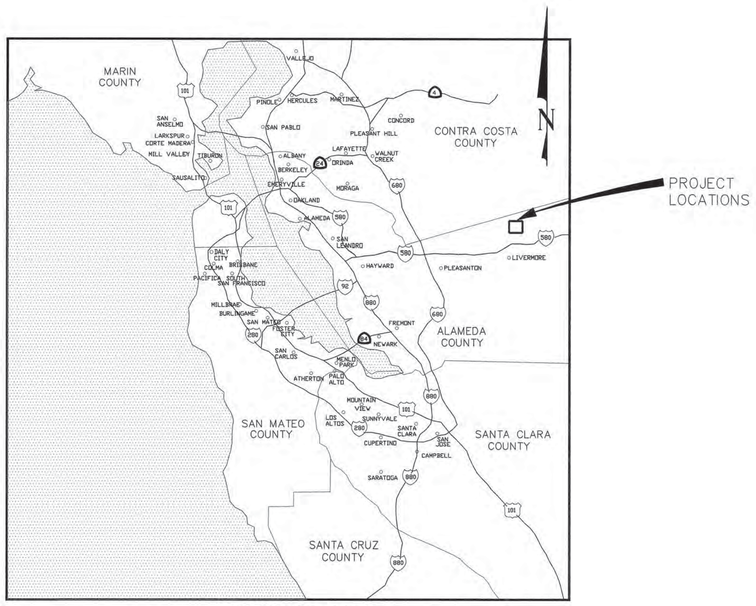
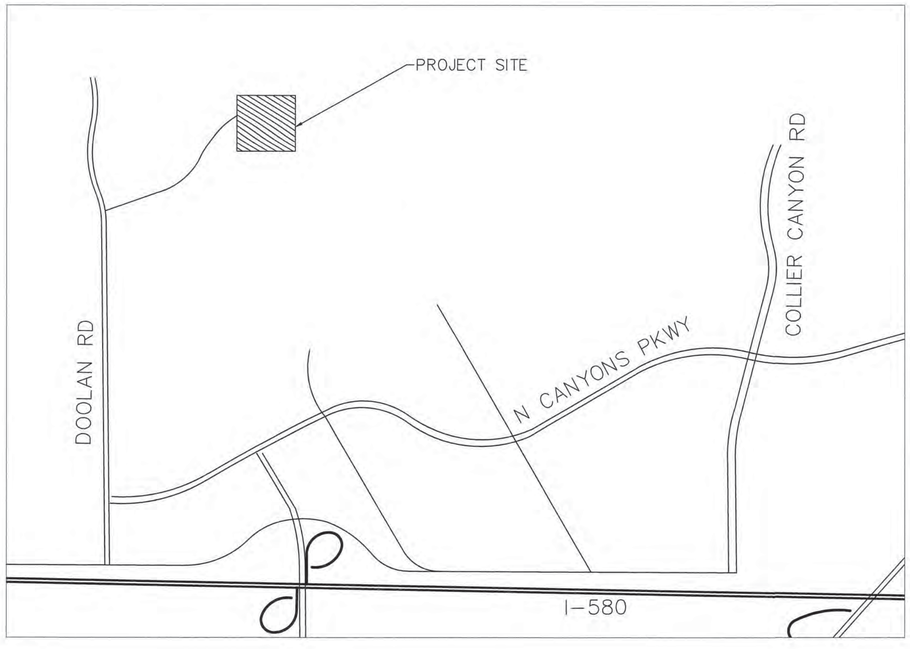
LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
DOOLAN ROAD GENERATOR INSTALLATION PROJECT
PROJECT #2022-01

TO BE SUPPLEMENTED BY STATE STANDARD PLANS DATED 2018



VICINITY MAP



VICINITY MAP
SCALE: NTS

NORTH

SHEET INDEX

OWNER

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
1362 RUTAN COURT, SUITE 100
LIVERMORE, CA 94551
PHONE: (925) 455-7555
CONTACT: DAVE MASSA

CIVIL ENGINEER

KIMLEY-HORN AND ASSOCIATES, INC.
1300 CLAY STREET, SUITE 325
OAKLAND, CA 94612
PHONE: (510) 625-0712
CONTACT: KEVIN AGUIGUI

APPROVAL OF THESE PLANS DOES NOT RELEASE THE CONTRACTOR OF THE RESPONSIBILITY FOR CORRECTION OF MISTAKES, ERRORS, OR OMISSIONS CONTAINED THEREIN. IF DURING THE COURSE OF CONSTRUCTION OF THE IMPROVEMENTS PUBLIC INTEREST REQUIRES A MODIFICATION OF OR A DEPARTURE FROM THE SPECIFICATIONS AND DETAILS OF THE CITY OF LIVERMORE OR THESE PLANS, THE ENGINEER FROM THE CITY SHALL HAVE THE AUTHORITY TO REQUIRE SUCH MODIFICATIONS OR DEPARTURE AND TO SPECIFY THE MANNER IN WHICH SAME IS TO BE MADE.

APPROVED AS TO DESIGN ONLY BASED ON INFORMATION SUBMITTED HEREON.

APPROVED FOR THE LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY:

BY: Tamara Edwards 10/20/22
TAMARA EDWARDS — DATE
INTERIM EXECUTIVE DIRECTOR

KIMLEY-HORN AND ASSOCIATES, INC.
PREPARED UNDER THE DIRECTION OF:

10/20/22
KEVIN AGUIGUI — DATE
R.C.E. 48732

REV.	DATE	DESCRIPTION

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
1362 Rutan Court, Suite 100, Livermore, CA 94551

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
DOOLAN ROAD GENERATOR INSTALLATION PROJECT
LIVERMORE CALIFORNIA

DRAWN:	MEW/SAR
CHECKED:	KGA
DEPUTY DIRECTOR:	
TRAFFIC ENGINEER:	

No. 048732 — 6/30/23 — REGISTERED PROFESSIONAL ENGINEER — KEVIN G. AGUIGUI — CIVIL — STATE OF CALIFORNIA

Kimley»Horn
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4637 CHABOT DR, STE 300
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PHONE: 925-398-4840
WWW.KIMLEY-HORN.COM

COVER SHEET

DATE: 12/02/2021
SCALE:
FILE NAME:

SHEET CV-01
1 OF 9

GENERAL NOTES

1. ALL MATERIAL AND WORKMANSHIP SHALL FULLY CONFORM TO THE SPECIFICATIONS, STANDARDS, AND ORDINANCES OF THE CITY OF PLEASANTON.
2. THE LOCATION AND DEPTHS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. THE UNDERGROUND CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CONTACT UNDERGROUND SERVICE ALERT AT 1–800–227–2600. ANY ADDITIONAL COST INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF IDENTIFIED OR UNIDENTIFIED UTILITIES, PRIOR TO BEGINNING OF CONSTRUCTION, SHALL BE BORNE BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL PROVIDE ADEQUATE COVER FOR THE PROTECTION OF ALL PROPOSED AND EXISTING UTILITIES DURING THE CONSTRUCTION OF THE PROJECT.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF ANY FIELD CONFLICTS.
5. ANY DEVIATION OR CHANGES IN THESE PLANS WITHOUT OFFICIAL APPROVAL OF THE DESIGN ENGINEER SHALL ABSOLVE THE DESIGN ENGINEER OF ANY AND ALL RESPONSIBILITY OF SAID DEVIATION OR CHANGE.
6. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
7. THE CONTRACTOR SHALL HAVE EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF THE JOB SITES.
8. ALL EXISTING UTILITIES AND PRIVATE IMPROVEMENTS, INCLUDING ALL PULL BOXES AND IRRIGATION FACILITIES, THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE ENGINEER, AT CONTRACTOR'S SOLE EXPENSE.
9. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, AND THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT JUST DURING NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE CITY AND LAVTA HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF CIVIL ENGINEER.
10. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
11. EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE AND IN PLACE BY THE CONTRACTOR DURING CONSTRUCTION UNLESS OTHERWISE SHOWN ON THE PLANS.
12. CONTRACTOR SHALL BE RESPONSIBLE AND ADVISE CITY OR UTILITY OWNER OF ANY DAMAGE TO ANY TRAFFIC SIGNAL SYSTEM IMMEDIATELY AND PAY FOR ALL REPAIRS. THE TRAFFIC SIGNAL SYSTEM SHALL BE REPAIRED WITHIN 48 HOURS. FIBER OPTIC CABLES IF DISTURBED SHALL BE FULLY REPAIRED WITHIN 72 HOURS. LIQUIDATED DAMAGES OF $100 EACH DAY MAY APPLY PAST THE 48 HOUR AND 72 HOUR PERIOD RESPECTIVELY.
13. ALL EXISTING SIGNS AND POSTS SHALL REMAIN UNLESS OTHERWISE NOTED.
14. SIDEWALK AND SAFE PEDESTRIAN PATHWAYS SHALL BE PROVIDED AT ALL TIMES. ANY WORK ASSOCIATED WITH REMOVAL OF SIDEWALK OR PEDESTRIAN PATHWAY AREA SHALL BE REPLACED WITHIN TEN (10) CALENDAR DAYS, LIQUIDATED DAMAGES OF $200 PER DAY WILL APPLY. AT ALL TIMES, SAFE PEDESTRIAN (ADA), BICYCLE AND VEHICLE ACCESS SHALL BE PROVIDED TO THE SATISFACTION OF THE ENGINEER. ALL AMENITIES REQUIRED FOR THE RECONSTRUCTION OF SIDEWALK AND BUS PLATFORM SHALL BE ON–HAND PRIOR TO DEMOLISHING THE EXISTING SIDEWALK.
15. WORK ON THESE PLANS SHALL CONFORM TO THE 2015 EDITION OF THE CALTRANS STANDARD SPECIFICATIONS, STANDARD PLANS, SIGN SPECIFICATION SHEETS, AND SPECIAL PROVISIONS.
16. ALL SIGN CODES REFER TO THE 2016 CALIFORNIA EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
17. THE CONTRACTOR SHALL DISPOSE OF EXCESS MATERIAL OFF–SITE IN CONFORMANCE WITH ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS.
18. THE CONTRACTOR SHALL MINIMIZE CONSTRUCTION NOISE.
19. LANE CLOSURES SHALL NOT BE PERMITTED. MAINTAIN THE EXISTING LANE CONFIGURATIONS, WITH A MINIMUM LANE WIDTH OF 11 FEET. THE FULL WIDTH OF THE TRAVELED WAY SHALL BE OPEN FOR USE BY PUBLIC TRAFFIC ON SATURDAYS, SUNDAYS AND DESIGNATED LEGAL HOLIDAYS; AFTER 3:00 P.M. ON FRIDAYS AND THE DAY PRECEDING DESIGNATED LEGAL HOLIDAYS; AND WHEN CONSTRUCTION OPERATIONS ARE NOT ACTIVELY IN PROGRESS.
20. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA ADMINISTRATIVE CODE, THE UNIFORM BUILDING CODE, CAL–OSHA, CITY, AND STATE REQUIREMENTS, THE GOVERNING BUILDING AUTHORITY, AND ANY SPECIAL REQUIREMENTS OF THE BUILDING PERMIT. ALL CODES, STANDARDS, AND SPECIFICATIONS SHALL BE AS AMENDED TO DATE, ANY VIOLATION WILL RESULT IN STOPPING OF ALL WORK UNTIL THE VIOLATION IS CORRECTED.
21. THE DRAWINGS AND SPECIFICATIONS DESCRIBE IN GENERAL THE QUALITY AND CHARACTER OF THE MATERIALS, SHAPE, AND CONFIGURATION OF IMPROVEMENTS AND THE DESIGN INTENT OF THE COMPLETED, INSTALLED WORK. MISCELLANEOUS ITEMS OF WORK, MATERIAL, EQUIPMENT, ETC., NECESSARY TO COMPLETE THE INSTALLATION SHALL BE PROVIDED BY THE CONTRACTOR WHETHER OR NOT MENTIONED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
22. DIVIDE ALL TOOLS, TRANSPORTATION, UTILITIES, TEMPORARY FACILITIES, AND OTHER SERVICES AS NECESSARY FOR PROPER EXECUTION OF THE WORK, AND ASSUME FULL RESPONSIBILITY FOR PROTECTION AND SAFEKEEPING OF THESE ELEMENTS DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE OF MATERIAL OFF–SITE AT NO EXTRA COST TO LAVTA OR THE CITY OF LIVERMORE.
23. MAINTAIN "GOOD HOUSEKEEPING" PRACTICES AT THE JOB SITE. LIMIT ON–SITE STAGING OF EXCESS BUILDING MATERIALS AND REMOVE DEBRIS PROMPTLY FROM THE JOB SITE AND DISPOSE OF AT AN APPROVED DUMPSITE. LEAVE THE JOB SITE "BROOM CLEAN" AT THE END OF EACH WORKDAY. BEFORE ACCEPTANCE BY THE ENGINEER AND CITY'S REPRESENTATIVE, THE COMPLETED CONSTRUCTION SHALL BE CLEANED, ANY APPLICABLE LABELS REMOVED, AND ALL OTHER TOUCHUP WORK COMPLETED. ALL FINISH MATERIALS SHALL BE PROTECTED AT ALL TIMES AGAINST SUBSEQUENT DAMAGE UNTIL FINAL ACCEPTANCE BY THE ENGINEER AND THE CITY'S REPRESENTATIVE.
24. THE CONTRACT DOCUMENTS ILLUSTRATE THE INTENT OF THE WORK TO BE PERFORMED. FIELD INVESTIGATE, VERIFY, AND BE RESPONSIBLE FOR ALL CONDITIONS, ELEVATIONS, AND DIMENSIONS OF THE PROJECT, AS SHOWN ON OR REFERENCED ON THE DRAWINGS, AND NOTIFY THE ENGINEER ABOUT ANY CONDITION REQUIRING MODIFICATION OR CHANGE PRIOR TO THE START OF CONSTRUCTION. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND CLEARLY UNDERSTAND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED PRIOR TO BIDDING. ENTERING INTO AN AGREEMENT WITH LAVTA INDICATES THAT THE CONTRACTOR HAS VISITED THE SITES, FAMILIARIZED HIMSELF OR HERSELF WITH EXISTING CONDITIONS AND REVIEWED SAME WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. NO ALLOWANCES OF ANY KIND WILL BE MADE FOR ANY EXTRA COST DUE TO THE CONTRACTOR'S FAILURE TO INFORM THE ENGINEER OF DISCREPANCIES IN TIME TO ISSUE CORRECTIVE ADDENDA PRIOR TO BIDDING.
25. CONSTRUCTION OPERATIONS: WASTEWATER GENERATED DURING CONSTRUCTION SHALL NOT BE DISCHARGED TO THE STORM DRAIN SYSTEM. THIS INCLUDES WASTE FROM PAINTING, SAWCUTTING, CONCRETE WORK, ETC. THE CONTRACTOR SHALL MAKE ARRANGEMENTS TO ELIMINATE DISCHARGE TO THE STORM DRAIN SYSTEM AND, IF NECESSARY, PROVIDE AN AREA FOR ON SITE WASHING ACTIVITIES DURING CONSTRUCTION. MATERIALS THAT COULD CONTAMINATE STORM RUNOFF SHALL BE STORED IN AREAS WHICH ARE DESIGNED TO PREVENT EXPOSURE TO RAINFALL AND NOT ALLOW STORM WATER TO RUN ONTO THE AREA. CONTRACTOR RESPONSIBLE FOR STORM WATER POLLUTION PREVENTION BEST MANAGEMENT PRACTICES CONSISTENT WITH INDUSTRY STANDARDS.
26. ALL EQUIPMENT GROUNDING SHALL CONFORM TO ARTICLE 250 OF THE NATIONAL ELECTRIC CODE, LATEST EDITION. ALL ELECTRICAL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, AS WELL AS STATE AND LOCAL CODES AND REQUIREMENTS.
27. ALL CONDUITS SHALL BE CONCEALED, UNLESS OTHERWISE NOTED.
28. WIITHIN TWENTY (20) DAYS FOLLOWING COMPLETION AND ACCEPTANCE OF THE PROJECT CONSTRUCTION CONTRACT, A FULL AND COMPLETE AS–BUILT DRAWING SET SHALL BE DEVELOPED BY THE CONTRACTOR FOR ALL BUS STOPS. THE CONTRACTOR SHALL MEET WITH THE ENGINEER AND THE CITY AND ITS PROJECT INSPECTOR PRIOR TO DEVELOPING AS–BUILT PLANS SO A CONSENSUS CAN BE REACHED ON HOW TO SHOW FIELD CHANGES THAT WERE NOT DIRECTLY REFLECTED IN THIS PLAN SET. AS–BUILT DRAWINGS SHALL NOT BE SUBMITTED FOR CITY REVIEW UNTIL ALL CONSTRUCTION ITEMS ARE IN PLACE AND COMPLETE. THE AS–BUILT DRAWINGS ARE TO BE A TRUE REPRESENTATION OF ELEMENTS THAT EXIST AS A RESULT OF THE COMPLETED CONSTRUCTION PROJECT AS OUTLINED IN THIS PLAN SET. THE AS–BUILT PLAN SET SHALL BE IN A FORMAT EXACTLY AS REPRESENTED IN THIS DRAWING. THREE (3) FULL SIZED SETS (24"X36") OF THE AS–BUILTS DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND THE CITY FOR REVIEW. ONCE REVISIONS ARE MADE BY THE CONTRACTOR, AS DICTATED BY THE ENGINEER AND THE CITY, THE CONTRACTOR SHALL RESUBMIT THREE (3) FULL SIZED SETS (24"X36") TO THE ENGINEER AND THE CITY FOR THEIR REVIEW UNTIL THE PLAN IS APPROVED IN WRITING BY THE ENGINEER AND THE CITY.
29. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR SUBCONTRACTOR.
30. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS, UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

