUBSTITUTE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO ACI DETAILING MANUAL.
2. REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVER:
    A. CONCRETE CAST AGAINST EARTH. . . . . 3"
    B. EXPOSED TO EARTH OR WEATHER:
       NO. 5 AND SMALLER . . . . . 1 1/2"
       NO. 6 AND LARGER . . . . . 2"
    C. PRECAST CONCRETE EXPOSED TO EARTH OR WEATHER:
       NO. 11 OR SMALLER . . . . . 3/4"
       NO. 14 & NO. 18. . . . . 1 1/2"
3. DOWELS SHALL BE PROVIDED AT POUR AND CONSTRUCTION JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCING SHOWN FOR THE SUBSEQUENT CONSTRUCTION, UNLESS OTHERWISE NOTED.
4. BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BONDING.
5. ALL REBAR SHALL BE BENT COLD IN ACCORDANCE WITH ACI 318 CURRENT EDITION.
6. ALL REINFORCING STEEL LAPS OR SPLICES SHALL BE AS INDICATED ON PLANS. WHERE LAP OR SPLICE LOCATIONS ARE NOT SPECIFIED, LAPS OR SPLICES SHALL BE WELL STAGGERED AND LAP SHALL BE 12" MINIMUM.
7. CONTINUOUS INSPECTION OF CONCRETE SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES, AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE ASTM SPECIFICATION AND SHALL BE FABRICATED BY BUILDING DEPARTMENT LICENSED FABRICATOR AND ERECTED ACCORDING TO AISC PRACTICE AND SPECIFICATIONS FOR BUILDINGS AS SPECIFIED IN THE LATEST AISC MANUAL OF STEEL CONSTRUCTION.
2. W & WT SHAPES SHALL CONFORM TO ASTM A572 GR50 OR A992 (50 KSI). OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. TUBE MEMBERS SHALL CONFORM TO ASTM A500, GRADE B (FY = 46 KSI). PIPE COLUMNS SHALL CONFORM TO ASTM A53, GRADE B (FY = 35 KSI).
4. GUSSET PLATES SHALL BE 3/8" THICK OR GREATER.
5. ALL PLATFORMING MATERIALS SHALL BE HOT DIP GALVANIZED, SERRATED, WELDED, BAR GRATING WITH 1 1/4"x 3/16" BEARING BARS AT 1 3/16" CENTERS AND CROSSBARS AT 4" CENTERS, UNLESS NOTED OTHERWISE. BAND ALL EDGES AND OPENINGS. ATTACHMENT OF GRATING AT SUPPORTS NORMAL TO PANEL SPAN SHALL BE BY CLIPS AT EVERY 6TH BEARING BAR AND AT EACH END OF PANEL. (MIN IS 4 CLIPS PER PANEL)
6. WELDING SHALL CONFORM WITH THE LATEST EDITION OF THE WELDING CODE AWS D1.1. WELDING SHALL BE PERFORMED BY BUILDING DEPARTMENT APPROVED CERTIFIED WELDERS. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY A REGISTERED DEPUTY INSPECTOR AT THE EXPENSE OF THE OWNER.
7. WELD ELECTRODES SHALL BE E70XX.
8. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH. 1/8" RADIUS ALL SHARP EDGES.
9. ALL WELDS SHALL BE UNIFORM IN APPEARANCE AND BE FREE OF UNDERCUTTING. REMOVE ALL SLAG AND ARC SPATTER PRIOR TO BEING GALVANIZED.
10. UNLESS OTHERWISE NOTED, ALL SHOP AND FIELD BOLTED CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS, CONFORMING TO ASTM F3125 (GR. A325) (GALVANIZED), NUTS TO BE ASTM A563 (GALVANIZED) AND WASHERS TO BE ASTM F436 (GALVANIZED). CONNECTIONS SHALL CONFORM TO THE LATEST EDITION OF AISC MANUAL OF STEEL CONSTRUCTION AND SHALL BE INSTALLED AS SNUG-TIGHTENED JOINTS USING THE MAXIMUM NUMBER OF BOLTS FOR EACH BEAM DEPTH.
11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER OF RECORD OR OWNER'S ASSIGNEE PRIOR TO FABRICATION.
12. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THE ENGINEER.
13. ALL STRUCTURAL STEEL, ANCHOR BOLTS AND EMBEDS ARE TO BE HOT DIP GALVANIZED PER ASTM F2329. ALL REPAIRS SHALL CONFORM TO ASTM A780.
14. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING. USE RUST-OLEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
15. GROUTING SHALL BE DONE AFTER STRUCTURAL STEEL IS IN ITS FINAL POSITION WITH NON-SHRINK STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL. GROUT SHALL BE PLACED PER MANUFACTURER RECOMMENDATIONS IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.

STRUCTURAL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH AWS D1.1, LATEST EDITION.
2. COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS MINIMUM AT -20°F. WELD METAL FOR CONTINUITY PLATES SHALL ALSO MEET THIS NOTCH-TOUGH REQUIREMENT. ALL SHIELDED METAL ARC WELDING (SMAW) ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE.
3. A WELDING PROCEDURE SPECIFICATION (WPS) AND PROCEDURE QUALIFICATION RECORDS (PQR) PER AWS D1.1 SHALL BE DEVELOPED BY THE FABRICATOR FOR SHOP WELDING AND THE ERECTOR FOR FIELD WELDING AND BE REVIEWED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE WPS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER. THE WELDING ELECTRODE MANUFACTURER'S SPECIFICATIONS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.
4. DEPUTY INSPECTORS ARE TO BE CERTIFIED DEPUTY STEEL INSPECTORS APPROVED BY THE LOCAL GOVERNMENT BUILDING AUTHORITY.
5. THE DEPUTY INSPECTOR'S REPORT SHALL DOCUMENT THAT THE WPS REQUIREMENTS WERE FOLLOWED, THAT PROPER AMPERAGE AND VOLTAGE IS USED IN THE WELDING PROCESS, AND THAT TRAVEL SPEED AND ELECTRODE STICK OUT COMPLY WITH THE APPROVED WPS. A HAND-HELD CALIBRATED AMP-AND VOLT METER SHALL BE USED BY THE FABRICATOR, ERECTOR, AND DEPUTY INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
6. THE PREHEAT AND INTERPASS TEMPERATURES REQUIRED IN AWS D1.1 SHALL BE STRICTLY OBSERVED.
7. AFTER WELDING, BACKING BARS SHALL BE REMOVED FROM THE BOTTOM FLANGE. A REINFORCING FILLET WELD SHALL BE PLACED WHERE THE BACK-UP BAR WAS REMOVED. WELD EXTENSION TABS SHALL BE REMOVED FROM THE TOP AND BOTTOM FLANGE. OTHER BACKING BARS AND WELD EXTENSION TABS NEEDED FOR WELDS IN THE CONNECTION, SUCH AS WELDS FOR CONNECTING PLATES, SHALL BE REMOVED IF THESE BARS AND TABS WERE REMOVED FROM TESTED CONNECTIONS. THE ENGINEER OF RECORD SHALL INCLUDE NOTES OR DETAILS ON THE PLANS THAT SPECIFY WHICH BACKING BARS AND WELD EXTENSION TABS MUST BE REMOVED AND WHICH MAY REMAIN, AND WHERE REINFORCING FILLET WELDS ARE REQUIRED, FOR ALL WELDS IN THE AREA OF BEAM-TO-COLUMNS CONNECTIONS.
8. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL WELDED MOMENT CONNECTIONS. ANY OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR CONTRACTOR AND THE BUILDING OFFICIAL.

SCAFFOLDING PROTECTION

1. SCAFFOLDING SHALL COMPLY WITH PROVISIONS OF THE CAL/OSHA.
2. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL SCAFFOLDING, STAGING, TRESTLES AND PLANKING FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL MAINTAIN ALL FORMS OF PROTECTION, AS REQUIRED, TO PRESERVE THE WORK IN PERFECT CONDITION.

ANCHOR BOLTS

1. CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 WITH HEAVY HEX NUTS PER ASTM A563 GRADE A AND WASHERS PER ASTM F436 TYPE 1 (UNLESS NOTED OTHERWISE).
2. FIT OF NUTS ON THREADS OF ANCHOR BOLTS SHALL BE VERIFIED BEFORE SHIPMENT.
3. ANCHOR BOLT, NUT AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED PER ASTM A153 OR F2329. COLD GALVANIZING SPRAY IS NOT AN ACCEPTABLE SUBSTITUTE TO HOT DIP GALVANIZING. FIELD CUT THREADED RODS MAY NOT BE SUBSTITUTED FOR SPECIFIED HOT DIP GALVANIZED ANCHOR BOLT ASSEMBLIES.
4. ANCHOR BOLTS TO BE ENCLOSED WITH #4 TIES UNLESS NOTED OTHERWISE.
5. HEADED ANCHOR BOLTS MAY BE USED WITH APPROVAL OF ENGINEER.
6. PLASTIC ANCHOR BOLT SLEEVES, WHEN SPECIFIED, SHALL BE WILSON ANCHOR BOLT SLEEVES AS MANUFACTURED BY SINCO PRODUCTS INC. SLEEVE DIMENSIONS ARE CRITICAL FOR CLEARANCE. ALTERNATE SLEEVE MANUFACTURER MUST BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
7. ADHESIVE ANCHORS SHALL NOT BE INSTALLED IN CONCRETE HAVING AN AGE LESS THAN 21 DAYS AT TIME OF INSTALLATION, PER ACI 318-14 SECTION 17.1.2. ADHESIVE ANCHORS SHALL NOT BE TENSIONED OR TORQUED UNTIL 48 HOURS AFTER INSTALLATION TO ALLOW FOR REQUIRED EPOXY CURE.
8. WHERE HILTI THREADED "HAS" RODS ARE SPECIFIED, GENERIC THREADED RODS ARE NOT AN ACCEPTABLE SUBSTITUTE. "HAS" RODS SHALL BE DELIVERED ONSITE WITH CERTIFIED VERIFICATION DOCUMENT.
9. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ AND COMPLY WITH ICC-ES REPORT 1917 (ESR-1917).

DESIGN CRITERIA

1. REFERENCE DOCUMENT: SITE SPECIFIC DESIGN CRITERIA NO: DS-460090-04000-29. (REV. 2)
2. LOADS

2.1 DEAD LOADS:	AS CALCULATED
2.2 LIVE LOADS:	
ROOF LIVE LOAD	20 PSF
FLOOR LIVE LOAD	100 PSF
2.3 WIND LOADS:	
BASIC WIND SPEED (3 SECOND GUST)	105 mph
EXPOSURE CATEGORY	C
RISK CATEGORY	III / IV
2.4 SEISMIC LOADS:	
SITE CLASS	D
RISK CATEGORY	III
IMPORTANCE FACTOR	1.25
Ss (g)	0.728
Fa (g)	1.217
Fv (g)	2.068
Sms (g)	0.887
Sds (g)	0.591
TL	12 SEC

ISSUED FOR 60% REVIEW

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOS APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.

STRUCTURAL GENERAL NOTES

GENERAL NOTES FOR STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL PORTIONS OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
2. THE OWNER SHALL EMPLOY A CIVIL OR STRUCTURAL ENGINEER OR ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION. THE ENGINEER OR ARCHITECT SHALL BE REGISTERED OR LICENSED IN THE STATE OF CALIFORNIA. THE DEPARTMENT OF BUILDING AND SAFETY RECOMMENDS THE USE OF THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN WHEN THEY ARE INDEPENDENT OF THE CONTRACTOR.
3. THE STRUCTURAL OBSERVER SHALL PROVIDE PROOF OF EMPLOYMENT BY THE OWNER. A LETTER FROM THE OWNER OR A COPY OF THE AGREEMENT FOR SERVICES SHALL BE SENT TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. THE OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
5. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

CONSTRUCTION STAGES	ELEMENTS/CONNECTIONS TO BE OBSERVED
A) PRIOR TO POURING FOUNDATIONS	REINFORCING STEEL, DOWELS, EMBEDS, AND ANCHOR BOLTS
B) AFTER SETTING OF EQUIPMENT	GROUTING
C) AFTER INSTALLATION OF PIPE SUPPORTS	SIZE, TYPE, CONNECTIONS, AND GROUTING

6. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS NEED NOT BE SEALED BUT SHALL BE SIGNED BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THEIR DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR AND DEPUTY INSPECTOR.
7. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.
8. WHEN THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
   A) NOTIFY THE BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
   B) CALL AN ADDITIONAL PRECONSTRUCTION MEETING.
   C) FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS. THE REPLACEMENT STRUCTURAL OBSERVER SHALL APPROVE THE CORRECTION OF THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY PLAN CHECK SUPERVISION. THE POLICY OF THE DEPARTMENT SHALL BE TO CORRECT ANY PROPERLY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.
9. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. THE BUILDING DEPARTMENT SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

SPECIAL INSPECTION (PER 2019 CBC, CHAPTER 17)

1. SPECIAL INSPECTION BY A DEPUTY REGISTERED INSPECTOR APPROVED BY THE BUILDING DEPARTMENT SHALL BE PROVIDED FOR THE FOLLOWING (UNLESS NOTED OTHERWISE):
   - A. CONTINUOUS INSPECTION FOR ALL CONCRETE WORK, INCLUDING REBAR PLACEMENT, FOR CONCRETE STRENGTHS GREATER THAN 2500 PSI DESIGN (U.N.O.).
   - B. SLIP-CRITICAL HIGH STRENGTH BOLTING.
   - C. SHOP WELDING, IF NOT DONE BY AN APPROVED FABRICATOR, & FIELD WELDING.
   - D. ALL EPOXY OR EXPANSION TYPE ANCHORS.
   - E. BUILDING DEPARTMENT LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.
   - F. CAST-IN-PLACE DEEP FOUNDATION PER TABLE 1705.8 OF CBC.
     1. CONTINUOUS INSPECTION OF DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.
     2. CONTINUOUS INSPECTION OF PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.
     3. CONTINUOUS INSPECTION FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS INCLUDING BUT NOT LIMITED TO REBAR AND ANCHOR BOLTS IN ACCORDANCE WITH SECTION 1705.3 OF CBC.
   - G. DEPUTY INSPECTOR SHALL VALIDATE CONTRACTOR'S PROCEDURE FOR GROUT INSTALLATION AT STRUCTURAL STEEL AND EQUIPMENT BASE PLATES TO ENSURE THAT THE GROUTED ELEMENT IS SET CORRECTLY IN PLACE PRIOR TO GROUTING AND THAT THE GROUT IS PLACED IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.
2. THE PERMIT APPLICANT SHALL RETAIN A RESPONSIBLE ENGINEER APPROVED BY THE BUILDING OFFICIAL TO ENSURE THAT:
   - A. ALL ELEMENTS OF CONSTRUCTION WHICH REQUIRE SPECIAL INSPECTION ARE INSPECTED BY QUALIFIED DEPUTY INSPECTORS APPROVED BY THE BUILDING OFFICIAL; AND
   - B. ALL CODE DEFICIENCIES DETECTED AND DEVIATIONS FROM THE APPROVED PLANS ARE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF NOT CORRECTED, REVISED DESIGNS TO OVERCOME THE DEFICIENCY SHALL BE PREPARED BY THE DESIGN ENGINEER OR ARCHITECT OF RECORD FOR APPROVAL BY THE BUILDING OFFICIAL; AND
   - C. ALL CORRECTIVE WORK REQUIRED IS COMPLETED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS, AND CITY ADOPTED CODES.
3. A FINAL INSPECTION REPORT, SIGNED BY THE SPECIAL INSPECTOR AND THE RESPONSIBLE ENGINEER, IS SUBMITTED TO THE BUILDING OFFICIAL UPON THE COMPLETION OF EACH ELEMENT REQUIRING SPECIAL INSPECTION. THE REPORT MUST CERTIFY THAT THE WORK WAS IN COMPLIANCE WITH APPROVED PLANS, SPECIFICATIONS AND APPLICABLE CITY CODES, INCLUDING ANY AUTHORIZED CHANGES TO THE PLAN. THE FINAL REPORT SHALL BE SUBMITTED WITHIN 7 DAYS OF INSPECTION. A COPY OF THE REPORT SHALL BE PROVIDED FOR ENGINEER OF RECORD, OWNER AND CONTRACTOR.

CONCRETE TESTING

1. INSPECTOR SHALL BE PRESENT DURING TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE. CONTRACTOR TO COORDINATE WITH OWNER FOR AVAILABILITY OF OWNER HIRED INSPECTOR PRIOR TO CONSTRUCTION.
2. INSPECT EXCAVATION, REINFORCEMENT, AND OTHER EMBEDDED ITEMS PRIOR TO PLACING CONCRETE TO ENSURE COMPLIANCE WITH APPROVED DRAWINGS.
3. FREQUENCY OF CONCRETE TESTING:
   THE FOLLOWING CRITERIA SHALL ESTABLISH THE REQUIRED MINIMUM SAMPLING FREQUENCY FOR EACH CLASS OF CONCRETE.
   - A. ONCE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN
   - B. ONCE FOR EACH 150 CU YD OF EACH CLASS PLACED EACH DAY, NOR LESS THAN
   - C. ONCE FOR EACH 5000 SQ FT OF SLAB OR WALL SURFACE AREA PLACED EACH DAY.
   - D. A SET OF TESTS WILL CONSIST OF 4 CYLINDERS MINIMUM.

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES

THE FOLLOWING MINIMUM STANDARDS OF GOOD HOUSEKEEPING MUST BE IMPLEMENTED BY THE CONTRACTOR ON THE CONSTRUCTION SITE.

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BE WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. PROVIDE A MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT AND/ OR WEATHER PROTECTION. NOTE THE MAINTENANCE PRACTICES AND SCHEDULE PROPOSED FOR THIS AREA.
9. HAZARDOUS MATERIALS, FERTILIZERS, PESTICIDES, PLASTERS, SOLVENTS, PAINTS, AND OTHER COMPOUNDS MUST BE PROPERLY HANDLED IN ORDER TO REDUCE THE RISK OF POLLUTION OR CONTAMINATION. TRAINING AND INFORMATION ON PROCEDURES FOR THE PROPER USE OF ALL MATERIALS MUST BE AVAILABLE TO THE EMPLOYEES THAT APPLY SUCH MATERIALS.
10. IDENTIFY SPILL PREVENTION AND CONTROL MEASURES THAT WILL BE TAKEN FOR ALL PROPOSED MATERIALS. IDENTIFY THE METHODS, BY WHICH ACCIDENTAL SPILLS WILL BE CLEANED AND PROPERLY DISPOSED OF.
11. PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR DISPOSAL. PROVIDE COVERED STORAGE WITH SECONDARY CONTAINMENT. CONTAINERS ARE REQUIRED TO PROTECT WASTE FROM RAIN TO PREVENT WATER POLLUTION AND PREVENT WIND DISPERSAL.
12. HAZARDOUS MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. IDENTIFY THE PROPOSED METHODS OF DISPOSAL AND ANY SPECIAL HANDLING CONTRACTS THAT MAY BE APPLICABLE.
13. A STABILIZED ENTRANCE IS REQUIRED FOR ALL CONSTRUCTION SITES TO ENSURE THAT DIRT AND DEBRIS ARE NOT TRACKED ONTO THE ROAD OR ADJACENT PROPERTY. MAINTENANCE OF SUCH A SYSTEM IS REQUIRED FOR THE DURATION OF THE PROJECT. SUCH STABILIZATION MAY BE OF ROCK OR PAVED.
14. ERODED SEDIMENTS MUST BE RETAINED ON SITE AND NOT PERMITTED TO ENTER THE DRAINAGE SYSTEM.
15. PROPER DISPOSAL OF ALL WASTES IS REQUIRED TO KEEP POLLUTANTS FROM THE STORM WATER RUNOFF WHICH WILL BE CONVEYED INTO THE STORM DRAIN SYSTEM. THE PROPER HANDLING OF ALL MATERIALS IS REQUIRED.
16. STORE DRY AND WET MATERIALS UNDER COVER. AVOID ON-SITE WASHOUT EXCEPT IN DESIGNATED AREAS AWAY FROM DRAINS, DITCHES, STREETS, AND STREAMS. CONCRETE WASTE DEPOSITED ON SITE SHALL SET-UP, BE BROKEN APART, AND DISPOSED OF PROPERLY. CONTAINMENT AND PROPER DISPOSAL IS REQUIRED FOR ALL CONCRETE WASTE.
17. UNTREATED RAW WASTEWATER IS NOT TO BE DISCHARGED OR BURIED. SANITARY SEWER FACILITIES ON SITE ARE REQUIRED TO BE IN COMPLIANCE WITH LOCAL HEALTH AGENCY REQUIREMENTS. SANITARY OR SEPTIC WASTES MUST BE TREATED OR DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
18. IDENTIFY THE AREA IN WHICH EXISTING VEGETATION WILL REMAIN UNDISTURBED. SENSITIVE AREAS WHICH MAY REQUIRE PRESERVATION INCLUDE STEEP SLOPES, WATERCOURSES, AND WOODED SITES. PROTECTION IS REQUIRED FOR VERNAL POOLS, WETLANDS, MARSHES, AND OAK TREE SITES.
19. IDENTIFY THE SPECIFIC LOCATIONS THAT MULCHING WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE MIXTURE THAT THE MULCH WILL CONSIST OF.
20. IDENTIFY THE SPECIFIC LOCATIONS THAT GEOTEXTILE MATS WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE SPECIFICATIONS FOR THE BRAND OF MATTING TO BE USED.
21. DUST CONTROL IS REQUIRED FOR CLEARING, GRADING, CONSTRUCTION, SOIL STOCKPILING, AND SITE WORK DURING DRY WEATHER, AS WELL AS FOR UNIMPROVED ROADWAYS. IDENTIFY THE MEANS BY WHICH DUST CONTROL WILL BE PERFORMED ON SITE AND NOTE THE FREQUENCY IN WHICH IT WILL OCCUR. NON-COMPLIANCE WILL BE REPORTED TO THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR ADDITIONAL ENFORCEMENT.
22. CHECK DAMS ARE REQUIRED TO REDUCE THE VELOCITY OF CONCENTRATED FLOW. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
23. A SILT FENCE IS USEFUL FOR RETENTION OF SEDIMENT IN THE LOCATION OF SHEET FLOW OR WIND EROSION. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
24. IDENTIFY THE SPECIFIC LOCATIONS WHERE STRAW BALES WILL BE USED FOR SEDIMENT RETENTION OR VELOCITY REDUCERS. A MAINTENANCE SCHEDULE IS REQUIRED FOR SUCH DEVICES.
25. SAND BAG BARRIERS ARE USEFUL IN A GREAT VARIETY OF LOCATIONS FOR THE CONTROL OF EROSION. SAND BAGS WILL FUNCTION IN A SIMILAR MANNER AS CHECK DAMS, BARRIERS, CLARIFIERS AND MANY OTHER TYPES OF EROSION CONTROL DEVICES WITH SIMILAR USES. SAND BAG DEVICES MAY APPLY TO A GREATER NUMBER OF SITES FOR REASONS OF VERSATILITY AND STANDARD USE. IDENTIFY THE SPECIFIC LOCATIONS AND DESIGN OF SAND BAG BARRIERS AND NOTE THE SCHEDULE BY WHICH THEY WILL BE MAINTAINED.
26. BRUSH OR ROCK FILTERS REQUIRE SPECIAL APPROVAL FOR PROPER APPLICATION AND CONSTRUCTION. THE DESIGN ENGINEER MUST APPROVE THE APPLICATION, ON SITE, BEFORE THE COUNTY INSPECTION IN ORDER TO ENSURE THE MINIMUM QUALITY OF CONSTRUCTION. SUCH DEVICES WILL ONLY BE CONSIDERED FOR APPROVAL ON MINOR APPLICATIONS.
27. ALL INLETS WHICH RECEIVE SEDIMENT LADEN RUNOFF REQUIRE STORM DRAIN INLET PROTECTION. SEDIMENT TRAPS, FILTERS FABRIC FENCES, SAND BAG FILTERS, GRAVEL AND WIRE MESH FILTERS, ARE EXAMPLES OF INLET PROTECTION WHICH MAY BE APPLIED AT SUCH LOCATIONS. IDENTIFY THE METHODS OF PROTECTING EACH INLET.

ENGINEERED FILL – REFER TO STRUCTURAL GENERAL NOTES, SOILS AND FOUNDATION ITEM NO. 3, DWG. NO. 33906-4001-D-STR.

[redacted]

ISSUED FOR 60% REVIEW

[redacted]

REV	DATE	DRAWN	CHECKED	PIC	APV	SDS	APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	MK		JFH		SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK		JFH		SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK		JFH		SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

0.5783°
PLANT NORTH

[redacted]

PROPERTY BOUNDARY FOR APN 028-080-016

PROJECT AREA

BENCH MARK (B.M.)

GRAPHIC SCALE

50 0 25 50 100 400

(IN FEET)
1 inch = 50 ft.

ISSUED FOR 60% REVIEW

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCAL GAS CONSTRUCTION REPRESENTATIVE.

[redacted] CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCAL SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF SOCAL GAS SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCAL GAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

WORK POINT SCHEDULE *

WP#	NORTHING	EASTING
1	4867.59	4823.56
2	4878.33	4841.55
3	4878.36	4861.22
4	4890.90	4903.02
5	4867.26	4896.47
6	4867.59	4920.14
7	4864.02	4935.22
8	4866.81	4949.39
9	4887.15	4960.22
10	4928.11	4946.22
11	4883.27	4813.47

* COORDINATES LISTED ARE IN THE LOCAL PLANT COORDINATE SYSTEM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

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GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

DRAWING LIMITS

EARTHWORK VOLUMES:

EXCAVATION QUANTITIES:

CUT (CU. YDS.)	1,068
FILL* (CU. YDS.)	1,388

ISSUED FOR 60% REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PM/ APV	SQC APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 6% REVIEW	93365.0

[redacted]

DRAWING LIMITS

[redacted]

DRAWING LIMITS

LEGEND:

——x——	= NEW FENCE (SEE NOTE 7)
◎	= PERMANENT BOLLARD (SEE NOTE 6)
(E)	= EXISTING
MOW	= MADE OF WOOD

NOTES:

1. FOR GENERAL NOTES, SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. FOR SURVEY CONTROL SEE SITE PLAN DWG. NO. 33906-4003-D-STR.
3. PRIOR TO BID, CONTRACTOR SHALL VISIT SITE TO ASSESS EXISTING CONDITIONS, OBSTRUCTIONS, WORK AREA ACCESSIBILITY AND CONSTRUCTABILITY.
4. CONTRACTOR SHALL LOCATE EXISTING BURIED PIPES BY CAREFUL EXCAVATION AND POTHOLING. COORDINATE WITH THE OWNER REGARDING REROUTING, DEMOLITION OR ABANDONMENT OF ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION.
5. FOR EQUIPMENT FOUNDATION LOCATIONS SEE FOUNDATION LOCATION PLAN, DWG. NO. 33906-4004-D-STR.
6. FOR GUARD POST & BOLLARD DETAILS SEE DWG. NO. 33906-4021-D-STR & 0413-D.STD.
7. FOR GATES AND FENCING DETAILS, SEE DWG. NO. 0429-D.STD.
8. THE FENCE FABRIC SHALL BE 2" MESH CHAIN LINK OF #11 GAUGE WIRE. ALL FABRIC AND OTHER STEEL PARTS SHALL BE GALVANIZED. TOP & BOTTOM SELVAGES SHALL HAVE TWISTED AND BARBED FINISH. REFER TO DWG. NO. 0429-D.STD FOR ADDITIONAL FENCING SPECIFICATIONS AND DETAILS.
9. CONTRACTOR TO SUBMIT ALL GATE AND FENCING VENDOR DOCUMENTS AND SPECIFICATIONS FOR APPROVAL AND COMPLIANCE WITH CLIENT STANDARDS PRIOR TO INSTALLATION. IF SUBMITTED ITEMS REQUIRED MODIFICATION OF GENERAL DETAILS PROVIDED ON DWG. NO. 0429-D.STD, NOTIFY ENGINEER FOR DIRECTION PRIOR TO INSTALLATION.
10. FENCE P.I. COORDINATES SHOWN ARE IN THE LOCAL PLANT COORDINATE SYSTEM,

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GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 6% REVIEW	93365.001

[redacted]

N

PLANT NORTH

10'-0" O.T.O. @ FOUNDATION

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
4. ALL ANCHOR BOLT SLEEVES SHALL BE COMPLETELY FILLED WITH EXPANSIVE OR NON-SHRINK GROUT AFTER INSTALLATION COMPLETED.
5. COMPRESSOR FOUNDATION CONCRETE BLOCK SIZE IS DETERMINED BASED ON GEOSYNTEC SSI DYNAMIC ANALYSIS, PROJECT NUMBER SC1017-04, DATED NOVEMBER, 2019
6. FOR COMPRESSOR VENDOR INFORMATION REFER TO THE FOLLOWING DRAWING NO.'S BY ANGI
   - UNIT #1 (C-1200) DWG NO. A05-10-50754-01, REV. E, DATED 01/13/2020.
   - UNIT #2 (C-1300) DWG NO. A05-10-50754-02, REV. D, DATED 01/13/2020.
7. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 6 (ABOVE)
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

[redacted]

REV	DATE	DRAWN	CHECKED	PIU APV	SOO APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR HEAT EXCHANGER VENDOR INFORMATION REFER TO THE FOLLOWING DWG NO. BY ANGI
   - DWG NO. A05-21-50754, REV. C, DATED 11/18/2019 (3 SHEETS).
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	RQA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

N

PLANT NORTH

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT ON-SITE PRIOR TO DRILLING INTO OR POURING CONCRETE.
3. POST-INSTALLED HILTI KWIK BOLT TZ ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS AND LOCATIONS PRIOR TO CONCRETE POUR.
5. ALL CONCRETE SURFACES IN CONTACT WITH GROUT SHALL BE CLEANED, MECHANICALLY ROUGHENED AND PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. GROUT SHALL BE PLACED AFTER EQUIPMENT HAS BEEN SECURED INTO ITS FINAL POSITION.
6. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
7. FOR CHILLER VENDOR INFORMATION REFER TO DWG NO. OPC12-A7-E7197 DATED NOV 21, 2019 BY ACCESS INC.
8. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 7 (ABOVE)
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

ISSUED FOR 60% REVIEW

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[redacted]

[redacted]

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	R.Q.A	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR FILTER SEPARATOR VENDOR INFORMATION, REFER TO THE FOLLOWING DRAWINGS:
   - INLET FILTER SEPARATOR V-1100
   DOC NO: HSFP-12X-2700CS-001-02C REV. 3, DATED 01/14/20 (2 SHEETS)
   - OUTLET FILTER SEPARATOR V-1800
   DOC NO: HSFP-12X-7100CS-001-02C REV. 4, DATED 01/14/20. (3 SHEETS)
6. FOR W.P. COORDINATES REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	LM	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]



ISSUED FOR 60% REVIEW
03/23/2020

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

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NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ODORIZOR VENDOR INFORMATION REFER DWG. NO. 1Q-2173, REV. 00, BY MILTON ROY
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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[redacted]

ISSUED FOR 60% REVIEW

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

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NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR
2. ALL STRUCTURAL STEEL, NUTS, BOLTS, WASHERS AND ROOFING SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.

ACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT
SARY MODIFICATIONS FOR ENGINEER'S REVIEW,
CATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING
POURING CONCRETE, OR INSTALLATION OF OTHER
TURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

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REV	DATE	DRAWN	CHECKED	PIU APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSIED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PLANT NORTH

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS, AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR SERVICE/MONITOR PANEL VENDOR REFER TO DWG. NO. CD-2442 REV. A, DATED 03/01/2020 BY VRG CONTROLS.
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60%	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	DWR	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

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PLANT NORTH

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NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ANALYZER SHELTER VENDOR INFORMATION REFER TO DWG. NOS. "BASE FOUNDATION DETAIL" REV. D, DATED __/__/2020 (SHEET 8 OF 8) BY CAS-CONSOLIDATED ANALYTICAL SYSTEMS.
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

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ISSUED FOR 60% REVIEW

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	LG	DWR	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

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PLANT NORTH

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NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR PDC BUILDING VENDOR INFORMATION REFER TO DWG. NO. 51826-S06-1, REV. B, DATED 02/19/20 BY PIONEER CEP CUSTOM ELECTRICAL PRODUCTS.
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

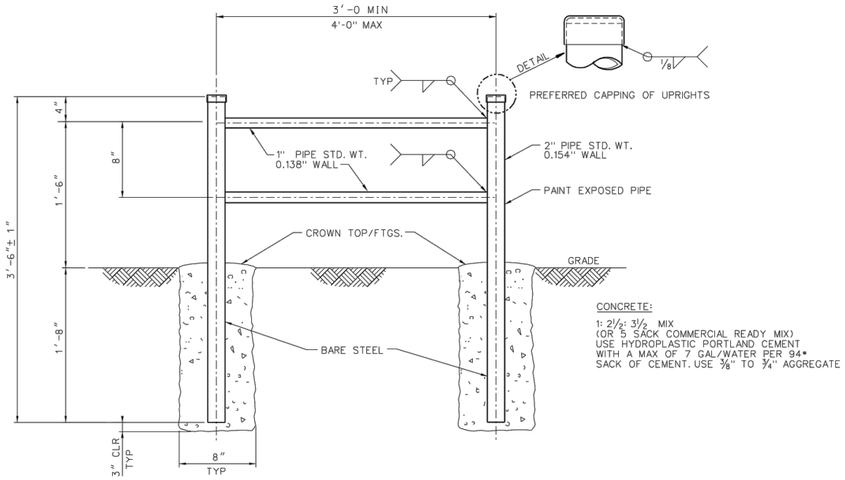
[redacted]

ISSUED FOR 60% REVIEW

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]



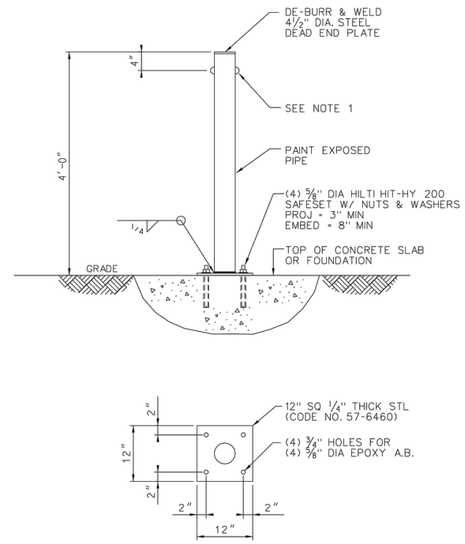
CONCRETE:

1: 2½: 3½ MIX
(OR 5 SACK COMMERCIAL READY MIX)
USE HYDROPLASTIC PORTLAND CEMENT
WITH A MAX OF 7 GAL/WATER PER 94#
SACK OF CEMENT. USE ⅜" TO ¾" AGGREGATE

NOTES:

1. ON ISOLATED METERS, SET AWAY FROM BUILDINGS, MORE GUARDING IS REQUIRED. USE 2 BARRICADES SHOWN ANDWELD 1" PIPE BETWEEN THEM TO PROVIDE ON ALL 4 SIDES OF METER INSTALLATION.
2. TOUCH-UP PAINT WITH LIGHT GRAY ALKYD BASE ENAMEL MANUFACTURED TO INDUSTRIAL PAINT SPECIFICATIONS ASA Z55.1 FOR NO. 49 GRAY. MUNSELL NOTATION 10 BG 4.90/0.60. SMC 30-83.6 (M & S CODE 30-8135). BOTTOM OF 20" POST TO REMAIN BARE TO BOND WITH CONCRETE.

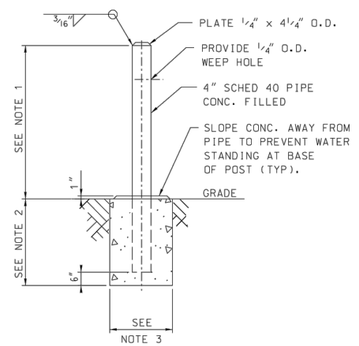
PREFABRICATED GUARD RAIL - DOMESTIC



NOTES:

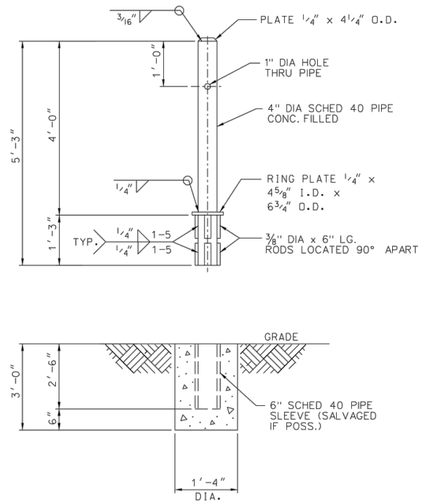
1. IF SAFETY CHAIN IS REQUIRED, WELD ½ OF CHAIN LINK TO EACH SIDE OF POST. USE STEEL CHAIN SIZE 135 (0.135"DIA x 1.35" LONG LINK)
2. SEE DWGS FOR CONCRETE SLAB OR FOUNDATION REINFORCEMENT DETAILS

REMOVABLE GUARD POST DETAIL
(FOR CONCRETE SLAB OR FOUNDATION)



NOTES:

1. FOR LIGHT AND MEDIUM DUTY POSTS = 3'-0"
   FOR HEAVY DUTY POSTS = 4'-0"
2. FOR LIGHT AND MEDIUM DUTY POSTS = 3'-0"
   FOR HEAVY DUTY POSTS = 3'-6"
3. FOR LIGHT AND MEDIUM DUTY POSTS = 1'-0" DIAMETER
   FOR HEAVY DUTY POSTS = 1'-3" DIAMETER
4. PAINT POSTS SAFETY YELLOW WITH 4" BLACK STRIPE AT TOP.
   CONCRETE: 3000 psi MINIMUM 28 DAYS COMPRESSION STRENGTH



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REV	DATE	DRAWN	CHECKED	PM APV	SOS APV	ENG FILE NO	DESCRIPTION	WOA
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

Attachment 4

Civil-Structural-Pkg_IFR-90

STRUCTURAL GENERAL NOTES

GENERAL

1. CONTRACTOR TO BE APPROVED BY THE CITY, OR OTHER GOVERNMENT AGENCY HAVING JURISDICTION OVER THIS DEVELOPMENT.
2. DESIGN CODE AND GENERAL REQUIREMENTS:
   A.) CALIFORNIA BUILDING CODE, 2019.
   B.) CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS ACT. (OSHA)
   C.) CALIFORNIA STATE INDUSTRIAL SAFETY ORDERS.
   D.) KING'S COUNTY ORDINANCES AND REGULATIONS.
   E.) ASCE 7-16.
3. COORDINATE ALL WORK WITH THE PLANT CONSTRUCTION COORDINATOR.
4. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION DIMENSIONS. CONTRACTOR SHALL CONTACT ENGINEERING FOR ANY INCORRECT OR MISSING DIMENSIONS.
5. THE LOCATIONS OF THE SUBSTRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS. THERE IS NO ASSURANCE THAT THE RECORD INFORMATION IS ACCURATE, OR THAT ALL EXISTING SUBSTRUCTURES ARE SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE SUBSTRUCTURES SHOWN AND ANY OTHER SUBSTRUCTURES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. THE OWNER SHALL HAVE THE RIGHT TO MAKE CERTAIN CHANGES IN THE WORK AND THE CONTRACT AMOUNT SHALL BE ADJUSTED ACCORDINGLY. ALL SUGGESTED CHANGES OR MODIFICATIONS TO THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS MUST HAVE WRITTEN APPROVAL FROM AN OWNER REPRESENTATIVE PRIOR TO MAKING ANY SUCH MODIFICATIONS. THE CONTRACTOR IS INSTRUCTED NOT TO ACCEPT VERBAL AUTHORIZATIONS AND ASSUMES ANY AND ALL LIABILITY FOR NOT COMPLYING WITH THIS PROCEDURE IN ITS ENTIRETY. AS A RESULT, THE CONTRACTOR MAY BE REQUIRED TO REVAMP ANY UNAUTHORIZED MODIFICATIONS TO COMPLY WITH THE DESIGN SHOWN ON THESE CONSTRUCTION DOCUMENTS, AT NO ADDITIONAL COST. NO EXCEPTIONS WILL BE PERMITTED.
7. CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS PRIOR TO BIDDING AND COMMENCING CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING THAT OF ALL SUB-TRADES.
9. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS.
10. CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS ACCUMULATED AS A RESULT OF THEIR OPERATION. ALL SCRAP, DEBRIS, AND OTHER EXCESS MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE.
11. CONTRACTOR SHALL FURNISH ALL MATERIALS AS SHOWN HEREIN UNLESS EQUAL ALTERNATES ARE APPROVED IN WRITING BY THE OWNER AND ENGINEER.
12. ANY REFERENCE TO THE WORDS APPROVE, APPROVED, OR APPROVAL IN THESE DOCUMENTS SHALL BE HEREIN DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUBCONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
13. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO, BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING THE CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, AND FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING COMPLIANCE WITH CONTRACT DOCUMENTS, DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
14. CONTRACTOR SHALL VERIFY AND DOCUMENT THE LOCATION OF ALL UNDERGROUND LINES WITHIN THE AREAS OF PROPOSED CONSTRUCTION.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING PER SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT RULE 4651 REQUIREMENTS.
16. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY TO COMPLETELY EXPLAIN AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT TO OWNER'S REPRESENTATIVE ONE COMPLETE SET OF DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
17. NOTES AND DETAILS ON DESIGN DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES, STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

SHORING

1. ALL SHORING SHALL COMPLY WITH CAL/OSHA.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND PROVIDING BRACING DURING CONSTRUCTION AND/OR ERECTION TO SUPPORT ALL LOADS TO WHICH THE STRUCTURE AND SUPPORTING SOIL MAY BE SUBJECTED.

FIRE DEPARTMENT REQUIREMENTS

1. ALL NEW CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FIRE DEPARTMENT REGULATIONS.
2. ALL PIPING SYSTEMS SHALL BE LABELED IN ACCORDANCE WITH SPECIFICATIONS.
3. VEHICULAR ACCESS SHALL BE MAINTAINED DURING CONSTRUCTION.

SOILS AND FOUNDATION

1. ALL FOUNDATION AND EARTHWORK SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION PREPARED BY GEOSYNTEC CONSULTANTS, DATED NOVEMBER 13, 2019. THE GEOTECHNICAL INVESTIGATION (PROJECT NO. SC1017-04), ALL ASSOCIATED ADDENDUM, AND ALL REQUIREMENTS AND RECOMMENDATIONS THEREIN, SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. IF NOT PROVIDED, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING A COPY OF THE INVESTIGATION PRIOR TO SUBMITTING HIS BID.
2. ALL EARTHWORK SHALL BE DONE IN A SAFE MANNER, COMPLYING WITH CAL/OSHA REQUIREMENTS AND IN STRICT ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. ALL EARTHWORK SHALL BE DONE UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. FILL MATERIAL SHOULD BE FREE FROM ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHOULD NOT CONTAIN ROCKS OR LUMPS OVER 4 INCHES IN GREATEST DIMENSION. NO MORE THAN 50 PERCENT OF THE FILL MATERIAL SHOULD PASS THE NO. 200 SIEVE AND THE MATERIAL SHOULD HAVE A LOW EXPANSION POTENTIAL. AS EVIDENCED BY A PLASTICITY INDEX OF 15 OR LESS OR EXPANSION INDEX OF 20 OR LESS. IMPORT SOIL SHOULD BE NON-EXPANSIVE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE (CBC) SECTION 1803A.5.3 AND SHOULD HAVE LOW POTENTIAL FOR CORROSIVITY AND HIGH RESISTIVITY. THE PH, CHLORIDE CONTENT, AND SULFATE CONTENT OF THE FILL MATERIALS SHOULD NOT BE DELETERIOUS TO THE MATERIALS USED TO CONSTRUCT THE FOUNDATION SYSTEM AND OTHER IMPROVEMENTS (I.E., CONCRETE OR STEEL). CLASS 2 AGGREGATE BASE MAY BE UTILIZED FOR CONSTRUCTION OF ACCESS ROADS OR PADS AND SHOULD CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) "STANDARD SPECIFICATIONS" SECTION 26-1.02B. FILL SHOULD BE MOISTURE CONDITIONED AND COMPACTED BETWEEN 0 AND 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENTS IN LAYERS THAT DO NOT EXCEED 8-INCH LOOSE LIFTS FOR HEAVY EQUIPMENT COMPACTION. EACH LIFT OF FILL SHOULD BE COMPACTED TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION UNLESS OTHERWISE SPECIFIED. RELATIVE COMPACTION IS DEFINED AS THE RATIO (IN PERCENT) OF THE INPLACE DRY DENSITY TO THE MAXIMUM DRY DENSITY DETERMINED USING THE LATEST VERSION OF ASTM D1557 AS THE COMPACTION STANDARD. CLASS 2 AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95 PERCENT.
4. EXCAVATED ON SITE SOILS MEETING THE ABOVE REQUIREMENTS MAY ONLY BE REUSED WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER.
5. EXISTING UNDERGROUND UTILITIES AND FOUNDATIONS SHALL BE LOCATED BY CAREFUL EXCAVATION INCLUDING AS REQUIRED, EXCAVATION BY HAND BEFORE STARTING FOUNDATION EXCAVATION WORK. SUPPORT AND PROTECTION OF THESE UTILITIES AND FOUNDATIONS SHALL BE PROVIDED DURING EARTHWORK OPERATIONS IF THEY ARE TO REMAIN IN PLACE. SHOULD UNCHARTED OR INCORRECTLY CHARTED UNDERGROUND UTILITIES AND FOUNDATIONS BE ENCOUNTERED DURING EXCAVATION, CONSULT THE OWNER'S CONSTRUCTION COORDINATOR IMMEDIATELY FOR DIRECTIONS.
6. ALL EXCAVATED MATERIAL MUST BE PLACED ON PLASTIC SHEETING OR AS DIRECTED BY OWNER UNTIL DETERMINED NOT TO BE CONTAMINATED.
7. EXCAVATED CONTAMINATED SOIL SHALL BE PACKAGED, LABELED AND DISPOSED OF AS DIRECTED BY OWNER. OWNER WILL BE RESPONSIBLE FOR COST OF DISPOSAL.
8. ALL UNDERGROUND PIPING, ELECTRICAL GROUNDING AND DUCT BANKS SHALL BE IN PLACE PRIOR TO POURING FOUNDATIONS AND PAVING.
9. CONTINUOUS INSPECTION BY SOILS ENGINEER/GEOLOGIST IS REQUIRED FOR EXCAVATION, REMOVAL AND RECOMPACTING.
10. NO FILL SHALL BE PLACED UNTIL THE GEOTECHNICAL ENGINEER HAS INSPECTED AND APPROVED THE BOTTOM EXCAVATION.
11. THE SOILS ENGINEER OF RECORD SHALL INSPECT AND APPROVE THE FOUNDATION EXCAVATIONS BEFORE STEEL OR CONCRETE IS PLACED.
12. THE SOILS ENGINEER SHALL BE NOTIFIED 72 HOURS IN ADVANCE AND OBSERVE FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR REINFORCEMENT. HE SHALL VERIFY THAT THE SUBGRADE SOILS UNDERLYING PROPOSED CONCRETE FOUNDATIONS HAVE BEEN MOISTURE CONDITIONED FOR 24 HOURS PRIOR TO PLACEMENT OF CONCRETE. HE SHALL APPROVE THE SOIL CONDITIONS, DEPTH OF EXCAVATIONS AND CONDITION OF EXCAVATION PRIOR TO PLACEMENT OF REINFORCEMENT, FILLING, AND COMPACTING OPERATIONS.
13. ALL FILL AND BACKFILL MATERIALS SHALL BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH, IN ADDITION TO THE SPECIFICATIONS, THE LATEST ADOPTED EDITION OF THE FOLLOWING ACI CODES: ACI 318 BUILDING REQUIREMENTS FOR REINFORCED STRUCTURES, ACI 304 GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE, CONCRETE, ACI 315R MANUAL OF ENGINEERING AND PLACEMENT DRAWINGS FOR REINFORCED CONCRETE ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
2. CEMENT SHALL BE TYPE II / V AND CONFORM TO ASTM C150, UNLESS OTHERWISE SPECIFIED OR REQUIRED.
3. PORTLAND BLAST-FURNACE SLAG CEMENT OR PORTLAND-POZZOLAN CEMENT SHALL CONFORM TO ASTM C595, "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS".
4. MIXING WATER SHALL CONFORM TO ASTM C94. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45. MAXIMUM ALLOWABLE SLUMP IS 4 INCHES ±1 INCH.
5. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES".
6. AGGREGATES FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330 "SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE".
7. THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN 1 1/2". THESE LIMITATIONS MAY BE WAIVED IF, IN THE JUDGMENT OF THE ENGINEER, WORKABILITY AND METHODS OF CONSOLIDATION ARE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMB OR VOIDS. WAIVER MUST BE IN WRITING.
8. ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
9. CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY, CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION AND, WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS.
10. THE SPECIFIED COMPRESSIVE STRENGTH OF THE CONCRETE (fc') FOR EACH PORTION OF THE STRUCTURE SHALL BE AS DESIGNATED BELOW. STRENGTH REQUIREMENTS SHALL BE BASED ON 28-DAY COMPRESSIVE STRENGTH, UNLESS NOTED OTHERWISE.
    * ALL REINFORCED CONCRETE SHALL BE fc' = 4000 PSI CONCRETE MIN. OR BETTER.
11. ALL REINFORCING STEEL, WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE BUILDING INSPECTOR PRIOR TO PLACING OF CONCRETE.
12. EXPOSED HORIZONTAL CONCRETE SURFACES SHALL BE WOOD FLOATED TO DEPRESS COARSE AGGREGATE AND STEEL TROWELED TO A SMOOTH SURFACE. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH. ALL WALKING SURFACES SHALL HAVE A LIGHT BROOM FINISH.
13. CONCRETE SURFACES SHALL BE PROTECTED DURING CURING AGAINST EARLY EVAPORATION OF WATER, ACTION BY SUN, RAIN, WATER, FROST AND CRACKING BY USE OF A PLASTIC MEMBRANE OR SPRAY ON CURING AGENT.
14. ANCHOR BOLTS, NUTS AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED AND SHALL BE FURNISHED AND ERECTED BY THE CONCRETE CONTRACTOR.
15. PREMOLDED EXPANSION JOINT FILLER SHALL BE 3/4" AND SHALL COMPLY TO ASTM 1751. JOINT SEALANT SHALL BE "SIKAFLEX-2C" AND SHALL BE 1/4" DEEP MINIMUM.
16. STANDARD GROUT SHALL BE NON-SHRINK CEMENTITIOUS STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL WITH MINIMUM 5,000 PSI COMPRESSIVE STRENGTH. SEE DESIGN DRAWINGS FOR SPECIALTY GROUT WHEN SPECIFIED.
17. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 48 HOURS PRIOR TO THE CONTRACTOR REQUESTING STRUCTURAL OBSERVATION OR SPECIAL INSPECTION OF FOUNDATIONS:
    A. CONCRETE MIX DESIGN.
    B. SHOP DRAWINGS FOR CONCRETE REINFORCING STEEL, ANCHOR BOLTS, AND ITEMS EMBEDDED IN CONCRETE.
    C. GEOTECHNICAL ENGINEER'S INSPECTION REPORT FOR BOTTOM OF EXCAVATION.
18. FOR ELECTRICAL STUB-UPS AND GROUNDING REQUIREMENTS SEE ELECTRICAL PLANS PRIOR TO SETTING FORMS.
19. CONCRETE CURING AND FORM STRIPPING:
    THE FOLLOWING CONSTRUCTION ACTIVITIES SHALL NOT BE PERFORMED UNTIL THE CRITERIA LISTED BELOW HAVE BEEN MET. THE SPECIFIED PERCENTAGES ARE RELATIVE TO THE DESIGN COMPRESSIVE STRENGTH OF CONCRETE. COMPRESSIVE STRENGTH SHALL BE DETERMINED BASED ON THE RESULTS OF CYLINDER BREAK TESTS PERFORMED IN ACCORDANCE WITH ACI 318 REQUIREMENTS AND TAKE PRECEDENCE OVER THE CURE DURATION WHEN TEST RESULTS ARE AVAILABLE. THESE PROVISIONS ARE FOR GUIDANCE ONLY AND ALL ACTIVITIES BASED ON CURE TIMES LESS THAN THOSE LISTED BELOW REQUIRE APPROVAL OF THE ENGINEER OF RECORD. IN ALL CASES CONCRETE SHALL BE PROTECTED DURING CURING BY USE OF A PLASTIC MEMBRANE AND/OR SPRAY ON CURING AGENT TO PREVENT CRACKING OR DAMAGE.
    A. STRIPPING OF FORMS (GENERAL) . . . . . 75% OR 7 DAYS
    B. STRIPPING OF FORMS (RETAINING WALLS AND ELEVATED SLABS) . . . . 100% AND 28 DAYS
    C. SETTING OF SKID MOUNTED EQUIPMENT . . . . . 75% OR 7 DAYS
    D. SETTING OF SHOP FABRICATED TANKS OR VESSELS . . . . . 100% AND 14 DAYS
    E. BACKFILLING RETAINING WALLS AND TANK RING FOUNDATIONS . . . . . 100% AND 28 DAYS
    F. INSTALLATION OF POST INSTALLED MECHANICAL ANCHORS . . . . . 100% OR 21 DAYS
    G. INSTALLATION OF POST INSTALLED EPOXY ANCHORS (PER ACI 318) . . . 21 DAYS AND 100%
20. WHEN CONCRETE IS PLACED AGAINST PREVIOUSLY HARDENED CONCRETE, THE INTERFACE (COLD, OR CONSTRUCTION, JOINT) SHALL BE CLEAN OF OIL, DEBRIS, AND CONCRETE LAITANCE AND ROUGHENED TO AN EXPOSED AGGREGATE SURFACE WITH AN AMPLITUDE OF 1/4". MASTEREMACO ADH 326 BONDING AGENT SHALL BE APPLIED AT THE JOINT SURFACE PER MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE. COLD JOINTS MAY ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR WHEN APPROVED IN WRITING BY THE ENGINEER OF RECORD.

REINFORCING STEEL

1. **REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, UNLESS NOTED OTHERWISE.** ASTM A706 OR DUAL SPECIFICATION (W/S) REBAR IS NOT AN ACCEPTABLE SUBSTITUTE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO ACI DETAILING MANUAL.
2. REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVER:
    A. CONCRETE CAST AGAINST EARTH. . . . . 3"
    B. EXPOSED TO EARTH OR WEATHER:
       NO. 5 AND SMALLER . . . . . 1 1/2"
       NO. 6 AND LARGER . . . . . 2"
    C. PRECAST CONCRETE EXPOSED TO EARTH OR WEATHER:
       NO. 11 OR SMALLER . . . . . 3/4"
       NO. 14 & NO. 18. . . . . 1 1/2"
3. DOWELS SHALL BE PROVIDED AT POUR AND CONSTRUCTION JOINTS AND SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCING SHOWN FOR THE SUBSEQUENT CONSTRUCTION, UNLESS OTHERWISE NOTED.
4. BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BONDING.
5. ALL REBAR SHALL BE BENT COLD IN ACCORDANCE WITH ACI 318 CURRENT EDITION.
6. ALL REINFORCING STEEL LAPS OR SPLICES SHALL BE AS INDICATED ON PLANS. WHERE LAP OR SPLICE LOCATIONS ARE NOT SPECIFIED, LAPS OR SPLICES SHALL BE WELL STAGGERED AND LAP SHALL BE 12" MINIMUM.
7. CONTINUOUS INSPECTION OF CONCRETE SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES, AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE ASTM SPECIFICATION AND SHALL BE FABRICATED BY BUILDING DEPARTMENT LICENSED FABRICATOR AND ERECTED ACCORDING TO AISC PRACTICE AND SPECIFICATIONS FOR BUILDINGS AS SPECIFIED IN THE LATEST AISC MANUAL OF STEEL CONSTRUCTION.
2. W & WT SHAPES SHALL CONFORM TO ASTM A572 GR50 OR A992 (50 KSI). OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. TUBE MEMBERS SHALL CONFORM TO ASTM A500, GRADE B (FY = 46 KSI). PIPE COLUMNS SHALL CONFORM TO ASTM A53, GRADE B (FY = 35 KSI).
4. GUSSET PLATES SHALL BE 3/8" THICK OR GREATER.
5. ALL PLATFORMING MATERIALS SHALL BE HOT DIP GALVANIZED, SERRATED, WELDED, BAR GRATING WITH 1 1/4"x 3/16" BEARING BARS AT 1 3/16" CENTERS AND CROSSBARS AT 4" CENTERS, UNLESS NOTED OTHERWISE. BAND ALL EDGES AND OPENINGS. ATTACHMENT OF GRATING AT SUPPORTS NORMAL TO PANEL SPAN SHALL BE BY CLIPS AT EVERY 6TH BEARING BAR AND AT EACH END OF PANEL. (MIN IS 4 CLIPS PER PANEL)
6. WELDING SHALL CONFORM WITH THE LATEST EDITION OF THE WELDING CODE AWS D1.1. WELDING SHALL BE PERFORMED BY BUILDING DEPARTMENT APPROVED CERTIFIED WELDERS. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY A REGISTERED DEPUTY INSPECTOR AT THE EXPENSE OF THE OWNER.
7. WELD ELECTRODES SHALL BE E70XX.
8. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH. 1/8" RADIUS ALL SHARP EDGES.
9. ALL WELDS SHALL BE UNIFORM IN APPEARANCE AND BE FREE OF UNDERCUTTING. REMOVE ALL SLAG AND ARC SPATTER PRIOR TO BEING GALVANIZED.
10. UNLESS OTHERWISE NOTED, ALL SHOP AND FIELD BOLTED CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS, CONFORMING TO ASTM F3125 (GR. A325) (GALVANIZED), NUTS TO BE ASTM A563 (GALVANIZED) AND WASHERS TO BE ASTM F436 (GALVANIZED). CONNECTIONS SHALL CONFORM TO THE LATEST EDITION OF AISC MANUAL OF STEEL CONSTRUCTION AND SHALL BE INSTALLED AS SNUG-TIGHTENED JOINTS USING THE MAXIMUM NUMBER OF BOLTS FOR EACH BEAM DEPTH.
11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER OF RECORD OR OWNER'S ASSIGNEE PRIOR TO FABRICATION.
12. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THE ENGINEER.
13. ALL STRUCTURAL STEEL, ANCHOR BOLTS AND EMBEDS ARE TO BE HOT DIP GALVANIZED PER ASTM F2329. ALL REPAIRS SHALL CONFORM TO ASTM A780.
14. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING. USE RUST-OLEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
15. GROUTING SHALL BE DONE AFTER STRUCTURAL STEEL IS IN ITS FINAL POSITION WITH NON-SHRINK STRUCTURAL GROUT BY "FIVE STAR" OR APPROVED EQUAL. GROUT SHALL BE PLACED PER MANUFACTURER RECOMMENDATIONS IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.

STRUCTURAL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH AWS D1.1, LATEST EDITION.
2. COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS MINIMUM AT -20°F. WELD METAL FOR CONTINUITY PLATES SHALL ALSO MEET THIS NOTCH-TOUGH REQUIREMENT. ALL SHIELDED METAL ARC WELDING (SMAW) ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE.
3. A WELDING PROCEDURE SPECIFICATION (WPS) AND PROCEDURE QUALIFICATION RECORDS (PQR) PER AWS D1.1 SHALL BE DEVELOPED BY THE FABRICATOR FOR SHOP WELDING AND THE ERECTOR FOR FIELD WELDING AND BE REVIEWED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE WPS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER. THE WELDING ELECTRODE MANUFACTURER'S SPECIFICATIONS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.
4. DEPUTY INSPECTORS ARE TO BE CERTIFIED DEPUTY STEEL INSPECTORS APPROVED BY THE LOCAL GOVERNMENT BUILDING AUTHORITY.
5. THE DEPUTY INSPECTOR'S REPORT SHALL DOCUMENT THAT THE WPS REQUIREMENTS WERE FOLLOWED, THAT PROPER AMPERAGE AND VOLTAGE IS USED IN THE WELDING PROCESS, AND THAT TRAVEL SPEED AND ELECTRODE STICK OUT COMPLY WITH THE APPROVED WPS. A HAND-HELD CALIBRATED AMP-AND VOLT METER SHALL BE USED BY THE FABRICATOR, ERECTOR, AND DEPUTY INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
6. THE PREHEAT AND INTERPASS TEMPERATURES REQUIRED IN AWS D1.1 SHALL BE STRICTLY OBSERVED.
7. AFTER WELDING, BACKING BARS SHALL BE REMOVED FROM THE BOTTOM FLANGE. A REINFORCING FILLET WELD SHALL BE PLACED WHERE THE BACK-UP BAR WAS REMOVED. WELD EXTENSION TABS SHALL BE REMOVED FROM THE TOP AND BOTTOM FLANGE. OTHER BACKING BARS AND WELD EXTENSION TABS NEEDED FOR WELDS IN THE CONNECTION, SUCH AS WELDS FOR CONNECTING PLATES, SHALL BE REMOVED IF THESE BARS AND TABS WERE REMOVED FROM TESTED CONNECTIONS. THE ENGINEER OF RECORD SHALL INCLUDE NOTES OR DETAILS ON THE PLANS THAT SPECIFY WHICH BACKING BARS AND WELD EXTENSION TABS MUST BE REMOVED AND WHICH MAY REMAIN, AND WHERE REINFORCING FILLET WELDS ARE REQUIRED, FOR ALL WELDS IN THE AREA OF BEAM-TO-COLUMNS CONNECTIONS.
8. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL WELDED MOMENT CONNECTIONS. ANY OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR CONTRACTOR AND THE BUILDING OFFICIAL.

SCAFFOLDING PROTECTION

1. SCAFFOLDING SHALL COMPLY WITH PROVISIONS OF THE CAL/OSHA.
2. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL SCAFFOLDING, STAGING, TRESTLES AND PLANKING FOR THE DURATION OF THE WORK. THE CONTRACTOR SHALL MAINTAIN ALL FORMS OF PROTECTION, AS REQUIRED, TO PRESERVE THE WORK IN PERFECT CONDITION.

ANCHOR BOLTS

1. CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 WITH HEAVY HEX NUTS PER ASTM A563 GRADE A AND WASHERS PER ASTM F436 TYPE 1 (UNLESS NOTED OTHERWISE).
2. FIT OF NUTS ON THREADS OF ANCHOR BOLTS SHALL BE VERIFIED BEFORE SHIPMENT.
3. ANCHOR BOLT, NUT AND WASHER ASSEMBLIES SHALL BE HOT DIP GALVANIZED PER ASTM A153 OR F2329. COLD GALVANIZING SPRAY IS NOT AN ACCEPTABLE SUBSTITUTE TO HOT DIP GALVANIZING. FIELD CUT THREADED RODS MAY NOT BE SUBSTITUTED FOR SPECIFIED HOT DIP GALVANIZED ANCHOR BOLT ASSEMBLIES.
4. ANCHOR BOLTS TO BE ENCLOSED WITH #4 TIES UNLESS NOTED OTHERWISE.
5. HEADED ANCHOR BOLTS MAY BE USED WITH APPROVAL OF ENGINEER.
6. PLASTIC ANCHOR BOLT SLEEVES, WHEN SPECIFIED, SHALL BE WILSON ANCHOR BOLT SLEEVES AS MANUFACTURED BY SINCO PRODUCTS INC. SLEEVE DIMENSIONS ARE CRITICAL FOR CLEARANCE. ALTERNATE SLEEVE MANUFACTURER MUST BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
7. ADHESIVE ANCHORS SHALL NOT BE INSTALLED IN CONCRETE HAVING AN AGE LESS THAN 21 DAYS AT TIME OF INSTALLATION, PER ACI 318-14 SECTION 17.1.2. ADHESIVE ANCHORS SHALL NOT BE TENSIONED OR TORQUED UNTIL 48 HOURS AFTER INSTALLATION TO ALLOW FOR REQUIRED EPOXY CURE.
8. WHERE HILTI THREADED "HAS" RODS ARE SPECIFIED, GENERIC THREADED RODS ARE NOT AN ACCEPTABLE SUBSTITUTE. "HAS" RODS SHALL BE DELIVERED ONSITE WITH CERTIFIED VERIFICATION DOCUMENT.
9. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ AND COMPLY WITH ICC-ES REPORT 1917 (ESR-1917).

DESIGN CRITERIA

1. REFERENCE DOCUMENT: SITE SPECIFIC DESIGN CRITERIA NO: DS-460090-04000-29. (REV. 2)
2. LOADS

2.1	DEAD LOADS:	AS CALCULATED
2.2	LIVE LOADS:	
	ROOF LIVE LOAD	20 PSF
	FLOOR LIVE LOAD	100 PSF
2.3	WIND LOADS:	
	BASIC WIND SPEED (3 SECOND GUST)	105 mph
	EXPOSURE CATEGORY	C
	RISK CATEGORY	IV
2.4	SEISMIC LOADS:	
	SITE CLASS	D
	RISK CATEGORY	IV
	IMPORTANCE FACTOR	1.25
	S_S (g)	0.728
	F_A (g)	1.217
	F_V (g)	2.068
	S_{MS} (g)	0.887
	S_{DS} (g)	0.591
	T_L	12 SEC

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PIC	APV	SDS APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN		E18037	ISSUED FOR 90%	93

STRUCTURAL GENERAL NOTES

GENERAL NOTES FOR STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IS REQUIRED FOR ALL PORTIONS OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
2. THE OWNER SHALL EMPLOY A CIVIL OR STRUCTURAL ENGINEER OR ARCHITECT TO PERFORM THE STRUCTURAL OBSERVATION. THE ENGINEER OR ARCHITECT SHALL BE REGISTERED OR LICENSED IN THE STATE OF CALIFORNIA. THE DEPARTMENT OF BUILDING AND SAFETY RECOMMENDS THE USE OF THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN WHEN THEY ARE INDEPENDENT OF THE CONTRACTOR.
3. THE STRUCTURAL OBSERVER SHALL PROVIDE PROOF OF EMPLOYMENT BY THE OWNER. A LETTER FROM THE OWNER OR A COPY OF THE AGREEMENT FOR SERVICES SHALL BE SENT TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. THE OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE BUILDING INSPECTOR.
5. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE FOLLOWING SIGNIFICANT CONSTRUCTION STAGES REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER:

CONSTRUCTION STAGES	ELEMENTS/CONNECTIONS TO BE OBSERVED
A) PRIOR TO POURING FOUNDATIONS	REINFORCING STEEL, DOWELS, EMBEDS, AND ANCHOR BOLTS
B) AFTER SETTING OF EQUIPMENT	GROUTING
C) AFTER INSTALLATION OF PIPE SUPPORTS	SIZE, TYPE, CONNECTIONS, AND GROUTING

6. THE STRUCTURAL OBSERVER SHALL PREPARE A REPORT FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED. THE ORIGINAL OF THE OBSERVATION REPORT SHALL BE SENT TO THE BUILDING INSPECTOR'S OFFICE AND SHALL BE SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER. ONE COPY OF THE OBSERVATION REPORT SHALL BE ATTACHED TO THE APPROVED PLANS. THE COPY ATTACHED TO THE PLANS NEED NOT BE SEALED BUT SHALL BE SIGNED BY THE RESPONSIBLE STRUCTURAL OBSERVER OR THEIR DESIGNEE. COPIES OF THE REPORT SHALL ALSO BE GIVEN TO THE OWNER, CONTRACTOR AND DEPUTY INSPECTOR.
7. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.
8. WHEN THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
   A) NOTIFY THE BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
   B) CALL AN ADDITIONAL PRECONSTRUCTION MEETING.
   C) FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF ALL PREVIOUS OBSERVATION REPORTS. THE REPLACEMENT STRUCTURAL OBSERVER SHALL APPROVE THE CORRECTION OF THE ORIGINAL OBSERVED DEFICIENCIES UNLESS OTHERWISE APPROVED BY PLAN CHECK SUPERVISION. THE POLICY OF THE DEPARTMENT SHALL BE TO CORRECT ANY PROPERLY NOTED DEFICIENCIES WITHOUT CONSIDERATION OF THEIR SOURCE.
9. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES RELATING TO THE STRUCTURAL SYSTEMS. THE BUILDING DEPARTMENT SHALL REVIEW AND APPROVE ALL CHANGES TO THE APPROVED PLANS AND SPECIFICATIONS.

SPECIAL INSPECTION (PER 2019 CBC, CHAPTER 17)

1. SPECIAL INSPECTION BY A DEPUTY REGISTERED INSPECTOR APPROVED BY THE BUILDING DEPARTMENT SHALL BE PROVIDED FOR THE FOLLOWING (UNLESS NOTED OTHERWISE):
   - A. CONTINUOUS INSPECTION FOR ALL CONCRETE WORK, INCLUDING REBAR PLACEMENT, FOR CONCRETE STRENGTHS GREATER THAN 2500 PSI DESIGN (U.N.O.).
   - B. SLIP-CRITICAL HIGH STRENGTH BOLTING.
   - C. SHOP WELDING, IF NOT DONE BY AN APPROVED FABRICATOR, & FIELD WELDING.
   - D. ALL EPOXY OR EXPANSION TYPE ANCHORS.
   - E. BUILDING DEPARTMENT LICENSED FABRICATOR IS REQUIRED FOR STRUCTURAL STEEL.
   - F. CAST-IN-PLACE DEEP FOUNDATION PER TABLE 1705.8 OF CBC.
     1. CONTINUOUS INSPECTION OF DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.
     2. CONTINUOUS INSPECTION OF PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.
     3. CONTINUOUS INSPECTION FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS INCLUDING BUT NOT LIMITED TO REBAR AND ANCHOR BOLTS IN ACCORDANCE WITH SECTION 1705.3 OF CBC.
   - G. DEPUTY INSPECTOR SHALL VALIDATE CONTRACTOR'S PROCEDURE FOR GROUT INSTALLATION AT STRUCTURAL STEEL AND EQUIPMENT BASE PLATES TO ENSURE THAT THE GROUTED ELEMENT IS SET CORRECTLY IN PLACE PRIOR TO GROUTING AND THAT THE GROUT IS PLACED IN A MANNER THAT ACHIEVES COMPLETE CONTACT BETWEEN GROUT & BASE PLATE WITH NO VOIDS.
2. THE PERMIT APPLICANT SHALL RETAIN A RESPONSIBLE ENGINEER APPROVED BY THE BUILDING OFFICIAL TO ENSURE THAT:
   - A. ALL ELEMENTS OF CONSTRUCTION WHICH REQUIRE SPECIAL INSPECTION ARE INSPECTED BY QUALIFIED DEPUTY INSPECTORS APPROVED BY THE BUILDING OFFICIAL; AND
   - B. ALL CODE DEFICIENCIES DETECTED AND DEVIATIONS FROM THE APPROVED PLANS ARE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF NOT CORRECTED, REVISED DESIGNS TO OVERCOME THE DEFICIENCY SHALL BE PREPARED BY THE DESIGN ENGINEER OR ARCHITECT OF RECORD FOR APPROVAL BY THE BUILDING OFFICIAL; AND
   - C. ALL CORRECTIVE WORK REQUIRED IS COMPLETED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS, AND CITY ADOPTED CODES.
3. A FINAL INSPECTION REPORT, SIGNED BY THE SPECIAL INSPECTOR AND THE RESPONSIBLE ENGINEER, IS SUBMITTED TO THE BUILDING OFFICIAL UPON THE COMPLETION OF EACH ELEMENT REQUIRING SPECIAL INSPECTION. THE REPORT MUST CERTIFY THAT THE WORK WAS IN COMPLIANCE WITH APPROVED PLANS, SPECIFICATIONS AND APPLICABLE CITY CODES, INCLUDING ANY AUTHORIZED CHANGES TO THE PLAN. THE FINAL REPORT SHALL BE SUBMITTED WITHIN 7 DAYS OF INSPECTION. A COPY OF THE REPORT SHALL BE PROVIDED FOR ENGINEER OF RECORD, OWNER AND CONTRACTOR.

CONCRETE TESTING

1. INSPECTOR SHALL BE PRESENT DURING TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE. CONTRACTOR TO COORDINATE WITH OWNER FOR AVAILABILITY OF OWNER HIRED INSPECTOR PRIOR TO CONSTRUCTION.
2. INSPECT EXCAVATION, REINFORCEMENT, AND OTHER EMBEDDED ITEMS PRIOR TO PLACING CONCRETE TO ENSURE COMPLIANCE WITH APPROVED DRAWINGS.
3. FREQUENCY OF CONCRETE TESTING:
   THE FOLLOWING CRITERIA SHALL ESTABLISH THE REQUIRED MINIMUM SAMPLING FREQUENCY FOR EACH CLASS OF CONCRETE.
   - A. ONCE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN
   - B. ONCE FOR EACH 150 CU YD OF EACH CLASS PLACED EACH DAY, NOR LESS THAN
   - C. ONCE FOR EACH 5000 SQ FT OF SLAB OR WALL SURFACE AREA PLACED EACH DAY.
   - D. A SET OF TESTS WILL CONSIST OF 4 CYLINDERS MINIMUM.

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES

THE FOLLOWING MINIMUM STANDARDS OF GOOD HOUSEKEEPING MUST BE IMPLEMENTED BY THE CONTRACTOR ON THE CONSTRUCTION SITE.

