

DOCKETED	
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APPENDIX F

Air Quality and Greenhouse Gas Assessment

Appendix AQ1

Emissions Calculations and Support Data

Table AQ1-1 Emissions Estimates for Emergency Standby Generators

Engine Mfg:	CAT	# of Units:	42	Use Area: Data Center Bldg (IT Power)		
Model #:	3516E HPD			Max # of Engines Tested per Day:	8	# Redundant Engines: 6
				<i>(engines are not tested concurrently)</i>		Emer Ops Engines: 36

Fuel:	ULSD	Engine Data									Stk Flow,	Stack Vel,
		BHP	kWe	Load %	RPM	Fuel, gph	Stk Ht, ft	Stk Diam, in	Stk Temp, F	mmbtu/hr	ACFM	f/s
Fuel S, %wt:	0.0015											
Fuel wt, lb/gal:	7.05	4393	3000	100	1800	208.2	63	28	901.9	28.52	22803	88.8786
Btu/gal:	137000	3347	2250	75	1800	168.1	63	28	917.3	23.03	19421.7	75.6994
Lbs S/1000 gal:	0.10575	2294	1500	50	1800	125.9	63	28	973.6	17.25	15244.3	59.4173
Lbs SO2/1000 gal:	0.2115	1236	750	25	1800	66.4	63	28	915.3	9.10	7143.6	27.8434
		590	300	10	1800	36.7	63	28	671.9	5.03	4545.1	17.7153
EPA Tier:	4											
Control System:	SCR + DPF to Meet T4 (ammonia slip <= 10 ppmvd @ 15% O2)											
Turbocharged:	Yes											
Aftercooled:	Yes											
		Stack Exit Area (sq.ft) = 4.276057										

Stack	METRIC UNITS			NOx
	Height, m	Stk Temp,		Startup
		Stk Diam, m	Kelvins	Stk Vel, m/s
19.2024	0.7112	756.43	27.0902	24.212
19.2024	0.7112	764.98	23.0732	18.447
19.2024	0.7112	796.26	18.1104	12.644
19.2024	0.7112	763.87	8.4867	6.812
19.2024	0.7112	628.65	5.3996	3.252

Scenarios	Emissions Factor Scenarios (all values in g/bhp-hr)						CO2e
	NOx	CO	VOC	SO2	PM10	PM2.5	lb/mmbtu
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.5	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load	2.50	2.60	0.22	0.005	0.02	0.02	163.052
0.5 hr Uncontrolled, Tier 2 Stds Efs, 100% Load, w/DPF	4.5	2.6	0.3				
0.5 hr Controlled, T4 Efs, 100% Load, w/DPF	0.5	2.6	0.14				
Diesel engine warm-up time is <= 30 minutes.							

	Controlled Emissions Factor Scenarios (all values in g/bhp-hr)						CO2e
	Nox	CO	VOC	SO2	PM10	PM2.5	lb/mmbtu
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.500	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load	2.50	2.6	0.14	0.005	0.02	0.02	163.052

Scenario 1: Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load				<u>Redundant engines do NOT operate during emergency operations.</u>					
Max Hourly Runtime:	1								
Max Daily Runtime:	24								
Max Annual Runtime:	100								
		NOx	CO	VOC	SO2	PM10	PM2.5	CO2e	
	lbs/hr	4.842	25.181	1.356	0.048	0.194	0.194	na	
	lbs/day	116.219	604.341	32.541	1.162	4.649	4.649	na	
	TPY	0.242	1.259	0.068	0.002	0.010	0.010	232.5	
		36 Engines							
		NOx	CO	VOC	SO2	PM10	PM2.5	CO2e	
	lbs/hr	174.33	906.51	48.81	1.74	6.97	6.97	na	
	lbs/day	4183.90	21756.29	1171.49	41.84	167.36	167.36	na	
	TPY	8.72	45.33	2.44	0.09	0.35	0.35	8371.44	

Scenario 2:								
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load								
Max Hourly Runtime:	1							
Max Daily Runtime:	1							
Max Annual Runtime:	50							
				Single Engine				
		NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
	lbs/hr	24.212	25.181	1.356	0.048	0.194	0.194	na
	lbs/day	24.212	25.181	1.356	0.048	0.194	0.194	na
	TPY	0.605	0.630	0.034	0.001	0.005	0.005	116.3
				8 Engines				
		NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
	lbs/hr	24.212	25.181	1.356	0.048	0.194	0.194	na
	lbs/day	193.699	201.447	10.847	0.387	1.550	1.550	na
				All Engines				
	TPY	25.42	26.44	1.42	0.05	0.20	0.20	4883.34

BAAQMD 150 Hrs/Yr Emissions Totals, TPY:	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
	34.139	71.766	3.864	0.138	0.552	0.552	13254.8

Table AQ1-2 Emissions Estimates for Emergency Standby Generators[illegible]

Table AQ1-3 Fixed Roof Tank Emissions Estimates (Large Tanks)

Ref: (12) AP-42, Section 7.1, 11/2006

		indicates input			
Standing Storage Losses				Comments	Note
Type of organic liquid:	#2 ULS Diesel			21 Tanks (1 per engine pair)	
Vapor molecular weight:	Mw	130	AP-42		
Vapor density, lbs/ft3:	Vd	0.00015243			
Liquid density, lbs/gal	DI	7.05	AP-42		
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)		
~ Tank diameter, ft.	D	11	equivalent horizontal tank dimensions		
~ Tank height or length, ft.	H	17	equivalent horizontal tank dimensions		
~ Tank capacity, gals	Tc	10400			
Avg vapor space height, ft.	Hv	4	annual avg value based on use versus tank refills		
Vapor space volume, ft3	Vv	380.13			
~Total tank volume, ft3	Tv	1390	Based on equivalent tank dimensions		
Avg Annual Temp, F	Ta	56.6	API Bulletin 2517, for SFO region		
Avg diurnal temp change, F	Tc	13.1	Avg max minus avg min.		
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value		1
Product factor	Pd	1	Crude = 0.75, all others = 1 If turnover <36/year, the factor = 1. If >36 then calculate Kn.		
Turnover factor	Kn	1	Per AP-42.		
Annual throughput, gals/yr	At	20820	2 engines per Tank (at 50 hrs/yr at 100% load)		
Vapor space expansion factor	Ke	0.04	AP-42, default value		
Vapor saturation factor	Ks	0.9986			
# of similar tanks		21	1 tank per engine per engine pair		2
Standing Loss	Ls	0.84	lbs/yr (breathing and standing losses)		
Working Losses					
Vapor molecular weight:	Mw	130			
Vapor pressure, psia @ 70F	Vp	0.0065			
Throughput, bbl/yr	Q	495.7			
Turnover factor	Kn	1			
Working loss product factor	Kp	1			
Working Loss	Lw	0.42	lbs/yr (tank filling and withdrawal losses)		
	Ls+Lw	1.26			
Engineering Uncertainty Factor		1.2			
Uncontrolled Total Tank Losses		1.52	lbs/yr each tank		
		31.84	lbs/yr all tanks		
Control System ?	No	0	control fraction		
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems				3
Controlled Total Tank Losses		1.52	lbs/yr each tank		
		31.84	lbs/yr all tanks		
		0.016	TPY all tanks		

Note 1 - tanks are located inside the engine enclosure and not subject to solar absorbance

Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.

Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	EF, lb/lb VOC	Emissions, lbs/yr (all tanks)	lbs/hr
Benzene	0.00088	0.0280	3.199E-06
Toluene	0.00482	0.1535	1.75218E-05
Xylenes	0.0042	0.1337	1.5268E-05

Table AQ1-4 Fixed Roof Tank Emissions Estimates (Medium Tanks)

Ref: (12) AP-42, Section 7.1, 11/2006

		indicates input			
Standing Storage Losses				Comments	Note
Type of organic liquid:	#2 ULS Diesel			2 Tanks for CAT 3512C Engines	
Vapor molecular weight:	Mw	130	AP-42		
Vapor density, lbs/ft3:	Vd	0.00015243			
Liquid density, lbs/gal	DI	7.05	AP-42		
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)		
~ Tank diameter, ft.	D	6	equivalent horizontal tank dimensions		
~ Tank height or length, ft.	H	19	equivalent horizontal tank dimensions		
~ Tank capacity, gals	Tc	4000			
Avg vapor space height, ft.	Hv	2	annual avg value based on use versus tank refills		
Vapor space volume, ft3	Vv	56.55			
~Total tank volume, ft3	Tv	535	Based on equivalent tank dimensions		
Avg Annual Temp, F	Ta	56.6	API Bulletin 2517, for SFO region		
Avg diurnal temp change, F	Tc	13.1	Avg max minus avg min.		
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value		1
Product factor	Pd	1	Crude = 0.75, all others = 1 If turnover <36/year, the factor = 1. If >36 then calculate Kn.		
Turnover factor	Kn	1	Per AP-42.		
Annual throughput, gals/yr	At	5160	2 engines per Tank (at 50 hrs/yr at 100% load)		
Vapor space expansion factor	Ke	0.04	AP-42, default value		
Vapor saturation factor	Ks	0.9993			
# of similar tanks		2	1 tank per engine		2
Standing Loss	Ls	0.13	lbs/yr (breathing and standing losses)		
Working Losses					
Vapor molecular weight:	Mw	130			
Vapor pressure, psia @ 70F	Vp	0.0065			
Throughput, bbl/yr	Q	122.9			
Turnover factor	Kn	1			
Working loss product factor	Kp	1			
Working Loss	Lw	0.10	lbs/yr (tank filling and withdrawal losses)		
	Ls+Lw	0.23			
Engineering Uncertainty Factor		1.2			
Uncontrolled Total Tank Losses		0.28	lbs/yr each tank		
		0.55	lbs/yr all tanks		
Control System ?	No	0	control fraction		
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems				3
Controlled Total Tank Losses		0.28	lbs/yr each tank		
		0.55	lbs/yr all tanks		
		0.000	TPY all tanks		

Note 1 - tanks are located inside the engine enclosure and not subject to solar absorbance

Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.

Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	EF, lb/lb VOC	Emissions, lbs/yr (all tanks)	lbs/hr
Benzene	0.00088	0.0005	5.53491E-08
Toluene	0.00482	0.0027	3.03162E-07
Xylenes	0.0042	0.0023	2.64166E-07

Table AQ1-5 Fixed Roof Tank Emissions Estimates (Small Tanks)

Ref: (12) AP-42, Section 7.1, 11/2006 and 6/2020.

		indicates input			
Standing Storage Losses			Comments		Notes
Type of organic liquid:	#2 ULS Diesel		21 Day tanks for 3516E HPD Engines		
Vapor molecular weight:	Mw	130	AP-42		
Vapor density, lbs/ft3:	Vd	0.00015243			
Liquid density, lbs/gal	DI	7.05	AP-42		
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)		
~ Tank diameter, ft.	D	4	equivalent horizontal tank dimensions		
~ Tank height or length, ft.	H	5.5	equivalent horizontal tank dimensions		
~ Tank capacity, gals	Tc	500			
Avg vapor space height, ft.	Hv	1	annual avg value based on use versus tank refills		
Vapor space volume, ft3	Vv	12.57			
Total tank volume, ft3	Tv	67	Based on equivalent tank dimensions		
Avg Annual Temp, F	Ta	56.6	API Bulletin 2517 for LA area		
Avg diurnal temp change, F	Tc	13.1	Avg max minus avg min.		
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value		
Product factor	Pd	1	Crude = 0.75, all others = 1 If turnover <36/year, the factor = 1. If >36 then calculate Kn.		
Turnover factor	Kn	1	Per AP-42.		
Annual throughput, gals/yr	At	10410	per Tank (at 50 hrs/yr at 100% load)		
Vapor space expansion factor	Ke	0.04	AP-42, default value		
Vapor saturation factor	Ks	0.9997			
# of similar tanks		21	1 per engine pair for upper unit		
Standing Loss	Ls	0.03	lbs/yr (breathing and standing losses)		
Working Losses					
Vapor molecular weight:	Mw	130			
Vapor pressure, psia @ 70F	Vp	0.0065			
Throughput, bbl/yr	Q	247.9			
Turnover factor	Kn	1			
Working loss product factor	Kp	1			
Working Loss	Lw	0.21	lbs/yr (tank filling and withdrawal losses)		
	Ls+Lw	0.24			
Engineering Uncertainty Factor		1.2			
Uncontrolled Total Tank Losses		0.28	lbs/yr each tank		
		5.98	lbs/yr all tanks		
Control System ?	No	0	control fraction		
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems				
Controlled Total Tank Losses		0.28	lbs/yr each tank		
		5.98	lbs/yr all tanks		
		2.991E-03	TPY all tanks		
Note 1 - paint factor for new tanks located above ground					
Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.					
Note 3 - these tanks are exempt from SCAQMD permits.					
Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)					
		Emissions,			
	EF, lb/lb	lbs/yr (all			
Toxic Pollutant	VOC	tanks)		Emissions, TPY	lbs/hr
Benzene	0.00088	0.0053		2.63224E-05	6.01E-07
Toluene	0.00482	0.0288		0.000144175	3.29E-06
Xylenes	0.0042	0.0251		0.00012563	2.87E-06

Table AQ1-6 Refrigerant Use Emissions Estimation

<i>Parameter</i>	<i>Value</i>	<i>Comments</i>
Site ID:	Silver Creek	
System ID:	TMA 4D2100B C32 13 1W	
Data Sources:	Mfg	Brochure REF.BOX Api v 3.2.1 9/3/2025
Refrigerant ID:	R513A	
System Charge, lbs:	1340.4	
# of Similar Systems:	42	
Total Charge, lbs:	56296.8	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	2814.84	Based on Leak Rate
Annual Emissions, tons:	1.40742	Based on Leak Rate
GWP Value:	629.5	
CO ₂ e, tons/yr:	885.971	
CO ₂ e Mtons/yr:	803.602	

Table AQ1-7 SF6 Emissions Estimate for Site Electrical Breakers

Site ID	# breakers	lbs/SF6 breaker	lbs/SF6 on site	leak rate	annual loss, lbs/yr	GWP factor	CO2e, Lbs lbs/yr	CO2e short tons/yr	CO2e metric tons/yr
Silver Creek	3	125	375	0.005	1.875	23900	44812.5	22.4	20.3
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0

Assumed leak rate is 0.5%, which represents BACT
Breaker data is a preliminary design estimate.