LEGEND

PROPOSED		EXISTING
——— – ———	CONDUIT	——— – ———
	CURB	
	EDGE OF PAVEMENT	
	SIDEWALK	
	FENCE	—— x —— x ——
	ELECTRICAL UNDERGROUND	———(UE)———
	PULL BOX/UTILITY VAULT	
	SERVICE CABINET	
	CONTROLLER CABINET	
	GENERATOR	
ATS	AUTOMATIC TRANSFER SWITCH	
	PROPANE TANK	

ABBREVIATIONS:

A	– AMP
AC	– AIR CONDITIONER
AIC	– AMPERE INTERRUPTING CAPACITY
ATS	– AUTOMATIC TRANSFER SWITCH
GND	– GROUND
kVA	– KILOVOLT–AMPS
NEUT	– NEUTRAL
P	– POLE
PR	– PAIR
V	– VOLT
W	– WATT

REV.	DATE	DESCRIPTION

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1362 Rutan Court, Suite 100, Livermore, CA. 94551

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DOOLAN ROAD GENERATOR INSTALLATION PROJECT
LIVERMORE CALIFORNIA

DRAWN:	MEW/SAR
CHECKED:	KGA
DEPUTY DIRECTOR:	
TRAFFIC ENGINEER:	

PROFESSIONAL ENGINEER — No. 048732 — 9/30/22 — STATE OF CALIFORNIA

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GENERAL NOTES

DATE: 12/02/2021
SCALE: NONE
FILE NAME:

SHEET
GN-01
2 OF 9

DETAIL 'A'

SCALE: 1"=2'

CONDUCTOR/CONDUIT SCHEDULE							
CONDUIT			CONDUCTORS				
NO.	SIZE	STATUS	QTY	SIZE	FROM	TO	PURPOSE
G-01	SEE PLUMBING SHEETS FOR DETAILS						
G-02	SEE PLUMBING SHEETS FOR DETAILS						
E-03	3"	NEW	3	#1 AWG	GENERATOR	AUTOMATIC TRANSFER SWITCH	POWER – GENERATOR
			1	#1 AWG			GROUND
			1	8-PR #16AWG			GENERATOR CONTROLS
E-04	2"	NEW	3	#1 AWG	AUTOMATIC TRANSFER SWITCH	SERVICE CABINET	POWER – GENERATOR
			1	#1 AWG			GROUND
E-05	2"	NEW	3	#1 AWG	AUTOMATIC TRANSFER SWITCH	SERVICE CABINET	POWER – UTILITY
			1	#1 AWG			GROUND

CONSTRUCTION NOTES:

1. REMOVE EXISTING FOUNDATION AND REPLACE IN KIND. REMOVED FOUNDATION TO BE DISPOSED OF BY THE CONTRACTOR.
2. REMOVE AND SALVAGE EXISTING FENCE.
3. FURNISH AND INSTALL 7.5' x 4' PAD PER DETAIL 2 ON SHEET ST-01.
4. FURNISH AND INSTALL PROPANE TANKS. SEE PLUMBING SHEETS FOR ADDITIONAL DETAILS.
5. FURNISH AND INSTALL 3" CONDUIT WITH GAS HOSE FOR CONNECTION BETWEEN AUTOMATIC SWITCHOVER VALVE AND GENERATOR. SEE PLUMBING SHEETS FOR ADDITIONAL DETAILS.
6. FURNISH AND INSTALL AN AUTOMATIC SWITCHOVER VALVE IN PULL BOX FOR DUAL PROPANE TANKS. SEE PLUMBING SHEETS FOR ADDITIONAL DETAILS.
7. EXISTING SERVICE CABINET TO REMAIN. INSTALL CONDUIT INTO SERVICE CABINET VIA EXTERNAL ELBOW. SEE DETAIL 'E' ON SHEET 5.
8. PROTECT IN PLACE EXISTING CABINET AND EQUIPMENT.
9. FURNISH AND INSTALL CONDUIT AND CONDUCTORS. SEE CONDUCTOR/CONDUIT SCHEDULE FOR CONTENTS.
10. GENERATOR SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 3' ON FRONT AND BACK OF GENERATOR.
11. PROTECT IN PLACE EXISTING GATE.
12. TERMINATE NEW AUTOMATIC TRANSFER SWITCH CONDUCTORS ON EXISTING 100A/2P MAIN BREAKER TERMINALS ON PANEL 'LA'. SEE DETAIL 'A' ON SHEET 3 FOR WIRING DIAGRAM.
13. EXISTING 1-1/2" CONDUIT WITH ELECTRICAL CONDUCTORS TO REMAIN.
14. PROTECT IN PLACE EXISTING FENCE.
15. FURNISH AND INSTALL 6'x 4.5' PAD FOR PROPANE TANKS PER DETAIL 2 ON SHEET ST-01.
16. FURNISH AND INSTALL #5 PULL BOX.
17. FURNISH AND INSTALL 14 KW STANDBY GENERATOR, GENERATOR SHALL BE AIR COOLED AND PROPANE POWERED.
18. FURNISH AND INSTALL 3" CONDUIT WITH GAS HOSE FOR CONNECTION BETWEEN PROPANE TANKS AND AUTOMATIC SWITCHOVER VALVE. SEE PLUMBING SHEETS FOR ADDITIONAL DETAILS.
19. FURNISH AND INSTALL AUTOMATIC TRANSFER SWITCH IN A NEMA 3R RATED ENCLOSURE FOR GENERATOR.
20. FURNISH AND INSTALL GROUND ROD IN PULL BOX.
21. PROPANE TANKS SHALL BE ANCHORED TO CONCRETE PAD PER DETAIL 4 ON SHEET ST-01.
22. GENERATOR SHALL BE MANUFACTURED WITH MOUNTING HOLES AND SHALL BE ANCHORED TO CONCRETE PAD PER DETAIL 1 ON SHEET ST-01. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF THE GENERATOR MOUNT TO THE CONCRETE PAD.
23. MAXIMUM GENERATOR SIZE SHALL BE 48"L x 26"W x 30"H.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

REV.	DATE	DESCRIPTION

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DRAWN: MEW/SAR
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TRAFFIC ENGINEER:

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ELECTRICAL

DATE: 12/02/2021
SCALE:
FILE NAME:

SHEET E-01
3 OF 9

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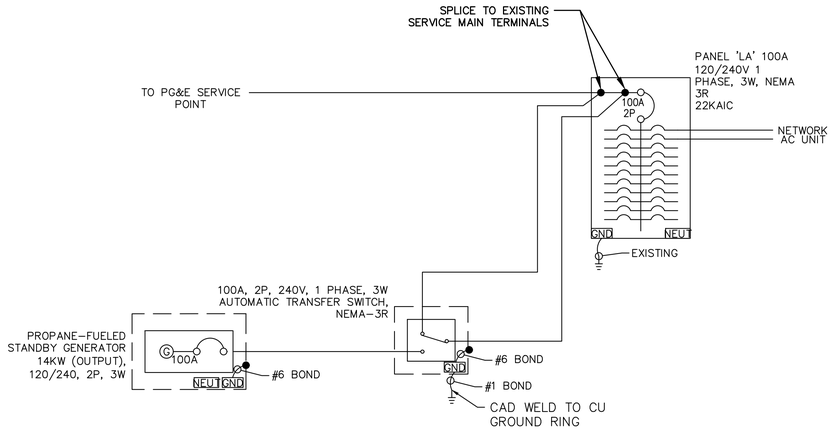

A — ONE LINE DIAGRAM – PROPOSED

– SCALE: NOT TO SCALE

PANEL: LA									
VOLTAGE: 120/240				PANEL BUS: 100 AMPS					
PHASE, WIRES: 1Ø, 3W				MAIN: 100 BREAKER					
SCCR (AMPS): 42,000									
SOURCE: UTILITY									
DESCRIPTION	VA	CB	CKT	A	B	CKT	CB	VA	DESCRIPTION
NETWORK (EXISTING)		20/1	1	0.0		2	20/1		AIR CONDITIONER (EXISTING)
GENERATOR (NEW)		20/1	3		0.0	4	40/1		SPARE
SPARE		20/1	5	0.0		6	30/2		SPARE
SPARE		20/1	7		0.0	8			SPARE
SPARE		20/1	9	0.0		10			SPARE
SPARE			11		0.0	12			SPARE
			TOTALS	0.0	0.0	AMPS			
LOAD CALCULATIONS:	SUBTOTAL (VA):			0					
	+25% PER NEC (VA):			0					
	TOTAL (VA):			0					