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BE WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. PROVIDE A MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT AND/ OR WEATHER PROTECTION. NOTE THE MAINTENANCE PRACTICES AND SCHEDULE PROPOSED FOR THIS AREA.
9. HAZARDOUS MATERIALS, FERTILIZERS, PESTICIDES, PLASTERS, SOLVENTS, PAINTS, AND OTHER COMPOUNDS MUST BE PROPERLY HANDLED IN ORDER TO REDUCE THE RISK OF POLLUTION OR CONTAMINATION. TRAINING AND INFORMATION ON PROCEDURES FOR THE PROPER USE OF ALL MATERIALS MUST BE AVAILABLE TO THE EMPLOYEES THAT APPLY SUCH MATERIALS.
10. IDENTIFY SPILL PREVENTION AND CONTROL MEASURES THAT WILL BE TAKEN FOR ALL PROPOSED MATERIALS. IDENTIFY THE METHODS, BY WHICH ACCIDENTAL SPILLS WILL BE CLEANED AND PROPERLY DISPOSED OF.
11. PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR DISPOSAL. PROVIDE COVERED STORAGE WITH SECONDARY CONTAINMENT. CONTAINERS ARE REQUIRED TO PROTECT WASTE FROM RAIN TO PREVENT WATER POLLUTION AND PREVENT WIND DISPERSAL.
12. HAZARDOUS MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. IDENTIFY THE PROPOSED METHODS OF DISPOSAL AND ANY SPECIAL HANDLING CONTRACTS THAT MAY BE APPLICABLE.
13. A STABILIZED ENTRANCE IS REQUIRED FOR ALL CONSTRUCTION SITES TO ENSURE THAT DIRT AND DEBRIS ARE NOT TRACKED ONTO THE ROAD OR ADJACENT PROPERTY. MAINTENANCE OF SUCH A SYSTEM IS REQUIRED FOR THE DURATION OF THE PROJECT. SUCH STABILIZATION MAY BE OF ROCK OR PAVED.
14. ERODED SEDIMENTS MUST BE RETAINED ON SITE AND NOT PERMITTED TO ENTER THE DRAINAGE SYSTEM.
15. PROPER DISPOSAL OF ALL WASTES IS REQUIRED TO KEEP POLLUTANTS FROM THE STORM WATER RUNOFF WHICH WILL BE CONVEYED INTO THE STORM DRAIN SYSTEM. THE PROPER HANDLING OF ALL MATERIALS IS REQUIRED.
16. STORE DRY AND WET MATERIALS UNDER COVER. AVOID ON-SITE WASHOUT EXCEPT IN DESIGNATED AREAS AWAY FROM DRAINS, DITCHES, STREETS, AND STREAMS. CONCRETE WASTE DEPOSITED ON SITE SHALL SET-UP, BE BROKEN APART, AND DISPOSED OF PROPERLY. CONTAINMENT AND PROPER DISPOSAL IS REQUIRED FOR ALL CONCRETE WASTE.
17. UNTREATED RAW WASTEWATER IS NOT TO BE DISCHARGED OR BURIED. SANITARY SEWER FACILITIES ON SITE ARE REQUIRED TO BE IN COMPLIANCE WITH LOCAL HEALTH AGENCY REQUIREMENTS. SANITARY OR SEPTIC WASTES MUST BE TREATED OR DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
18. IDENTIFY THE AREA IN WHICH EXISTING VEGETATION WILL REMAIN UNDISTURBED. SENSITIVE AREAS WHICH MAY REQUIRE PRESERVATION INCLUDE STEEP SLOPES, WATERCOURSES, AND WOODED SITES. PROTECTION IS REQUIRED FOR VERNAL POOLS, WETLANDS, MARSHES, AND OAK TREE SITES.
19. IDENTIFY THE SPECIFIC LOCATIONS THAT MULCHING WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE MIXTURE THAT THE MULCH WILL CONSIST OF.
20. IDENTIFY THE SPECIFIC LOCATIONS THAT GEOTEXTILE MATS WILL BE USED AS A SOIL STABILIZER. INCLUDE THE MANUFACTURE SPECIFICATIONS FOR THE BRAND OF MATTING TO BE USED.
21. DUST CONTROL IS REQUIRED FOR CLEARING, GRADING, CONSTRUCTION, SOIL STOCKPILING, AND SITE WORK DURING DRY WEATHER, AS WELL AS FOR UNIMPROVED ROADWAYS. IDENTIFY THE MEANS BY WHICH DUST CONTROL WILL BE PERFORMED ON SITE AND NOTE THE FREQUENCY IN WHICH IT WILL OCCUR. NON-COMPLIANCE WILL BE REPORTED TO THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR ADDITIONAL ENFORCEMENT.
22. CHECK DAMS ARE REQUIRED TO REDUCE THE VELOCITY OF CONCENTRATED FLOW. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
23. A SILT FENCE IS USEFUL FOR RETENTION OF SEDIMENT IN THE LOCATION OF SHEET FLOW OR WIND EROSION. IDENTIFY THE SPECIFIC LOCATIONS SILT FENCES WILL BE USED FOR SEDIMENT RETENTION. SUCH DEVICES REQUIRE A MAINTENANCE SCHEDULE.
24. IDENTIFY THE SPECIFIC LOCATIONS WHERE STRAW BALES WILL BE USED FOR SEDIMENT RETENTION OR VELOCITY REDUCERS. A MAINTENANCE SCHEDULE IS REQUIRED FOR SUCH DEVICES.
25. SAND BAG BARRIERS ARE USEFUL IN A GREAT VARIETY OF LOCATIONS FOR THE CONTROL OF EROSION. SAND BAGS WILL FUNCTION IN A SIMILAR MANNER AS CHECK DAMS, BARRIERS, CLARIFIERS AND MANY OTHER TYPES OF EROSION CONTROL DEVICES WITH SIMILAR USES. SAND BAG DEVICES MAY APPLY TO A GREATER NUMBER OF SITES FOR REASONS OF VERSATILITY AND STANDARD USE. IDENTIFY THE SPECIFIC LOCATIONS AND DESIGN OF SAND BAG BARRIERS AND NOTE THE SCHEDULE BY WHICH THEY WILL BE MAINTAINED.
26. BRUSH OR ROCK FILTERS REQUIRE SPECIAL APPROVAL FOR PROPER APPLICATION AND CONSTRUCTION. THE DESIGN ENGINEER MUST APPROVE THE APPLICATION, ON SITE, BEFORE THE COUNTY INSPECTION IN ORDER TO ENSURE THE MINIMUM QUALITY OF CONSTRUCTION. SUCH DEVICES WILL ONLY BE CONSIDERED FOR APPROVAL ON MINOR APPLICATIONS.
27. ALL INLETS WHICH RECEIVE SEDIMENT LADEN RUNOFF REQUIRE STORM DRAIN INLET PROTECTION. SEDIMENT TRAPS, FILTERS FABRIC FENCES, SAND BAG FILTERS, GRAVEL AND WIRE MESH FILTERS, ARE EXAMPLES OF INLET PROTECTION WHICH MAY BE APPLIED AT SUCH LOCATIONS. IDENTIFY THE METHODS OF PROTECTING EACH INLET.

ENGINEERED FILL – REFER TO STRUCTURAL GENERAL NOTES, SOILS AND FOUNDATION ITEM NO. 3, DWG. NO. 33906-4001-D-STR.

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PIC APV	SOD APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	NK	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

0.5783°
PLANT NORTH

[redacted]

PROPERTY BOUNDARY FOR APN 028-080-016

PROJECT AREA

BENCH MARK (B.M.)

GRAPHIC SCALE

50 0 25 50 100 400

(IN FEET)
1 inch = 50 ft.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	DWR	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	DWR	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING LIMITS

B.M. #1
SEE DWG. NO. 33906-D-4003-STR
FOR PLANT COORDINATES & NAD83
CALIFORNIA STATE PLANE ZONE 4
COORDINATES

0.5783°
PLANT NORTH

PLANT NORTH

DIRT ROAD

EXIST. PG&E
OVERHEAD

215

EXIST. PG&E
OVERHEAD

ACCESS WAY FOR MAINTENANCE

B.M. #3
SEE DWG. NO. 33906-D-4003-STR

[redacted]

DRAWING LIMITS

DRAWING LIMITS

ACCESS WAY FOR MAINTENANCE

214

DRAWING LIMITS

NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCALGAS CONSTRUCTION REPRESENTATIVE.

[redacted] CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCALGAS SPECIFICATIONS. NEW FACILITIES AND MODIFICATIONS TO EXISTING FACILITIES SHALL MEET THE SAFETY REQUIREMENTS OF SOCALGAS SAFETY MANUAL, APPROVED SAFETY PLAN, AND SAFE PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCALGAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD LINES.

WORK POINT SCHEDULE *

WP#	NORTHING	EASTING	F.G. ELEV.	T.O.C. ELEV.
1	4867.59	4823.56	216.16	218.16
2	4856.09	4820.06	216.09	218.16
3	4878.36	4841.22	216.05	216.72
4	4854.36	4831.22	216.06	216.72
5	4878.36	4861.22	216.05	216.72
6	4854.36	4851.22	216.06	216.72
7	4889.23	4900.69	216.00	216.5
8	4881.07	4894.69	216.03	216.5
9	4867.73	4896.72	216.16	216.66
10	4857.23	4892.72	216.11	216.66
11	4867.59	4920.14	216.16	218.16
12	4856.09	4916.64	216.09	218.16
13	4864.02	4935.22	216.19	216.70
14	4859.02	4930.97	215.17	216.70
15	4866.81	4949.39	215.02	215.60
16	4858.81	4939.89	215.18	215.60
17	4888.05	4963.64	0.00	216.60
18	4877.05	4949.64	0.00	216.60
19	4928.11	4946.22	216.27	217.10
20	4912.61	4899.22	216.28	217.10
21	4883.02	4813.22	215.02	215.83
22	4869.02	4803.22	215.00	215.83
23	4928.25	4959.55	214.38	214.95
24	4923.67	4952.38	214.44	214.95

* COORDINATES LISTED ARE IN THE LOCAL PLANT COORDINATE SYSTEM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE

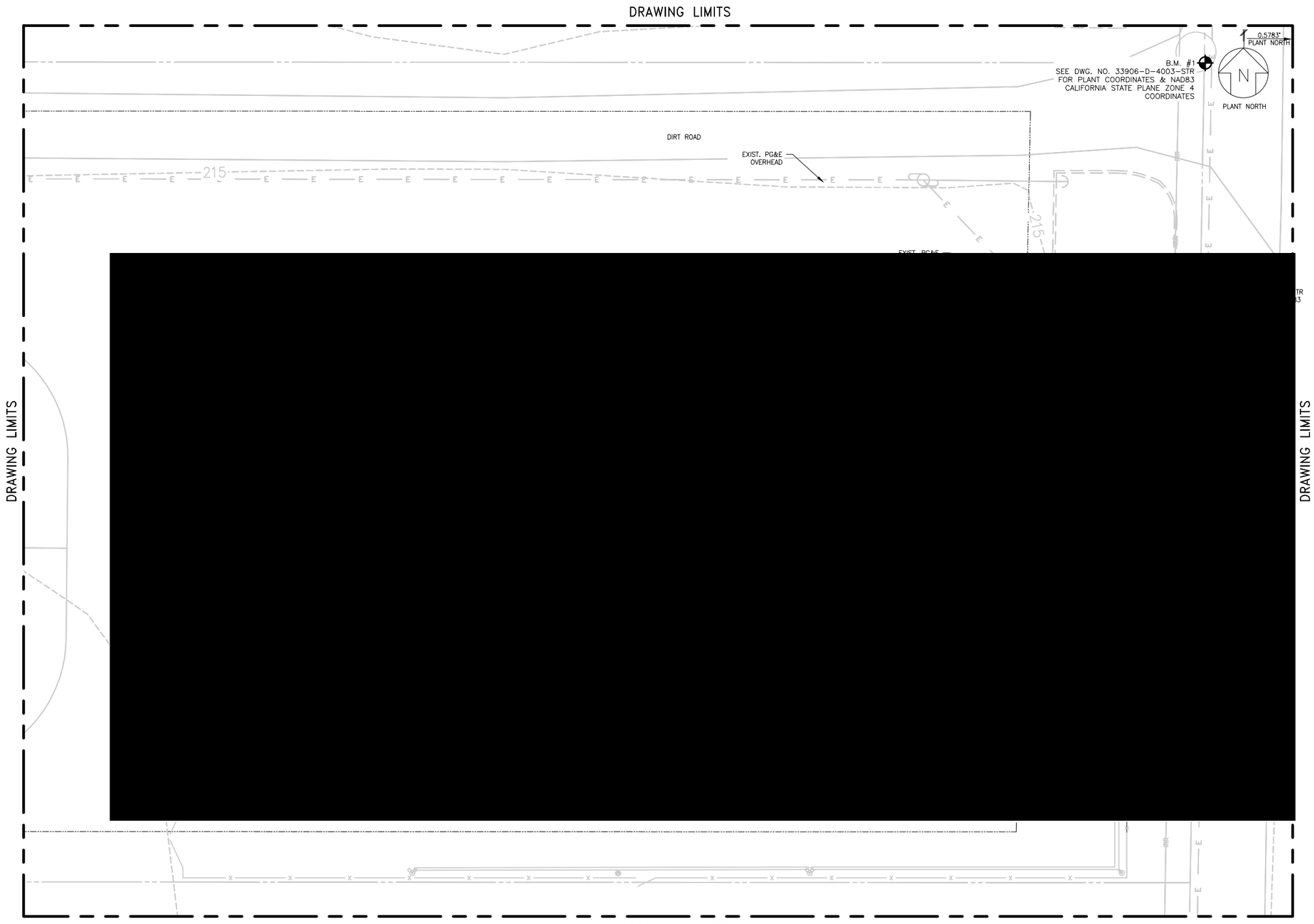
10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGS	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]



NOTES:

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK. ALL INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE SOCALGAS CONSTRUCTION REPRESENTATIVE.

[redacted] CANNOT CONFIRM MANY ASPECTS OF CONSTRUCTION INSTALLATION, AND RELIES ON THE CONTRACTOR'S JOB SITE VERIFICATION, PROJECT RESEARCH, AND SAFETY PRACTICES TO INSURE THE APPROPRIATE TIE-IN IS PERFORMED. CONTRACTOR SHALL USE ALL APPLICABLE INDUSTRY STANDARD SAFETY PRECAUTIONS AND PRACTICES.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE SOCALGAS SPECIFICATIONS, SERVICE NOTES, NEW MODIFICATIONS AND/OR DEVIATIONS AS NOTED ON THE CONSTRUCTION DRAWINGS. MEET FACILITY SAFETY REQUIREMENTS AT DCARE EASEMENTS AND SOCALGAS RIGHT OF WAY. PERFORM SAFETY PRACTICES IN ACCORDANCE WITH SOCALGAS SAFETY PRACTICES GUIDELINES.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND CONFIRMATION OF ALL UNDERGROUND AND OFFSET UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL EXERCISE PROPER CARE DURING EXCAVATION.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND ADHERE TO ALL SOCALGAS SAFETY PRACTICES WHEN WORKING IN PROXIMITY TO OVERHEAD OVERHEAD LINES.

PIPE SUPPORT SCHEDULE *

PS#	PS TYPE	NORTHING	EASTING	F.G. ELEV.	T.O.C. ELEV.	T.O.S. ELEV.
1	A	4852.36	4799.80	215.71	215.88	216.57
2	A	4855.36	4799.79	215.65	215.82	216.51
3	F	4853.44	4804.53	215.95	216.12	222.42
4	A	4855.30	4808.81	216.04	216.21	216.90
5	A	4851.96	4810.39	216.00	216.17	216.86
6	A	4851.96	4817.72	216.02	216.19	216.88
7	A	4856.05	4818.72	216.09	216.26	216.95
8	A	4861.05	4818.72	216.16	216.33	217.02
9	A	4851.96	4822.72	216.02	216.19	216.88
10	G	4859.38	4825.23	216.14	216.31	218.19
11	G	4864.30	4825.23	216.19	216.36	218.24
12	A	4851.96	4832.22	216.02	216.19	216.88
13	A	4851.96	4841.95	216.02	216.19	216.88
14	A	4852.30	4846.70	216.03	216.20	216.89
15	A	4852.30	4855.70	216.03	216.20	216.89
16	A	4852.30	4862.70	216.03	216.20	216.89
17	B	4852.30	4866.87	216.03	216.20	217.75
18	B	4852.30	4875.87	216.03	216.20	217.75
19	B	4852.30	4883.70	216.03	216.20	217.75
20	F	4854.09	4888.20	216.06	216.23	222.56
21	C	4856.46	4890.22	216.09	216.26	217.84
22	B	4852.30	4895.97	216.03	216.20	217.75
23	B	4870.08	4894.16	216.13	216.30	216.56
24	C	4873.83	4897.83	216.10	216.27	218.75
25		4881.96	4896.68	216.03	216.19	
26	E	4881.96	4899.06	216.03	216.20	217.56
27	B	4852.30	4913.97	216.03	216.20	217.75
28	D	4860.55	4915.05	216.16	216.33	217.88
29	B	4852.30	4919.97	216.03	216.20	217.75
30	G	4859.38	4921.71	216.14	216.31	218.19
31	G	4864.30	4921.71	216.19	216.36	218.24
32	B	4852.30	4927.14	216.03	216.20	217.75
33	B	4852.30	4934.31	216.03	216.20	217.75
34	B	4852.30	4941.31	216.03	216.20	217.75
35	B	4852.30	4946.81	216.03	216.20	217.75
36	D	4854.71	4952.31	216.07	216.24	217.71
37	D	4869.71	4952.31	216.15	216.32	217.46
38	E	4879.05	4952.31	216.10	216.6	217.13
39	E	4881.38	4954.90	216.10	216.6	217.13
40	H	4883.97	4983.22			
41	H	4851.04	4983.22			
42	H	4851.04	4795.24			
43	H	4883.97	4795.24			

* COORDINATES LISTED ARE IN THE LOCAL PLANT COORDINATE SYSTEM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE
10' 0 5' 10' 20' 40'
(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

[redacted]

[redacted]

[redacted]

DRAWING LIMITS

B.M. #1
SEE DWG. NO. 33906-D-4003-STR FOR PLANT COORDINATES & NAD83 CALIFORNIA STATE PLANE ZONE 4 COORDINATES

DIRT ROAD

(E) PG&E OVERHEAD

N
PLANT NORTH

DRAWING LIMITS

(E) PG&E POWER POLE

(E) IRRIGATION PIPELINE

(E) PG&E OVERHEAD

DRAWING LIMITS

DRAWING LIMITS

LEGEND:

—x—	= NEW FENCE (SEE NOTE 7)
◎	= BOLLARD (SEE NOTE 6)
(E)	= EXISTING
MOW	= MADE OF WOOD

NOTES:

1. FOR GENERAL NOTES, SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. FOR SURVEY CONTROL SEE SITE PLAN DWG. NO. 33906-4003-D-STR.
3. PRIOR TO BID, CONTRACTOR SHALL VISIT SITE TO ASSESS EXISTING CONDITIONS, OBSTRUCTIONS, WORK AREA ACCESSIBILITY AND CONSTRUCTABILITY.
4. CONTRACTOR SHALL LOCATE EXISTING BURIED PIPES BY CAREFUL EXCAVATION AND POTHOLING. COORDINATE WITH THE OWNER REGARDING REROUTING, DEMOLITION OR ABANDONMENT OF ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION.
5. FOR EQUIPMENT FOUNDATION LOCATIONS SEE FOUNDATION LOCATION PLAN, DWG. NO. 33906-4004-D-STR.
6. FOR GUARD POST & BOLLARD DETAILS SEE DWG. NO. 33906-4021-D-STR.
7. FOR GATES AND FENCING DETAILS, SEE DWG. NO. 33906-4026-D-STR.
8. THE FENCE FABRIC SHALL BE 2" MESH CHAIN LINK OF #11 GAUGE WIRE. ALL FABRIC AND OTHER STEEL PARTS SHALL BE GALVANIZED. TOP & BOTTOM SELVAGES SHALL HAVE TWISTED AND BARBED FINISH. REFER TO DWG. NO. 33906-4026-D-STR FOR ADDITIONAL FENCING SPECIFICATIONS AND DETAILS.
9. CONTRACTOR TO SUBMIT ALL GATE AND FENCING VENDOR DOCUMENTS AND SPECIFICATIONS FOR APPROVAL AND COMPLIANCE WITH CLIENT STANDARDS PRIOR TO INSTALLATION. IF SUBMITTED ITEMS REQUIRED MODIFICATION OF GENERAL DETAILS PROVIDED ON DWG. NO. 33906-4026-D-STR, NOTIFY ENGINEER FOR DIRECTION PRIOR TO INSTALLATION.
10. FENCE P.I. COORDINATES SHOWN ARE IN THE LOCAL PLANT COORDINATE SYSTEM,

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY MAAS ENERGY WORKS. THEIR FILENAME:- MT_01.25.19.DWG, DATED JANUARY, 2020. THIS SURVEY WAS COLLECTED IN THE NAD83 STATE PLANE, ZONE 4 CALIFORNIA STATE PLANE COORDINATE SYSTEM & NAVD88

EXISTING CONTOUR INTERVAL = 1'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE
10' 0 5' 10' 20' 40'
(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	DWR	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
B	04/21/20	DWR	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
A	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 6% REVIEW	93365.001

N

PLANT NORTH

[redacted]

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
4. ALL ANCHOR BOLT SLEEVES SHALL BE COMPLETELY FILLED WITH EXPANSIVE OR NON-SHRINK GROUT AFTER INSTALLATION COMPLETED.
5. COMPRESSOR FOUNDATION CONCRETE BLOCK SIZE IS DETERMINED BASED ON GEOSYNTEC SSI DYNAMIC ANALYSIS, PROJECT NUMBER SC1017-04, DATED NOVEMBER, 2019
6. FOR COMPRESSOR VENDOR INFORMATION REFER TO THE FOLLOWING DRAWING NO.'S BY ANGI
   - UNIT #1 (C-1200)
     DWG NO. A05-10-50754-01, REV. E, DATED 01/13/2020.
   - UNIT #2 (C-1300)
     DWG NO. A05-10-50754-02, REV. D, DATED 01/13/2020.
7. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 6 (ABOVE)
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

PLAN

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR HEAT EXCHANGER VENDOR INFORMATION REFER TO THE FOLLOWING DWG NO. BY ANGI
   - DWG NO. GAD-A05-21-50754, REV. C, DATED 02/07/2020 (3 SHEETS).
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	RQA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PLANT NORTH

[redacted]

PLAN

CHILLER CH-1700 FOUNDATION
FOR LOCATION SEE DWG. NO. 33906-4004-D-STR
SCALE: 3/4"=1'-0"

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT ON-SITE PRIOR TO DRILLING INTO OR POURING CONCRETE.
3. POST-INSTALLED HILTI KWIK BOLT TZ ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS AND LOCATIONS PRIOR TO CONCRETE POUR.
5. ALL CONCRETE SURFACES IN CONTACT WITH GROUT SHALL BE CLEANED, MECHANICALLY ROUGHENED AND PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GROUT MANUFACTURER. GROUT SHALL BE PLACED AFTER EQUIPMENT HAS BEEN SECURED INTO ITS FINAL POSITION.
6. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
7. FOR CHILLER VENDOR INFORMATION REFER TO DWG NO. OPC12-A7-E7197 DATED NOV 21, 2019 BY ACCESS INC.
8. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 7 (ABOVE)
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

SECTION A

SCALE: 3/4"=1'-0"

SECTION B

SCALE: 3/4"=1'-0"

[redacted]

DETAIL 1

SCALE: 4"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PIU APV	SOO APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	R.Q.A	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO INSTALLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR FILTER SEPARATOR VENDOR INFORMATION, REFER TO THE FOLLOWING DRAWINGS:
   - INLET FILTER SEPARATOR V-1100
   DOC NO: HSFP-12X-270CS-001-02C REV. 5, DATED 02/21/20 (2 SHEETS), CERTIFIED.
   - OUTLET FILTER SEPARATOR V-1800
   DOC NO: HSFP-12X-710CS-001-02C REV. 5, DATED 02/21/20. (3 SHEETS), CERTIFIED.
6. FOR W.P. COORDINATES REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

SECTION A
SCALE: 1"=1-0"

SECTION B
SCALE: 1"=1-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	LM	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR REVIEW	93365.001
A	01/15/20	DWR	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ODORIZOR VENDOR INFORMATION REFER DWG. NO. 1Q-2173, REV. 00, BY MILTON ROY
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

PRELIMINARY
NOT FOR CONSTRUCTION

SECTION A

SCALE: 3/4"=1-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

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NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSIED FOR 60% REVIEW	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	MK	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

N

PLANT NORTH

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS, AND IN ACCORDANCE WITH I.B.C. ESR-1917.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR SERVICE/MONITOR PANEL VENDOR REFER TO DWG. NO. CD-2389 REV. A, DATED 01/08/2020 BY VRG CONTROLS.
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

DETAIL 1

SCALE: 1 1/2"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
E	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
D	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
C	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60%	93365.001
B	02/20/20	DWR	MK	JFH	SB	E18037	RE-ISSUED FOR 30% REVIEW	93365.001
A	01/15/20	LG	DWR	JFH	SB	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

N

PLANT NORTH

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. MECHANICAL ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL 100% OF DESIGN COMPRESSIVE STRENGTH HAS BEEN REACHED, OR CONCRETE HAS REACHED AGE OF 21 DAYS, WHICHEVER OCCURS SOONER.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR ANALYZER SHELTER VENDOR INFORMATION REFER TO DWG. NOS. "BASE FOUNDATION DETAIL" REV. D, DATED __/__/2020 (SHEET 8 OF 8) BY CAS-CONSOLIDATED ANALYTICAL SYSTEMS.
6. FOR W.P. COORDINATES REFER TO DWG. NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. REFER TO NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

DETAIL 1

SCALE: 1 1/2"=1'-0"

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
B	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
A	03/23/20	LG	DWR	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

A SECTION
SCALE: 1/4"=1'-0"

B SECTION
SCALE: 1/4"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
B	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR SWITCHBOARD VENDOR REFER TO "DETAIL BILL OF MATERIAL", NEGOTIATION NO. W05 E0203X0K1, PAGE 2 OF 3, DATED 2/6/2020 BY EATON.
6. FOR W.P. COORDINATES REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

[redacted]

SECTION B

SCALE: 3/4"=1'-0"

[redacted]

SCALE: 3/4"=1'-0"

SCALE: 3/4"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LG	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]

DRAWING LIMITS

B.M. #1
SEE DWG. NO. 33906-D-4003-STR
FOR PLANT COORDINATES & NAD83
CALIFORNIA STATE PLANE ZONE 4

DRAWING LIMITS

DRAWING LIMITS

A 33906-4030-D-STR

B 33906-4030-D-STR

C 33906-4030-D-STR

RR

E

E

DRAWING LIMITS

N
PLANT NORTH

EARTHWORK VOLUMES:

FINISHED GRADE QUANTITIES:

CUT (CU. YDS.)	+5
FILL* (CU. YDS.)	−990

OVER-EXCAVATION QUANTITIES:

CUT (CU. YDS.)	+665
FILL* (CU. YDS.)	−865

FOR OVER-EXCAVATION PLAN SEE DWG. 33906-4006-D-STR

SCARIFICATION

FILL (CU. YDS.)	−15
TOTAL CUT (CU. YDS.)	+670
TOTAL FILL* (CU. YDS.)	−1,870

* INCLUDES 30% SHRINKAGE

CONTROL POINT SCHEDULE

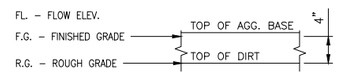
CP#	NORTHING	EASTING	R.G. ELEV.	F.G. ELEV.	DESCRIPTION
101					FG CNR
102					FG CNR
103					FG CNR
104					FG CNR
105					FG CNR
106					FG CNR
107					FG CNR
108					FG CNR
109					SWALE/BEGIN
110					SWALE/AP
111					SWALE/END
112					FG/HP GRADE BREAK
113					FG/HP GRADE BREAK

* COORDINATES LISTED ARE IN THE NAD83 ZONE 4 STATE PLANE COORDINATE SYSTEM & NAVD VERTICAL DATUM. REFER TO DWG. NO. 33906-4003-D-STR FOR BENCHMARK VALUES IN BOTH LOCAL PLANT COORDINATES AND STATE PLANE NAD83 ZONE 4 COORDINATES.

LEGEND:

- CONTROL POINT
- EXISTING GRADE CONTOUR
- MAAS ROUGH GRADING CONTOUR

FL. – FLOW ELEV.
F.G. – FINISHED GRADE
R.G. – ROUGH GRADE



NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY MAAS ENERGY WORKS. THEIR FILENAME– MT_01.25.19.DWG, DATED JANUARY, 2020. THIS SURVEY WAS COLLECTED IN THE NAD83 STATE PLANE, ZONE 4 CALIFORNIA STATE PLANE COORDINATE SYSTEM & NAVD88

EXISTING CONTOUR INTERVAL = 1'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

DRAWING LIMITS

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE
10' 0 5' 10' 20' 40'
(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

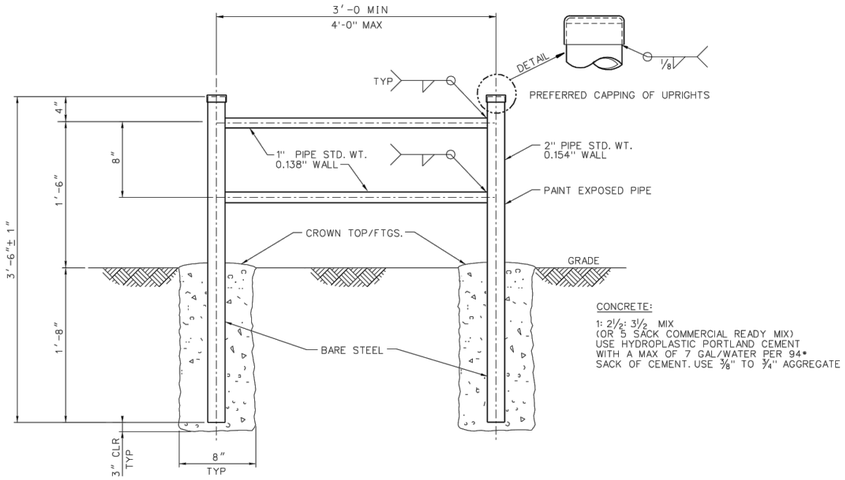


PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	LM	RGA	JFH	KN	E18037	ISSED FOR 90%	93365.001
B	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]



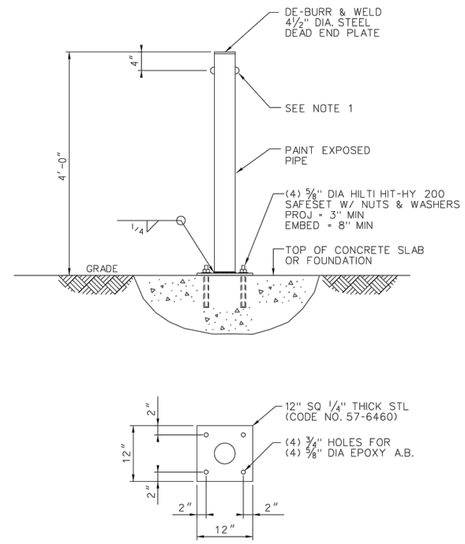
CONCRETE:

1: 2½: 3½ MIX
(OR 5 SACK COMMERCIAL READY MIX)
USE HYDROPLASTIC PORTLAND CEMENT
WITH A MAX OF 7 GAL/WATER PER 94#
SACK OF CEMENT. USE ⅜" TO ¾" AGGREGATE

NOTES:

1. ON ISOLATED METERS, SET AWAY FROM BUILDINGS, MORE GUARDING IS REQUIRED. USE 2 BARRICADES SHOWN ANDWELD 1" PIPE BETWEEN THEM TO PROVIDE ON ALL 4 SIDES OF METER INSTALLATION.
2. TOUCH-UP PAINT WITH LIGHT GRAY ALKYD BASE ENAMEL MANUFACTURED TO INDUSTRIAL PAINT SPECIFICATIONS ASA Z55.1 FOR NO. 49 GRAY. MUNSELL NOTATION 10 BG 4.90/0.60. SMC 30-83.6 (M & S CODE 30-8135). BOTTOM OF 20" POST TO REMAIN BARE TO BOND WITH CONCRETE.

PREFABRICATED GUARD RAIL - DOMESTIC



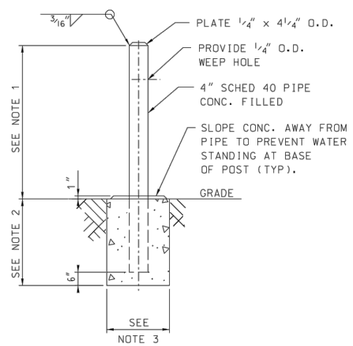
NOTES:

1. IF SAFETY CHAIN IS REQUIRED, WELD ½ OF CHAIN LINK TO EACH SIDE OF POST. USE STEEL CHAIN SIZE 135 (0.135"DIA x 1.35" LONG LINK)
2. SEE DWGS FOR CONCRETE SLAB OR FOUNDATION REINFORCEMENT DETAILS

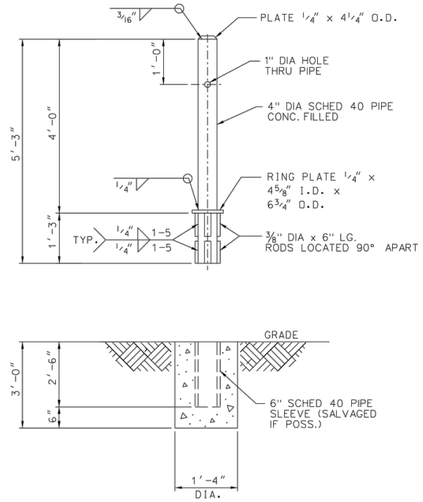
REMOVABLE GUARD POST DETAIL
(FOR CONCRETE SLAB OR FOUNDATION)

NOTES:

1. FOR LIGHT AND MEDIUM DUTY POSTS - 3'-0"
   FOR HEAVY DUTY POSTS = 4'-0"
2. FOR LIGHT AND MEDIUM DUTY POSTS = 3'-0"
   FOR HEAVY DUTY POSTS = 3'-6"
3. FOR LIGHT AND MEDIUM DUTY POSTS = 1'-0" ø
   FOR HEAVY DUTY POSTS = 1'-3" ø
4. PAINT POSTS SAFETY YELLOE WITH 4" BLACK STRIPE AT TOP.
   CONCRETE: 3,000 PSI MINIMUM 28 DAYS COMPRESSION STRENGTH



PERMANENT EMBEDDED BOLLARDS



REMOVABLE BOLLARDS

PRELIMINARY
NOT FOR CONSTRUCTION

NOTES

THIS DRAWING IS BASED ON
SOCAL'S DWG. 0429-D STD

[redacted]

REV	DATE	DRAWN	CHECKED	PIU APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
B	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001
A	03/23/20	DWR	RGA	JFH	SB	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

DETAIL 5
BEARING ANGLE
SCALE: 3"=1'-0"
THIS DWG.

SECTION D
PLATE
SCALE: 3"=1'-0"
THIS DWG.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	LG	RGA	JFH	LM	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LG	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]

NOTES:

[redacted]

NERAL NOTES SEE DWG. NO.'S
4001-D-STR & 33906-4002-D-STR.

UCTURAL STEEL, NUTS, BOLTS, WASHERS AND
SHALL BE HOT DIP GALVANIZED.

ALL GALVANIZED AREAS AFFECTED BY FIELD
AND DRILLING USE RUST-O-LEUM
RIAL CHOICE 1600 COLD GALVANIZING
ND" (PRODUCT I.D. 1685830). FOLLOW ALL
CTURER RECOMMENDATIONS.

RAWINGS SHALL BE SUBMITTED TO THE
ENGINEER FOR APPROVAL PRIOR TO
TION.

TO CONTRACTOR:

QUIRED TO COMPLETE THIS DRAWING
CTOR SHALL BE RESPONSIBLE FOR IDENTIFYING
ORPORATING ANY MODIFICATIONS NECESSARY
COMPATIBLE WITH PURCHASED MATERIAL WITH
RAWING.

CTOR SHALL UTILIZE RFI PROCESS TO
NT NECESSARY MODIFICATIONS FOR ENGINEER'S
VERIFICATION AND ACCEPTANCE PRIOR TO
ION, PLACING REBAR, POURING CONCRETE, OR
ATION OF OTHER STRUCTURAL COMPONENTS.

WG. NO.
5-D-STR
DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ MGR	SOQ MGR	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]

[redacted]

NOTES:

1. FOR GENERAL NOTES SEE DWG. NO.'S 33906-4001-D-STR & 33906-4002-D-STR.
2. ALL STRUCTURAL STEEL, NUTS, BOLTS, WASHERS AND ROOFING SHALL BE HOT DIP GALVANIZED.
3. REPAIR ALL GALVANIZED AREAS AFFECTED BY FIELD WELDING AND DRILLING USE RUST-O-LEUM "INDUSTRIAL CHOICE 1600 COLD GALVANIZING COMPOUND" (PRODUCT I.D. 1685830). FOLLOW ALL MANUFACTURER RECOMMENDATIONS.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED MATERIAL WITH SHOP DRAWING.
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

NOTE:

REFER TO DWG. NO. 33906-4025-D-STR FOR TYPICAL DETAILS

ELEVATION – TYPE E

PIPE SUPPORT

SCALE: 3/4" = 1'-0"

ELEVATION – TYPE F

PIPE SUPPORT

SCALE: 3/4" = 1'-0"

ELEVATION – TYPE G

PIPE SUPPORT

SCALE: 3/4" = 1'-0"

ELEVATION – TYPE H

LASER DETECTOR

SCALE: 3/4" = 1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PIU APV	SOO APV	ENG FILE NO	DESCRIPTION	WOA
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A	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]

[redacted]

DETAIL 1
2'-0"ø FOOTING
SCALE: 1"=1'-0"

[redacted]

SECTION A
2'-0"ø FOOTING
SCALE: 1 1/2"=1'-0"

[redacted]

DETAIL 2
BASE PLATE
SCALE: 3"=1'-0"

DETAIL 4
3/4"ø ANCHOR BOLT
SCALE: 3"=1'-0"

DETAIL 6
CONN. PLATE
SCALE: 1 1/2"=1'-0"

[redacted]

DETAIL 3
BASE PLATE
SCALE: 3"=1'-0"

DETAIL 5
3/4"ø HILTI A.B.
SCALE: 6"=1'-0"

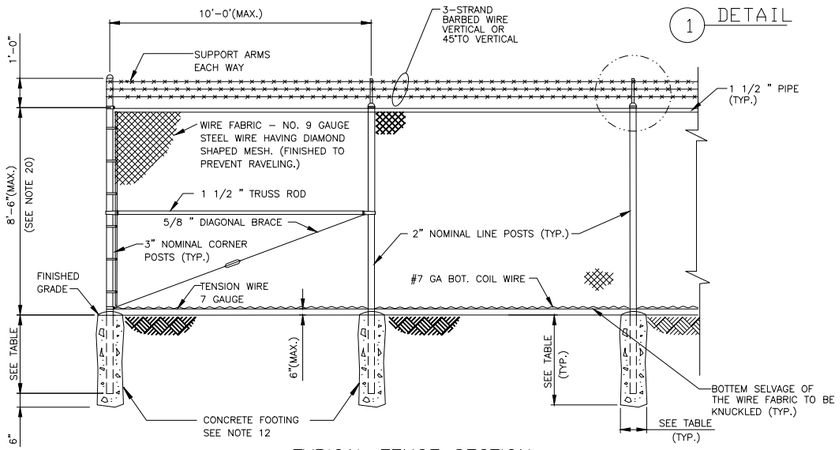
DETAIL 7
SHOE GUIDE
SCALE: 3"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

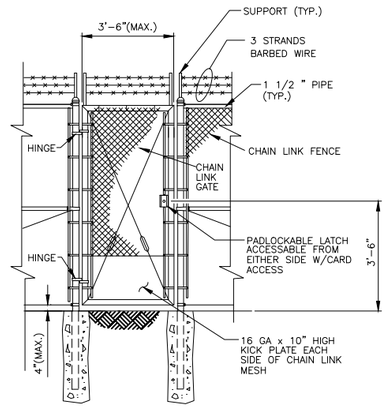
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REV	DATE	DRAWN	CHECKED	PRJ APV	SDG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LM	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

[redacted]



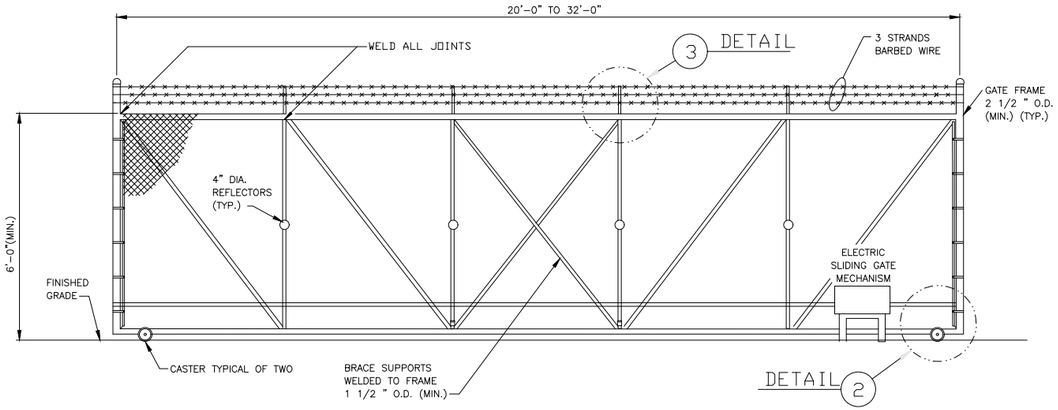
TYPICAL FENCE SECTION



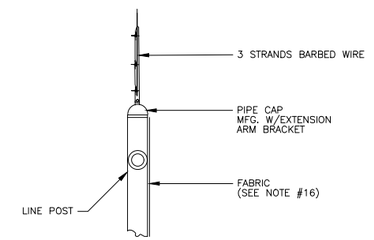
MAN GATE

GENERAL NOTES

1. LOCATION OF FENCE AND GATES ARE TO BE SHOWN ON THE SITE PLAN WHICH IS PROVIDED BY THE GAS COMPANY OR COMPANY REPRESENTATIVE. THE TOPOGRAPHY OF THE SITE CONSIDERING SLOPE AND TYPE OF SURFACE (CONCRETE, BLACKTOP, DIRT, ROCKS) MUST BE CONSIDERED BY THE ENGINEERING ARCHITECT AND CONTRACTOR.
2. THE FENCING, INCLUDING THE EXTENSION ARMS SUPPORTING THE BARBED WIRE, SHALL ONLY BE INSTALLED ON AND OVER COMPANY PROPERTY. SPACE SHALL BE PROVIDED FOR OPERATION OF THE GATES CONSIDERING SAFETY AND CLEARANCE. ALL BUILDING ENTRANCES AND WINDOWS ARE TO BE WITHIN THE FENCED AREA EXCEPT WHEN SPECIFIED OTHERWISE.
3. POSTS SHALL NOT BE INSTALLED ON TOP OF ANY BURIED GAS SERVICES, MAINS, PIPELINES, OR OTHER UTILITIES. MAXIMUM SPACING SHALL BE 10 FEET, MEASURED PARALLEL TO THE GRADE OF THE FENCE BETWEEN POST CENTERS.
4. ALL MATERIAL SHALL BE NEW.
5. THE OPERATING AND SENSING MECHANISMS FOR OPENING, CLOSING, AND POSITIONING THE GATE(S) SHALL BE SELECTED FOR THE SPECIFIC OPERATION AND INSTALLED AS SPECIFIED BY THE MANUFACTURER.
6. WHEN A DISTRIBUTION OR TRANSMISSION ELECTRIC POWER LINE RUNS PARALLEL TO AND/OR WITHIN 100 FEET OF THE FENCE, THE NEED FOR SPECIAL GROUNDING OF EACH FENCE SECTION SHALL BE REVIEWED AND THE DESIGN APPROVED BY A REGISTERED ELECTRICAL ENGINEER.
7. THE ROLLING GATES ARE TO BE DESIGNED SO THAT THE GATE CANNOT FALL. THIS CAN BE DONE WITH A RESTRAINT COLLAR USED IN CONJUNCTION WITH THE TRACK AND CARRIER GUIDE OR WITH SPECIAL SUPPORTS.
8. WHEN VEHICULAR AND PEDESTRIAN GATES ARE TO BE LOCATED NEAR EACH OTHER, PERSONNEL SAFETY MUST BE CONSIDERED.
9. THE GATE MUST BE CAPABLE OF BEING LOCKED IN THE CLOSED POSITION. THE GAS COMPANY WILL FURNISH A PADLOCK WHEN REQUIRED.
10. THE GATE FRAME, HINGES, AND SUPPORT POSTS MUST BE STRUCTURALLY SOUND, PROVIDE RIGIDITY AND BE FREE FROM SAGGING OR TWISTING. ALL JOINTS ARE TO BE WELDED.
11. EACH FENCE AROUND A COMPRESSOR STATION SHALL HAVE AT LEAST TWO GATES LOCATED SO AS TO PROVIDE A CONVENIENT OPPORTUNITY FOR ESCAPE TO A PLACE OF SAFETY, OR HAVE OTHER FACILITIES AFFORDING A SIMILARLY CONVENIENT EXIT FROM THE AREA. EACH GATE LOCATED WITHIN 200 FEET OF ANY COMPRESSOR PLANT BUILDING MUST OPEN OUTWARD AND, WHEN OCCUPIED, MUST BE ACCESSIBLE FROM THE INSIDE WITHOUT A KEY.
12. ALL POSTS ARE TO HAVE CONCRETE FOOTINGS WHICH ARE CROWNED TO SHED WATER. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AFTER 28 DAYS.
13. ALL PARTS ARE TO BE GALVANIZED. ALL FIELD WELDS SHALL BE GROUND SMOOTH AND FIELD COATED WITH GALVALLOY OR EQUIVALENT MATERIAL.
14. THE FENCING SHALL BE INSTALLED IN CONFORMITY WITH ASTM F567 ' INSTALLATION OF CHAIN-LINK FENCE'.
15. ALL PIPE POSTS ARE TO BE CAPPED TO PREVENT WATER INFILTRATION.
16. THE FABRIC SHALL BE INSTALLED ON THE OUTSIDE OF THE FENCE LINE AND BE CONTINUOUS BETWEEN POSTS.
17. THE ROLLING GATES MUST ROLL ON A CONCRETE STRIP. THE GATE TRACK MUST BE INCORPORATED INTO THE CONCRETE STRIP.
18. THE FENCE SHALL BE INSPECTED BY A GAS COMPANY REPRESENTATIVE AND ACCEPTED AFTER ALL MATERIAL REQUIREMENTS AND CONSTRUCTION CONDITIONS HAVE BEEN MET.
19. OPTIONAL RAZOR WIRE TO BE INSTALLED AT REMOTE SITES ONLY.
20. FOR GUARDED SoCal GAS PROPERTY, 6'-0" HIGH FENCE MAY BE USED. AT REMOTE SITES, 8'-6" HIGH FENCE SHALL BE USED. FENCES HIGHER THAN 8'-6" ARE NOT COVERED BY THIS STANDARD DRAWING AND REQUIRE ENGINEERING APPROVAL.

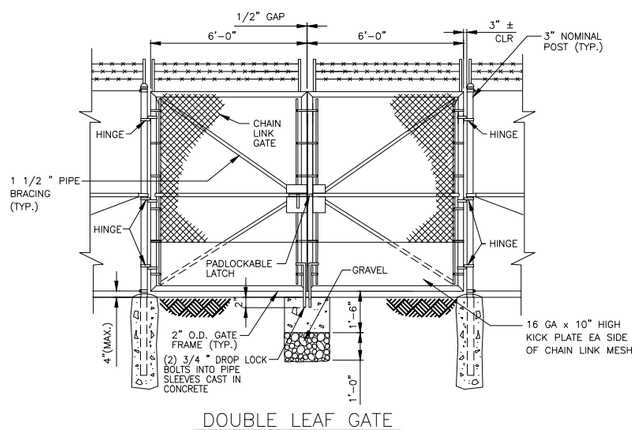


ROLLING GATE

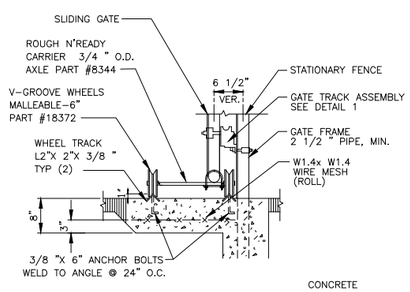


SUPPORT ARMS DETAIL 1

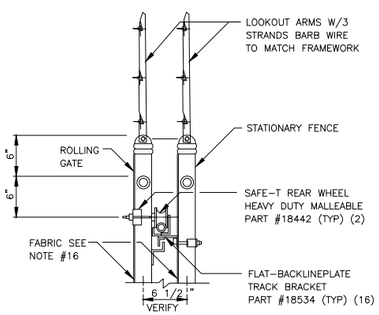
MIN FTG DEPTH		MIN FTG DIA		
FENCE HEIGHT	FTG DEPTH	POST ø	FTG DIA	
8'-6"	5'-0"	4"	16"	
8'-6"	6'-0"	4"	16"	FOR SOUTH FENCE ONLY



DOUBLE LEAF GATE



GATE WHEELS DETAIL 2



GATE TRACK DETAIL 3

NOTES

THIS DRAWING IS BASED ON SOCAL'S DWG. 0429-D STD

NOTE: TYPICAL STRUCTURAL DETAILS ARE INTENDED FOR THE USE OF THE DESIGN ENGINEER WHENEVER IT IS DETERMINED THAT BY THEIR USE, THE STRENGTH AND SERVICEABILITY REQUIREMENTS OF THE STRUCTURE BEING DESIGNED ARE MET.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	JMD	RGA	JFH	NK	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LM	RGA	JFH	NK	–	ISSUED FOR 90% REVIEW	93365.001

[redacted]



NOTES:

1. FOR GENERAL NOTES SEE DWGS. 33906-4001-D-STR & 33906-4002-D-STR.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. FOR SWITCHBOARD VENDOR REFER TO "DETAIL BILL OF MATERIAL", NEGOTIATION NO. W05 E0203X0K1, PAGE 2 OF 3, DATED 2/6/2020 BY EATON.
6. FOR W.P. COORDINATES REFER TO DWG NO. 33906-4004-D-STR.

NOTES TO CONTRACTOR:

ITEMS REQUIRED TO COMPLETE THIS DRAWING

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT. SEE NOTE 5 (ABOVE).
2. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.

1 DETAIL



1 DETAIL

SECTION A
SCALE: 1"=1'-0"

SECTION B
SCALE: 1"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WGA
B	05/07/20	JMD	RGA	JFH	KN	E18037	ISSUED FOR 90%	93365.001
A	04/21/20	LG	RGA	JFH	KN	E18037	ISSUED FOR 90% REVIEW	93365.001

CIVIL GENERAL NOTES

SITE PREPARATION AND GRADING PLAN FOR SOCALGAS

1. ESTIMATED CONSTRUCTION QUANTITIES:

EXCAVATION	670 CU. YDS.
FILL	1,870 CU. YDS.
4" CLASS II AGGREGATE BASE AREA	12,855 SQ. FT.
4" CLASS II AGGREGATE BASE	158 CU. YDS.
12" COMPACTED ENGINEERED FILL AREA	6,720 SQ. FT.
12" COMPACTED ENGINEERED FILL	322 CU. YDS.
ENGINEERED PERMEABLE FILL AREA	1,110 SQ. FT.
ENGINEERED PERMEABLE FILL	320 CU. YDS.
6" CONCRETE RIP-RAP	1,110 SQ. FT.
6" CONCRETE RIP-RAP	21 CU. YDS.
WEED BARRIER AREA	12,855 SQ. FT
FACILITY FENCE (DWG 33906-4007-D-STR)	500 LINEAR FT.
ACCESS GATES (DWG 33906-4026-D-STR)	(2) 24 FT. SLIDING (1) 20 FT. SLIDING (1) 21 FT. DOUBLE LEAF GATE (4) 4 FT. MAN GATES

TOTAL AREA DISTURBED – 0.35 ACS.

A. EARTHWORK QUANTITIES SHOWN FOR PERMIT PURPOSES ONLY

B. CONTRACTOR SHALL CALCULATE THE EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF CONSTRUCTION OR BIDDING. CONSOLIDATION, LOSSES DUE TO CLEARING OPERATIONS, UTILITY TRENCHES, SUB-GRADE STABILIZATION, OR FACTORS FOR GRADING MEANS AND METHODS ARE NOT INCLUDED AND EARTHWORK QUANTITIES MAY VARY ACCORDING TO THESE FACTORS.

2. EQUIPMENT, SERVICES AND MATERIALS BY CONTRACTOR

CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND SUPERVISION NECESSARY TO PERFORM THE WORK SHOWN ON THE PLAN WHICH WILL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

A. EXCAVATION, BACKFILL AND COMPACTION;
B. WATER FOR MOISTURE CONDITIONING AND DUST CONTROL;
C. MEASURES NECESSARY TO PREVENT EROSION AND PONDING;
D. ALL SURVEYING ASSOCIATED WITH THIS WORK;

3. EQUIPMENT, SERVICES AND MATERIAL PROVIDED BY COMPANY

A. MATERIAL FOR USE AS ENGINEERED FILL;
B. ALL SOIL TESTING.

4. CODES AND STANDARDS

CONTRACTOR SHALL PERFORM AND COMPLETE CONSTRUCTION IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS, ORDINANCES AND REGULATIONS.

A. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

- D-1557 MOISTURE-DENSITY RELATIONSHIP OF SOIL AND SOIL-AGGREGATE MIXTURES USING A 10-LB. HAMMER AND 18-INCH DROP.
- D-1556 DENSITY OF SOIL IN PLACE BY SAND-CONE METHOD.
- D-2937 DENSITY OF SOIL IN PLACE BY THE DRIVE CYLINDER METHOD.
- D-6938 DENSITY OF SOIL AND SOIL-AGGREGATE MIXTURES IN PLACE BY NUCLEAR METHOD.

B. KINGS COUNTY "TITLE 16 BUILDING AND CONSTRUCTION STANDARDS," CHAPTER 16.82 – CLEARING AND GRADING

C. 2019 CALIFORNIA BUILDING CODE.

D. "GEOTECHNICAL INVESTIGATION" PREPARED BY GEOSYNTEC CONSULTANTS, DATED NOVEMBER 13, 2019. PROJECT NO. SC1017-04.

5. GENERAL PROVISIONS REQUIRED OF CONTRACTOR

A. PROTECTION OF EXISTING FACILITIES

- EXISTING COMPANY FACILITIES SHALL BE PROTECTED. IF DAMAGED BY CONTRACTOR, FACILITIES SHALL BE REPAIRED AND/OR RESTORED AT CONTRACTOR'S EXPENSE.
- COMPANY RESERVES THE RIGHT TO ENTER THE SITE TO MAKE ANY REPAIRS OR ALTERATIONS TO EXISTING EQUIPMENT.
- EXTREME CARE SHOULD BE EXERCISED WHEN EXCAVATING AT THIS SITE. UNDERGROUND UTILITIES ENCOUNTERED DURING EXCAVATION SHALL BE BROUGHT TO THE ATTENTION OF COMPANY REPRESENTATIVE. THESE ITEMS SHALL NOT BE DISTURBED UNTIL INSTRUCTION IS RECEIVED FROM COMPANY REPRESENTATIVE.

B. SAFETY

- CONTRACTOR SHALL PROVIDE PROTECTIVE EQUIPMENT AND ENSURE THAT THIS EQUIPMENT IS PROPERLY USED WHEN REQUIRED FOR THE SAFETY OF HIS EMPLOYEES. HARD HATS, SAFETY SHOES, AND SAFETY GLASSES WITH SIDE SHIELDS SHALL BE WORN AT ALL TIMES ON THE CONSTRUCTION SITE.
- WORK WILL BE PERFORMED ACCORDING TO THE TERMS AND CONDITIONS OF THE CONTRACT AND APPLICABLE STATE AND FEDERAL REGULATIONS.
- EXTREME CARE MUST BE EXERCISED WHEN OPERATING ANY EQUIPMENT NEAR OVERHEAD POWER LINES. CONTRACTOR MUST NOT ALLOW ANY EQUIPMENT OR PERSONNEL TO CONTACT ANY OVERHEAD LINE.
- EXCAVATING MUST BE ACCOMPLISHED SO AS TO AVOID ALL UNDERGROUND UTILITIES AND LINES.
- THE SIZE, NUMBER, LOCATION AND DEPTH OF ANY BURIED UTILITIES SHOWN ON THE PLAN ARE BASED ON THE BEST INFORMATION AVAILABLE; HOWEVER, EXTREME CARE SHOULD BE TAKEN DURING EXCAVATION SINCE LOCATION AND DEPTH ALLOWANCES MAY NOT BE SHOWN ON THE SOURCE PLANS FOR THIS DRAWING.
- NO PERSON SHALL ENTER ANY EXCAVATION UNLESS PROTECTED FROM CAVE-INS IN ACCORDANCE WITH THE REQUIREMENTS OF "CFR 29 (OSHA), PART 1926.652 (REQUIREMENTS FOR PROTECTIVE SYSTEMS)" AND "CCR TITLE 8 (CALOSHA) SECTION 1541.1 (REQUIREMENTS FOR PROTECTIVE SYSTEMS)". DESIGN OF THE PROTECTIVE SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- IN EXCAVATION AREAS IMMEDIATELY ADJACENT TO EXISTING FOUNDATIONS WHERE VERTICAL CUT SIDE SLOPES ARE REQUIRED, EXCAVATION WIDTH SHALL NOT EXCEED 7'. THESE AREAS SHALL BE BACKFILLED AS SOON AS POSSIBLE TO MINIMIZE EXPOSURE OF THE EXISTING FOUNDATION(S). IF THESE AREAS ARE LEFT UNATTENDED AT ANY POINT DURING THE EXCAVATION OR BACKFILL, THE AREA SHALL BE CORDONED OFF WITH CAUTION TAPE AND BARRICADES TO PREVENT UNAUTHORIZED ACCESS.

C. INJURIES

- CONTRACTOR SHALL IMMEDIATELY NOTIFY COMPANY REPRESENTATIVES OF ANY INJURY OCCURRING ON COMPANY PROPERTY. A WRITTEN REPORT CONCERNING THE INJURY SHALL BE PROVIDED TO COMPANY WITHIN 24 HOURS OF OCCURRENCE OF INJURY.
- CONTRACTOR SHALL PROVIDE ALL FIRST AID AND EMERGENCY TREATMENT, AMBULANCE, HOSPITAL SERVICES, ETC. FOR ANY INJURY OCCURRING TO HIS EMPLOYEES ON COMPANY PROPERTY.

D. PERSONNEL FACILITIES

- CONTRACTOR SHALL PROVIDE ALL FACILITIES REQUIRED FOR HIS PERSONNEL. THESE INCLUDE PORTABLE TOILETS, DRINKING WATER,CLEAN-UP FACILITIES, ETC.

E. GRADES, LINES, LEVELS AND BENCHMARK REFERENCES

- SITE BENCHMARKS ARE PROVIDED TO THE CONTRACTOR. CONTRACTOR WILL BE RESPONSIBLE FOR PROPER ELEVATIONS AND LOCATIONS OF THE WORK AS REFERENCED TO THE BENCHMARKS.
- CONTRACTOR SHALL LAYOUT ALL WORK, ESTABLISH MARKERS, STAKES, ETC. AND BE RESPONSIBLE FOR THEIR ACCURACY. COMPANY MAY CHOOSE TO USE AN INDEPENDENT SURVEYOR TO CHECK CONTRACTOR'S WORK.

F. COMPANY OPERATION OF EXISTING FACILITIES

- COMPANY INTENDS TO OPERATE EXISTING EQUIPMENT AND FACILITIES IN THE VICINITY OF THE CONSTRUCTION SITE DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE HIS WORK WITH COMPANY FIELD OPERATIONS THROUGH COMPANY REPRESENTATIVE.
- CONTRACTOR WILL COORDINATE AND FULLY COOPERATE WITH ANY TESTING AGENCY TO ENSURE ALL TESTS ARE COMPLETED AND DOCUMENTED IN A TIMELY AND EFFICIENT MANNER.

6. GRADING AND EXCAVATION – CIVIL

A. GENERAL GRADING

- ELEVATIONS PRESENTED ON THE DRAWINGS INDICATE FINAL GRADE ELEVATIONS. FINAL GRADED SURFACE SHALL BE SLOPED UNIFORMLY BETWEEN SUCH POINTS AND NATURAL GRADE.
- TOLERANCES FROM FINAL GRADE SHALL BE +-0.1 FOOT. IN NO CASE HOWEVER SHOULD FINAL GRADE ALLOW PONDING OR DRAINAGE NOT INDICATED ON THE PLANS.
- ALL DEBRIS, VEGETATION, ROCK AND LUMPS GREATER THAN 3 INCHES IN ITS LARGEST DIMENSION AND OTHER OBJECTIONABLE MATERIAL SHALL BE COLLECTED, PILED AND DISPOSED OF BY THE CONTRACTOR SO AS TO LEAVE THE AREAS THAT HAVE BEEN CLEARED WITH A NEAT AND FINISHED APPEARANCE.

B. GRADING INSPECTION

- PROFESSIONAL INSPECTION OF GRADING OPERATIONS SHALL BE PROVIDED BY THE CIVIL ENGINEER OR SOILS ENGINEER.
- CIVIL ENGINEER SHALL INSPECT SITE AT COMPLETION OF ALL GRADING ACTIVITIES.
- GRADING OPERATIONS FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE GRADING OFFICIAL.
- BUILDING PADS SHALL HAVE A DRAINAGE GRADIENT OF 2 PERCENT TOWARD APPROVED DRAINAGE FACILITIES,UNLESS WAIVED BY THE GRADING OFFICIAL.

C. EXCAVATIONS

- ALL EXCAVATIONS SHALL BE PERFORMED IN A MANNER TO ASSURE DRAINAGE DURING THE COURSE OF THE WORK. FLOODED EXCAVATIONS SHALL BE DEWATERED AND ALL MUCK REMOVED BEFORE PROCEEDING WITH THE WORK.
- AFTER EXCAVATION, SCARIFY THE ENTIRE AREA EXPOSED AS PER SOILS REPORT, MOISTURE CONDITION AND RECOMPACT AS ENGINEERED FILL AND PROOF ROLLED PRIOR TO COMPACTING NEW FILL.
- OVER-EXCAVATE EXISTING SOIL IN LOCATIONS WHERE UNSUITABLE MATERIAL EXISTS AS DIRECTED BY THE COMPANY REPRESENTATIVE AND SOIL ENGINEER. BACKFILL WITH ENGINEERED FILL COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY AT +2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557.
- SOILS ENGINEER SHALL INSPECT THE BOTTOM OF EXCAVATION PRIOR TO PLACEMENT OF BACKFILL. FINAL DEPTH OF EXCAVATION TO BE DETERMINED BY SOILS ENGINEER. CIVIL ENGINEER SHALL INSPECT SITE AT COMPLETION OF ALL GRADING ACTIVITIES.
- PERMEABLE ENGINEERED FILL FOR THE INFILTRATION AREAS SHALL MEET THE PERMEABLE INFILTRATION RATES OF THE PERMEABLE LAYER SHOWN IN THE GEOTECHNICAL REPORT.

7. FILLS

A. PREPARATION OF GROUND

- FILL SLOPES SHALL NOT BE CONSTRUCTED ON NATURAL SLOPES STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE). THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION, NON-COMPLYING FILL, TOPSOIL AND OTHER UNSUITABLE MATERIALS SCARIFYING TO PROVIDE A BOND WITH THE NEW FILL AND, WHERE SLOPES ARE STEEPER THAN 1 UNIT VERTICAL IN 5 UNITS HORIZONTAL (20% SLOPE) AND THE HEIGHT IS GREATER THAN 5 FEET, BY BENCHING INTO SOUND BEDROCK OR OTHER COMPETENT MATERIAL AS DETERMINED BY THE SOILS ENGINEER. THE BENCH UNDER THE TOE OF A FILL ON A SLOPE STEEPER THAN 1 UNIT VERTICAL IN 5 UNITS HORIZONTAL (20% SLOPE) SHALL BE AT LEAST 10 FEET WIDE. THE AREA BEYOND THE TOE OF FILL SHALL BE SLOPED FOR SHEET OVERFLOW OR A PAVED DRAIN SHALL BE PROVIDED. WHEN FILL IS TO BE PLACED OVER A CUT, THE BENCH UNDER THE TOE OF FILL SHALL BE AT LEAST 10 FEET WIDE BUT THE CUT SHALL BE MADE BEFORE PLACING THE FILL AND ACCEPTANCE BY THE SOILS ENGINEER OR ENGINEERING GEOLOGIST OR BOTH AS A SUITABLE FOUNDATION FOR FILL.

B. FILL MATERIAL & PLACEMENT

- FILL MATERIAL SHOULD BE FREE FROM ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHOULD NOT CONTAIN ROCKS OR LUMPS OVER 4 INCHES IN GREATEST DIMENSION. NO MORE THAN 50 PERCENT OF THE FILL MATERIAL SHOULD PASS THE NO. 200 SIEVE AND THE MATERIAL SHOULD HAVE A LOW EXPANSION POTENTIAL. AS EVIDENCED BY A PLASTICITY INDEX OF 15 OR LESS OR EXPANSION INDEX OF 20 OR LESS. IMPORT SOIL SHOULD BE NON-EXPANSIVE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE (CBC) SECTION 1803A.5.3 AND SHOULD HAVE LOW POTENTIAL FOR CORROSIVITY AND HIGH RESISTIVITY. THE PH, CHLORIDE CONTENT, AND SULFATE CONTENT OF THE FILL MATERIALS SHOULD NOT BE DELETERIOUS TO THE MATERIALS USED TO CONSTRUCT THE FOUNDATION SYSTEM AND OTHER IMPROVEMENTS (I.E., CONCRETE OR STEEL). CLASS 2 AGGREGATE BASE MAY BE UTILIZED FOR CONSTRUCTION OF ACCESS ROADS OR PADS AND SHOULD CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) "STANDARD SPECIFICATIONS" SECTION 26-1.02B. WHERE INDICATED, FILL SHOULD BE MOISTURE CONDITIONED AND COMPACTED BETWEEN 0 AND 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENTS IN LAYERS THAT DO NOT EXCEED 8-INCH LOOSE LIFTS FOR HEAVY EQUIPMENT COMPACTION. EACH LIFT OF FILL SHOULD BE COMPACTED TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION UNLESS OTHERWISE SPECIFIED. RELATIVE COMPACTION IS DEFINED AS THE RATIO (IN PERCENT) OF THE INPLACE DRY DENSITY TO THE MAXIMUM DRY DENSITY DETERMINED USING THE LATEST VERSION OF ASTM D1557 AS THE COMPACTION STANDARD. CLASS 2 AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95 PERCENT.
- ALL IMPORTED FILL MATERIAL SHALL BE APPROVED BY THE SOIL ENGINEER PRIOR TO PLACEMENT AT THE SITE.
- DETRIMENTAL AMOUNTS OF ORGANIC MATERIAL SHALL NOT BE PERMITTED IN FILLS. EXCEPT AS PERMITTED BY THE GRADING OFFICIAL, NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 4 INCHES SHALL BE BURIED OR PLACED IN FILLS.
- PLACE FILL SOIL IN CONTINUOUS HORIZONTAL LOOSE LIFTS THAT DO NOT EXCEED 8 INCHES FOR HEAVY EQUIPMENT COMPACTION AND 4 INCH IN THICKNESS LOOSE LIFTS FOR HAND HELD EQUIPMENT COMPACTION. DO NOT PLACE FILL UNTIL REMOVAL OF UNSUITABLE MATERIAL HAS BEEN INSPECTED AND APPROVED BY THE SOIL ENGINEER.

C. COMPACTION

- FILL SHALL BE COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. MOISTURE CONTENT OF COMPACTED FILL SHALL BE 0 AND 3% ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557.
- SOIL USED FOR COMPACTED FILL SHALL CONTAIN NO ROCK OR HARD LUMPS GREATER THAN 4 INCHES IN ITS LARGEST DIMENSION. NO ORGANIC, PERISHABLE, SPONGY OR OTHER IMPROPER MATERIAL SHALL BE USED IN FILLING.
- THE UPPER 12 INCHES BENEATH FOUNDATIONS SHALL CONSIST OF CLASS II AGGREGATE BASE COMPACTED TO MIN 95% OF MAX DENSITY BASED ON ASTM D-1557.
- COMPACTION OF THE ENGINEERED PERMEABLE FILL SHALL NOT EXCEED THE REQUIREMENTS NEEDED TO MAINTAIN PERMEABILITY.

D. SLOPES

- THE SLOPE OF FILL SURFACES SHALL BE NO STEEPER THAN IS SAFE FOR THE INTENDED USE. FILL SLOPES SHALL BE NO STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE).
- WHERE EXISTING SLOPES ARE STEEPER THAN 5 HORIZONTAL:1 VERTICAL AND THE HEIGHT IS GREATER THAN 5 FEET, THE SURFACE SHALL BE PREPARED FOR FILL BY BENCHING INTO COMPETENT MATERIAL AS DETERMINED BY THE SOILS ENGINEER.

8. DRAINAGE AND TERRACING

UNLESS OTHERWISE INDICATED ON THE APPROVED GRADING PLAN, DRAINAGE FACILITIES AND TERRACING SHALL CONFORM TO THE PROVISIONS OF THIS SECTION FOR CUT OR FILL SLOPES STEEPER THAN 1 UNIT VERTICAL IN 3 UNITS HORIZONTAL (33.3% SLOPE).

TERRACES AT LEAST 6 FEET IN WIDTH SHALL BE ESTABLISHED AT NOT MORE THAN 30-FOOT VERTICAL INTERVALS ON ALL CUT OR FILL SLOPES TO CONTROL SURFACE DRAINAGE AND DEBRIS EXCEPT THAT WHERE ONLY ONE TERRACE IS REQUIRED, IT SHALL BE AT MID-HEIGHT. FOR CUT OR FILL SLOPES GREATER THAN 60 FEET AND UP TO 120 FEET IN VERTICAL HEIGHT, ONE TERRACE AT APPROXIMATELY MID-HEIGHT SHALL BE 12 FEET IN WIDTH.

9. EROSION, DUST, AND RUNOFF CONTROL

A. EROSION CONTROL MEASURES

- THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL AGAINST EROSION. THIS CONTROL MAY CONSIST OF EFFECTIVE PLANTING. THE PROTECTION FOR THE SLOPES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND PRIOR TO CALLING FOR FINAL APPROVAL. WHERE CUT SLOPES ARE NOT SUBJECT TO EROSION DUE TO THE EROSION-RESISTANT CHARACTER OF THE MATERIALS, SUCH PROTECTION MAY BE OMITTED.
- WHERE REQUIRED, CONTRACTOR SHALL PROVIDE SUFFICIENT EROSION CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, INSTALLATION OF ENERGY DISSIPATING RIP-RAP, SILT FENCING AND/OR HAY BALES.

B. DUST CONTROL MEASURES

- CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES, WHICH CONSIST OF WATER SPRAYING ALL GRADED AREAS AND ROADWAYS TO ALLEVIATE OR PREVENT DUST NUISANCE.

B. RUNOFF CONTROL MEASURES

- ALL STORMWATER TO BE RETAINED ON SITE DURING CONSTRUCTION. IMPLEMENT RUNOFF CONTROL AS INDICATED ON PLANS AND IN ACCORDANCE WITH KINGS COUNTY GRADING ORDINANCE.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

[redacted]

DRAWING LIMITS

B.M. #1
SEE DWG. NO. 33906-D-4003-STR
FOR PLANT COORDINATES & NAD83
CALIFORNIA STATE PLANE ZONE 4
COORDINATES

E

DRAWING LIMITS

[redacted]

DRAWING LIMITS

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

BY	DATE
DESIGNED: T.JOHNSON	05/07/20
DRAWN: D.RUPP	05/07/20
CHECKED: R.G.AQUINO	05/07/20
PROJ APV: J.F.HANNA	05/07/20
SCG ENG APV: K.NIU	05/07/20
ENG FILE NO: E18037	
WOA: 93365.001	

[redacted]

[redacted]

LEGEND:

— — — – MAAS ROUGH GRADING PROFILE

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

[redacted]

300 FT. ROLLS)

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

[redacted]

DRAWING LIMITS

DRAWING LIMITS

[redacted]

DRAWING LIMITS

DRAWING LIMITS

N

PLANT NORTH

TC-2

LEGEND:

CALIFORNIA STORM WATER QUALITY ASSOCIATION

EC-1	SCHEDULING
EC-2	PRESERVATION OF EX VEGETATION
EC-3	HYDRAULIC MULCH
EC-7	GEOTEXTILES AND MATS
EC-9	EARTH DIKE AND DRAINAGE SWALES
EC-11	SLOPE DRAINS
SE-1	SILT FENCE
SE-3	SEDIMENT TRAPS
SE-5	FIBER ROLLS
SE-7	STREET SWEEPING AND VACUUMING
SE-9	STRAW BALE BARRIER
SE-10	STORM DRAIN INLET PROTECTION
TC-1	STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC-2	STABILIZED CONSTRUCTION ROADWAY
WM-1	MATERIAL DELIVERY AND STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION AND CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-7	CONTAMINATED SOIL MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT
WE-1	WIND EROSION CONTROL
NS-1	WATER CONSERVATION PRACTICES
NS-3	PAVING AND GRINDING OPERATIONS
NS-5	CLEAR WATER DIVERSION
NS-8	VEHICLE AND EQUIPMENT CLEANING
NS-9	VEHICLE AND EQUIPMENT FUELING
NS-10	VEHICLE AND EQUIPMENT MAINTENANCE
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING

NOTES:

1. BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED TO CONTROL EROSION.
2. BEST MANAGEMENT PRACTICES (BMP'S) CONTAINED HEREIN REFLECT MINIMUM REQUIREMENTS. ALTERNATE METHODS PROVIDING EQUAL OR GREATER PROTECTION MAY BE UTILIZED. FOR ADDITIONAL BMP'S REFER TO CALIFORNIA STORMWATER BMP HANDBOOKS, AVAILABLE AT WWW.CABMPHANDBOOKS.COM.
3. VEGETATION REMOVAL SHALL NOT PRECEDE SUBSEQUENT GRADING BY MORE THAN 15 DAYS.
4. ALL DISTURBED SURFACES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION.
5. EROSION CONTROL MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKDAY.
6. MANY ASPECTS OF THE CONSTRUCTION SEQUENCING ARE YET TO BE DETERMINED. AS SUCH, THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE PROPER BMP'S FOR ALL SEQUENCES.
7. ANY DISTURBED SURFACE THAT REMAINS INACTIVE FOR MORE THEN 7 DAYS SOIL BINDER SHALL BE ADDED.
8. PORTABLE SANITARY FACILITIES SHALL BE LOCATED ON RELATIVELY LEVEL GROUND AWAY FROM TRAFFIC AREAS, DRAINAGE COURSES, AND STORM DRAIN INLETS.
9. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
10. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
11. BMP'S PER 2019 CALIFORNIA GREEN BUILDING STANDARDS.