Appendix AQ2

Equipment Specifications and Emissions Control System Information

Cat® 3516E

High Power Density (HPD) Diesel Generator Sets

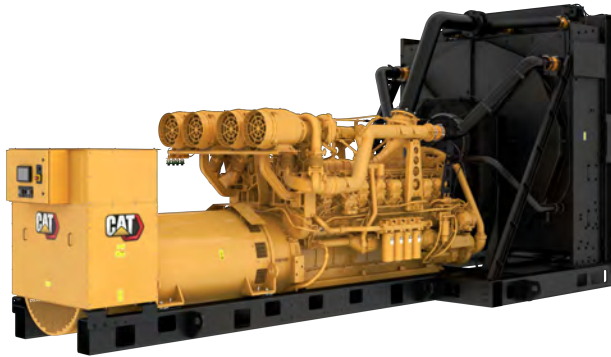


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in ³)	78.1 (4766)
Compression Ratio	13.9:1
Aspiration	TA
Fuel System	MEUI
Governor Type	ADEM™ A5

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Emissions Performance
3000 (3750)	3000 (3750)	2725 (3406)	U.S. EPA Certified for Emergency Stationary Applications (Tier 2)

Features

Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emissions standards
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

Generator Set Package

- Accepts 100% block load in one step
- Meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

Cat Energy Control System (ECS)

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements
- Graphical touchscreen display
- Easily upgradeable

Warranty

- 24 months/1000-hour warranty for standby and mission critical ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Standard and Optional Equipment

Engine

Air Cleaner

- ☒ Dual Element
- ☐ Service Indicator

Muffler

- ☐ Industrial grade (15 dB)
- ☐ Critical grade (25 dB)
- ☐ Hospital grade (35 dB)

Starting

- ☒ Standard batteries
- ☐ Oversized batteries
- ☒ Dual electric starting motors
- ☐ Air starter(s)
- ☒ Jacket water heater

Alternator

Output voltage

- ☒ 480V ☐ 12470V
- ☐ 600V ☐ 13200V
- ☐ 4160V ☐ 13800V

Temperature Rise (over 40°C ambient)

- ☐ 150°C
- ☐ 125°C/130°C

Winding type

- ☐ Random wound
- ☒ Form wound

Excitation

- ☐ Internal excitation (IE)
- ☒ Permanent magnet (PM)

Attachments

- ☒ Anti-condensation heater
- ☐ Stator and bearing temperature monitoring and protection

Power Termination

Type

- ☐ Bus bar
- ☒ Circuit breaker
- ☐ 5000A ☐ UL
- ☐ 3-pole ☐ 4-pole
- ☐ Manually operated
- ☐ Electrically operated

Trip Unit

- ☐ LSI ☐ LSI-G
- ☒ LSIG-P

Control System

Controller

- ☐ Cat ECS 100
- ☐ Cat ECS 200
- ☐ EMCP 4.4

Attachments

- ☐ Local annunciator module
- ☐ Remote annunciator module
- ☐ Expansion I/O module
- ☐ Remote monitoring software

Charging

- ☐ Battery charger – 10A
- ☐ Battery charger – 20A
- ☐ Battery charger – 35A

Vibration Isolators

- ☐ Spring
- ☒ Seismic rated

Cat Connect

Connectivity

- ☐ Ethernet
- ☐ Cellular

Extended Service Options

Terms

- ☐ 2 year (prime)
- ☐ 3 year
- ☐ 5 year
- ☐ 10 year

Coverage

- ☐ Silver
- ☐ Gold
- ☐ Platinum
- ☐ Platinum Plus

Ancillary Equipment

- ☐ Automatic transfer switch (ATS)
- ☐ Paralleling switchgear
- ☐ Paralleling controls

Certifications

- ☒ ULC 2200 Listed
- ☐ IBC seismic certification

Note: Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

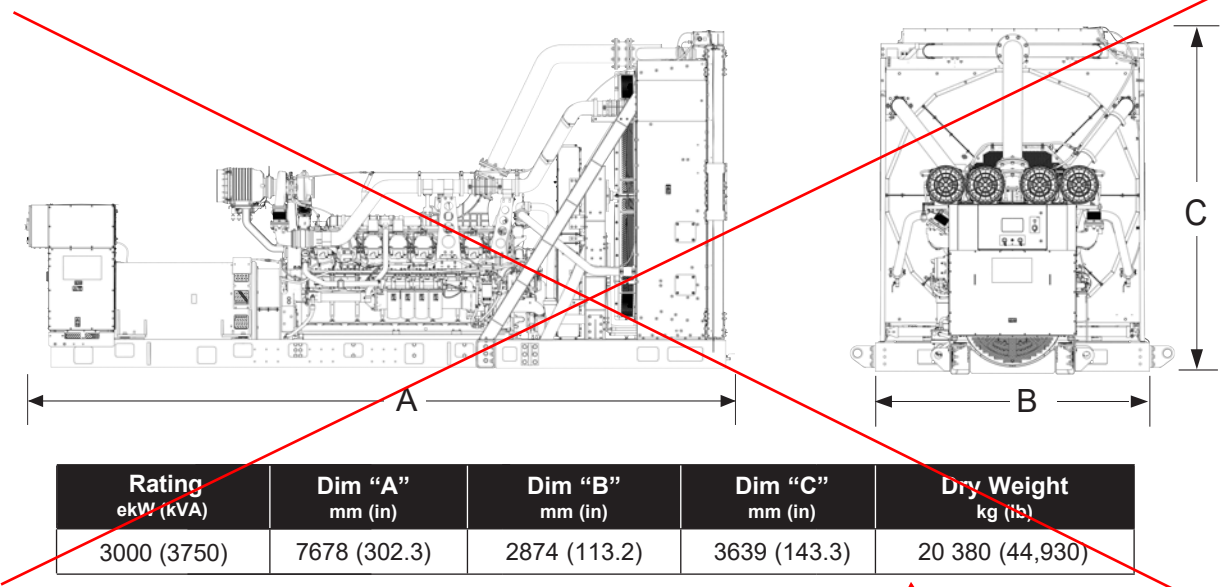
Package Performance

Performance	Standby		Mission Critical		Prime	
Engine Speed	1800 rpm		1800 rpm		1800 rpm	
Frequency	60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	3000 ekW		3000 ekW		2725 ekW	
Gen set power rating with fan @ 0.8 power factor	3750 kVA		3750 kVA		3406 kVA	
Emissions	Tier 2 (EPA ESE)		Tier 2 (EPA ESE)		Tier 2 (EPA ESE)	
Performance number	EM4716-02		EM4718-02		EM4720-02	
Fuel Consumption						
100% load with fan – L/hr (gal/hr)	773.2	(204.3)	773.2	(204.3)	711.2	(187.9)
75% load with fan – L/hr (gal/hr)	624.2	(164.9)	624.2	(164.9)	581.6	(153.7)
50% load with fan – L/hr (gal/hr)	467.5	(123.5)	467.5	(123.5)	438.1	(115.7)
25% load with fan – L/hr (gal/hr)	246.4	(65.1)	246.4	(65.1)	229.2	(60.6)
Cooling System						
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m³/min (cfm)	3476	(122753)	3476	(122753)	3476	(122753)
Engine coolant capacity – L (gal)	179.0	(47.3)	179.0	(47.3)	179.0	(47.3)
Radiator coolant capacity – L (gal)	255.0	(67.4)	255.0	(67.4)	255.0	(67.4)
Total coolant capacity – L (gal)	434.0	(114.7)	434.0	(114.7)	434.0	(114.7)
Inlet Air						
Combustion air inlet flow rate – m³/min (cfm)	246.1	(8690.9)	246.1	(8690.9)	230.3	(8133.7)
Exhaust System						
Exhaust stack gas temperature – °C (°F)	483.3	(902.0)	483.3	(902.0)	484.5	(904.1)
Exhaust gas flow rate – m³/min (cfm)	645.8	(22806.2)	645.8	(22806.2)	600.2	(21192.9)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	7.0	(28.1)	7.0	(28.1)	7.0	(28.1)
Heat Rejection						
Heat rejection to jacket water – kW (Btu/min)	917	(52144)	917	(52144)	854	(48592)
Heat rejection to exhaust (total) – kW (Btu/min)	3091	(175769)	3091	(175769)	2875	(163492)
Heat rejection to aftercooler – kW (Btu/min)	944	(53683)	944	(53683)	827	(47047)
Heat rejection to atmosphere from engine – kW (Btu/min)	158	(8993)	158	(8993)	154	(8766)
Heat rejection from alternator – kW (Btu/min)	119	(6739)	119	(6739)	108	(6119)
Emissions* (Nominal) - Full Load						
NOx mg/Nm³ (g/hp-h)	2610.4	(5.63)	2610.4	(5.63)	2311.6	(5.02)
CO mg/Nm³ (g/hp-h)	305.9	(0.66)	305.9	(0.66)	404.8	(0.89)
HC mg/Nm³ (g/hp-h)	17.4	(0.04)	17.4	(0.04)	15.0	(0.04)
PM mg/Nm³ (g/hp-h)	17.6	(0.05)	17.6	(0.05)	22.6	(0.06)
Emissions* (Potential Site Variation) - Full Load						
NOx mg/Nm³ (g/hp-h)	3132.5	(6.76)	3132.5	(6.76)	2773.9	(6.02)
CO mg/Nm³ (g/hp-h)	550.6	(1.20)	550.6	(1.20)	728.7	(1.60)
HC mg/Nm³ (g/hp-h)	23.1	(0.06)	23.1	(0.06)	19.9	(0.05)
PM mg/Nm³ (g/hp-h)	24.6	(0.06)	24.6	(0.06)	31.6	(0.08)

*mg/Nm³ levels are corrected to 5% O₂. Contact your local Cat dealer for further information



Weights and Dimensions



Note: For reference only. Do not use for installation design.
Contact your local Cat dealer for precise weights and dimensions.

Using a DRC radiator

Ratings Definitions

Standby
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby rated ekW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical rated ekW. Typical peak demand up to 100% of rated ekW for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime rated ekW. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Applicable Codes and Standards
AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

- Data Center Applications**
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
 - All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15°C (59°F) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

Perf No: EM4716

Change Level: 02

General

Heat Rejection

Emissions

Regulatory

Altitude Derate

Cross Reference

Supplementary Data

Perf Param Ref

View PDF

SALES MODEL:	3516E	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	4,393	FAN POWER (HP):	154.2
GEN POWER WITH FAN (EKW):	3,000.0	ASPIRATION:	TA
COMPRESSION RATIO:	13.9	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	STANDBY	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	219.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	PARALLEL
GOVERNOR TYPE:	ADEM5	TURBO QUANTITY:	4
ELECTRONICS TYPE:	ADEM5	TURBOCHARGER MODEL:	TPX44-H32-CT70-CA50-TT70-TA80
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2020
INJECTOR TYPE:	MEUI-C	CRANKCASE BLOWBY RATE (FT3/HR):	4,390.2
FUEL INJECTOR:	5816980	FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	17.2
UNIT INJECTOR TIMING (IN):	0.88	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,539.4
REF EXH STACK DIAMETER (IN):	12		
MAX OPERATING ALTITUDE (FT):	6,562		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data [Top](#)

Note(s)

THE INLET MANIFOLD AIR TEMP LISTED IN THE HEADER, AND IN THE GENERAL PERFORMANCE DATA, IS THE AVERAGE INLET MANIFOLD TEMP FRONT TO REAR ON THE ENGINE.