B — PANEL SCHEDULE

– SCALE: NOT TO SCALE

GENERATOR LOAD CALCULATION		
LOAD DESCRIPTION		
EXISTING LOADS	WATTS	AMPS
BATTERY BACKUP	14W	.1A
TRAPEZE MODEM	100W	.8A
NORTHERN TECHNOLOGIES SWITCH	25W	.2A
TRAPEZE SWITCH	150W	1.3A
3COM SWITCH	20W	.2A
CISCO ROUTER	15W	.1A
VIEWSONIC MONITOR	250W	2.1A
TAIT FAN DEVICE	75W	.63A
TX RX PRESELECTOR	125W	1.0A
OUTLETS (MAX POWER DRAW)	360W	3.0A
PENTAIR AIR CONDITIONER	1084W	9.0A
PROPOSED LOADS		
GENERATOR ANCILLARY LOADS	4W	.03A
TOTAL LOAD	2218W	18.5A
% LOADED (TOTAL LOAD/100A)		18.5%

C — LOAD CALCULATIONS TABLE

– SCALE: NOT TO SCALE

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TRAFFIC ENGINEER:

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DETAILS

DATE: 12/02/2021
SCALE:
FILE NAME:

SHEET DT-01 4 OF 9

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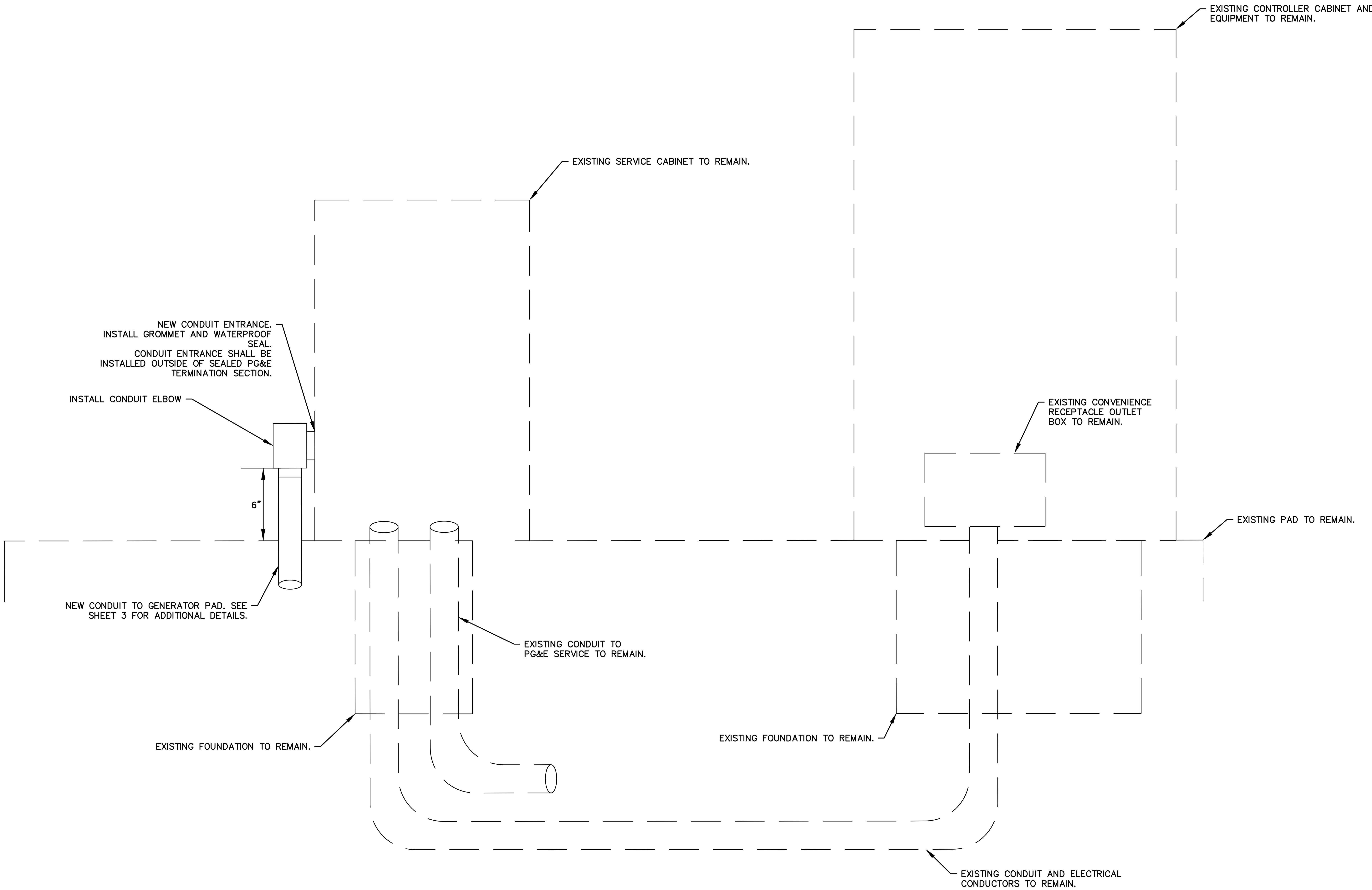

E / **-** SERVICE CABINET CONNECTION

SCALE: NOT TO SCALE

REV.	DATE	DESCRIPTION

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REGISTERED PROFESSIONAL ENGINEER KEVIN G. AGUIGUI No. 048732 9/30/22 CIVIL STATE OF CALIFORNIA

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DETAILS

DATE:	12/02/2021
SCALE:	
FILE NAME:	

SHEET
DT-02
5 OF 9

K:\OAK_ITS\097447107 – LAVTA Doolan Rd\04_CADD\Plan Sheets\5 DT-02.dwg Jun 02,2022 – 2:50pm Kaitlyn.Theonnes

GENERAL NOTES

1.0 DESIGN DATA

1.01 **PROJECT ADDRESS:** 3801 DOOLAN ROAD, LIVERMORE, CA

1.02 **OWNER**: LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
1362 RUTAN COURT, SUITE 100
LIVERMORE, CA 94551
925-455-7555
PROJECT MANAGER: DAVE MASSA

1.03 **STRUCTURAL ENGINEER:** JOSEPH NUNNELEY, PE, SE
KIMLEY-HORN AND ASSOCIATES
4637 CHABOT DRIVE, SUITE 300
PLEASANTON, CA 94588
925-398-4840
JOE.NUNNELEY@KIMLEY-HORN.COM

1.04 **PROJECT SCOPE OF WORK:** ANCHORAGE OF GENERATOR AND PROPANE TANKS

1.05 **BUILDING CODE**: CALIFORNIA BUILDING CODE 2019

1.06 **DESIGN LOADS**

A. EARTHQUAKE DESIGN DATA

RISK CATEGORY	II
IMPORTANCE FACTOR	1.0
SITE CLASS	D - DEFAULT PER ASCE 7 SECTION 11.4.3
SPECTRAL RESPONSE ACCELERATION S_S	1.645
SPECTRAL RESPONSE ACCELERATION S_1	0.6
SPECTRAL RESPONSE COEFFICIENTS SD_S	1.316
SEISMIC DESIGN CATEGORY	D

B. WIND DESIGN DATA (DOES NOT CONTROL DESIGN)

BASIC WIND SPEED (3-SECOND GUST)	103 MPH
EXPOSURE CATEGORY	C
WIND DIRECTIONALITY FACTOR	1
TOPOGRAHIC FACTOR	1
GROUND ELEVATION FACTOR	1
VELOCITY PRESSURE EXPOSURE COEFFICIENT	0.85

2.0 DIMENSIONS

2.01 REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF ALL EQUIPMENT.

2.02 BEFORE STARTING WORK, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE SITE, AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

2.03 THE CONTRACTOR SHALL REFER TO THE ENGINEER FOR INSTRUCTIONS FOR ANY DIMENSION NOT GIVEN ON OR OBTAINABLE FROM THE DRAWINGS. THE CONTRACTOR SHALL NOT USE SCALE TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THESE DRAWINGS.

3.0 DOCUMENTS AND LIMITATIONS

3.01 THIS STRUCTURAL DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, ARE INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

3.02 IT IS UNDERSTOOD THAT THE STRUCTURAL ENGINEER OF RECORD MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE, EXCEPT THAT THESE INSTRUMENTS OF SERVICE HAVE BEEN PREPARED IN ACCORDANCE WITH THE CURRENT GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRACTICES.

3.03 ALL NON-STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS HAVE BEEN SHOWN IN GENERAL RELATIONSHIP TO THE STRUCTURAL ELEMENTS. ACCORDINGLY, THEY SHALL NOT BE ASSUMED TO BE ACCURATE AND REFERENCE MUST BE MADE TO THE APPROPRIATE CONSULTANT(S) PLANS AND SPECIFICATIONS.

4.0 CONSTRUCTION SAFETY

4.01 IT IS UNDERSTOOD THAT THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THE PROJECT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THE PERSONS AND PROTECT THEM AGAINST INJURY. LIKEWISE, THE CONTRACTOR SHALL PROTECT ALL PROPERTY AGAINST DAMAGE AND LOSS.