NOTE TO SURVEYOR:
AFTER SETTING UP ON THE NGS MONUMENT IN THIS AREA PLEASE CHECK THE COORDINATES IN THE COORDINATE CONFIRMATION SCHEDULE. IF THE COORDINATES CANNOT BE CONFIRMED, PLEASE CONTACT PARSONS IMMEDIATELY.

NOTE:
THIS PLAN GENERATED FROM GROUND SURVEY AS PROVIDED BY MAAS ENERGY WORKS. THEIR FILENAME- MT_01.25.19.DWG, DATED JANUARY, 2020. THIS SURVEY WAS COLLECTED IN THE NAD83 STATE PLANE, ZONE 4 CALIFORNIA STATE PLANE COORDINATE SYSTEM & NAVD88

EXISTING CONTOUR INTERVAL = 2'-0"
DESIGN GRADE CONTOUR INTERVAL = 1'-0"

DRAWING LIMITS

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	DWR	TJ	JFH	KN	E18037	ISSUED FOR 90%	93365.001

[redacted]

Attachment 5

Electrical-Pkg_IFR-30

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

LAKESIDE DAIRY PILOT
SENATE BILL 1383
DRAWING INDEX & VICINITY MAP
ELECTRICAL

ELECTRICAL PERMIT INFORMATION

PERMITTING AGENCY/JURISDICTION: KINGS COUNTY

PLAN CHECK REQUIRED: YES

IF NOT REQUIRED, INDICATE WHY: _____

CODE COMPLIANCE:	Y	N/A
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 3 (2016 CALIFORNIA ELECTRICAL CODE)	☒	☐
STATE OF CALIFORNIA RULES FOR OVERHEAD ELECTRICAL LINE CONSTRUCTION (GENERAL ORDER 95)	☐	☒
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 6 (2016 BUILDING ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS)	☐	☒
KINGS COUNTY CODE OF BUILDING REQUIREMENTS (ELECTRICAL)	☒	☐

OTHER: _____

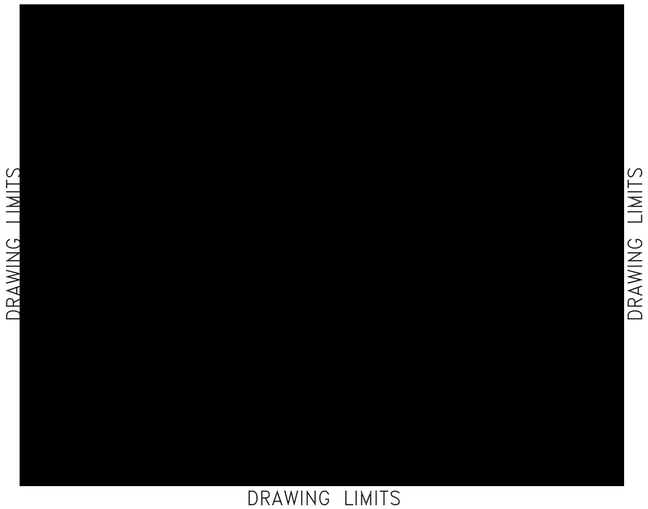
DRAWING INDEX

DRAWING #	REV	DESCRIPTION	FILE NAME
33906-5001-D-ELC	A	GENERAL NOTES	33906-5001-D-ELC
33906-5003-D-ELC	A	ONE-LINE DIAGRAM	33906-5003-D-ELC
33906-5005-D-ELC	A	LOAD SCHEDULE	33906-5005-D-ELC
33906-5008-D-ELC	A	ELECTRICAL PLOT PLAN	33906-5008-D-ELC
33906-5009-D-ELC	A	HAZARDOUS AREA CLASSIFICATION PLAN	33906-5009-D-ELC
33906-5010-D-ELC	A	HAZARDOUS AREA CLASSIFICATION DETAILS	33906-5010-D-ELC
33906-5011-D-ELC	A	GROUNDING PLAN	33906-5011-D-ELC
33906-5014-D-ELC	A	GROUNDING DETAILS	33906-5014-D-ELC
33906-5015-D-ELC	A	CONDUIT & CABLE ROUTING - KEY PLAN	33906-5015-D-ELC
33906-5016-D-ELC	A	CONDUIT & CABLE ROUTING - AREA "A"	33906-5016-D-ELC
33906-5017-D-ELC	A	CONDUIT & CABLE ROUTING - AREA "B"	33906-5017-D-ELC
33906-5018-D-ELC	A	CONDUIT & CABLE ROUTING - AREA "C"	33906-5018-D-ELC
33906-5019-D-ELC	A	CONDUIT & CABLE ROUTING - AREA "D"	33906-5019-D-ELC
33906-5030-D-ELC	A	CABLE SCHEDULE	33906-5030-D-ELC
33906-5032-D-ELC	A	CONDUIT SCHEDULE	33906-5032-D-ELC

STANDARD DRAWINGS

DRAWING #	REV	DESCRIPTION	FILE NAME
0501-D.STD	A	ELECTRICAL DESIGN STANDARDS - SYMBOLS & ABBREVIATIONS	0501-D.STD
0502-D.STD	-	ELECTRICAL DESIGN STANDARDS - GROUNDING DETAILS SHT 1 OF 3	0502-D.STD
0503-D.STD	-	ELECTRICAL DESIGN STANDARDS - GROUNDING DETAILS SHT 2 OF 3	0503-D.STD
0504-D.STD	-	ELECTRICAL DESIGN STANDARDS - GROUNDING DETAILS SHT 3 OF 3	0504-D.STD
0505-D.STD	-	ELECTRICAL DESIGN STANDARDS - MISC. POWER DETAILS	0505-D.STD
0506-D.STD	-	ELECTRICAL DESIGN STANDARDS - MOTOR CONTROL DETAILS SHT 1 OF 2	0506-D.STD
0507-D.STD	-	ELECTRICAL DESIGN STANDARDS - MOTOR CONTROL DETAILS SHT 2 OF 2	0507-D.STD
0508-D.STD	-	ELECTRICAL DESIGN STANDARDS - LIGHTING DETAILS SHT 1 OF 2	0508-D.STD
0509-D.STD	-	ELECTRICAL DESIGN STANDARDS - LIGHTING DETAILS SHT 2 OF 2	0509-D.STD
0510-D.STD	-	ELECTRICAL DESIGN STANDARDS - MISC. SUPPORT DETAILS	0510-D.STD
0511-D.STD	-	ELECTRICAL DESIGN STANDARDS - CONDUIT DETAILS	0511-D.STD
0512-D.STD	0	ELECTRICAL DESIGN STANDARDS - ELEC. INSTR. CONNECTION DETAILS (HAZ.) SH. 1 OF 2	0512-D.STD
0513-D.STD	1	ELECTRICAL DESIGN STANDARDS - ELEC. INSTR. CONNECTION DETAILS (HAZ.) SH. 2 OF 2	0513-D.STD
0514-D.STD	-	ELECTRICAL DESIGN STANDARDS - ELEC. INSTR. CONNECTION DETAIL (NON-HAZARDOUS)	0514-D.STD
0515-D.STD	-	ELECTRICAL DESIGN STANDARDS - MISC. ELECTRICAL INSTRUMENT DETAILS	0515-D.STD
0516-D.STD	-	ELECTRICAL DESIGN STANDARDS - NAMEPLATES AND CONDUIT TAGS	0516-D.STD
0520-D.STD	-	COMPRESSOR, ODORANT, & REGULATION & MEASUREMENT BUILDINGS - AREA CLASSIFICATION	0520-D.STD
0521-D.STD	0A	YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS - AREA CLASSIFICATION	0521-D.STD
0522-D.STD	-	YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS - AREA CLASSIFICATION	0522-D.STD
0523-D.STD	0	YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS - AREA CLASSIFICATION	0523-D.STD
0528-D.STD	0	POWER POLE STANDARD	0528-D.STD
0532-D.STD	0	HAZARDOUS AREA FLEXIBLE CONDUIT W/ GROUNDING	0532-D.STD

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

VICINITY MAP



REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

ELECTRICAL GENERAL NOTES

GENERAL REQUIREMENTS

1.0. THIS ELECTRICAL GENERAL NOTES SHEET DEFINES THE GENERAL REQUIREMENTS, APPLICABLE CODES AND STANDARDS, AS WELL AS MATERIALS, INSTALLATION REQUIREMENTS, AND GENERAL PROCEDURES FOR GROUNDING, CONDUIT AND CABLE THAT SHALL BE ADHERED TO BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, SAFE, AND ACCEPTABLE ELECTRICAL SYSTEM AS DEFINED BY THESE ELECTRICAL GENERAL NOTES AND/OR THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL CONSTRUCTION DRAWINGS.

1.1. ALL CONTRACTOR PURCHASED ITEMS, INSTALLATION TECHNIQUES, AND CONSTRUCTION SHALL BE IN COMPLETE ACCORDANCE WITH ALL LOCAL LAWS AND/OR ORDINANCES HAVING JURISDICTION AND ALSO THE LATEST EDITIONS AND SUPPLEMENTS THERETO OF THE "NATIONAL ELECTRICAL CODE" (NEC), THE "CALIFORNIA ELECTRICAL CODE" (CEC), THE "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION" (NEMA), THE "AMERICAN NATIONAL STANDARDS INSTITUTE" (ANSI), THE "INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS" (IEEE), THE FEDERAL "OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION" (OSHA) RULES AND REGULATIONS, THE "NATIONAL ELECTRICAL SAFETY CODE" (NESC), THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE AMERICAN PETROLEUM INSTITUTE (API), THE INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA), THE UNDERWRITER'S LABORATORIES (UL), AND THE UNIFORM BUILDING CODE (UBC). IF A CONFLICT IS NOTED BETWEEN THESE DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

1.2. THE ABOVE LOCAL LAWS AND STANDARDS SHALL CONSTITUTE THE MINIMUM ELECTRICAL STANDARDS TO BE FOLLOWED BY THE CONTRACTOR IN FULFILLING THE OBLIGATIONS OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS MADE AS PART OF THIS CONTRACT. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL WORK PERFORMED TO GUARANTEE A SAFE AND RELIABLE ELECTRICAL SYSTEM.

1.3. ALL MATERIALS AND/OR EQUIPMENT SUPPLIED BY THE CONTRACTOR SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) LISTED. OR BY A QUALIFIED ELECTRICAL TESTING LABORATORY RECOGNIZED BY THE BODY HAVING LEGAL JURISDICTION OVER ELECTRICAL INSTALLATIONS, EXCEPT FOR CLASSES OF MATERIALS AND EQUIPMENT NOT AVAILABLE WITH SUCH LISTING.

1.4. ALL MATERIALS REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION, AS DEFINED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE ELECTRICAL DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

1.5. HANDLING AND STORAGE OF ALL MATERIAL FURNISHED BY THE CONTRACTOR, INCLUDING MATERIAL FURNISHED BY OTHERS FOR CONTRACTOR USE, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.6. THE CONTRACTOR SHALL REPLACE AND/OR REPAIR EQUIPMENT AND MATERIALS THAT GET DEFORMED AND/OR DAMAGED DURING CONSTRUCTION, AS DETERMINED BY OWNER.

1.7. ALL WORK SHALL BE PERFORMED AS INDICATED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.8. THE CONTRACTOR SHALL FURNISH ALL MANPOWER, TOOLS AND INSTRUMENTS REQUIRED TO PROPERLY INSTALL, INSPECT AND TEST ALL ELECTRICAL SYSTEMS OR EQUIPMENT AS DESCRIBED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE AFOREMENTIONED STANDARDS, CODES, SPECIFICATIONS AND THE APPROVED CONSTRUCTION DRAWINGS. DISCREPANCIES SHOWN ON DIFFERENT PLANS, OR BETWEEN PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SOUTHERN CALIFORNIA GAS COMPANY FOR PROMPT RESOLUTION.

GROUNDING

2.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE GROUNDING SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

2.1. THE CONTRACTOR SHALL INSTALL A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS. THE GROUNDING SHALL COMPLY WITH THE LATEST EDITION OF THE NEC.

2.2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.

2.3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.

2.4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.

2.5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.

2.6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.

2.7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.

2.8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.

2.9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.

2.10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.

2.10. WHERE GROUND CONDUCTORS ARE INSTALLED IN A COMMON TRENCH WITH UNDERGROUND METAL PIPING OF ANY TYPE, ADEQUATE SEPARATION SHALL BE MAINTAINED. THE GROUND CONDUCTOR SHALL NOT BE ALLOWED ANY DIRECT CONTACT WITH ANY OF THE METAL PIPING. IF CONTACT CAN NOT BE AVOIDED, A GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED.

2.11. CABLE TRAY GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND NEMA VE2 STANDARDS. A SEPARATE #2/0 AWG GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OR ON OUTER EDGE OF CABLE TRAY AND SHALL BE BONDED TO EACH SECTION OF CABLE TRAY USING UL LISTED GROUND CLAMPS.

2.12. THE CONTRACTOR SHALL MEASURE THE GROUND RESISTANCE OF THE GROUNDING SYSTEM. USING A PROFESSIONAL QUALITY GROUND TESTER. TESTS SHALL BE MADE IN THREE WIDELY SEPARATED LOCATIONS AS SPECIFIED BY THE OWNER AND SHALL SHOW A RESISTANCE OF 1 OHM OR LESS. A MEGGER INSULATION TESTER IS NOT SUITABLE FOR THIS APPLICATION. UPON COMPLETION OF TESTING, THE CONTRACTOR SHALL SUBMIT ALL READINGS TO SOUTHERN CALIFORNIA GAS COMPANY.

CONDUIT

3.0. CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE CONDUIT SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

3.1. THE CONTRACTOR SHALL INSTALL A COMPLETE UNDERGROUND AND ABOVEGROUND CONDUIT SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

3.2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.

3.3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC-COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH DIAMETER.

3.4. RIGID METAL CONDUIT SHALL BE OF HIGH DUCTILE QUALITY, HOT DIPPED GALVANIZED INSIDE AND OUT, INCLUDING THREADS, AND LACQUER FINISHED CONFORMING TO ANSI C80.1.

3.5. FLEXIBLE CONDUIT SHALL BE GALVANIZED STEEL, LIQUID TIGHT, AND APPROVED FOR THE HAZARD CLASSIFICATION OF THE AREA IN WHICH IT IS INSTALLED. EXTERNAL BONDING JUMPERS WITH UL APPROVED CONNECTORS SHALL BE USED WITH FLEXIBLE CONDUITS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR ALL HAZARDOUS AREA APPLICATIONS. ALL CONNECTORS AND FITTING SHALL BE LIQUID-TIGHT, COMPRESSION SEALED, FERROUS CONNECTIONS.

3.6. CONDUIT FITTINGS SHALL BE VAPOR-PROOF CROUSE-HINDS FORM8, APPLETON FM8 OR APPROVED EQUAL. EXPANSION FITTINGS SHALL BE INSTALLED IN LONG CONDUIT RUNS TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

3.7. CONDUIT SEALS SHALL BE CROUSE-HINDS TYPE "EYSX" SIZED PER UL STD. 886.

3.8. CONCRETE ENCASEMENTS SHALL BE READY-MIXED RED CONCRETE OR COLORED RED BY SPRINKLING RED OXIDE ON THE FRESHLY-POURED CONCRETE, EXCEPT WITHIN THE CONFINES OF FOUNDATIONS.

3.9. CONCRETE ENCASEMENTS WHEN SUBJECT TO HEAVY TRAFFIC, SUCH AS ROADWAY CROSSINGS SHALL BE REINFORCED WITH STEEL REBAR ON THE TOP OF THE ENCASEMENT.

3.10. THE CONTRACTOR SHALL FOLLOW THE CONDUIT TYPES AND SIZES AS LISTED ON THE ELECTRICAL CONDUIT SCHEDULE IN THE CONSTRUCTION DRAWINGS.

3.11. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE SMALLER CONDUITS THAN THOSE CALLED FOR IN THE ELECTRICAL CONDUIT SCHEDULE AND/OR ELECTRICAL CONDUIT ROUTING PLAN CONSTRUCTION DRAWINGS.

3.12. ALL CONDUITS INSTALLED UNDERGROUND SHALL BE A MINIMUM OF 36 INCHES BELOW FINISHED GRADE FOR AREAS OF VEHICULAR ACCESS AND 24 INCHES FOR NON-VEHICULAR ACCESS AREAS, UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DRAWINGS.

3.13. EACH TRENCH CONDUIT SHALL BE SEPARATED BY A MINIMUM OF 3 INCHES. TRENCH AND FILL DETAILS SHALL FULLY COMPLY WITH THE SOUTHERN CALIFORNIA GAS COMPANY DETAILS STANDARDS AND CONSTRUCTION DRAWINGS.

3.14. CONDUITS INSTALLED UNDER VEHICULAR TRAFFIC AREAS/ROADS AND SHALL BE ENCASED IN CONCRETE.

3.15. UNDERGROUND CONDUITS AND DUCT BANKS SHALL BE ENCASED IN A 2000 PSI CONCRETE ENVELOPE FREE OF VOIDS WITH A MINIMUM ENCASEMENT OF 3 INCHES ON ALL SIDES UNLESS OTHERWISE NOTED. THE TOP OF THE ENCASEMENT SHALL BE A MINIMUM OF 18 INCHES BELOW FINISHED GRADE UNLESS NOTED.

3.16. ALL CONDUITS SHALL HAVE CONDUIT SEALS WHEN REQUIRED BY THE NEC. SEAL LOCATION SHALL BE AS DESCRIBED IN THE HAZARDOUS AREA CLASSIFICATION PLAN AND DETAIL DRAWINGS AND ASSOCIATED NOTES. ALL SEALS SHALL BE POURED AFTER THE INSTALLATION HAS BEEN COMPLETED AND INSPECTED.

3.17. FLEXIBLE CONDUIT SHALL BE USED TO CONNECT EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT, AND SHALL BE LIMITED TO A MAXIMUM LENGTH OF 18 INCHES.

3.18. UNDERGROUND CONDUITS SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY PROCESS PIPELINE. UNDERGROUND CONDUIT CROSSING PROCESS PIPELINES SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BELOW THE BOTTOM OF PROCESS PIPES WHERE PRACTICAL. UNDERGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 2 FEET FROM ANY HIGH TEMPERATURE PIPE, PETROLEUM OR NATURAL GAS PIPELINES.

3.19. ABOVEGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY INSULATED PIPE. CONDUIT SHALL BE ROUTED FOR MAXIMUM PRACTICAL ACCESSIBILITY OF JUNCTION AND PULL BOXES FROM PLATFORMS OR STRUCTURES WITHOUT USE OF SCAFFOLDING OR LADDERS. CONDUIT RUNS SHALL AVOID CREATING OBSTRUCTIONS AND UNNECESSARY BENDS.

3.20. WHERE CONDUITS ENTER BUILDING FOUNDATIONS, FLOOR SLABS OR EQUIPMENT FOUNDATIONS, THESE CONDUITS SHALL BE PLACED BEFORE CONCRETE FOUNDATIONS ARE POURED.

3.21. AFTER CONDUITS ARE INSTALLED, THE CONTRACTOR SHALL PULL A FLEXIBLE MANDREL, SIZED .25 INCH LESS IN DIAMETER THAN THE BORE OF THE CONDUIT, THROUGH THE CONDUIT TO CLEAN OUT ANY OBSTRUCTIONS. THE CONTRACTOR SHALL INSTALL A #9 NYLON FISH-WIRE IN EACH CONDUIT UPON COMPLETION.

3.22. THE CONTRACTOR SHALL PLUG ALL CONDUITS AND DUCTS TO PREVENT THE ENTRANCE OF DIRT OR FOREIGN PARTICLES.

3.23. FOR CONDUIT STUB-UP DETAILS AND DIMENSIONS, REFER TO THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS.

3.24. CONDUIT UNIONS ARE NOT SHOWN ON DRAWINGS. ALL CONNECTIONS TO ELECTRICAL DEVICES SHALL BE MADE WITH CROUSE-HINDS TYPE "UNY" UNIONS.

3.25. ALL UNDERGROUND CONDUIT AND DUCT BANKS SHALL BE LOCATED AS SHOWN ON THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS. ANY REROUTING OF UNDERGROUND CONDUIT OR DUCT BANKS WILL REQUIRE THE SOUTHERN CALIFORNIA GAS COMPANY ENGINEER'S APPROVAL. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING THE LOCATION OF ALL UNDERGROUND DUCT BANKS AND MANHOLES.

3.26. THE NUMBER OF 90° BENDS ALLOWED BETWEEN PULLING POINTS SHALL NOT EXCEED 4 (UP TO 100 FEET), 3 (100 TO 300 FEET) AND 2 (ABOVE 300 FEET). NOTE THAT TWO 45° BENDS ARE EQUIVALENT TO ONE 90° BEND.

3.27. REFER TO THE "ELECTRICAL CONDUIT SCHEDULE" FOR CONDUIT ROUTING, AND IDENTIFICATION NUMBERS.

3.28. PVC COATED STEEL CONDUIT SHALL BE USED FOR ALL FACTORY BENDS, STUB-UP ELBOWS, AND VERTICAL RISERS PENETRATING THROUGH CONCRETE OR UNPAVED SURFACES.

3.29. ALL UNDERGROUND CONDUITS CONTAINING HIGH VOLTAGE CABLES (5KV OR GREATER) SHALL BE ENCASED IN CONCRETE.

3.30. ALL CONDUITS IDENTIFIED BY NUMBERS ON THE SOUTHERN CALIFORNIA GAS COMPANY "ELECTRICAL CONDUIT SCHEDULE" SHALL ALSO BE IDENTIFIED AT BOTH ENDS USING STAINLESS STEEL TAGS, SECURELY FASTENED TO THE CONDUIT WITH A STAINLESS STEEL WIRE. ALL TAGS SHALL HAVE CLEARLY READABLE LETTERS AND NUMBERS NO SMALLER THAN .375 INCH IN HEIGHT.

CABLE

4.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER". THE FOLLOWING MATERIALS ARE THE MAJOR ITEMS REQUIRED. ADDITIONAL MATERIAL REQUIREMENTS ARE SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.1. THE CONTRACTOR SHALL INSTALL CABLE AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.2. LOW VOLTAGE CABLES SHALL BE RATED 600V, SHALL HAVE A MINIMUM TEMPERATURE RATING OF 90°C AND SHALL CONFORM TO UL STANDARDS ACCORDING TO THE PARTICULAR TYPE.

4.3. ALL SINGLE WIRES FOR 600V SERVICE AND BELOW SHALL BE TYPE THHN/THWN WITH 600V INSULATION, UNLESS A SPECIFIC APPLICATION REQUIRES MORE STRINGENT INSULATION REQUIREMENTS.

4.4. VFD DRIVEN MOTORS SHALL USE VFD RATED POWER CABLES.

4.5. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR CONTROL.

4.6. SINGLE PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #18 AWG SOLID CONDUCTORS, TWISTED AND SHIELDED.

4.7. MULTI-PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #20 AWG SOLID CONDUCTOR, EACH PAIR NUMBERED, TWISTED WITH AN OVERALL SHIELD JACKET. THE INSULATION SHALL BE POLYVINYL CHLORIDE WITH POLYVINYL CHLORIDE JACKET FOR TEMPERATURES 105°C AND BELOW.

4.8. SINGLE PAIR INSTRUMENT WIRE (RED/BLACK) SHALL BE #16 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, TWISTED, SHIELDED, AND A POLYVINYL CHLORIDE OUTER JACKET.

4.9. MULTI-PAIR ELECTRONIC INSTRUMENT WIRE SHALL BE #18 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, EACH PAIR IDENTIFIED BY AN ACCEPTABLE METHOD PER IPCEA, TWISTED AND CABLED WITH AN OVERALL SHIELD AND POLYVINYL CHLORIDE OUTER JACKET.

4.10. ETHERNET COMMUNICATION SHOULD BE VIA CAT 6 CABLE FOR LESS THAN 100 METER OR FIBER OPTICS FOR LONGER DISTANCE.

4.11. THE CONTRACTOR SHALL FOLLOW THE CABLE TYPES AND SIZES AS LISTED ON THE ELECTRICAL CABLE SCHEDULE IN THE CONSTRUCTION DRAWINGS.

4.12. SPLICING OF CONDUCTORS SHALL NOT BE ALLOWED FOR INSTRUMENT WIRE AND CABLE.

4.13. CONTRACTOR SHALL LABEL EACH PAIR IN A MULTI-PAIR WIRE.

4.14. SHIELD AND/OR SHIELD DRAIN WIRE FOR ELECTRONIC INSTRUMENT AND THERMOCOUPLE CABLES SHALL BE CUT AND TAPED AT THE SENSING ELEMENT AND GROUNDED ONLY TO THE PLC PANEL GROUND AT A SINGLE POINT.

4.15. ANALOG AND DIGITAL SIGNAL WIRING SHALL BE IN SEPARATE CONDUITS AND RACEWAYS FROM THEMSELVES AND FROM POWER WIRING. CABLES FOR DC ALARM SIGNALS AND LOW ENERGY DC CONTROL MAY BE INSTALLED IN THE SAME CONDUIT OR TERMINAL BOX. THERMOCOUPLE EXTENSION WIRE SHALL BE INSTALLED IN CONDUITS OR TERMINAL BOXES WITH OTHER SYSTEMS. TERMINAL BLOCKS SHALL BE USED IN LIEU OF SPLICES.

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. PG&E SERVICE EQUIPMENT UPSTREAM OF THE NEW PG&E TRANSFORMER IS UNKNOWN.
3. UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEM SHOWN ON SEPARATE UPS ONE-LINE DIAGRAM, SEE DRAWING #33906-5004-D-ELC.
4. MOTOR STARTER PANELS (MSP-01 AND MSP-02) SHALL BE PROVIDED BY VENDOR [redacted]
5. 5 INCH CONDUIT WITH PULL ROPE SHALL BE PROVIDED FOR PG&E USE, IN ACCORDANCE WITH PG&E STANDARDS.
6. FOR MCC LAYOUT SEE MCC ELEVATION DWG. 33906-5006-D-ELC.
7. MCC SHALL BE [redacted], IN A NEMA 12 ENCLOSURE.
8. EMERGENCY GENERATOR CONNECTION BOX WILL BE LOCATED OUTSIDE OF THE ELECTRICAL/CONTROL ROOM.

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

LEGEND:

CONDUIT CALLOUT



- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - C = CONDUIT
- CONDUIT NUMBER

CABLE CALLOUT



- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

SSOL - SOLID STATE OVERLOAD

[redacted]

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[redacted]

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

MCC-01 LOAD SCHEDULE

1200A, 480V, 3ø, 3W, 60HZ, 65KAIC

[redacted]

DISTRIBUTION PANEL-1 (DP-01) SCHEDULE (NOTE 2)

[redacted]

ARC FLASH NOTES:

1. ARC FLASH VALUES ARE CALCULATED FROM THE POWER SYSTEM MODEL (REVISION DATE: XX/XX/XX) USING THE NORMAL SYSTEM SWITCHING CONFIGURATION. OTHER SWITCHING CONFIGURATIONS COULD RESULT IN HIGHER OR LOWER VALUES.
1. UNLESS SHOWN OTHERWISE, THE CALCULATIONS ARE BASED ON ESTIMATED (TYPICAL) VALUES FOR TRANSFORMER IMPEDANCE.
2. VALUES SHOWN ARE CALCULATED FOR THE LOAD SIDE OF THE MCC MAIN BREAKER.
3. EQUIPMENT LABELS ARE TO BE CREATED SOCALGAS GUIDELINES.
4. ARC FLASH VALUES WILL BE PROVIDED UPON SYSTEM MODELING COMPLETION.

NOTES:

1. PG&E TRANSFORMER LOADING PERCENTAGE INCLUDES [redacted] FUTURE GROWTH LOAD. THE LOADING PERCENTAGE WITHOUT FUTURE GROWTH IS [redacted]
2. DISTRIBUTION PANELBOARD (DP-01) WILL BE BACKED UP BY A 15kVA UPS SYSTEM.

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[redacted]

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[redacted]

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

[redacted]

LEGEND:

- DUCT BANK
- PG&E UTILITY OVERHEAD LINE
- FENCE
- PG&E POWER POLE
- FLOOD LIGHTS POLE MOUNTED

NOTES:

1. CONDUIT LOCATIONS FOR LIGHTING IS NOT SHOWN.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

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[redacted]

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA
- DUCT BANK

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

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GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

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[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

LEGEND:

ELECTRICAL AREA CLASSIFICATION
CLASS 1, DIVISION 1, GROUP D

ELECTRICAL AREA CLASSIFICATION
CLASS 1, DIVISION 2, GROUP D

NON-CLASSIFIED AREA

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
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3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
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7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

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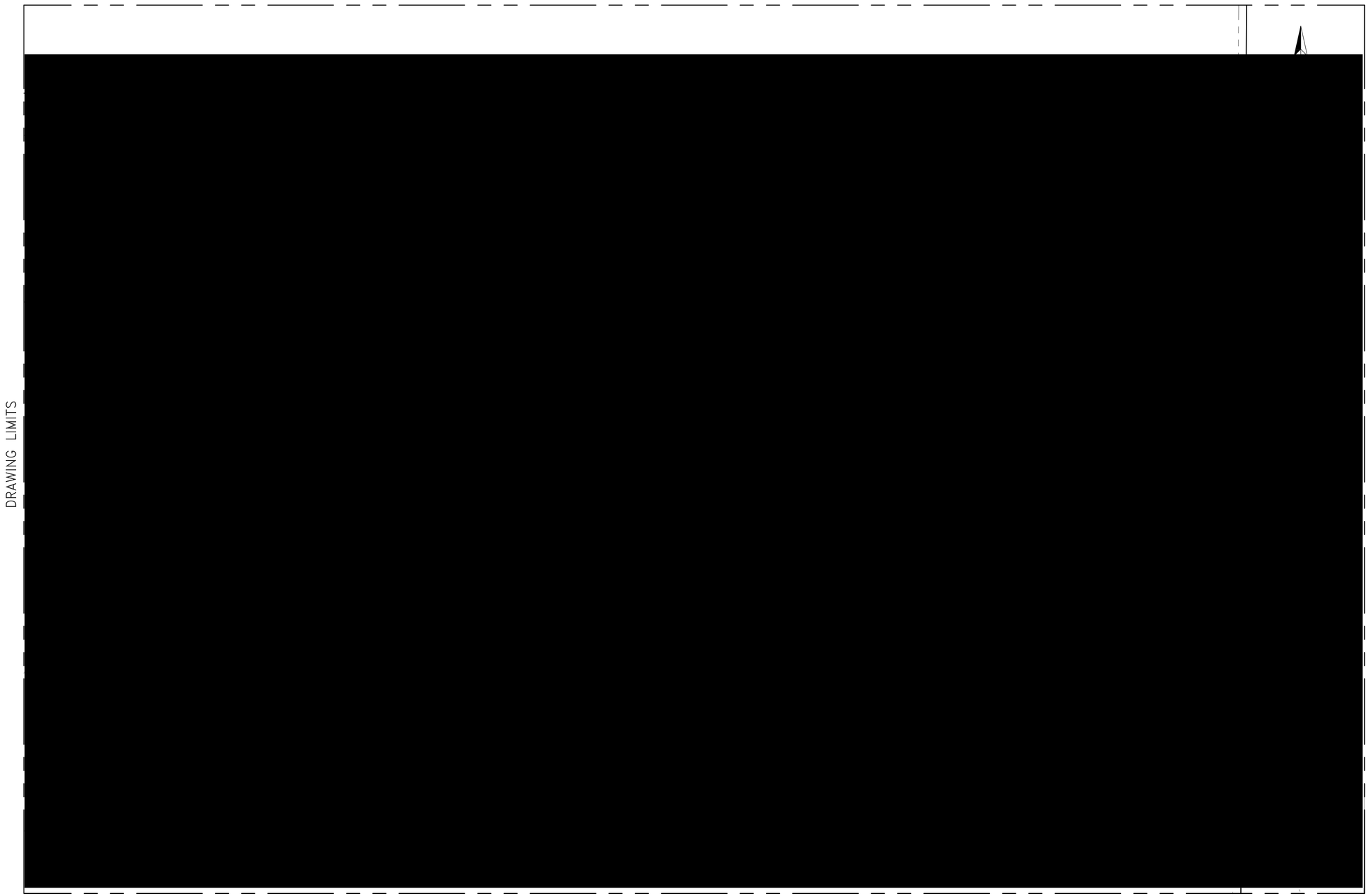
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

LEGEND:

- GROUND WELL
- GROUND ROD
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND GRID, #4/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)
- GROUND TAP, #2/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE ELECTRICAL/CONTROL ROOM AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE ELECTRICAL/CONTROL ROOM MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE ROOM AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.

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GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

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3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE ELECTRICAL/CONTROL ROOM AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE ELECTRICAL/CONTROL ROOM MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE ROOM AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
13. FOR ALL OTHER GROUNDING DETAILS SEE STANDARD DRAWINGS 0502-D.STD, 0503-D.STD, AND 0504-D.STD.

ISSUED FOR REVIEW

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

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A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

ISSUED FOR REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PROGRESS PRINT

PRELIMINARY
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS

CONTINUED ON AREA "B" DWG. 33906-5017-D-ELC

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5018-D-ELC

PLANT N

LEGEND:

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- DUCT BANK
- FLOOD LIGHTS POLE MOUNTED
- INSTRUMENT TAG

CONDUIT CALLOUT
- X" — CONDUIT SIZE (IN INCHES)
- XXXX — CONDUIT TAG
  - C = CONDUIT
- CONDUIT NUMBER

CABLE CALLOUT
- X-XXXX — CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. CABLE TRAY DESIGN IS PRELIMINARY. CABLES WILL DROP FROM TRAY AND EXIT ELECTRICAL/CONTROL ROOM VIA DUCT BANK UNDERNEATH BUILDING.

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS

DRAWING LIMITS

PLANT N

CONTINUED ON AREA "A" DWG. 33906-5016-D-ELC

CONTINUED ON AREA "D" DWG. 33906-5019-D-ELC

LEGEND:

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- DUCT BANK
- FLOOD LIGHTS POLE MOUNTED
- INSTRUMENT TAG

CONDUIT CALLOUT
- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - C = CONDUIT
- CONDUIT NUMBER

CABLE CALLOUT
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONTINUED ON AREA "A" DWG. 33906-5016-D-ELC

CONTINUED ON AREA "D" DWG. 33906-5019-D-ELC

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- DUCT BANK
- FLOOD LIGHTS POLE MOUNTED
- INSTRUMENT TAG

CONDUIT CALLOUT
- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - C = CONDUIT
- CONDUIT NUMBER

CABLE CALLOUT
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONTINUED ON AREA "B" DWG. 33906-5017-D-ELC

DRAWING LIMITS

ACCESS WAY FOR MAINTENANCE

[redacted]

EXIT DOOR

x x x

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5018-D-ELC

PLANT N

LEGEND:

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- DUCT BANK
- FLOOD LIGHTS POLE MOUNTED
- INSTRUMENT TAG

CONDUIT CALLOUT
- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - C = CONDUIT
- CONDUIT NUMBER

CABLE CALLOUT
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CABLE SCHEDULE

CABLE NUMBER	CABLE TAG	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	POWER CONDUCTORS NO.	SIZE	TYPE	GND. SIZE	LENGTH	COMMENTS
[redacted]												

CABLE LEGEND	
TYPE	DESCRIPTION
AA	**SINGLE CORE CONSTRUCTION CABLE** 15kV SHIELDED POWER CABLE, EPR INSULATION, PVC JACKET W/133% INSULATION, U.L. LISTED, 105DEG-C WET/DRY, TYPE MV-105, LISTED FOR USE IN CABLE TRAY.
BA	**SINGLE CONDUCTOR CABLE** 600V, POWER/CONTROL CABLE, THWN/THHN INSULATION, U.L. LISTED, 90DEG-C WET/DRY.
BB	**MULTI-CONDUCTOR VFD CABLE, WITH 3-SYMMETRICAL GROUNDS** 600V, VFD POWER CABLE, XLPE INSULATION, SHIELD, PVC JACKET, U.L. LISTED, 90DEG-C WET/DRY, TYPE "TC-ER".
BC	**MULTI-CONDUCTOR CABLE** 600V, POWER/CONTROL CABLE, THWN/THHN INSULATION, PVC JACKET, U.L. LISTED, 90DEG-C WET/DRY, TYPE "TC-ER".
CA	**SINGLE PAIR CABLE, GRAY OUTER JACKET** 300V SHIELDED INSTRUMENT CABLE, GRAY PVC JACKET, U.L. LISTED, 105DEG-C, TYPE "PLTC". RATED FOR CLASS 1 DIV 2 AREAS.
CB	**SINGLE PAIR CABLE, BLACK OUTER JACKET** 600V SHIELDED INSTRUMENT CABLE, BLACK PVC JACKET, U.L. LISTED, 105DEG-C, TYPE "PLTC", RATED FOR CLASS 1 DIV 2 AREAS.
CC	**MULTI-PAIR CABLE, INDIVIDUAL AND OVERALL SHIELDED** 600V INSTRUMENT CABLE, PVC JACKET, U.L. LISTED, 105DEG-C, TYPE "PLTC", RATED FOR CLASS 1 DIV 2 AREAS.
DA	**SINGLE TRIAD CABLE, GRAY OUTER JACKET** 300V SHIELDED INSTRUMENT CABLE, GRAY PVC JACKET, U.L. LISTED, 105DEG-C, TYPE "PLTC". RATED FOR CLASS 1 DIV 2 AREAS.
GA	**EIA-RS-485 CABLE, "MODBUS"** 300V, SHIELDED DATA CABLE, BLACK PVC JACKET, U.L. LISTED, 60DEG-C, TYPE "PLTC", RATED FOR CLASS 1 DIV 2 AREAS.
HB	**ETHERNET CABLE, "CATEGORY 6"** SHIELDED DATA CABLE, BLACK PVC JACKET, U.L. LISTED, SUN-LIGHT RESISTANT, 75DEG-C, DATATUFF CABLE.

LEGEND:

CONDUIT NUMBER (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT CODE
  - C = CONDUIT

CABLE NUMBER (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE CODE
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

CONDUIT TAG
LK-C1-E-C-XXXX
- SEQUENCE NUMBER
- CONDUIT CODE
  - C = CONDUIT
- DISCIPLINE
- AREA
- FACILITY

CABLE TAG
LK-C1-E-P-XXX-XXXX
- SEQUENCE NUMBER
- EQUIPMENT TYPE
- CABLE CODE
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE
- DISCIPLINE
- AREA
- FACILITY

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI-CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.

ISSUED FOR REVIEW

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONDUIT SCHEDULE

CONDUIT NUMBER	CONDUIT TAG	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
							UNDERGROUND			ABOVEGROUND			
							SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	
[redacted]													

CONDUIT LEGEND

TYPE	DESCRIPTION
A	RIGID STEEL GALVANIZED W/40MIL PVC COATING
B	RIGID STEEL GALVANIZED
C	PVC CONDUIT, SCHEDULE 40

LEGEND:

CONDUIT NUMBER (USED ON PLAN DWGS.)
C–XXXX
- CONDUIT NUMBER
- CONDUIT CODE
  - C = CONDUIT

CABLE NUMBER (USED ON PLAN DWGS.)
P–XXXX
- CABLE NUMBER
- CABLE CODE
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE

CONDUIT TAG
LK–C1–F–C–XXXX
- SEQUENCE NUMBER
- CONDUIT CODE
  - C = CONDUIT
- DISCIPLINE
- AREA
- FACILITY

CABLE TAG
LK–C1–F–P–XXX–XXXX
- SEQUENCE NUMBER
- EQUIPMENT TYPE
- CABLE CODE
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS
  - S = FIRE
- DISCIPLINE
- AREA
- FACILITY

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH IN DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.
3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC–COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH IN DIAMETER.

ISSUED FOR REVIEW

PROGRESS PRINT

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

Attachment 6

Electrical-Pkg_IFR-60

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

ELECTRICAL GENERAL NOTES

GENERAL REQUIREMENTS

1.0. THIS ELECTRICAL GENERAL NOTES SHEET DEFINES THE GENERAL REQUIREMENTS, APPLICABLE CODES AND STANDARDS, AS WELL AS MATERIALS, INSTALLATION REQUIREMENTS, AND GENERAL PROCEDURES FOR GROUNDING, CONDUIT AND CABLE THAT SHALL BE ADHERED TO BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, SAFE, AND ACCEPTABLE ELECTRICAL SYSTEM AS DEFINED BY THESE ELECTRICAL GENERAL NOTES AND/OR THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL CONSTRUCTION DRAWINGS.

1.1. ALL CONTRACTOR PURCHASED ITEMS, INSTALLATION TECHNIQUES, AND CONSTRUCTION SHALL BE IN COMPLETE ACCORDANCE WITH ALL LOCAL LAWS AND/OR ORDINANCES HAVING JURISDICTION AND ALSO THE LATEST EDITIONS AND SUPPLEMENTS THERETO OF THE "NATIONAL ELECTRICAL CODE" (NEC), THE "CALIFORNIA ELECTRICAL CODE" (CEC), THE "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION" (NEMA), THE "AMERICAN NATIONAL STANDARDS INSTITUTE" (ANSI), THE "INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS" (IEEE), THE FEDERAL "OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION" (OSHA) RULES AND REGULATIONS, THE "NATIONAL ELECTRICAL SAFETY CODE" (NESC), THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE AMERICAN PETROLEUM INSTITUTE (API), THE INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA), THE UNDERWRITER'S LABORATORIES (UL), AND THE UNIFORM BUILDING CODE (UBC). IF A CONFLICT IS NOTED BETWEEN THESE DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

1.2. THE ABOVE LOCAL LAWS AND STANDARDS SHALL CONSTITUTE THE MINIMUM ELECTRICAL STANDARDS TO BE FOLLOWED BY THE CONTRACTOR IN FULFILLING THE OBLIGATIONS OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS MADE AS PART OF THIS CONTRACT. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL WORK PERFORMED TO GUARANTEE A SAFE AND RELIABLE ELECTRICAL SYSTEM.

1.3. ALL MATERIALS AND/OR EQUIPMENT SUPPLIED BY THE CONTRACTOR SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) LISTED. OR BY A QUALIFIED ELECTRICAL TESTING LABORATORY RECOGNIZED BY THE BODY HAVING LEGAL JURISDICTION OVER ELECTRICAL INSTALLATIONS, EXCEPT FOR CLASSES OF MATERIALS AND EQUIPMENT NOT AVAILABLE WITH SUCH LISTING.

1.4. ALL MATERIALS REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION, AS DEFINED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE ELECTRICAL DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

1.5. HANDLING AND STORAGE OF ALL MATERIAL FURNISHED BY THE CONTRACTOR, INCLUDING MATERIAL FURNISHED BY OTHERS FOR CONTRACTOR USE, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.6. THE CONTRACTOR SHALL REPLACE AND/OR REPAIR EQUIPMENT AND MATERIALS THAT GET DEFORMED AND/OR DAMAGED DURING CONSTRUCTION, AS DETERMINED BY OWNER.

1.7. ALL WORK SHALL BE PERFORMED AS INDICATED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.8. THE CONTRACTOR SHALL FURNISH ALL MANPOWER, TOOLS AND INSTRUMENTS REQUIRED TO PROPERLY INSTALL, INSPECT AND TEST ALL ELECTRICAL SYSTEMS OR EQUIPMENT AS DESCRIBED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE AFOREMENTIONED STANDARDS, CODES, SPECIFICATIONS AND THE APPROVED CONSTRUCTION DRAWINGS. DISCREPANCIES SHOWN ON DIFFERENT PLANS, OR BETWEEN PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SOUTHERN CALIFORNIA GAS COMPANY FOR PROMPT RESOLUTION.

GROUNDING

2.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE GROUNDING SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

2.1. THE CONTRACTOR SHALL INSTALL A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS. THE GROUNDING SHALL COMPLY WITH THE LATEST EDITION OF THE NEC.

2.2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.

2.3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.

2.4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.

2.5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.

2.6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.

2.7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.

2.8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.

2.9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.

2.10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.

2.10. WHERE GROUND CONDUCTORS ARE INSTALLED IN A COMMON TRENCH WITH UNDERGROUND METAL PIPING OF ANY TYPE, ADEQUATE SEPARATION SHALL BE MAINTAINED. THE GROUND CONDUCTOR SHALL NOT BE ALLOWED ANY DIRECT CONTACT WITH ANY OF THE METAL PIPING. IF CONTACT CAN NOT BE AVOIDED, A GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED.

2.11. CABLE TRAY GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND NEMA VE2 STANDARDS. A SEPARATE #2/0 AWG GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OR ON OUTER EDGE OF CABLE TRAY AND SHALL BE BONDED TO EACH SECTION OF CABLE TRAY USING UL LISTED GROUND CLAMPS.

2.12. THE CONTRACTOR SHALL MEASURE THE GROUND RESISTANCE OF THE GROUNDING SYSTEM. USING A PROFESSIONAL QUALITY GROUND TESTER. TESTS SHALL BE MADE IN THREE WIDELY SEPARATED LOCATIONS AS SPECIFIED BY THE OWNER AND SHALL SHOW A RESISTANCE OF 1 OHM OR LESS. A MEGGER INSULATION TESTER IS NOT SUITABLE FOR THIS APPLICATION. UPON COMPLETION OF TESTING, THE CONTRACTOR SHALL SUBMIT ALL READINGS TO SOUTHERN CALIFORNIA GAS COMPANY.

CONDUIT

3.0. CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE CONDUIT SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

3.1. THE CONTRACTOR SHALL INSTALL A COMPLETE UNDERGROUND AND ABOVEGROUND CONDUIT SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

3.2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.

3.3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC-COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH DIAMETER.

3.4. RIGID METAL CONDUIT SHALL BE OF HIGH DUCTILE QUALITY, HOT DIPPED GALVANIZED INSIDE AND OUT, INCLUDING THREADS, AND LACQUER FINISHED CONFORMING TO ANSI C80.1.

3.5. FLEXIBLE CONDUIT SHALL BE GALVANIZED STEEL, LIQUID TIGHT, AND APPROVED FOR THE HAZARD CLASSIFICATION OF THE AREA IN WHICH IT IS INSTALLED. EXTERNAL BONDING JUMPERS WITH UL APPROVED CONNECTORS SHALL BE USED WITH FLEXIBLE CONDUITS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR ALL HAZARDOUS AREA APPLICATIONS. ALL CONNECTORS AND FITTING SHALL BE LIQUID-TIGHT, COMPRESSION SEALED, FERROUS CONNECTIONS.

3.6. CONDUIT FITTINGS SHALL BE VAPOR-PROOF CROUSE-HINDS FORM8, APPLETON FM8 OR APPROVED EQUAL. EXPANSION FITTINGS SHALL BE INSTALLED IN LONG CONDUIT RUNS TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

3.7. CONDUIT SEALS SHALL BE CROUSE-HINDS TYPE "EYSX" SIZED PER UL STD. 886.

3.8. CONCRETE ENCASEMENTS SHALL BE READY-MIXED RED CONCRETE OR COLORED RED BY SPRINKLING RED OXIDE ON THE FRESHLY-POURED CONCRETE, EXCEPT WITHIN THE CONFINES OF FOUNDATIONS.

3.9. CONCRETE ENCASEMENTS WHEN SUBJECT TO HEAVY TRAFFIC, SUCH AS ROADWAY CROSSINGS SHALL BE REINFORCED WITH STEEL REBAR ON THE TOP OF THE ENCASEMENT.

3.10. THE CONTRACTOR SHALL FOLLOW THE CONDUIT TYPES AND SIZES AS LISTED ON THE ELECTRICAL CONDUIT SCHEDULE IN THE CONSTRUCTION DRAWINGS.

3.11. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE SMALLER CONDUITS THAN THOSE CALLED FOR IN THE ELECTRICAL CONDUIT SCHEDULE AND/OR ELECTRICAL CONDUIT ROUTING PLAN CONSTRUCTION DRAWINGS.

3.12. ALL CONDUITS INSTALLED UNDERGROUND SHALL BE A MINIMUM OF 36 INCHES BELOW FINISHED GRADE FOR AREAS OF VEHICULAR ACCESS AND 24 INCHES FOR NON-VEHICULAR ACCESS AREAS, UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DRAWINGS.

3.13. EACH TRENCH CONDUIT SHALL BE SEPARATED BY A MINIMUM OF 3 INCHES. TRENCH AND FILL DETAILS SHALL FULLY COMPLY WITH THE SOUTHERN CALIFORNIA GAS COMPANY DETAILS STANDARDS AND CONSTRUCTION DRAWINGS.

3.14. CONDUITS INSTALLED UNDER VEHICULAR TRAFFIC AREAS/ROADS AND SHALL BE ENCASED IN CONCRETE.

3.15. UNDERGROUND CONDUITS AND DUCT BANKS SHALL BE ENCASED IN A 2000 PSI CONCRETE ENVELOPE FREE OF VOIDS WITH A MINIMUM ENCASEMENT OF 3 INCHES ON ALL SIDES UNLESS OTHERWISE NOTED. THE TOP OF THE ENCASEMENT SHALL BE A MINIMUM OF 18 INCHES BELOW FINISHED GRADE UNLESS NOTED.

3.16. ALL CONDUITS SHALL HAVE CONDUIT SEALS WHEN REQUIRED BY THE NEC. SEAL LOCATION SHALL BE AS DESCRIBED IN THE HAZARDOUS AREA CLASSIFICATION PLAN AND DETAIL DRAWINGS AND ASSOCIATED NOTES. ALL SEALS SHALL BE POURED AFTER THE INSTALLATION HAS BEEN COMPLETED AND INSPECTED.

3.17. FLEXIBLE CONDUIT SHALL BE USED TO CONNECT EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT, AND SHALL BE LIMITED TO A MAXIMUM LENGTH OF 18 INCHES.

3.18. UNDERGROUND CONDUITS SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY PROCESS PIPELINE. UNDERGROUND CONDUIT CROSSING PROCESS PIPELINES SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BELOW THE BOTTOM OF PROCESS PIPES WHERE PRACTICAL. UNDERGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 2 FEET FROM ANY HIGH TEMPERATURE PIPE, PETROLEUM OR NATURAL GAS PIPELINES.

3.19. ABOVEGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY INSULATED PIPE. CONDUIT SHALL BE ROUTED FOR MAXIMUM PRACTICAL ACCESSIBILITY OF JUNCTION AND PULL BOXES FROM PLATFORMS OR STRUCTURES WITHOUT USE OF SCAFFOLDING OR LADDERS. CONDUIT RUNS SHALL AVOID CREATING OBSTRUCTIONS AND UNNECESSARY BENDS.

3.20. WHERE CONDUITS ENTER BUILDING FOUNDATIONS, FLOOR SLABS OR EQUIPMENT FOUNDATIONS, THESE CONDUITS SHALL BE PLACED BEFORE CONCRETE FOUNDATIONS ARE POURED.

3.21. AFTER CONDUITS ARE INSTALLED, THE CONTRACTOR SHALL PULL A FLEXIBLE MANDREL, SIZED .25 INCH LESS IN DIAMETER THAN THE BORE OF THE CONDUIT, THROUGH THE CONDUIT TO CLEAN OUT ANY OBSTRUCTIONS. THE CONTRACTOR SHALL INSTALL A #9 NYLON FISH-WIRE IN EACH CONDUIT UPON COMPLETION.

3.22. THE CONTRACTOR SHALL PLUG ALL CONDUITS AND DUCTS TO PREVENT THE ENTRANCE OF DIRT OR FOREIGN PARTICLES.

3.23. FOR CONDUIT STUB-UP DETAILS AND DIMENSIONS, REFER TO THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS.

3.24. CONDUIT UNIONS ARE NOT SHOWN ON DRAWINGS. ALL CONNECTIONS TO ELECTRICAL DEVICES SHALL BE MADE WITH CROUSE-HINDS TYPE "UNY" UNIONS.

3.25. ALL UNDERGROUND CONDUIT AND DUCT BANKS SHALL BE LOCATED AS SHOWN ON THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS. ANY REROUTING OF UNDERGROUND CONDUIT OR DUCT BANKS WILL REQUIRE THE SOUTHERN CALIFORNIA GAS COMPANY ENGINEER'S APPROVAL. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING THE LOCATION OF ALL UNDERGROUND DUCT BANKS AND MANHOLES.

3.26. THE NUMBER OF 90° BENDS ALLOWED BETWEEN PULLING POINTS SHALL NOT EXCEED 4 (UP TO 100 FEET), 3 (100 TO 300 FEET) AND 2 (ABOVE 300 FEET). NOTE THAT TWO 45° BENDS ARE EQUIVALENT TO ONE 90° BEND.

3.27. REFER TO THE "ELECTRICAL CONDUIT SCHEDULE" FOR CONDUIT ROUTING, AND IDENTIFICATION NUMBERS.

3.28. PVC COATED STEEL CONDUIT SHALL BE USED FOR ALL FACTORY BENDS, STUB-UP ELBOWS, AND VERTICAL RISERS PENETRATING THROUGH CONCRETE OR UNPAVED SURFACES.

3.29. ALL UNDERGROUND CONDUITS CONTAINING HIGH VOLTAGE CABLES (5KV OR GREATER) SHALL BE ENCASED IN CONCRETE.

3.30. ALL CONDUITS IDENTIFIED BY NUMBERS ON THE SOUTHERN CALIFORNIA GAS COMPANY "ELECTRICAL CONDUIT SCHEDULE" SHALL ALSO BE IDENTIFIED AT BOTH ENDS USING STAINLESS STEEL TAGS, SECURELY FASTENED TO THE CONDUIT WITH A STAINLESS STEEL WIRE. ALL TAGS SHALL HAVE CLEARLY READABLE LETTERS AND NUMBERS NO SMALLER THAN .375 INCH IN HEIGHT.

CABLE

4.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER". THE FOLLOWING MATERIALS ARE THE MAJOR ITEMS REQUIRED. ADDITIONAL MATERIAL REQUIREMENTS ARE SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.1. THE CONTRACTOR SHALL INSTALL CABLE AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.2. LOW VOLTAGE CABLES SHALL BE RATED 600V, SHALL HAVE A MINIMUM TEMPERATURE RATING OF 90°C AND SHALL CONFORM TO UL STANDARDS ACCORDING TO THE PARTICULAR TYPE.

4.3. ALL SINGLE WIRES FOR 600V SERVICE AND BELOW SHALL BE TYPE THHN/THWN WITH 600V INSULATION, UNLESS A SPECIFIC APPLICATION REQUIRES MORE STRINGENT INSULATION REQUIREMENTS.

4.4. VFD DRIVEN MOTORS SHALL USE VFD RATED POWER CABLES.

4.5. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR CONTROL.

4.6. SINGLE PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #18 AWG SOLID CONDUCTORS, TWISTED AND SHIELDED.

4.7. MULTI-PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #20 AWG SOLID CONDUCTOR, EACH PAIR NUMBERED, TWISTED WITH AN OVERALL SHIELD JACKET. THE INSULATION SHALL BE POLYVINYL CHLORIDE WITH POLYVINYL CHLORIDE JACKET FOR TEMPERATURES 105°C AND BELOW.

4.8. SINGLE PAIR INSTRUMENT WIRE (RED/BLACK) SHALL BE #16 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, TWISTED, SHIELDED, AND A POLYVINYL CHLORIDE OUTER JACKET.

4.9. MULTI-PAIR ELECTRONIC INSTRUMENT WIRE SHALL BE #18 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, EACH PAIR IDENTIFIED BY AN ACCEPTABLE METHOD PER IPCEA, TWISTED AND CABLED WITH AN OVERALL SHIELD AND POLYVINYL CHLORIDE OUTER JACKET.

4.10. ETHERNET COMMUNICATION SHOULD BE VIA CAT 6 CABLE FOR LESS THAN 100 METER OR FIBER OPTICS FOR LONGER DISTANCE.

4.11. THE CONTRACTOR SHALL FOLLOW THE CABLE TYPES AND SIZES AS LISTED ON THE ELECTRICAL CABLE SCHEDULE IN THE CONSTRUCTION DRAWINGS.

4.12. SPLICING OF CONDUCTORS SHALL NOT BE ALLOWED FOR INSTRUMENT WIRE AND CABLE.

4.13. CONTRACTOR SHALL LABEL EACH PAIR IN A MULTI-PAIR WIRE.

4.14. SHIELD AND/OR SHIELD DRAIN WIRE FOR ELECTRONIC INSTRUMENT AND THERMOCOUPLE CABLES SHALL BE CUT AND TAPED AT THE SENSING ELEMENT AND GROUNDED ONLY TO THE PLC PANEL GROUND AT A SINGLE POINT.

4.15. ANALOG AND DIGITAL SIGNAL WIRING SHALL BE IN SEPARATE CONDUITS AND RACEWAYS FROM THEMSELVES AND FROM POWER WIRING. CABLES FOR DC ALARM SIGNALS AND LOW ENERGY DC CONTROL MAY BE INSTALLED IN THE SAME CONDUIT OR TERMINAL BOX. THERMOCOUPLE EXTENSION WIRE SHALL NOT BE INSTALLED IN CONDUITS OR TERMINAL BOXES WITH OTHER SYSTEMS. TERMINAL BLOCKS SHALL BE USED IN LIEU OF SPLICES. NOTE THAT TERMINALS FOR THERMOCOUPLE EXTENSION WIRE SHOULD BE OF LIKE MATERIAL.

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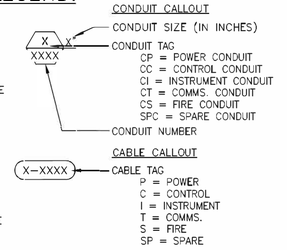
PRELIMINARY
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REV	DATE	DRAWN	CHECKED	PJU APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. PG&E SERVICE EQUIPMENT UPSTREAM OF THE NEW PG&E TRANSFORMER IS UNKNOWN.
3. MOTOR STARTER PANELS (MSP-01 AND MSP-02) SHALL BE PROVIDED BY VENDOR [redacted] USING ROCKWELL PANELS.
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
5. MCC SHALL BE [redacted] IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
6. THE GLYCOL CHILLER SKID WILL CONSIST OF MULTIPLE MOTORS WITH ONE OVERALL PRIMARY FEED FROM THE MCC.
7. [redacted] ARE MOUNTED ON EXTERIOR WALL OF PDC BUILDING, WITH LEAD/LAG CONTROLLER INSIDE PDC.
8. PG&E TRANSFORMER SIZE IS ESTIMATED BASED ON OUR SITE LOAD. FINAL TRANSFORMER SIZE SHALL BE PROVIDED BY PG&E PRIOR TO CONSTRUCTION. PG&E WILL SET TRANSFORMER ON PAD INSTALLED BY CONTRACTOR.

LEGEND:



DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

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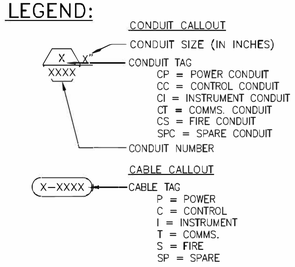
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REV	DATE	DRAWN	CHECKED	PM/ APV	SOC APV	ENG FILE NO	DESCRIPTION	WOA
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

LEGEND:



NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEM SHOWN ON SEPARATE UPS ONE-LINE DIAGRAM, SEE DWG. 33906-5004-D-ELC.
3. MCC SHALL BE [redacted] WITH ARC SHIELD, IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
4. FOR DP-01 & DP-02 PANEL SCHEDULES SEE DWG. 33906-5005-D-ELEC.
5. 120V/240V DISTRIBUTION PANEL (DP-01) SHALL INCLUDE INTERNAL 125A MAIN BREAKER.

[redacted]

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[redacted]

REV	DATE	DRAWN	CHECKED	PM/ APV	SOC APV	ENG FILE NO	DESCRIPTION	WOA
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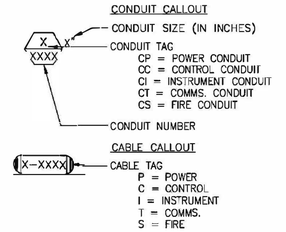
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

LEGEND:

REPO – REMOTE EMERGENCY POWER–OFF



NOTES:

1. [redacted]
2.
3.
4.
5.

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REV	DATE	DRAWN	CHECKED	PSJ APV	SCC APV	BNC FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

MCC-01 LOAD SCHEDULE

[redacted]

DP-01 LOAD SCHEDULE

[redacted]

DP-02 LOAD SCHEDULE
(UPS DISTRIBUTION PANEL)

[redacted]

NOTES:

1. TRANSFORMER LOADING IS BASED ON ESTIMATED PG&E TRANSFORMER SIZE OF 750kVA.

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REV	DATE	DRAWN	CHECKED	PRJ APV	SOS APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

A
B
C
D
E
F
G
H
J
K
L
M

MTS-01

MTS-01
MANUAL
TRANSFER SWITCH

[redacted]

NOTES:

1. FOR FINAL MCC LAYOUT AND CONFIGURATION SEE MANUFACTURER [redacted] CONSTRUCTION DRAWINGS.

GRAPHIC SCALE

1' 0 6" 1' 2' 4'

(IN FEET)
1"=1'-0"

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[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SIZE APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



LEGEND:

E	PG&E UTILITY OVERHEAD LINE
x	FENCE
	PG&E POWER POLE
	FLOOD LIGHTS POLE MOUNTED
	DUCT BANK
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. PDC BUILDING AND SWBD-01 MUST BE MINIMUM OF 15 FEET HORIZONTAL CLEARANCE FROM PG&E POWER LINES.
2. ALL ELECTRICAL EQUIPMENT MUST BE MINIMUM OF 35 FEET FROM PROPERTY LINE.
3. THE ELECTRICAL VAULT SHALL BE PRECAST SIZE 6'Lx4'Wx6'D.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	QQS APV	ENG FILE NO	DESCRIPTION	WOA
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DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA
- DUCT BANK

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

ISSUED FOR REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
D	02/06/20	KM	JJ	SD	–	E18037	RE-ISSUED FOR 60% REVIEW	93365.001
C	12/10/19	KM	JJ	SD	–	E18037	ISSUED FOR PHA	93365.001
B	11/18/19	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

[redacted]

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY. THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

ISSUED FOR REVIEW

PRELIMINARY
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[redacted]

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PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



LEGEND:

- GROUND WELL
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND GRID, #4/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)
- GROUND TAP, #2/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC BUILDING AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE PDC BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
13. GROUNDING OF THE PG&E TRANSFORMER SHALL BE PROVIDED AND INSTALLED BY PG&E DURING TRANSFORMER INSTALLATION.

DRAWING LIMITS

ISSUED FOR REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	QQS APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC BUILDING AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE PDC BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
13. FOR ALL OTHER GROUNDING DETAILS SEE STANDARD DRAWINGS 0502-D.STD, 0503-D.STD, AND 0504-D.STD.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

ISSUED FOR REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	P&J APV	SGG APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS

[redacted]

CONTINUED ON AREA "B" DWG. 33906-5014-D-ELC

DRAWING LIMITS

PLANT N

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- X — FENCE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- HANDSWITCH/PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS 120V, 2x150W, LED
- INSTRUMENT TAG

CONDUIT CALLOUT
- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT
- X-XXXX — CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
6. ALL CABLES, UNLESS OTHERWISE SHOWN, WILL EXIT PDC BUILDING CABLE TRAY VIA ROXTEC CABLE GLANDS AND INTO PDC MOUNTED PULLBOX/CABLE CABINET BEFORE ENTERING UNDERGROUND DUCTBANK.
7. NOTE THAT CONDUIT SEALS ARE NOT SHOWN AND CONTRACTOR SHALL INSTALL SEALS AT ALL REQUIRED LOCATIONS PER AREA CLASSIFICATION DWG. 33906-5008-D-ELC AND AREA CLASSIFICATION NOTES.

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	RAJ APV	SCC APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS

[redacted]

DRAWING LIMITS

CONTINUED ON AREA "A" DWG. 33906-5013-D-ELC

CONTINUED ON AREA "D" DWG. 33906-5016-D-ELC

PLANT N

LEGEND:

- FENCE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- HANDSWITCH/PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  120V, 2x150W, LED
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. THE ELECTRICAL VAULT SHALL BE PRECAST CONCRETE SIZE 6'Lx4'Wx6'D.
6. NOTE THAT CONDUIT SEALS ARE NOT SHOWN AND CONTRACTOR SHALL INSTALL SEALS AT ALL REQUIRED LOCATIONS PER AREA CLASSIFICATION DWG. 33906-5008-D-ELC AND AREA CLASSIFICATION NOTES.

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PJU APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONTINUED ON AREA "A" DWG. 33906-5013-D-ELC

CONTINUED ON AREA "C" DWG. 33906-5015-D-ELC

[redacted]

DRAWING LIMITS

PLANT N

DRAWING LIMITS

LEGEND:

- FENCE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- HANDSWITCH/PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS 120V, 2x150W, LED
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. NOTE THAT CONDUIT SEALS ARE NOT SHOWN AND CONTRACTOR SHALL INSTALL SEALS AT ALL REQUIRED LOCATIONS PER AREA CLASSIFICATION DWG. 33906-5008-D-ELC AND AREA CLASSIFICATION NOTES.

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOO APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONTINUED ON AREA "B" DWG. 33906-5014-D-ELC

DRAWING LIMITS

[redacted]

CONTINUED ON AREA "C" DWG. 33906-5015-D-ELC

PLANT N

DRAWING LIMITS

LEGEND:

- FENCE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- HANDSWITCH/PUSH BUTTON
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  120V, 2x150W, LED
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. NOTE THAT CONDUIT SEALS ARE NOT SHOWN AND CONTRACTOR SHALL INSTALL SEALS AT ALL REQUIRED LOCATIONS PER AREA CLASSIFICATION DWG. 33906-5008-D-ELC AND AREA CLASSIFICATION NOTES.

DRAWING LIMITS

ISSUED FOR REVIEW

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA	
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001	9
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001	E

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

(LEFT TO RIGHT)

[redacted]

LEGEND:

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CABLE GLAND
- CABLE CALLOUT
  - (X-XXXX) ← CABLE TAG
    - P = POWER
    - C = CONTROL
    - I = INSTRUMENT
    - T = COMMS.
    - S = FIRE
    - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS/CABLES AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. BUILDING VENDOR TO ROUTE BUILDING REQUIRED ELECTRICAL. SEE [redacted] DRAWINGS FOR REFERENCE.
6. [redacted]
7. SEE CONDUIT & CABLE ROUTING AREA "A" 33906-5013-D-ELC FOR CONTINUATION.

PRELIMINARY
NOT FOR CONSTRUCTION

GRAPHIC SCALE

2' 0 1' 2' 4' 8'

(IN FEET)
3/4"=1'-0"

ISSUED FOR REVIEW

[redacted]

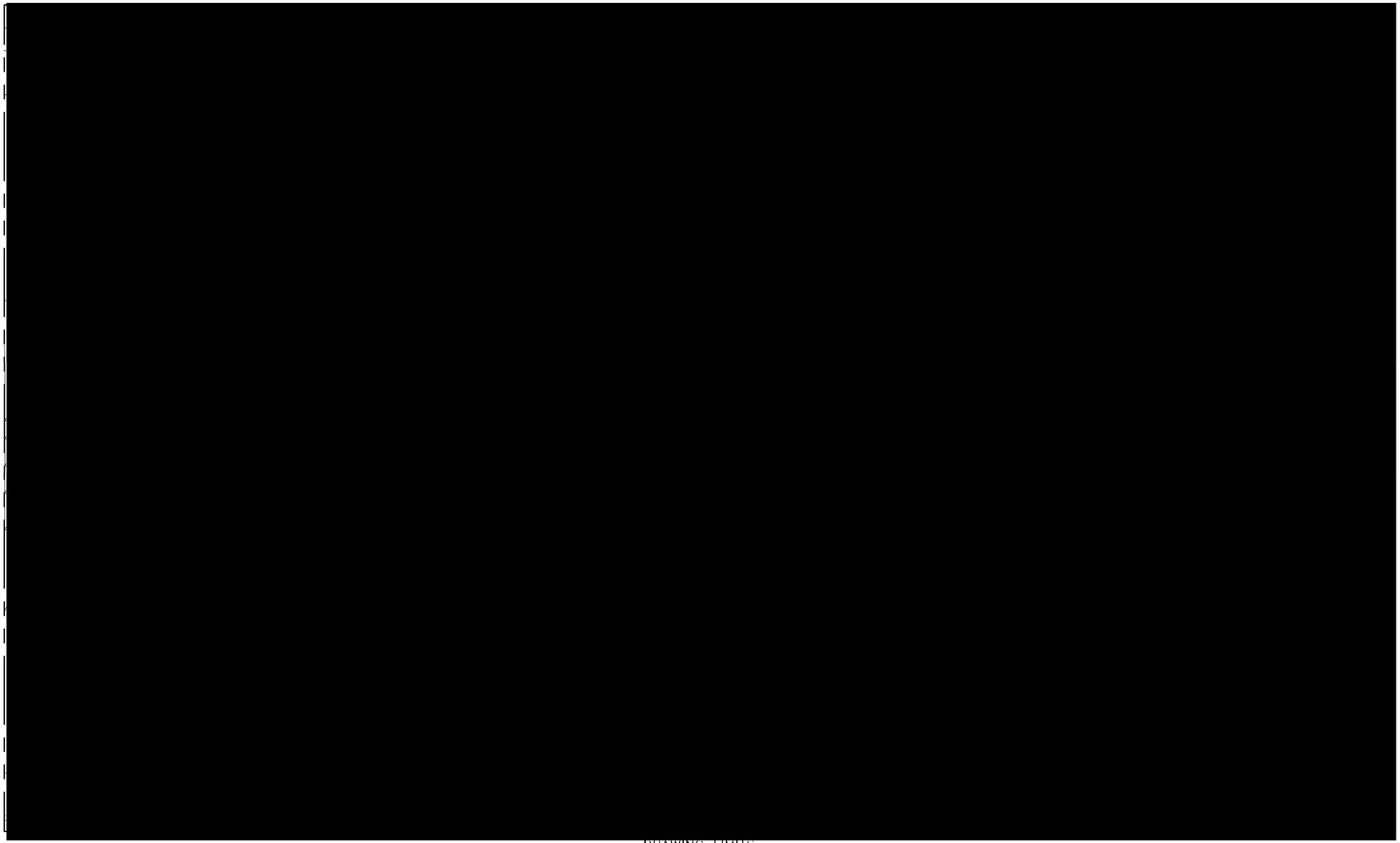
REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENC FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- x — FENCE
- PG&E POWER POLE
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  120V, 2x150W, LED

STATISTICS						
DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
CALC ZONE #1	+					

SCHEDULE

SYMBOL	LABEL	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP	NUMBER LAMPS	FILENAME	LUMENS PER LAMP	LIGHT LOSS FACTOR	WATTAGE

ISSUED FOR REVIEW

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SGG APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JU	SD	–	E18037	ISSUED FOR 60% REVIEW	9.3365.001

[redacted]

LEGEND:

FL-XX FLOOD LIGHT
120V, 150W, LED, POLE MOUNTED

PANEL WIRING

FIELD WIRING

NOTES:

1. FOR LIGHTING PHOTOMETRIC PLAN SEE DRAWING 33906-5018-D-ELC.
2. FOR LIGHTING ROUTING SEE CONDUIT AND CABLE PLAN DRAWING 33906-5013-D-ELEC THRU 3390-5016-D-ELC.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOS APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

ISSUED FOR REVIEW

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	COMMENTS

[redacted]

[redacted]

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- C- — CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- XXXX — CONDUIT NUMBER

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- P- — CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE
- XXXX — CABLE NUMBER

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI-CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.
3. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SUP APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

ISSUED FOR REVIEW

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	COMMENTS
[redacted]												

[redacted]

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C-XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P-XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI-CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.
3. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PSU APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	
[redacted]												

CONDUIT LEGEND	
TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)

C-XXXX

- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)

P-XXXX

- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-0-ELC.
2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH IN DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.
3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC-COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH IN DIAMETER.
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PM/J APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KM	JJ	SD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	
[redacted]												

CONDUIT LEGEND

TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)

C–XXXX

- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)

P–XXXX

- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH IN DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.
3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC–COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH IN DIAMETER.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SUP APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	[redacted]	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			
B	–				
C	–				
D	–				
E	–				

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENC FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

ISSUED FOR REVIEW

[redacted]

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

LEGEND:

CABLE CALLOUT

X-XXXX ← CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SOC APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	100	
4	15	
5	4	
6	4	
7	1	
8	4	
9	–	
10	–	
11	–	
12	–	

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	5"x3"	[redacted]			
B	–				
C	–				
D	–				
E	–				

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENC FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

ISSUED FOR REVIEW

[redacted]

DRAWING NUMBER	REFERENCE DRAWING DESCRIPTION

[redacted]

LEGEND:

X-XXXX ← CABLE TAG

CABLE CALLOUT

CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.