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A STANDARD PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
3,000.0	100	4,393	406	0.336	0.330	208.2	204.3	0.492	0.483
2,700.0	90	3,976	367	0.340	0.333	190.3	186.7	0.500	0.491
2,400.0	80	3,557	328	0.349	0.343	175.1	171.7	0.517	0.508
2,250.0	75	3,347	309	0.356	0.349	168.1	164.9	0.530	0.520
2,100.0	70	3,137	290	0.362	0.355	160.2	157.1	0.541	0.531
1,800.0	60	2,716	251	0.370	0.363	141.7	139.0	0.559	0.548
1,500.0	50	2,294	212	0.389	0.382	125.9	123.5	0.595	0.584
1,200.0	40	1,872	173	0.406	0.398	107.2	105.2	0.634	0.622
900.0	30	1,449	134	0.401	0.393	81.8	80.3	0.645	0.633
750.0	25	1,236	114	0.381	0.374	66.4	65.1	0.628	0.616
600.0	20	1,022	94	0.392	0.384	56.4	55.4	0.667	0.655
300.0	10	590	55	0.441	0.433	36.7	36.0	0.869	0.852

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
3,000.0	100	4,393	91.7	119.6	1,263.2	61.5	901.9	100	451.3
2,700.0	90	3,976	82.2	119.3	1,247.8	54.4	904.4	90	423.5
2,400.0	80	3,557	74.9	118.9	1,242.3	48.9	913.3	82	403.8
2,250.0	75	3,347	72.1	119.0	1,240.1	46.9	917.3	79	395.9
2,100.0	70	3,137	67.8	119.3	1,240.0	43.8	925.8	74	384.0
1,800.0	60	2,716	56.0	120.2	1,245.9	35.5	953.4	62	348.0
1,500.0	50	2,294	47.1	118.6	1,248.2	29.9	973.6	52	318.8
1,200.0	40	1,872	33.9	114.2	1,255.9	21.9	1,002.7	38	269.7
900.0	30	1,449	16.7	112.4	1,203.6	12.3	984.1	20	191.4
750.0	25	1,236	8.9	110.5	1,091.8	8.1	915.3	11	150.2
600.0	20	1,022	5.8	108.3	1,004.5	6.6	847.7	8	133.3
300.0	10	590	0.9	104.2	780.2	4.2	671.9	3	108.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
3,000.0	100	4,393	8,689.8	22,803.0	37,643.0	39,120.1	8,234.2	7,508.7
2,700.0	90	3,976	8,100.6	21,092.5	34,770.1	36,119.8	7,602.7	6,941.1
2,400.0	80	3,557	7,618.2	19,872.8	32,572.6	33,813.7	7,116.5	6,503.0
2,250.0	75	3,347	7,434.9	19,421.7	31,724.7	32,917.4	6,934.8	6,343.9
2,100.0	70	3,137	7,140.4	18,713.3	30,413.9	31,551.3	6,641.0	6,078.0
1,800.0	60	2,716	6,316.6	16,737.0	26,667.4	27,671.7	5,823.4	5,324.6
1,500.0	50	2,294	5,698.5	15,244.3	23,951.1	24,844.2	5,229.6	4,787.6
1,200.0	40	1,872	4,748.1	12,895.5	19,832.8	20,593.5	4,335.7	3,959.7
900.0	30	1,449	3,421.3	9,198.1	14,210.7	14,791.0	3,132.4	2,847.7
750.0	25	1,236	2,813.2	7,143.6	11,655.6	12,126.4	2,554.4	2,323.7

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
600.0	20	1,022	2,588.4	6,214.7	10,705.5	11,105.8	2,337.3	2,139.1
300.0	10	590	2,189.5	4,545.1	9,126.5	9,387.3	1,974.8	1,838.2

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
3,000.0	100	4,393	52,144	8,993	175,769	91,810	23,854	53,683	186,315	447,861	477,084
2,700.0	90	3,976	48,348	8,755	162,671	85,129	21,755	46,560	168,590	408,442	435,094
2,400.0	80	3,557	45,188	8,663	152,310	80,972	19,852	39,923	150,835	372,717	397,037
2,250.0	75	3,347	43,721	8,625	147,003	79,360	18,929	37,161	141,942	355,388	378,578
2,100.0	70	3,137	42,430	8,593	141,837	77,229	18,002	34,024	133,031	337,986	360,040
1,800.0	60	2,716	40,153	8,591	130,286	71,150	16,087	27,442	115,184	302,034	321,742
1,500.0	50	2,294	37,137	8,662	118,761	66,069	14,137	20,821	97,288	265,422	282,742

Emissions Data [Top](#)

Units Filter

All Units

Note(s)
PARTICULATE EMISSIONS WERE NOT MEASURED FOR THIS RATING. PUBLISHED PM DATA IS ESTIMATED FROM MEASURED SMOKE METER DATA.

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER PERCENT LOAD		EKW BHP %	3,000.0 4,393 100	2,250.0 3,347 75	1,500.0 2,294 50	750.0 1,236 25	300.0 590 10
TOTAL NOX (AS NO2)		G/HR	24,589	12,160	6,934	8,735	6,302
TOTAL CO		G/HR	2,899	2,470	1,673	2,077	1,535
TOTAL HC		G/HR	190	142	118	84	160
TOTAL CO2		KG/HR	2,097	1,691	1,268	673	371
PART MATTER		G/HR	200.9	249.8	229.1	153.7	16.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,610.4	1,597.8	1,214.4	2,955.6	3,548.5
TOTAL CO	(CORR 5% O2)	MG/NM3	305.9	319.2	290.7	686.3	917.4
TOTAL HC	(CORR 5% O2)	MG/NM3	17.4	16.0	17.7	24.0	84.5
PART MATTER	(CORR 5% O2)	MG/NM3	17.6	27.2	33.4	41.1	11.3
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	968.6	592.9	450.6	1,096.7	1,316.7
TOTAL CO	(CORR 15% O2)	MG/NM3	113.5	118.5	107.9	254.7	340.4
TOTAL HC	(CORR 15% O2)	MG/NM3	6.4	5.9	6.6	8.9	31.4
PART MATTER	(CORR 15% O2)	MG/NM3	6.5	10.1	12.4	15.3	4.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,272	778	592	1,440	1,728
TOTAL CO	(CORR 5% O2)	PPM	245	255	233	549	734
TOTAL HC	(CORR 5% O2)	PPM	32	30	33	45	158
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	472	289	219	534	641
TOTAL CO	(CORR 15% O2)	PPM	91	95	86	204	272
TOTAL HC	(CORR 15% O2)	PPM	12	11	12	17	59
TOTAL NOX (AS NO2)		G/HP-HR	5.63	3.65	3.03	7.07	10.68
TOTAL CO		G/HP-HR	0.66	0.74	0.73	1.68	2.60
TOTAL HC		G/HP-HR	0.04	0.04	0.05	0.07	0.27
PART MATTER		G/HP-HR	0.05	0.07	0.10	0.12	0.03
TOTAL NOX (AS NO2)		G/KW-HR	7.66	4.96	4.12	9.61	14.53
TOTAL CO		G/KW-HR	0.90	1.01	0.99	2.29	3.54
TOTAL HC		G/KW-HR	0.06	0.06	0.07	0.09	0.37
PART MATTER		G/KW-HR	0.06	0.10	0.14	0.17	0.04
TOTAL NOX (AS NO2)		LB/HR	54.21	26.81	15.29	19.26	13.89
TOTAL CO		LB/HR	6.39	5.44	3.69	4.58	3.38
TOTAL HC		LB/HR	0.42	0.31	0.26	0.18	0.35
TOTAL CO2		LB/HR	4,623	3,728	2,794	1,484	819
PART MATTER		LB/HR	0.44	0.55	0.51	0.34	0.04
OXYGEN IN EXH		%	8.9	9.4	9.5	8.5	12.0
DRY SMOKE OPACITY		%	2.0	2.6	2.9	4.3	0.2
BOSCH SMOKE NUMBER			0.86	0.96	1.02	1.16	0.70

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER PERCENT LOAD		EKW BHP %	3,000.0 4,393 100	2,250.0 3,347 75	1,500.0 2,294 50	750.0 1,236 25	300.0 590 10
TOTAL NOX (AS NO2)		G/HR	29,507	14,592	8,321	10,482	7,562
TOTAL CO		G/HR	5,219	4,446	3,012	3,738	2,763
TOTAL HC		G/HR	253	188	157	111	213
PART MATTER		G/HR	281.2	349.8	320.7	215.1	23.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,132.5	1,917.4	1,457.3	3,546.7	4,258.2
TOTAL CO	(CORR 5% O2)	MG/NM3	550.6	574.6	523.3	1,235.4	1,651.3
TOTAL HC	(CORR 5% O2)	MG/NM3	23.1	21.3	23.6	31.9	112.4
PART MATTER	(CORR 5% O2)	MG/NM3	24.6	38.1	46.7	57.6	15.8
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,162.4	711.5	540.8	1,316.1	1,580.1
TOTAL CO	(CORR 15% O2)	MG/NM3	204.3	213.2	194.2	458.4	612.8
TOTAL HC	(CORR 15% O2)	MG/NM3	8.1	7.9	8.8	11.8	41.7
PART MATTER	(CORR 15% O2)	MG/NM3	9.1	14.1	17.3	21.4	5.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,526	934	710	1,728	2,074
TOTAL CO	(CORR 5% O2)	PPM	441	460	419	988	1,321
TOTAL HC	(CORR 5% O2)	PPM	43	40	44	60	210
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	566	347	263	641	770
TOTAL CO	(CORR 15% O2)	PPM	163	171	155	367	490
TOTAL HC	(CORR 15% O2)	PPM	16	15	16	22	78
TOTAL NOX (AS NO2)		G/HP-HR	6.76	4.38	3.64	8.49	12.82
TOTAL CO		G/HP-HR	1.20	1.33	1.32	3.03	4.68
TOTAL HC		G/HP-HR	0.06	0.06	0.07	0.09	0.36
PART MATTER		G/HP-HR	0.06	0.10	0.14	0.17	0.04
TOTAL NOX (AS NO2)		G/KW-HR	9.19	5.95	4.94	11.54	17.43
TOTAL CO		G/KW-HR	1.63	1.81	1.79	4.11	6.37
TOTAL HC		G/KW-HR	0.08	0.08	0.09	0.12	0.49
PART MATTER		G/KW-HR	0.09	0.14	0.19	0.24	0.05
TOTAL NOX (AS NO2)		LB/HR	65.05	32.17	18.34	23.11	16.67
TOTAL CO		LB/HR	11.51	9.80	6.64	8.24	6.09
TOTAL HC		LB/HR	0.56	0.42	0.35	0.25	0.47
PART MATTER		LB/HR	0.62	0.77	0.71	0.47	0.05

Regulatory Information [Top](#)

EPA EMERGENCY STATIONARY				2011 - ----	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.					
Locality U.S. (INCL CALIF)	Agency EPA	Regulation STATIONARY	Tier/Stage EMERGENCY STATIONARY	Max Limits - G/BKW - HR CO: 3.5 NOx + HC: 6.4 PM: 0.20	

Altitude Derate Data [Top](#)

Note(s)
A BLANK IN THE ALTITUDE DERATE TABLE SIGNIFIES THAT NO RATING IS AVAILABLE AT THAT SPECIFIED ALTITUDE AND AMBIENT TEMPERATURE.
THE TEMPERATURES LISTED IN THE CHART ARE AMBIENT TEMPERATURES. THE FOLLOWING DERATE CHART WAS CALCULATED ASSUMING A 5 DEG C RISE IN AIR TEMPERATURE BETWEEN AMBIENT AND THE TURBOCHARGER INLET.

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)													
AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	1,927		4,393
1,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	1,860		4,393
2,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,304		4,393
3,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,313	2,786		4,393
4,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,355	4,037	1,625		4,393
5,000	4,393	4,393	4,393	4,393	4,393	4,383	4,334	4,221	3,517				4,393
6,000	4,393	4,393	4,393	4,356	4,307	4,246	4,183	4,064	2,023				4,393
7,000	4,393	4,380	4,306	4,226	4,160	4,072	3,968	3,778					4,378
8,000	4,347	4,247	4,153	4,051	3,974	3,836	3,573	3,093					4,274
9,000	4,203	4,068	3,954	3,831	3,738	3,550	3,208	2,621					4,152
10,000	3,990	3,831	3,691	3,541	3,442	3,250	2,968	2,196					3,986
11,000	3,755	3,560	3,390	3,239	3,162	3,018	2,762	1,678					3,815
12,000	3,413	3,252	3,123	3,015	2,940	2,762	2,300	1,104					3,539
13,000	3,070	2,977	2,897	2,829	2,750	2,477	1,702						3,198
14,000	2,754	2,728	2,691	2,660	2,553	2,240							2,841
15,000	2,454	2,461	2,285	2,143	2,057	1,713							2,523

Cross Reference [Top](#)

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
5643811	LL2327	5577462	PG296	-	ZNL00001	

Supplementary Data [Top](#)

Type	Classification	Performance Number
ALTITUDE DATA	HIGH RESOLUTION	EM5S85

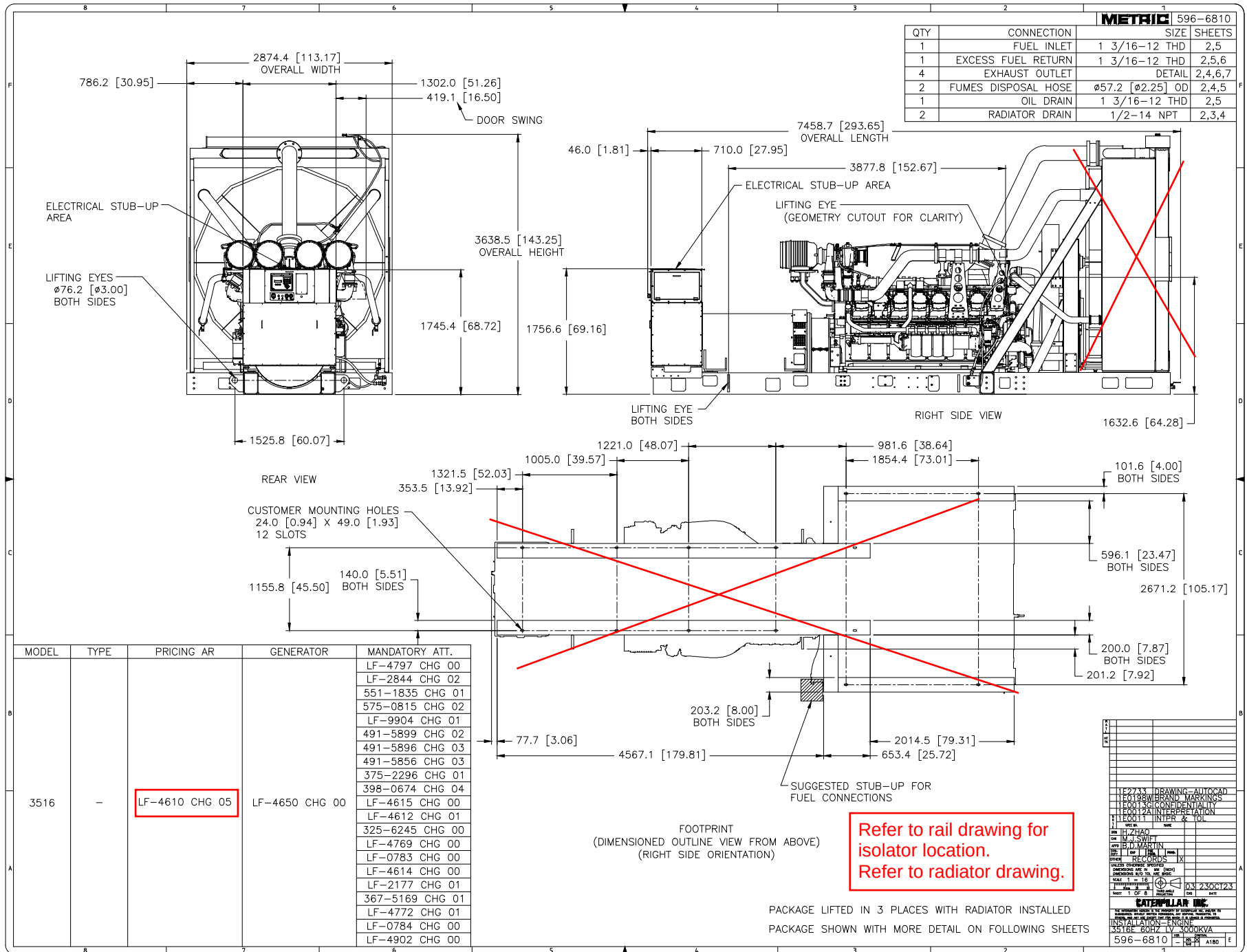
Performance Parameter Reference [Top](#)