4.02 THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION FOR THE SAFETY OF PERSONS AND PROPERTY.

4.03 THE CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR THE SAFETY AND PROTECTION OF THE WORK SHALL CONTINUE UNTIL SUCH TIME AS THE WORK IS SATISFACTORILY COMPLETED.

4.04 THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONSTRUCTION MEANS AND METHODS THAT WILL NOT IMPACT ADJACENT INFRASTRUCTURE.

5.0 FIELD MODIFICATION

5.01 WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER OF RECORD IS REQUIRED FOR ALL FIELD MODIFICATIONS TO THE STRUCTURAL SYSTEM INCLUDING, BUT NOT LIMITED TO, BEAM AND COLUMN CONNECTIONS, CUTTING OR DRILLING THROUGH ANY STRUCTURAL ELEMENT, ETC.

6.0 POST-INSTALLED ANCHORS

6.01 EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ2 SS304 ANCHORS FOR CRACKED CONCRETE (ESR-4266).

6.02 CONTINUOUS SPECIAL INSPECTION IS REQUIRED. VERIFICATION OF THE FOLLOWING IS REQUIRED DURING SPECIAL INSPECTION:
- A. ANCHOR TYPE AND DIMENSIONS.
- B. CONCRETE TYPE AND COMPRESSIVE STRENGTH.
- C. HOLE DIMENSIONS AND HOLE CLEANING PROCEDURES.
- D. ANCHOR SPACING, EDGE DISTANCES, CONCRETE/MASONRY THICKNESS, AND ANCHOR EMBEDMENT DEPTH.
- E. TIGHTENING TORQUE.
- F. COMPLIANCE WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.

6.03 INSTALLATION PROCEDURES SEE CORRESPONDING ICC/ESR REPORTS.

6.04 USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING (E) REINFORCING BARS. MAINTAIN A MIN. CLEARANCE OF 1" BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR.

6.05 FOR TESTING REQUIREMENTS SEE CBC SECTIONS 1901.3.4 AND ACI 318 SECTIONS 17.8 AND 26.7 AND TABLE BELOW.

6.06 TORQUE TEST VALUES FOR EXPANSION ANCHORS SHALL BE PER TABLE BELOW.

TEST VALUES (HARDROCK OR LIGHTWEIGHT CONCRETE)	
ANCHOR ø (IN.)	TORQUE (FT. LBS)
3/8	30
1/2	60
3/4	150

6.07 IF THE MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE IS LESS THAN THE TEST TORQUE NOTED IN THE TABLE, THE MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE SHOULD BE USED IN LIEU OF THE TABULATED VALUES.

6.08 IF ANY ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME TYPE SHALL BE TESTED, WHICH ARE INSTALLED BY THE SAME TRADE, NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME THE INITIAL TEST FREQUENCY.

6.09 WHEN POST-INSTALLED ANCHORS ARE USED FOR NONSTRUCTURAL APPLICATIONS SUCH AS EQUIPMENT ANCHORAGE, 50 PERCENT OR ALTERNATE BOLTS IN A GROUP, INCLUDING AT LEAST ONE-HALF THE ANCHORS IN EACH GROUP, SHALL BE TESTED.

6.10 TEST EQUIPMENT (INCLUDING TORQUE WRENCHES IS TO BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.

6.11 THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
- A. TORQUE WRENCH METHOD: TORQUE-CONTROLLED POST-INSTALLED ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH SHALL ATTAIN THE SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT; OR ONE-QUATER (1/4) TURN OF THE NUT FOR A 3/8-INCH SLEEVE ANCHOR ONLY. SCREW TYPE ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH SHALL ATTAIN THE SPECIFIED TORQUE WITHIN ONE-QUATER (1/4) TURN OF THE SCREW AFTER INITIAL SEATING OF THE SCREW HEAD.

7.0 STRUCTURAL STEEL

7.01 MISC ANGLES SHALL CONFORM TO ASTM A36 AND SHALL BE PAINTED

8.0 CONCRETE MATERIAL PROPERTIES

8.01 CONCRETE STRENGTH: F'C PSI
- A. SLAB ON GRADE 3000

9.0 REINFORCING

9.01 MATERIAL PROPERTIES:

	FY, KSI	ASTM
A. ALL BARS UNLESS NOTED	60	A615

10.0 CAST IN PLACE CONCRETE

10.01 ALL CONCRETE SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH IBC CHAPTER 19 & ACI-318, LATEST CODE ADOPTED EDITION.

10.02 ALL REINFORCING SHALL BE DETAILED, FABRICATED & PLACED IN ACCORDANCE WITH CRSI "MANUAL OF STANDARD PRACTICE", LATEST EDITION.

10.03 ALL CAST IN PLACE CONCRETE AND POST INSTALLED ANCHORS SHALL BE DESIGNED IN ACCORDANCE WITH CHAPTER 17 OF ACI 318 AS MODIFIED BY THE APPLICABLE BUILDING CODE.

10.04 SLEEVES EMBEDDED IN SLABS AND WALLS SHALL BE LOCATED CLEAR BETWEEN REINFORCING BARS AND SHALL MAINTAIN CLEAR SPACING EQUAL TO THE DIAMETER OF THE LARGEST SLEEVE IN ANY DIRECTION. SLEEVE GROUPS THAT DO NOT COMPLY WITH THE ABOVE REQUIREMENTS SHALL BE CONSIDERED AS AN OPENING AND REINFORCED PER NOTE BELOW.

10.05 DETAILING OF REBAR SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE ACI DETAILING MANUAL, AND CONCRETE REINFORCING INSTITUTE'S LATEST EDITION OF "MANUAL OF STANDARD PRACTICE". ALL SHOP DRAWINGS PERTAINING TO REBAR DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR HIS REVIEW.CONCRETE MIX DESIGN FOR ALL CONCRETE WORK IS REQUIRED TO BE SUBMITTED TO THE ENGINEER FOR REVIEW.

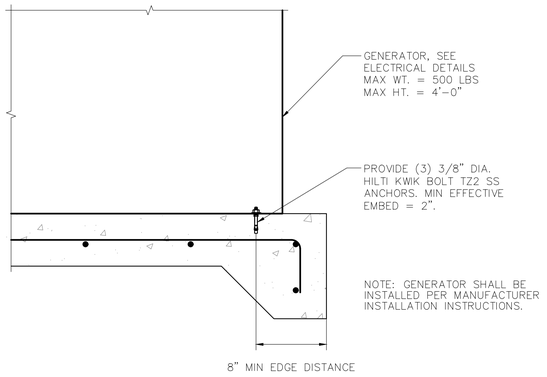
10.06 CONCRETE SUPPLIER SHALL HAVE A QUALITY CONTROL PROCEDURE FOR THE PRODUCTION OF ALL CONCRETE, WHICH MUST BE ACCEPTABLE TO THE ENGINEER AND MEETS CURRENT ACI STANDARDS.

10.07 LAP SPLICES ARE ALL CLASS B TENSION LAP SPLICES, UNO.

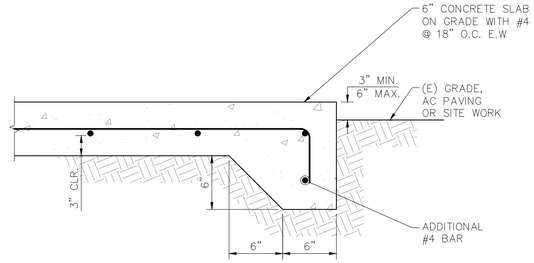
10.08 PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE.