ISSUED FOR REVIEW

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
A	02/06/20	KM	JJ	SD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

GROUNDING SYMBOLS

- GROUND WELL
- GROUND ROD
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND WIRE (SEE PLAN DWG FOR CONDUCTOR SIZE)
- GROUND BAR

LIGHTING SYMBOLS

- RECEPTACLE 120V
- 120V LIGHT SWITCH
- EMERGENCY LIGHTING UNIT
- FLOODLIGHT WALL MOUNTED
- FLOODLIGHT POLE MOUNTED
- S — FLUORESCENT FIXTURE NORMAL POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- R — FLUORESCENT FIXTURE EMERGENCY POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- (S) — LIGHTING FIXTURE (HPS or MERCURY VAPOR)
  - B = BRACKET OR WALL MOUNTED
  - C = CEILING MOUNTED
  - P = PENDANT MOUNTED
  - S = STANCHION MOUNTED
- EXIT LIGHT FIXTURE
- LP-01 — LIGHTING PANEL

POWER & CONTROL SYMBOLS

- PUSHBUTTON
- SELECTOR SWITCH
- WELDING RECEPTACLE
- JUNCTION BOX
- MOV — MOTOR OPERATED VALVE
- PP-01 — POWER OR DISTRIBUTION PANEL

COMMUNICATION & INSTRUMENTATION SYMBOLS

- HORN OR SPEAKER
- BELL
- BUZZER
- FIRE/GAS DETECTOR
- TELEPHONE OUTLET
- BEACON
- S — SOLENOID VALVE
- INSTRUMENT SYMBOL
- IP-01 — INSTRUMENT PANEL OR TELEPHONE CABINET
- INSTRUMENT CALLOUT

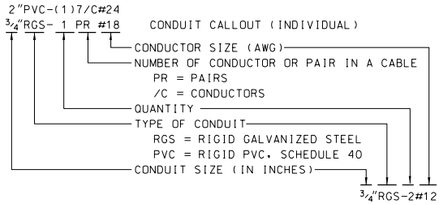
PT 101
- INSTRUMENT CODE – INSTRUMENT OR DEVICE. REFER TO PROCESS INSTRUMENT DIAGRAM FOR IDENTIFICATION AND NUMBER DESIGNATION
- INSTRUMENT NUMBER

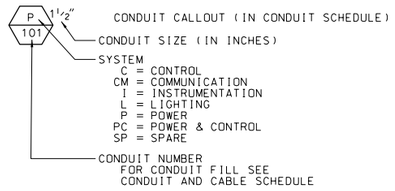
WIRE COLOR ABBREVIATION

B = BLACK
BL = BLUE
BR = BROWN
CL = CLEAR
G = GREEN
GR = GRAY
O = ORANGE
R = RED
V = VIOLET
W = WHITE
Y = YELLOW

CONDUIT FITTING SYMBOLS

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT





AREA CLASSIFICATION

- CLASS 1, DIV.1 HAZARDOUS AREA
- CLASS 1, DIV.2 HAZARDOUS AREA
- NON HAZARDOUS AREA

WIRE/CABLE LEGEND

TYPE	CALLOUT	MANUFACTURER	TRADE #	DESCRIPTION
GND	#2/0	[redacted]		GROUND WIRE BARE COPPER STRANDED FOR GROUND GRID
GND	#2			PVC/NYLON COPPER CONDUCTOR, GREEN INS, 600V RATED, TYPE THHN/THWN FOR EQUIPMENT & STRUCTURE GROUND
PWR	3#2			PVC/NYLON COPPER COND., RED/BLACK/WHITE INSULATED, 600V RATED, TYPE THHN/THWN FOR UTILITY POWER TO DISTRIBUTION PANEL
PWR	3#10			PVC/NYLON COPPER COND., BLACK/RED/GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR 220V AC FOR ANALYZER SHELTER A/C
PWR	2#10 & 1#12G			PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR DISTRIBUTION PANEL TO UPS SYSTEM
PWR	2#12 & 1#14G			PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN, UPS/ NORMAL PWR, DISTRIBUTION PANEL TO EQUIPMENTS
24V DC	2#14			PVC/NYLON COPPER COND., RED/BLACK INSULATED, 600V RATED, TYPE THHN/THWN, 24V DC POWER TO SOLENOIDS
INSTR AI/AO DI/DO	1PR#18			TINNED COPPER, FEP INSULATED, TWISTED PAIR, 100% BELDFOIL ALUMINUM-POLYESTER SHIELD, 20AWG, STRANDED TINNED COPPER DRAIN WIRE, RED FEP JACKET, COLOR CODE: BLACK/RED
COMM	4#24			TINNED COPPER, DATALENE INSULATED, MULTI CONDUCTOR, OVERALL BELDFOIL ALUMINUM-POLY-ESTER,+ 65% MINIMUM TINNED COPPERBRAID SHLD, 24AWG STRANDE TINNED COPPER DRAIN WIRE, CHROME PVC JACKET, COLOR CODE: RED/WHITE/ BLACK/GREEN
TEL	6PR#22			TINNED COPPER, PVC INSULATED, TWISTED PAIR, CHROME PVC JACKET, COLOR CODE:(1) B/R, (2) B/W, (3) B/G, (4) B/BL, (5) B/Y, (6) B/BR
CAT 6	4PR#24			23AWG 4PR, PVC POLYOLEFIN(PF) FEP, LSOH/PVC JACKET ALUMINUM/MYLARDIELECTRIC TAPE COLOR CODE: (1) B/W, (2) R/W, (3) BL/W, (4) G/W

SINGLE LINE DIAGRAM SYMBOLS

- SINGLE LINE BUS
- SINGLE LINE FEEDER
- SINGLE LINE CONTROL CIRCUIT
- POWER TRANSFORMER
- GROUND SYMBOL
- POTENTIAL TRANSFORMER
- GROUND OR ZERO SEQUENCE
- CURRENT TRANSFORMER
- CIRCUIT BREAKER MOLDED CASE
- OIL OR VACUUM CIRCUIT BREAKER
- DRAWOUT OR PLUG IN TYPE
- DISCONNECT SWITCH
- FUSE
- THERMAL OVERLOAD DEVICE
- FUSED DISCONNECT SWITCH
- (E) — AUTOMATIC TRANSFER SWITCH
- BATTERY
- POTHEAD
- BUS DUCT
- OPEN CONTACT
- CLOSED CONTACT
- M — INDUCTION MOTOR
- DELTA WYE CONNECTION
- DELTA WYE CONNECTION W/GROUND
- DELTA WYE CONNECTION W/NEUTRAL
- DELTA CONNECTION
- WYE CONNECTION
- DIODE
- CAPACITOR
- INDUCTOR OR REACTOR
- CURRENT TRANSFORMER BUSHING TYPE
- (K) — KEY INTERLOCK

SCHEMATIC AND WIRING SYMBOLS

- SINGLE POLE SINGLE THROW SWITCH
- SINGLE POLE DOUBLE THROW SWITCH
- LIMIT SWITCH NORMALLY CLOSED HELD OPEN
- LIMIT SWITCH NORMALLY OPEN HELD CLOSED

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- LIMIT SWITCH NORMALLY CLOSED
- FLOW SWITCH CLOSES ON INCREASE
- FLOW SWITCH OPENS ON INCREASE
- LEVEL SWITCH CLOSES ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID INCREASE
- LEVEL SWITCH CLOSES ON LIQUID INCREASE
- PRESSURE SWITCH OPENS ON INCREASE
- PRESSURE SWITCH CLOSES ON INCREASE
- OFF DELAY RELAY NORMALLY OPEN SWITCH
- OFF DELAY RELAY NORMALLY CLOSED SWITCH
- ON DELAY RELAY NORMALLY OPEN SWITCH
- ON DELAY RELAY NORMALLY CLOSED SWITCH
- TEMPERATURE SWITCH CLOSES ON RISING TEMP.
- TEMPERATURE SWITCH CLOSES ON DROPPNG TEMP.
- NORMALLY OPEN CONTACT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- NORMALLY CLOSED CONTACT
- OPEN TORQUE SWITCH
- CLOSED TORQUE SWITCH
- VIBRATION SWITCH OPENS ON VIBRATION
- VIBRATION SWITCH CLOSES ON VIBRATION
- NORMALLY CLOSED MOMENTARY STOP PUSHBUTTON
- NORMALLY OPEN MOMENTARY START PUSHBUTTON
- LOCKOUT PUSHBUTTON
- SOLENOID COIL
- VOLTAGE SUPRESSOR
- R — ELECTRICAL RELAY OR COIL
- A — INDICATING LIGHT – A=AMBER, B=BLUE, C=CLEAR, G=GREEN, R=RED, W=WHITE, Y=YELLOW
- 2 POSITION SELECTOR SWITCH
- OFF / HAND / AUTO — HAND OFF AUTO SELECTOR SWITCH
- SPACE HEATER
- RESISTOR

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- RHEOSTAT
- 16A — CIRCUIT BREAKER RATING
- FUSE
- COIL SPARE WIRE
- MCC OR MOTOR STARTER TERMINAL BLOCKS
- RELAY TERMINAL BLOCKS
- PLC TERMINAL BLOCKS
- DEVICE TERMINAL BLOCKS
- SCADA, BRISTOL & OMNI TERMINAL BLOCKS
- 1 — TERMINAL BLOCKS

ELECTRICAL ABBREVIATIONS

A OR AMP	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONER
AF	AMPERAGE FRAME SIZE
AT	AMPERAGE TRIP RATING
AI	ANALOG INPUT
AO	ANALOG OUTPUT
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONTR	CONTROL
DC	DIRECT CURRENT
DISC SW	DISCONNECT SWITCH
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE, DOUBLE THROW
EMERG	EMERGENCY
FTG	FITTING
GND	GROUND
HOA	HAND-OFF-AUTO
HP	HORSE POWER
INSTR	INSTRUMENTATION
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
M OR MTR	MOTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PB	PUSHBUTTON
PH OR ø	PHASE
PNL	PANEL
PVC	POLYVINYLCHLORIDE OR RIGID (PVC) SCHED 40(CONDUIT)
PWR	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
S/D	SHUTDOWN
SPDT	SINGLE POLE, DOUBLE THROW
SPST	SINGLE POLE, SINGLE THROW
SEL	SELECTOR
S/S	START/STOP
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SW	SWITCH
TB	TERMINAL BLOCK
UPS	UNINTERRUPTIBLE POWER SUPPLY
W	WATTS
V	VOLTS
XFMR	TRANSFORMER

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
A	ST / JL		JAL		3-16-06	GENERAL REVISION

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.
G.W.O.
DIST. 500
CLASS 21

Southern California Gas Company
ENGINEERING & FIELD SUPPORT — LOS ANGELES

ELECTRICAL DESIGN STANDARDS SYMBOLS & ABBREVIATIONS

The Gas Company

SCALE NONE
DRAWING NO. 0501-D.STD
REV. A

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

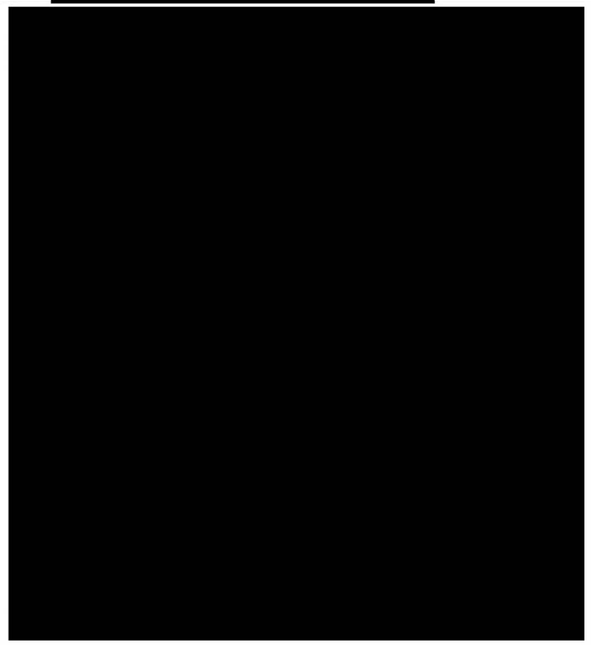
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1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	



GW1

BILL OF MATERIAL

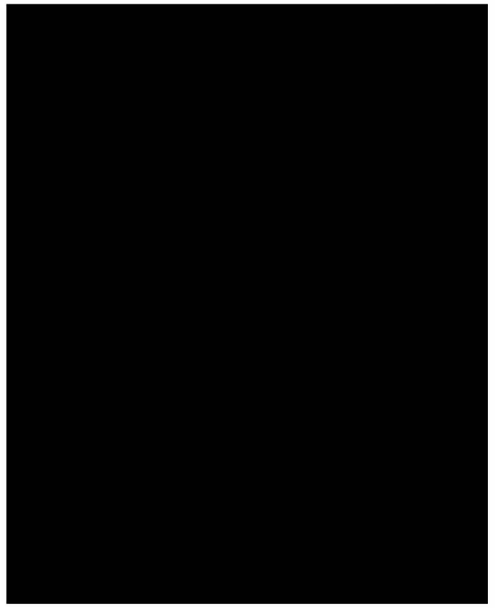
ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	AS REQ'D	



GR1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	



GR2

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	
7	1	
8	1	



GE1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	



GV1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	



GST1

DRAWING NO.	REFERENCE DRAWING DESCRIPTI

GENERAL DETAIL NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

REV. NO.	DRAWN / DESIGN	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	CG HM				08-29-17	REVISED GROUNDING DETAILS PER ELC REVIEW
	AJ				6-2-06	
	DF JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

Southern California Gas Company
[redacted] ENGINEERING FIELD SUPPORT LOS ANGELES

The Gas Company

ELECTRICAL DESIGN STANDARD
GROUNDING DETAILS
SHEET 1 OF 3

DIST.	500
CLASS	13

SCALE: NONE

DRAWING NO.: 0502-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$$ $$$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	AS REQ'D	
5	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	1	
3	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	

[redacted]

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ				6-2-06	
	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

[redacted]

	DATE
	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
GROUNDING DETAILS
SHEET 2 OF 3

SCALE NONE

DRAWING NO. 0503-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	AS REQ'D	
5	AS REQ'D	
6	AS REQ'D	
7	AS REQ'D	
8	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	1	
3	2	
4	2	
5	1	
6	AS REQ'D	
7	1	
8	AS REQ'D	
9	AS REQ'D	
10	AS REQ'D	
11	AS REQ'D	
12	AS REQ'D	

[redacted]

GPP1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	AS REQ'D	
7	AS REQ'D	
8	AS REQ'D	
9	AS REQ'D	
10	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	

NOTES:

INSTALL AN ANODE TO EACH UNDERGROUND METAL PIPE EXCLUDING STAINLESS STEEL PIPES. ANODE TO BE PLACED NEAR PIPES EXITING GROUND AND/OR EVERY 150FT. ALSO, INSTALL AN ANODE TO EACH UNDER-GROUND VOLUME BOTTLE.

DO NOT ATTACH ANODES TO THE COMPRESSED NATURAL GAS PIPELINE. THESE PIPES ARE TO BE PROTECTED BY IMPOSED CURRENT SYSTEM BY OTHERS.

[redacted]

GCP1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	2	
3	2	
4	2	
5	1	

[redacted]

GPT1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	2	
5	2	
6	2	
7	10	
8	AS REQ'D	
9	AS REQ'D	
10	AS REQ'D	
11	AS REQ'D	
12	AS REQ'D	
13	AS REQ'D	

[redacted]

[redacted]

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ				6-2-06	
	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
GROUNDING DETAILS
SHEET 3 OF 3

SCALE NONE

DRAWING NO. 0504-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	2	
4	AS REQ'D	
5	1	
6	2	
7	3	
8	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	3	
5	1	
6	1	
7	1	
8	1	
9	1	

[redacted]

POD1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	AS REQ'D	
4	4	
5	3	
6	1	
7	3	
8	1	

[redacted]

PDS1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	

[redacted]

MKC1

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

REV. NO.	DRAWN	CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ					6-7-06	
	DF	JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

The Gas Company

ELECTRICAL DESIGN STANDARDS
MISC. POWER DETAILS

SCALE NONE

DRAWING NO. 0505-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2	
3	1	
4	1	
5	1	
6	1	
7	1	
8	1	
9	1	
10	1	

[redacted]

MCS1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	1	
3	8	
4	3	
5	1	
6	3	
7	1	
8	3	

[redacted]

MCS2

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2	
3	1	
4	1	
5	AS REQ'D	
6	1	
7	1	
8	1	
9	1	
10	1	
11	1	
12	1	

[redacted]

MCF1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	AS REQ'D	
7	1	
8	1	

[redacted]

MCP1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	1	
6	AS REQ'D	
7	2	
8	2	

[redacted]

H-O-A SELECTOR SWITCH - HANDRAIL MOUNTED

MCHOA

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	2	
4	AS REQ'D	
5	2	

[redacted]

MCC1

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. FOR NAMEPLATE DETAIL, SEE DWG –
3. FOR CONTROL STATION SUPPORT, SEE DWG –

REV. NO.	DRAWN	CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ					6-19-06	
	DF	JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY | DATE

[redacted]

JOB FILE NO.
G.W.O.
DIST. 500
CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
MOTOR CONTROL DETAILS
SHEET 1 OF 2

SCALE NONE

DRAWING NO. 0506-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	1	
3	2	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	2	

[redacted]

MCC3

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	3	
3	AS REQ'D	
4	4	

[redacted]

MCC4

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	3	[redacted]
2	3	
3	2	
4	1	
5	1	
6	1	

[redacted]

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. FOR NAMEPLATE INSTALLATION SEE DETAIL
3. FOR CONTROL STATION SUPPORT SEE DETAIL

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ				6-8-06	
	DF JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
MOTOR CONTROL DETAILS
SHEET 2 OF 2

SCALE NONE

DRAWING NO. 0507-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2'	
3	1	
4	10'	
5	10'	
6	10'	
7	1	
8	2	
9	1	

[redacted]

LES1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3¼	1	
4	11'-0"	
5	1	
6	1	
7	1	

[redacted]

LES2

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	AS REQ'D	
4	4	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	

[redacted]

LIF1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	AS REQ'D	
3	2	
4	4	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	AS REQ'D	
3	2	
4	AS REQ'D	
5	2	
6	2	
7	AS REQ'D	

[redacted]

LEP2

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

REV. NO.	DRAWN	CHECKED	PROJECT APPROVED	SO CAL APPROVED	# FILE NO.	DATE	DESCRIPTION
	AJ					6-9-06	
	DF	JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY DATE

[redacted]

JOB FILE NO.

C.W.O.

DIST. 5C

CLASS 13

The Gas Company

NONE

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
LIGHTING DETAILS
SHEET 1 OF 2

DRAWING NO. 0508-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$$sylimc$$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2	
3	AS REQ'D	

[redacted]

LFC1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2	
3	AS REQ'D	
4	2	
5	2	
6	2	
7	1	
8	AS REQ'D	
9	AS REQ'D	

[redacted]

LFW1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	1	
3	1	
4	1	
5	AS REQ'D	

[redacted]

LFW2

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	2	
3	2	
4	1	
5	1	

[redacted]

LFS3

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	1	

[redacted]

LFGA

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	AS REQ'D	
3	2	
4	AS REQ'D	
5	1	
6	1	
7	1	

[redacted]

LFHR

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	AJ				6-19-06	
	FD JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

	BY	DATE
D	[redacted]	
D		
C		
A		
J		

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
LIGHTING DETAILS
SHEET 2 OF 2

SCALE NONE

DRAWING NO. 0509-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	2	

[redacted]

NAMEPLATE

SNP

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]

[redacted]

SBP

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	

[redacted]

SCS

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	8	

[redacted]

SPNL1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	8	
3	8	

[redacted]

SPNL2

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. CONTRACTOR SHALL PURCHASE PRE-FABRICATED, HOT-DIPPED GALVANIZED SUPPORT FROM THE FOLLOWING:

   SHIRLEE INDUSTRIES, INC.
   P.O. BOX 40
   TEMPLE CITY, CA. 91780
   (818) 285-1741
3. CONTRACTOR SHALL POUR 3000 PSI CONCRETE FOUNDATION WHERE REQUIRED.
4. CONTRACTOR SHALL PROVIDE THE NECESSARY HARDWARE REQUIRED TO ATTACH INSTRUMENT TO PIPE SUPPORT IF REQUIRED.

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
A	AJ				6-22-06	
F	FD / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
MISC. SUPPORT DETAILS

SCALE NONE

DRAWING NO. 0510-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	

[redacted]

CSU1

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	

[redacted]

CSU2

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	1	
4	2	
5	1	

[redacted]

CSU3

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	AS REQ'D	[redacted]
2	AS REQ'D	
3	AS REQ'D	
4	AS REQ'D	
5	AS REQ'D	
6	AS REQ'D	
7	AS REQ'D	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	6	
3	AS REQ'D	
4	1	
5	AS REQ'D	
6	AS REQ'D	
7	AS REQ'D	

[redacted]

CTS

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. THE MINIMUM 3" COVER OF CONCRETE ON TOP & SIDES OF CONDUITS SHALL BE MEASURED FROM THE INSIDE DIAMETER OF THE CONDUIT DUCT SPACER. CONDUIT SEPARATION OF 1½" MINIMUM (HORIZONTAL & VERTICAL ROWS) SHALL BE ENSURED BY THE USE OF THE PROPER CONDUIT SPACER AS REQUIRED BY THE CATALOG NUMBER LISTED BELOW.
   A. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF SIZES 1" THRU 2" SHALL USE CARLON BASE SPACER #S288JH. MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE CARLON BASE SPACER #S288JH & #S289JH INTERMEDIATE SPACER.
   B. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF LARGER THAN 2½" THRU 4" SHALL USE CARLON BASE SPACER #S288NH. MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE CARLON BASE SPACER #S288NH & #S289RM INTERMEDIATE SPACER.
   C. 5KV AND 480V POWER CONDUITS CONSISTING OF SIZES 2½" THRU 4" SHALL USE CARLON BASE SPACER #S288PH. MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE CARLON BASE SPACER #S288PH & #S289PH INTERMEDIATE SPACER.
   D. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF SIZES 5" & 6" SHALL USE CARLON BASE SPACER #S288RM. MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE CARLON BASE SPACER #S288RM AND #S289RM INTERMEDIATE SPACER.
3. CONDUIT DUCT SECTIONS SHALL SHOW SPACER ARRANGEMENT. CONDUIT SHALL REST ON BOTTOM OF SPACERS.
4. •4/0 STRANDED BARE COPPER GROUND CABLE SHALL BE RUN ON TOP OF CONDUIT DUCT BANK
5. STEEL REINFORCING BARS SHALL BE INSTALLED IN ALL DUCTBANKS UNDER ALL ROADWAYS/PAVED AREAS AT A MINIMUM AND AS INDICATED ON PLAN DRAWINGS.

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	0-1-97
	0-1-97
CHK'D. JAL	10-1-97
APPR'D. JAL	10-1-97
JOB FILE NO.	
G.W.O.	
DIST. 500	
CLASS 13	

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS CONDUIT DETAILS

SCALE NONE

DRAWING NO. 0511-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	2	
3	2	
4	AS REQ'D	
5	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHT1

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	1	
3	1	
4	1	
5	AS REQ'D.	
6	1	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHS1

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	1	
3	1	
4	1	
5	AS REQ'D	
6	1	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHPS1

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	1	
3	AS REQ'D	
4	1	
5	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHT2

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	6'-0"	
3	1	
4	1	
5	1	
6	AS REQ'D	
7	1	
8	1	
9	1	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHT3

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	3'-0"	
3	1	
4	1	
5	1	
6	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHPC1

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
0	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

The Gas Company

ELECTRICAL DESIGN STANDARDS
ELEC. INSTR. CONNECTION DETAILS (HAZ.) SH. 1 OF 2

SCALE NONE

DRAWING NO. 0512-D.STD

REV. 0

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

ITEM	QTY	MATERIAL DESCRIPTION
1	8	[redacted]
2	12'-0"	
3	1	
4	4	
5	4	
6	AS REQ'D	
7	7	
8	2	
9	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHT4

ITEM	QTY	MATERIAL DESCRIPTION
1	4	[redacted]
2	6'-0"	
3	1	
4	2	
5	2	
6	AS REQ'D	
7	2	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

IHDS

MATERIAL LIST

ITEM	QTY	DESCRIPTION
1	1	[redacted]
2	3	
3	1	
4	3	
5	5	
6	1	

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
1	2	[redacted]
2	2	
3	1	
4	1	
5	1	
6	1	
7	1	
8		

[redacted]

40

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
1	JF / YC				04-13-18	ADDED DETAIL OF SOLENOID MOUNTAIN ON THE VALVE & IN THE CONTROL CABINET
0	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.

G.W.O.

DIST. 500

CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
ELEC. INSTR. CONNECTION DETAILS (HAZ.) SH. 2 OF 2

SCALE NONE

DRAWING NO. 0513-D.STD

REV. 1

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	AS REQ'D	
3	1	
4	1	
5	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

NMOV

ITEM	QTY	MATERIAL DESCRIPTION
1	2	
2	1	[redacted]
3	1	
4	1	
5	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

NTSC

ITEM	QTY	MATERIAL DESCRIPTION
1	2	
2	1	[redacted]
3	1	
4	1	
5	AS REQ'D	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

NSVC

ITEM	QTY	MATERIAL DESCRIPTION
1	2	
2	1	
3	1	[redacted]
4	1	
5	AS REQ'D	
6	1	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

NFSW

41

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	JF / YC				04-09-18	ADDED SOLENOID DETAIL MOUNTAIN IN THE CABINET & ON THE VALVE
	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.
G.W.O.
DIST. 500
CLASS 13

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

ELECTRICAL DESIGN STANDARDS
ELEC. INSTR. CONNECTION DETAIL (NON-HAZARDOUS)

SCALE NONE

DRAWING NO. 0514-D.STD

REV. 1

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

ITEM	QTY	MATERIAL DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	1	
5	2	
6	2	
7	1	
8	1	
9	3	
10	1	
11	1	
12	1	

NOTE: 1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

FPCP

ITEM	QTY	MATERIAL DESCRIPTION
1	1	[redacted]
2	1	
3	1	
M 4	2	

NOTE: 1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

HDC1

ITEM	QTY	MATERIAL DESCRIPTION
1	1	[redacted]
2	1	
3	1	
4	2	

NOTE: 1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

HDC2

ITEM	QTY	MATERIAL DESCRIPTION
1	2	[redacted]
2	1	
3	1	
4	1	
5	1	
6	1	
7	4'-0"	
8	AS REQ'D.	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

H2SS

ITEM	QTY	MATERIAL DESCRIPTION
1	AS REQ'D	[redacted]
2	2	
3	1	
4	1	
5	2	
6	1	
7	1	
8	1	
9	2	
10	AS REQ'D	
11	2	
12	1	

NOTE: 1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.
2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

[redacted]

H2SM

42

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	DF / JL		JAL		10-1-97	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	10-1-97
	10-1-97
	10-1-97
	10-1-97

JOB FILE NO.
G.W.O.
DIST. 500
CLASS 13

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

The Gas Company

ELECTRICAL DESIGN STANDARDS
MISC. ELECTRICAL
INSTRUMENT DETAILS

SCALE NONE

DRAWING NO. 0515-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

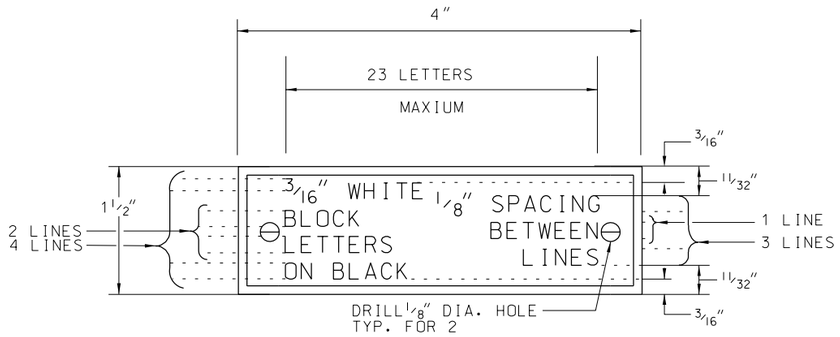
ENGRAVED NAMEPLATES

INSTRUCTIONS TO ENGRAVER: FURNISH ENGRAVED NAMEPLATES - SIZE AND ENGRAVING AS LISTED.

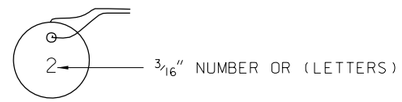
STOCK	3-PLY UREA-PLASTIC LAMINATED BLACK-WHITE-BLACK
THICKNESS	APPROXIMATELY 3/32-INCH
SIZE	TYPE A, 1 1/2 INCHES WIDE X 4 INCHES LONG, SEE LAYOUT
BACKGROUND	DULL BLACK SATIN FINISH
LETTERS	ENGRAVED WHITE, 3/16 INCH STANDARD BLOCK STYLE
LINES	EACH LINE CENTERED EXCEPT WHERE LIST SPECIFICALLY SAYS "LEFT JUSTIFY"
BEVEL	1/32 INCH X APPROXIMATELY 45 DEGREES ALL AROUND FRONT EDGE TO MAKE A WHITE BORDER
MOUNTING	USE STAINLESS STEEL SELF TAPPING SCREWS

CONDUIT TAGS

STOCK	BRASS, 1 1/2" DIA. X .050 THICK
MOUNTING	STAINLESS STEEL WIRE, #316



TYPE "A" NAMEPLATE



SIZE OR TYPE	QTY	ENGRAVING	INSTALLER'S REFERENCE
A	1	[redacted]	
A	1		
A	1		
A	1		

QTY	ENGRAVING	INSTALLER'S REFERENCE
1	2	[redacted]
1	2A	

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO. CAL. APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	CG / SG				03-19-08	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	11-30-07
	12-03-07
	03-19-08

JOB FILE NO.	
G.W.O.	
DIST.	500
CLASS	21

The Gas Company

Southern California Gas Company
GAS ENGINEERING LOS ANGELES

ELECTRICAL DESIGN STANDARDS
NAMEPLATES AND
CONDUIT TAGS

SCALE: NONE

DRAWING NO. 0516-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

[redacted]

[redacted]

[redacted]

[redacted]

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

NOTES

1. BUILDINGS MUST BE WELL VENTILATED BY EITHER NATURAL OR MECHANICAL MEANS. ABSENCE OF ADEQUATE VENTILATION INSIDE BUILDINGS MAY WARRANT MORE STRINGENT CLASSIFICATION THAN SHOWN.

LEGEND

CLASS I, DIVISION 1 HAZARDOUS AREA

CLASS I, DIVISION 2 HAZARDOUS AREA

REV. NO.	DRAWN / CHECKER	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	CG / AH				12-15-10	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	12-15-10
	12-15-10

APPR'D.

JOB FILE NO.

W.O.A.

DIST. 500

CLASS 21

The Gas Company

Southern California Gas Company

GAS ENGINEERING — LOS ANGELES

COMPRESSOR, ODORANT, & REGULATION & MEASUREMENT BUILDINGS AREA CLASSIFICATION

SCALE: NONE

DRAWING NO. 0520-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

LEGEND

CLASS I, DIVISION 1 HAZARDOUS AREA

CLASS I, DIVISION 2 HAZARDOUS AREA



FIGURE 5

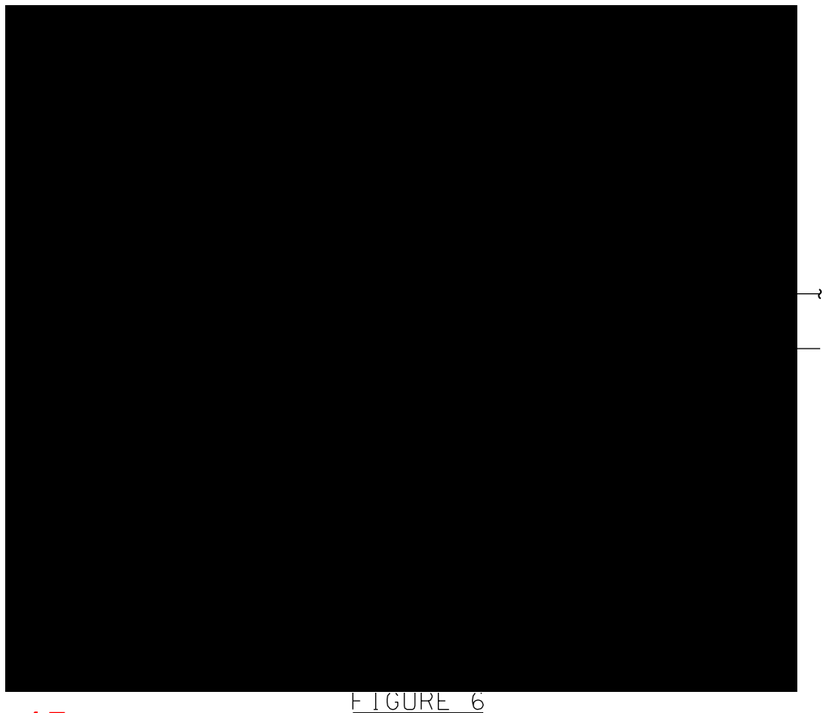


FIGURE 6

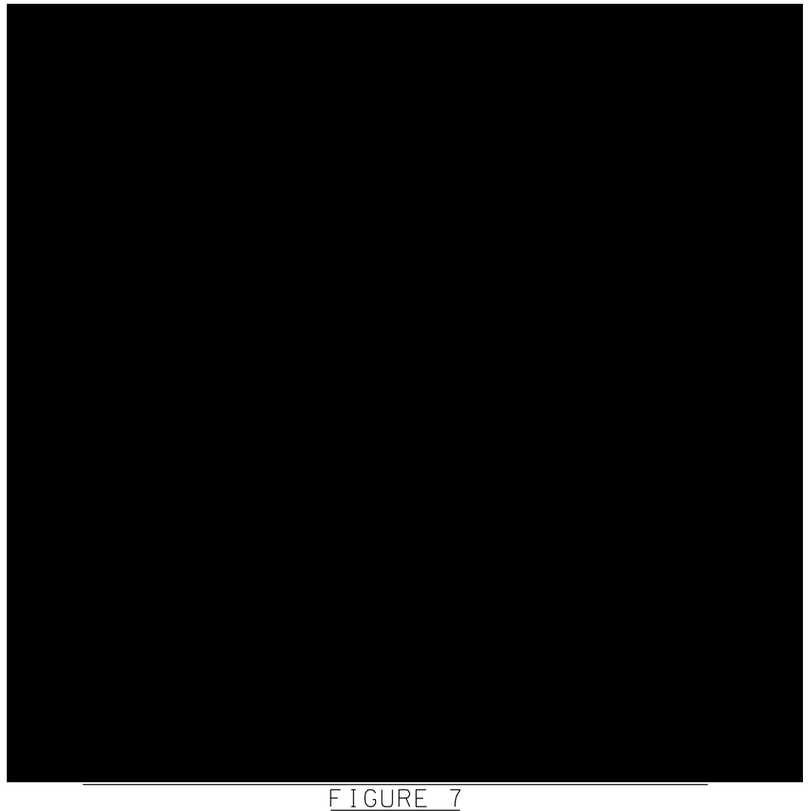


FIGURE 7

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
0A	CG / HM				09-13-16	REVISED U/G STORAGE FIG. 6 AREA CLASSIFICATIO
0	CG / AH				12-16-10	ISSUED AS A STANDARD

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	12-16-10
	12-16-10

CHK'D.

APPR'D.

JOB FILE NO.

W.O.A.

DIST. 500

CLASS 21

The Gas Company

Southern California Gas Company

GAS ENGINEERING LOS ANGELES

YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS AREA CLASSIFICATION

SCALE

DRAWING NO. 0521-D.STD

REV. 0A

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

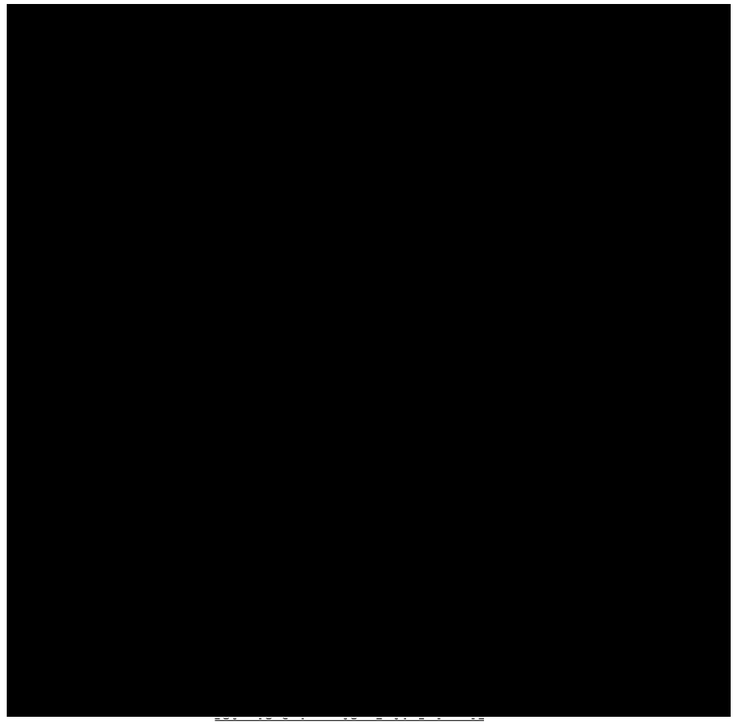


FIGURE 8

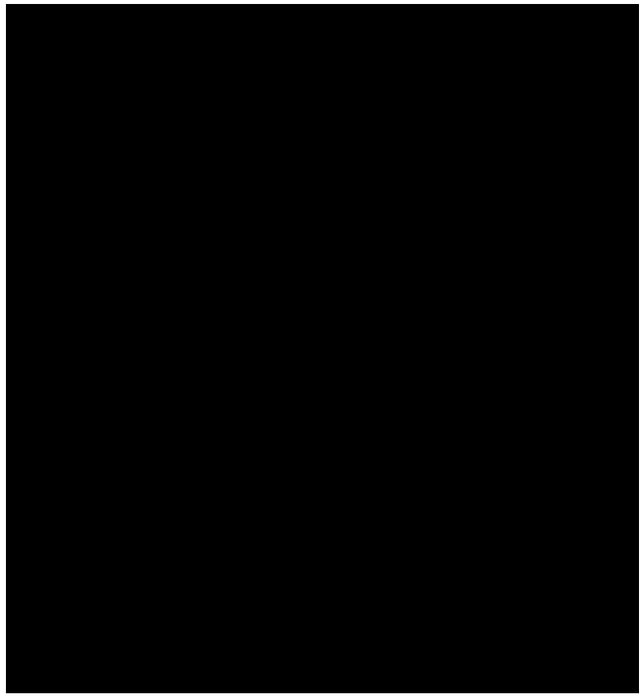


FIGURE 9

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

NOTES

1. ABSENCE OF ADEQUATE VENTILATION INSIDE BUILDINGS MAY WARRANT MORE STRINGENT CLASSIFICATION THAN SHOWN.

LEGEND

CLASS I, DIVISION 1 HAZARDOUS AREA

CLASS I, DIVISION 2 HAZARDOUS AREA



FIGURE 10



FIGURE 12

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
	JF / AH				12-15-10	

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	12-15-10
	12-15-10
CHK'D.	
APPR'D.	
JOB FILE NO.	
W.O.A.	
DIST. 500	
CLASS 21	

The Gas Company

Southern California Gas Company

GAS ENGINEERING — LOS ANGELES

YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS AREA CLASSIFICATION

SCALE: NONE

DRAWING NO. 0522-D.STD

REV.

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

[redacted]

ADEQUATELY VENTILATED VAULT
FIGURE 13

ADEQUATELY VENTILATED ENCLOSED VAULT
FIGURE 14

INADEQUATELY VENTILATED ENCLOSED VAULT
FIGURE 15

REGULATOR VAULTS

[redacted]

FIGURE 11

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

LEGEND

CLASS I, DIVISION 1 HAZARDOUS AREA

CLASS I, DIVISION 2 HAZARDOUS AREA

NOTES

(1) REGULATOR VAULTS ARE BELOW GRADE ENCLOSURES THAT HOUSE REGULATORS AND VALVES PROVIDING EASY ACCESS FOR MAINTENANCE PURPOSES BY OPERATIONS PERSONNEL. IN HIGH EXPOSURE AREAS, THEY ARE NORMALLY COVERED TO PREVENT EASY ACCESS BY NON-AUTHORIZED PERSONNEL

DRAWN	CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.
CG	AH			

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	12-16-10
	12-16-10

DATE	DESCRIPTION
12-16-10	ISSUED AS A STANDARD

Southern California Gas Company
GAS ENGINEERING — LOS ANGELES

The Gas Company

YARD AREA, UNDERGROUND STORAGE, & LOCATIONS AROUND FUELING PUMPS AREA CLASSIFICATION

JOB FILE NO.

DIST. 500

CLASS 21

SCALE

DRAWING NO. 0523-D.STD

REV. 0

[redacted]

NOT TO SCALE

[redacted]

NOT TO SCALE

DRAWING NO.	REFERENCE DRAWING DESCRIPTION

"ANY DEVIATION FROM THIS DRAWING MUST BE APPROVED BY ENGINEERING."

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
0	CG				01-28-13	ISSUED FOR CONSTRUCTION

CONTRACTOR NAME & PROJECT NUMBER

BY	DATE
[redacted]	01-28-13
	01-28-13

CHK'D.	
APPR'D.	
JOB FILE NO.	
G.W.O.	
DIST.	
CLASS 21	

The Gas Company

Southern California Gas Company
GAS ENGINEERING LOS ANGELES

POWER POLE STANDARD

SCALE NONE

DRAWING NO. 0528-D.STD

REV. 0

$$$$$$$$$$dgnspec$$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

MATERIAL LIST

ITEM	QTY	DESCRIPTION
1	[redacted]	LIQUIDTIGHT STRAIGHT CONNECTOR-CROUSE-HINDS (SEE TABLE 1)
2	[redacted]	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
3	[redacted]	[redacted]CONDUCTOR, GREEN INSULATION

NOTES: 1. LIQUIDTIGHT FLEX. METAL CONDUIT SHALL REQUIRE SUPPORTS IF IT EXCEEDS 4 FT. IN LENGTH.

2. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.

(3) #14 GREEN INSULATED CONDUIT TO EQUIPMENT GROUND (IF PROVIDED).

TABLE 1	
SIZE	PART NUMBER
[redacted]	

[redacted]

BY	DATE
[redacted]	01-29-15
	01-29-15
	01-29-15
	01-29-15
G.W.O.	DIST.
JOB FILE 49	CLASS 21

The Gas Company™

Southern California Gas Company
ENGINEERING & FIELD SUPPORT LOS ANGELES

HAZARDOUS AREA FLEXIBLE CONDUIT W/ GROUNDING

SCALE	DRAWING NO.	REV.
NONE	0532-D.STD	0

$$$$$$$$$$dgnspec$$$$$$$$$$$$ $$$$$$$$$$$sytime$$$$$$

Attachment 7

Electrical-Pkg_IFR-90

ELECTRICAL GENERAL NOTES

GENERAL REQUIREMENTS

1.0. THIS ELECTRICAL GENERAL NOTES SHEET DEFINES THE GENERAL REQUIREMENTS, APPLICABLE CODES AND STANDARDS, AS WELL AS MATERIALS, INSTALLATION REQUIREMENTS, AND GENERAL PROCEDURES FOR GROUNDING, CONDUIT AND CABLE THAT SHALL BE ADHERED TO BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE, SAFE, AND ACCEPTABLE ELECTRICAL SYSTEM AS DEFINED BY THESE ELECTRICAL GENERAL NOTES AND/OR THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL CONSTRUCTION DRAWINGS.

1.1. ALL CONTRACTOR PURCHASED ITEMS, INSTALLATION TECHNIQUES, AND CONSTRUCTION SHALL BE IN COMPLETE ACCORDANCE WITH ALL LOCAL LAWS AND/OR ORDINANCES HAVING JURISDICTION AND ALSO THE LATEST EDITIONS AND SUPPLEMENTS THERETO OF THE "NATIONAL ELECTRICAL CODE" (NEC), THE "CALIFORNIA ELECTRICAL CODE" (CEC), THE "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION" (NEMA), THE "AMERICAN NATIONAL STANDARDS INSTITUTE" (ANSI), THE "INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS" (IEEE), THE FEDERAL "OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION" (OSHA) RULES AND REGULATIONS, THE "NATIONAL ELECTRICAL SAFETY CODE" (NESC), THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE AMERICAN PETROLEUM INSTITUTE (API), THE INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA), THE UNDERWRITER'S LABORATORIES (UL), AND THE UNIFORM BUILDING CODE (UBC). IF A CONFLICT IS NOTED BETWEEN THESE DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

1.2. THE ABOVE LOCAL LAWS AND STANDARDS SHALL CONSTITUTE THE MINIMUM ELECTRICAL STANDARDS TO BE FOLLOWED BY THE CONTRACTOR IN FULFILLING THE OBLIGATIONS OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS MADE AS PART OF THIS CONTRACT. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL WORK PERFORMED TO GUARANTEE A SAFE AND RELIABLE ELECTRICAL SYSTEM.

1.3. ALL MATERIALS AND/OR EQUIPMENT SUPPLIED BY THE CONTRACTOR SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) LISTED. OR BY A QUALIFIED ELECTRICAL TESTING LABORATORY RECOGNIZED BY THE BODY HAVING LEGAL JURISDICTION OVER ELECTRICAL INSTALLATIONS, EXCEPT FOR CLASSES OF MATERIALS AND EQUIPMENT NOT AVAILABLE WITH SUCH LISTING.

1.4. ALL MATERIALS REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION, AS DEFINED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE ELECTRICAL DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

1.5. HANDLING AND STORAGE OF ALL MATERIAL FURNISHED BY THE CONTRACTOR, INCLUDING MATERIAL FURNISHED BY OTHERS FOR CONTRACTOR USE, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.6. THE CONTRACTOR SHALL REPLACE AND/OR REPAIR EQUIPMENT AND MATERIALS THAT GET DEFORMED AND/OR DAMAGED DURING CONSTRUCTION, AS DETERMINED BY OWNER.

1.7. ALL WORK SHALL BE PERFORMED AS INDICATED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.8. THE CONTRACTOR SHALL FURNISH ALL MANPOWER, TOOLS AND INSTRUMENTS REQUIRED TO PROPERLY INSTALL, INSPECT AND TEST ALL ELECTRICAL SYSTEMS OR EQUIPMENT AS DESCRIBED IN THESE ELECTRICAL GENERAL NOTES AND/OR ON THE SOUTHERN CALIFORNIA GAS COMPANY ELECTRICAL DRAWINGS.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE AFOREMENTIONED STANDARDS, CODES, SPECIFICATIONS AND THE APPROVED CONSTRUCTION DRAWINGS. DISCREPANCIES SHOWN ON DIFFERENT PLANS, OR BETWEEN PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SOUTHERN CALIFORNIA GAS COMPANY FOR PROMPT RESOLUTION.

GROUNDING

2.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE GROUNDING SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

2.1. THE CONTRACTOR SHALL INSTALL A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS. THE GROUNDING SHALL COMPLY WITH THE LATEST EDITION OF THE NEC.

2.2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.

2.3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.

2.4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.

2.5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.

2.6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.

2.7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.

2.8. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.

2.9. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.

2.10. WHERE GROUND CONDUCTORS ARE INSTALLED IN A COMMON TRENCH WITH UNDERGROUND METAL PIPING OF ANY TYPE, ADEQUATE SEPARATION SHALL BE MAINTAINED. THE GROUND CONDUCTOR SHALL NOT BE ALLOWED ANY DIRECT CONTACT WITH ANY OF THE METAL PIPING. IF CONTACT CAN NOT BE AVOIDED, A GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED.

2.11. CABLE TRAY GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND NEMA VE2 STANDARDS. A SEPARATE #2/0 AWG GREEN INSULATED GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OR ON OUTER EDGE OF CABLE TRAY AND SHALL BE BONDED TO EACH SECTION OF CABLE TRAY USING UL LISTED GROUND CLAMPS.

2.12. THE CONTRACTOR SHALL MEASURE THE GROUND RESISTANCE OF THE GROUNDING SYSTEM, USING A PROFESSIONAL QUALITY GROUND TESTER. TESTS SHALL BE MADE IN THREE WIDELY SEPARATED LOCATIONS AS SPECIFIED BY THE OWNER AND SHALL SHOW A RESISTANCE OF 1 OHM OR LESS. A MEGGER INSULATION TESTER IS NOT SUITABLE FOR THIS APPLICATION. UPON COMPLETION OF TESTING, THE CONTRACTOR SHALL SUBMIT ALL READINGS TO SOUTHERN CALIFORNIA GAS COMPANY.

CONDUIT

3.0. CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE CONDUIT SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER".

3.1. THE CONTRACTOR SHALL INSTALL A COMPLETE UNDERGROUND AND ABOVEGROUND CONDUIT SYSTEM AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

3.2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.

3.3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC-COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH DIAMETER.

3.4. RIGID METAL CONDUIT SHALL BE OF HIGH DUCTILE QUALITY, HOT DIPPED GALVANIZED INSIDE AND OUT, INCLUDING THREADS, AND LACQUER FINISHED CONFORMING TO ANSI C80.1.

3.5. FLEXIBLE CONDUIT SHALL BE GALVANIZED STEEL, LIQUID TIGHT, AND APPROVED FOR THE HAZARD CLASSIFICATION OF THE AREA IN WHICH IT IS INSTALLED. EXTERNAL BONDING JUMPERS WITH UL APPROVED CONNECTORS SHALL BE USED WITH FLEXIBLE CONDUITS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR ALL HAZARDOUS AREA APPLICATIONS. ALL CONNECTORS AND FITTING SHALL BE LIQUID-TIGHT, COMPRESSION SEALED, FERROUS CONNECTIONS.

3.6. CONDUIT FITTINGS SHALL BE VAPOR-PROOF CROUSE-HINDS FORM8, APPLETON FM8 OR APPROVED EQUAL. EXPANSION FITTINGS SHALL BE INSTALLED IN LONG CONDUIT RUNS TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

3.7. CONDUIT SEALS SHALL BE CROUSE-HINDS TYPE "EYSX" SIZED PER UL STD. 886.

3.8. CONCRETE ENCASEMENTS SHALL BE READY-MIXED RED CONCRETE OR COLORED RED BY SPRINKLING RED OXIDE ON THE FRESHLY-POURED CONCRETE, EXCEPT WITHIN THE CONFINES OF FOUNDATIONS.

3.9. CONCRETE ENCASEMENTS WHEN SUBJECT TO HEAVY TRAFFIC, SUCH AS ROADWAY CROSSINGS SHALL BE REINFORCED WITH STEEL REBAR ON THE TOP OF THE ENCASEMENT.

3.10. THE CONTRACTOR SHALL FOLLOW THE CONDUIT TYPES AND SIZES AS LISTED ON THE ELECTRICAL CONDUIT SCHEDULE IN THE CONSTRUCTION DRAWINGS.

3.11. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE SMALLER CONDUITS THAN THOSE CALLED FOR IN THE ELECTRICAL CONDUIT SCHEDULE AND/OR ELECTRICAL CONDUIT ROUTING PLAN CONSTRUCTION DRAWINGS.

3.12. ALL CONDUITS INSTALLED UNDERGROUND SHALL BE A MINIMUM OF 36 INCHES BELOW FINISHED GRADE FOR AREAS OF VEHICULAR ACCESS AND 24 INCHES FOR NON-VEHICULAR ACCESS AREAS, UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DRAWINGS.

3.13. EACH TRENCH CONDUIT SHALL BE SEPARATED BY A MINIMUM OF 3 INCHES. TRENCH AND FILL DETAILS SHALL FULLY COMPLY WITH THE SOUTHERN CALIFORNIA GAS COMPANY DETAILS STANDARDS AND CONSTRUCTION DRAWINGS.

3.14. CONDUITS INSTALLED UNDER VEHICULAR TRAFFIC AREAS/ROADS AND SHALL BE ENCASED IN CONCRETE.

3.15. UNDERGROUND CONDUITS AND DUCT BANKS SHALL BE ENCASED IN A 2000 PSI CONCRETE ENVELOPE FREE OF VOIDS WITH A MINIMUM ENCASEMENT OF 3 INCHES ON ALL SIDES UNLESS OTHERWISE NOTED. THE TOP OF THE ENCASEMENT SHALL BE A MINIMUM OF 18 INCHES BELOW FINISHED GRADE UNLESS NOTED.

3.16. ALL CONDUITS SHALL HAVE CONDUIT SEALS WHEN REQUIRED BY THE NEC. SEAL LOCATION SHALL BE AS DESCRIBED IN THE HAZARDOUS AREA CLASSIFICATION PLAN AND DETAIL DRAWINGS AND ASSOCIATED NOTES. ALL SEALS SHALL BE POURED AFTER THE INSTALLATION HAS BEEN COMPLETED AND INSPECTED.

3.17. FLEXIBLE CONDUIT SHALL BE USED TO CONNECT EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT, AND SHALL BE LIMITED TO A MAXIMUM LENGTH OF 18 INCHES.

3.18. UNDERGROUND CONDUITS SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY PROCESS PIPELINE. UNDERGROUND CONDUIT CROSSING PROCESS PIPELINES SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BELOW THE BOTTOM OF PROCESS PIPES WHERE PRACTICAL. UNDERGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 2 FEET FROM ANY HIGH TEMPERATURE PIPE, PETROLEUM OR NATURAL GAS PIPELINES.

3.19. ABOVEGROUND CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT FROM ANY INSULATED PIPE. CONDUIT SHALL BE ROUTED FOR MAXIMUM PRACTICAL ACCESSIBILITY OF JUNCTION AND PULL BOXES FROM PLATFORMS OR STRUCTURES WITHOUT USE OF SCAFFOLDING OR LADDERS. CONDUIT RUNS SHALL AVOID CREATING OBSTRUCTIONS AND UNNECESSARY BENDS.

3.20. WHERE CONDUITS ENTER BUILDING FOUNDATIONS, FLOOR SLABS OR EQUIPMENT FOUNDATIONS, THESE CONDUITS SHALL BE PLACED BEFORE CONCRETE FOUNDATIONS ARE POURED.

3.21. AFTER CONDUITS ARE INSTALLED, THE CONTRACTOR SHALL PULL A FLEXIBLE MANDREL, SIZED .25 INCH LESS IN DIAMETER THAN THE BORE OF THE CONDUIT, THROUGH THE CONDUIT TO CLEAN OUT ANY OBSTRUCTIONS. THE CONTRACTOR SHALL INSTALL A #9 NYLON FISH-WIRE IN EACH CONDUIT UPON COMPLETION.

3.22. THE CONTRACTOR SHALL PLUG ALL CONDUITS AND DUCTS TO PREVENT THE ENTRANCE OF DIRT OR FOREIGN PARTICLES.

3.23. FOR CONDUIT STUB-UP DETAILS AND DIMENSIONS, REFER TO THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS.

3.24. CONDUIT UNIONS ARE NOT SHOWN ON DRAWINGS. ALL CONNECTIONS TO ELECTRICAL DEVICES SHALL BE MADE WITH CROUSE-HINDS TYPE "UNY" UNIONS.

3.25. ALL UNDERGROUND CONDUIT AND DUCT BANKS SHALL BE LOCATED AS SHOWN ON THE SOUTHERN CALIFORNIA GAS COMPANY CONSTRUCTION DRAWINGS. ANY REROUTING OF UNDERGROUND CONDUIT OR DUCT BANKS WILL REQUIRE THE SOUTHERN CALIFORNIA GAS COMPANY ENGINEER'S APPROVAL. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING THE LOCATION OF ALL UNDERGROUND DUCT BANKS AND MANHOLES.

3.26. THE NUMBER OF 90° BENDS ALLOWED BETWEEN PULLING POINTS SHALL NOT EXCEED 4 (UP TO 100 FEET), 3 (100 TO 300 FEET) AND 2 (ABOVE 300 FEET). NOTE THAT TWO 45° BENDS ARE EQUIVALENT TO ONE 90° BEND.

3.27. REFER TO THE "ELECTRICAL CONDUIT SCHEDULE" FOR CONDUIT ROUTING, AND IDENTIFICATION NUMBERS.

3.28. PVC COATED STEEL CONDUIT SHALL BE USED FOR ALL FACTORY BENDS, STUB-UP ELBOWS, AND VERTICAL RISERS PENETRATING THROUGH CONCRETE OR UNPAVED SURFACES.

3.29. ALL UNDERGROUND CONDUITS CONTAINING HIGH VOLTAGE CABLES (5KV OR GREATER) SHALL BE ENCASED IN CONCRETE.

3.30. ALL CONDUITS IDENTIFIED BY NUMBERS ON THE SOUTHERN CALIFORNIA GAS COMPANY "ELECTRICAL CONDUIT SCHEDULE" SHALL ALSO BE IDENTIFIED AT BOTH ENDS USING STAINLESS STEEL TAGS, SECURELY FASTENED TO THE CONDUIT WITH A STAINLESS STEEL WIRE. ALL TAGS SHALL HAVE CLEARLY READABLE LETTERS AND NUMBERS NO SMALLER THAN .375 INCH IN HEIGHT.

CABLE

4.0. THE CONTRACTOR SHALL FURNISH ALL MATERIAL FOR A COMPLETE SYSTEM. EXCEPTIONS TO THE MATERIALS FURNISHED BY THE CONTRACTOR WILL BE NOTED AS "BY OTHERS" OR "BY OWNER". THE FOLLOWING MATERIALS ARE THE MAJOR ITEMS REQUIRED. ADDITIONAL MATERIAL REQUIREMENTS ARE SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.1. THE CONTRACTOR SHALL INSTALL CABLE AS REQUIRED BY THESE ELECTRICAL GENERAL NOTES AND AS SHOWN, NOTED OR LISTED ON THE CONSTRUCTION DRAWINGS.

4.2. LOW VOLTAGE CABLES SHALL BE RATED 600V, SHALL HAVE A MINIMUM TEMPERATURE RATING OF 90°C AND SHALL CONFORM TO UL STANDARDS ACCORDING TO THE PARTICULAR TYPE.

4.3. ALL SINGLE WIRES FOR 600V SERVICE AND BELOW SHALL BE TYPE THHN/THWN WITH 600V INSULATION, UNLESS A SPECIFIC APPLICATION REQUIRES MORE STRINGENT INSULATION REQUIREMENTS.

4.4. VFD DRIVEN MOTORS SHALL USE VFD RATED POWER CABLES.

4.5. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR CONTROL.

4.6. SINGLE PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #18 AWG SOLID CONDUCTORS, TWISTED AND SHIELDED.

4.7. MULTI-PAIR THERMOCOUPLE EXTENSION WIRE SHALL BE #20 AWG SOLID CONDUCTOR, EACH PAIR NUMBERED, TWISTED WITH AN OVERALL SHIELD JACKET. THE INSULATION SHALL BE POLYVINYL CHLORIDE WITH POLYVINYL CHLORIDE JACKET FOR TEMPERATURES 105°C AND BELOW.

4.8. SINGLE PAIR INSTRUMENT WIRE (RED/BLACK) SHALL BE #16 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, TWISTED, SHIELDED, AND A POLYVINYL CHLORIDE OUTER JACKET.

4.9. MULTI-PAIR ELECTRONIC INSTRUMENT WIRE SHALL BE #18 AWG STRANDED COPPER CONDUCTORS WITH 90°C POLYVINYL CHLORIDE INSULATION, EACH PAIR IDENTIFIED BY AN ACCEPTABLE METHOD PER IPCEA, TWISTED AND CABLED WITH AN OVERALL SHIELD AND POLYVINYL CHLORIDE OUTER JACKET.

4.10. ETHERNET COMMUNICATION SHOULD BE VIA CAT 6 CABLE FOR LESS THAN 100 METER OR FIBER OPTICS FOR LONGER DISTANCE.

4.11. THE CONTRACTOR SHALL FOLLOW THE CABLE TYPES AND SIZES AS LISTED ON THE ELECTRICAL CABLE SCHEDULE IN THE CONSTRUCTION DRAWINGS.

4.12. SPLICING OF CONDUCTORS SHALL NOT BE ALLOWED FOR INSTRUMENT WIRE AND CABLE.

4.13. CONTRACTOR SHALL LABEL EACH PAIR IN A MULTI-PAIR WIRE.

4.14. SHIELD AND/OR SHIELD DRAIN WIRE FOR ELECTRONIC INSTRUMENT AND THERMOCOUPLE CABLES SHALL BE CUT AND TAPED AT THE SENSING ELEMENT AND GROUNDED ONLY TO THE PLC PANEL GROUND AT A SINGLE POINT.

4.15. ANALOG AND DIGITAL SIGNAL WIRING SHALL BE IN SEPARATE CONDUITS AND RACEWAYS FROM THEMSELVES AND FROM POWER WIRING. CABLES FOR DC ALARM SIGNALS AND LOW ENERGY DC CONTROL MAY BE INSTALLED IN THE SAME CONDUIT OR TERMINAL BOX. THERMOCOUPLE EXTENSION WIRE SHALL NOT BE INSTALLED IN CONDUITS OR TERMINAL BOXES WITH OTHER SYSTEMS. TERMINAL BLOCKS SHALL BE USED IN LIEU OF SPLICES. NOTE THAT TERMINALS FOR THERMOCOUPLE EXTENSION WIRE SHOULD BE OF LIKE MATERIAL.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

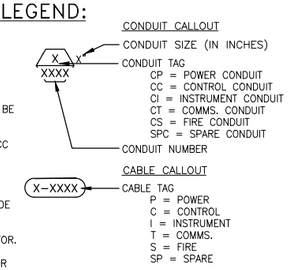
REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. PACIFIC GAS & ELECTRIC (PG&E) SERVICE EQUIPMENT UPSTREAM OF THE NEW PG&E TRANSFORMER IS UNKNOWN.
3. MOTOR STARTER PANELS (MSP-01 AND MSP-02) SHALL BE PROVIDED BY VENDOR (ANGI).
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
5. MCC SHALL BE ROCKWELL CENTERLINE 2100 SERIES INTELLICENTER WITH ARC SHIELD, IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
6. THE GLYCOL CHILLER SKID WILL CONSIST OF MULTIPLE MOTORS WITH ONE OVERALL PRIMARY FEED FROM THE MCC.
7. HVAC UNITS (BARD #W72A-C09XP4XXJ) ARE MOUNTED ON EXTERIOR WALL OF THE PDC, WITH LEAD/LAG CONTROLLER INSIDE THE PDC.
8. PG&E TRANSFORMER SIZE HAS BEEN PROVIDED BY PG&E. PG&E WILL SET TRANSFORMER ON PAD INSTALLED BY CONTRACTOR.
9. THE GENERATOR CABLE CONNECTION POINT TO THE GENERATOR CONNECTION PANEL CAN BE ACCESSED FROM THE EXTERIOR SIDE OF PDC.

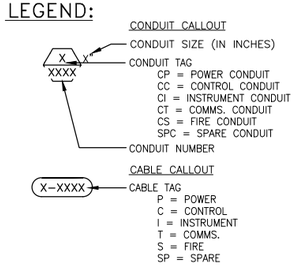
LEGEND:



PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
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A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

LEGEND:



NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DWG. 33906-5001-D-ELC.
2. UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEM SHOWN ON SEPARATE UPS ONE-LINE DIAGRAM, SEE DWG. 33906-5004-D-ELC.
3. MCC SHALL BE ROCKWELL CENTERLINE 2100 SERIES INTELLICENTER WITH ARC SHIELD, IN A NEMA 12 ENCLOSURE. FOR MCC LAYOUT SEE DWG. 33906-5006-D-ELC.
4. FOR PP-01 & UPSP-01 PANEL SCHEDULES SEE DWG. 33906-5005-D-ELEC.
5. 120V/240V DISTRIBUTION PANEL (PP-01) SHALL INCLUDE INTERNAL 125A MAIN BREAKER.