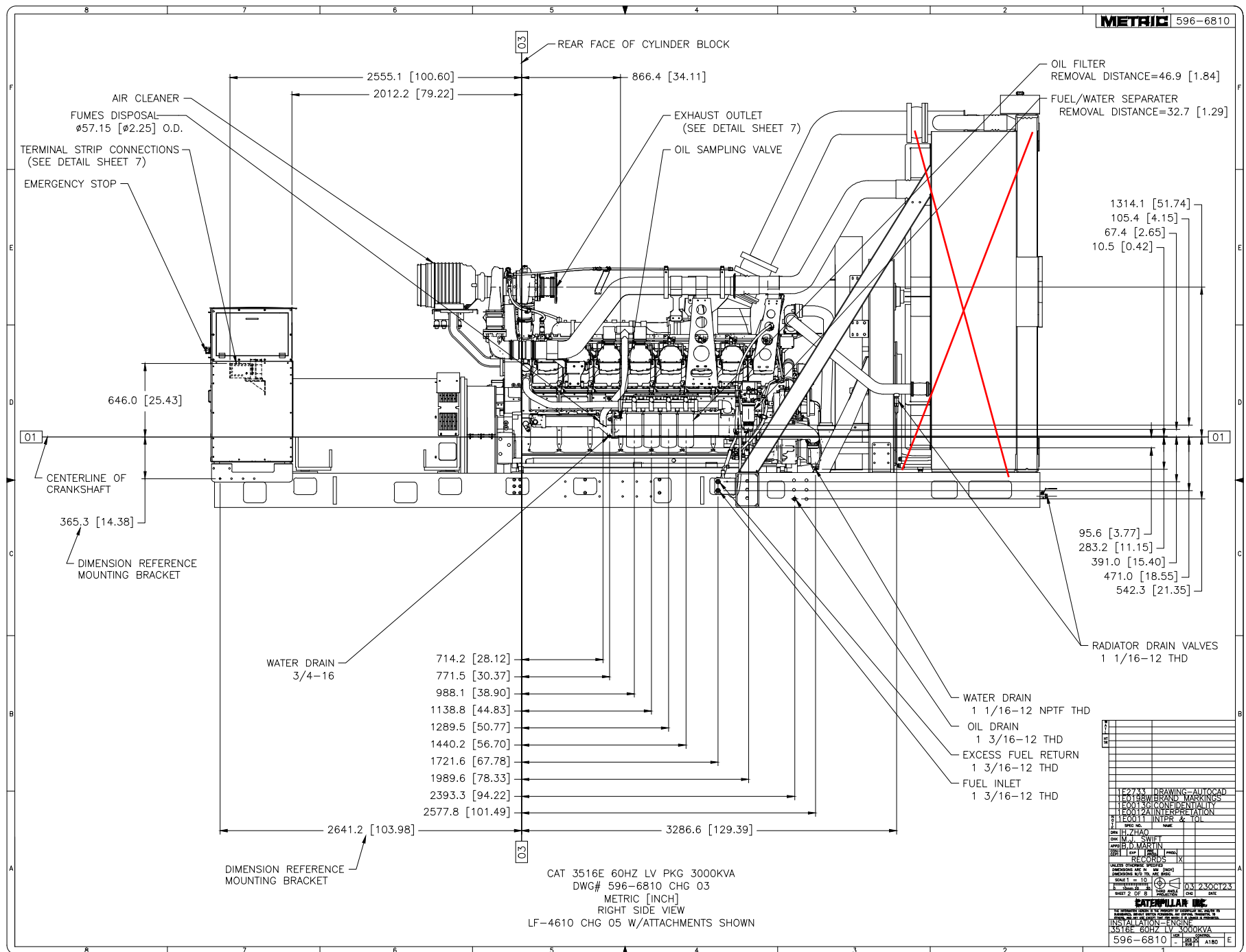
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PERFORMANCE DEFINITIONS
PERFORMANCE DEFINITIONS DM9600
APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted. PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10% Heat Rejection values based on using treated water. Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications. On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed. On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed. These values do not apply to C280/3600. For these models, see the tolerances listed below. C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5% TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS. REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp. FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature. MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

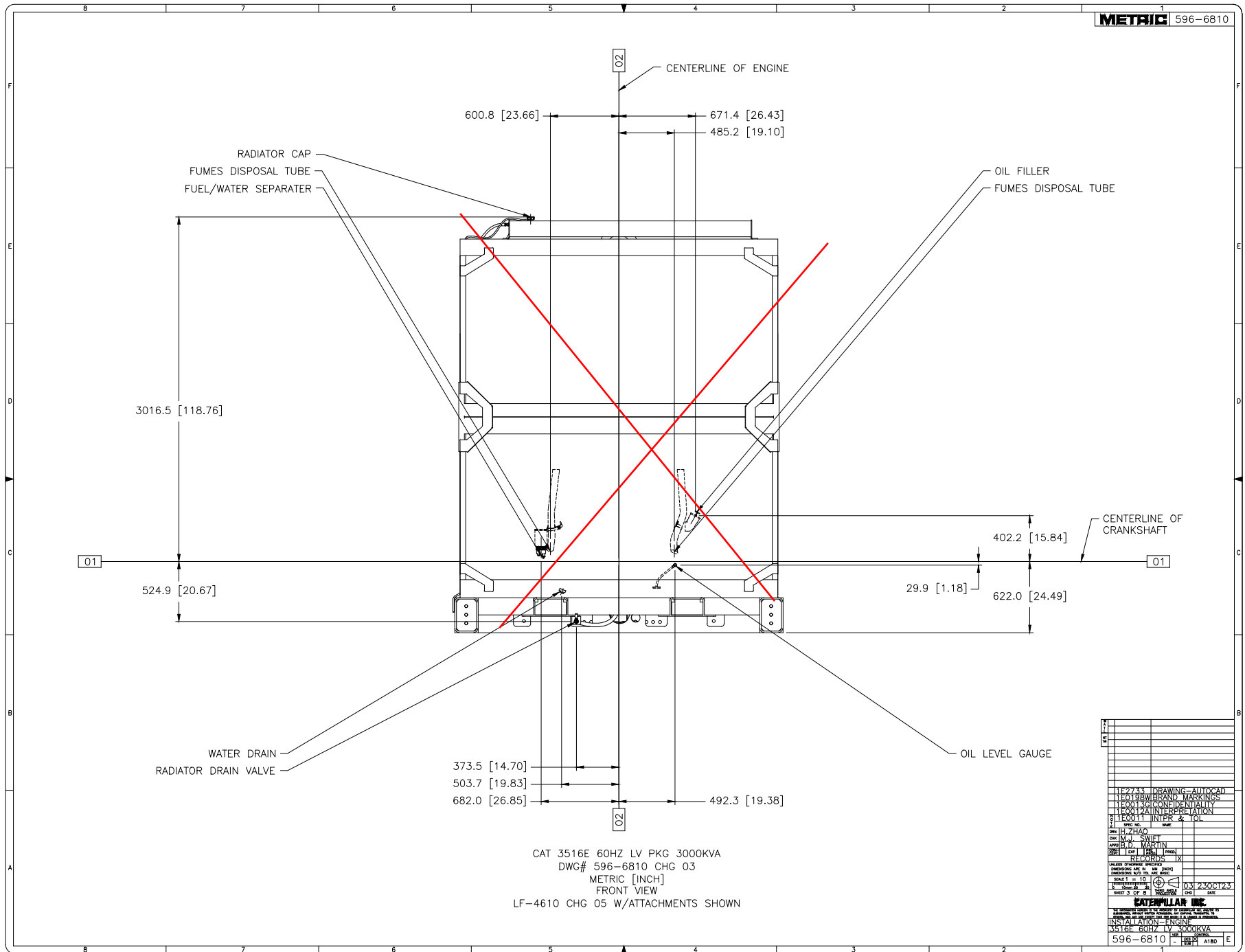
REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available. REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal). GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas. ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions. ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set. Standard temperature values versus altitude could be seen on TM2001. When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet. Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001. Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings. REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative. Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer. EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit. WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded EMISSIONS DEFINITIONS: Emissions : DM1176 EMISSION CYCLE DEFINITIONS 1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied. 2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied. 3. For constant-speed auxiliary engines test cycle D2 shall be applied. 4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied. HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500 HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500 RATING DEFINITIONS: Agriculture : TM6008 Fire Pump : TM6009 Generator Set : TM6035 Generator (Gas) : TM6041 Industrial Diesel : TM6010 Industrial (Gas) : TM6040 Irrigation : TM5749 Locomotive : TM6037 Marine Auxiliary : TM6036 Marine Prop (Except 3600) : TM5747 Marine Prop (3600 only) : TM5748 MSHA : TM6042 Oil Field (Petroleum) : TM6011 Off-Highway Truck : TM6039 On-Highway Truck : TM6038 SOUND DEFINITIONS: Sound Power : DM8702 Sound Pressure : TM7080 Date Released : 03/12/24

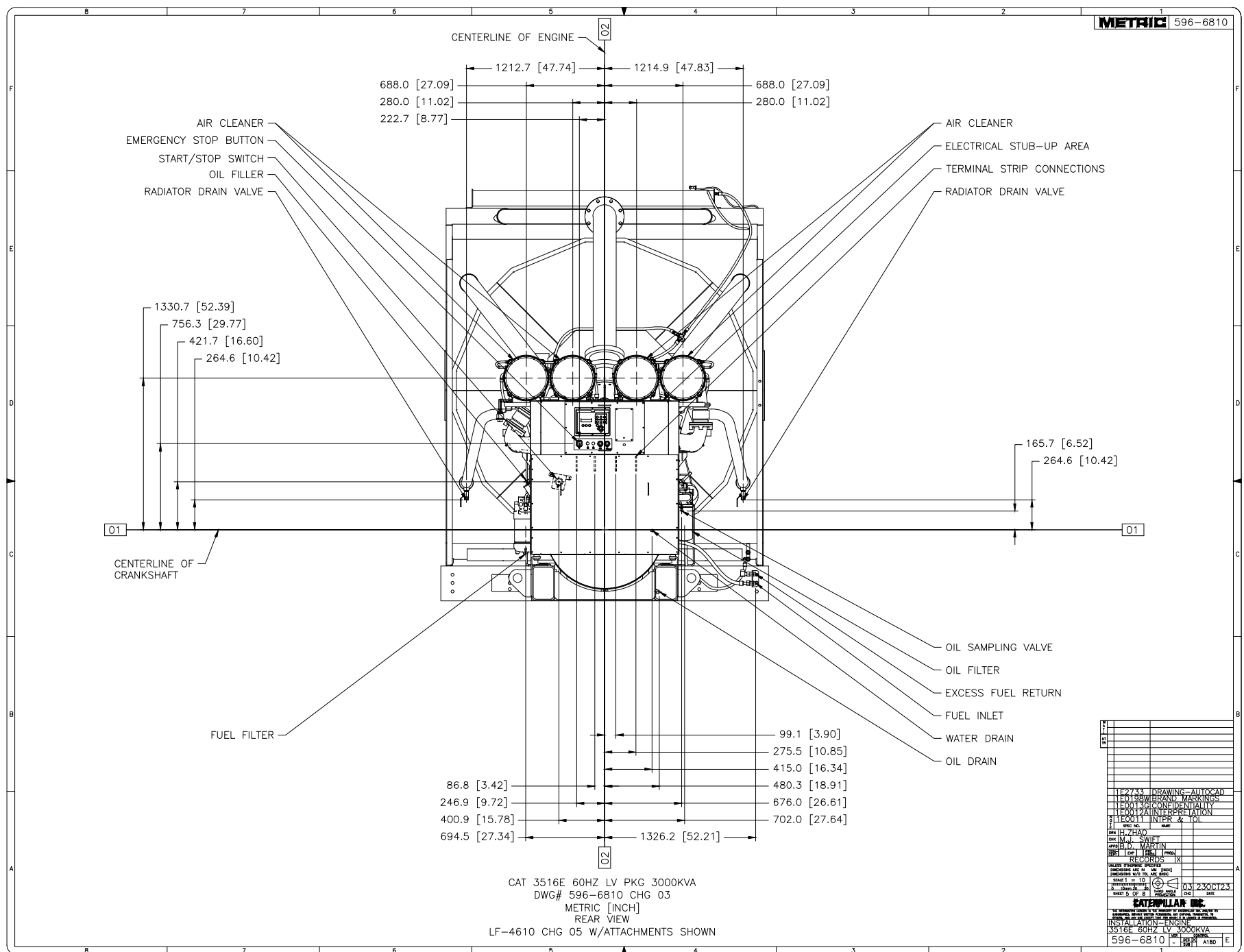
AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H2O
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H2O
MAXIMUM ATAAC OUTLET TEMPERATURE (25C/77F DAY)	120	DEG F
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	5.9	IN-HG
COOLING SYSTEM		
ENGINE ONLY COOLANT CAPACITY	61.6	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	219	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	16	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	8.5	IN
TOTAL CYLINDER DISPLACEMENT	4766	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-2-5-6-3-4-9-10-15-16-11-12-13-14-7-8	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	28	IN-H2O
MANIFOLD TYPE	DRY	
FUEL SYSTEM		
MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	443.8	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	443.8	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	722	BTU/MIN
LUBE SYSTEM		
CRANKCASE VENTILATION TYPE	TO ATM	
MOUNTING SYSTEM		
DRY WEIGHT - ENGINE ONLY (REFERENCE VALUE)	19795	LB