10.09 THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

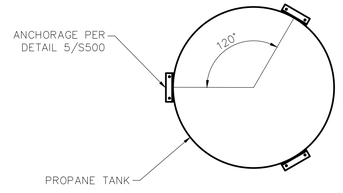
A. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH	3"
B. CONCRETE EXPOSED TO EARTH OR WEATHER	2"



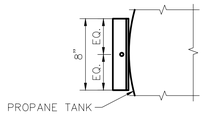
GENERATOR ANCHORAGE 1
1 1/2" = 1'-0"



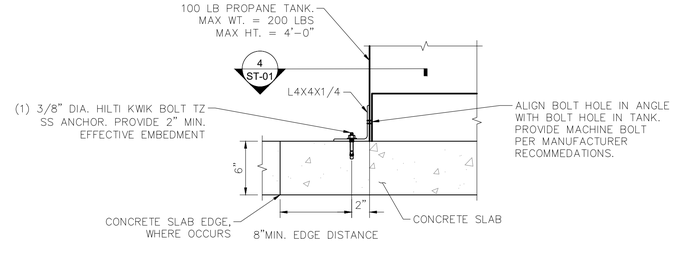
EQUIPMENT PAD 2
1 1/2" = 1'-0"



TANK PLAN 3
1 1/2" = 1'-0"



TANK ANCHORAGE DETAIL PLAN 4
1 1/2" = 1'-0"



TANK ANCHORAGE SECTION 5
1 1/2" = 1'-0"

REV.	DATE	DESCRIPTION

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
1362 Rutan Court, Suite 100, Livermore, CA. 94551

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
DOOLAN ROAD GENERATOR INSTALLATION PROJECT
LIVERMORE CALIFORNIA

DRAWN: MEW/SAR
CHECKED: KGA
DEPUTY DIRECTOR:
TRAFFIC ENGINEER:

LICENSED STRUCTURAL ENGINEER — No. S48732 — 9/30/22 — STATE OF CALIFORNIA

Kimley»Horn
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4637 CHABOT DR, STE 300
PLEASANTON, CA 94588
PHONE: 925-398-4840
WWW.KIMLEY-HORN.COM

ANCHORAGE DETAILS

DATE: 12/02/2021
SCALE:
FILE NAME:

SHEET ST-01
6 OF 9

PLUMBING SPECIFICATIONS

1. GENERAL

1.1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXACT CONDITIONS SUCH AS FIXTURE AND EQUIPMENT PLACEMENT, PIPING (SIZE, ROUTING, AND ELEVATION), ETC. THE DRAWINGS ARE INTENDED TO PROVIDE THE CONTRACTOR AN INDICATION OF THE SYSTEM INSTALLED IN THE FACILITY TO DATE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ADJUSTMENTS TO THE DRAWING INFORMATION AS REQUIRED TO MATCH EXISTING FIELD CONDITIONS.

1.2. THE CONTRACTOR SHALL INSTALL THE NEW FIXTURES, EQUIPMENT, AND PIPING AROUND ALL EXISTING OBSTACLES INCLUDING: ELECTRICAL CONDUIT, DUCTWORK, CHILLED AND HEATING WATER PIPING, AND FIRE SPRINKLER PIPING. PROVIDE OFFSETS TO AVOID RELOCATION OF OTHER UTILITIES. THE UTILITIES WILL NEED TO BE RELOCATED IF THEY ARE IN CONFLICT WITH THE INSTALLATION OF THE PLUMBING SYSTEMS CAUSING DEVIATIONS IN THE DESIGN INTENT, UNSATISFACTORY OPERATION, NOISY CONDITIONS, OR INTERFERE WITH MAINTENANCE. IT IS THE PLUMBING CONTRACTOR'S RESPONSIBILITY TO COORDINATE ANY UTILITY RELOCATION WITH THE APPROPRIATE SUBCONTRACTOR.

1.3. PROVIDE ALL NECESSARY LABOR, MATERIALS, EQUIPMENT, SERVICES AND INSURANCES TO COMPLETE THE PLUMBING WORK WITHIN THE FULL INTENT OF THE DRAWINGS AND SPECIFICATIONS CONTAINED HEREON AND TO THE ENTIRE SATISFACTION OF THE ARCHITECT/ENGINEER.

1.4. PROVIDE ALL PERMITS AND FEES AS REQUIRED FOR THE PLUMBING WORK. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE PROJECT BEFORE BIDDING.

1.5. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2019 CALIFORNIA BUILDING CODE (CBC), 2019 CALIFORNIA ENERGY CODE, 2019 CALIFORNIA FIRE CODE (CFC), 2019 CALIFORNIA MECHANICAL CODE (CMC), 2019 CALIFORNIA PLUMBING CODE (CPC), 2019 CALIFORNIA ELECTRIC CODE (CEC), 2019 INTERNATIONAL FUEL GAS CODE, NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS, AND ALL OTHER APPLICABLE CODES, RULES, AND LOCAL REQUIREMENTS PER CITY OF PLEASANTON.

1.6. GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR.

1.7. ALL DIMENSIONS AND MEASUREMENTS SHALL BE VERIFIED AT THE JOBSITE BEFORE FABRICATION AND/OR INSTALLATION OF THE FIXTURES.

1.8. DRAWINGS ARE DIAGRAMMATIC TO SHOW BASIC SIZING. COORDINATE THE RUNNING OF ALL MAINS WITH THE ENGINEER. ANY MAJOR REROUTING SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR APPROVAL.

1.9. DRAWINGS ARE DIAGRAMMATIC: DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.

1.10. UTILITY LOCATIONS ARE SHOWN FOR REFERENCE ONLY AND LOCATIONS ON DRAWINGS ARE NOT GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING UTILITY IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.

1.11. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE THEIR WORK WITH THAT OF ALL OTHER TRADES, INCLUDING (BUT NOT LIMITED TO), ELECTRICAL, PLUMBING, STRUCTURAL, AND GENERAL ARCHITECTURE.

1.12. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND THE OWNER'S REPRESENTATIVE, AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.

1.13. NO WORK SHALL BE INSTALLED IN VIOLATION OF ANY GOVERNING CODES. ANY WORK SHOWN ON THE DRAWINGS WHICH IS IN VIOLATION OF SUCH CODES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND THE OWNER'S REPRESENTATIVE AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.

1.14. MANUFACTURER'S MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.

1.15. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURER'S RECOMMENDATIONS.

1.16. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.

1.17. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED AND SHALL NOT REST ON GRADE OR BE SUPPORTED BY PIPING FITTINGS.

1.18. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN HEREIN.

1.19. PROVIDE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLIES TO INDIVIDUAL FIXTURES AND EQUIPMENT.

1.20. ALL SLEEVES THROUGH CONCRETE FLOORS AND ALL CORE DRILLING OF CONCRETE FLOORS AND WALLS SHALL BE BY THE CONTRACTOR.

1.21. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.

1.22. PLUMBING SUBCONTRACTOR IS RESPONSIBLE FOR EXTENDING ALL REGULATOR VENTS TO ATMOSPHERE. REGULATORS ARE PART OF EQUIPMENT GAS TRAIN.

2. SUBMITTALS

2.1. ELECTRONIC SUBMITTALS IN ADOBE PDF FORMAT, IN LIEU OF PAPER COPIES, WILL BE ACCEPTED.

2.2. SUBSTITUTED ITEMS SHALL BE SUBMITTED WITH MANUFACTURER'S DESCRIPTIVE DATA AND MUST SHOW EQUALITY TO ITEM SPECIFIED. INFORMATION ON SUBSTITUTED ITEMS MUST BE COMPLETE, INCLUDING, BUT NOT LIMITED TO: DESIGN, CONSTRUCTION MATERIALS, AND CONSTRUCTION QUALITY. ENGINEER WILL NOT RESEARCH INFORMATION REQUIRED TO COMPARE EQUIPMENT. ENGINEER RESERVES THE RIGHT TO REQUIRE SPECIFIED ITEM.

2.3. SUBMIT MANUFACTURER'S DESCRIPTIVE DATA WITHIN TEN (10) WORKING DAYS AFTER AWARD OF THE CONTRACT. MATERIALS AND FIXTURES SHALL NOT BE ORDERED PRIOR TO SUBMITTAL APPROVAL. ALLOW TEN (10) WORKING DAYS AFTER RECEIPT OF SUBMITTALS IN THE ENGINEER'S OFFICE BEFORE REVIEWED SUBMITTALS WILL BE RETURNED.

2.4. SHOP DRAWINGS TO BE SUBMITTED TO AND APPROVED BY THE ENGINEER AND ARCHITECT PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. SHOP DRAWINGS ARE TO INCLUDE:

2.5. ALL EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS. EQUIPMENT DIMENSIONS TO BE BASED ON SUBMITTED EQUIPMENT.

3. WORKMANSHIP

3.1. ALL WORK TO BE PERFORMED BY QUALIFIED PERSONNEL NORMALLY ENGAGED IN THE RESPECTIVE LINE OF WORK.

3.2. PERFORM ALL WORK IN A MANNER NOT TO DISTURB THE NORMAL OPERATION OF THE BUILDING.

3.3. COORDINATE ALL WORK WITH THE OWNER'S REPRESENTATIVE.

3.4. COORDINATE ALL WORK WITH THE OTHER TRADES.

3.5. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.

4. PIPING

4.1. REFER TO CIVIL FOR ALL TRENCHING AND BACKFILL INFORMATION.

4.2. BELOW GRADE: GAS PIPING BELOW GRADE SHALL BE SDR-11 UG POLYETHYLENE PLASTIC PIPE.

4.3. ABOVE GRADE: GAS PIPING ABOVE GRADE SHALL BE SCHEDULE 40 BLACK THREADED STEEL, SEAMLESS GRADE B PIPE, CONFORMING TO ASTM A53 AND API 5L. ALL ABOVE GRADE NATURAL GAS PIPING SHALL BE PROVIDED WITH A YELLOW EPOXY COATING.

5. FITTINGS

5.1. ABOVE GRADE GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM A 53. FITTINGS SHALL BE MALLEABLE IRON THREADED FITTINGS CONFORMING TO ANSI B16.3.