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

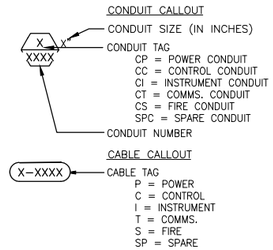
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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
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A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

[redacted]

LEGEND:



NOTES:

1. UPS SHALL BE CONTINUOUS ONLINE UNIT WITH MAINTENANCE BYPASS SWITCH AND BE RATED 12kVA, 1ϕ, 120V/240V WITH 8kVA RUNTIME OF 240 MINUTES. UPS SHALL BE EATON MODEL #9PXM OR SOCALGAS APPROVED EQUAL.
2. UPS CONTINUES TO (3) EXTENDED BATTERY CABINETS.
3. UPS BYPASS POWER MODULE (BPM) SHALL BE INSTALLED INSIDE MAIN 12-SLOT UPS CABINET.
4. 120V/240V UPS DISTRIBUTION PANEL (UPSP-01) SHALL INCLUDE INTERNAL 125A MAIN BREAKER. SEE UPS DISTRIBUTION PANEL SCHEDULE ON DWG. 33906-5005-D-ELC.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

MCC–01 LOAD SCHEDULE

[redacted]

HORIZONTAL BUS RATING	[redacted]	XFMR NO.	[redacted]
HORIZONTAL BUS BRACING		XFMR VOLTAGE	
MAIN BKR CONT. RATING		XFMR CONFIGURATION	
MAIN BKR INTR. RATING		XFMR KVA RATING	
MAX FAULT AT MAIN BKR		XFMR PRIMARY AMPS	
MCC FEEDER SIZE PER PHASE		XFMR SECONDARY AMPS	
MCC ENCLOSURE RATING		XFMR TEMP RISE / %Z	
CALCULATED SYSTEM ARC FLASH DATA			
TOTAL ARCING FAULT CURRENT	[redacted]	WORKING DISTANCE	[redacted]
TOTAL BOLTED FAULT CURRENT		INCIDENT ENERGY	
FAULT CLEARING TIME (SEC)		ARC FLASH BOUNDARY	

HOLD

SECT'N	POST'N	DESCRIPTION	RATING (HP/KW/KVA)	CONNECTED FLA	FUTURE CONNECTED FLA	REMARKS
[redacted]						

TOTAL CONNECTED LOAD (AMPS)	[redacted]
25% OF LARGEST MOTOR LOAD (LML) (AMPS)	
TOTAL CONNECTED LOAD PLUS 25% LML (AMPS)	
TOTAL CONNECTED LOAD PLUS 25% LML (KVA)	
20% FUTURE GROWTH (AMPS)	
TOTAL CONNECTED LOAD PLUS 20% FUTURE GROWTH (AMPS)	
TOTAL CONNECTED LOAD PLUS 20% FUTURE GROWTH (KVA)	
TRANSFORMER SECONDARY FLA (AMPS)	
TRANSFORMER PERCENTAGE LOADING (%)	

PP–01 LOAD SCHEDULE

BLDG.: [redacted]
MAIN:
CKT. BRKR

DESCRIPTION	VOLT–AMPS ØA	VOLT–AMPS ØB	CKT NO.	BKR AMP	ØA	ØB	BKR AMP	CKT NO.	VOLT–AMPS ØA	VOLT–AMPS ØB	DESCRIPTION
[redacted]											

MAXIMUM LOAD [redacted]

UPSP–01 LOAD SCHEDULE

(UPS DISTRIBUTION PANEL)

[redacted]

DESCRIPTION	VOLT–AMPS ØA	VOLT–AMPS ØB	CKT NO.	BKR AMP	ØA	ØB	BKR AMP	CKT NO.	VOLT–AMPS ØA	VOLT–AMPS ØB	DESCRIPTION
[redacted]											

[redacted]

NOTES:

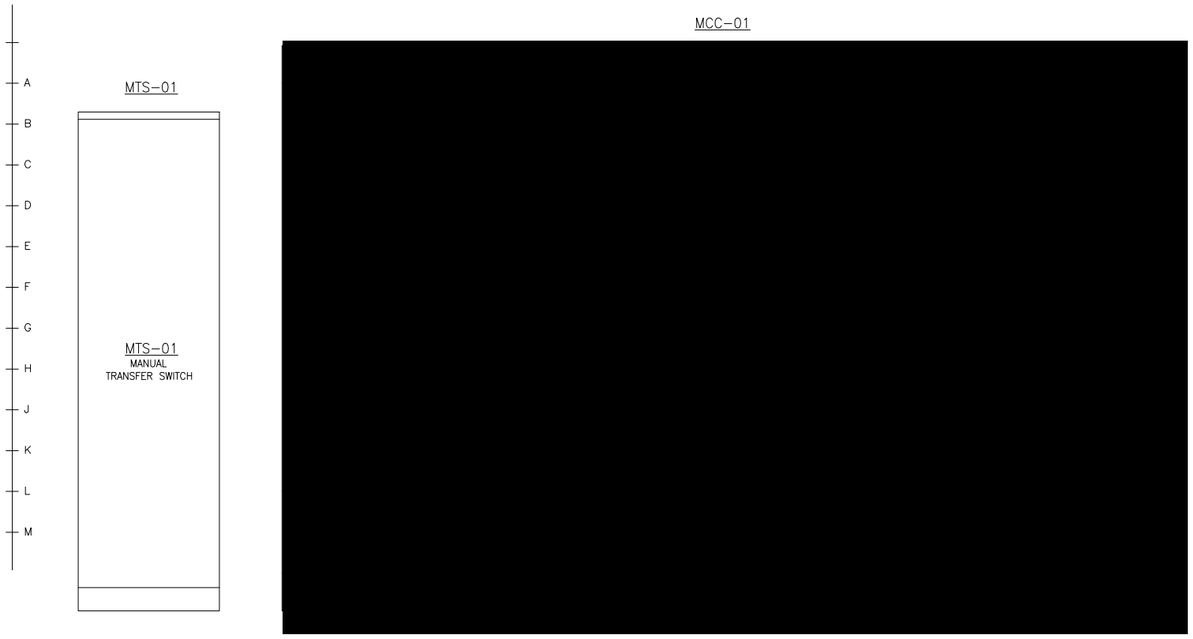
1. TRANSFORMER LOADING IS BASED ON PG&E TRANSFORMER SIZE OF 300kVA. THE LOADING INCLUDES THE OPERATION OF BOTH COMPRESSORS [redacted] AS THERE IS NO INTERLOCK PREVENTING THIS FROM HAPPENING.
2. [redacted]
3. THE PG&E TRANSFORMER SIZE HAS BEEN PROVIDED BY PG&E. FINAL TRANSFORMER NAMEPLATE INFO TO BE PROVIDED BY PG&E PRIOR TO CONSTRUCTION.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]



NOTES:

1. FOR FINAL MCC LAYOUT AND CONFIGURATION SEE MANUFACTURER [redacted] CERTIFIED AS-BUILT DRAWINGS.

GRAPHIC SCALE

1' 0 6" 1' 2' 4'

(IN FEET)
1"=1'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
X	FENCE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
	DUCT BANK
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. PDC AND SWBD-01 MUST BE MINIMUN OF 15 FEET HORIZONTAL CLEARANCE FROM PG&E POWER LINES.
2. ALL ELECTRICAL EQUIPMENT MUST BE A MINIMUM OF 35 FEET FROM PROPERTY LINE.
3. THE ELECTRICAL VAULT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE VAULT SHALL BE PRECAST CONCRETE SIZED A MINIMUM OF 8'L X 8'W X 7'D AND BE TRAFFIC RATED. THE VAULT SHALL INCLUDE 4 PULLING IRONS, CABLE MOUNTING PROVISIONS, AND A DRAIN SUMP. THE VAULT SHALL [redacted] SOCAL GAS APPROVED EQUAL.
4. FOR LOCATION OF FIRE EYES AND GAS DETECTORS SEE FIRE & GAS DETECTION PLAN DRAWING 33906-5018-D-ELC.
5. FOR LOCATION OF SECURITY SYSTEMS AND CAMERA LOCATIONS SEE SECURITY SYSTEM & CAMERA PLAN DRAWING 33906-5019-D-ELC.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

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E	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
D	02/06/2020	KRM	JPC	SAD	–	E18037	RE-ISSUED FOR 60% REVIEW	93365.001
C	12/10/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR PHA	93365.001
B	11/18/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON-CLASSIFIED AREA
- DUCT BANK

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY, THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).
8. ELECTRICAL VAULT MUST BE INSTALLED COMPLETELY OUTSIDE OF THE AREA CLASS BOUNDARIES.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

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D	02/06/2020	KRM	JPC	SAD	–	E18037	RE-ISSUED FOR 60% REVIEW	93365.001
C	12/10/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR PHA	93365.001
B	11/18/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/2019	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

[redacted]

PLANT

N

LEGEND:

- GROUND WELL
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND GRID, #4/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)
- GROUND TAP, #2/0 STRANDED COPPER (UNLESS OTHERWISE NOTED)

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
9. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
10. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
11. THE PDC MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
12. GROUNDING OF THE PG&E TRANSFORMER SHALL BE PROVIDED AND INSTALLED BY PG&E DURING TRANSFORMER INSTALLATION.
13. PG&E TRANSFORMER SHALL INCLUDE GROUND ROD INTO THE PADS SECONDARY WINDOW. GROUND WIRE SHALL BE A CONTINUOUS WIRE RUNNING FROM NEARBY GROUND ROD, UNDER PAD, TO PRIMARY WINDOW, THEN ABOVE PAD FROM PRIMARY WINDOW THROUGH SECONDARY WINDOW, TO SECONDARY WINDOW GROUND ROD.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

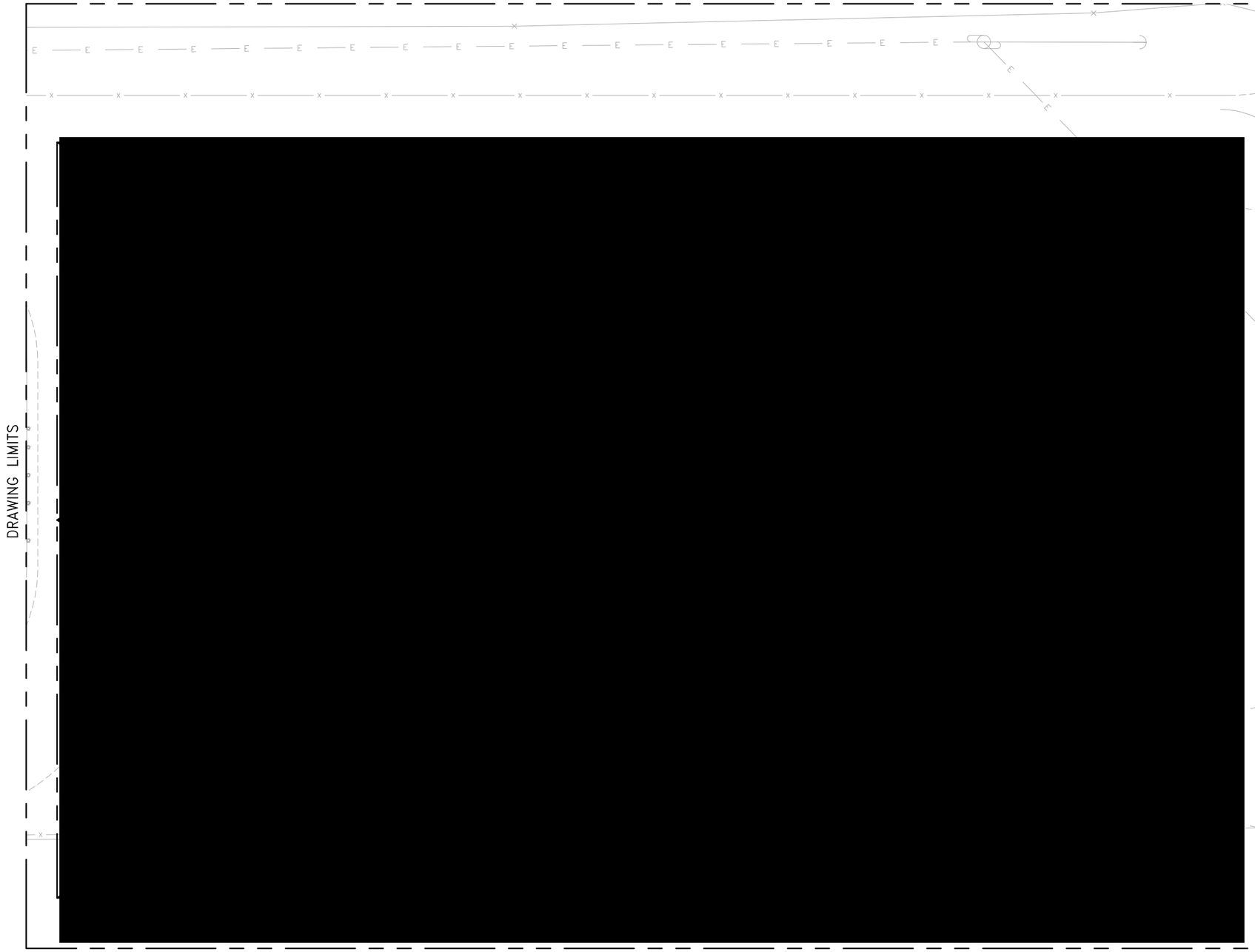
[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS



GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

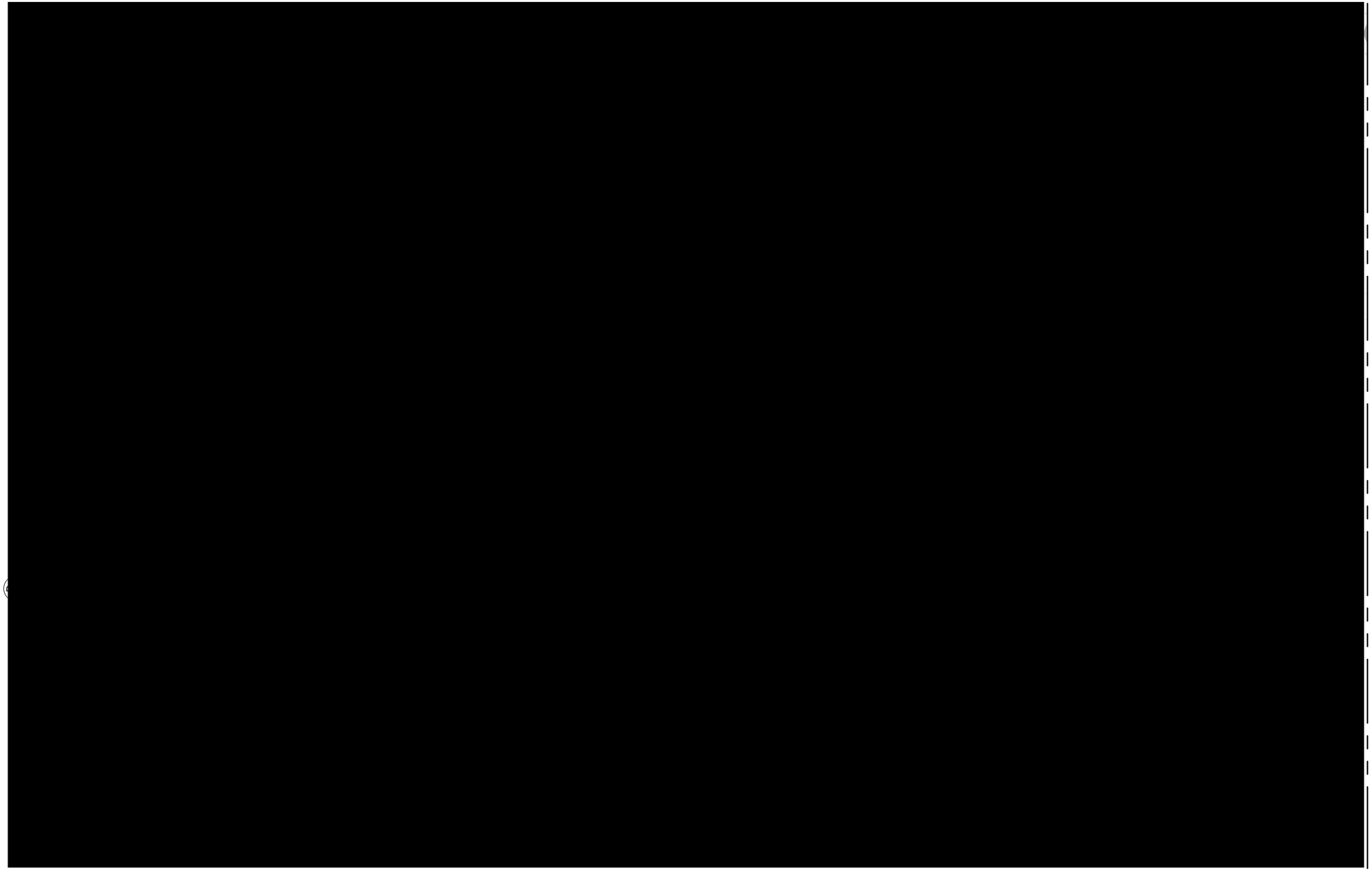
[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS



CONTINUED ON AREA "B" DWG. 33906-5012-D-ELC

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5013-D-ELC

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- FENCE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- SELECTOR SWITCH
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
6. ALL CABLES, UNLESS OTHERWISE SHOWN, WILL EXIT PDC CABLE TRAY VIA ROXTEC CABLE GLANDS AND INTO PDC MOUNTED PULLBOX/CABLE CABINET BEFORE ENTERING UNDERGROUND DUCTBANK.
7. BOLLARDS IN FRONT OF PG&E XFMR AND SWBD-01 MUST BE REMOVABLE. FOR BOLLARDS DETAIL SEE STRUCTURAL PACKAGE.
8. FOR CABLE AND CONDUIT INSTALLATION DETAILS SEE DRAWING 33906-5047-D-ELC.

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SOG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS

[redacted]

DRAWING LIMITS

CONTINUED ON AREA "D" DWG. 33906-5014-D-ELC

CONTINUED ON AREA "A" DWG. 33906-5011-D-ELC

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- x — FENCE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- SELECTOR SWITCH
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
- LP-XX — LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT
- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. THE ELECTRICAL VAULT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE VAULT SHALL BE PRECAST CONCRETE SIZED A MINIMUM OF 8'L X 8'W X 7'D AND BE TRAFFIC RATED THE VAULT SHALL INCLUDE 4 PULLING IRONS, CABLE MOUNTING PROVISIONS, AND A DRAIN SUMP. THE FAULT SHALL BE [redacted] OR SOCALGAS APPROVED EQUAL.
6. FOR CABLE AND CONDUIT INSTALLATION DETAILS SEE DRAWING 33906-5047-D-ELC.

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

CONTINUED ON AREA "A" DWG. 33906-5011-D-ELC

CONTINUED ON AREA "D" DWG. 33906-5014-D-ELC

DRAWING LIMITS

DRAWING LIMITS

LEGEND:

- PG&E UTILITY OVERHEAD LINE
- FENCE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- SELECTOR SWITCH
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
  120V, 2x154W, LED
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  NON-HAZARDOUS AREA FIXTURES
  120V, 2X165W, LED
- 180° CCTV CAMERA
  ON POLE AT 18FT
- FIX DOME CAMERA
  ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT

- CONDUIT SIZE (IN INCHES)
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT

- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

PRELIMINARY
NOT FOR CONSTRUCTION

33906-5044-D-ELC

CONTINUED ON AREA "B" DWG. 33906-5012-D-ELC

DRAWING LIMITS

CONTINUED ON AREA "C" DWG. 33906-5013-D-ELC

DRAWING LIMITS

GRAPHIC SCALE

4' 0 2' 4' 8' 16'

(IN FEET)
1/4"=1'-0"

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- x — FENCE
- PG&E POWER POLE
- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CAPPED CONDUIT
- CONDUIT SEAL
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- FLEX CONDUIT
- ANALOG INSTRUMENT
- DIGITAL INSTRUMENT
- PUSH BUTTON
- SELECTOR SWITCH
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
  120V, 2x154W, LED
- LP-XX
  LIGHT POLE MOUNTED FLOOD LIGHTS
  NON-HAZARDOUS AREA FIXTURES
  120V, 2X165W, LED
- 180° CCTV CAMERA ON POLE AT 18FT
- FIX DOME CAMERA ON POLE AT 18FT
- INSTRUMENT TAG

CONDUIT CALLOUT
- X — CONDUIT SIZE (IN INCHES)
- XXX — CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE
- CONDUIT NUMBER

CABLE CALLOUT
- X-XXXX — CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. SEE ANALYZER SHELTER VENDOR DRAWINGS FOR EXACT ROUTING TO INSTRUMENTATION. CURRENTLY ONLY SHOWING WIRING TO THE ANALYZER SHELTER JUNCTION BOXES SB-1 AND PB-1.
6. SEE COMPRESSOR VENDOR DRAWINGS FOR EXACT ROUTING TO INSTRUMENTATION.

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

DRAWING LIMITS

[redacted]

LEGEND:

CONDUIT GOING DOWN OR AWAY FROM OBSERVER

CABLE GLAND

CONDUIT CALLOUT

CONDUIT SIZE (IN INCHES)

CONDUIT TAG
- CP = POWER CONDUIT
- CC = CONTROL CONDUIT
- CI = INSTRUMENT CONDUIT
- CT = COMMS. CONDUIT
- CS = FIRE CONDUIT
- SPC = SPARE CONDUIT

CONDUIT NUMBER

CABLE CALLOUT

CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT ROUTING FOR BEST ROUTE, AND TAG ALL EXISTING & NEW CONDUIT AT BOTH ENDS WITH STAINLESS STEEL TAGS IN ACCORDANCE WITH THIS DRAWING & SOUTHERN CALIFORNIA GAS COMPANY STANDARDS.
3. THE ELECTRICAL PLAN DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL TYPES OF FITTINGS, OFFSETS, BENDS OR EXACT LOCATIONS OF ITEMS REQUIRED BY THE ELECTRICAL SYSTEM.
4. EXACT LOCATION, ELEVATION, AND METHOD OF SUPPORTING ABOVE-GROUND CONDUITS/CABLES AND SUPPORTS SHALL BE DETERMINED AT TIME OF INSTALLATION AND FOLLOW CEC TABLE 344.30(B)(2).
5. CONTRACTOR IS RESPONSIBLE FOR CABLE AND CONDUIT ROUTING AND WIRING TO, FROM, AND WITHIN THE PDC. ALL WIRING THAT WILL BE BY OTHERS IS IDENTIFIED ON THE CONDUIT/CABLE SCHEDULE. CONTRACTOR WIRING WITHIN THE PDC WILL INCLUDE CABLE IN TRAY AND CABLE IN CONDUIT.
6. ALL CABLES UNLESS OTHERWISE SHOWN WILL EXIT PDC CABLE TRAY VIA ROXTEC CABLE GLANDS AND INTO PDC MOUNTED PULLBOX/CABLE CABINET BEFORE ENTERING UNDERGROUND DUCTBANK.
7. SEE CONDUIT & CABLE ROUTING AREA "A" 33906-5011-D-ELC FOR CONTINUATION.
8. CONDUIT LEAVING PDC SHALL BE SUPPORTED PER NEC REQUIREMENTS. SEE CONDUIT SUPPORT DETAILS ON DRAWING 33906-5047-D-ELC.
9. POWER CABLES BETWEEN MTS-01, MCC-01 AND EMERGENCY GENERATOR CONNECTION BOX ROUTED VIA 8"X8" WIREWAY ON MCC SIDE AND VIA (3) 3" CONDUITS ON THE GENERATOR SIDE.

PRELIMINARY
NOT FOR CONSTRUCTION

15

GRAPHIC SCALE

2' 0 1' 2' 4'

(IN FEET)
3/4"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

PLANT

N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
X	FENCE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR AREA LIGHTING CONDUIT & CABLE ROUTING SEE CONDUIT & CABLE ROUTING PLANS DWG. 33906-5011-D-ELC THROUGH 33906-5015-D-ELC.
2. LIGHTING LEVELS SHOWN ONLY ACCOUNT FOR LIGHT POLES LP-01, 02, 03, 04, 05 AND DO NOT INCLUDE LIGHTING ON THE EXTERIOR OF PDC OR OTHER STRUCTURES LIGHTING.
3. FOR COMPLETE LIGHT POLES, FOOTING, AND FIXTURE INSTALLATION DETAILS SEE DRAWING 33906-5043-D-ELC.
4. CONTRACTOR SHALL SPECIFY THAT EACH LIGHT POLE INCLUDE A 3/4 INCH THREADED HUB AND HAND HOLE ON OPPOSITE SIDE AT 16FT AND 18FT. THESE WILL BE USED FOR WIRE ACCESS TO MOUNT FIRE-EYES AT 16FT AND SECURITY CAMERAS AT 18FT.

BILL OF MATERIAL

QTY	DESCRIPTION
4	[redacted]
4	
4	
6	
6	
5	
5	

STATISTICS

DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
CALC ZONE #1	+	[redacted]				

PRELIMINARY
NOT FOR CONSTRUCTION

SCHEDULE

SYMBOL	LABEL	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	NUMBER LAMPS	FILENAME	LUMENS PER LAMP	LIGHT LOSS FACTOR	WATTAGE
[redacted]										

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

LP–XX
LIGHT POLE MOUNTED FLOOD LIGHT
NON–HAZARDOUS AREA FIXTURE
120V, 154W, LED

LP–XX
LIGHT POLE MOUNTED FLOOD LIGHT
HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURE
120V, 165W, LED

NOTES:

1. FOR LIGHTING PHOTOMETRIC PLAN SEE DRAWING 33906–5016–D–ELC.
2. FOR LIGHTING ROUTING SEE CONDUIT AND CABLE PLAN DRAWING 33906–5011–D–ELEC THRU 33906–5015–D–ELC.
3. SITE AREA LIGHTING IS CONTROLLED VIA PHOTOCELL MOUNTED ON PDC ROOF.

PRELIMINARY
NOT FOR CONSTRUCTION

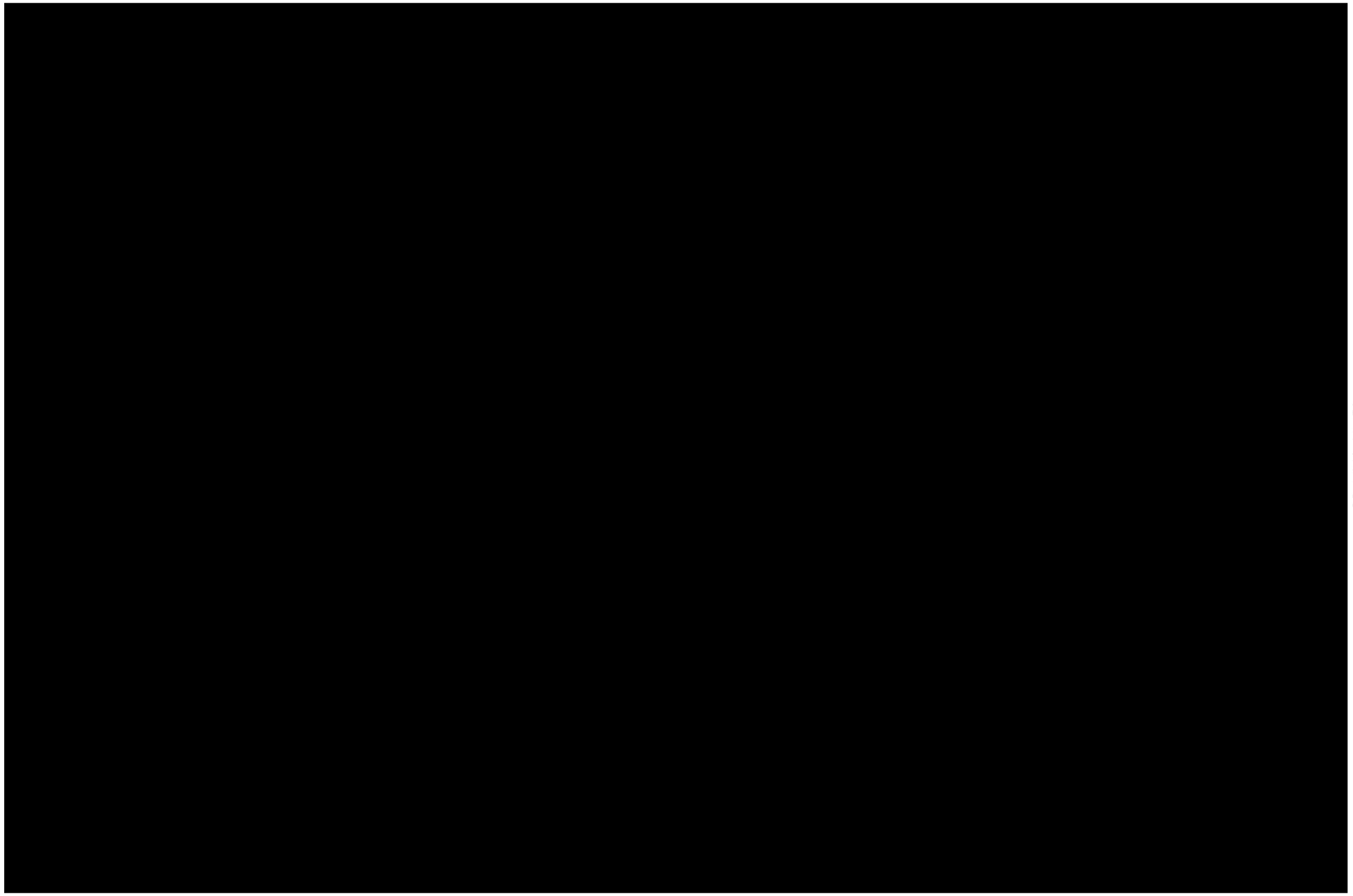
[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
X	FENCE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
F	FIRE DETECTOR MOUNTED ON LIGHT POLE AT 16FT
G	GAS DETECTOR
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR FIRE & GAS CONDUIT & CABLE ROUTING SEE CONDUIT & CABLE ROUTING PLANS DWG. 33906-5011-D-ELC THROUGH 33906-5015-D-ELC.
2. LASER METHANE DETECTOR EQUIPMENT SHALL BE MOUNTED PER MANUFACTURER GUIDELINES. AIC-1054AB GASFINDER3-DC ANALYZER PANEL SHALL BE MOUNTED AT 4FT. LASER METHANE DETECTOR HEADS AND RETRO-REFLECTORS SHALL BE MOUNTED AT 7FT. FOR STAND DETAILS SEE STRUCTURAL DRAWING 33906-4024-D-STR.
3. FIRE DETECTORS SHALL BE MOUNTED ON METAL LIGHT POLES AT 16FT, AND PER MANUFACTURER GUIDELINES.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT

N

LEGEND:

E	PG&E UTILITY OVERHEAD LINE
X	FENCE
	PG&E POWER POLE
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES
	LP-XX LIGHT POLE MOUNTED FLOOD LIGHTS NON-HAZARDOUS AREA FIXTURES
	180° CCTV CAMERA ON POLE AT 18FT
	FIX DOME CAMERA ON POLE AT 18FT
NVR	NETWORK VIDEO RECORDER
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR SECURITY SYSTEM CONDUIT & CABLE ROUTING SEE CONDUIT & CABLE ROUTING PLANS DWG. 33906-5011-D-ELC THROUGH 33906-5015-D-ELC.
2. SECURITY CAMERAS SHALL BE MOUNTED ON METAL LIGHT POLES AT 18FT, AND PER MANUFACTURES GUIDELINES.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'-0"

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

[redacted]

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C–XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P–XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI–CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.
3. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.
4. CONTRACTOR WILL BE RESPONSIBLE FOR ROUTING WIRE THROUGH PDC VENDOR PROVIDED CONDUIT/WIREWAY.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C–XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P–XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI–CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

CABLE SCHEDULE

CABLE NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	ROUTING VIA	CONDUCTORS						COMMENTS
						NO.	SIZE	TYPE	GND. SIZE	LENGTH	NO. SPARE	
[redacted]												

CABLE LEGEND

TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C–XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P–XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. GROUNDING CONDUCTORS WITHIN MULTI–CONDUCTOR CABLES SHALL BE LABELED/MARKED AS A GROUND CONDUCTOR BY APPLYING GREEN TAPE TO THE LAST 6" OF THE CONDUCTOR BEFORE TERMINATION.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCO APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	
[redacted]												

CONDUIT LEGEND

TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)

C–XXXX

- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)

P–XXXX

- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH IN DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.
3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC–COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH IN DIAMETER.
4. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

[redacted]

CONDUIT SCHEDULE

CONDUIT NUMBER	APPLICATION	SERVICE VOLTAGE	FROM	TO	CABLES ROUTED IN CONDUIT	CONDUIT						COMMENTS
						UNDERGROUND			ABOVEGROUND			
						SIZE	TYPE	LENGTH	SIZE	TYPE	LENGTH	
[redacted]												

CONDUIT LEGEND	
TYPE	DESCRIPTION
[redacted]	

LEGEND:

CONDUIT TAG (USED ON PLAN DWGS.)
C–XXXX
- CONDUIT NUMBER
- CONDUIT TAG
  - CP = POWER CONDUIT
  - CC = CONTROL CONDUIT
  - CI = INSTRUMENT CONDUIT
  - CT = COMMS. CONDUIT
  - CS = FIRE CONDUIT
  - SPC = SPARE

CABLE TAG (USED ON PLAN DWGS.)
P–XXXX
- CABLE NUMBER
- CABLE TAG
  - P = POWER
  - C = CONTROL
  - I = INSTRUMENT
  - T = COMMS.
  - S = FIRE
  - SP = SPARE

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC PIPE RATED FOR ELECTRICAL SERVICE AND SHALL BE A MINIMUM OF 1 INCH IN DIAMETER. RISERS AND OFFSETS SHALL BE RIGID GALVANIZED STEEL (RGS) WITH A MINIMUM RADIUS OF 24 INCHES UNLESS OTHERWISE NOTED.
3. ABOVEGROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS) EXCEPT IN CORROSIVE ATMOSPHERE WHERE PVC OR PVC–COATED RGS CONDUITS MAY BE BETTER SUITED. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED. ABOVEGROUND CONDUITS SHALL BE A MINIMUM OF 3/4 INCH IN DIAMETER.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
[redacted]		

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
A	[redacted]				
B					
C					
D					
E					

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND PER SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

CABLE CALLOUT

X-XXXX — CABLE TAG

P = POWER
C = CONTROL
I = INSTRUMENT
T = COMMS.
S = FIRE
SP = SPARE

NOTES:

1. FOR JB-01 JUNCTION BOX LAYOUT REFER TO DWG. 33906-5025-D-ELC.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
[redacted]		

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
[redacted]					

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND PER SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001

[redacted]

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

CABLE CALLOUT

X-XXXX — CABLE TAG

- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR JB-02 JUNCTION BOX LAYOUT REFER TO DWG. 33906-5027-D-ELC.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.0
A	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.0

[redacted]

[redacted]

BILL OF MATERIAL

ITEM NO.	QTY	DESCRIPTION
[redacted]		

NAME PLATE SCHEDULE

ITEM	SIZE	FIRST LINE	SECOND LINE	THIRD LINE	FOURTH LINE
[redacted]					

NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (TITLE 24, PART 3), LOCAL CODES, AND SOCALGAS SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL HARDWARE MATERIALS REQUIRED TO COMPLETE FABRICATION OF PANEL. CONTRACTOR SHALL UTILIZE HEAT SHRINK TYPE WIRE MARKERS FOR ALL WIRE TERMINATIONS.
3. NAMEPLATES SHALL BE A MINIMUM OF 1/16" THICK, THREE LAYER LAMINATE PHENOLIC (WHT/BLK/WHT). NAMEPLATES ARE TO BE ENGRAVED WITH 1/4" TEXT. EDGE OF NAMEPLATES SHALL BE CHAMFERED. EXTERNAL NAMEPLATES SHALL BE MOUNTED WITH AT LEAST TWO STAINLESS STEEL SCREWS.
4. CONTRACTOR SHALL NOT EXCEED 2 FT-LBS OF TORQUE ON THE MODULE HOLD DOWN SCREWS ON THE RACK BACK PANEL.
5. CONTRACTOR SHALL UTILIZE TERMINAL STRIP MARKING SYSTEM PHOENIX CONTACT #1051003. ELECTRONIC LABEL MAKER IS REQUIRED TO PRINT LABELS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

[redacted]

LEGEND:

- PANEL WIRING
- FIELD WIRING
- TBAC-FXX — FUSED TERMINAL #
- FUSE AMPERAGE — XA — FUSED TERMINAL
- NXX — FEED THRU TERMINAL
- G10 — GROUND TERMINAL

CABLE CALLOUT

X-XXXX — CABLE TAG

P = POWER
C = CONTROL
I = INSTRUMENT
T = COMMS.
S = FIRE
SP = SPARE

[redacted]

[redacted] CONNECTOR PIN OUT [redacted]

PIN NO.	DESCRIPTION
1	[redacted]
2	
3	
4	
5	
6	
7	
8	
9	

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.00

[redacted]

[redacted]

LEGEND:

PANEL WIRING

FIELD WIRING

TBAC-FXX — FUSED TERMINAL #

XA — FUSED TERMINAL

NXX — FEED THRU TERMINAL

G10 — GROUND TERMINAL

CABLE CALLOUT

X-XXXX — CABLE TAG
- P = POWER
- C = CONTROL
- I = INSTRUMENT
- T = COMMS.
- S = FIRE
- SP = SPARE

NOTES:

1. FOR JB-03 JUNCTION BOX LAYOUT REFER TO DWG. 33906-5029-D-ELC.
2. CABLE TO BE PROVIDED BY VENDOR.
3. SPARE CONDUCTOR ARE TO BE RESERVED FOR FOR FUTURE I/O.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

[redacted]

PLANT N

LEGEND:

- E — PG&E UTILITY OVERHEAD LINE
- x — FENCE
- PG&E POWER POLE
- INSTRUMENT TAG

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. FOR SKID MOUNTED INSTRUMENTATION REFER TO SKID VENDOR CERTIFIED DRAWINGS.

GRAPHIC SCALE
0 8' 16' 32'
(IN FEET)
1/8"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/2020	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING LIMITS



DRAWING LIMITS

DRAWING LIMITS

DRAWING LIMITS

PLANT N

LEGEND:

——— ———	CATHODIC PROTECTION SYSTEM CONDUIT
——— E ———	PG&E UTILITY OVERHEAD LINE
——— X ———	FENCE
	PG&E POWER POLE
	LP–XX LIGHT POLE MOUNTED FLOOD LIGHTS HAZARDOUS AREA (CLASS 1, DIV 2) FIXTURES 120V, 2x165W, LED
	LP–XX LIGHT POLE MOUNTED FLOOD LIGHTS NON–HAZARDOUS AREA FIXTURES 120V, 2X154W, LED
— — — —	DUCT BANK
PB	PULLBOX
JB	JUNCTION BOX
(E)	EXISITNG

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DWG 33906–5001–D–ELC.
2. SOCALGAS WILL PROVIDE ALL CATHODIC PROTECTION MATERIALS TO THE ELECTRICAL CONTRACTOR FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL INSTALL THE COMPLETE CATHODIC PROTECTION SYSTEM PER THIS DRAWING AND THE INCLUDED SOCALGAS SB 1383 – CATHODIC PROTECTION FOR COMPRESSOR FACILITIES, FIGURES 1–4. THE INSTALLATION SHALL INCLUDE ALL WIRING, CONDUIT, VAULTS, ANODES, SHUNT BOX, AND SHUNT BOX FOUNDATION.
4. THE CONTRACTOR SHALL PERFORM PIN BRAZING OF ALL CATHODIC PROTECTION SYSTEM WIRING TO THE PIPING.
5. THE SOCALGAS DISTRICT CP PERSONNEL ARE RESPONSIBLE FOR ALL WIRING CONNECTIONS AT THE SHUNT BOX.
6. ALL CATHODIC PROTECTION SYSTEM WIRING SHALL BE #8AWG.
7. CATHODIC PROTECTION SYSTEM VAULT IS AN UNDERGROUND PULLBOX.
8. CATHODIC PROTECTION SYSTEM SHUNT BOX IS AN ABOVEGROUND JUNCTION BOX THAT SHALL BE INSTALLED OUTSIDE THE HAZARDOUS AREA CLASS BOUNDARY.
9. ALL CATHODIC PROTECTION SYSTEM CONDUIT SHALL BE PVC SCHEDULE 80 AND SHALL BE INSTALLED A MINIMUM OF 36 INCHES BELOW GRADE.
10. FOR COMPLETE CATHODIC PROTECTION SYSTEM DETAILS SEE SOCALGAS SB 1383 – CATHODIC PROTECTION FOR COMPRESSOR FACILITIES, FIGURES 1–4.

GRAPHIC SCALE

10' 0 5' 10' 20' 40'

(IN FEET)
1"=10'–0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

[redacted]

[redacted]

LEGEND:

- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 1, GROUP D
- ELECTRICAL AREA CLASSIFICATION CLASS 1, DIVISION 2, GROUP D
- NON–CLASSIFIED AREA

NOTES:

1. FOR GENERAL ELECTRICAL CONSTRUCTION NOTES SEE DRAWING 33906–5001–D–ELC.
2. HAZARDOUS AREA CLASSIFICATIONS FOR THIS SITE ARE BASED ON THE LATEST EDITIONS OF SOCALGAS STANDARD 182.0020 (ELECTRICAL FACILITIES IN HAZARDOUS AREAS), THE AMERICAN PETROLEUM INSTITUTE RECOMMENDED PRACTICE 500 (API RP500), AND THE CALIFORNIA ELECTRICAL CODE (CEC).
3. THE ELECTRICAL CONTRACTOR MUST FOLLOW ALL APPLICABLE CODES AND STANDARDS, REFERENCED IN NOTE 2 ABOVE, FOR THE SAFE INSTALLATION AND OPERATION OF THIS FACILITY.
4. THE FLAMMABLE GASES AND/OR VAPORS PRESENT AT THIS SITE ARE GROUP C AND/OR GROUP D, AS DEFINED IN CEC ARTICLE 500.6 (A)(3) AND 500.6 (A)(4).
5. CONDUITS ENTERING A CLASSIFIED AREA FROM UNDERGROUND MUST HAVE A CONDUIT SEAL INSTALLED WITHIN THE FIRST 18 INCHES OF ENTERING A CLASSIFIED AREA. NO FITTINGS OR COUPLINGS ARE ALLOWED BETWEEN THE SEAL AND GRADE.
6. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS WITHIN 18 INCHES OF THE ENTRANCE TO AN ENCLOSURE FOR ANY APPARATUS WHICH CAN PRODUCE ARCS, SPARKS, OR HIGH TEMPERATURES LOCATED IN DIVISION 1 AND DIVISION 2 CLASSIFIED AREAS.
7. CONDUIT SEALS MUST BE INSTALLED IN CONDUIT RUNS LEAVING A DIVISION 1 OR DIVISION 2 CLASSIFIED AREA. THE CONDUIT SEAL SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CLASSIFIED AREA BOUNDARY. THIS MUST BE UNBROKEN CONDUIT, NO COUPLINGS, UNIONS OR BOXES AS DEFINED IN CEC ARTICLE 501.15 (A)(4) AND 501.15 (B)(2).

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WO
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	9336
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	9336
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	9336

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC BUILDING AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE PDC BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
13. FOR ALL OTHER GROUNDING DETAILS SEE STANDARD DRAWINGS 0502-D.STD, 0503-D.STD, AND 0504-D.STD.

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001
B	02/06/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 60% REVIEW	93365.001
A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
[redacted]		

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
[redacted]		

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ITEM	QTY	DESCRIPTION
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NOTES:

1. FOR GENERAL CONSTRUCTION NOTES SEE DRAWING 33906-5001-D-ELC.
2. GROUNDING ELECTRODES SHALL BE COPPER-CLAD STEEL, 3/4 INCH DIAMETER, 10 FEET LONG AND INSTALLED VERTICALLY.
3. MAIN GROUND GRID CONDUCTORS SHALL BE #4/0 AWG STRANDED COPPER AND TAPS SHALL BE #2/0 AWG STRANDED COPPER UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
4. BELOW GRADE GROUNDING CONDUCTORS SHALL BE LOCATED A MINIMUM OF 30 INCHES BELOW ROUGH GRADE AND INSTALLED WITH SLACK BETWEEN CONNECTIONS.
5. UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. EXPOSED GROUND CONNECTIONS SHALL BE MECHANICAL TYPE UNLESS OTHERWISE NOTED. SOLDERED CONNECTIONS ARE PROHIBITED.
6. UNDERGROUND PVC CONDUIT CONTAINING POWER CONDUCTORS SHALL INCLUDE EQUIPMENT GROUNDING CONDUCTORS.
7. GROUND ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUITS, CABLE SHEATHS AND SHIELDS, INSTRUMENT AND POWER TRANSFORMER SECONDARIES, TRANSFORMERS, MACHINERY, MECHANICAL EQUIPMENT, ELECTRIC MOTOR FRAMES, STRUCTURAL STEEL, STORAGE TANKS, LIGHT FIXTURES, CONTROL PANELS, AND STATIONS.
8. A SEPARATE ISOLATED GROUNDING SYSTEM SHALL BE PROVIDED FOR THE PLC PANELS FOR ELECTRONIC INSTRUMENT SYSTEMS. THE ISOLATED GROUNDING SYSTEM SHALL BE FORMED OF A MINIMUM OF 3 GROUNDING ELECTRODES INTERCONNECTED WITH #4/0 AWG GROUND COPPER WIRE. A MINIMUM OF 10 FEET SEPARATION SHALL BE MAINTAINED BETWEEN INDIVIDUAL GROUNDING ELECTRODES.
9. WHERE GROUNDING CONDUCTORS EMERGE THROUGH CONCRETE FOUNDATIONS, BUILDING FLOORS, OR FROM BELOW GRADE, A PVC CONDUIT SLEEVE SHALL BE INSTALLED TO PROTECT THE GROUNDING CONDUCTOR FROM MECHANICAL INJURY.
10. WHERE GROUND CONDUCTORS ARE EXTENDED ABOVE GRADE FOR FUTURE TERMINATION, THEY SHALL HAVE A MINIMUM LENGTH OF TEN (10) FEET. LOOSE ENDS OF GROUND WIRES SHALL BE COILED AND TIED FOR PROTECTION AND TO AVOID A TRIPPING HAZARD.
11. THE OVERALL GROUND GRID SHALL BE CONNECTED TO THE PDC BUILDING AT THE 4 EXTERNAL GROUND PADS ON THE STRUCTURE.
12. THE PDC BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR PROPER AND COMPLETE GROUNDING INSIDE THE PDC, INCLUDING ALL EQUIPMENT AND CABLE TRAY AND SHALL ENSURE INTERNAL GROUNDING IS TIED TO GROUND GRID VIA EXTERNAL GROUND PADS.
13. FOR ALL OTHER GROUNDING DETAILS SEE STANDARD DRAWINGS 0502-D.STD, 0503-D.STD, AND 0504-D.STD.

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[redacted]

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A	09/24/19	KRM	JPC	SAD	–	E18037	ISSUED FOR 30% REVIEW	93365.001

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BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
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BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
[redacted]		

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NOTES:

1. FOR ADDITIONAL LIGHTING DETAILS SEE LIGHTING PLAN, LIGHTING WIRING SCHEMATIC AND CABLE/CONDUIT ROUTING PLANS AND SCHEDULE.
2. CONTRACTOR SHALL VERIFY BOLT SIZE, LOCATIONS AND QUANTITY WITH EQUIPMENT RECEIVED ON SITE PRIOR TO DRILLING INTO CONCRETE.
3. POST-INSTALLED ANCHORS REQUIRE THIRD PARTY SPECIAL INSPECTION AND SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
4. CONCRETE CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT STUB-UP SIZES, DIMENSIONS, AND LOCATIONS PRIOR TO CONCRETE POUR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND INCORPORATING ANY MODIFICATIONS NECESSARY TO BE COMPATIBLE WITH PURCHASED EQUIPMENT.
6. CONTRACTOR SHALL UTILIZE RFI PROCESS TO DOCUMENT NECESSARY MODIFICATIONS FOR ENGINEER'S REVIEW, VERIFICATION AND ACCEPTANCE PRIOR TO EXCAVATION, PLACING REBAR, POURING CONCRETE, OR INSTALLATION OF OTHER STRUCTURAL COMPONENTS.
7. CONTRACTOR SHALL SPECIFY THAT EACH LIGHT POLE INCLUDE A 3/4 INCH THREADED HUB AND HAND HOLE ON OPPOSITE SIDE AT 16FT AND 18FT. THESE WILL BE USED FOR WIRE ACCESS TO MOUNT FIRE-EYES AT 16FT AND SECURITY CAMERAS AT 18FT.
8. FIRE-EYES SHALL BE MOUNTED ON LIGHT POLES AT 16FT, AND PER MANUFACTURER/VENDOR GUIDELINES.
9. SECURITY CAMERAS SHALL ME MOUNTED ON LIGHT POLES AT 18FT, AND PER MANUFACTURER VENDOR GUIDELINES.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCD APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

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PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KM	JJ	SD	–	E18037	ISSUED FOR 90%	93365.001

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PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KM	JJ	SD	–	E18037	ISSUED FOR 90%	93365.001

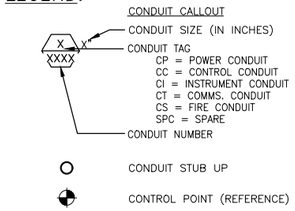
[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

PLANT
N

LEGEND:



NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK.
2. CONDUITS SIZED PER PG&E REQUIREMENTS AND INSTALLED BY CONTRACTOR. PRIMARY AND SECONDARY CONDUCTORS WILL BE SIZED AND INSTALLED BY PG&E IN CONTRACTOR INSTALLED CONDUITS.

[redacted]

GRAPHIC SCALE

2' 0 1' 2' 4' 8'

(IN FEET)
1/2"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

BILL OF MATERIAL

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ITEM	QTY	DESCRIPTION

NOTES:

1. VENDOR AND CATALOG NUMBERS DESIGNATIONS ARE FOR REFERENCE ONLY. ANY APPROVED EQUIVALENT MAY BE USED.
2. THE MINIMUM 3" COVER OF CONCRETE ON TOP & SIDES OF CONDUITS SHALL BE MEASURED FROM THE INSIDE DIAMETER OF THE CONDUIT DUCT SPACER. CONDUIT SEPARATION OF 1" MINIMUM (HORIZONTAL & VERTICAL ROWS) SHALL BE ENSURED BY THE USE OF THE PROPER CONDUIT SPACER AS REQUIRED BY THE CATALOG NUMBER LISTED BELOW.
   A. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF SIZES 1" THRU 2" SHALL USE [redacted] MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE [redacted]
   B. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF LARGER THAN 2" THRU 4" SHALL USE [redacted] MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE [redacted]
   C. 5KV AND 480V POWER CONDUITS CONSISTING OF SIZES 2" THRU 4" SHALL USE [redacted] MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE [redacted]
   D. SINGLE HORIZONTAL ROW OF CONDUITS CONSISTING OF SIZES 5" & 6" SHALL USE [redacted] MULTIPLE HORIZONTAL ROWS OF CONDUITS SHALL USE [redacted]
3. CONDUIT DUCT SECTIONS SHALL SHOW SPACER ARRANGEMENT. CONDUIT SHALL REST ON BOTTOM OF SPACERS.
4. #4/0 STRANDED BARE COPPER GROUND CABLE SHALL BE RUN ON TOP OF CONDUIT DUCT BANK
5. STEEL REINFORCING BARS SHALL BE INSTALLED IN ALL DUCTBANKS UNDER ALL ROADWAYS/PAVED AREAS AT A MINIMUM AND AS INDICATED ON PLAN DRAWINGS.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

BILL OF MATERIAL			BILL OF MATERIAL			BILL OF MATERIAL		
ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION

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PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
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[redacted]

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ITEM	QTY	DESCRIPTION

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ITEM	QTY	DESCRIPTION

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

[redacted]

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION

[redacted]

NOTES:

1. REFERENCE JUNCTION BOX LAYOUTS DWG. 33906-5025-D-ELC, 33906-5027-D-ELC AND 33906-5029-D-ELC.

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/20	KRM	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

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ITEM	DESCRIPTION	QTY
[redacted]		

ITEM	DESCRIPTION	QTY
[redacted]		

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PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/2020	CD	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

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REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/2020	CD	JPC	SAD	–	E18037	ISSUED FOR 90%	93365.001

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[redacted]

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/2020	CD	JPC	SD	–	E18037	ISSUED FOR 90%	93365.001

[redacted]

[redacted]

PRELIMINARY
NOT FOR CONSTRUCTION

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SQG APV	ENG FILE NO	DESCRIPTION	WOA
A	05/07/2020	CD	JPC	SD	–	E18037	ISSUED FOR 90%	93365.C

[redacted]

GROUNDING SYMBOLS

- GROUND WELL
- GROUND ROD
- GROUND WIRE TAP
- EQUIPMENT GROUND CONNECTION
- STRUCTURE GROUND CONNECTION
- GROUND WIRE (SEE PLAN DWG FOR CONDUCTOR SIZE)
- GROUND BAR

LIGHTING SYMBOLS

- RECEPTACLE 120V
- 120V LIGHT SWITCH
- EMERGENCY LIGHTING UNIT
- FLOODLIGHT WALL MOUNTED
- FLOODLIGHT POLE MOUNTED
- S — FLUORESCENT FIXTURE NORMAL POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- R — FLUORESCENT FIXTURE EMERGENCY POWER
  - S = SURFACE MOUNTED
  - R = RECESSED
  - P = PENDANT MOUNTED
- (S) — LIGHTING FIXTURE (HPS or MERCURY VAPOR)
  - B = BRACKET OR WALL MOUNTED
  - C = CEILING MOUNTED
  - P = PENDANT MOUNTED
  - S = STANCHION MOUNTED
- EXIT LIGHT FIXTURE
- LP-01 — LIGHTING PANEL

POWER & CONTROL SYMBOLS

- PUSHBUTTON
- SELECTOR SWITCH
- WELDING RECEPTACLE
- JUNCTION BOX
- MOV — MOTOR OPERATED VALVE
- PP-01 — POWER OR DISTRIBUTION PANEL

COMMUNICATION & INSTRUMENTATION SYMBOLS

- HORN OR SPEAKER
- BELL
- BUZZER
- FIRE/GAS DETECTOR
- TELEPHONE OUTLET
- BEACON
- S — SOLENOID VALVE
- INSTRUMENT SYMBOL
- IP-01 — INSTRUMENT PANEL OR TELEPHONE CABINET
- INSTRUMENT CALLOUT

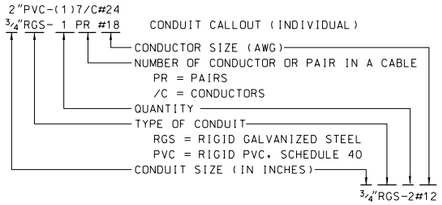
PT 101
- INSTRUMENT CODE – INSTRUMENT OR DEVICE. REFER TO PROCESS INSTRUMENT DIAGRAM FOR IDENTIFICATION AND NUMBER DESIGNATION
- INSTRUMENT NUMBER

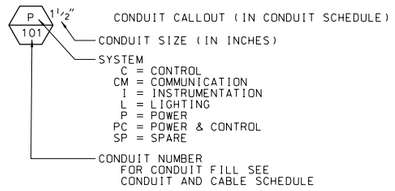
WIRE COLOR ABBREVIATION

B = BLACK
BL = BLUE
BR = BROWN
CL = CLEAR
G = GREEN
GR = GRAY
O = ORANGE
R = RED
V = VIOLET
W = WHITE
Y = YELLOW

CONDUIT FITTING SYMBOLS

- CONDUIT GOING DOWN OR AWAY FROM OBSERVER
- CONDUIT GOING UP OR TOWARD OBSERVER
- CONDUIT "T" FITTING
- CONDUIT "L" FITTING
- CONDUIT SEAL
- CONDUIT UNION
- CONDUIT CAP
- ABOVE GRADE CONDUIT
- BELOW GRADE CONDUIT





AREA CLASSIFICATION

- CLASS 1, DIV.1 HAZARDOUS AREA
- CLASS 1, DIV.2 HAZARDOUS AREA
- NON HAZARDOUS AREA

WIRE/CABLE LEGEND

TYPE	CALLOUT	MANUFACTURER	TRADE #	DESCRIPTION
GND	#2/0	[redacted]		GROUND WIRE BARE COPPER STRANDED FOR GROUND GRID
GND	#2			PVC/NYLON COPPER CONDUCTOR, GREEN INS, 600V RATED, TYPE THHN/THWN FOR EQUIPMENT & STRUCTURE GROUND
PWR	3#2			PVC/NYLON COPPER COND., RED/BLACK/WHITE INSULATED, 600V RATED, TYPE THHN/THWN FOR UTILITY POWER TO DISTRIBUTION PANEL
PWR	3#10			PVC/NYLON COPPER COND., BLACK/RED/GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR 220V AC FOR ANALYZER SHELTER A/C
PWR	2#10 & 1#12G			PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN FOR DISTRIBUTION PANEL TO UPS SYSTEM
PWR	2#12 & 1#14G			PVC/NYLON COPPER COND., BLACK/WHITE & GREEN INSULATED, 600V RATED, TYPE THHN/THWN, UPS/ NORMAL PWR, DISTRIBUTION PANEL TO EQUIPMENTS
24V DC	2#14			PVC/NYLON COPPER COND., RED/BLACK INSULATED, 600V RATED, TYPE THHN/THWN, 24V DC POWER TO SOLENOIDS
INSTR AI/AO DI/DO	1PR#18			TINNED COPPER, FEP INSULATED, TWISTED PAIR, 100% BELDFOIL ALUMINUM-POLYESTER SHIELD, 18AWG, STRANDED TINNED COPPER DRAIN WIRE, RED FEP JACKET, COLOR CODE: BLACK/RED
COMM	4#24			TINNED COPPER, DATALENE INSULATED, MULTI CONDUCTOR, OVERALL BELDFOIL ALUMINUM-POLY-ESTER,+ 65% MINIMUM TINNED COPPERBRAID SHLD, 24AWG STRANDE TINNED COPPER DRAIN WIRE, CHROME PVC JACKET, COLOR CODE: RED/WHITE/ BLACK/GREEN
TEL	6PR#22			TINNED COPPER, PVC INSULATED, TWISTED PAIR, CHROME PVC JACKET, COLOR CODE:(1) B/R, (2) B/W, (3) B/G, (4) B/BL, (5) B/Y, (6) B/BR
CAT 6	4PR#24			23AWG 4PR, PVC POLYOLEFIN(PF) FEP, LSOH/PVC JACKET ALUMINUM/MYLARDIELECTRIC TAPE COLOR CODE: (1) B/W, (2) R/W, (3) BL/W, (4) G/W

SINGLE LINE DIAGRAM SYMBOLS

- SINGLE LINE BUS
- SINGLE LINE FEEDER
- SINGLE LINE CONTROL CIRCUIT
- POWER TRANSFORMER
- GROUND SYMBOL
- POTENTIAL TRANSFORMER
- GROUND OR ZERO SEQUENCE
- CURRENT TRANSFORMER
- CIRCUIT BREAKER MOLDED CASE
- OIL OR VACUUM CIRCUIT BREAKER
- DRAWOUT OR PLUG IN TYPE
- DISCONNECT SWITCH
- FUSE
- THERMAL OVERLOAD DEVICE
- FUSED DISCONNECT SWITCH
- (E) — AUTOMATIC TRANSFER SWITCH
- BATTERY
- POTHEAD
- BUS DUCT
- OPEN CONTACT
- CLOSED CONTACT
- M — INDUCTION MOTOR
- DELTA WYE CONNECTION
- DELTA WYE CONNECTION W/GROUND
- DELTA WYE CONNECTION W/NEUTRAL
- DELTA CONNECTION
- WYE CONNECTION
- DIODE
- CAPACITOR
- INDUCTOR OR REACTOR
- CURRENT TRANSFORMER BUSHING TYPE
- (K) — KEY INTERLOCK

SCHEMATIC AND WIRING SYMBOLS

- SINGLE POLE SINGLE THROW SWITCH
- SINGLE POLE DOUBLE THROW SWITCH
- LIMIT SWITCH NORMALLY CLOSED HELD OPEN
- LIMIT SWITCH NORMALLY OPEN HELD CLOSED

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- LIMIT SWITCH NORMALLY CLOSED
- FLOW SWITCH CLOSES ON INCREASE
- FLOW SWITCH OPENS ON INCREASE
- LEVEL SWITCH CLOSES ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID DECREASE
- LEVEL SWITCH OPENS ON LIQUID INCREASE
- LEVEL SWITCH CLOSES ON LIQUID INCREASE
- PRESSURE SWITCH OPENS ON INCREASE
- PRESSURE SWITCH CLOSES ON INCREASE
- OFF DELAY RELAY NORMALLY OPEN SWITCH
- OFF DELAY RELAY NORMALLY CLOSED SWITCH
- ON DELAY RELAY NORMALLY OPEN SWITCH
- ON DELAY RELAY NORMALLY CLOSED SWITCH
- TEMPERATURE SWITCH CLOSES ON RISING TEMP.
- TEMPERATURE SWITCH CLOSES ON DROPPNG TEMP.
- NORMALLY OPEN CONTACT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- NORMALLY CLOSED CONTACT
- OPEN TORQUE SWITCH
- CLOSED TORQUE SWITCH
- VIBRATION SWITCH OPENS ON VIBRATION
- VIBRATION SWITCH CLOSES ON VIBRATION
- NORMALLY CLOSED MOMENTARY STOP PUSHBUTTON
- NORMALLY OPEN MOMENTARY START PUSHBUTTON
- LOCKOUT PUSHBUTTON
- SOLENOID COIL
- VOLTAGE SUPRESSOR
- R — ELECTRICAL RELAY OR COIL
- A — INDICATING LIGHT – A=AMBER, B=BLUE, C=CLEAR, G=GREEN, R=RED, W=WHITE, Y=YELLOW
- 2 POSITION SELECTOR SWITCH
- OFF / HAND / AUTO — HAND OFF AUTO SELECTOR SWITCH
- SPACE HEATER
- RESISTOR

SCHEMATIC AND WIRING SYMBOLS (CONT'N)

- RHEOSTAT
- 16A — CIRCUIT BREAKER RATING
- FUSE
- COIL SPARE WIRE
- MCC OR MOTOR STARTER TERMINAL BLOCKS
- RELAY TERMINAL BLOCKS
- PLC TERMINAL BLOCKS
- DEVICE TERMINAL BLOCKS
- SCADA, BRISTOL & OMNI TERMINAL BLOCKS
- 1 — TERMINAL BLOCKS

ELECTRICAL ABBREVIATIONS

A OR AMP	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONER
AF	AMPERAGE FRAME SIZE
AT	AMPERAGE TRIP RATING
AI	ANALOG INPUT
AO	ANALOG OUTPUT
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONTR	CONTROL
DC	DIRECT CURRENT
DISC SW	DISCONNECT SWITCH
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE, DOUBLE THROW
EMERG	EMERGENCY
FTG	FITTING
GND	GROUND
HOA	HAND-OFF-AUTO
HP	HORSE POWER
INSTR	INSTRUMENTATION
JB	JUNCTION BOX
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
M OR MTR	MOTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PB	PUSHBUTTON
PH OR ø	PHASE
PNL	PANEL
PVC	POLYVINYLCHLORIDE OR RIGID (PVC) SCHED 40(CONDUIT)
PWR	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
S/D	SHUTDOWN
SPDT	SINGLE POLE, DOUBLE THROW
SPST	SINGLE POLE, SINGLE THROW
SEL	SELECTOR
S/S	START/STOP
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SW	SWITCH
TB	TERMINAL BLOCK
UPS	UNINTERRUPTIBLE POWER SUPPLY
W	WATTS
V	VOLTS
XFMR	TRANSFORMER

REV. NO.	DRAWN / CHECKED	PROJECT APPROVED	SO CAL APPROVED	JOB FILE NO.	DATE	DESCRIPTION
A	ST / JL	JAL			3-16-06	GENERAL REVISION

CONTRACTOR NAME & PROJECT NUMBER

[redacted]

DATE
10-1-97
10-1-97
10-1-97
10-1-97

DIST. 500
CLASS 21

The Gas Company

Southern California Gas Company
ENGINEERING & FIELD SUPPORT — LOS ANGELES

ELECTRICAL DESIGN STANDARDS SYMBOLS & ABBREVIATIONS

SCALE: NONE
DRAWING NO.: 0501-D.STD
REV.: A

$$$$$$$$$$dgnspec$$$$$$$$$$$$$ $$$$$$$$$$$$sytime$$$$$$

Attachment 8

Mechanical Plot Plan-10%

[redacted]

MAJOR EQUIPMENT:

[redacted]

LEGEND:

- (E) EXISTING
- (N) NEW / PROPOSED
- PERMANENT GUARD POST
- REMOVABLE GUARD POST
- DUCT BANK
- FE FIRE EXTINGUISHER
- POLE MOUNTED AREA LIGHTING POLE (NOTE 5)
- WINDSOCK (TBD)
- ESD

ELECTRICAL DEVICES:

[redacted]

NOTES:

1. THE COMPRESSOR OUTLINE DEPICTED IS AN MODEL NG 900, 700 – 800 HORSEPOWER. THE EXACT SIZE AND NOZZLE LOCATION WILL DEPEND ON THE ACTUAL EQUIPMENT SELECTED FOR A GIVEN SITE.
2. GATE LOCATIONS TO BE DETERMINED BASED ON SITE CONDITIONS.
3. EQUIPMENT SIZING TO BE DETERMINED.
4. BLOWDOWN PIPING CONNECTIONS AND DETAILS TO BE DETERMINED.
5. AREA LIGHTING SHALL NOT BE PHOTOELECTRIC CONTROLLED AND SHALL ONLY BE USED WHEN PERSONNEL ARE PRESENT.

0 1 2 3 4 5 10 15 20 25 30
1/8"=1'-0"

ISSUED FOR 10% REVIEW
07/16/19

[redacted]

REV	DATE	DRWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
A	07/10/19	AMC	TCS	MPB		E18037	ISSUED FOR 10% REVIEW	93365

	BY	DATE
DESIGNED:	TCS	07/16/19
DRAWN:	AMC	07/16/19
CHECKED:	TCS	07/16/19
PRJ APV:	MPB	07/16/19
SCE ENG APV:		

ENG FILE NO: E18037
WOA: 93365.001
DWG CLASS: 39 DWG DIST: 412
SCALE: NONE

SoCalGas
A Sempra Energy utility

LAKESIDE DAIRY PILOT
SENATE BILL 1383
PRELIMINARY PLOT PLAN
MECHANICAL
[redacted]

DRAWING NUMBER: SK-460090-04000-02
REV: A

\\cabaki07fs01\PCS\Projects\460090_SCG_DP_LAKESIDE\ENGR\CAD\MECH\SK-460090-04000-02.dwg, 7/16/2019 2:25 PM, [redacted]

1

Attachment 9

Mechanical Plot Plan-60%

[redacted]

MAJOR EQUIPMENT:

[redacted]

LEGEND:

- (E) EXISTING
- (N) NEW / PROPOSED
- PERMANENT GUARD POST
- REMOVABLE GUARD POST
- DUCT BANK
- FIRE EXTINGUISHER
- POLE MOUNTED AREA LIGHTING POLE (NOTE 4)
- ESD

ELECTRICAL DEVICES IN PDC:

[redacted]

NOTES:

1. GATE LOCATIONS TO BE DETERMINED BASED ON SITE CONDITIONS.
2. EQUIPMENT SIZING TO BE DETERMINED.
3. BLOWDOWN PIPING CONNECTIONS AND DETAILS TO BE DETERMINED.
4. AREA LIGHTING SHALL NOT BE PHOTOELECTRIC CONTROLLED AND SHALL ONLY BE USED WHEN PERSONNEL ARE PRESENT.

0 1 2 3 4 5 10 15 20 25 30

1/8"=1'-0"

ISSUED FOR 60% REVIEW
11/19/19

[redacted]

BY	DATE
DESIGNED: TCS	07/16/19
DRAWN: AMC	07/16/19
CHECKED: TCS	07/16/19
PROJ APR: MPB	07/16/19

REV	DATE	DRWN	CHECKED	PRJ APV	SCE APV	ENG FILE NO	DESCRIPTION	WOA
B	11/19/19	AMC	TCS	MPB		E18037	ISSUED FOR 60% REVIEW	93365
A	07/10/19	AMC	TCS	MPB		E18037	ISSUED FOR 10% REVIEW	93365

SCE ENG APR:
ENG FILE NO: E18037
WOA: 93365.001

SoCalGas
A Sempra Energy utility

DWG CLASS: 39 | DWG DSP: 412

LAKESIDE DAIRY PILOT
SENATE BILL 1383
PRELIMINARY PLOT PLAN
MECHANICAL
[redacted]

DRAWING NUMBER: SK-460090-04000-02

REV: B

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[redacted]

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Attachment 10

Mechanical Plot Plan-90%



MAJOR EQUIPMENT:

[redacted]

LEGEND:

- PERMANENT GUARD POST
- FIRE EXTINGUISHER
- POLE MOUNTED AREA LIGHTING POLE (NOTE 2)
- ESD

ELECTRICAL DEVICES:

[redacted]

NOTES:

1. THE COMPRESSOR OUTLINE DEPICTED IS AN [redacted] MODEL NG 300E – 150 HORSEPOWER.
2. AREA LIGHTING SHALL NOT BE PHOTOELECTRIC CONTROLLED AND SHALL ONLY BE USED WHEN PERSONNEL ARE PRESENT.

ISSUED FOR 90% REVIEW
02/14/20

0 1 2 3 4 5 10 15 20 25 30
1/8"=1'-0"

[redacted]

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
D	02/14/20	JJM	TCS	MPB		E18037	ISSUED FOR 90% REVIEW	93365
C	12/10/19	AMC	TCS	MPB		E18037	ISSUED FOR PHA	93365
B	11/19/19	AMC	TCS	MPB		E18037	ISSUED FOR 60% REVIEW	93365
A	07/10/19	AMC	TCS	MPB		E18037	ISSUED FOR 10% REVIEW	93365

BY	DATE
DESIGNED: TCS	07/16/19
DRAWN: AMC	07/16/19
CHECKED: TCS	07/16/19
PROJ APV: MPB	07/16/19
SCG ENG APV:	
ENG FILE NO: E18037	
WOA: 93365.001	

SoCalGas
a Sempra Energy utility

DWG CLASS: 39 | DWG DIST: 412
SCALE: NONE

LAKESIDE DAIRY PILOT
SENATE BILL 1383
PRELIMINARY PLOT PLAN
MECHANICAL

[redacted]

DRAWING NUMBER: SK-460090-04000-02 REV: D

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Attachment 11

Compressor Foundation Design

[redacted]

Calculation No: DS-460090-04000-62
Rev: 0 - Date: 08/05/20
Prep. By: MK
Check By: JH

BioGas 1383 Dairy Pilot
Project - Location : Lakeside (Hanford)
Subject: Foundation Design for
Gas Compressor C-1200 & C-1300

SoCalGas
A Sempra Energy utility

Project: Senate Bill 1383 Diary Pilot
Project No: SB1383

1.Objective:

To provide structural calculations for the foundation static design and analysis of the anchorage requirements for a Compressor Skid. All structural design not specifically shown below is by others.

2.Assumptions:

No other unverified assumptions are considered in this calculation

3.Methodology:

Concrete design based on LRFD equations
Soil bearing design based on ASD equations
Seismic design based Chapter 15 equations of ASCE 7-16 (Seismic on non-building not similar to building)

4.References:

4.1 Codes and Regulations

Based on DS-460090-04000-29 (Rev.3), Civil/Structural/ Architectural Design Criteria - Site Specific

4.2 Technical Information

SSI Analysis for Foundation Design for Compressor by Geosyntec Consultant, project number SC1017-04, November 2019

4.3 Drawings

[redacted] drawing no A05-10-50754-01 (2-Sheets) Unit#1 (C-1200), Rev E date Released January 13 2020.
[redacted] drawing no A05-10-50754-01 (2-Sheets) Unit#2 (C-1300), Rev D date Released January 13 2020.

5.Design Criteria:

5.1 Pipe Stress Analysis

N/A

5.2 Geotechnical Consideration

Geotechnical Report Provided by [redacted],project number SC1017-04, November 2019 and addendum No.1, 21 April 2020.

5.3 Foundation Design

Foundation Design is based on ACI 351.2R-10, 318-14

5.4 Concrete Specification

f_c=[redacted] F_y=[redacted] γ_{con} =[redacted]

5.5 Soil Specification

qallow =[redacted] μ_{s_slide} =[redacted]

5.6 Wind Criteria

V_{wind} = [redacted]

5.7 Seismic Criteria

I_e =[redacted] Cat = IV

SS =[redacted] SMS =[redacted] SDS =[redacted]
S1 =[redacted] SM1 =[redacted] SD1 =[redacted]

5.8 Coefficient of Friction (Materials other than Soils)

μ_{s_c} =[redacted]

REGISTERED PROFESSIONAL ENGINEER
JOHN F. HANNA
C 71506
EXP 12/31/21
CIVIL
STATE OF CALIFORNIA

6.Compressor Specification:

6.1 Geometry and Dimensions

Height(Ht) = 8'- 7 7/16"
Length = 13'- 5 1/2"
Width = 7'- 4"

6.2 Machine Characteristics

Weight (Wt) = 19,800 lb (Vendor weight + 10% for other components)
Height of C.G = Ht_{CG} = 2'-10" (Vertical COG = 33.07" per [redacted]

[redacted]

7.Loadings:

7.1 Dead Load
7.2 Test Load (TBA by vendor)
7.3 Wind Load
7.4 Seismic Load
7.5 Thermal Load (TBA by vendor)
7.6 Eccentric Load (TBA by vendor)
7.7 Live Load

8.Load Combinations:

8.1 LRFD Load Combinations (Section 2.3.1 Basic Combination and Section 2.3.6 Basic Combination with Seismic Load Effects)

8.1.1 [redacted]
8.1.2 [redacted]
8.1.3 [redacted]
8.1.4 [redacted]
8.1.5 [redacted]
8.1.6 [redacted]
8.1.7 [redacted]

8.2 ASD Load Combinations (Section 2.4.1 Basic Combination and Section 2.4.5 Basic Combination with Seismic Load Effects

8.2.1 [redacted]
8.2.2 [redacted]
8.2.3 [redacted]
8.2.4 [redacted]
8.2.5 [redacted]
8.2.6 [redacted]
8.2.7 [redacted]
8.2.8 [redacted]
8.2.9 [redacted]
8.2.10 [redacted]

DESIGN INPUT: **Use: 10'-0" Wide x 24'-0" Long x 5'-0" Thick Concrete Footing (Based on SSI Report By Geosyntec)**

Compressor & Skid Information:

$L_{com} :=$ [redacted] — Length, in feet of the compressor enclosure.

$W_{com} :=$ [redacted] — Width, in feet, of the compressor enclosure.

$Ht_{com} :=$ [redacted] — Height, in Feet, of compressor from concrete to top of Compressor enclosure.

$Ht_{CG} :=$ [redacted] — Height of center of gravity, in feet, of compressor from top of concrete.

$DL :=$ [redacted] — Assumed weight, in pounds, of the compressor and motor per the vendor drawing.

$LL :=$ [redacted] $\frac{lb}{ft^2}$ — Assumed live load, pounds per square foot.

$dbolt :=$ [redacted] $\cdot in$ — Distance, in inches, between centerline of the anchor bolts in the transverse direction.

DETERMINATION OF WIND DESIGN PRESSURE

CHECK WIND LOADING PER 2019 CBC

Roughness := "C"

Surface roughness type for open terrain with scattered obstructions that have heights generally less than 30 ft. including flat open country, grasslands per ASCE7-16 Section 26.7.2.

Exposure := "C"

Applies for all cases where Exposure B or D does not apply per ASCE 7-16 Section 26.7.3.

$V_w := 105 \cdot mph$

Basic design wind speed, in mph, for Kings County, determined from Figure 26.5-1A for Risk Category "IV" structures.

$K_d := 0.90$

Wind directionality factor for square Chimneys,Tanks, and similar Structures per ASCE 7-16 Table 26.6-1.

$K_z := 0.85$

Velocity pressure exposure coefficient for max 15'-0" height per ASCE 7-16 Table 26.10-1 for Exposure C.

$K_{zt} := 1.0$

Topographic factor for generally flat open country and grasslands per ASCE 7-16 Section 28.6.2.

$G_w := 0.85$

Gust effect factor per ASCE 7-16 section 26.11.1.

$Hf := \left(\frac{Ht_{com}}{W_{com}} \right)$

$Hf = 1.2$

Ratio for height to width of the compressor.

$q_z := \left[0.00256 \cdot \left(\frac{V_w}{mph} \right)^2 \right] \cdot K_z \cdot K_{zt} \cdot K_d \cdot \left(\frac{lb}{ft^2} \right)$

$q_z = 21.59 \cdot \frac{lb}{ft^2}$

Velocity pressure, in psf. ASCE 7-16 Eq.26.10-1

$$\frac{W_{com}}{ft}\cdot\sqrt{\frac{q_z}{\frac{lb}{ft^2}}} = 34.06$$

$$C_f := \min\left[\frac{Hf-1}{7-1}(1.4-1.3)+1.3,\ 1.4\right]$$

$C_f = 1.30$ — Interpolated force coefficient for a square (wind normal to face) per ASCE 7-16 Figure 29.4-1.

$P_{w16} := q_z \cdot G_w \cdot C_f$ — ASCE 7-16 equation 29.4-1 for "other structures".

$P_{w16} = 23.92 \cdot \frac{lb}{ft^2}$ — Horizontal design wind pressure, in psf.

$Pw_{min} := 16.00 \cdot \frac{lb}{ft^2}$ — Minimum design wind loading for other structures, per ASCE 7-16 Section 29.7.

$Pw16 := \text{if}\left(P_{w16} \le Pw_{min}, Pw_{min}, P_{w16}\right)$

$Pw16 = 23.92 \cdot \frac{lb}{ft^2}$ — Horizontal design wind pressure, in psf, per CBC 2019 Edition.

$q_{asd} := 0.6$ — Wind pressure modification factor for Allowable Stress Design, per load combinations referenced in CBC 1605.3.

$Pw := q_{asd} \cdot Pw16$

$Pw = 14.35 \cdot \frac{lb}{ft^2}$ — Required wind design pressure per the 2019 Edition of the CBC.

THE WIND DESIGN PRESSURE PER 2019 CBC (14.35 PSF) WILL BE USED FOR THIS ANALYSIS.

CHECK SKID OVERTURNING FROM WIND LOAD

GOVERNING LOAD COMBINATION (0.6D+0.6W)

$Aw_{com} := L_{com} \cdot Ht_{com}$

$Aw_{com} = 118 \cdot ft^2$ Projected area of compressor, available for exposure to the design wind pressure.

$WL := Pw \cdot Aw_{com}$

$WL = 1691\,lb$ Wind load acting on the compressor in pounds.

$OTMw := Pw \cdot Aw_{com} \cdot \left(\frac{Ht_{com}}{2} \right)$

$OTMw =$ [redacted] Overturning moment acting on the skid when subjected to the design wind load.

$RMw := \frac{q_{asd}}{1.1} DL \cdot \frac{dbolt}{2}$ Based on 0.6DL/1.1, Value divided by1.1 to neglect the effect of the additional 10% in weight.

$RMw =$ [redacted] The dead load moment for the compressor to resist overturning caused by wind forces.

$\frac{RMw}{OTMw} =$ [redacted] Factor of safety against overturning forces due to wind loading.

$Wanch := if(RMw \geq 1.5 \cdot OTMw, \text{"Dead load is sufficient"}, \text{"Anchorage of the compressor is required"})$

[redacted]

DETERMINATION OF SEISMIC FACTOR

$E := 0.7$ — Load combination factor when considering seismic loads plus dead loads from Eq. 16-16, per CBC Sec. 1605.3, when using Allowable Stress Design.

$RiskCat := "IV"$ — Buildings and other structures designated as essential facilities ASCE 7-16 Table 1.5-1.

$I_E := 1.50$ — Seismic importance factor per ASCE 7-16 Table 1.5-2.

$R_E := 1.25$ — Response modification coefficient for all other self supporting structures per ASCE 7-16 Table 15.4-2.

[redacted]

$T_L := 12.0 \cdot sec$ — Long-period transition period, in seconds, per ASCE 7-16 Figure 22-14.

$S_s := 0.729$ — Mapped MCE spectral response acceleration at short periods for Site Class D, as a factor of g, per soils information.

$S_1 := 0.266$ — Mapped MCE spectral response acceleration at 1.0-second period for Site Class D, as a factor of g, per soils information.

$F_a := 1.217$ — Site coefficient F_a per soils information, for Site Class D and mapped spectral response acceleration at short periods, S_s.

$S_{MS} := F_a \cdot S_s$

$S_{MS} = 0.887$ — Soil-modified MCE spectral response acceleration at short periods per ASCE 7-16 Eq.11.4-1.

$S_{DS} := \frac{2}{3} \cdot S_{MS}$ — Design spectral response acceleration at short periods per ASCE 7-16 Eq.11.4-3.

$S_{DS} = 0.591$

The total design, seismic coefficient shall be determined from the following:

For rigid structures, **shall be** the following:

$Cs1 := 0.3 S_{DS} \cdot I_E$ — Seismic coefficient as determined by ASCE 7-16 Eq. 15.4-5.

$Cs1 = 0.266$

The coefficient shall **not be less** than the following:

$Cs_2 := 0.044 \cdot S_{DS} \cdot I_E$ — Minimum value for the seismic coefficient, per ASCE 7-16 Eq. 15.4-1.

$Cs_2 = 0.039$

$Cs2 := \text{if}\left(Cs_2 \le 0.030, 0.030, Cs_2\right)$

$Cs2 = 0.039$

Also, for non building structures located where $S_1 \geq 0.6$, the coefficient **shall not be less** than the following:

$Cs3 := \dfrac{0.8 \cdot S_1 \cdot I_E}{R_E}$ — Minimum value for the seismic coefficient per ASCE 7-16 Eq. 15.4-2.