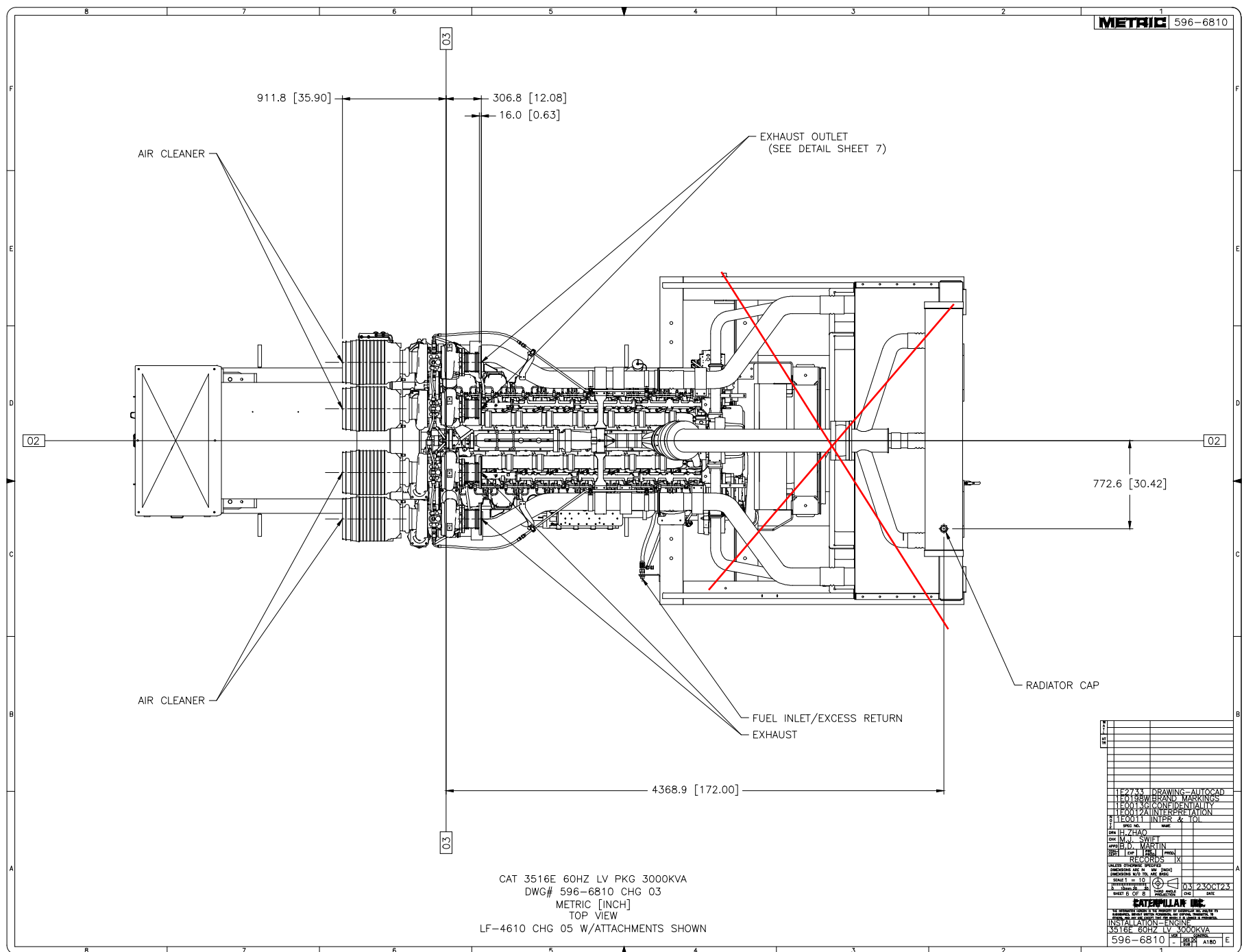
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM
LOWEST AMBIENT START TEMPERATURE WITHOUT AIDS	32	DEG F

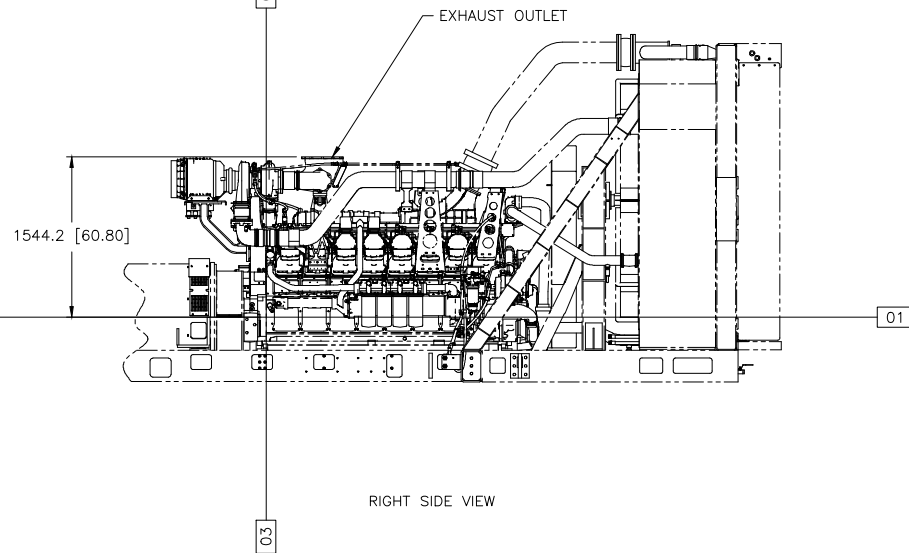
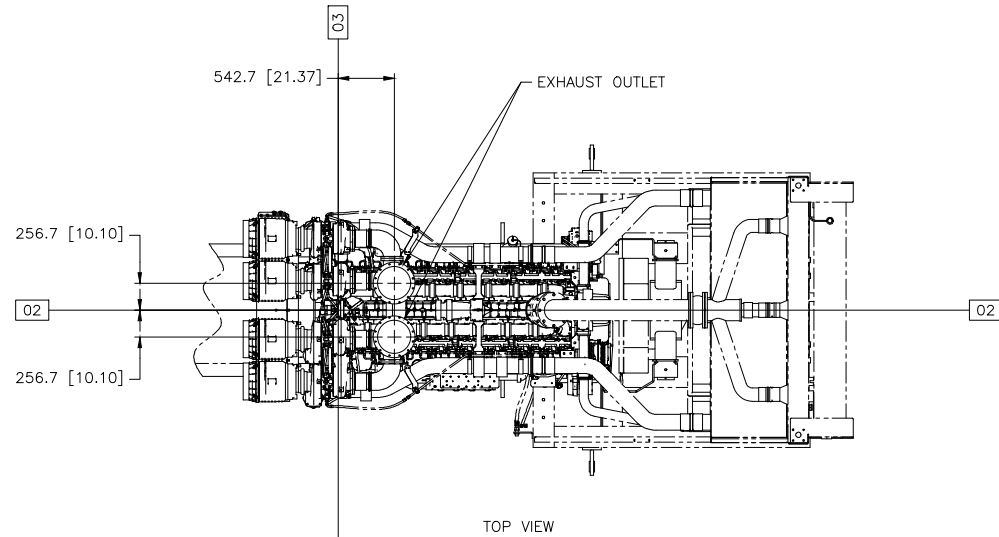
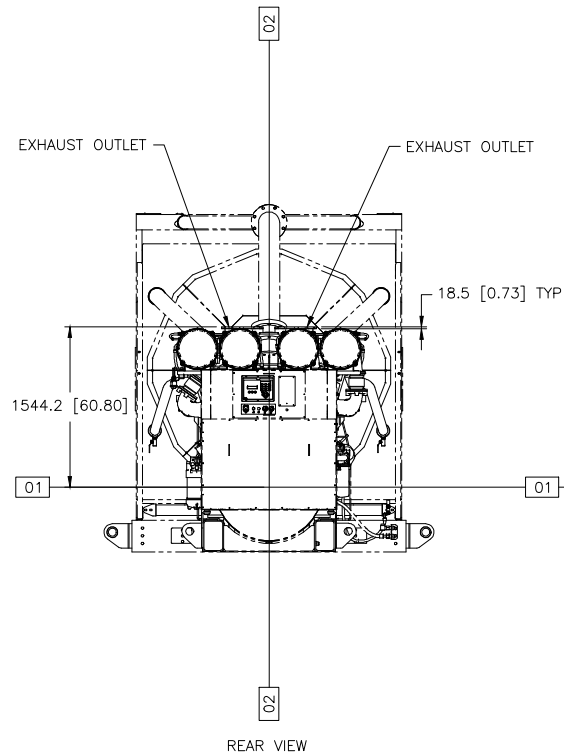
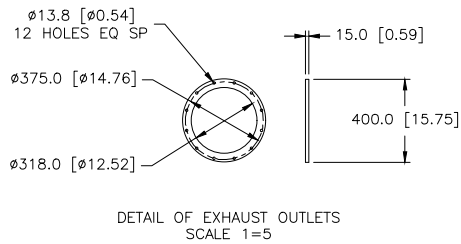