5.2. BELOW GRADE GAS PIPING SHALL BE SDR-11 POLYETHYLENE PLASTIC PIPE. FITTING SHALL BE SDR-11 POLYETHYLENE. PIPE AND FITTINGS SHALL CONFORM TO ASTM D2513. SUCH PIPE SHALL BE MARKED "GAS" AND "ASTM D2513."

6. HANGARS AND SUPPORTS

6.1. PROVIDE SPLIT RING HANGERS FOR ALL PIPING. HANGER SPACING SHALL BE PER IPC TABLE 313.3 AND SHALL BE LOCATED AT ALL CHANGES IN DIRECTION.

7. VALVES AND SPECIALTIES

7.1. GAS REGULATORS (BELOW 2 PSI): IRON BODY, STAINLESS STEEL STEM AND STEM SLEEVE, THREADED ENDS, UL LISTED. REGULATOR SHALL BE LISTED IN ACCORDANCE WITH ANSI Z21.80/CSA 6.22.

7.2. GAS REGULATORS (2 PSI AND GREATER): IRON BODY, STAINLESS STEEL STEM AND STEM SLEEVE, FLANGED ENDS, UL LISTED. REGULATOR SHALL BE LISTED IN ACCORDANCE WITH ANSI Z21.80/CSA 6.22.

7.3. GAS RELIEF VALVES: IRON BODY, ALUMINUM SPRING CASE, NITRILE DIAPHRAGM, BRASS ORIFICE, NITRILE O-RING SEAT, STAINLESS STEEL PITOT TUBE, WITH FLANGED ENDS.

7.4. GAS SHUTOFF VALVE (BELOW 2 PSI): IRON BODY AND PLUG, LEVER HANDLE, THREADED ENDS, UL LISTED. VALVE SHALL BE LISTED IN ACCORDANCE WITH ASME B16.44.

7.5. GAS SHUTOFF VALVE (2 PSI AND GREATER): IRON BODY AND PLUG, LEVER HANDLE, FLANGED ENDS, UL LISTED. VALVE SHALL BE LISTED IN ACCORDANCE WITH ASME B16.33.

8. ISOLATION

8.1. ISOLATE ALL DISSIMILAR METALS WITH ISOLATORS EQUALING OR EXCEEDING THE QUALITY OF "EPCO" DIELECTRIC UNIONS.

8.2. ISOLATE ALL PIPING THROUGH CONCRETE WITH 1/2" THICK CLOSED CELL FOAM.

8.3. ISOLATE ALL PIPING AT STUDS WITH POLYETHYLENE PIPE INSULATORS.

9. OTHER MATERIAL

9.1. ALL OTHER MATERIAL, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE JOB, SHALL BE NEW AND FIRST QUALITY, FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.

10. TESTING

10.1. ALL PIPING SHALL BE TESTED IN PRESENCE OF AN INSPECTOR BEFORE WORK IS CONCEALED. NOTIFY THREE DAYS PRIOR TO TESTS.

10.2. FLUSH ALL PIPING TO REMOVE ANY FOREIGN MATERIAL.

PLUMBING ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTION DEVICE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
CO	CLEANOUT
DN	DOWN
(E)	EXISTING
GR	GAS REGULATOR
HPG	HIGH PRESSURE GAS (> 5 PSI)
IBC	INTERNATIONAL BUILDING CODE
IE	INVERT ELEVATION
IFGC	INTERNATIONAL FUEL GAS CODE
IPC	INTERNATIONAL PLUMBING CODE
LBS	POUNDS
LP	LIQUID PROPANE
MPG	MEDIUM PRESSURE GAS (2-5 PSI)
NG	NATURAL GAS (< 2 PSI)
NTS	NOT TO SCALE
PD	PRESSURE DROP
PVC	POLYVINYL CHLORIDE
RV	RELIEF VENT
SOV	SHUTOFF VALVE
V	VENT
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT

PLUMBING SYMBOL LIST

(triangle)	REVISION NUMBER
XXX-X	EQUIPMENT MARK
— — –RV– — —	GAS RELIEF VENT (V)
——HPG——	HIGH PRESSURE NATURAL GAS (HPG)
——MPG——	MEDIUM PRESSURE NATURAL GAS (MPG)
——NG——	NATURAL GAS (NG)
——LP——	LIQUID PROPANE (LP)
— — –LP– — —	LIQUID PROPANE (LP)
	BUTTERFLY VALVE
	SHUTOFF VALVE
	CHECK VALVE
	GAS REGULATOR (GR)
	GAS RELIEF VALVE (GRV)
	PRESSURE GAUGE W/ PETCOCK
	PIPE DOWN
	PIPE UP
	PIPE TEE UP
	PIPE TEE DOWN

PLUMBING DRAWING INDEX

P1	PLUMBING SPECIFICATIONS, SYMBOLS, AND ABBREVIATIONS
P2	PLUMBING PIPING PLAN
P3	ISOMETRIC DIAGRAMS, SCHEDULES, AND CALCULATIONS

REV.	DATE	DESCRIPTION

Wheels

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

1362 Rutan Court, Suite 100, Livermore, CA. 94551

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
DOOLAN ROAD GENERATOR INSTALLATION PROJECT

LIVERMORE CALIFORNIA

DRAWN:	MEW/SAR
CHECKED:	KGA
DEPUTY DIRECTOR:	
TRAFFIC ENGINEER:	

33152 Exp. 6/30/23 MECHANICAL STATE OF CALIFORNIA 06/01/22

Kimley»Horn
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PLEASANTON, CA 94588
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WWW.KIMLEY-HORN.COM

PLUMBING

DATE:	12/02/2021
SCALE:	
FILE NAME:	

SHEET
P-01
7 OF 9

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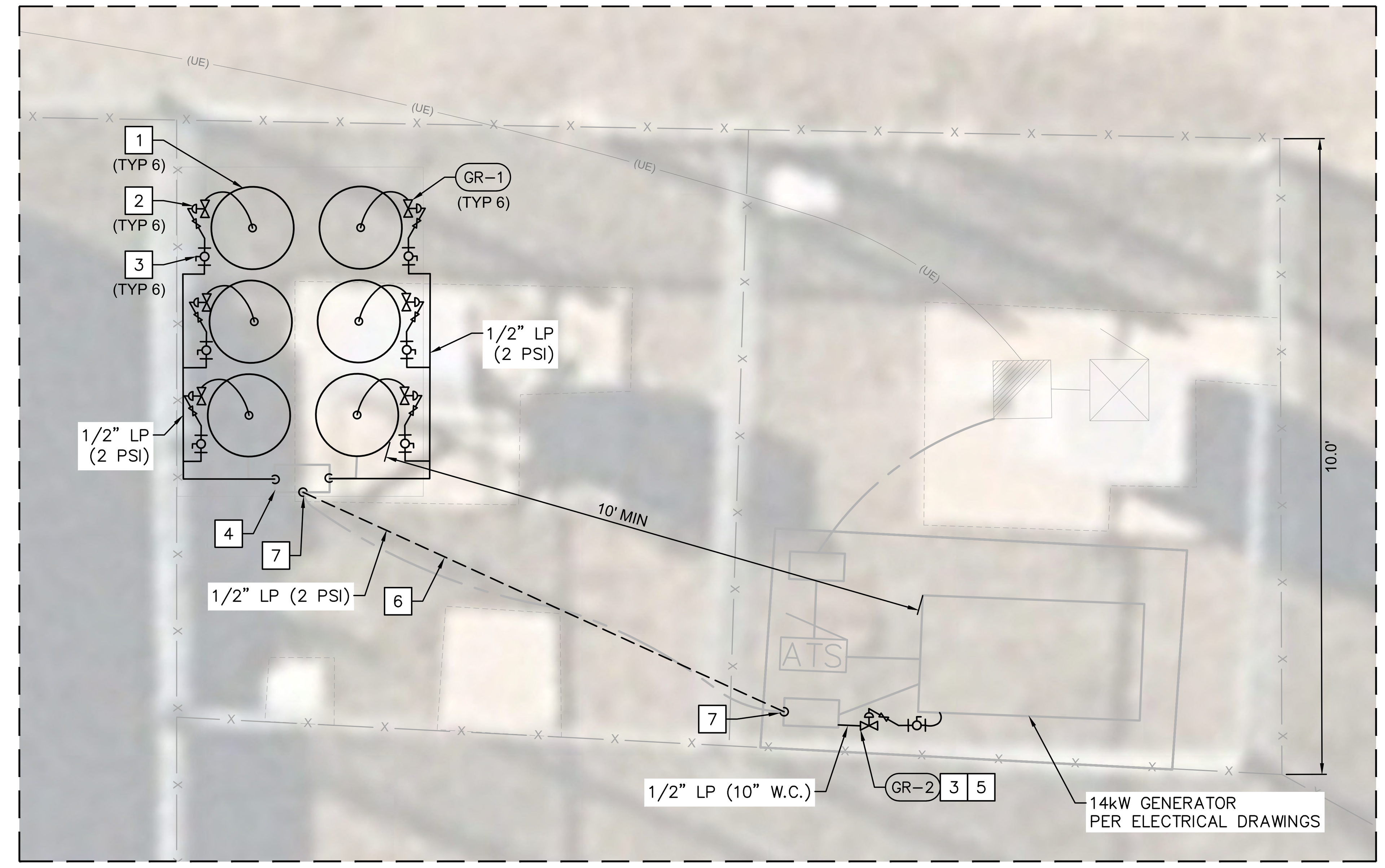
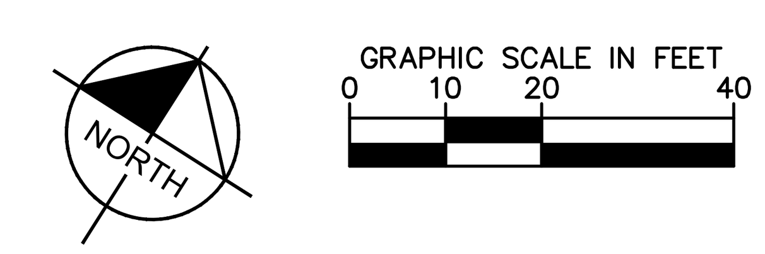