$Cs3 = 0.255$

$Cs_{min} := \text{if}\left(S_1 \ge 0.6, Cs3, Cs2\right)$

$Cs_{min} = 0.039$ — Minimum value for the seismic coefficient

Therefore, the governing seismic design coefficient for this project is:

$Cs16_H := E \cdot \max\left(Cs1, Cs_{min}\right)$

$Cs16_H =$ [redacted] — Seismic design coefficient which is to be multiplied by the dead load to determine the **horizontal seismic load** to be used in the design.

$Cs16_V := E \cdot 0.20 \cdot S_{DS}$ — Vertical Seismic load per ASCE 7-16 Eq.12.14-6.

$Cs16_V =$ [redacted] — Seismic design coefficient which is to be multiplied by the dead load to determine the **vertical seismic load** to be used in the design.

THE SEISMIC FACTOR OF [redacted] WILL BE USED FOR THIS ANALYSIS.

CHECK SKID OVERTURNING FROM SEISMIC FORCE

GOVERNING LOAD COMBINATION (0.6D - 0.7Ev +0.7 Eh)

$V_s := Cs16_H \cdot DL$

$V_s =$ [redacted]

Horizontal seismic force from weight of entire skid, plus contents, in pounds.

$OTMs := V_s \cdot Ht_{CG}$

$OTMs =$ [redacted]

Overturning moment about the base of the skid from the horizontal applied seismic load, acting at the center of mass of the compressor.

$q_{sasd} := 0.6 - Cs16_V$

$q_{sasd} = 0.517$

Dead load modification factor for Allowable Stress Design, per load combination Eq. 8, referenced in ASCE 7-16 Section 12.14.3.

$RMs := q_{sasd} \cdot DL \cdot \frac{dbolt}{2}$

$RMs =$ [redacted]

Dead load, resisting moment due to the weight.

$FS_s := \frac{RMs}{OTMs}$

$FS_s =$ [redacted]

Safety factor against overturning for forces due to seismic loading.

$S_{anch} := if\left(FS_s \geq 1.10, \text{"Anchorage of compressor not reqd for Seismic"}, \text{"Anchorage of the compressor is required"}\right)$

[redacted]

COMPARISON OF WIND LOAD AND SEISMIC LOAD

Check Wind Load on the equipment/structure and compare to the Seismic Load so as to determine which condition controls the lateral design.

$WL =$ [redacted]

Applied wind load, in pounds.

$V_s =$ [redacted]

Maximum horizontal design seismic load, in pounds.

$Vdes := if\left(WL > V_s, WL, V_s\right)$

$Vdes =$ [redacted]

Governing horizontal design load, in pounds.

$Gov := if\left(WL < V_s, \text{"SEISMIC loads control lateral design"}, \text{"WIND loads control lateral design"}\right)$

[redacted]

DESIGN ANCHOR BOLTS

Try : (8) 1" dia. Hex Head ASTM F 1554 GR 36

GOVERNING LOAD COMBINATION

(0.9D+W)

(0.9D-Ev+Emh)

Note: Anchor Bolts has been designed for fatigue analysis and provided by [redacted]

$b_{dia} := 1.0 \cdot in$ Anchor bolt diameter per [redacted]

$\Omega_o := 2.0$ Overstrength coefficient for anchorage design.

$N_{bolts} := 8$ Number of bolts used to anchor the compressor.

OVERTURNING MOMENTS

$$OTM_x := \max\left[\frac{OTMw - 0.9RMw}{q_{asd}}, \frac{\Omega_o \cdot OTMs}{E} - \left(0.9 - \frac{Cs16_V}{E}\right) \cdot DL \cdot \frac{dbolt}{2}, 0\right]$$

$OTM_x = 0\ lb \cdot in$ Overturning moment at equipment base. This is worst case of wind and seismic loading.

$OTM_y := 0.3 \cdot OTM_x$

$OTM_y = 0\ lb \cdot in$ Overturning and stability check per ASCE 7-16 Section 15.1.4.1.2.

SHEAR FORCES

$$V_y := \max\left(WL, \frac{\Omega_o \cdot Vdes}{E}\right)$$

$V_y = 10540\ lb$ Total horizontal base shear, in pounds. This is the worst case of wind and seismic loading.

$V_x := 0.3 \cdot V_y$

$V_x = 3162\ lb$ Overturning and stability check per ASCE 7-16 Section 15.1.4.1.2.

CHECK COMBINED STRESSES

IntFor := 0.19

Refer to [redacted] Analysis for combined ratios of shear and tensile stresses which shall not exceed 1.0.

Intchk := if(IntFor ≤ 1.00 , "Anchor Bolts are adequate" , "Increase bolt size")

[redacted]

USE: (8) 1" HEAD HEX ASTM F 1554 GR 36 ANCHORS WITH 24" EMBEDMENT

FOUNDATION DESIGN - PAD FOUNDATION **USE: A10'-0" Wide x 24'-0" Long x 5'-0" Thick Foundation**

Mat Foundation

$Lmat := 24.0 \cdot ft$ Dimensions of square foundation, in feet.

$Wmat := 10.0 \cdot ft$ Dimensions of square foundation, in feet.

$Dmat := 5.0 \cdot ft$ Depth of foundation, in feet.

$qallow := 4000 \cdot \frac{lb}{ft^2}$ Allowable soil bearing pressure, in psf, for gravity loads only, including increases beyond minimum foundation dimensions per soils report section 6.4.1.

$Amat := Lmat \cdot Wmat$

$Amat = 240.0 \cdot ft^2$ Area, in square feet, of the foundation.

$Mat := \left(150 \cdot \frac{lb}{ft^3}\right) \cdot Amat \cdot Dmat$

$Mat = 180000\,lb$ Dead load, in pounds, for the foundation.

Check Soil Bearing Pressure with Gravity Loads Only

$Pt := DL + Mat + LL \cdot Lmat \cdot Wmat$

$Pt = 235800\,lb$ Total dead load, in pounds, acting on the underlying soil.

$qDL := \frac{Pt}{Amat}$

$qDL = 983 \cdot \frac{lb}{ft^2}$ Design soil bearing pressure, in psf, resulting from total dead load acting on the mat foundation. This does not consider any overturning.

$Qchk := if(qDL \le qallow, \text{"Continue"}, \text{" Increase the size of the footing for gravity loads"})$

[redacted]

Check Soil Bearing Pressure with Overturning Considered

GOVERNING LOAD COMBINATION

(0.6D+0.6W)

(0.6D-0.7Ev+0.7Eh)

$qdes := \frac{4}{3} \cdot qallow$ Allowable soil bearing pressure, in psf, for short-term loads.

$qdes = 5333 \cdot \frac{lb}{ft^2}$

$OTM_{fdn} := \max(OTMs, OTMw)$

$OTM_{fdn} = 10440\ lb \cdot ft$ Overturning moment at base of skid

$Vdes = 3689\ lb$ Total horizontal shear force due to seismic loading, in pounds.

$M_{fdn} := OTM_{fdn} + Vdes \cdot Dmat$

$M_{fdn} = 28884\ lb \cdot ft$ Overturning moment about the bottom of mat foundation due to the applied moment and the horizontal shear load.

$RM := Pt \cdot \frac{Wmat}{2}$

$RM = 1179000\ lb \cdot ft$ Resisting moment due to the dead loads.

$FS := \frac{q_{sasd}\, RM}{M_{fdn}}$

$FS = 21.11$ Factor of safety for dead load of structure resisting overturning due to seismic loads.

$FSLchk := \text{if}(FS \geq 1.50, \text{"Continue with the design"}, \text{"Increase the size of the footing"})$

[redacted]

$x := \frac{q_{sasd}\, RM - M_{fdn}}{Pt}$

$x = 2.46\ ft$ Location, in feet, of the resultant at the base of the foundation resulting from the overturning forces and the downward (vertical) loading.

$$ec := \frac{Wmat}{2} - x$$

$ec = 2.54\,ft$

Eccentric distance, in feet, to the location of the resultant, as measured from the center of the foundation width.

$$ec_{max} := \left(\frac{Wmat}{3} - \frac{Pt}{7.5 \cdot qallow \cdot Lmat}\right)$$

$ec_{max} = 3.01\,ft$

Maximum eccentricity, in feet, permitted to ensure against instability of the footing (edge yielding).

$ec_{chk} := if(ec \le ec_{max}, "Continue", "Increase the width of the footing")$

[redacted]

The amount of eccentricity is such that it will not create edge yielding of the footing.

$$kern := \frac{Wmat}{6}$$

$kern = 1.67\,ft$

Maximum amount of eccentricity, in feet, at the footing base for the resultant to still occur within the "kern".

$$Qtrap := \left(\frac{Pt}{Lmat \cdot Wmat}\right) \cdot \left(1 + \frac{6 \cdot ec}{Wmat}\right)$$

Maximum soil pressure, in psf, when the design soil bearing pressure is a trapezoidal distribution.

$Qtrap = 2478 \cdot \frac{lb}{ft^2}$

$$Qtri := \frac{2 \cdot Pt}{3 \cdot x \cdot Lmat}$$

Maximum soil pressure, in psf, when the design soil bearing pressure is a triangular distribution.

$Qtri = 2659 \cdot \frac{lb}{ft^2}$

$Kchk := if(ec \le kern, "Soil pressure is trapezoidal", "Soil pressure is triangular")$

[redacted]

The resulting soil pressure distribution is trapezoidal.

$Qmax := if(ec \le kern, Qtrap, Qtri)$

$Qmax = 2659 \cdot \frac{lb}{ft^2}$

Maximum design soil bearing pressure, in psf.

$$Qlat := qallow \cdot \frac{4}{3}$$

$Qlat = 5333 \cdot \frac{lb}{ft^2}$

Allowable soil bearing pressure when considering lateral (wind or seismic) loads. This value includes a 1/3 increase for short term loading.

$Qchk_l := if(Qmax \le Qlat, \text{"Foundation size is adequate"}, \text{"Increase foundation size"})$

[redacted]

Since the actual design soil bearing pressure is less than the allowable, the foundation size selected is adequate.

CHECK SLIDING

$Co := 130 \frac{lb}{ft^2}$ Soil Cohesion per Table 1806.2, CBC 2019

$P_{SL} := \min(Co \cdot Amat, Pt \cdot 0.3)$

$P_{SL} = 31200\ lb$

$FS_{SL} := \frac{P_{SL}}{Vdes}$ A minimum value of 1.5 is required for the sliding FS.

$FS_{SL} = 8.46$

$FSchk := if(FS_{SL} > 1.5, \text{"OK"}, \text{"change the dimension of foundation"})$

[redacted]

CHECK FOUNDATION MASS

$Mat = 180000\ lb$ Mass of foundation, in pounds

$DL = 19800\ lb$ Mass of compressor in pounds

$Mchk := if(Mat \ge 5 \cdot DL, \text{" Foundation size is adequate"}, \text{"Increase foundation size"})$

[redacted]

USE: 10'- 0" WIDE x 24'- 0" LONG x 5'-0" THICK, MAT FOUNDATION

DESIGN CONCRETE REINFORCEMENT

TRY: #7 Bars @ 10" o. c.

$Db := \frac{7}{8} \cdot in$

Diameter, in inches, for the typical reinforcement bar.

$lcant := \frac{(Wmat - dbolt)}{2}$

$lcant = 17.55 \cdot in$

Maximum length of cantilever at the footing form the edge of footing to the centerline of the anchor bolt.

$Qmax = 2659 \cdot \frac{lb}{ft^2}$

Maximum design soil bearing pressure at the base of the foundation.

$Mcant := Qmax \cdot \frac{lcant^2}{2}$

$Mcant = 2844 \cdot \frac{lb \cdot ft}{ft}$

Cantilever moment per foot of length of foundation.

$Vcant := Qmax \cdot lcant$

$Vcant = 3889 \cdot \frac{lb}{ft}$

Shear force per foot on foundation

$\phi := 0.9$

Strength reduction factor for bending per the ACI Code, Section 9.3. This factor takes into consideration the degree of ductility and the importance of the member as well as the degree of accuracy with which the strength of the member can be established.

$f_c := 4000 \cdot \frac{lb}{in^2}$

Concrete strength used for design.

$F_y := 60000 \cdot \frac{lb}{in^2}$

Specified yield strength, in psi, for the reinforcement.

$Mus := 1.6 \cdot Mcant$

Basic design moment with the load factor for live load/ earth pressure applied.

$Mus = 4550 \cdot \frac{lb \cdot ft}{ft}$

Factored Moment to be used in the analysis for (Ultimate) Strength Design (Load and Resistance Factor Design).

$$Abar := \frac{\pi}{4} \cdot Db^2$$

$Abar = 0.60 \cdot in^2$ Area, in sq. in., of a typical (1) reinforcing bar.

$spsp := 10.0 \cdot in$ On-center spacing of the reinforcing bars at the concrete footing.

$$Asprovpf := \frac{Abar \cdot 12 \cdot \frac{in}{ft}}{spsp}$$

$Asprovpf = 0.72 \cdot \frac{in^2}{ft}$ Equivalent area of reinforcement provided, on a per foot basis.

$dped := Dmat - 3.0 \cdot in - 0.5 \cdot Db$

$dped = 57 \cdot in$ Distance, in inches, from the outside face of the concrete mat to the centerline of the tensile reinforcement.

$b := 12.0 \cdot in$ This value is 12 inches since the foundation is being designed on a per foot basis.

CHECK ONE-WAY SHEAR

$dped = 56.6 \cdot in$ Distance, in inches, from the outside face of the footing to the centerline of the tensile reinforcement.

$$V_{c1} := 2 \frac{lb}{in^2} \cdot \sqrt{\frac{f_c}{\frac{lb}{in^2}}} \cdot dped$$

$V_{c1} = 85856 \cdot \frac{lb}{ft}$ Nominal shear, in pounds per foot strip.

$\phi_c := 0.75$

$\phi_c \cdot V_{c1} = 64392 \cdot \frac{lb}{ft}$ Design shear strength, in pounds per foot strip.

$V_{us1} := 1.6 \cdot Vcant = 6222 \cdot \frac{lb}{ft}$ Ultimate design shear strength, in pounds per foot strip.

$VChk1 := if\left(\phi_c \cdot V_{c1} \geq V_{us1}, \text{"Depth of foundation is adequate"}, \text{"Increase depth of foundation"}\right)$

[redacted]

CHECK PUNCHING SHEAR

$b_o := 2 \cdot dped$

$b_o = 113.125 \cdot in$ Perimeter of punching shear, in inches.

$$V_{c2} := 4 \frac{lb}{in^2} \cdot \sqrt{\frac{f_c}{\frac{lb}{in^2}}} \cdot b_o \cdot \frac{dped}{ft}$$

$V_{c2} = 1618740 \cdot \frac{lb}{ft}$ Nominal shear, in pounds per foot strip.

$\phi_c \cdot V_{c2} = 1214055 \cdot \frac{lb}{ft}$ Design shear strength, in pounds per foot strip.

$VChk := if\left(\phi_c \cdot V_{c2} \geq V_{us1}, \text{"Depth of foundation is adequate"}, \text{"Increase depth of foundation"}\right)$

[redacted]

CHECK MOMENT CAPACITY

$$\rho_s := \frac{Asprovpf \cdot 2}{b \cdot Dmat}$$

Two reinforcement layers top & bottom are used for calculating As min.

$\rho_s = 0.002 \cdot \frac{1}{ft}$ "Rho" is the value assigned to the steel ratio; or the ratio of the area of reinforcement provided to the width of the section (12" here) and effective depth to the centerline of the reinforcing steel.

$$\beta_1 := if\left[f_c < 4000 \cdot \frac{lb}{in^2}, 0.85, 0.85 - 0.05 \cdot \left(\frac{f_c - 4000 \cdot \frac{lb}{in^2}}{1000}\right) \cdot \left(\frac{in^2}{lb}\right)\right]$$

$\beta_1 = 0.85$ A constant that is a function of the strength of the concrete; the value of "β_1" is taken as 0.85 for concrete strength equal to or less than 4000 psi.

$\rho_{min} := 0.0018 \frac{1}{ft}$

Minimum temperature reinforcement for flexural members, as established by the ACI Code, for structural slabs and foundations.

$\rho Chk1 := if(\rho_s \geq \rho_{min}, "Continue" , "Adjust the amount of reinforcement provided")$

[redacted]

Since the steel ratio provided is more than the minimum code allowable, continue with the analysis.

$a_s := \left(\frac{Asprovpf \cdot F_y}{0.85 \cdot f_c \cdot b} \right) \cdot 1 \cdot ft$

$a_s = 1.06 \cdot in$

Depth of the equivalent stress block distribution that will ensure there is horizontal equilibrium between the resultant design tensile and compressive internal forces.

$Zs := dped - \frac{a_s}{2}$

$Zs = 56.03 \cdot in$

Distance between the tensile and compressive resultant forces, or the lever arm of the internal couple of the stress block for strength design and analysis.

$\Phi M_{nf} := \phi \cdot Asprovpf \cdot F_y \cdot Zs$

$\Phi M_{nf} =$ [redacted]

Nominal, allowable, strength moment for the rectangular, reinforced concrete section reinforced for tension due to bending only.

Mus = [redacted]

Factored Moment to be used in the analysis for Ultimate Strength Design.

$MChk := if(\Phi M_{nf} \geq Mus, "Reinforcement design is adequate" , "Increase reinforcement at foundation")$

[redacted]

USE: 5'- 0" Thick Foundation with #7 Reinforcing Bars @ 10" o. c. at Top, Bottom of the Footing, and two layers of #5 @ 12" o.c. spaced equally in the middle

[redacted]

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	DS-460090-04000-62-Gas Compressor C-1200 & C-	Date:	8/8/2020
Fastening point:			

Specifier's comments:

1 Input data

[redacted]



Anchor type and diameter:	
Item number:	
Effective embedment depth:	
Material:	
Proof:	
Stand-off installation:	
Anchor plate[R] :	l_x x l_y x t = 161.500 in. x 90.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 4000, f_c' = 4,000 psi; h = 60.000 in.
Reinforcement:	tension: condition B, shear: condition B; edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.2.3.4.3 (d)) Shear load: yes (17.2.3.5.3 (c))

[R] - The anchor calculation is based on a rigid anchor plate assumption.

[redacted]

[redacted]

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 0; V_x = -3,162; V_y = -10,540; M_x = 0; M_y = 0; M_z = 0;	yes	19

2 Load case/Resulting anchor forces

[redacted]

max. concrete compressive strain: - [‰]
max. concrete compressive stress: - [psi]
resulting tension force in (x/y)=(0.000/0.000): 0 [lb]
resulting compression force in (x/y)=(0.000/0.000): 0 [lb]

Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

[redacted]

Input data and results must be checked for conformity with the existing conditions and for plausibility!
[redacted] (c) 2003-2020 [redacted]

[redacted]

4 Shear load

	Load V_{ua} [lb]	Capacity ϕV_n [lb]	Utilization $\beta_V = V_{ua}/\phi V_n$	Status
[redacted]				

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

[redacted]

4.2 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-14 Eq. (17.5.3.1b)

$\phi V_{cpg} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-14 Eq. (17.4.2.1c)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.7b)

$N_b = 16 \lambda_a \sqrt{f'_c} h_{ef}^{5/3}$ ACI 318-14 Eq. (17.4.2.2b)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	24.000	0.000	0.000	17.563

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	-	16	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
23,139.12	5,184.00	1.000	1.000	0.846	1.000	202,070

Results

V_{cpg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cpg} [lb]	V_{ua} [lb]
1,526,743	0.700	1.000	1.000	1,068,720	11,004

Input data and results must be checked for conformity with the existing conditions and for plausibility!
[redacted] (c) 2003-2020 [redacted]

4.3 Concrete edge failure in direction y-

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V} \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ ACI 318-14 Eq. (17.5.2.1b)

$\phi V_{cbg} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Vc} see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ ACI 318-14 Eq. (17.5.2.1c)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{2e'_v}{3c_{a1}}}\right) \leq 1.0$ ACI 318-14 Eq. (17.5.2.5)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ ACI 318-14 Eq. (17.5.2.6b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ ACI 318-14 Eq. (17.5.2.8)

$V_b = 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$ ACI 318-14 Eq. (17.5.2.2b)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
17.563	48.000	0.000	1.000	60.000

l_e [in.]	λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
8.000	1.000	1.000	4,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
2,775.97	1,387.99	1.000	1.000	1.000	41,894

Results

V_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cbg} [lb]	V_{ua} [lb]
83,788	0.700	1.000	1.000	58,652	11,004

5 Warnings

- The anchor design methods in [redacted] require rigid anchor plates per current regulations (AS 5216:2018, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. [redacted] calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by [redacted]. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).
- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.

Fastening meets the design criteria!

6 Installation data

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 1

Profile: no profile

Item number: not available

Hole diameter in the fixture: d_f = 1.063 in.

Installation torque: -

Plate thickness (input): 0.500 in.

Hole diameter in the base material: - in.

Recommended plate thickness: not calculated

Hole depth in the base material: 24.000 in.

Minimum thickness of the base material: 25.172 in.

Hilti Hex Head headed stud anchor with 24 in embedment, 1, Steel galvanized, installation per instruction for use

[redacted]

Coordinates Anchor [in.]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
[redacted]						

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
5	[redacted]					
6						
7						
8						

Input data and results must be checked for conformity with the existing conditions and for plausibility!
[redacted] c) 2003-2020 [redacted]

7 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of [redacted] products and are based on the principles, formulas and security regulations in accordance with [redacted] s technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant [redacted] product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by [redacted] on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the [redacted] Website. [redacted] will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

NOTES:

1. DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-2009.
2. ALL HINGED DOORS SWING OUT 36" FROM THE ENCLOSURE.
3. ALLOW 48" ON THE MOTOR SIDE TO ALLOW FOR COOLER REMOVAL SEE SHEET 2.
4. ELECTRICAL CONNECTIONS: SIDE CONDUIT PENETRATIONS.
5. DRAIN VALVES EXTEND APPROXIMATELY 6 INCHES OUT FROM THE ENCLOSURE.

COMPRESSOR DATA

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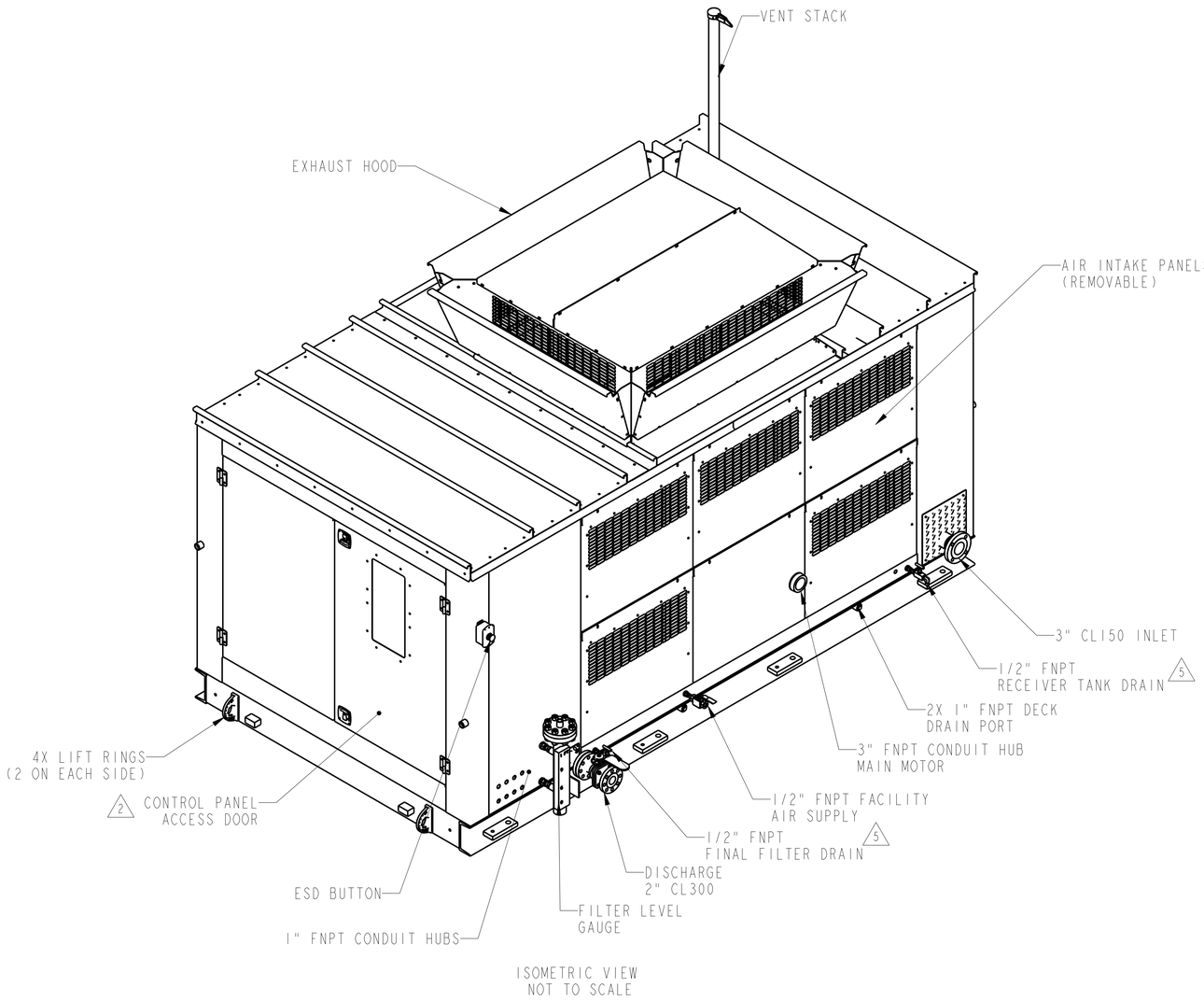
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CLEARANCE: ALLOW 36" MINIMUM ON ALL SIDES FOR ACCESS UNLESS OTHERWISE INDICATED.

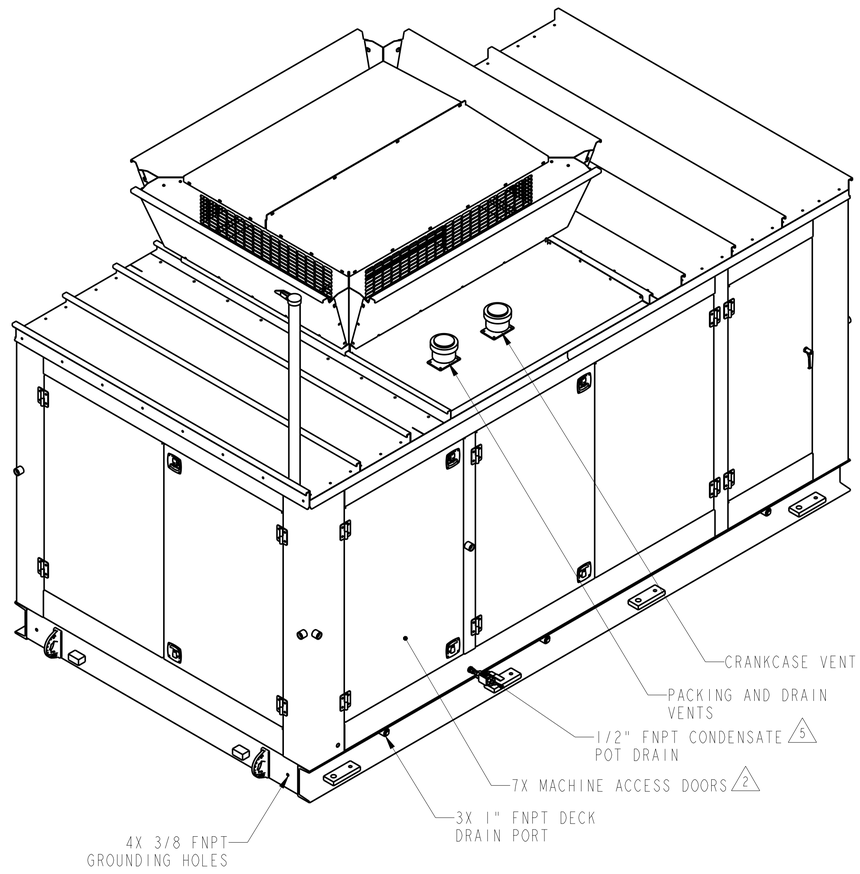
MOUNTING: REQUIRES EIGHT (8) 1" DIAMETER ANCHOR BOLTS (NOT PROVIDED BY ANGI).

LIFTING: MINIMUM 15'-6" SPREADER BAR IS REQUIRED. UTILIZE FOUR (4) LIFT RINGS.

SHIPPING: VENT STACK IS REMOVED FOR SHIPPING.



ISOMETRIC VIEW
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE

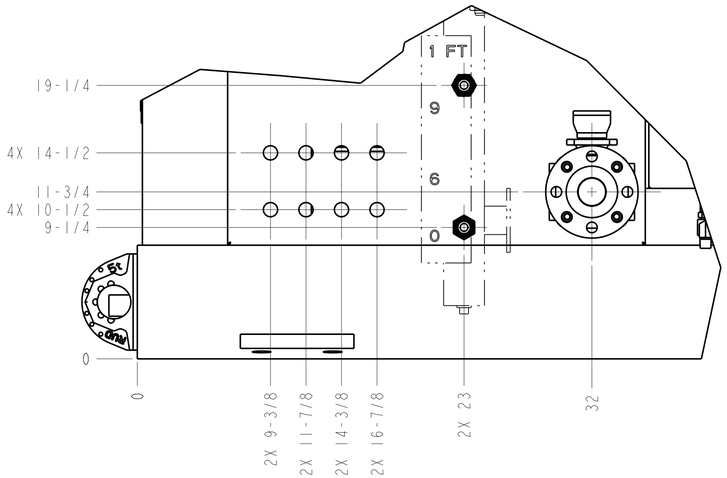
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C	11/20/2019	TSM	COG LOCATION ADDED; ACN1013735
B	11/06/2019	JFO	UPDATED PER REDLINE
E	01/13/2020	ADM	UPDATES PER 90% SUBMITTAL REVIEW; ACN1014255

[redacted]

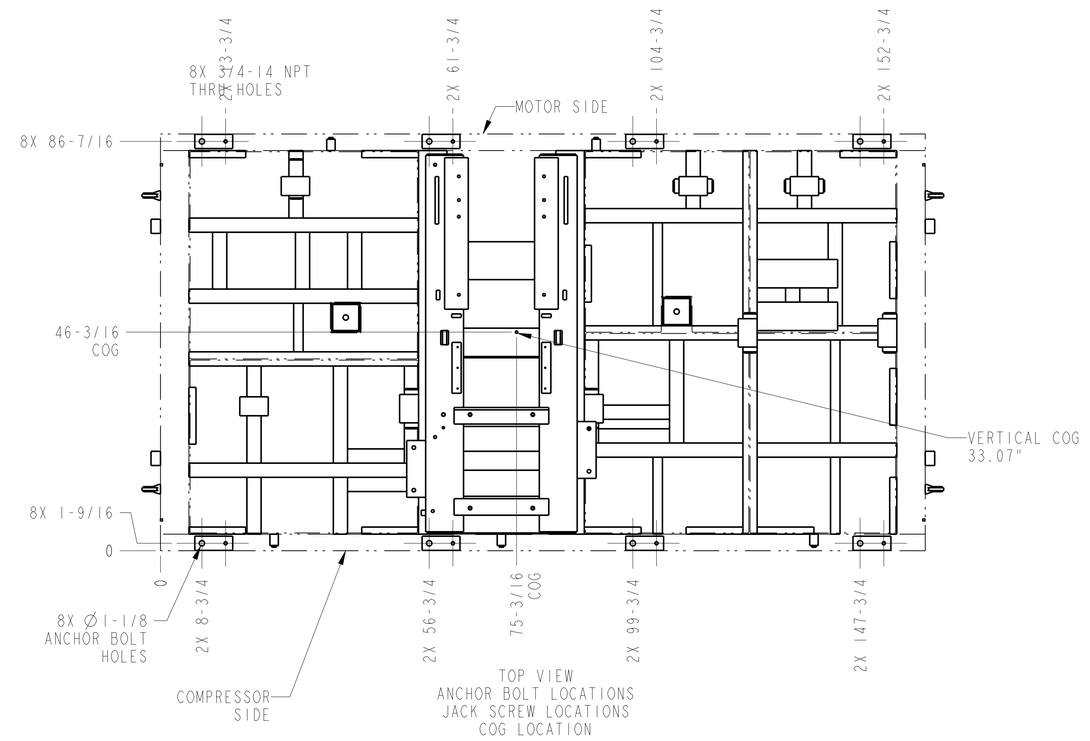
UNLESS OTHERWISE SPECIFIED
BREAK SHARP EDGES .005 - .015
ALL DIMENSIONS IN INCHES
FRACTIONAL ± 1/8
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .005
ANGLES ± 1°

TITLE: GENERAL LAYOUT-NG300E SIMPLEX-BIOGAS UNIT #1			
CUSTOMER: SOUTHERN CALIFORNIA GAS		PROJECT NO: 50754-01	
SHEET: 1 of 2	SCALE: 0.063	DRAWING NO: A05-10-50754-01	REV: E
DRAWN BY: TJN	DATE: 08/02/2019		

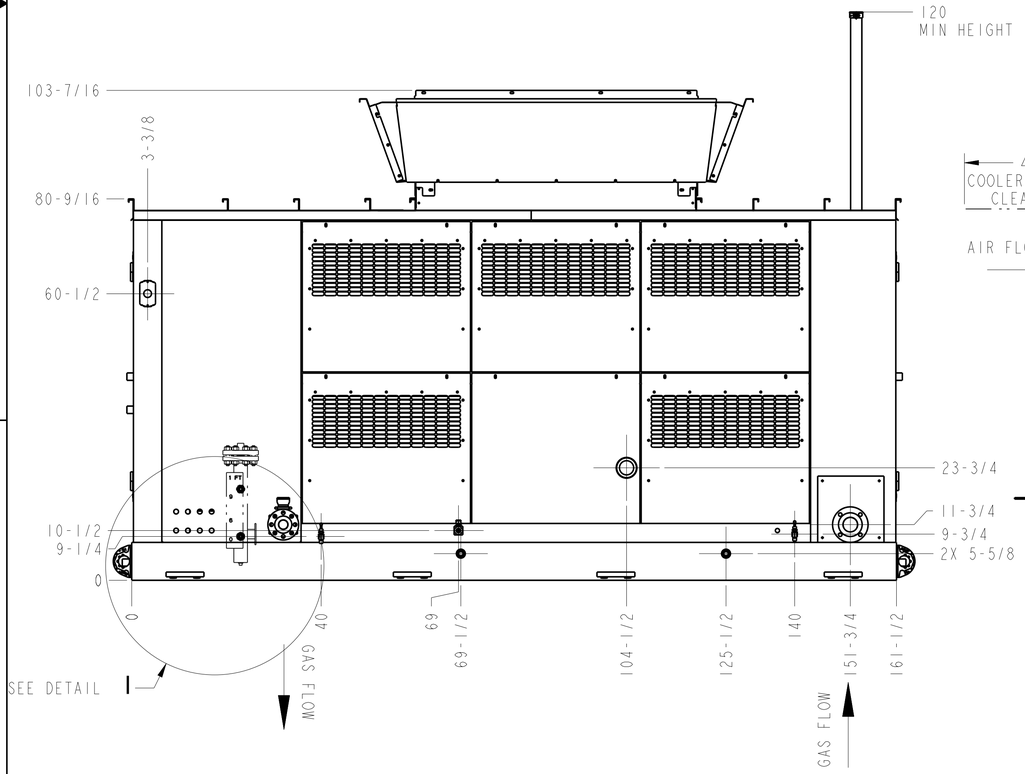
RELEASED 13-Jan-20

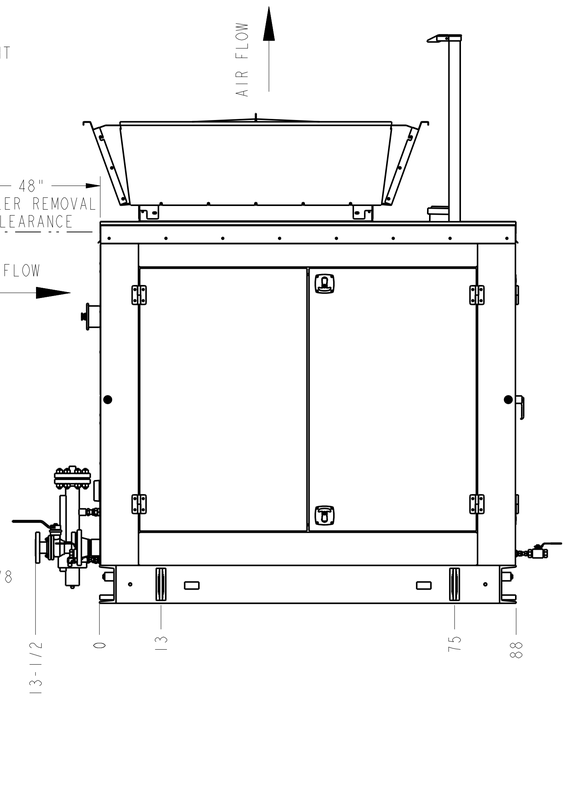


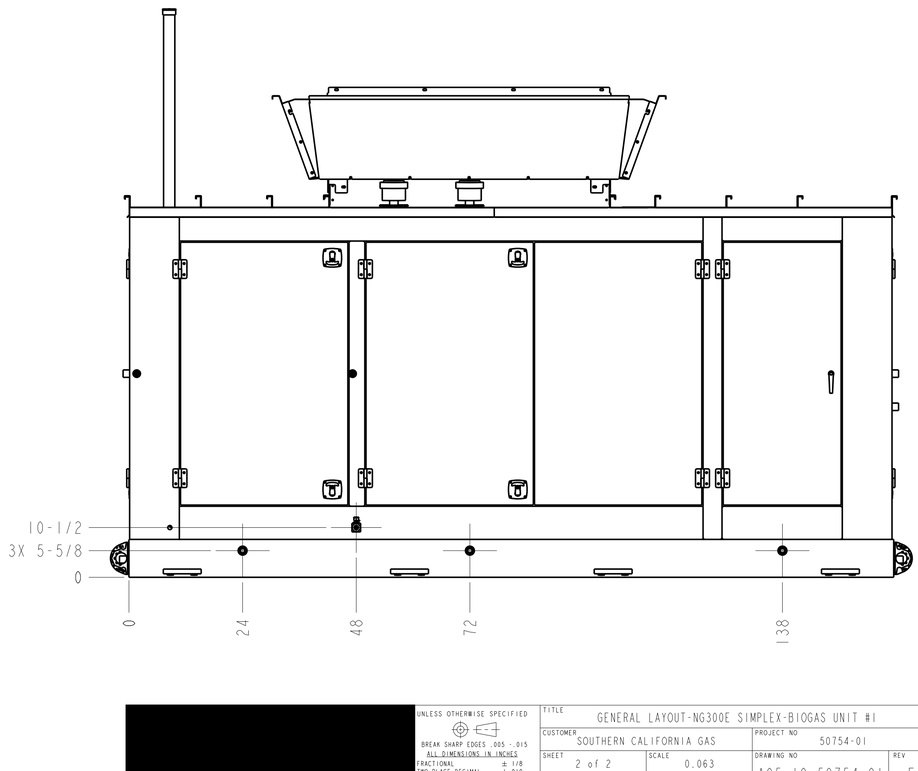
DETAIL I
SCALE 0.188



TOP VIEW
ANCHOR BOLT LOCATIONS
JACK SCREW LOCATIONS
COG LOCATION







[redacted]

UNLESS OTHERWISE SPECIFIED
BREAK SHARP EDGES .005 - .015
ALL DIMENSIONS IN INCHES
FRACTIONAL ± 1/8
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .005
ANGLES ± 1°

TITLE: GENERAL LAYOUT-NG300E SIMPLEX-BIOGAS UNIT #1			
CUSTOMER: SOUTHERN CALIFORNIA GAS		PROJECT NO: 50754-01	
SHEET: 2 of 2	SCALE: 0.063	DRAWING NO: A05-10-50754-01	REV: E
DRAWN BY: TJN	DATE: 08/02/2019		

RELEASED 13-Jan-20

NOTES:

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COMPRESSOR DATA

WEIGHT: 18,000 LBS.

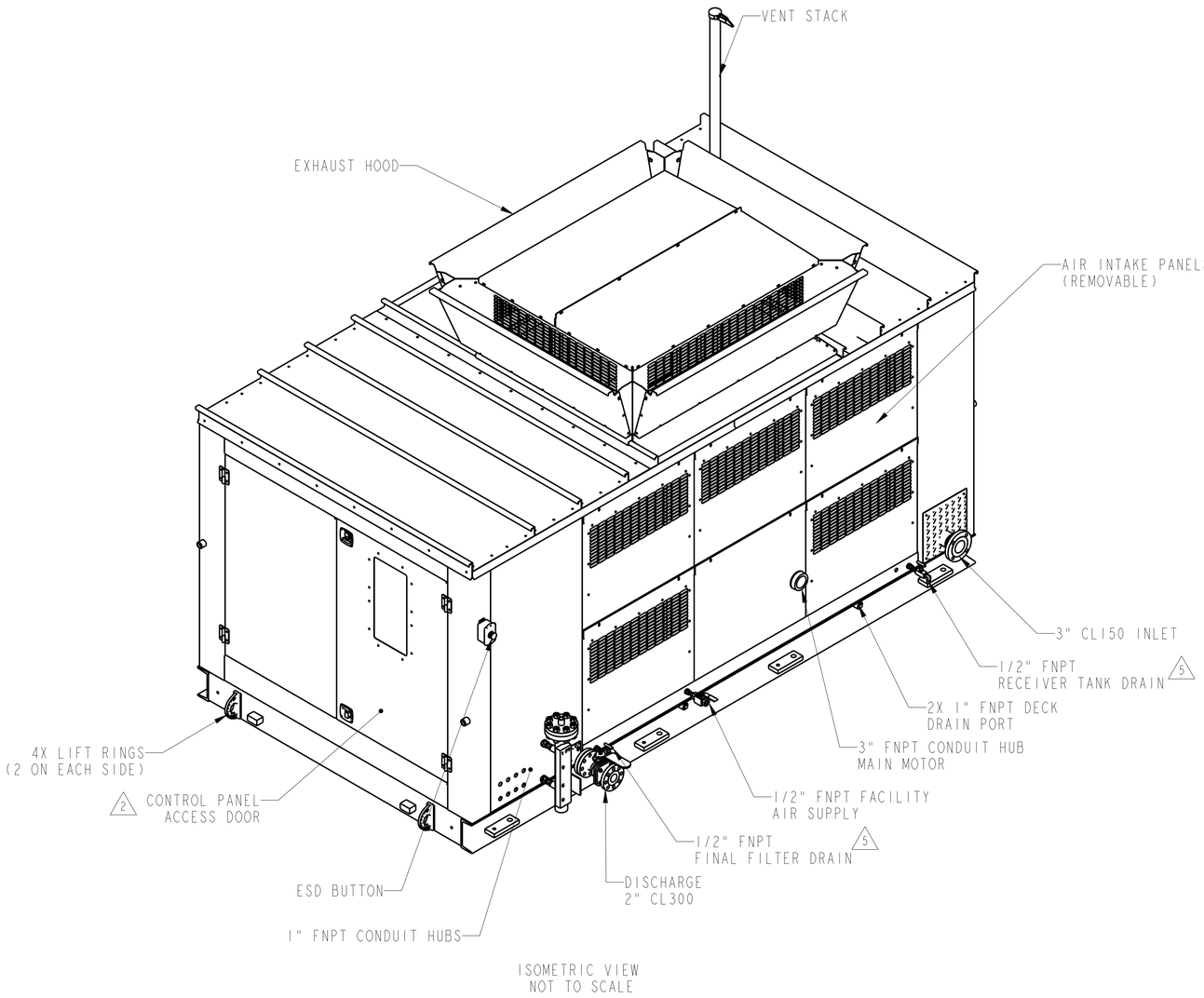
TYPE: ARIEL RECIPROCATING COMPRESSOR, CYLINDERS MAY VARY FROM THOSE SHOWN.

CLEARANCE: ALLOW 36" MINIMUM ON ALL SIDES FOR ACCESS UNLESS OTHERWISE INDICATED.

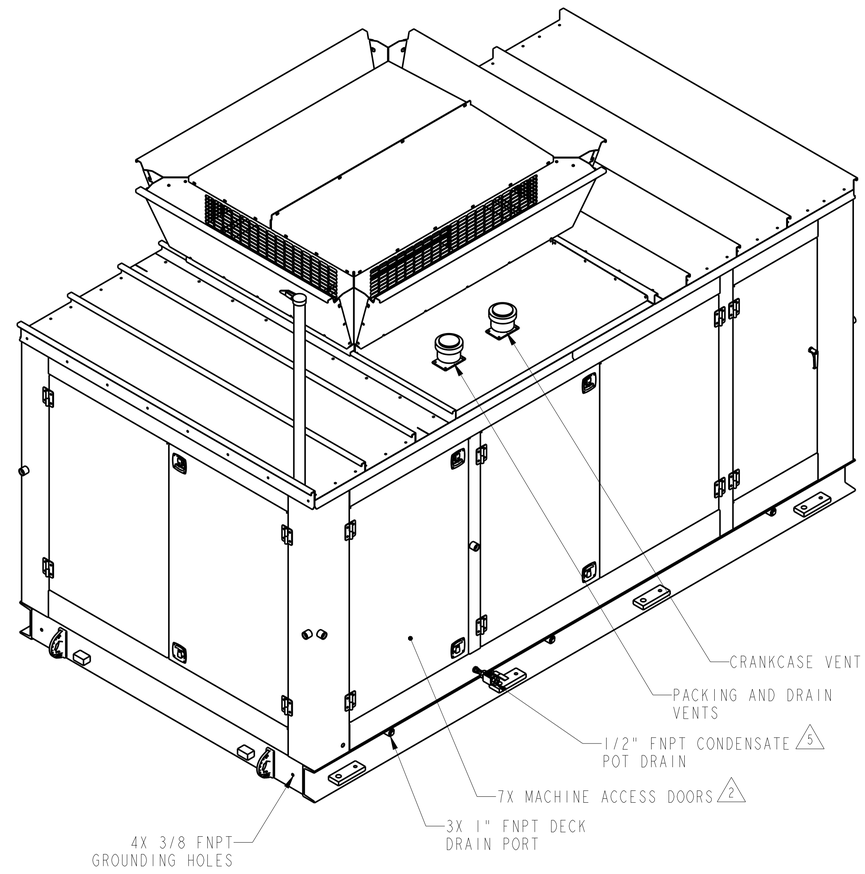
MOUNTING: REQUIRES EIGHT (8) 1" DIAMETER ANCHOR BOLTS (NOT PROVIDED BY ANGI).

LIFTING: MINIMUM 15'-6" SPREADER BAR IS REQUIRED. UTILIZE FOUR (4) LIFT RINGS.

SHIPPING: VENT STACK IS REMOVED FOR SHIPPING.



ISOMETRIC VIEW
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE

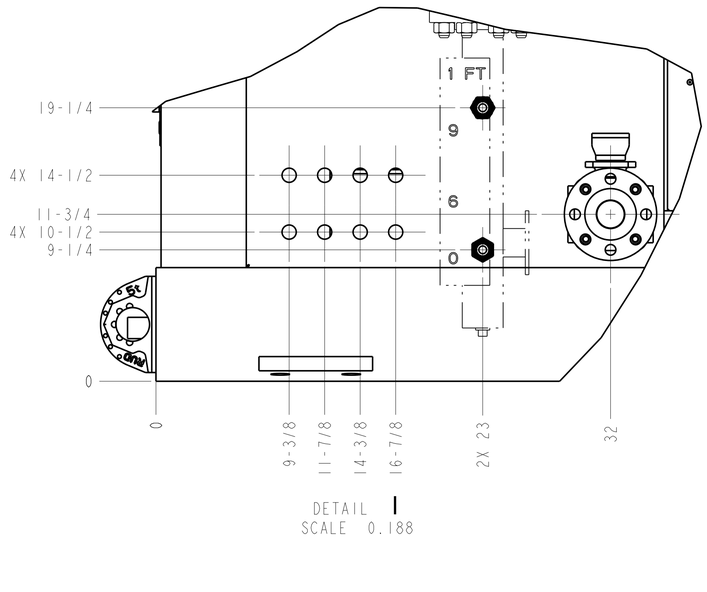
REV	DATE	APPROVED	DESCRIPTION
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C	11/25/2019	JFO	UPDATED VISUALS AND LOCATIONS; ACN1013779
B	11/20/2019	TSM	COG LOCATION ADDED; ACN1013735
A	11/12/2019	ADM	NEW RELEASE;

UNLESS OTHERWISE SPECIFIED
BREAK SHARP EDGES .005 - .015
ALL DIMENSIONS IN INCHES
FRACTIONAL ± 1/8
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .005
ANGLES ± 1°

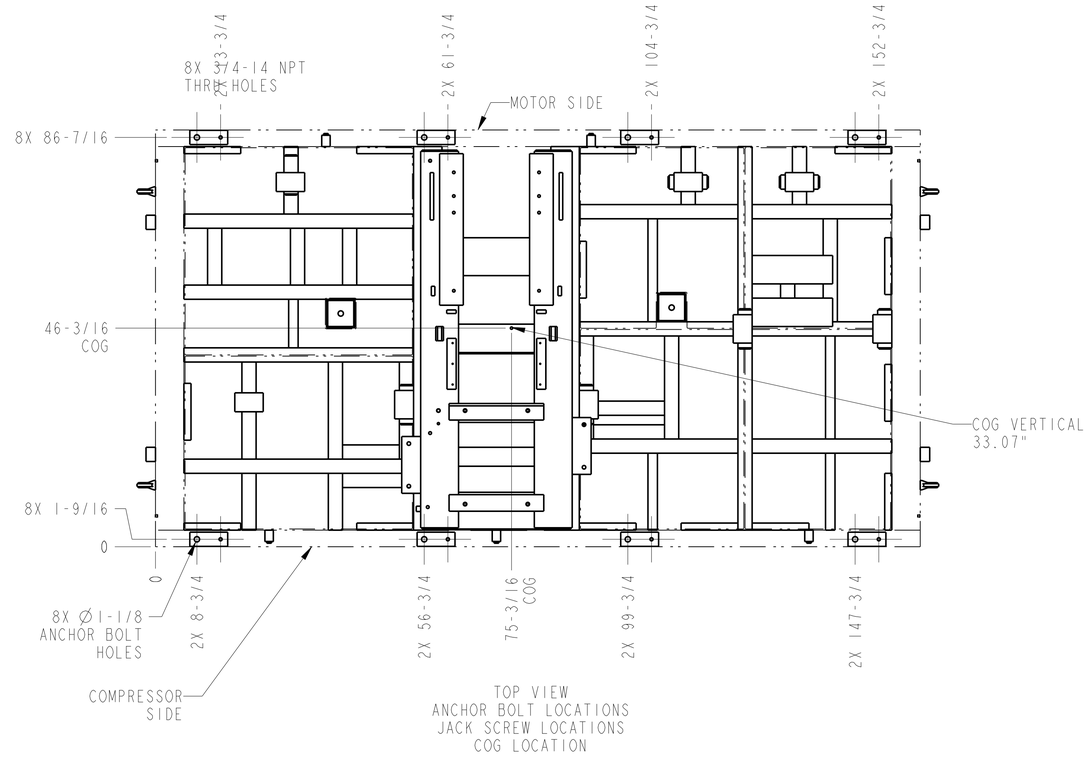
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CUSTOMER: SOUTHERN CALIFORNIA GAS
PROJECT NO: 50754-02
SHEET: 1 of 2
SCALE: 0.063
DRAWING NO: A05-10-50754-02
REV: D
DRAWN BY: ADM
DATE: 11/12/2019

[redacted]

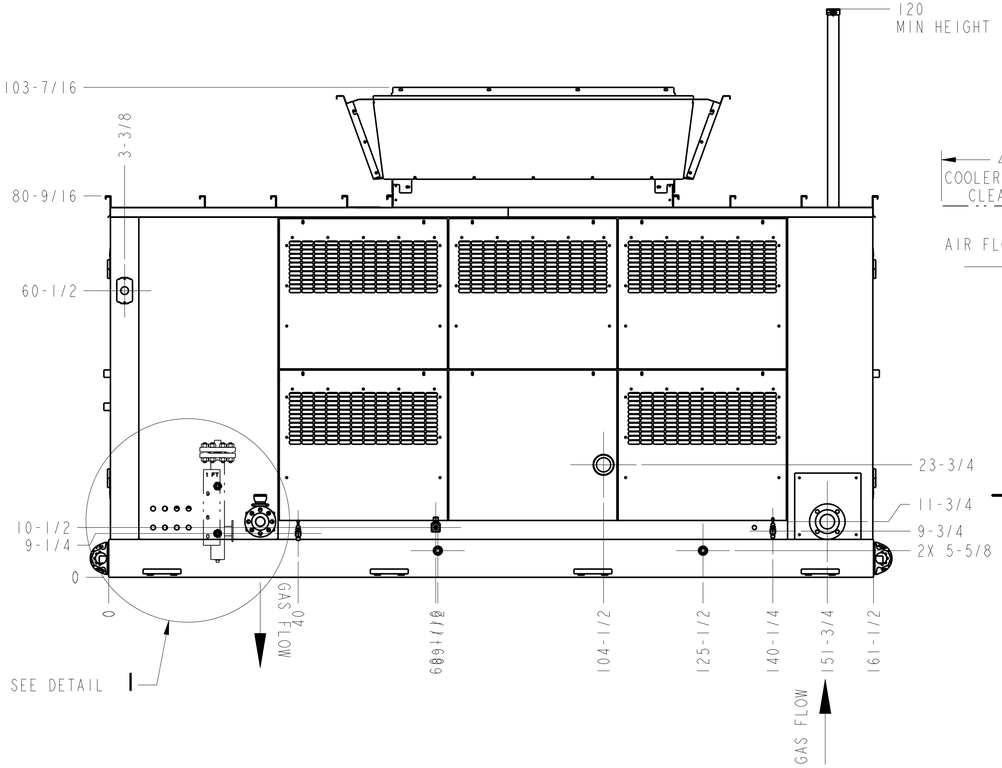
13-Jan-20

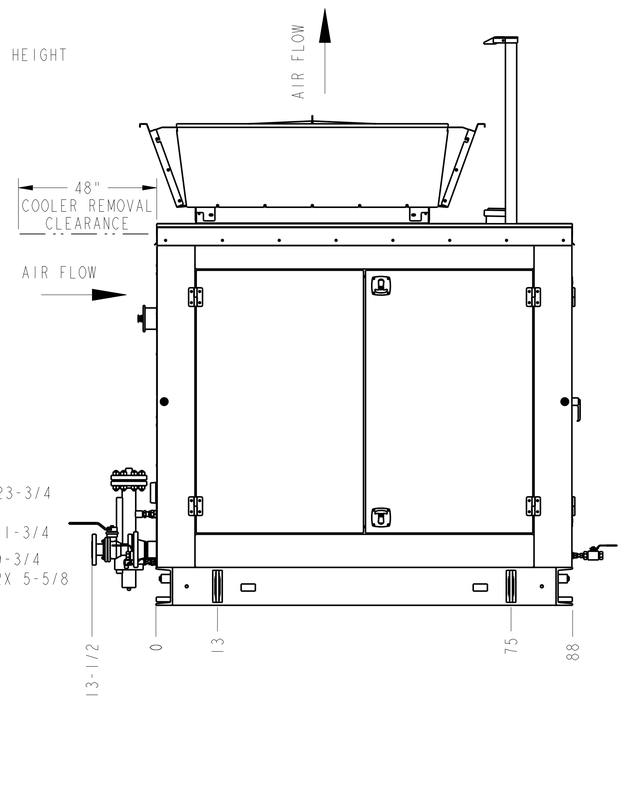


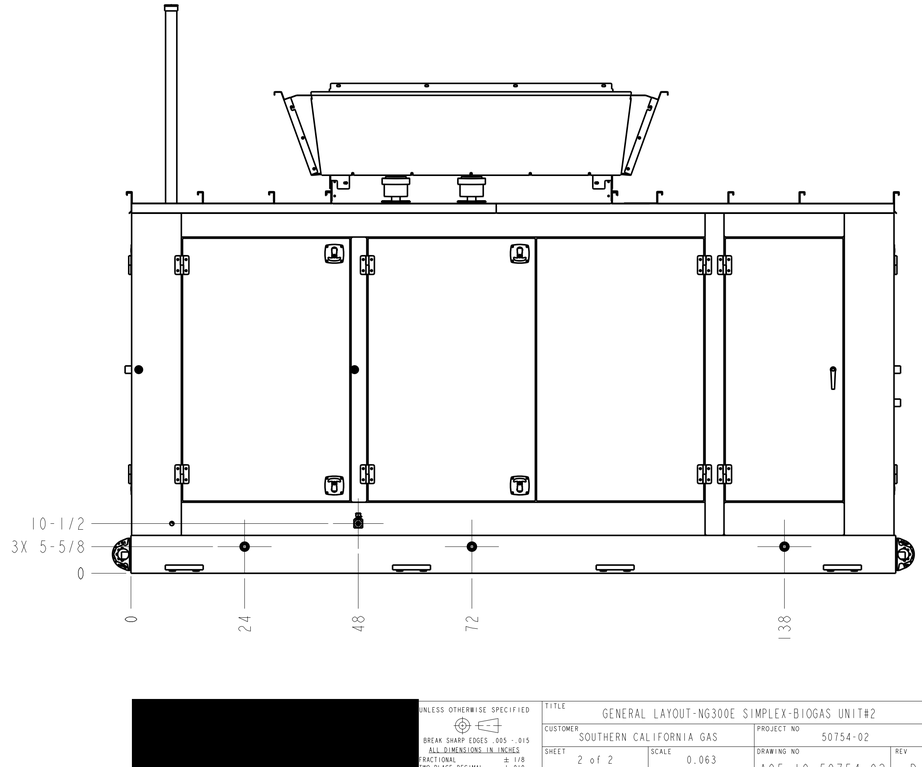
DETAIL I
SCALE 0.188



TOP VIEW
ANCHOR BOLT LOCATIONS
JACK SCREW LOCATIONS
COG LOCATION







[redacted]

UNLESS OTHERWISE SPECIFIED BREAK SHARP EDGES .005 - .015 ALL DIMENSIONS IN INCHES FRACTIONAL ± 1/8 TWO PLACE DECIMAL ± .010 THREE PLACE DECIMAL ± .005 ANGLES ± 1°	TITLE: GENERAL LAYOUT-NG300E SIMPLEX-BIOGAS UNIT#2		
	CUSTOMER: SOUTHERN CALIFORNIA GAS		PROJECT NO: 50754-02
	SHEET: 2 of 2	SCALE: 0.063	DRAWING NO: A05-10-50754-02
	DRAWN BY: ADM	DATE: 11/12/2019	REV: D

RELEASED 13-Jan-20

Attachment 12

Hanford/Lakeside SSI Analysis for Foundation Design for Compressors

Prepared for

Southern California Gas Company
555 West 5th Street
Los Angeles, California 90051

HANFORD/LAKESIDE
SSI ANALYSIS FOR FOUNDATION DESIGN FOR COMPRESSORS

SENATE BILL 1383 DAIRY PILOT

HANFORD, CALIFORNIA

Prepared by

[redacted]

Project Number SC1017-04

November 2019

[redacted]

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[redacted]

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Figure 2: Vibration Severity Chart

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Appendix A: DYNA 6.0 Soil-Structure Interaction Analysis

Appendix B: [redacted] Weight of Couples Data

[redacted]

1. INTRODUCTION

This report presents results of [redacted]) Soil-Structure Interaction (SSI) Analysis for the Southern California Gas Company's (SoCalGas) proposed Hanford/Lakeside Dairy Pilot Project in Hanford, California (site). This report was prepared by Mr. [redacted], Ph.D. and has been reviewed by Mr. [redacted], Ph.D., P.E. (TX) and [redacted], Ph.D., P.E. (CA), of [redacted], in accordance with the peer review policies of the firm. [redacted] prepared this report for SoCalGas for project planning and design.

1.1 Project Description

We understand that SoCalGas is participating in the State of California's sponsored pilot program to capture methane gas produced at select dairy and livestock operations as part of the State of California's Global Warming Solutions Act of 2006 to achieve greenhouse gas emissions reduction goals. As a result, SoCalGas has been awarded a dairy pilot project site in Hanford, California (Figure 1) to capture fugitive methane gas and process it into merchantable gas. SoCalGas will be designing and building the Hanford facility consisting of compression, metering, filtering, odorizing, and electric equipment.

Based on information provided by SoCalGas, it is our understanding that the proposed Hanford facility will consist of various mechanical, industrial, and electrical equipment along with underground pipelines and utilities. We also understand that the identified major equipment at the facility will include an analyzer shelter, filter separators, reciprocating compressors, chiller, electrical control shelter and power distribute center (PDC), transformer, switch gear, and pipe support/pipe racks.

[redacted]

2. PURPOSE AND SCOPE OF SSI ANALYSIS

The purpose of this SSI analysis was to evaluate the resonance and peak-to-peak displacement double amplitude (P-P DDA) criteria for the equipment-foundation system for the three proposed reciprocating compressors in support of engineering design and construction activities to be performed by SoCalGas. The scope of the investigation was outlined in our proposal dated 15 August 2019.

3. REFERENCES

3.1 Standards and Technical Information

3.1.1 SoCalGas Specification No. S-001-002, Rev. 0, "Foundation Design for Vibrating Machines Criteria"

3.1.2 [redacted] Weight of Couples Data for Compressors ([redacted].)

3.1.3 Robertson, P.K., Cabal, K.L. (2010) Guide to Cone Penetration Testing for Geotechnical Engineering. Gregg Drilling & Testing

3.1.4 Ohta Y., Goto N. (1978) Empirical shear wave velocity equations in terms of characteristic soil indexes, Earthq. Eng. Struct. Dyn., 6:167–187

3.1.5 El Naggar M.H., Novak M., Sheta M., El Hifnawi L., El Marsafawi H. (2011) DYNA 6 – a computer program for calculation of foundation response to dynamic loads. Geotechnical Research Centre, Western University, London, Ontario, Canada

3.2 Drawings

3.2.1 Lakeside Plot Plan Document No. 33906-3003-D-PIP Rev. A

3.2.2 Lakeside Foundation Layout Drawing. No. SK-460090-04000-02

3.2.3 Compressor Vendor Drawings

[redacted]

4. SOIL-STRUCTURE INTERACTION ANALYSIS

A Soil-Structure-Interaction (SSI) analysis evaluates the collective response of the structure, the foundation, and the geologic media underlying and surrounding the foundation, to a specified free-field ground motion. [redacted] evaluated the resonance and peak-to-peak displacement double amplitude of the equipment-foundation system for the reciprocating compressors according to the "Engineering & Construction Specification – Specification No: S-001-002" provided by SoCalGas [Ref. 3.1.1].

4.1 Methodology

[redacted] used the software DYNA 6.1 [Ref. 3.1.5] to calculate the dynamic stiffness of the soil as well as single amplitude displacement considering the soil properties, foundation geometry, embedment depth, and machine characteristics such as unbalanced forces and operating speeds. This stiffness was used for the calculation of the natural frequency of the machine-foundation system, herein called system.

4.2 Machine Characteristics

Per [redacted] Data Sheet [Ref. 3.1.2], the following characteristics are considered in these analyses:

- Type of machine: Reciprocating Compressor
- Compressor speed: 900Hz ~ 1791Hz
- Compressor weight: 18,000 lbs.
- Compressor unbalanced forces: (Forces/Couples are Zero (0) to Peak)

Horizontal	**Primary**	**Secondary**
Force, KIP at Max Imb: 1.00 lbs	0.137	0.025
Force, KIP (actual weights)	0.068	0.012
Couple, KIP-ft	0.757	0.347
Vertical	**Primary**	**Secondary**
Force, KIP (actual weights)	0.001	*Not applicable*
Couple, KIP-ft	1.121	*Not applicable*

[redacted] used the superposition rule to account for the dynamic loads and moments from the compressors in each direction.

4.3 Soil Parameters

[redacted] used the information obtained from the Seismic Cone Penetration Test (SCPT) performed at the proposed location of the foundations. The shear wave velocities were

[redacted]

directly obtained from the SCPT. Soil unit weights for different layers were calculated using the empirical correlation proposed by Robertson and Cabal (2014) [Ref. 3.1.3]. The Poisson's ratio was assumed to be 0.33 for cohesionless soils and 0.40 for cohesive soils according to Ref. 3.1.1.

Based on the instructions by DYNA 6.1's developer, Dr. El Naggar, a rigid foundation on an elastic half space was considered for this analysis. The weighted averages of the soil parameters within a depth of two times the footing width (i.e. 2×10 = 20 ft) were used as the input parameters for the elastic half space material. A 2-ft thick layer of structural fill was considered below the foundations. A typical unit weight of 120 pcf was assumed for the structural fill. The shear wave velocity of 870 ft/sec was selected for this material based on the empirical correlation proposed by Ohta and Goto (1978) [Ref. 3.1.4] assuming a SPT N-Value of 40 for the structural fill. Soil parameters used to calculate the weighted averages as the input parameters for the SSI analysis are presented in the table below.

Table 1 – Selected Soil Parameters Use for SSI Analysis

Depth (ft)	Layer Thickness (ft)	Unit Weight (pcf)	Poisson's Ratio	Shear Wave Velocity (ft/s)
5-7 (Structural Fill)	2	120	0.33	870
7-12.5	5.5	120	0.33	690
12.5-14.5	2	125	0.33	700
14.5-21	6.5	130	0.33	860
21-23	2	135	0.33	960
23-25	2	135	0.33	960

Note:
[redacted] assumed the material (i.e., hysteretic) damping of the soil and concrete to be zero. [redacted] also performed a sensitivity analysis by varying the shear wave velocities (V_s) from 0.80 to 1.20 times their nominal values.

4.4 Acceptance Criteria for Foundation Design for Vibrating Machine

4.4.1 Allowable Peak-to-Peak Displacement Double Amplitude (P-P DDA)

Two operating frequencies (or machine speeds) of 900 and 1,791 revolutions per minute (RPM), equivalent to 15 and 29.85 Hz, respectively, were considered for the analysis.

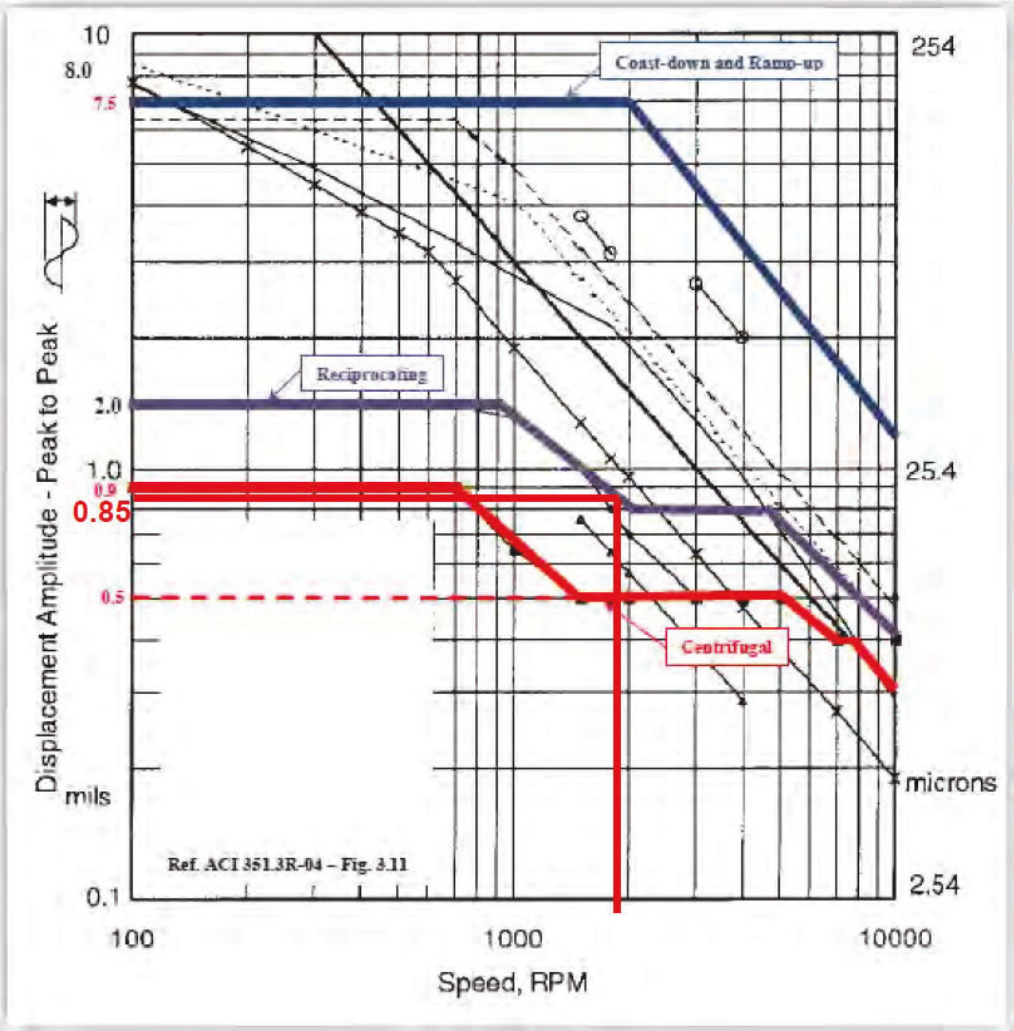
[redacted]

4.4.1.1 Vibration Severity Chart

Per SoCalGas Spec S-001-002 [Ref. 3.1.1], the following charts in Figures 1 and 2 were considered to determine the allowable Peak-to-Peak Displacement Double Amplitude in the absence of manufacturing's recommendations.

- P-P DDM for 1800 RPM = 0.85 mil-in (Conservatively Considered for all speeds)
- P-P DDM for 900 RPM = 2 mil-in

Figure 1 – Allowable Peak-to-Peak Displacement Double Amplitude



[redacted]

Figure 2 – Vibratory Severity Chart

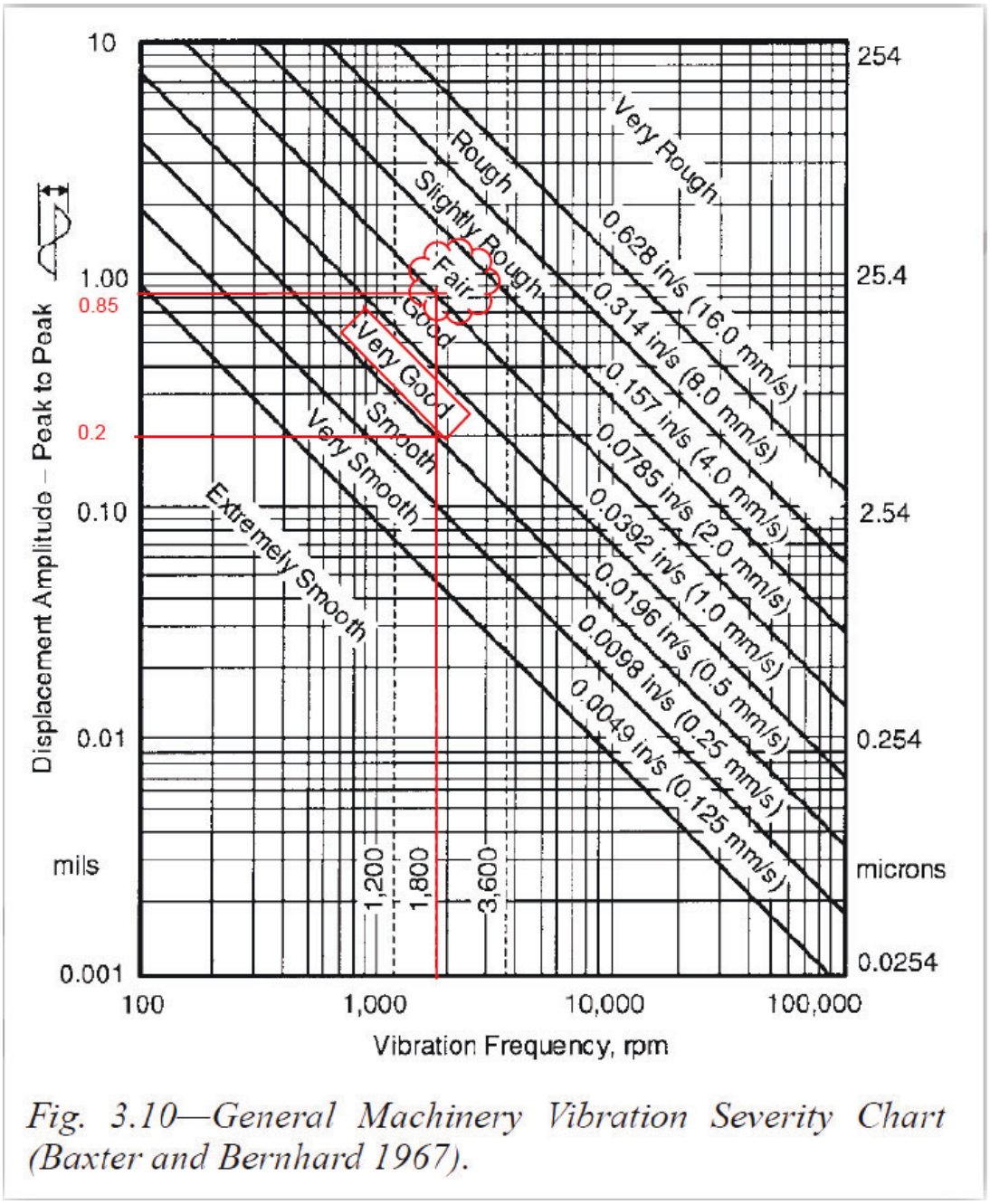


Fig. 3.10—General Machinery Vibration Severity Chart (Baxter and Bernhard 1967).