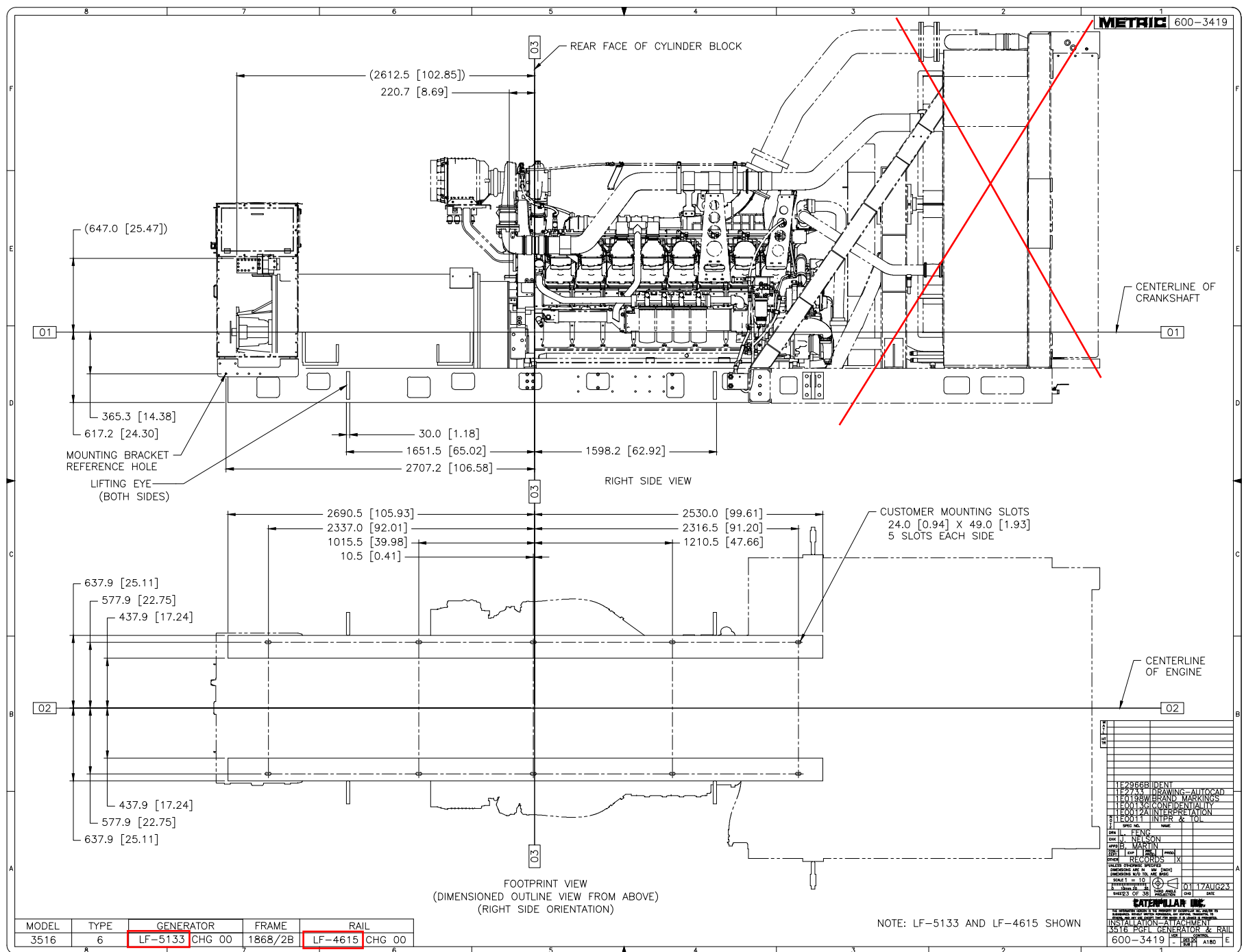


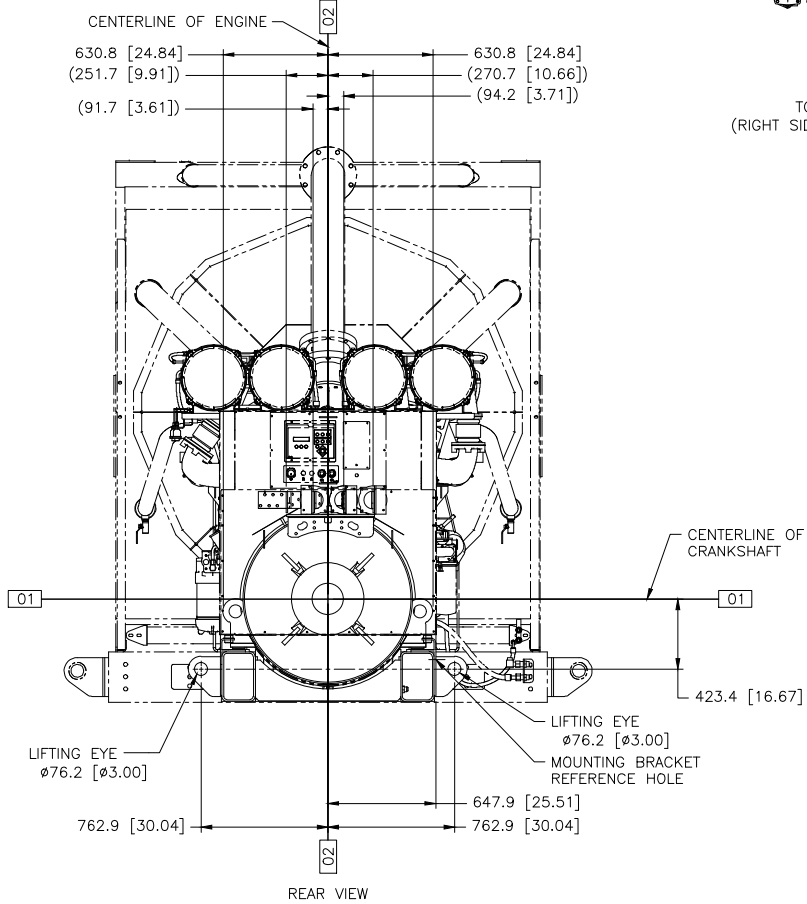
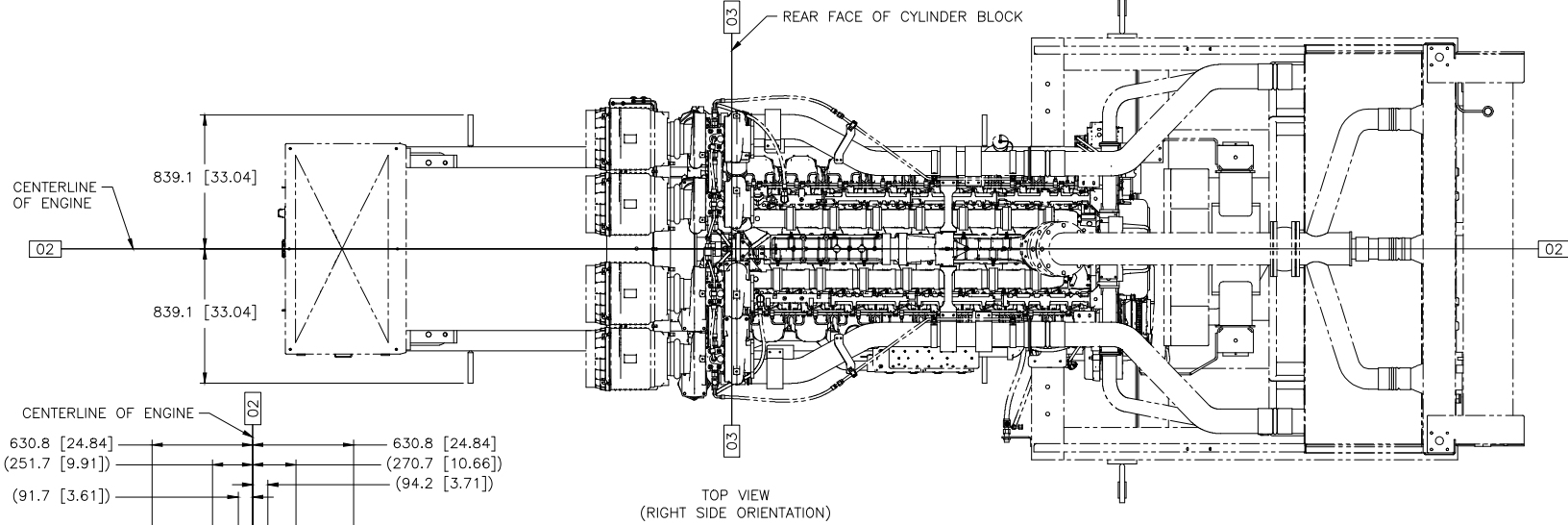




MODEL	TYPE	PRICING AR
3516	-	LF-4903 CHG 03

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NOTES:

1. ENCLOSURE ASSEMBLY:

a.) FOR A CATERPILLAR 3000KW 3516E GEN-SET. (480VAC)

b.) FULLY ASSEMBLED ACOUSTICAL ENCLOSURE TO BE MOUNTED TO THE SUB BASE FUEL TANK THEN ANCHORED TO THE FOUNDATION.

c.) PANEL JOINTS ARE SKIP WELDED AND CAULKED.

d.) WIND LOAD: 120 MPH

e.) SUPPORT OF FUTURE SCR SYSTEM. THE WEIGHT TO SUPPORT THE FUTURE SCR (ASSUMING 15,000 LBS). ASSUMING A LIFTING SKID WITH SCR WOULD BE CONSIDERED ON A LATER DATE.
2. ENCLOSURE CONSTRUCTION:

a.) SKIN – 14 GA. GALVANNEAL STEEL (WALLS).

14 GA. GALVANNEAL STEEL (ROOF).

b.) FRAMING – A36 STRUCTURAL ANGLE & A500-B TUBING

c.) INNER LINER – 22 GA. GALVANIZED PERFORATED STEEL.

d.) INSULATION – MINERAL WOOL

e.) DOORS – THREE (3) SINGLE ACCESS SERVICE DOORS & ONE (1) DOUBLE ACCESS SERVICE DOOR WITH STAINLESS STEEL HINGES & CHROME PLATED REFRIGERATOR STYLE DOOR LATCHES w/ INSIDE RELEASE.

f.) INLET HOOD ASSEMBLY (GALVANNEAL CONSTRUCTION).

g.) INLET FIXED WEATHER LOUVERS (GALVANNEAL CONSTRUCTION).

h.) INLET BAFFLE PANELS – (GALVANNEALED CONSTRUCTION).

i.) MOTORIZED INTAKE DAMPER ASSEMBLY (ALUMINUM CONSTRUCTION-CD356).

j.) GRAVITY BACKDRAFT DAMPERS – (ALUMINUM CONSTRUCTION – CBD2).

k.) INTERNAL DISCHARGE ELBOW – (GALVANNEAL INSULATED CONSTRUCTION).
3. DESIGN CONSTRUCTION:

a.) AIR FLOW RATES;

RADIATOR – 122,753 CFM

COMBUSTION – 8,690.9 CFM

b.) PRESSURE DROPS;

INLET & DISCHARGE LOUVERS/BAFFLES 0.5” W.G. OR LESS (TOTAL).

c.) PERFORMANCE;

DESIGNED TO REDUCE THE GEN-SET EQUIPMENT NOISE LEVEL TO 85 dBA WHEN MEASURED AT A DISTANCE OF 23 FEET FROM THE ENCLOSURE AND 5 1/2 FEET ABOVE GRADE IN A FREE FIELD ENVIRONMENT. (PROVIDING THE EQUIPMENT NOISE DOES NOT EXCEED 124 dB @ 3 FEET).
4. PAINT:

a.) ALL EXTERIOR GALVANNEAL SURFACES TO BE SOLVENT CLEANED

* PER SSPC-SP1 AND PAINTED AS FOLLOWS;

* FINISH – ONE COAT OF AMERSHIELD VOC.

b.) ALL CARBON STEEL SURFACES TO BE POWER TOOL CLEANED PER SSPC-SP3 AND PAINTED AS FOLLOWS;

* PRIMER – ONE COAT AMERCOAT 370.

* FINISH – ONE COAT OF AMERSHIELD VOC.

* INTERIOR WALL AND ROOF SURFACES WILL NOT BE PAINTED.

c.) COLOR: ENCLOSURE: T.B.D.

TANK: BLACK

5. ELECTRICAL: SEE SHEET 13758-10E.
6. QUANTITY REQUIRED:

FIFTY-TWO (52) GEN-SET ENCLOSURE ASSEMBLIES AS SHOWN

FIFTY-TWO (52) U.L. LISTED 142 DAY FUEL TANKS AS SHOWN
7. WEIGHTS:

ESTIMATED WEIGHTS ARE AS FOLLOWS:

a.) ENCLOSURE ASSEMBLY

- 34,000 LBS

b.) GEN-SET

- 52,000 LBS WET (CUSTOMER TO CONFIRM)

c.) SUB BASE FUEL TANK

- 24,000 LBS

TOTAL

- 110,000 LBS

d.) LIFTING SKID w/MUFFLER

- 5,000 LBS
8. PACKAGED ASSEMBLY SHIPPING SIZES:

a.) ENCLOSURE PACKAGE ASSEMBLY

- 594”L x 166”W x 173”H

b.) LIFTING SKID w/MUFFLER

- 100”L x 164”W x 81”H

9. ACS CONTACT INFORMATION

SALES: WESLEY RITCHIE

TELEPHONE: 903.462.2034

E-MAIL: wesley.ritchie@acsmanufacturing.com

PROJECT MANAGER: JIMMAY MUNDINE

TELEPHONE: 903.462.2001 EXT. 891514

E-MAIL: jimmayshun.mundine@acsmanufacturing.com

☐ APPROVED AS IS – Manufacturing may proceed.

☐ APPROVED WITH NOTED CHANGES – Resubmit drawing; manufacturing may proceed.

☐ NOT APPROVED – Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

RETURNED APPROVAL DRAWINGS WITH SIGNATURE REQUIRED BEFORE ACS WILL BEGIN MANUFACTURING PROCESS

*CUSTOMER TO VERIFY ALL NOTES AND DIMENSIONS

QUOTE NO.: 202404030 REV. 1

PO NO.: 425039PRP1-1

ACS MFG LOC.: TX

JOB NAME: PROLOGIS



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D	-	UPDATE PACKAGE SHIPPING WIDTH	CE	JM	05/30/25	TOLERANCES (EXCEPT AS NOTED)	CARTER CAT	DRAWN BY: CE	
C	-	SEE OTHER SHEETS	CE	JM	05/14/25	DECIMAL ± 0.125"		CHECKED BY:	
B	-	ADD NOTE 1e) FUTURE SCR & UPDATE QTY	ME	JM	04/24/25	FRACTIONAL ± 1/8"		CHECKED BY:	
A	-	UPDATE SHIPPING DIMS AND WEIGHTS	CE	JM	04/16/25	ANGULAR ± 3°		APPROVED BY: JM	
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE	SCALE 48:1	TITLE ACOUSTICAL ENCLOSURE ASSEMBLY TEXT SHEET	SHEET 1 OF 6	REV. D
						DATE 03/10/25	DRAWING NUMBER 13758-10		

Carter - This new revision includes a drawing set with an SCR as well. Please see following pages.

Confirm ACS is referencing the same 50C radiator as earlier in the package (not the standard CAT radiator)

Carter - DRC radiator
now shown

As a standard / prototype OFCI equipment item it would be ideal if both bottom cable entry (UG conduit or cablebus through fuel tank) or top cable entry (overhead cablebus) could be accommodated to handle the widest range of possible site conditions

Carter - Confirmed and shown. Cable entry at the side of the enclosure (one side) and bottom entry through tank

Carter - This new revision includes a drawing set with an SCR as well. Please see following pages.

Ensure enclosure is designed with adequate structural support to facilitate the installation of SCR if/where required