DETAIL 'A'

SCALE: 1"=2'

CONSTRUCTION NOTES:

1. PROVIDE NEW 100# MANCHESTER 23 GALLON PROPANE TANK WITH POL VALVE RATED FOR ABOVEGROUND USE AND EXTERIOR INSTALLATIONS. PROVIDE SOV AND FLEXIBLE CONNECTION AT TANK.
2. PROVIDE PRIMARY HIGH PRESSURE LIQUID PROPANE (LP) REGULATOR AT PROPANE TANK. REFER TO REGULATOR SCHEDULE.
3. PROVIDE MANUAL SHUTOFF VALVE FOR ISOLATION AND MAINTENANCE.
4. AUTOMATIC SWITCHOVER VALVE LOCATED IN PULL BOX. CONNECT PIPING FOR TWO GROUPS OF THREE TANKS FOR AUTOMATIC SWITCHOVER AND REPLACEMENT.
5. PROVIDE SECONDARY LOW PRESSURE LIQUID PROPANE (LP) REGULATOR AT GENERATOR. REFER TO REGULATOR SCHEDULE.
6. PIPING BELOW GRADE TO BE UG POLYETHYLENE SLEEVED IN 3" CONDUIT PER ELECTRICAL DRAWINGS.
7. PIPING TO RISE UP IN CONDUIT IN WITHIN PULLBOX. TRANSITION TO ABOVE GRADE PIPING.



REV.	DATE	DESCRIPTION

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
1362 Rutan Court, Suite 100, Livermore, CA. 94551

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
DOOLAN ROAD GENERATOR INSTALLATION PROJECT
LIVERMORE CALIFORNIA

DRAWN:	MEW/SAR
CHECKED:	KGA
DEPUTY DIRECTOR:	
TRAFFIC ENGINEER:	

06/01/22

Kimley»Horn
© KIMLEY-HORN AND ASSOCIATES, INC.
4637 CHABOT DR, STE 300
PLEASANTON, CA 94588
PHONE: 925-398-4840
WWW.KIMLEY-HORN.COM

PLUMBING

DATE:	12/02/2021
SCALE:	
FILE NAME:	

SHEET
P-02
8 OF 9

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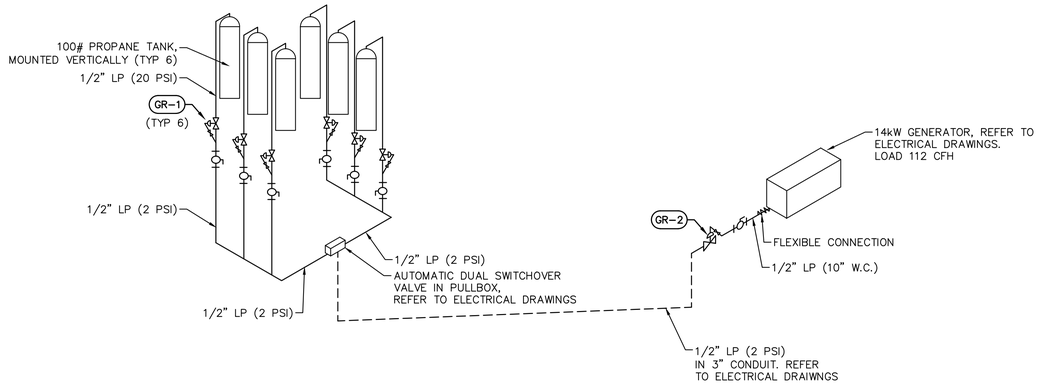

1 P-03 PROPANE ISOMETRIC DIAGRAM

SCALE: N.T.S.

NOTES:
1. REFER TO CALCULATIONS AND SCHEDULES FOR PIPE SIZING AND COMPONENTS ON SHEET P-03.
2. SWITCHOVER VALVE SHALL DEPLETE 3 TANKS SIMULTANEOUSLY PRIOR TO SWITCHING OVER TO ADJACENT 3 TANKS.

GAS REGULATOR (GR) SCHEDULE

MARK	CAPACITY (CFH)	MAX OPERATING INLET PRESSURE	DESIGN PRESSURE SETPOINTS			MANUFACTURER	MODEL	NOTES
			INLET PRESSURE (NO FLOW CONDITION)	INLET PRESSURE (MAX FLOW CONDITION)	OUTLET PRESSURE SETPOINT			
GR-1	112	60 PSI	20 PSI	10 PSI	2 PSI	FISHER	133H	1, 2, 3
GR-2	112	60 PSI	2 PSI	1.5 PSI	10" W.C.	FISHER	133L	1, 2, 3

NOTES:
1. MOUNT UNIT AS RECOMMENDED BY THE MANUFACTURER.
2. ORDER REGULATOR WITH THE LOWEST SPRING RANGE THAT INCLUDES SCHEDULED "OUTLET PRESSURE SETPOINT" FOR OPTIMAL PERFORMANCE.
3. REGULATOR SHALL BE LISTED IN ACCORDANCE WITH ANSI Z21.80/CSA 6.22

PLUMBING PIPE MATERIAL SCHEDULE

PIPING SYSTEM	PRESSURE RANGE	PIPE TAG	LOCATION	MATERIAL	COATING	FITTINGS	NOTES
MEDIUM PRESSURE LIQUID PROPANE	> 2 PSI	LP	ABOVE GRADE	SCH. 40 BLACK STEEL	YELLOW EPOXY	THREADED	2, 3
			BELOW GRADE	-	-	-	1
LOW PRESSURE LIQUID PROPANE	< 2 PSI	LP	ABOVE GRADE	SCH. 40 BLACK STEEL	YELLOW EPOXY	THREADED	2, 3
			BELOW GRADE	-	-	-	1

NOTES
1. REFER TO CIVIL FOR UNDERGROUND GAS PIPING.
2. ALL ABOVE GRADE GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL, SEAMLESS GRADE B, CONFORMING TO ASTM A53 AND API 5L .
3. ALL ABOVE GRADE GAS PIPING SHALL BE PROVIDED WITH YELLOW EPOXY COATING

MEDIUM PRESSURE GAS PIPE SIZING CHART

PIPE SIZE	LOAD (CFH)
1/2"	4,995
3/4"	10,446
1"	19,677
1-1/4"	40,398
1-1/2"	60,529
2"	116,573

NOTES:
SPECIFIC GRAVITY OF GAS = 0.60
UPSTREAM PRESSURE (PSI) = 20
DOWNSTREAM PRESSURE (PSI) = 2
PRESSURE LOSS (PSI) = 18.0
TOTAL DEVELOPED LENGTH (FEET) = 35
BASED ON NFPA 54 EQUATION 4-2

LOW PRESSURE GAS PIPE SIZING CHART

PIPE SIZE	LOAD (CFH)
1/2"	140
3/4"	292
1"	550
1-1/4"	1,128
1-1/2"	1,690
2"	3,256

NOTES:
OPERATING PRESSURE OF 10"WC WITH A PRESSURE DROP (WC) OF: 0.5
TOTAL DEVELOPED LENGTH = 15
TOTAL CONNECTED LOAD = 112 CFH
BASED ON NFPA 54 EQUATION 4-1

TOTAL LIQUID PROPANE LOAD

EQUIPMENT/APPLIANCE	QTY	HALF LOAD (CFH)	FULL LOAD (CFH)	WORST CASE TOTAL LOAD (CFH)
14 kW GENERATOR	1	65	112.0	112.0
			TOTAL	112.0

*PIPING SHALL BE SIZED FOR FULL LOAD

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REGISTERED PROFESSIONAL ENGINEER 33152 Exp. 6/30/23 MECHANICAL STATE OF CALIFORNIA
06/01/22

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SHEET P-03
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