[redacted]

4.4.1.2 Manufacturer's Recommendations

The manufacturer's recommended maximum allowable P-P DDA has not been provided to [redacted]; therefore, the maximum allowable P-P DDA was considered based on the vibrations severity charts (Figures 1 and 2).

4.4.1.3 Vibration Acceptance Criteria

By comparing all the criteria mentioned above, the P-P DDA of 0.85 mils, equivalent to 7.083×10^{-5}, is considered for this analysis.

4.4.2 Resonance Criteria

Per SoCalGas Specification S-001-002 [Ref. 3.1.1], the frequency ratio (FR) shall be smaller than 0.75 or larger than 1.25 using the equation below:

$$FR = \frac{\text{Machine Speed}}{\text{Foundation Natural Frequency}}$$

[redacted]

5. CALCULATIONS

5.1 Undamped Natural Frequency of System

In accordance with SoCalGas Specification No. S-001-002 Rev. 0 [Ref. 3.1.1] and recommendations form SoCalGas CSA project lead, multi-degree of freedom analysis was not performed by [redacted]. [redacted] calculated the single degree of freedom undamped natural frequency for the system using the closed form solution equations from SoCalGas Specification No. S-001-002 Rev. 0 [Ref. 3.1.1], as listed in Section 5.3.1 of this report. The closed form solution for the single degree of freedom is described below.

[redacted]

Where f_S is the undamped natural frequency of the system; K is the soil stiffness calculated using DYNA 6.0 considering the foundation geometry and embedment depth; M is the mass of the system; W_p is the equipment weight; W_f is the foundation weight, and W_s is the interaction soil weight.

5.2 Peak-to-Peak Displacement Double Amplitude

[redacted] used DYNA 6.1 to calculate single amplitude displacement at the location of the compressor's crankshaft which was assumed to be 2 ft above the surface of the mat foundation. [redacted] used the superposition rule to account for the dynamic loads and moments from the compressors in each direction. The single amplitude displacement calculated using DYNA 6.1 was multiplied by 2 to calculate the peak-to-peak displacement double amplitude. The calculated double amplitude displacements were compared to the maximum permissible values provided by Figures 15 and 16 of Specifications No.: S-001-002 [Ref. 3.1.1] for minimum "Fair" condition, as listed in Section 5.3.2 of this report.

[redacted]

5.3 Results

5.3.1 Undamped Natural Frequency

Table 2 below presents the calculated undamped natural frequencies of the machine-foundation system for the compressor operating frequencies of 15 Hz and 29.85 Hz and varying shear wave velocity of the soil. Note that the SSI analyses using 0.8 Vs and 1.2 Vs result in equipment operating frequencies within the 0.75 to 1.25 of natural frequency of equipment-foundation system in two cases.

Table 2 – Undamped Natural Frequency and Resonance Criteria for Machine Foundation System

Shear Wave Velocity	Operating Frequency (Hz)	Calculated Natural Frequency (Hz)	Frequency Ratio (FR)	FR Outside 0.75 to 1.25 Range?
[redacted]				

5.3.2 Peak-to-Peak Displacement Double Amplitude

Table 3 below presents the calculated maximum peak-to-peak displacement double amplitudes for the compressor operating frequencies between 15 and 29.85 Hz and varying shear wave velocity of the soil. These values are compared with the maximum permissible double amplitude displacement per SoCalGas [Ref. 3.1.1] for minimum "Fair" condition.

Table 3 – Peak-to-Peak Displacement Double Amplitude

Shear Wave Velocity	Operating Frequency (Hz)	Calculated Maximum Double Amplitude Displacement from DYNA (ft)	Maximum Permissible "Fair" Double Amplitude Displacement (ft)	Calculated Displacement Smaller than Permissible Displacement?
[redacted]				

[redacted]

5.4 Summary

[redacted] conducted the Soil Structure Interaction (SSI) analyses for the proposed machine (equipment) foundation system. According to the SSI analyses, we recommend each reciprocating compressor be supported by a 24 ft × 10 ft × 5 ft mat foundation, embedded 5 ft below ground surface. Using this foundation, the calculated displacement is less than the maximum permissible double amplitude displacement per Ref.3.1.1 for minimum "Fair" condition.

Based on the design requirements provided by SoCalGas, the frequency ratio (FR) for the proposed foundation is [redacted] for the cases using the selected shear wave velocity of the soil. Note that the SSI analyses using [redacted] and [redacted] result in equipment operating frequencies within the [redacted] of natural frequency of equipment-foundation system in two cases.

A minimum spacing equal to one width of the foundation (i.e., 10 ft) must be considered between each two adjacent foundations to minimize any interactions. This minimum distance is selected based on typical stress distributions in an elastic half space and instructions by DYNA 6.1's developer, Dr. El Naggar.

APPENDIX A

DYNA 6.0 Soil-Structure Interaction Analysis



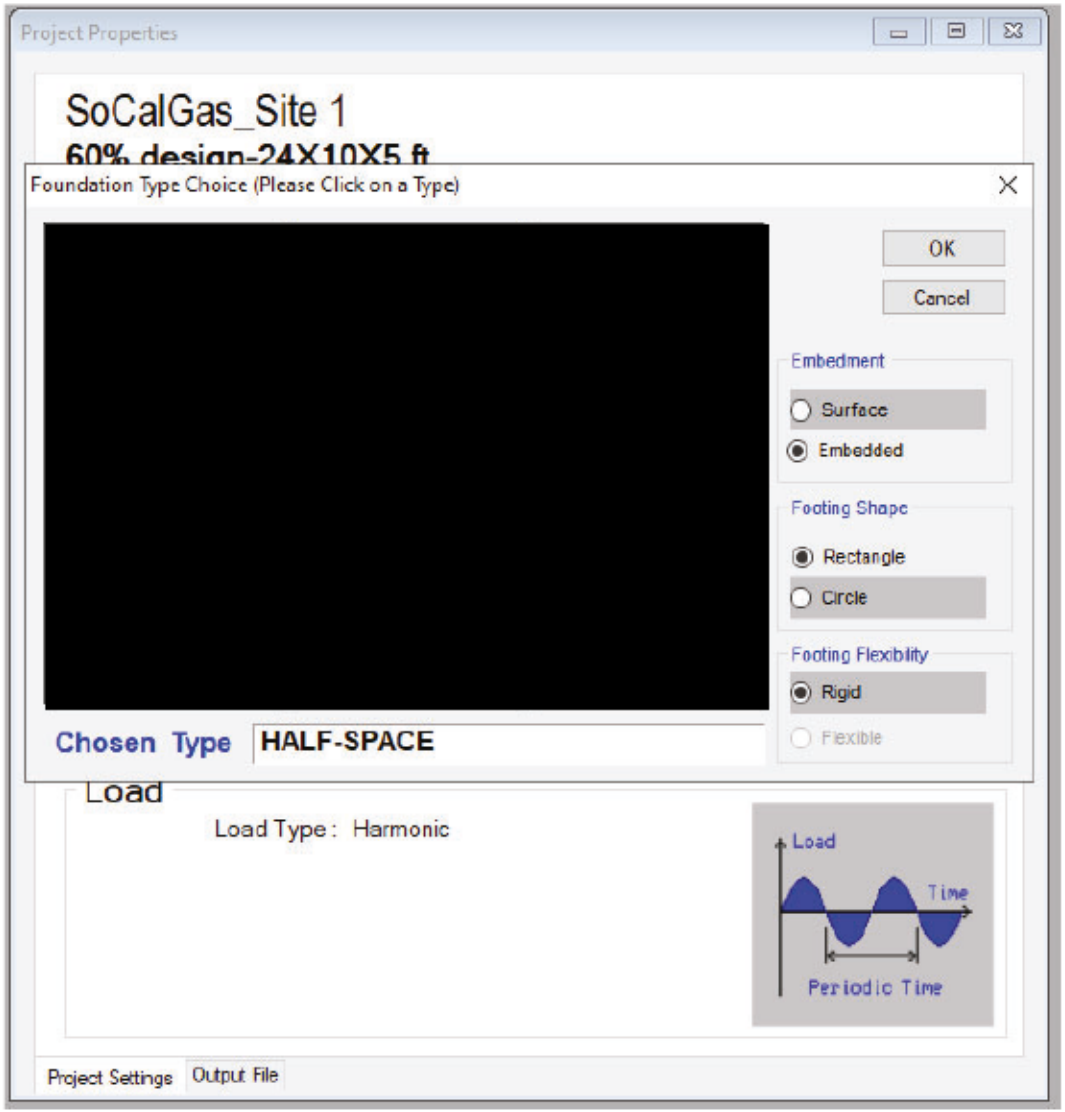
SoCalGas

[redacted]

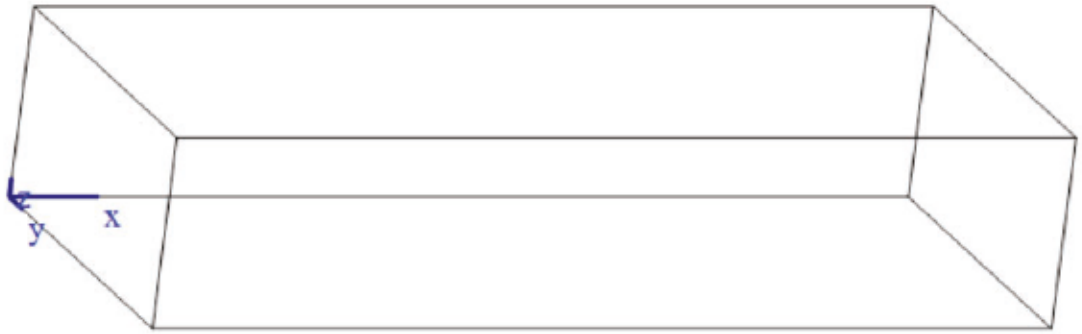
Foundation SSI Analysis for Reciprocating Compressors

18 November, 2019

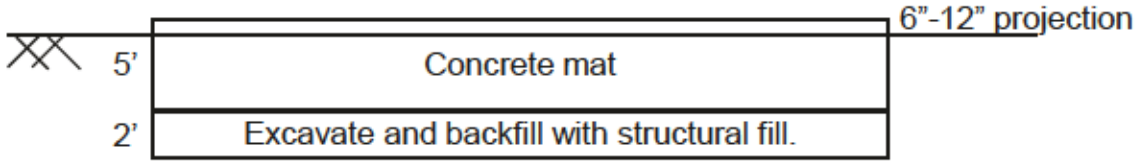
Foundation type selection



Foundation Model



Foundation (24 ft × 10 ft × 5 ft)



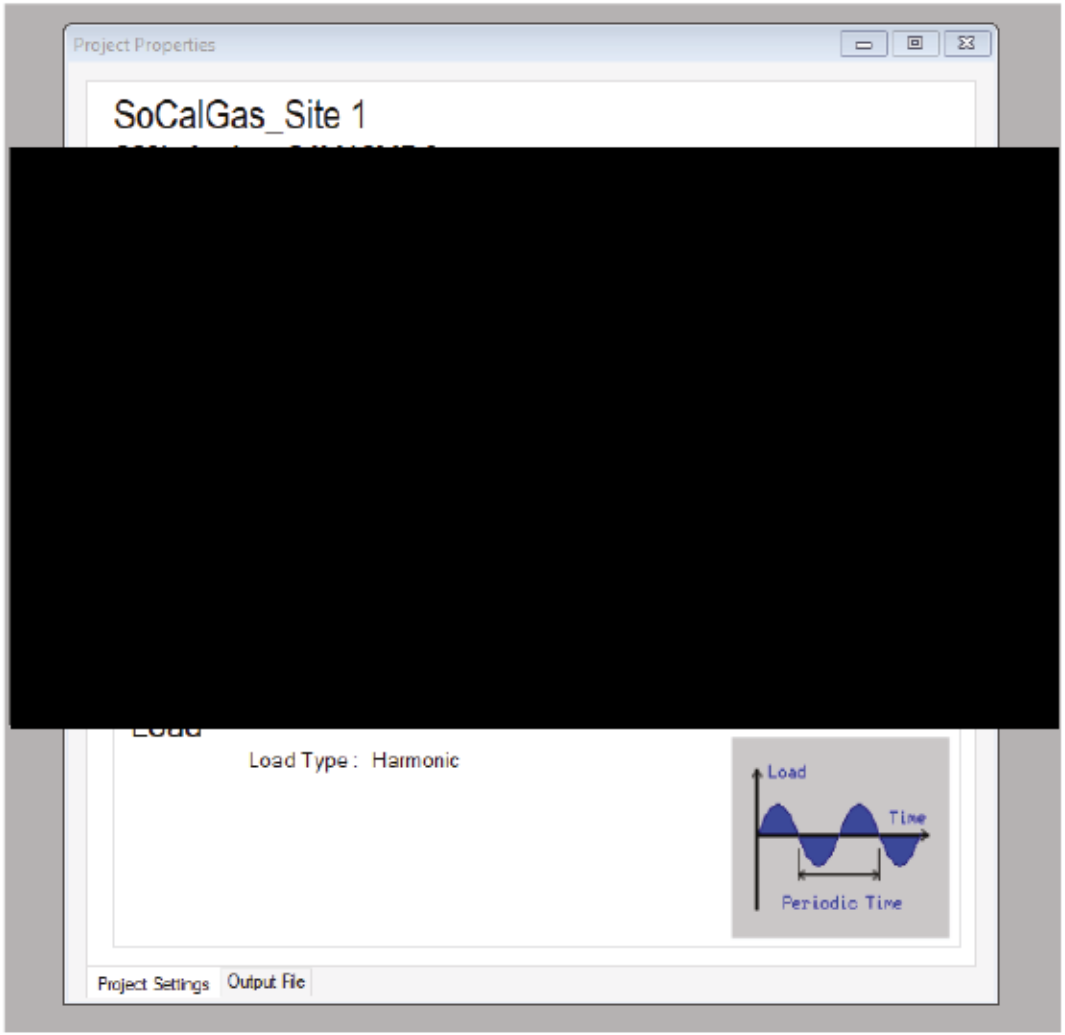
Foundation Dimensions and Static Loads

[redacted]

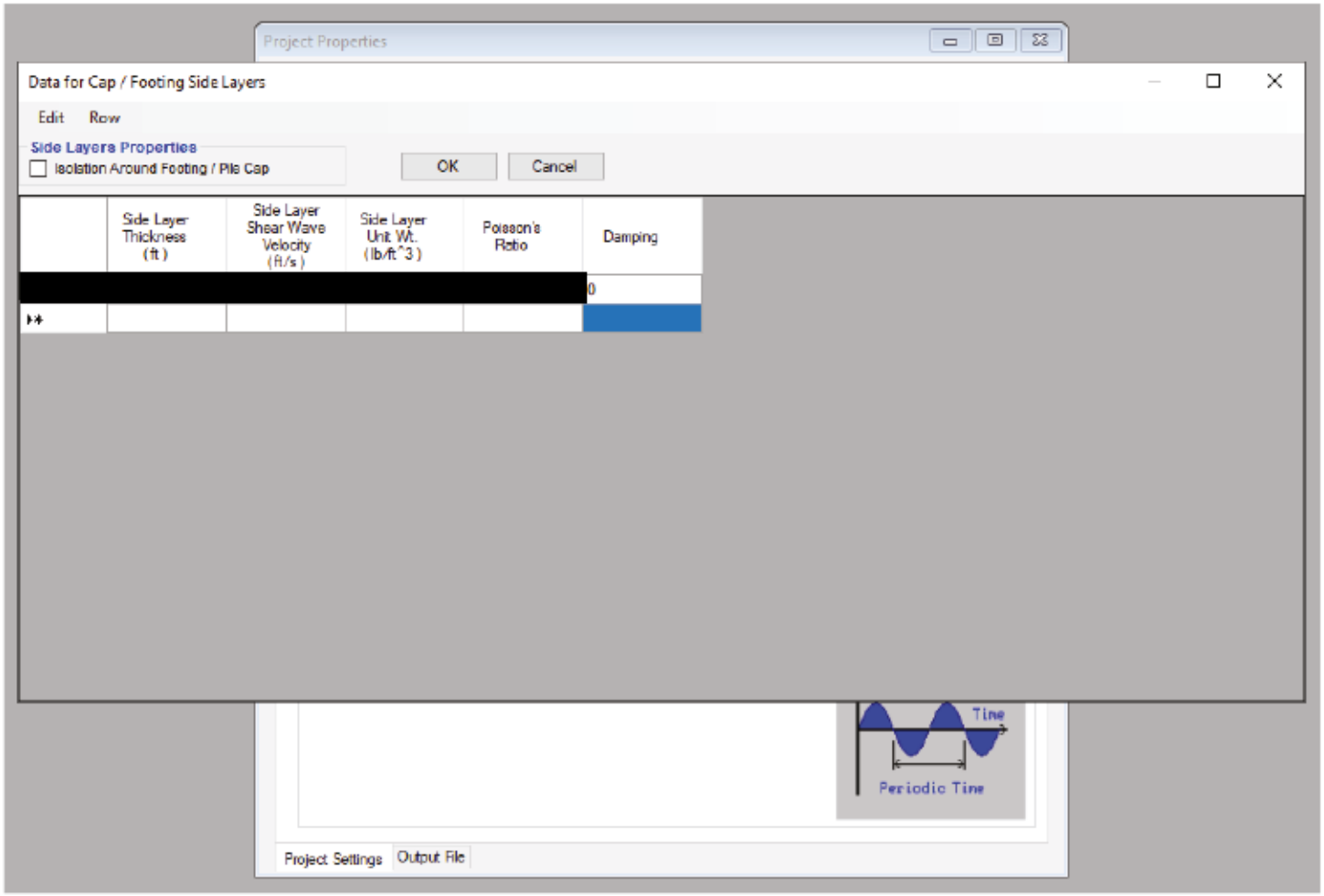
Description	Value	Units
Foundation Length (x-axis)	[redacted]	
Foundation Width (y-axis)		
Foundation height (z-axis)		
Total Foundation Weight		
Total Foundation Mass		
Total Equipment Weight		

DYNA Input - Pile Cap

[redacted]

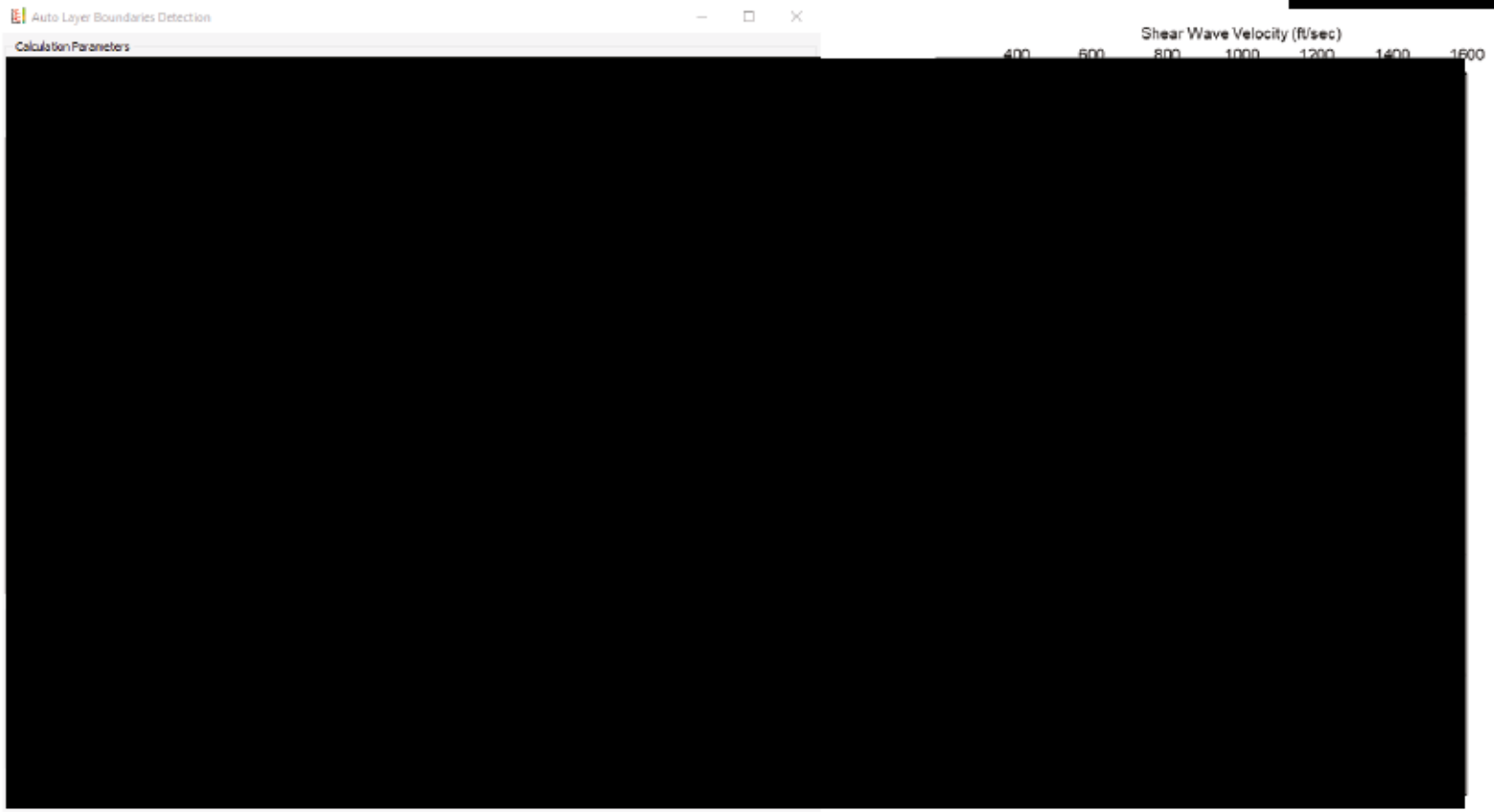


DYNA Input – Footing Side Layer



DYNA Input – Soil Below the Foundation

[redacted]

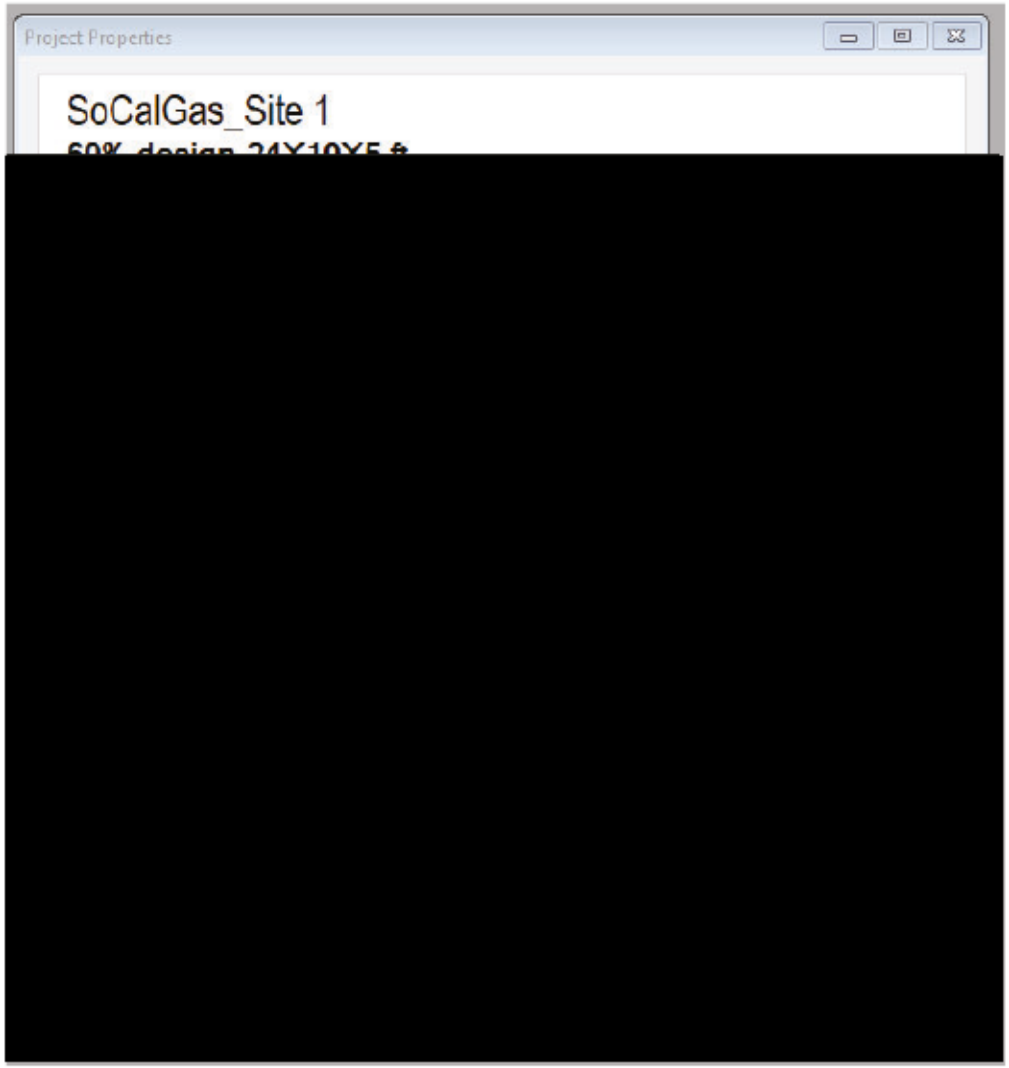


Depth (ft)	Layer thickness (ft)	γ (pcf)	Poisson's ratio	Shear Wave velocity (ft/s)
[redacted]				

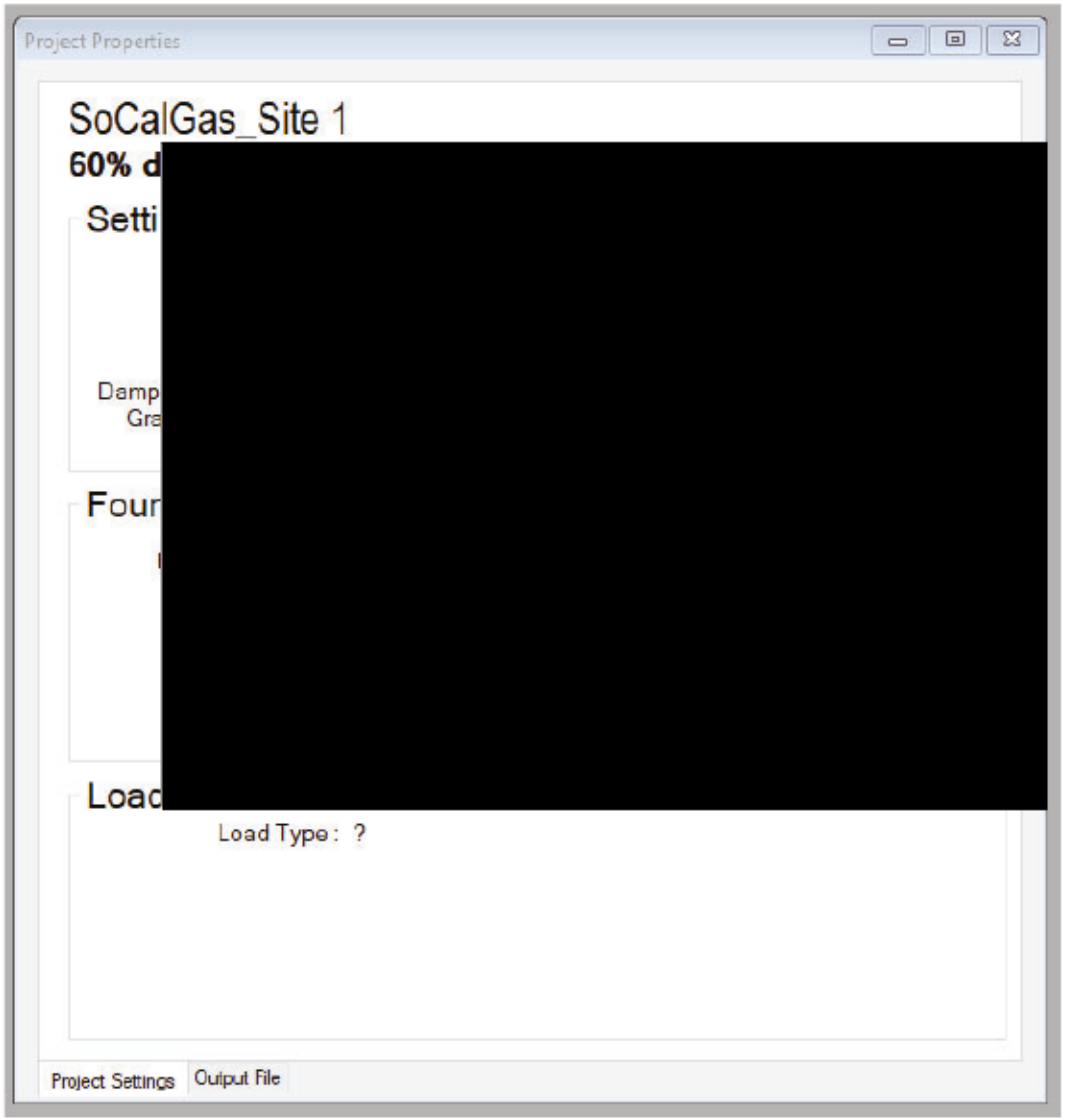
DYNA Input – Soil Below the Foundation

[redacted]

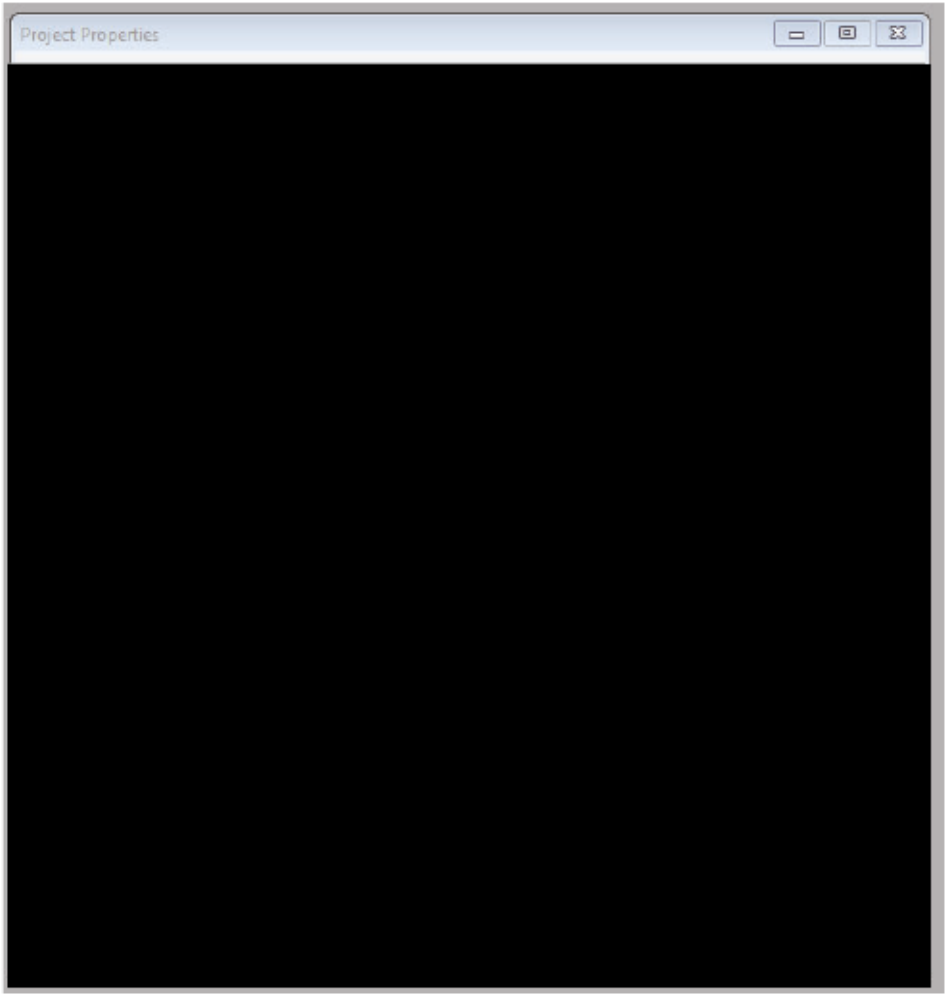
Weighted average of soil properties within a depth equal two times footing width (i.e., 20 ft below the foundation base.) was used as soil input parameter in DYNA6.1.



DYNA Input- Loading Condition



DYNA Input- Harmonic Loading Data



Notes:

1. The force directions were applied according to AREAL Data Sheet (Ref. 3.1.2)
2. The force amplitudes specified in AREAL Data Sheet (Ref. 3.1.2) were conservatively doubled to account for any interactions with adjacent foundations.

DYNA Output - Stiffness and Damping Constants

[redacted]

FREQUENCY - [redacted]
****

[redacted]

FREQUENCY - [redacted]
****

[redacted]

Natural Frequency and Resonance Criteria

[redacted]

$$f_s = \frac{1}{2\pi}\sqrt{\frac{K}{M}}$$

$K = Stiffness\ of\ the\ Foundation\ System =$ [redacted]

$W_p = Equipment\ Weight =$ [redacted]

$W_f = Foundation\ Weight =$ [redacted]

$W_s = Interaction\ Soil \cong \frac{W_p + W_f}{2}$ [redacted]

$M = Mass\ of\ the\ System = \frac{W_p + W_f + W_s}{g} =$ [redacted]

$$f_s = \frac{1}{2\pi}\sqrt{\frac{K}{M}} = 19.38\ Hz$$

$FR = Frequency\ Ratio = \frac{Equipment\ frequency}{Natural\ frequency\ of\ the\ system} =$ [redacted]

Frequency ratio shall be smaller than 0.75 or larger than 1.25.

Resonance criteria satisfied.

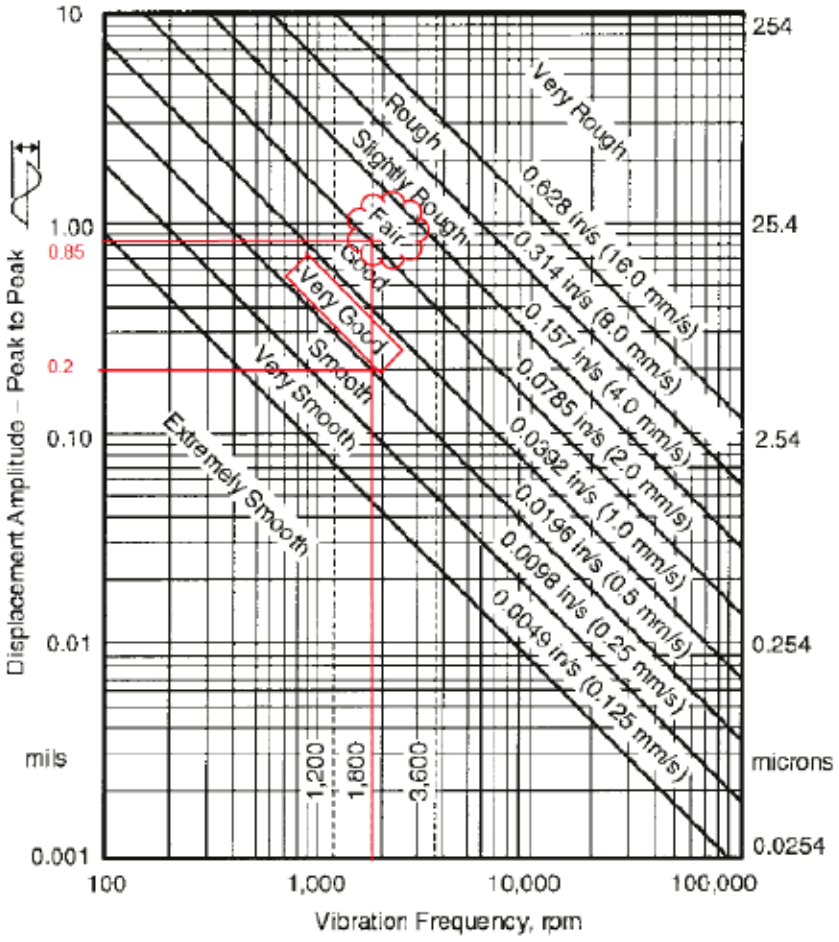
Natural Frequency and Resonance Criteria

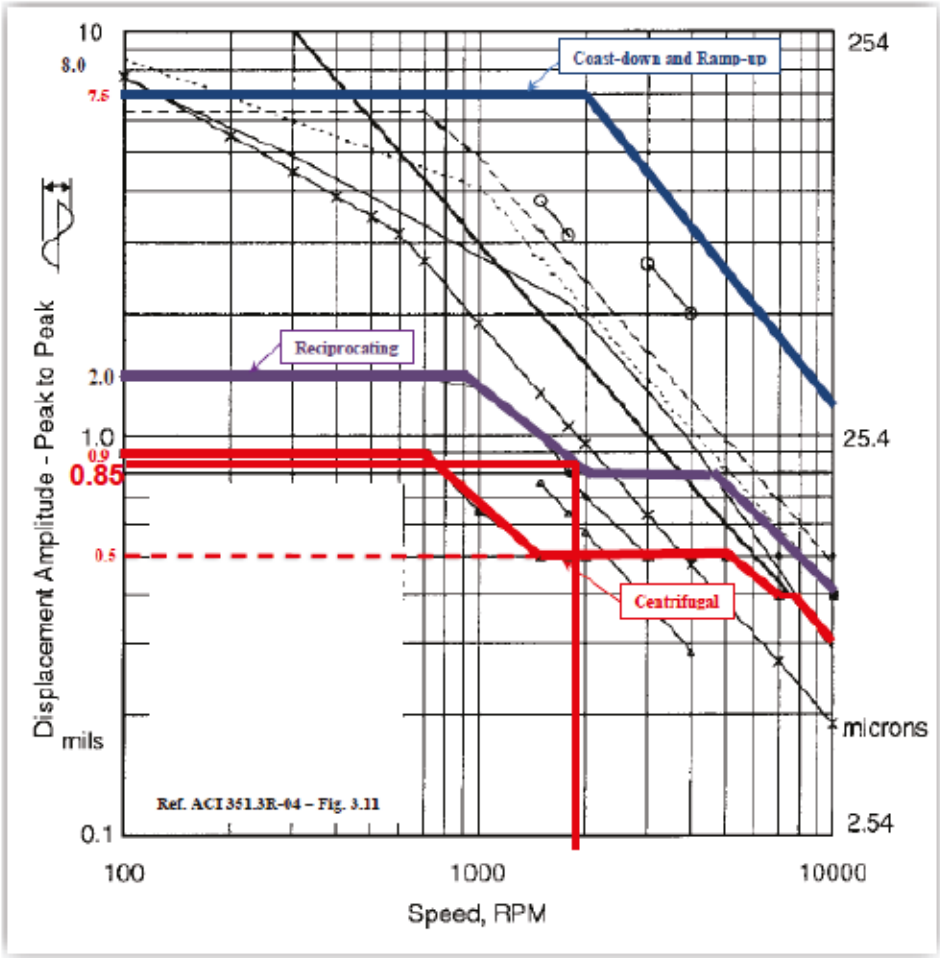
[redacted]

Shear Wave Velocity	Operating Frequency (Hz)	Calculated Natural Frequency (Hz)	Frequency Ratio (FR)	FR Outside 0.75 to 1.25 Range?
[redacted]				

[redacted]

Double Amplitude Displacement Criteria





Displacement Criteria

[redacted]

The maximum displacement is calculated at the location of the crankshaft.

Assumption: The crankshaft is located 2 ft above the ground surface.

MAXIMUM RESULTANT TRANSLATIONS AT POINT NO. 1

	FREQ. Hertz
[redacted]	

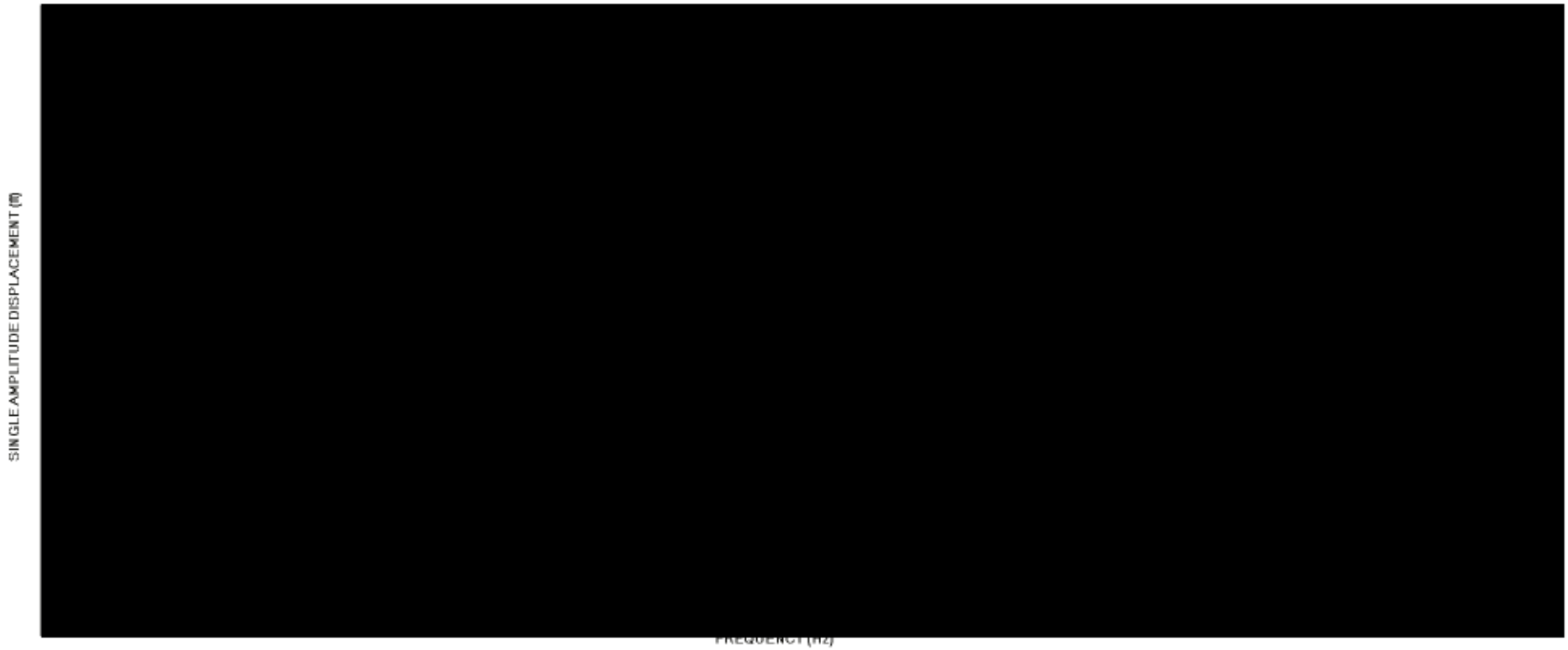
Maximum single amplitude displacement = [redacted]

Maximum double amplitude displacement [redacted]

Note: A minimum distance of 10 ft must be considered between adjacent foundations. Additionally, the force amplitudes specified in AREAL Data Sheet (Ref. 3.1.2) were conservatively doubled to account for any interactions between adjacent foundations.

Displacement Criteria

[redacted]



Single amplitude displacements vs. frequency

Maximum allowable single amplitude displacement = [redacted]

APPENDIX B

[redacted] Weights and Couples Data

[redacted]

Weights & Couples Data

ompany: [redacted] Customer: SoCalGas
uote: Inquiry:
7.7.6.0 Case 4: MAX 0% VVCP Project: Lakeside

Frame: JGQ/2 Unit Weight: 1318.00 lbs Max Recip Weight (lbs)
Stroke,in: 3.00 Rated Speed of 1
ConRod Center Dist, in: 8.25 Applied Speed of [redacted]

Install Weights:

Throw	Bore	C-Rod	Piston	X-Head	X-Head	Bal Nut	Bal Nut	Recip	Imb
1	[redacted]								
2									

LEGEND:

Imb - Opposing Throws are NOT Balanced
Recip Weight - Can't exceed max recip weight @ rated speed.
X-Head and Nut Part Legend:
A - Part is from Available Parts List
NS - Non-Standard Part
SP - Non-Standard Part: Guide (JG:A) or crankshaft (M:N:P:Q) must be removed to install.
S - Standard Part
B is in front of any above if Balancing X-Head
Legend - Manual Part Selection

UNBALANCED FORCES & COUPLES

Operating RPM: 1791

Horizontal	Primary	Secondary
Force, KIP at Max Imb	[redacted]	
Force, KIP (actual we		
Couple, KIP-ft		
Vertical		
Force, KIP		
Couple, KIP-ft		

(Forces/Couples are Zero(0) to Peak)

CROSSHEAD GUIDE DEFLECTION
This frame has an integral crosshead guide, so deflection is not calculated.

Attachment 13

PDC Drawings with Calculations

S01

SO. CAL. GAS COMPANY
LAKESIDE DAIRY PILOT
SENATE BILL 1383
INTEGRATED POWER CENTER

STRUCTURAL DRAWINGS INDEX			
NUMBER	REV	DATE	DESCRIPTION
51826–S01	N	09/03/20	TITLE PAGE
51826–S02	E	07/09/20	GENERAL & STRUCTURAL STEEL NOTES
51826–S03	I	09/03/20	PLAN VIEW EQUIPMENT LAYOUT
51826–S03–1	J	09/03/20	PLAN VIEW CABLE TRAY AND HVAC DUCT LAYOUT
51826–S03–2	F	09/03/20	SIDES VIEWS CABLE TRAY LAYOUT
51826–S04	H	09/03/20	NORTH & SOUTH INTERIOR SIDE ELEVATIONS
51826–S05	G	06/30/20	EAST & WEST INTERIOR SIDE ELEVATION
51826–S06	D	04/23/20	BASE SKID SUB–FLOOR PLAN
51826–S06–1	G	07/09/20	(NEW BASE ANCHORING PLAN VIEW)
51826–S07	G	07/09/20	WELDING DETAILS
51826–S08	B	04/23/20	ASSEMBLY DETAILS
51826–S09	G	06/30/20	LIFTING DETAIL (EAST & NORTH ELEVATIONS)
51826–S10	A	04/23/20	(NEW ROOFS PLAN VIEW)

REGISTERED PROFESSIONAL ENGINEER
SHEN-SHENG A. CHOU
NO. SE 2516
Exp. 3/31/2022
STRUCTURAL
STATE OF CALIFORNIA

REV.	DATE	DESCRIPTION	BY
O	1/25/21	AS BUILT	AG
N	09/03/20	REVISED (PER ENGINEERING COMMENTS)	M-G
M	07/09/20	REVISED (PER CUSTOMER COMMENTS(INC. F3125)	M-G
L	07/07/20	REVISED (PER CUSTOMER COMMENTS "07/01/20")	M-G
K	06/30/20	REVISED (PER CUSTOMER COMMENTS "06/24/20")	M-G
J	05/13/20	REVISED (PER RADCO AND CUSTOMER COMMENTS)	M-G
I	04/23/20	REVISED (PER RADCO ANS ENGINEERING COMMENTS)	M-G
H	03/30/20	REVISED (PER HVAC AND DUCT DIMENSIONS)	M-G
G	03/04/20	REVISED(PER CUSTOMER'PDC DISCUSSION 03/03/20')	M-G

REV.	DATE	DESCRIPTION	BY
F	02/28/20	REVISED (PER CUSTOMER,ADD WALLS CONDUITS)	M-G
E	02/24/20	REVISED (PER CALCULATIONS COMMENTS)	M-G
D	02/19/20	REVISED (PER ANCHOR BASE CONNECTIONS)	M-G

REV.	DATE	DESCRIPTION	BY
C	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G
B	01/31/20	REVISED (PER CALCULATIONS COMMENTS(ANCHORING)	M-G
A	01/27/20	REVISED(PER CALCULATIONS COMMENTS)	M-G

[redacted]

REVIEWED BY:
DATE:
PROJECT ENGINEER: M-G

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
-	-	51826-S01	0
CAD FILE: 51826-S01	SCALE:	SHEET: 1 OF 13	

[redacted]–F018 REV B

S02

GENERAL NOTES:

1) MATERIAL: INTERIOR
   (A) ALL INTERIOR WALL PANELS SHALL BE 16 GA. HRP & O STEEL.

2) MATERIAL: EXTERIOR
   (A) ALL EXTERIOR ROOF AND WALL PANELS SHALL BE 12GA. GALVANEALED STEEL.
   (B) ALL EXTERIOR HARDWARE SHALL BE STAINLESS STEEL.
   (C) ALL EXTERIOR FLASHING DOOR JAMS,ETC, SHALL BE CORRISION-RESISTANT 14 GA.GALVANEALED STEEL.

3) CEILING PANELS MADE FROM 14 GA. HRP & O WITH BUILT IN 11 GA TRUSS.

4) THERMAL INSULATION SHALL BE MINIMUM OF R-20.3 RATING FOR EXTERIOR WALLS, R-30 RATING FOR ROOF, AND R-12 FOAMED FOR FLOOR WITH DC315 FIRE RESISTIVE TOP COAT, STRUCTURE TO BE INSTALLED ON CONCRETE SLAB.

5) EXTERIOR DOORS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS AND COMPLY WITH THE FOLLOWING:
   (A) DOORS SHALL BE CONSTRUCTED OF CORROSION-RESISTANT MATERIAL WITH STAINLESS STEEL HINGES, DOOR CLOSERS, HANDLES, AND STAINLESS STEEL HARDWARE.

   (B) DOORS SHALL BE EQUIPPED WITH "BEST" CYLINDER LOCK AND PANIC-BAR HARDWARE FOR EMERGENCY EXIT.

   (C) DOORS SHALL BE THERMALLY INSULATED AND FULLY GASKETED FOR WEATHERPROOFING.

6) FLOOR SYSTEM IS CONSTRUCTED WITH 1/4" M.S. WELDED ON MC12 x 40.0 CHANNEL .

7) PAINTING AND COATING: A PAINT SYSTEM DESIGNED TO GIVE LONG LIFE AND GOOD ADHERENCE TO EXTERIOR PANELS SHALL BE USED.

   (A) EXTERIOR ROOF, WALLS, AND DOORS SHALL BE PAINTED WHITE.

   (B) INTERIOR WALLS AND CEILINGS SHALL BE PAINTED WHITE.

   (C) THE FLOOR PLATE IS COATED WITH GRAY NON-SKID PAINT.

   (D) THE ENTIRE SKID BASE SHALL BE CLEANED AND COATED WITH 3-5MILS DFT OF INORGANIC ZINC PRIMER, UNDERCOATED WITH BLACK MASTIC AND R-12 FOAM INSULATED WITH DC315 FIRE RESISTIVE TOP COAT.

8) ALL CUTOUTS SHALL BE COVERED WITH GASKETED COVER PLATES($\frac{1}{4}$" ALUMINUM).

9) HOODS SHALL BE INSTALLED OVER DOORS LOCATIONS.

10) BUILDING FOR UNOCCUPIED USAGE

11) OFF LOADING:INSTALLATION AND INTER CONNECTIONS TO IPC IS DONE BY OTHERS.

12) IPC IS NOT LOCATED IN A WILD FIRE ZONE.

13) DESIGN OF THE BUILDING COMPLIES WITH 2019 CAL GREEN BUILDING STANDARD CODES,VOC ADHESIVES & COATINGS.

STRUCTURAL STEEL NOTES:

1) MATERIAL:

   A) STRUCTURAL SHAPES, SUCH AS BEAMS, CHANNELS, PLATES OR ANGLES: A.S.T.M. A-36 OR A-572 GR. 50.

   B) WELDING ELECTRODES: E70XX SERIES SUITABLE FOR THE POSITION AND OTHER CONDITIONS OF INTENDED USE.

   C) ALL THE BOLTS, ANCHOR BOLTS SHALL BE GALVANIZED F3125 GRADE A325 "SNUG TIGHT".

2) FABRICATION AND ERECTION:
   ALL FABRICATION AND ERECTION SHALL CONFORM TO THE SPECIFICATIONS AND PRACTICES AS OUTLINED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (LATEST EDITION)

3) PAINTING:
   ALL STEEL, EXCEPT THAT PORTION EMBEDDED IN MASONRY OR CONCRETE, SHALL BE CLEANED BY EFFECTIVE MEANS OF ALL MILL SCALE, RUST, SPLATTER, SLAG, OR FLUX DEPOSIT, OIL OR OTHER FOREIGN MATTER BEFORE COATING

4) MEASUREMENTS:
   STEEL FABRICATOR SHALL VERIFY ALL DIMENSIONS ON THE PLANS AND COORDINATE MISSING DIMENSIONS AND ELEVATIONS WITH THE GENERAL CONTRACTOR FOR FIELD MEASUREMENTS OF PERTINENT DIMENSIONS TO INSURE PROPER FIT FOR FIELD CONNECTIONS.

5) APPLICABLE CODES:
   a) 2019 CAL GREEN
   b) 2019 CALIFORNIA ENERGY CODE
   c) 2019 CALIFORNIA BUILDING CODE
   d) 2019 CALIFORNIA ELECTRICAL CODE
   e) 2019 CALIFORNIA MECHANICAL CODE

6) BASIC DATA:
   a) OCCUPANCY CATEGORY - CATEGORY IV
   b) CONSTRUCTION TYPE - 5 B
   c) DESIGN LOADS -
      ROOF: 20 PSF ROOF LIVE LOAD PLUS 16 PSF UNIFORM CEILING LOAD
      FLOOR: 125 PSF UNIFORM LOADS.
   d) WIND SPEED - BASIC WIND SPEED 115 MPH.
   e) EXPOSURE CATEGORY - EXPOSURE CATEGORY "C"
   f) SEISMIC PARAMETERS - Ss= 0.731g, S1=0.267g, SEISMIC DESIGN CATEGORY "D", SITE CLASS "D" R=2.5 FOR ENCLOSURE, T=8 SECONDS RHO=1.3
   g) OCCUPANCY TYPE - B

REGISTERED PROFESSIONAL ENGINEER
SHEN-SHENG A. CHOU
NO. SE 2516
Exp. 3/31/2022
STRUCTURAL
STATE OF CALIFORNIA

[redacted]

REV.	DATE	DESCRIPTION	BY
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–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
F	1/25/21	AS BUILT	AG
E	07/09/20	REVISED (PER CUSTOMER COMMENTS (INC. F3125)	M-G
D	07/07/20	REVISED (PER CUSTOMER COMMENTS "07/01/20")	M-G

REV.	DATE	DESCRIPTION	BY
C	05/13/20	REVISED (PER RADCO AND CUSTOMER COMMENTS)	M-G
B	04/23/20	REVISED (PER RADCO COMMENTS)	M-G
A	01/27/20	REVISED(PER CALCULATIONS COMMENTS)	M-G

[redacted]

PROJECT ENGINEER: M-G

CAD FILE: 51826-S02 | SCALE: NONE | SHEET: 2 OF 13

51826-S02 REV. F

[redacted]-F018 REV B

REV.	DATE	DESCRIPTION	BY
C	02/24/20	REVISED (PER CALCULATIONS COMMENTS)	M-G
A	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G

REVIEWED BY: -

PROJECT ENGINEER: M-G

DISTRIBUTOR:	CONTRACTOR:	DWG. NO. 51826-S03	REV. J
CAD FILE: 51826-S03		SCALE: NONE	SHEET: 3 OF 13

[redacted]

Form: 000



REV.	DATE	DESCRIPTION	BY
L	01/25/21	AS BUILT	AG
K	09/22/20	REVISED (PER CUSTOMER("CABLE TRAY COMMENTS")	M-G
J	09/03/20	REVISED (PER ENGINEERING COMMENTS)	M-G
I	06/30/20	REVISED (PER CUSTOMER COMMENTS "06/24/20")	M-G
H	05/13/20	REVISED (PER CUSTOMER COMMENTS"ADD CAM BOX EXT.)	M-G
G	04/23/20	REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS)	M-G
F	03/30/20	REVISED (PER HVAC & DUCT DIMENSIONS)	M-G
E	03/04/20	REVISED (PER CUSTOMER PDC DISCUSSION 03/03/20)	M-G

REV.	DATE	DESCRIPTION	BY
D	02/28/20	REVISED CABLE TRAY BY CUSTOMER COMMENTS	ADAN
C	02/28/20	REVISED (PER CUSTOMER,ADD WALLS CONDUITS)	M-G

REV.	DATE	DESCRIPTION	BY
B	02/24/20	REVISED (PER CUSTOMER"CABLE TRAY COMMENTS")	M-G
A	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G

PLAN VIEW HVAC DUCT & CABLE TRAY LAYOUT

[redacted]

PROJECT ENGINEER: M-G

DISTRIBUTOR:	CONTRACTOR:	DWG. NO. 51826-S03-1	REV. L
CAD FILE: 51826-S03-1	SCALE: NONE	SHEET: 4 OF 13	

[redacted]

Form: 000

S03-2

[redacted]



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REV.	DATE	DESCRIPTION	BY
G	01/25/21	AS BUILT	AG
F	09/03/20	REVISED (PER ENGINEERING COMMENTS)	M-G
E	06/30/20	REVISED (PER CUSTOMER COMMENTS " 06/24/20")	M-G
D	05/13/20	**REVISED (PER CUSTOMER COMMENTS "ADD CAM BOX EXT.")**	M-G
C	04/23/20	**REVISED(PER ENGINEERING COMMENTS"MOVE THE UPS")**	M-G
B	03/04/20	REVISED (PER CUSTOMER" PDC DISCUSSION 03/03/20")	M-G
A	02/28/20	REVISED (PER CUSTOMER ,ADD WALLS CONDUITS)	M-G

REVIEWED BY:

PROJECT ENGINEER: M-G

DISTRIBUTOR: -	CONTRACTOR: -	DWG. NO. 51826-S03-2	REV. G
CAD FILE: 51826-S03-2	SCALE: NONE	SHEET: 5 OF 13	

[redacted] Form: 000

[redacted]

REV.	DATE	DESCRIPTION	BY
I	01/25/21	AS BUILT	AG
H	09/03/20	REVISED (PER ENGINEERING COMMENTS)	M-G
G	06/30/20	REVISED (PER CUSTOMER COMMENTS "06/24/20")	M-G
F	05/13/20	REVISED (PER CUSTOMER "ADD CAM BOX EXTENSION")	M-G
E	04/23/20	REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS)	M-G

REV.	DATE	DESCRIPTION	BY
D	03/30/20	REVISED (PER HVAC AND DUCT DIMENSIONS)	M-G
C	03/04/20	REVISED(PER CUSTOMER"PDC DISCUSSION 03/03/20)	M-G

REV.	DATE	DESCRIPTION	BY
B	02/28/20	REVISED (PER CUSTOMER , ADD WALLS CONDUITS)	M-G
A	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G

PROJECT ENGINEER: M-G

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
	-	51826-S04	
CAD FILE: 51826-S04		SCALE: NONE	SHEET: 6 OF13

[redacted]

S05

[redacted]

REV.	DATE	DESCRIPTION	BY
H	01/25/21	AS BUILT	AG
G	06/30/20	REVISED (PER CUSTOMER COMMENTS " 06/24/20 ")	M-G
F	05/13/20	REVISED (PER CUSTOMER "ADD CAM BOX EXTENSION")	M-G
E	04/23/20	REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS)	M-G

REV.	DATE	DESCRIPTION	BY
D	03/30/20	REVISED (PER HVAC AND DUCT DIMENSIONS)	M-G
C	03/04/20	REVISED(PER CUSTOMER"PDC DISCUSSION 03/03/20")	M-G

REV.	DATE	DESCRIPTION	BY
B	02/28/20	REVISED (PER CUSTOMER,ADD WALLS CONDUITS)	M-G
A	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G

REGISTERED PROFESSIONAL ENGINEER
SHEN-MING CHOU
NO. SE 2516
Exp. 3/31/2022
STRUCTURAL
STATE OF CALIFORNIA

[redacted]

PROJECT ENGINEER: M-G

DISTRIBUTOR: | CONTRACTOR: [redacted] | DWG. NO. 51826-S05 | REV. H

CAD FILE: 51826-S05 | SCALE: NONE | SHEET: 7 OF 13

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[redacted]

S06

N

REGISTERED PROFESSIONAL ENGINEER
SHEN-SHENG A. CHOU
NO. SE 2516
Exp. 3/31/2022
STRUCTURAL
STATE OF CALIFORNIA

BASE PLAN VIEW

[redacted]

REV.	DATE	DESCRIPTION	BY
D	04/23/20	**REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS")**	M-G
C	02/28/20	REVISED (PER CUSTOMER,ADD WALLS CONDUITS)	M-G
B	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G
A	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G
E	01/25/21	AS BUILT	AG

[redacted]

PROJECT ENGINEER: M-G

DISTRIBUTOR: - | CONTRACTOR: - | DWG. NO. 51826-S06 | REV. E
CAD FILE: 51826-S06 | SCALE: NONE | SHEET: 8 OF 13

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REV.	DATE	DESCRIPTION	BY
F	07/07/20	REVISED (PER CUSTOMER COMMENTS"07/01/20")	M-G
E	04/23/20	REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS)	M-G
D	02/28/20	REVISED (PER CUSTOMER, ADD WALLS CONDUITS)	M-G
C	02/24/20	REVISED (PER CALCULATIONS COMMENTS)	M-G
B	02/19/20	REVISED (PER ANCHOR BASE CONNECTIONS)	M-G
A	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G

APPROVED BY: -
REVIEWED BY: -
PROJECT ENGINEER: M-G
DATE: -

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
	-	51826-S06-1	H
CAD FILE: 51826-S06-1		SCALE: NONE	SHEET: 9 OF 13

[redacted]

Form: 000

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
H	1/25/21	AS BUILT	AG
G	07/09/20	REVISED (PER CUSTOMER COMMENTS(INCORPORATED F3125)	M-G
F	07/07/20	REVISED (PER CUSTOMER COMMENTS ' 07/01/20")	M-G
E	04/23/20	REVISED (PER RADCO COMMENTS)	M-G
D	02/19/20	REVISED (PER ANCHOR BASE CONNECTIONS)	M-G
C	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G
B	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G
A	01/27/20	REVISED(PER CALCULATIONS COMMENTS)	M-G

REVIEWED BY:

PROJECT ENGINEER: M-G

DATE:

DISTRIBUTOR: –

CONTRACTOR: –

DWG. NO. 51826-S07

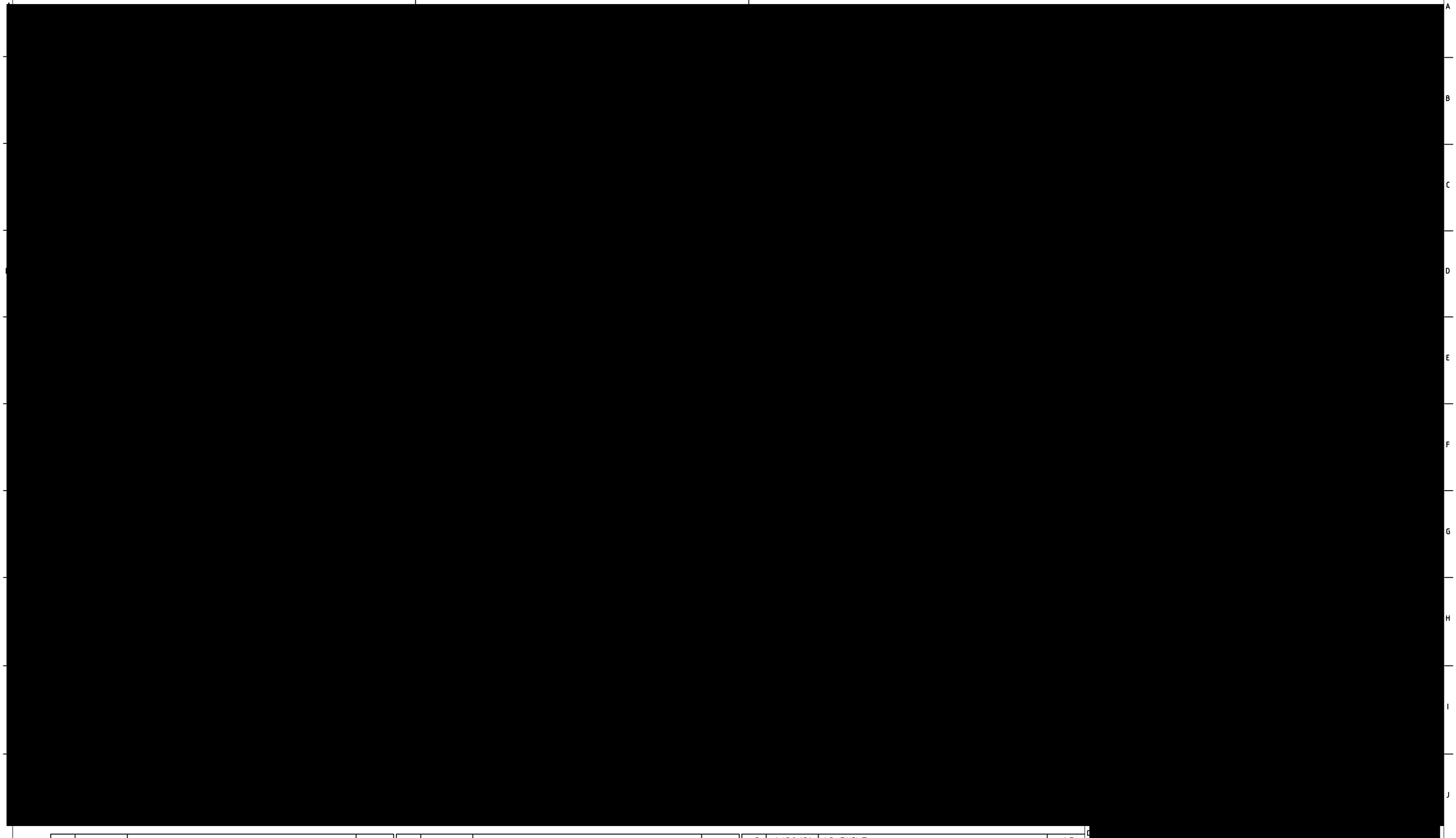
REV. H

CAD FILE: 51826-1-S07

SCALE: NONE

SHEET: 10 OF 13

[redacted] F018 REV B



REV.	DATE	DESCRIPTION	BY
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–	–	–	–
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REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
C	1/26/21	AS BUILT	AG
B	04/23/20	REVISED (PER RADCO COMMENTS)	M-G
A	01/31/20	REVISED(PER CALCULATIONS COMMENTS)	M-G

REVIEWED BY:

PROJECT ENGINEER: M-G

DISTRIBUTOR: –

CONTRACTOR: –

DWG. NO. 51826-S08

REV. C

CAD FILE: 51826-S08

SCALE: NONE

SHEET: 11 OF 13

[redacted] F018 REV B

[redacted]

REV.	DATE	DESCRIPTION	BY
G	06/30/20	REVISED (PER CUSTOMER COMMENTS "06/24/20")	M-G
F	05/13/20	REVISED (PER CUSTOMER "ADD CAM BOX EXTENSION")	M-G
E	04/23/20	REVISED (PER ENGINEERING COMMENTS"MOVE THE UPS)	M-G

REV.	DATE	DESCRIPTION	BY
D	03/04/20	REVISED (PER CUSTOMER "PDC DISCUSSION 03/03/20")	M-G
C	02/28/20	REVISED (PER CUSTOMER ,ADD WALLS CONDUITS)	M-G

REV.	DATE	DESCRIPTION	BY
B	02/14/20	REVISED (PER CUSTOMER MARK UPS)	M-G
A	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G

DRAWN BY: M-GALVAN — DATE: 01/16/20
APPROVED BY: - — DATE: -
REVIEWED BY: - — DATE: -
PROJECT ENGINEER: M-G

DISTRIBUTOR: - | CONTRACTOR: - | DWG. NO. 51826-S09 | REV. H
CAD FILE: 51826-S09 | SCALE: NONE | SHEET: 12 OF 13

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S10

[redacted]

ROOFS PLAN VIEW

REV.	DATE	DESCRIPTION	BY
B	1/25/21	AS BUILT	AG
A	04/23/20	REVISED (PER RADCO COMMENTS "ADD PE STAMP")	M-G

REVIEWED BY: -

PROJECT ENGINEER: M-G

DISTRIBUTOR: -	CONTRACTOR: -	DWG. NO. 51826-S10	REV. B
CAD FILE: 51826-S10		SCALE: NONE	SHEET: 13 OF 13

[redacted]

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NAME PLATE SCHEDULE

ITEM	LINE 1	LINE 2	LINE 3	QTY.	SIZE	LETTER SIZE	COLOR	MTG.	REV.
1	[redacted]			1	1″x3″	3/16″	BLACK/WHITE LETTERS	SCREWS	
2				1					
3				1					
4				1					
5				1					
6				1					
7				1					
8				1					
9				1					
10				1					
11				1					
12				1					
13				1					
14				1					
15				2					
16				2					
17				1					
18				1					
19				1					
20				1					
21				3					
22				1					
23				1					
24				1					
25				1					
26				1					

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–
–	–	–	–
A	1/25/21	AS BUILT	CG

APPROVALS	DATE
DRAWN: CG	06-21-20
CHECKED:	
ENGINEER:	
PROJECT ENGINEER: AG	

SO. CAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER
NAMEPLATE SCHEDULE

DISTRIBUTOR:
CONTRACTOR:

DWG. NO. 51826-1-NP REV. A
SCALE: NTS SHEET: 1 OF 1

NAME PLATE SCHEDULE

ITEM	LINE 1	LINE 2	LINE 3	QTY.	SIZE	LETTER SIZE	COLOR	MTG.	REV.
27	[redacted]			1	1"x3"	3/16"	BLACK/WHITE LETTERS	SCREWS	
28				1					
29				1					
30				1					
31				1					
32				2					
33				1					
34				1					
35				1					
36				1					
37				1					
38				1					
39				1					
40				1					
41									
42									
43									
44									
45									

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–
B	1/25/21	AS BUILT	AG
A	9/14/20	REVISED TO ADD UPSP-01 PANEL	AG

APPROVALS	DATE
DRAWN: CG	06-21-20
CHECKED:	
ENGINEER:	
PROJECT ENGINEER: AG	

SO. CAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER
NAMEPLATE SCHEDULE

DISTRIBUTOR:
CONTRACTOR:

DWG. NO. 51826-1-NP2 REV. B
SCALE: NTS SHEET: 1 OF 1

E01

SO CAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER

ELECTRICAL DRAWINGS INDEX			
NUMBER	REV	DATE	DESCRIPTION
51826–E01	A	2–17–20	ELECTRICAL DRAWING INDEX
51826–E02	A	2–17–20	ELECTRICAL EQUIPMENT LAYOUT
51826–E03	A	2–17–20	CONTROL DIAGRAM
51826–E03–1	A	2–17–20	HVAC CONTROL DIAGRAM
51826–E04	A	2–17–20	PP–01 PANEL DIAGRAM
51826–E05	–	2–17–20	UPSP–01 PANEL DIAGRAM

[redacted]

REV.	DATE	DESCRIPTION	BY
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–	–	–	–

REV.	DATE	DESCRIPTION	BY
B	1/25/21	AS BUILT	AG
A	2–17–20	REVISED PER SUBMITTAL COMMENTS	AG

DRAWN BY: AG — DATE: 1–28–20
APPROVED BY: – — DATE: –
REVIEWED BY: – — DATE: –
PROJECT ENGINEER: –

SO CAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER
LOCATION:
ELECTRICAL DRAWING INDEX

DISTRIBUTOR: –	CONTRACTOR: –	DWG. NO. 51826–E01	REV. B
CAD FILE: 51826–1		SCALE: NONE	SHEET: 1 OF 6

[redacted]

Form: 000

E02

- 006 LED LIGHT FIXTURE
- 007 EXTERIOR LIGHT
- 008 COMBINATION EXIT/EMERGENCY LIGHT FIXTURE
- 009 010 OCCUPANCY/MOTION SENSOR
- 011 INDOOR DUPLEX RECEPTACLE 20A
- 012 013 OUTDOOR DUPLEX RECEPTACLES W/ WEATHER PROOF COVER
- 014-017 GREEN, WHITE, BROWN, ORANGE CAM LOKS J SERIES
- 018 POWER OUTLET 240V
- 019 MANUAL TRANSFER SWITCH
- 020 SMOKE DETECTOR W BATTERY BACKUP
- 021 FIRE EXTINGUISHER
- 022-026 SMOKE DETECTION JUNCTION BOX W/ ACCESSORIES
- 030-033 HVAC 6TON 480V, 3PH, 60hZ
- 034 HVAC LEAD LAG CONTROLLER
- 035 UPS ORANGE RECEPTACLE
- 036 CUSTOMER FURNISHED UPS SYSTEM
- 037 CUSTOMER FURNISHED CP-01
- 038 CUSTOMER FURNISHED CP-02
- 039 CUSTOMER FURNISHED CP-03
- 040 CUSTOMER FURNISHED MSP-01
- 041 CUSTOMER FURNISHED MSP-02
- 042 CUSTOMER FURNISHED SECURITY PANEL
- 043 CUSTOMER FURNISHED MCC-01

[redacted]

ELECTRICAL EQUIPMENT LAYOUT

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
B	1/25/21	AS BUILT	AG
A	2-17-20	REVISED PER SUBMITTAL COMMENTS	AG

DRAWN BY: AG	DATE: 1-28-20	TITLE: SO CAL GAS COMPANY LAKESIDE DAIRY PILOT POWER DISTRIBUTION CENTER LOCATION ELECTRICAL EQUIPMENT LAYOUT
APPROVED BY: AG	DATE: –	
REVIEWED BY: –	DATE: –	
PROJECT ENGINEER: AG		DISTRIBUTOR: – / CONTRACTOR: – / DWG. NO. 51826-E02 / REV. B CAD FILE: 51826-1 / SCALE: NONE / SHEET: 2 OF 6

[redacted] Form: 000



GENERAL NOTES:

1. ALL POWER CIRCUITS TO INCLUDE GROUND WIRE FROM PANELBOARD GROUND BUS.
2. ALL WIRING TO BE #12 THHW/THHN UNLESS WIRE SIZE/TYPE IS PROVIDED.