Carter - Duplex filter

ITEM/ QTY		DESCRIPTION
1	12	BAFFLE PANELS WITH MINERAL WOOL
2	1	MAN WAY ACCESS PANEL
3	3	36" X 78" SINGLE DOOR (SINGLE SEAL) & (BOND STRAP FROM ENCLOSURE DOOR TO DOOR FRAME)
4	1	RADIATOR FLASHING & TRIM FLASHING
5	2	FIXED INLET WEATHER LOUVER (RECESSED)
6	1	DISCHARGE GRAVITY BACKDRAFT DAMPER (CB02)
7	4	ENCLOSURE LIFTING LUG (DESIGNED FOR ENCLOSURE REMOVAL ONLY)
8	1	2400 CFM VENT FAN w/ DAMPERS & T-STAT
9	1	120/208VAC, PANELBOARD, 3PH
10	4	LED LIGHT (4')
11	3	INTAKE HOOD ASSEMBLY
12	2	3-WAY LIGHT SWITCH/DUPLEX RECEPTACLE (WR)
13	1	ROOF SKID FOR MUFLER - ACS TO MOUNT MUFLER TO SKID AND SHIP AS ASSEMBLY
14	1	7-1/2" GALLONS SPILL BUCKET w/ DRAIN
15	2	5KW SPACE HEATER w/ T-STAT
16	1	U.L. 142 SUB BASE FUEL TANK
17	1	RADIATOR CAP ACCESS HATCH
18	1	80" x 96" DOUBLE DOOR (SINGLE SEAL), w/ DOOR HOLDER, HINGED ACCESS DOORS FOR CAMLOCKS & BREAKER, LOWER CLOSE LATCH, UPPER CHAIN LATCH, & RUBBER FLAPPER RECESSED IN DOOR OPENING. (SPLIT DOOR SHALL ALLOW CABLES TO EXTEND THRU THE DOOR & ALLOW DOOR TO BE CLOSED AFTER CONNECTIONS ARE MADE) (ALL DOORS TO HAVE R SHIELD) (BOND STRAP FROM ENCLOSURE DOOR TO DOOR FRAME)
19	1	0-60 MIN TIMER SWITCH (FOR DC LIGHTS)
20	1	BIRD SCREEN
21	1	DAMPERS, MOTORIZED INLET (CD-356)
22	1	NORMAL VENT, FUEL TANK - EXTENDED OUTSIDE OF ENCLOSURE TO ROOF LINE AT LEAST 12' ABOVE GRADE. SHIPPED LOOSE & INSTALLED BY OTHERS
23	1	INTERNAL DISCHARGE ELBOW (INSULATED)
24	1	COMPLETE EXHAUST SYSTEM INCLUDING - SUPER CRITICAL GRADE MUFLER, EXHAUST WYE ASSEMBLY, ELBOW, OVERSIZED STAINLESS STEEL EXHAUST WEATHER COVER, TAIL PIPE, RAIN CAP, NRG KIT, & REMOVABLE BLANKETS (COVERING WYE FLEX ASSEMBLY, & FLANGES)
25	1	480VAC DISCONNECT, FUSED, 60A
26	1	30KVA TRANSFORMER, 480-120/208VAC, 3PH
27	2	1" COUPLING, OIL & WATER DRAIN, EXTENDED TO ENCLOSURE WALL (BALL VALVE ON THE INSIDE, PLUGGED ON THE OUTSIDE)
28	4	24VDC LED LIGHT w/ GLOBE & GUARD
29	2	BATTERY RACK - ANCHORED TO TOP OF TANK - CARBON STEEL - PAINTED - EACH RACK TO HOLD (2) 8D BATTERIES
30	1	118.5 GALLONS OF CAT ELC COOLANT - ACS TO FILL ENGINE & RADIATOR PRIOR TO SHIPMENT
31	8	TANK LIFTING LUG (DESIGNED TO LIFT ENTIRE PACKAGE)
32	2	SIDE ACCESS w/ REMOVABLE COVER PLATE (FOR ISOLATORS)
33	2	STACKED BATTERY RACK - ANCHORED TO TOP OF TANK - CARBON STEEL - PAINTED - EACH RACK TO HOLD (4) 8D BATTERIES
34	1	BATTERY CABLES ARE ACS SUPPLIED AND TO BE INSTALLED & WIRED BY ACS. ACS TO PROVIDE & INSTALL THE 4/0 CABLE SPECIFIED.
35	2	EXTERIOR LED LIGHT w/ 1 PHOTOCELL FOR ALL LIGHTS
36	1	CCV8000 KIT WITH HOSE KITS ACS TO INSTALL ON ENGINE PRIOR TO SHIPMENT
37	2	20"x30" REMOVABLE GLAND PLATE w/ RAIN LIP (FOR BUSS DUCT)
38	1	FUEL TANK ANNUNCIATOR w/ CRITICAL LOW
39	1	HOOD FOR VENT FAN (REMOVABLE & SHIPS LOOSE) w/ RAIN LIP ABOVE OPENING
40	2	INTERNAL CHANNEL (FOR CUSTOMER ELECTRICAL SUPPORT USE)
41	7	1" SCH 40 PIPE (CAPPED FOR FUTURE SCR USE)
42	1	2" SCH 40 PIPE (CAPPED FOR FUTURE SCR USE)
43	2	EMERGENCY VENT, FUEL TANK
44	2	DUPLEX RACOR FUEL FILTER ASSEMBLY ACS TO MOUNT & PLUMB (FLEX HOSES) TO ENGINE w/ CRYSOIL ISOLATION VALVE
45	1	S/S GROUNDING BAR (FOR GROUNDING, PANELBOARD, TRANSFORMER, GENSET ALTERNATOR, GENSET FRAME, FUEL TANK, & ENCLOSURE)
46	2	DUPLEX RECEPTACLE w/ IN-USE WEATHERPROOF COVER

QUOTE NO.: 202404030 REV. 1
PO NO.: 425039PRP1-1
S MFG LOC.: TX
JOB NAME: PROLOGIS



CARTER CAT

ACOUSTICAL GEN-SET
ENCLOSURE ASSEMBLY

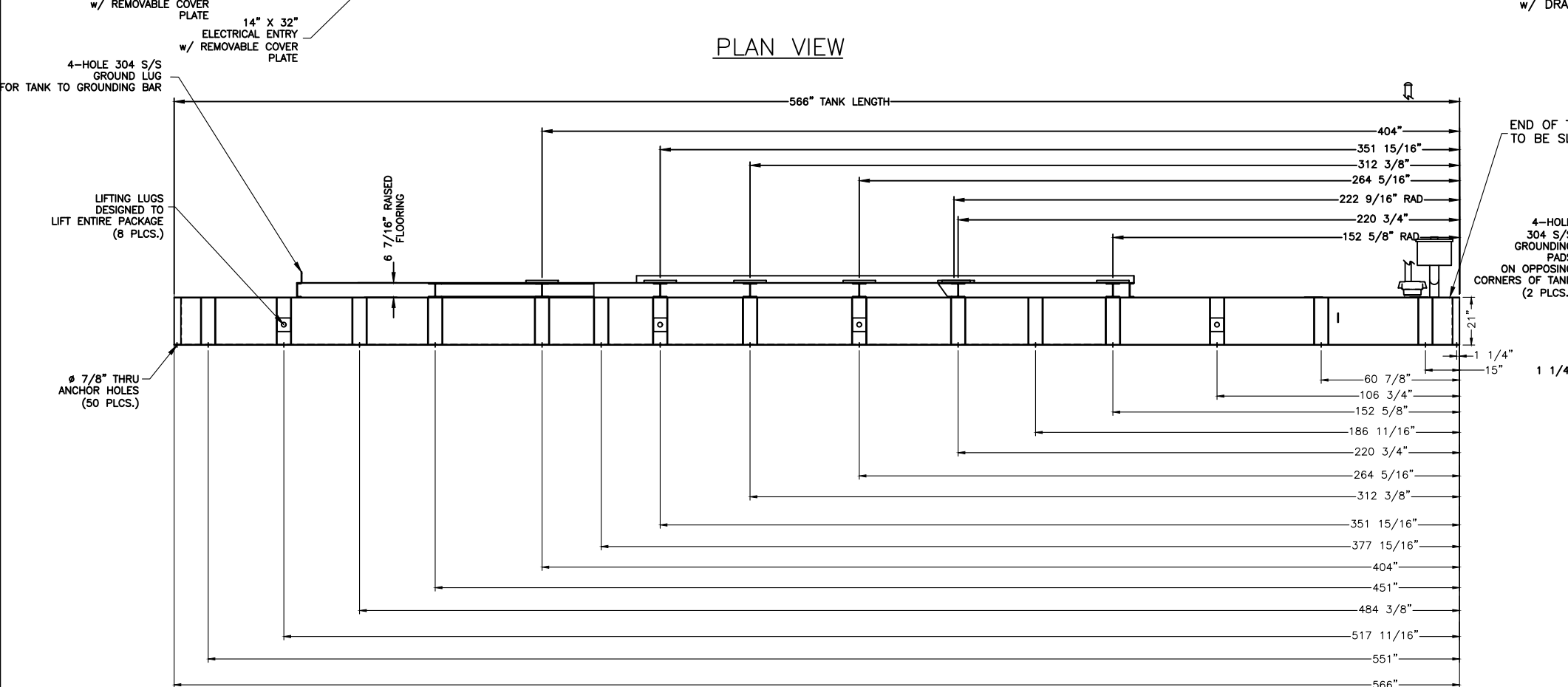
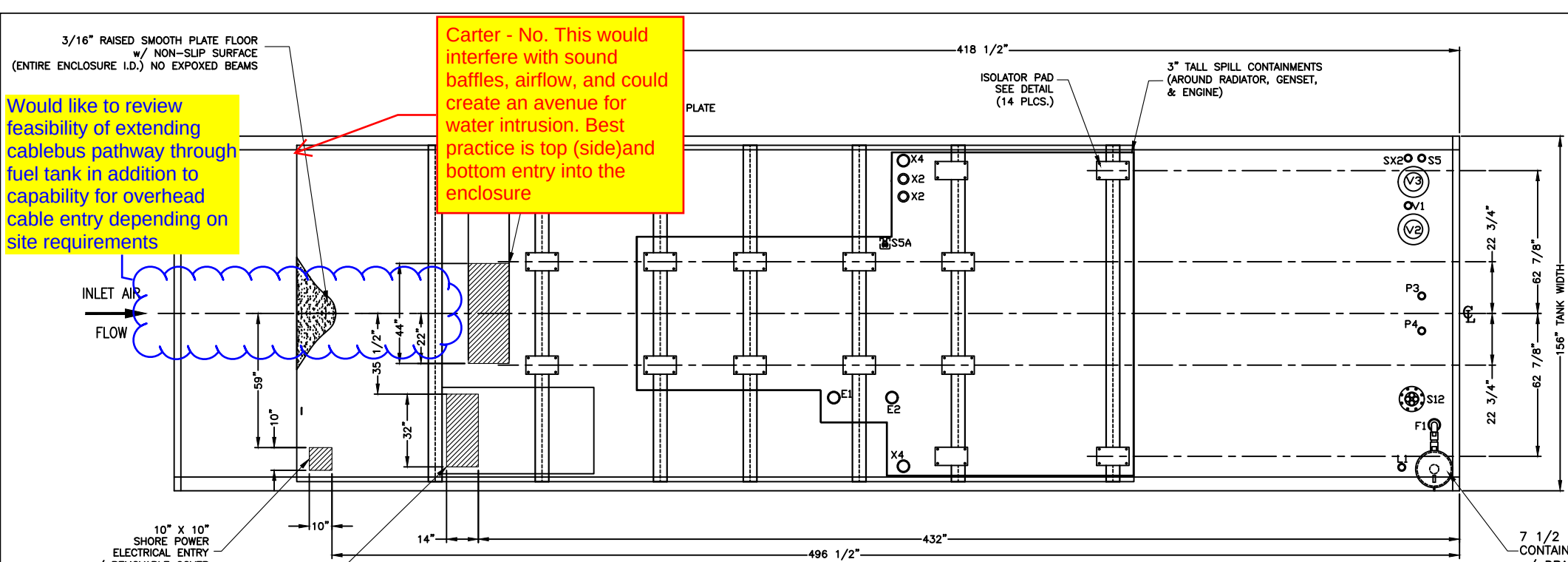
13758-10

DRAWN BY: CE	
CHECKED BY:	
CHECKED BY:	
APPROVED BY: JM	
SHEET	REV.
2 of 6	D

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D	—	UPDATE PER CUSTOMER COMMENTS	CE	JM	05/30/25	FRACTIONAL $\frac{1}{8}$ "
C	—	UPDATE GENSET PER NEW DWG	CE	JM	05/14/25	ANGULAR $\frac{1}{8}$ "
B	—	ADD NOTE — FUTURE SCR	ME	JM	04/24/25	SCALE 1 : 1
A	—	UPDATE PER CUSTOMER MARKUPS/COMMENTS	CE	JM	04/16/25	DATE
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE	03/10/25

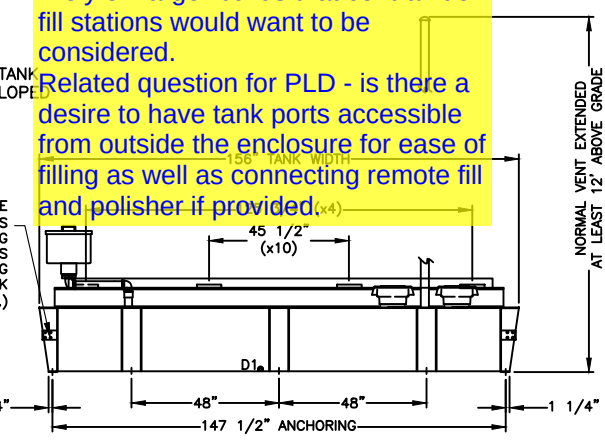


ELEVATION VIEW
U.L. 142 SUB BASE FUEL TANK
5,600 CAPACITY / 5,100 GALLON USABLE

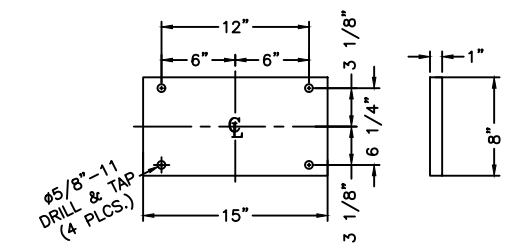
REF.	FITTING SIZE	DESCRIPTION
D1	1" NPT	TANK DRAIN – SECONDARY
E1	4" NPT	ENGINE FUEL SUPPLY – w/ 2" NPT DIP TUBE
E2	4" NPT	ENGINE FUEL RETURN – w/ 2" NPT DIP TUBE
F1	4" NPT	FUEL FILL w/ 2" CAMLOCK
L1	2" NPT	LEVEL GAUGE – DIRECT SITE READING
L2	4" NPT	LEVEL SENSOR – ROCHESTER 4–20mA w/5mm RESOLUTION (WIRE TO GCP)
P3	2" PIPE	FUEL POLISHER SUPPLY – w/ INTERNAL PIPING (FOR CUSTOMER FPS)
P4	2" PIPE	FUEL POLISHER RETURN – w/ INTERNAL PIPING (FOR CUSTOMER FPS)
S5	2" NPT	LEAK DETECTOR SWITCH – N.O. (WIRE TO FTA THEN TO GCP)
SSA	–	SIDE MOUNTED LEAK DETECTOR SWITCH – N.O. (WIRE TO GCP)
S12	6" FLANGE (WIRE TO FTA THEN TO GCP)	CRITICAL LOW LEVEL SWITCH – N.C. – 20%
		LOW LEVEL SWITCH – N.C. – 25%
		HIGH LEVEL SWITCH – N.O. – 90%
		CRITICAL HIGH LEVEL SWITCH – N.O. – 95%
SX2	2" NPT	SPARE FITTING, SECONDARY – (1)
V1	2" NPT	PRIMARY TANK NORMAL VENT – EXTEND ABOVE ENCLOSURE ROOF LINE (AT LEAST 12' ABOVE GRADE) SHIPPED LOOSE & INSTALLED BY OTHERS
V2	8" NPT	EMERGENCY VENT – PRIMARY
V3	8" NPT	EMERGENCY VENT – SECONDARY
X2	2" NPT	SPARE FITTING, PRIMARY – w/ CAP (2)
X4	4" NPT	SPARE FITTING, PRIMARY w/ CAP (2)

Carter - Spare fitting added for fuel polisher. P3 and P4

Recommend adding provisions for remote fill and polisher connections likely on larger builds that central fuel fill stations would want to be considered. Related question for PLD - is there a desire to have tank ports accessible from outside the enclosure for ease of filling as well as connecting remote fill and polisher if provided.