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
B	1/25/21	AS BUILT	AG
A	2-17-20	REVISED PER SUBMITTAL COMMENTS	AG

DRAWN BY: AG
APPROVED BY: –
REVIEWED BY: –
PROJECT ENGINEER: –
DATE: 1-28-20
DATE: –
DATE: –

TITLE: SOCAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER
LOCATION :
CONTROL DIAGRAM

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
–	–	51823-E03	B
CAD FILE: 51826-1	SCALE: NONE	SHEET: 3 OF 6	

Form: 000

E03-1

[redacted]

[redacted]

[redacted]

GENERAL NOTES:

1. ALL POWER CIRCUITS TO INCLUDE GROUND WIRE FROM PANELBOARD GROUND BUS.
2. ALL WIRING TO BE #12 THHW/THHN UNLESS WIRE SIZE/TYPE IS PROVIDED.

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
B	1/25/21	–	AG
A	2-17-20	REVISED PER SUBMITTAL COMMENTS	AG

DRAWN BY: AG	DATE: 1-28-20	TITLE: SO CAL GAS COMPANY LAKESIDE DAIRY PILOT POWER DISTRIBUTION CENTER LOCATION 1 HVAC CONTROL DIAGRAM
APPROVED BY: –	DATE: –	
REVIEWED BY: –	DATE: –	
PROJECT ENGINEER: –		

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
–	–	51826-E03-1	B
CAD FILE: 51826-1	SCALE: NONE	SHEET: 4 OF 6	

[redacted]

Form: 000

E04



GENERAL NOTES:

1. ALL POWER CIRCUITS TO INCLUDE GROUND WIRE FROM PANELBOARD GROUND BUS.
2. ALL WIRING TO BE #12 THHW/THHN UNLESS WIRE SIZE/TYPE IS PROVIDED.

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
B	1/25/21	AS BUILT	AG
A	2-17-20	REVISED PER SUBMITTAL COMMENTS	AG

DRAWN BY: AG	DATE: 1-28-20	TITLE: SO CAL GAS COMPANY LAKESIDE DAIRY PILOT POWER DISTRIBUTION CENTER LOCATION : PP-01 PANEL DIAGRAM
APPROVED BY: AG	DATE: –	
REVIEWED BY: –	DATE: –	
PROJECT ENGINEER: AG		

DISTRIBUTOR:	CONTRACTOR:	DWG. NO.	REV.
–	–	51826-E04	B
CAD FILE: 51826-1		SCALE: NONE	SHEET: 5 OF 6

[redacted]

Form: 000

E05

[redacted]

REV.	DATE	DESCRIPTION	BY
–	–	–	–
–	–	–	–

REV.	DATE	DESCRIPTION	BY
–	–	–	–
A	1/25/21	AS BUILT	AG

DRAWN BY: AG — 1-28-20
APPROVED BY: – — DATE: –
REVIEWED BY: – — DATE: –
PROJECT ENGINEER: –

TITLE: SO CAL GAS COMPANY
LAKESIDE DAIRY PILOT
POWER DISTRIBUTION CENTER
LOCATION :
UPSP-01 PANEL DIAGRAM

DISTRIBUTOR: –	CONTRACTOR: –	DWG. NO. 51826-E05	REV. A
CAD FILE: 51863-1		SCALE: NONE	SHEET: 6 OF 6

[redacted]

Form: 000

[redacted]

3. – Structural Calculations

[redacted]

[redacted]

Structural Design

So Cal Gas Company

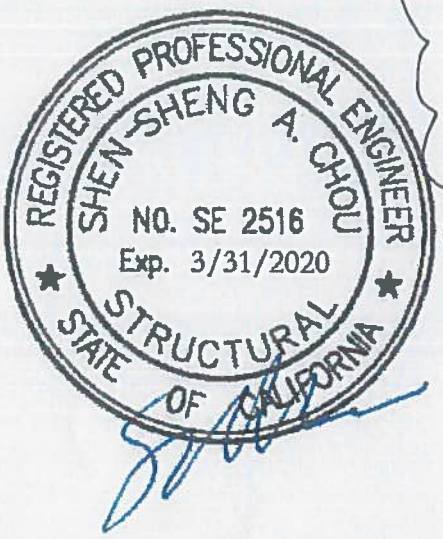
Electrical Enclosure

[redacted]

Design criteria

SO. CAL GAS Doc #
DS-460090-04000-29
Civil/Structural/Arch.
Design Criteria - Site
Specific for Lakeside
(Hanford) Site

plan check
comment.



January 21, 2020

Revised on Feb 3, 2020

[redacted]

BASE PLAN VIEW

REV.	DATE	DESCRIPTION	BY
A	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G

PROJECT ENGINEER: M-G

[redacted]

Form: 000

2/24

[redacted]

REV.	DATE	DESCRIPTION	BY
A	01/31/20	REVISED (PER CALCULATIONS COMMENTS)	M-G

PROJECT ENGINEER: M-G

CAD FILE: [redacted]

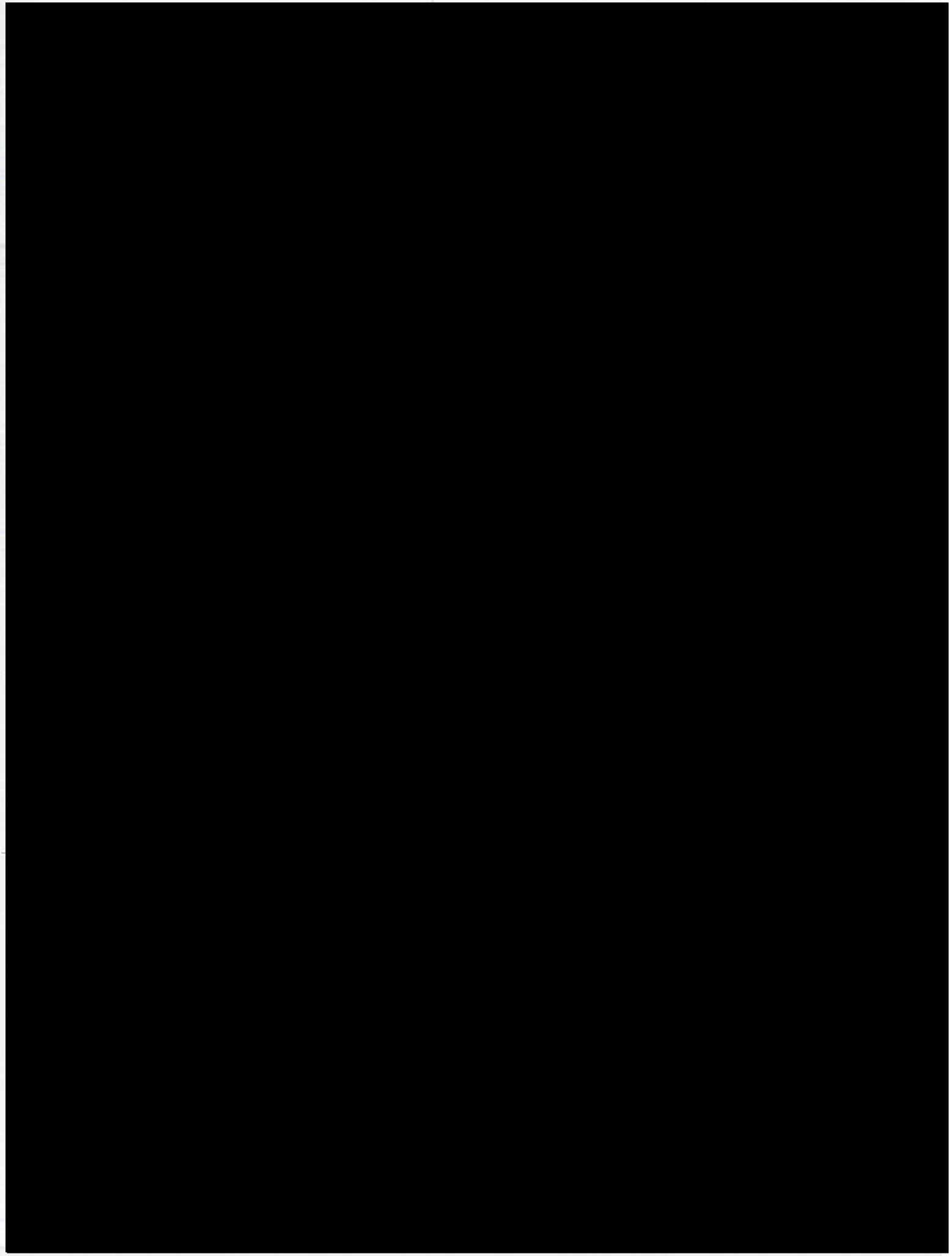
51626-609

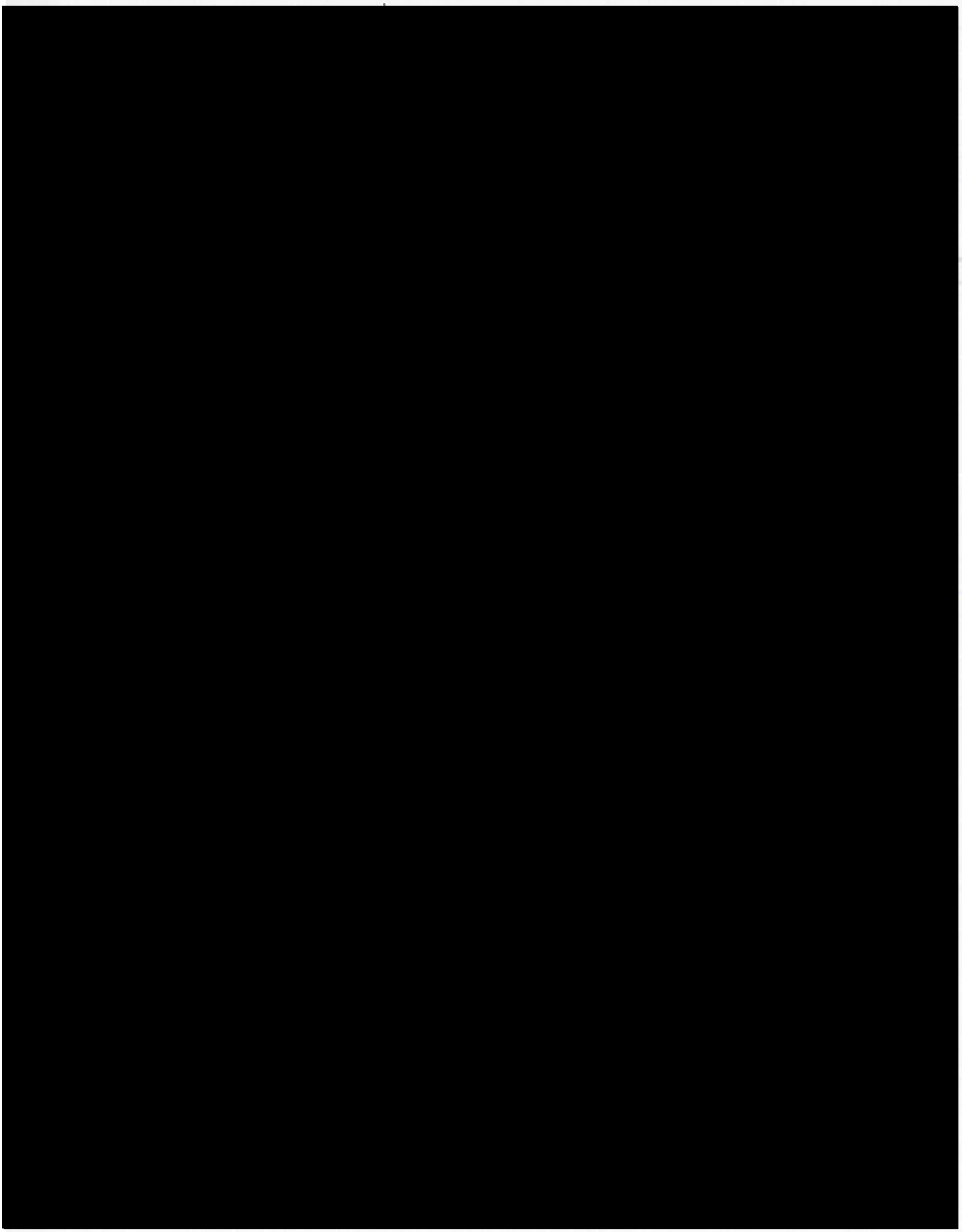
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Form: 000

So. Cal Gas Company

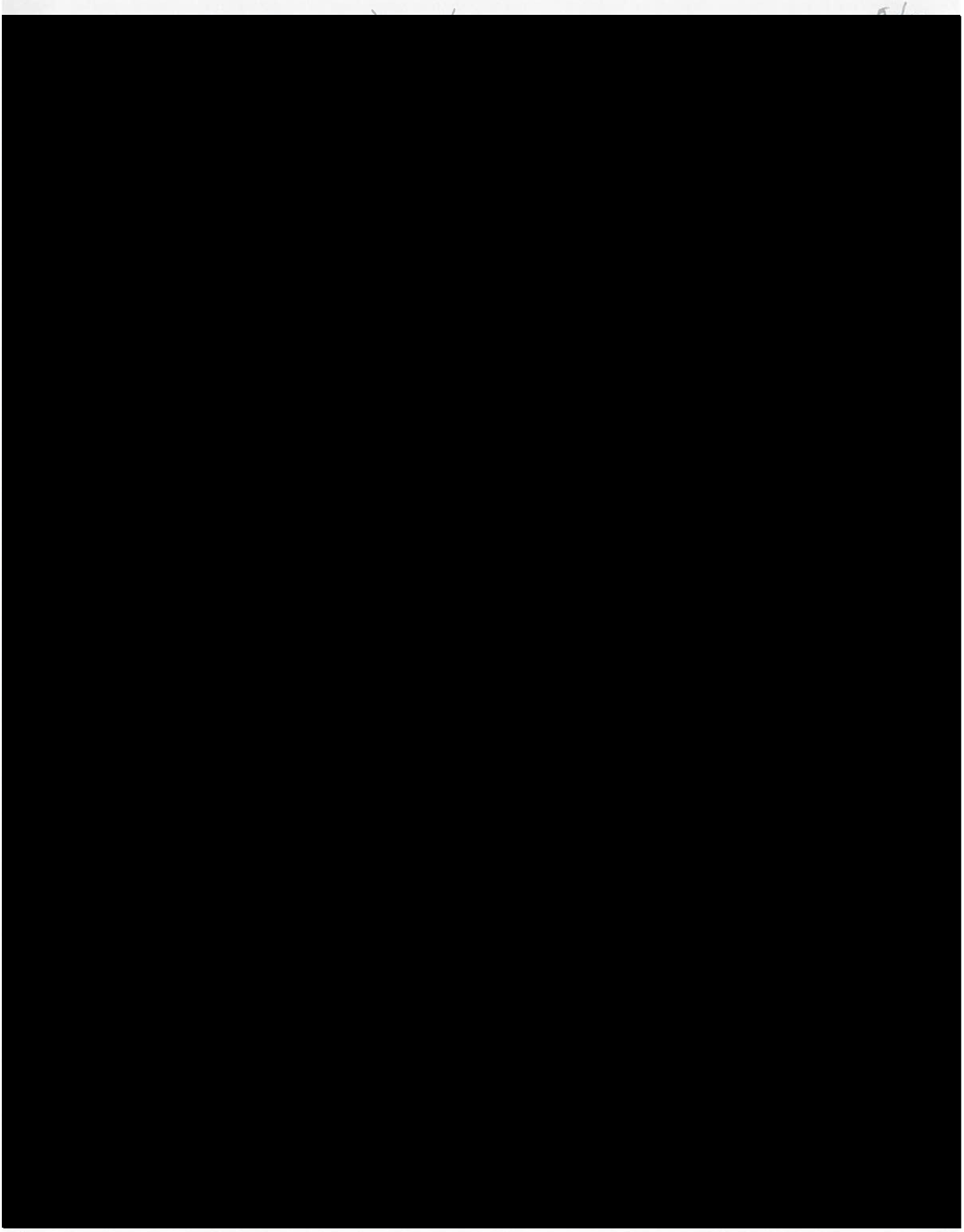
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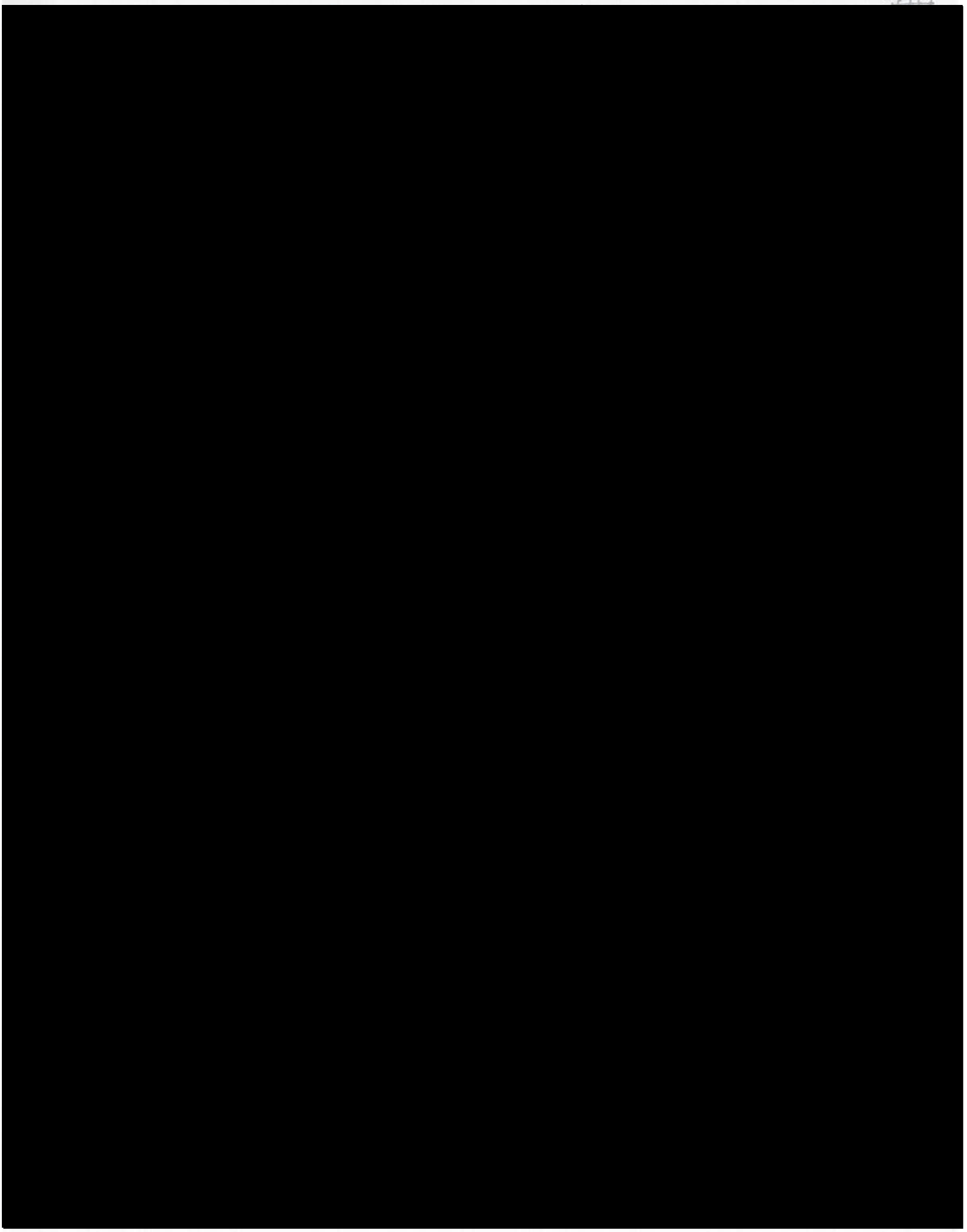


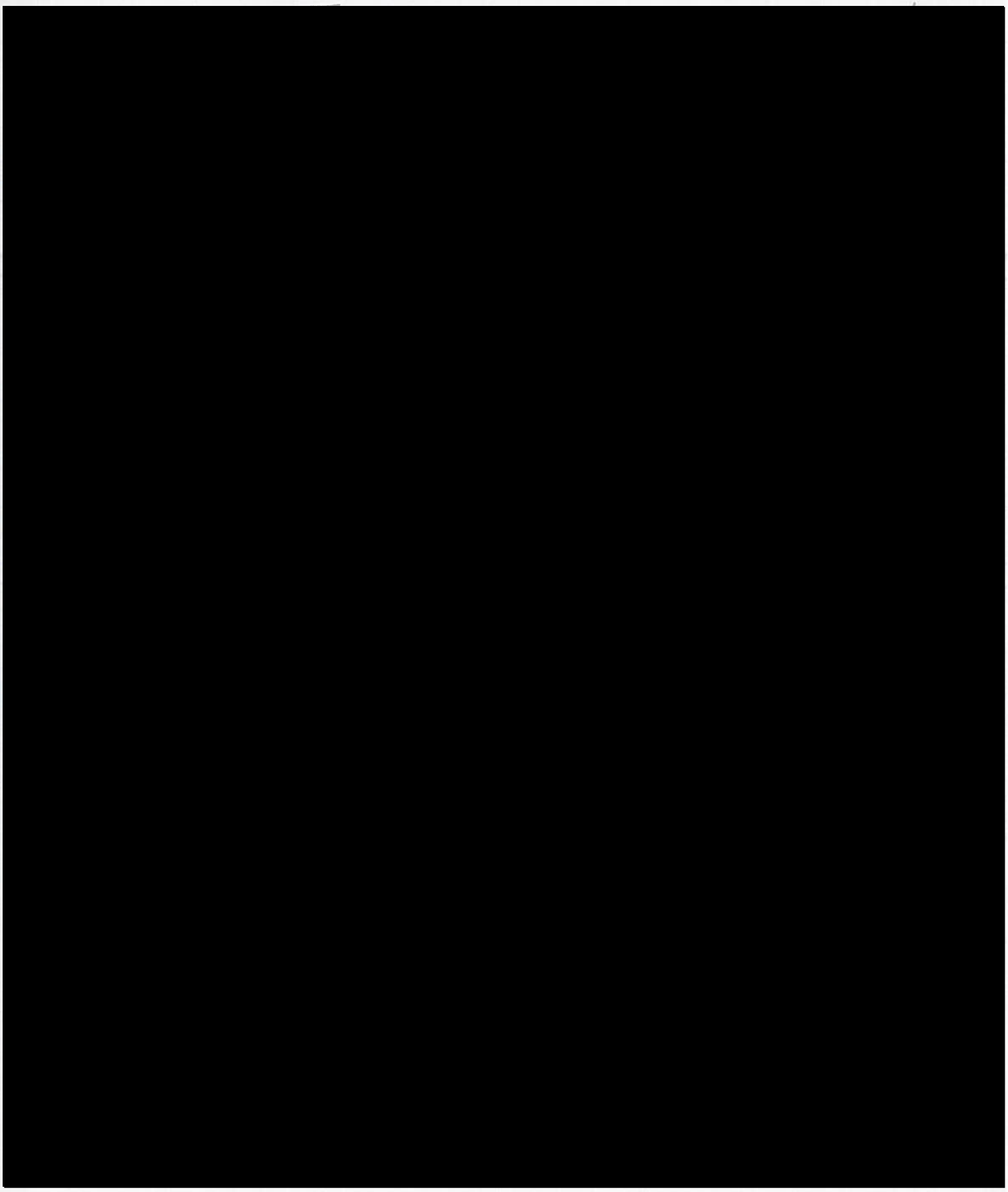


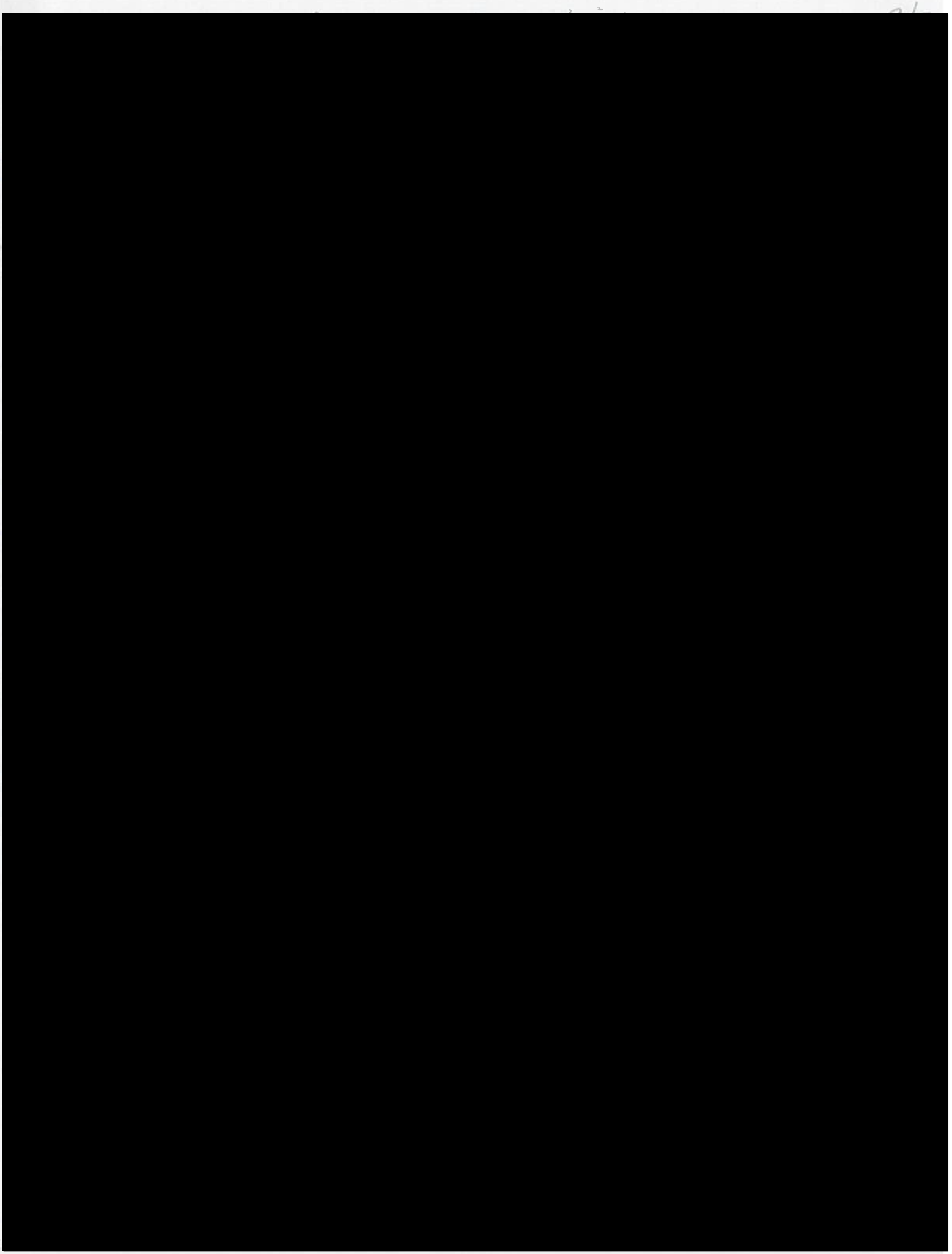
5/24

6/24

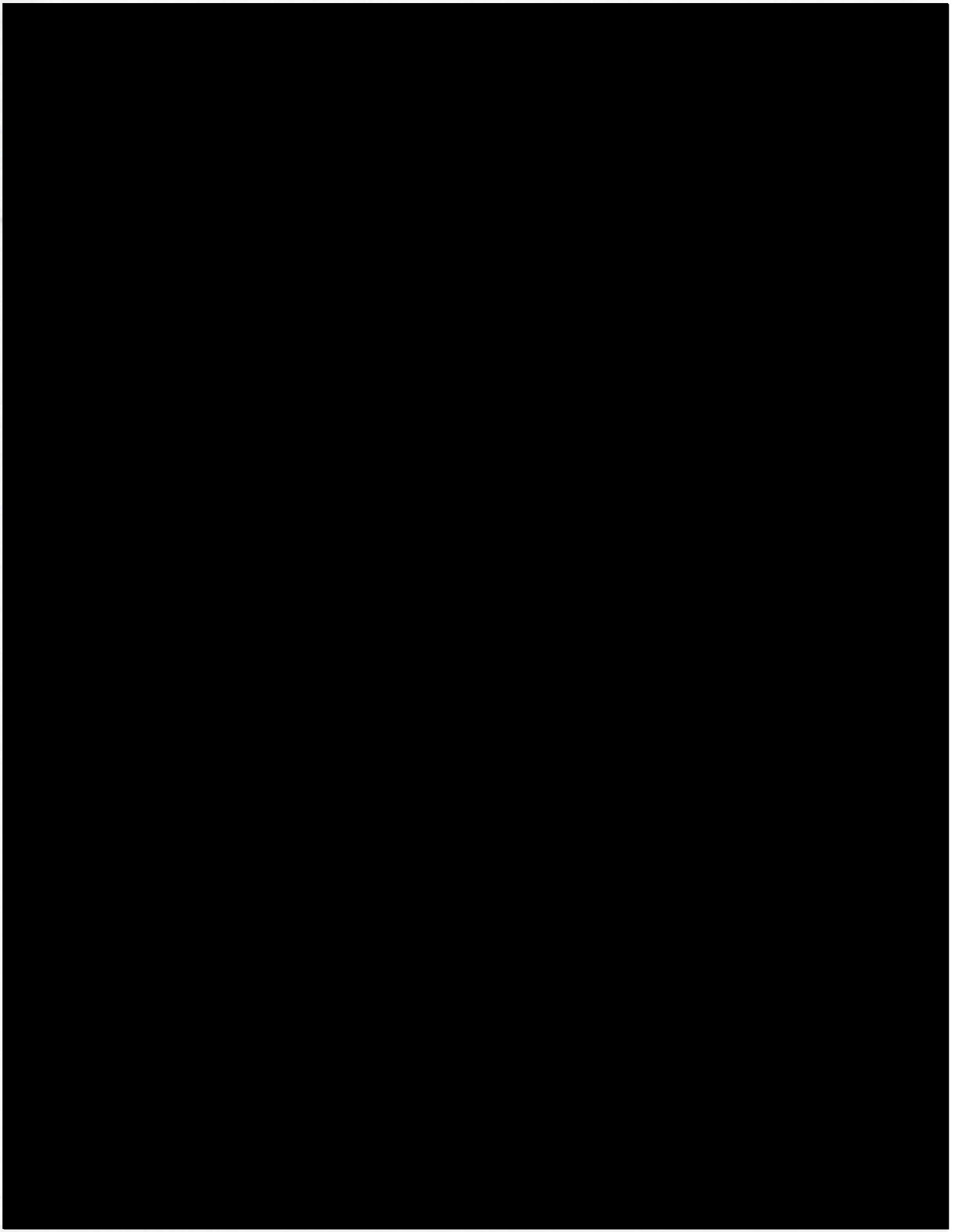




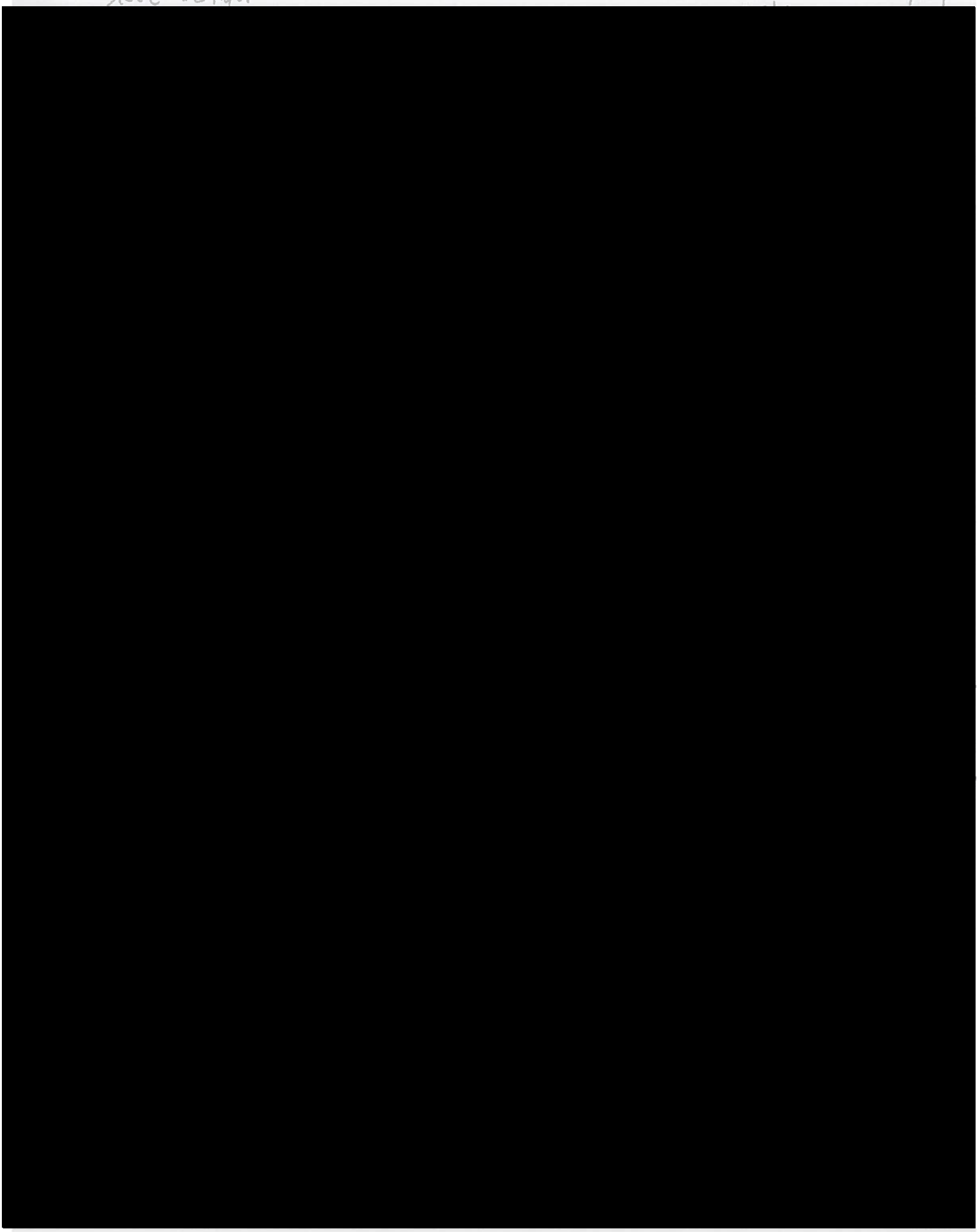




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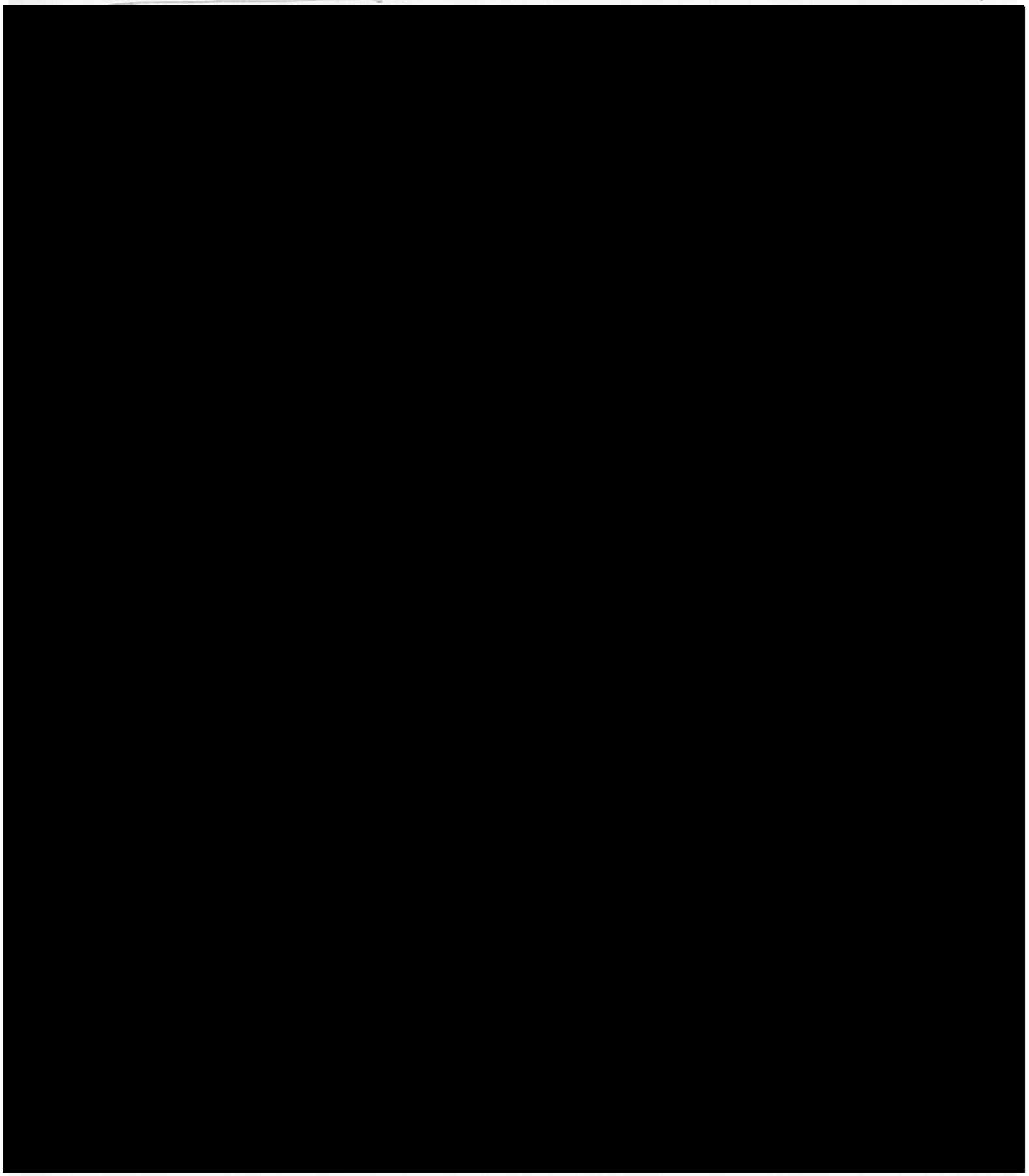


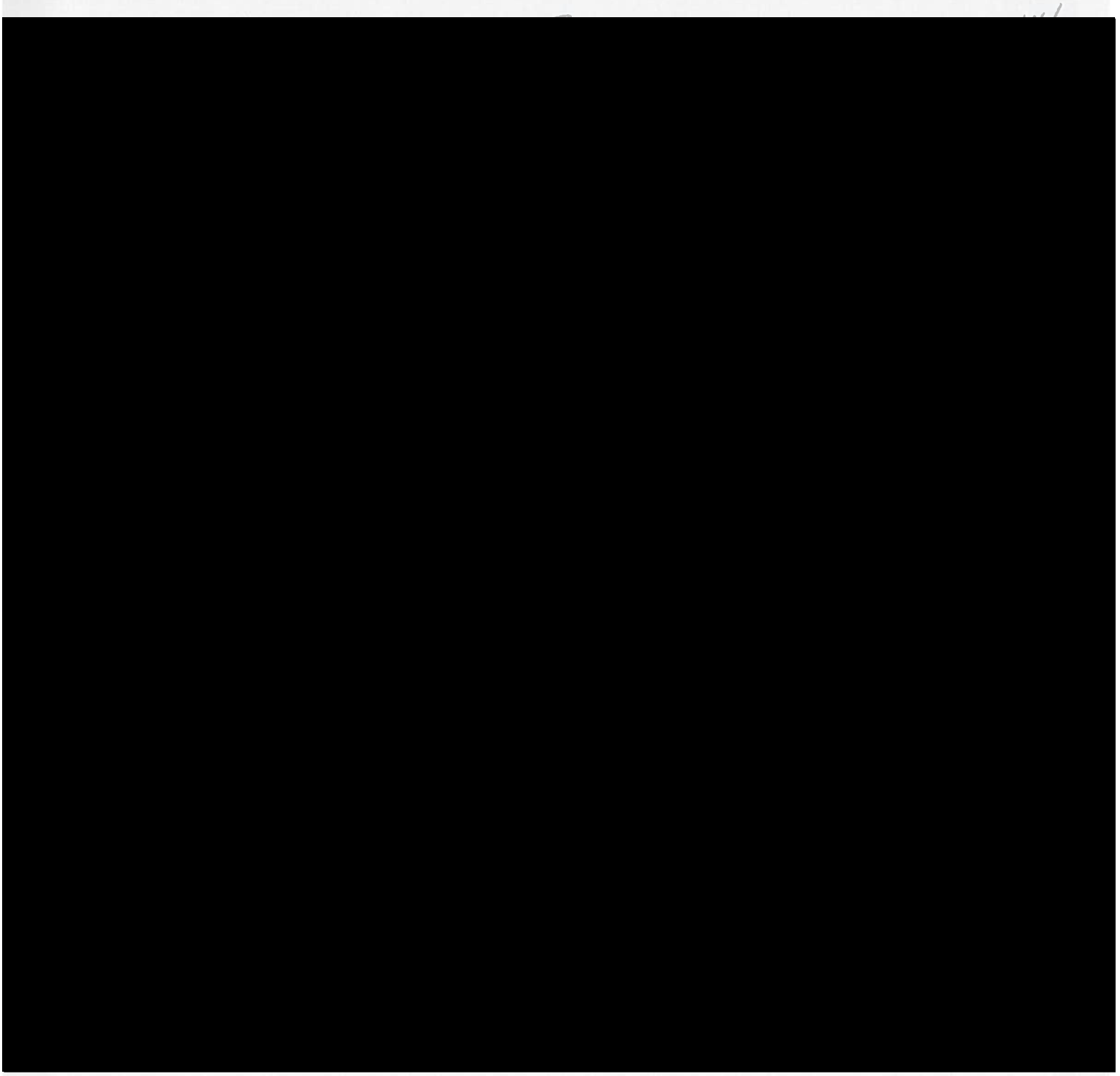
Skid Design



Check Lifting Lug

13/14





[redacted]

[redacted]

15/24

[redacted]

Risk Category: IV

Site Class: D

Basic Parameters

Name	Value	Description
[redacted]		

Additional Information

Name	Value	Description
[redacted]		



16/24

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

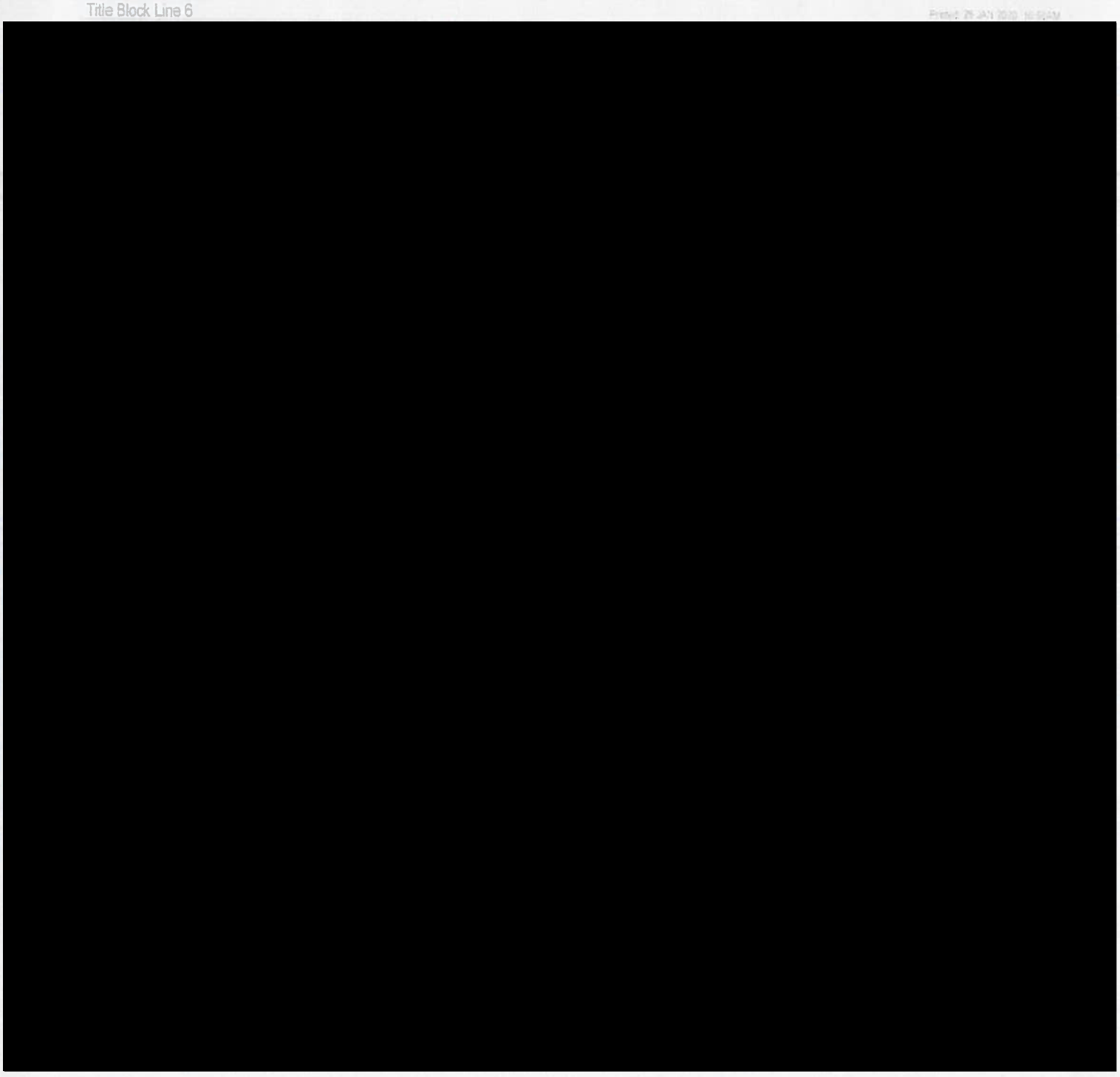
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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Title Block Line 1
You can change this area
using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

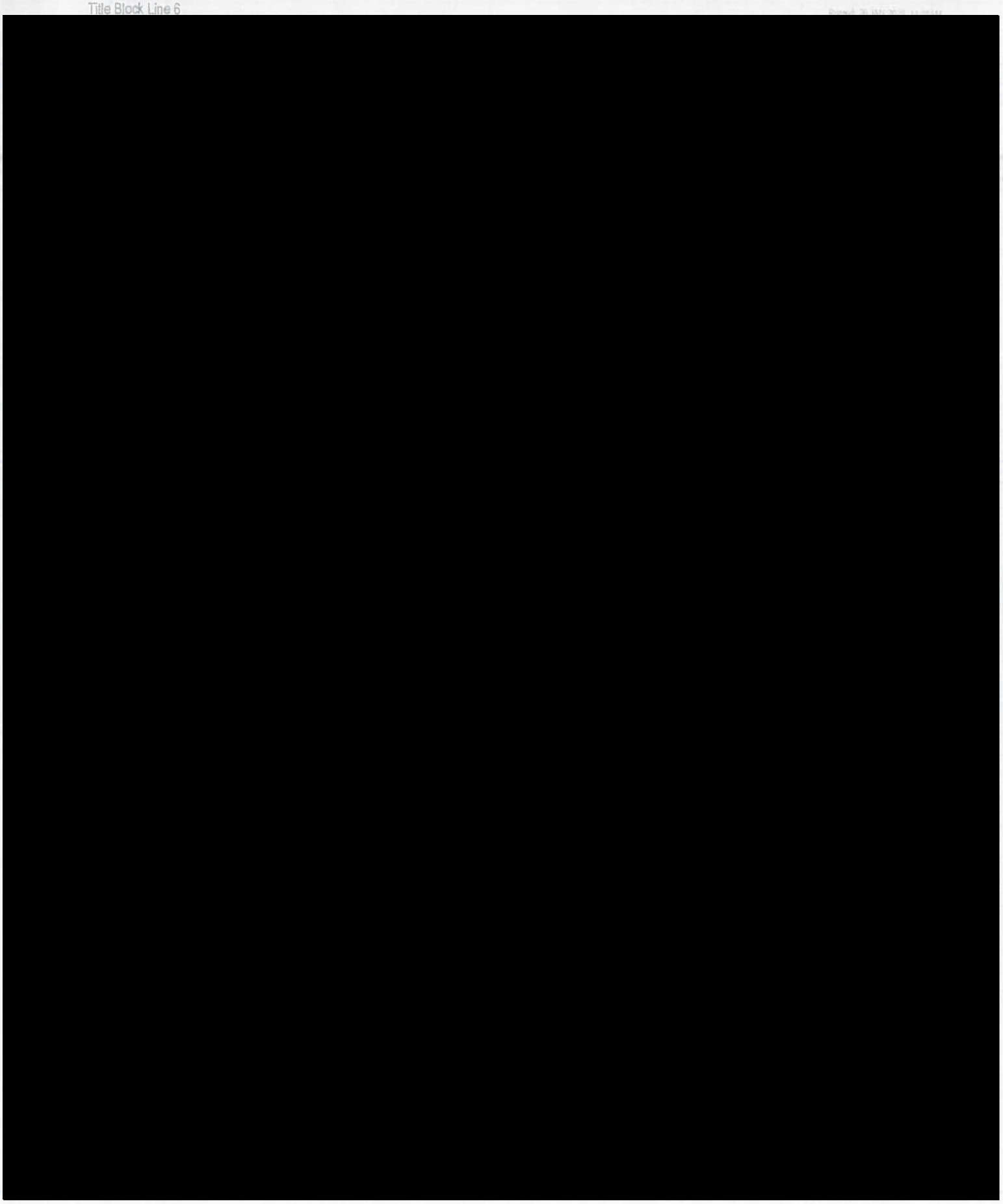
Project ID: 17/24



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Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr:

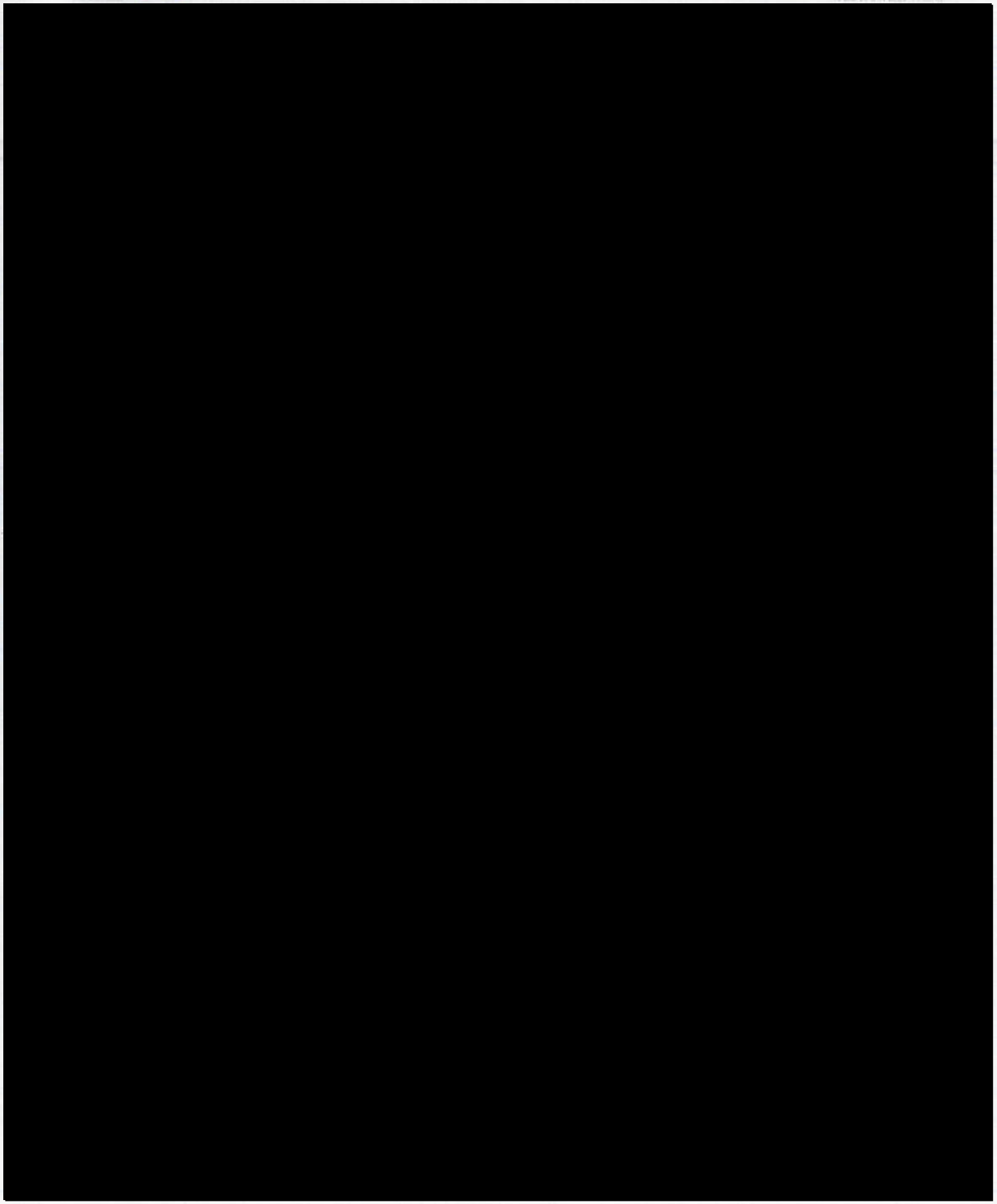
Project ID: 18/24



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Title Block Line 6

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Engineer:
Project Descr:

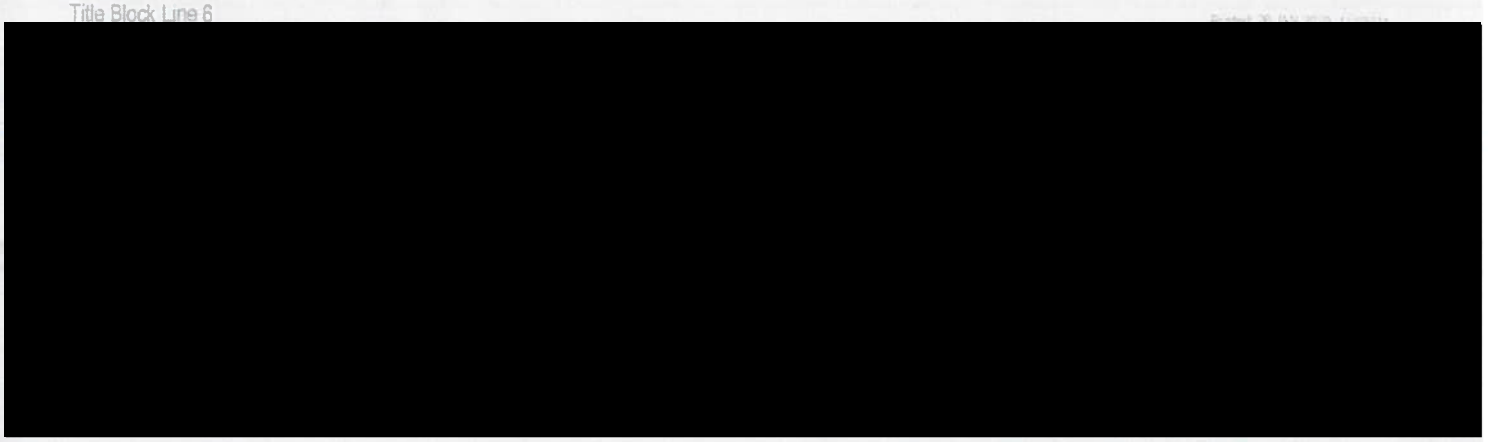
Project ID: 19/24



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using the "Settings" menu item
and then using the "Printing &
Title Block" selection.
Title Block Line 6

Project Title:
Engineer:
Project Descr

Project ID: 20/24



[redacted]

21/24

[redacted]

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jan 26, 2020	Date:	1/26/2020
Fastening point:			

Specifier's comments:

1 Input data

[redacted]

Anchor type and diameter:
Return period (service life in years):
Item number:
Effective embedment depth:
Material:
Evaluation Service Report:
Issued I Valid:
Proof:
Stand-off installation:
Profile:
Base material:
Reinforcement:

Seismic loads (cat. C, D, E, or F)

Geometry [in.] & Loading [lb, in.lb]

[redacted]

[redacted]

[redacted]

Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jan 26, 2020	Date:	1/26/2020
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]

[redacted]

[redacted]

[redacted]

23/24

[redacted]

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	Proof	Load	Capacity	β_N / β_V [%]	Status
Tension	[redacted]				
Shear					

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	-	-	-	-	N/A

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

[redacted]

[redacted]

[redacted]

Company:		Page:	4
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jan 26, 2020	Date:	1/26/2020
Fastening point:			

4 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with [redacted]echnical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant [redacted]roduct. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by [redacted]n a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via t[redacted]Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

[redacted]

4. – Test Reports

[redacted]

CERTIFIED PRODUCTION TEST REPORT

PDC (POWER DISTRIBUTION CENTER)

PCEP SHOP ORDER NUMBER: 51826

EQUIPMENT: PDC
INTEGRATED POWER
CENTER: MCC. 1200A, 480V

CUSTOMER: So. CAL. GAS COMPANY

P.O. / CONTRACT: _____

USER: LAKESIDE DAIRY
PILOT - CA.

PCEP PROJECT ENGINEER: KW

QC

[redacted]

[redacted]

PRODUCTION TEST #1

DIELECTRIC TEST, CABLE, BUS
REFERENCE: ANSI/IEEE C37-20-1-5-3-1

Unit: 1 Volts: 480 Amps: 1200

Type of Equipment: EMERGENCY GEN CONNECTION BOX

Reference Drawings: 51826

Test Equipment Used: **HI-POTRONICS Model 750-10AC**

Test Potential: 2.4 KV Duration of Test: 1

[redacted]

Corrections required to complete test: NON

Comments: NON

Tested By: RE Date: 9/17/20

The above test was performed in accordance with ANSI/IEEE C37.20.1 all results are satisfactory.

Certified by [redacted] Date: 9/18/20

Customer Witness: Date:

Job Number: 51826

[redacted]

[redacted]

CUSTOMER SUPPLIED EQUIPMENT

Unit: 7 Volts: 480 Amps: 1200

Type of Equipment: MCC

Reference Drawings: 51826

1. Install shipping split bus bars. 1 *
2. Torque and marking of the bus joints. 2 *
3. Bus joint and boots installation. 3 *
4. GND Connection. 4 *
5. Photo of bus bar connection at splits. 5 *

Special Feature: MCC PROVIDE BY. [redacted] INSTAL JOINT. BUS BY. [redacted]

Tested By: AE|LG Date: 9|17|20

The above test was performed in accordance with ANSI/IEEE C37.20.1 all results are satisfactory.

Certified by: [redacted] Date: 9|18|20

Customer Witness: _____ Date: _____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #2

IPA UTILITIES CONTROL WIRING INSULATION
REFERENCE: ANSI/IEEE C37-20-1-5-3-4-2

Unit: PDC Volts: 480 Amps: 1200

Type of Equipment: PDC

Reference Drawings: 51826

Test Equipment Used: DIELECTRIC TEST SET

Test Potential: 1000 V Duration of Test: 1 Minute

List devices disconnected or shorted for test:

N/A

(Meters, solid state devices (if any) and all grounding conductors)

Comments: ALL POWER Cable TESTED MEGGR FOR 5000 V. "PASSED"

Tested By: AEI LG Date 9/17/20

The above test was performed in accordance with ANSI/IEEE C37.20.1 all results are satisfactory.

Certified by: [redacted] Date: 9/18/20

Customer Witness: _____ Date: _____

Job Number: 51826

[redacted]

[redacted]

VISUAL AND MECHANICAL INSPECTION

Unit: PDC Volts: 480 Amps: 1200

Type of Equipment: PDC

Reference Drawings: 51826

1. Check all equipment per bill of material.	1 *
2. Check location of all equipment per drawings.	2 *
3. Current and potential transformer polarity.	3 N/A
4. Potential transformer trunion/drawout operation.	4 N/A
5. C.P.T. fuse trunion operation.	5 N/A
6. Bus insulator, sleeves and boots where applicable.	6 *
7. Check torque of all bolted bus connections.	7 *
8. Proper bus clearance.	8 *
9. Proper bus phasing.	9 *
10. Control wiring (wiring protected from sharp edges and all connections properly tightened.)	10 *
11. Check operation of key interlocks (described below).	11 N/A
12. Doors: Latches, straightness, and stops.	12 *
13. Weatherproofing/gaskets	13 *
14. Paint-ASA 61, ASA 49, ASA 24, Other:_____	14 *
15. Instrument cases and transformer grounds.	15 *
16. Nameplates on nameplate schedule.	16 *
17. Lugs supplied per drawings.	17 N/A
18. Anchoring provisions.	18 *

Describe operation of mechanical and/or key interlocks:

N/A

Special Feature: NON

Tested By: AE|LG Date: 9|17|20

The above test was performed in accordance with ANSI/IEEE C37.20.1 all results are satisfactory.

Certified by: [redacted] Date: 9|18|20

Customer Witness:_____ Date:_____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #3

Unit: PDC Volts: 480 Amps: 1200

Type of Equipment: PDC

VISUAL & MECHANICAL INSPECTION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Verify overall module dimensions and arrangement in accordance with approved supplier drawings.
			2) Check that module doors are flush, properly sealed, and equipped with panic hardware.
			3) Verify that module finish is in accordance with the specifications.
			4) Verify clearances in accordance with specifications and NEC code.
			5) Confirm that nameplates have been provided for every piece of equipment.
			6) Check external ground pads. Verify that lugs have been provided.
			7) Verify that internal ground buses are in accordance with the drawings and bonded to the external ground pads.
			8) Verify that internal wiring is as specified.
			9) Check that conduit penetrations are provided with suitable fire stop (when specified).
			10) Verify that HVAC system is installed in accordance with the drawings.
			11) Verify that fire-retardant backboards are installed in accordance with the drawings (when specified).
			12) Verify that all electrical components are UL labeled.
			13) Verify that all equipment are properly anchored and braced.
			14) Verify that a UL label is applied to the module.
			15) Verify that any module wall openings are covered for shipping.
			16) Confirm that keys for all doors and cabinets have been provided.
			17) Verify that lifting lugs are provided in accordance with the drawings and specifications.

TEST (FUNCTIONAL) - OPERATION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Verify operation of HVAC system, thermostat, and controls.
			2) Function testing of lighting and receptacles in accordance with attached form.
			3) Function testing of UPS system in accordance with attached form.
			4) Function testing of Emergency Power Off (EPO) system.
			5) Witness testing of fire protection system (if applicable).

Tested By: AE|LG. Date: 9|17|20

The above test was performed in accordance with ANSI/IEEE C37.20.2 all results are satisfactory.

Certified by: [redacted] Date: 9|18|20

Customer Witness: _____ Date: _____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #4

REFER TO NETA ATS 2007, SECTION 7.2.1.1

GENERAL DATA – Panelboard:

[redacted] Voltage: 240/120 Amp Rating: 125 SC Rating: 150

GENERAL DATA – Transformer:

Manufacturer: N/A KVA: N/A Pri. Voltage: N/A Sec Voltage: N/A

VISUAL & MECHANICAL INSPECTION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Check transformer nameplate voltage and power rating.
			2) Check panel board nameplate voltage and current ratings.
			3) Check each panelboard for a complete and accurate circuit directory.
			4) Check panel board circuit breaker rating sizes.
			5) Check size, type, and rating of all power and control power fuses.
			6) Check size and rating of control power transformer (if applicable).
			7) Check voltage rating of lighting contactor coil (if applicable).
			8) Check lighting contactor main and auxiliary contact condition and alignment (if applicable).
			9) Check lighting contactor and circuit breaker components for cleanliness including all seating surfaces of unplated and laminated magnet faces. Remove any rust or rust preventative.
			10) Check mechanical function of all contactor, disconnect switch, and circuit breaker movable parts.
			11) Check wiring for conformance to color code and proper identification per the drawings and specifications.
			12) Check size of power and grounding cables.
			13) Check conduits and cables for proper tagging per the drawings and specifications.
			14) Check equipment installations for location of seals, breathers, and drains.
			15) Check all components for proper identification per the drawings and specifications.
			16) Check all equipment items for conformance to area classification and environment.
			17) Check for proper equipment labeling.
			18) Inspect grounding connection to transformer secondary neutral, panelboard neutral bus, and equipment cases.
			19) Inspect transformer tap connections.

TEST – Insulation Resistance – Transformer (megohms – 1 minute test; 500V or 1000V applied voltage as applicable)

Primary:	N/A A-Gnd	– B-Gnd	– C-Gnd
Secondary:	N/A A-Gnd	– B-Gnd	– C-Gnd
Primary-Secondary:	N/A A-Gnd	– B-Gnd	– C-Gnd

TEST – Insulated Resistance – Panelboard (All Circuit Breakers Closed) (megohms – 1 minute test; 500V or 1000V applied voltage as applicable)

– A-Gnd – B-Gnd – C-Gnd *Tested by C-H panel board manufacturer.

TEST – Insulated Resistance – Feeder and Transformer Primary (megohms – 1 minute test; 500V or 1000V applied voltage as applicable)

– A-Gnd – B-Gnd – C-Gnd

TEST – Insulated Resistance – Transformer Secondary and Panelboard (All Circuit Breakers Closed)

(megohms – 1 minute test; 500V or 1000V applied voltage as applicable)

– A-Gnd – B-Gnd – C-Gnd

TEST (FUNCTIONAL) - Operation

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Verify transformer secondary voltage (based on normal operating load).
			2) Verify load balance of transformer.
			3) Verify proper operation of contactors and control circuits.

Tested By: AE/LG Date: 9/17/20

Certified by: [redacted] Date: 9/18/20

Customer Witness: Date:

QC

Job Number: 51826

D [redacted]

PCEP-F070

[redacted]

PRODUCTION TEST #5

REFER TO NETA ATS 2007, SECTION 7.22.2

GENERAL DATA - UPS

[redacted] ☒ PWM ☐ Ferroresonant

Size (KVA): 20 Primary Volts: 120 Primary Amps: 175 Phase: 1

Sec. Volts: 120 Sec. Amps: 175

GENERAL DATA – Maintenance Bypass Switch (MBS

Manufacturer: [redacted] Amps: 175 Volts: 120

GENERAL DATA – Bypass Transformer

Manufacturer: N/A Shielded: ☐ Yes ☑ No K Rated: ☐ Yes ☑ No

Size (KVA): N/A Primary Volts: – Sec. Volts: 120 Phase: 1

VISUAL & MECHANICAL INSPECTION

[redacted]

PASS	FAIL	N/A	DESCRIPTION
			1) Compare equipment nameplate data with drawings and specifications.
			2) Inspect physical and mechanical condition.
			3) Inspect anchorage, alignment, grounding, and required clearances.
			4) Verify correct connection in accordance with one-line diagram.
			5) Verify the units are clean.
			6) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method.
			7) Inspect enclosure ground connections.
			8) Verify correct operation of all alarms, indicating and control devices.
			9) Check power and control conduits and cables for proper tagging.
			10) Check for proper equipment labeling.
			11) Verify startup / shutdown instructions are provided on the UPS enclosure (if applicable).
			12) Verify operation of cooling fans. Clean filters if provided (if applicable).

STARTUP

Startup UPS in accordance with manufacturer's instructions.

☒ Startup by owner ☐ Startup by manufacturer or ITO, attach form [redacted]

TEST (FUNCTIONAL) - Operation

☐ Operate MBS ☒ Operate Static Switch ☒ Turn off input circuit breaker and verify operation of UPS

Tested By: AE|LG Date: 9|17|20

The above test was performed in accordance with ANSI/IEEE C37.20.1all results are satisfactory.

Certified by: [redacted] Date: 9/18/20

Customer Witness: _____ Date: _____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #6

	CABLE TRAY SYSTEMS	

VISUAL & MECHANICAL INSPECTION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Check that cable tray system. supports, and hardware materials are in accordance with the drawings for each area.
			2) Check that the tray size and number are in accordance with specifications and drawings.
			3) Check that expansion joints are properly installed.
			4) Check that all braces and supports are located in accordance with specifications and drawings.
			5) Check that all hold-downs are properly installed and that the tray is anchored only in the locations shown on the drawings
			6) Check that the tray system has no sharp edges to cut cable and that the tray hardware is assembled with bolt heads flush with inside of tray side rail.
			7) Check that all nonconductive coatings have been removed at splice joints ensuring continuity of electrical ground path or that the fittings are designed to make removal unnecessary.
			8) Confirm that field modifications continue to provide electrical ground path and proper support for cable.
			9) Check that bonding jumpers are installed in accordance with the drawings.
			10) Verify that there are no obstructions to prevent pulling of cables.
			11) Check that tray is grounded in accordance with the drawings.
			12) Check that the spacing between instrument and power trays is provided in accordance with the project specifications.
			13) Check that sufficient space is provided between hot (insulated) pipe services and tray system in accordance with the project specifications.
			14) Check that all covers. fire stops. and partitions are installed.
			15) Check that cables are properly secured to tray in accordance with the specifications and drawings.
			16) Check cable tray system for proper tagging per drawings and specifications.

Tested By: AEILG Date: 9/17/20

The above test was performed in accordance with ANSI/IEEE C37.20.2 all results are satisfactory.

Certified by: [redacted] Date: 9/18/20

Customer Witness: _____ Date: _____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #7

	LIGHTING AND RECEPTACLES	

VISUAL & MECHANICAL INSPECTION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Confirm that the conduit systems are inspected in accordance with the project specifications.
			2) Check that the size of power, neutral, and grounding conductors are in accordance with the drawings.
			3) Check wiring for conformance to color code and proper identification per the drawings and specifications.
			4) Check that the fixtures and receptacles are the correct type and installed in accordance with the drawings.
			5) Check that the fixtures and receptacles are in accordance with the area classification drawing (Temperature code, etc.).
			6) Verify the mounting height of fixtures and receptacles in accordance to the drawings.
			7) Check that the fixtures and receptacles are on the correct circuit.
			8) Check the fixture lamp wattage and voltage.
			9) Check receptacle neutral and ground connections.
			10) Confirm that the branch circuit conductors have passed an insulation resistance test.
			11) Confirm that the lighting/receptacle transformer and panelboard are inspected in accordance with the specifications.
			12) Confirm that illumination levels are in accordance with the project specifications.
			13) Check voltage of each receptacle.
			14) Check all components for proper tagging per the drawings and specifications.

GENERAL COMMENTS:

Tested By: AE|LG Date: 9/17/20

[redacted] Date: 9/18/20

Customer Witness:_____ Date:_____

Job Number: 51826

[redacted]

[redacted]

PRODUCTION TEST #8

	ABOVE GROUND CONDUIT SYSTEM	

VISUAL & MECHANICAL INSPECTION

PASS	FAIL	N/A	DESCRIPTION
[redacted]			1) Check that conduit system, supports, and hardware materials are in accordance with the drawings for each area.
			2) Check supports and spacing in accordance with customer specifications, drawings, and NEC code.
			3) Check that fittings are properly supported.
			4) Check that conduits are clean, stub-ups protected, and open ends plugged.
			5) Check that any damage during construction is repaired.
			6) Check that field bend radius is in accordance with the drawings and specifications and are free of deformities.
			7) Check that expansion joints are installed in accordance with specifications and drawings.
			8) Verify that the installation is neat and evenly spaced.
			9) Check that the spacing between instrument and power conduit is provided in accordance with project specifications.
			10) Check that sufficient space is provided between hot piping services, other hot surfaces, and conduit in accordance with the project specifications.
			11) Check that conduit is permanently and effectively grounded per customer specifications, drawings, and NEC code. Confirm bonding jumpers are installed around expansion joints and flexible conduit where required.
			12) Check that proper fittings are installed with threads fully engaged (and tight), no wrench cuts, conduit ends have Bushings and covers are installed.
			13) Check that seals and drains are installed in accordance with the drawings and specifications.
			14) Verify that the proper conduit material (i.e. aluminum, rigid EMT conduit) is installed when indicated on the drawings
			15) Check that flexible conduit is installed with proper bending radius and standard fittings.
			16) Check that junction boxes are leveled and supported with proper hubs, locknuts, and bushings in accordance with the Drawings. Confirm that junction boxes are properly identified.
			17) Verify that an adequate number of pulling points are provided.
			18) Check conduits for proper tagging per drawings and specifications.
			19) Check that conduit seals are properly poured.

GENERAL COMMENTS:

Tested By: AE\LG Date: 9\17\20

[redacted] Date: 9\18\20

Customer Witness: _____ Date: _____

Job Number: 51826

QC 13

[redacted]