END VIEW



ISOLATOR PAD DETAIL
14 REQ'D
SCALE: 4X

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PO NO.: 425039PRP1–1
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JOB NAME: PROLOGIS



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REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE
D	–	UPDATE PER CUSTOMER COMMENTS	CE	JM	05/30/25
C	–	UPDATE ISO LOCS	CE	JM	05/14/25
B	–	SEE OTHER SHEETS	ME	JM	04/24/25
A	–	UPDATE TANK DIMS & ISOLATOR LOCS PER GENSET	CE	JM	04/16/25

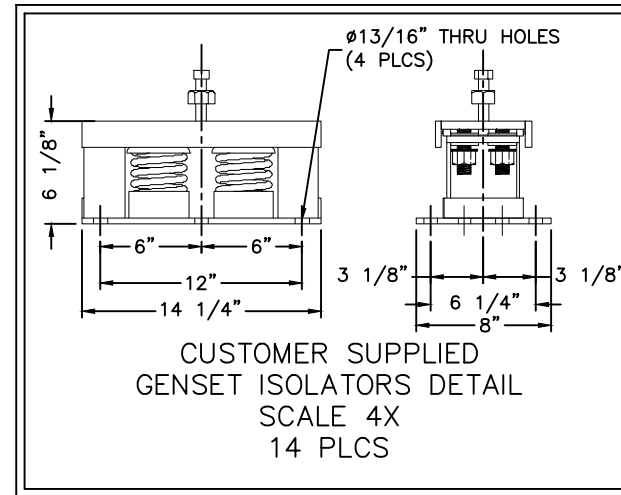
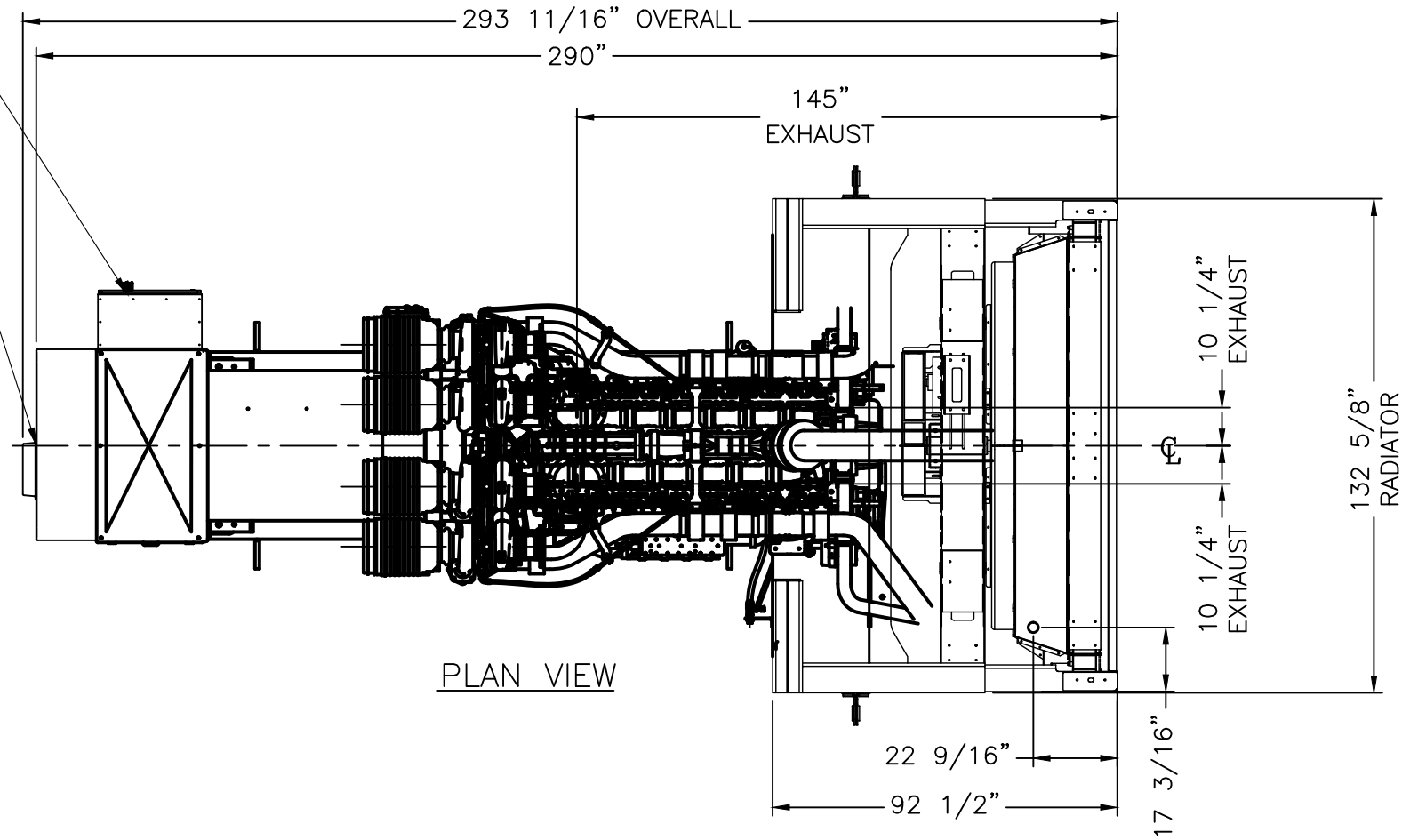
TOLERANCES (EXCEPT AS NOTED) DECIMAL ± 0.125" FRACTIONAL ± 1/8" ANGULAR ± 3° SCALE 1 TO 1 DATE 03/10/25	CARTER CAT U.L. 142 SUB BASE FUEL TANK 13758–10	DRAWN BY: CE CHECKED BY: CHECKED BY: APPROVED BY: JM SHEET 3 OF 6 REV. D
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5000 gallons = 24 hours
PLD to confirm acceptable - this is a comment in the BOD for confirmation as well to make sure we don't need 48

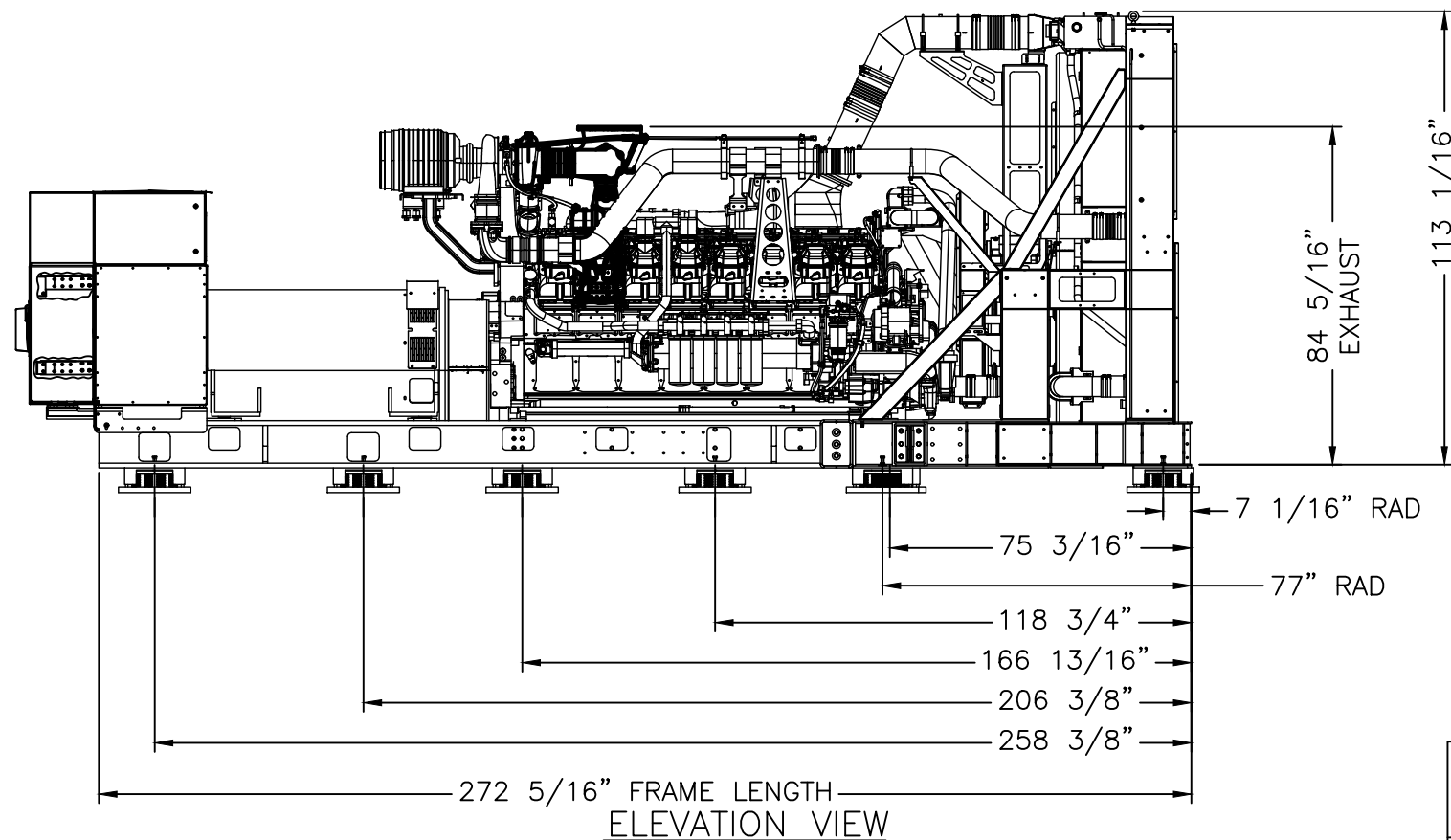
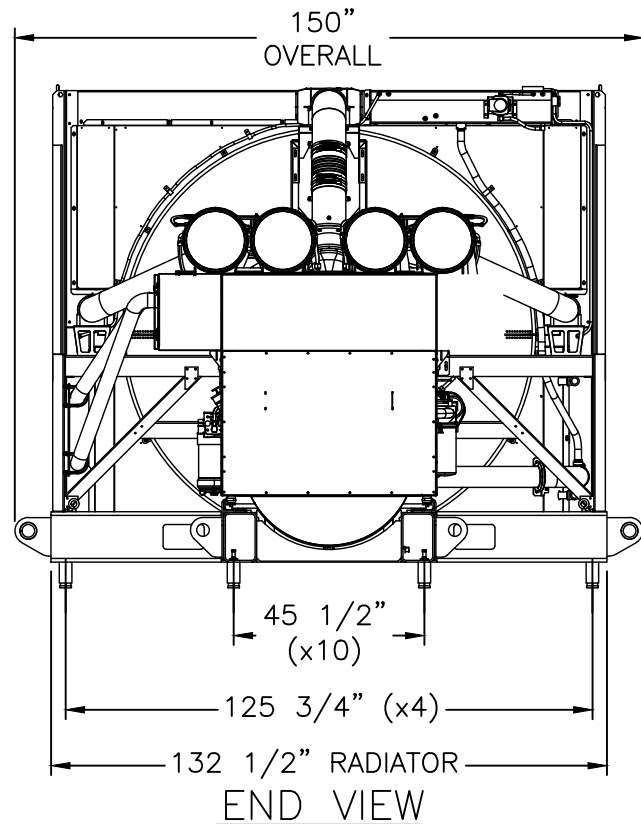
Carter - Capacity updated to 5100 gal

GCP LOCATION
RIGHT SIDE
FROM FACTORY
ACS TO
RELOCATE TO
LEFT SIDE OF
GENSET FOR
CLEARANCE OF
DOCKING
STATION

4000A MAIN
LINE BREAKER
LOCATION



CATERPILLAR 3000KW 3516E GENSET



- ☐ APPROVED AS IS - Manufacturing may proceed.
- ☐ APPROVED WITH NOTED CHANGES - Resubmit drawing; manufacturing may proceed.
- ☐ NOT APPROVED - Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

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TOLERANCES (EXCEPT AS NOTED)				CARTER CAT		DRAWN BY: CE	
DECIMAL $\pm 0.125"$						CHECKED BY:	
FRACTIONAL $\pm 1/8"$						CHECKED BY:	
ANGULAR $\pm 3^\circ$				TITLE		APPROVED BY: JM	
SCALE 1 TO 1				GENSET ENCLOSURE ASSEMBLY GENSET DETAILS		SHEET REV.	
DATE 03/10/25				DRAWING NUMBER		4 OF 6 D	
				13758-10			

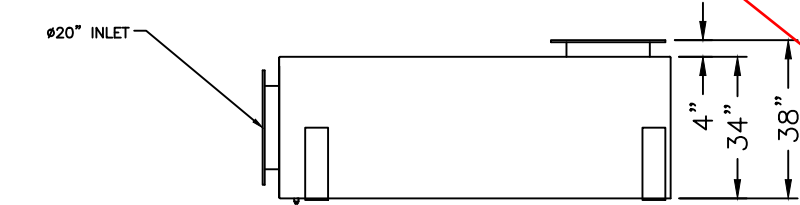
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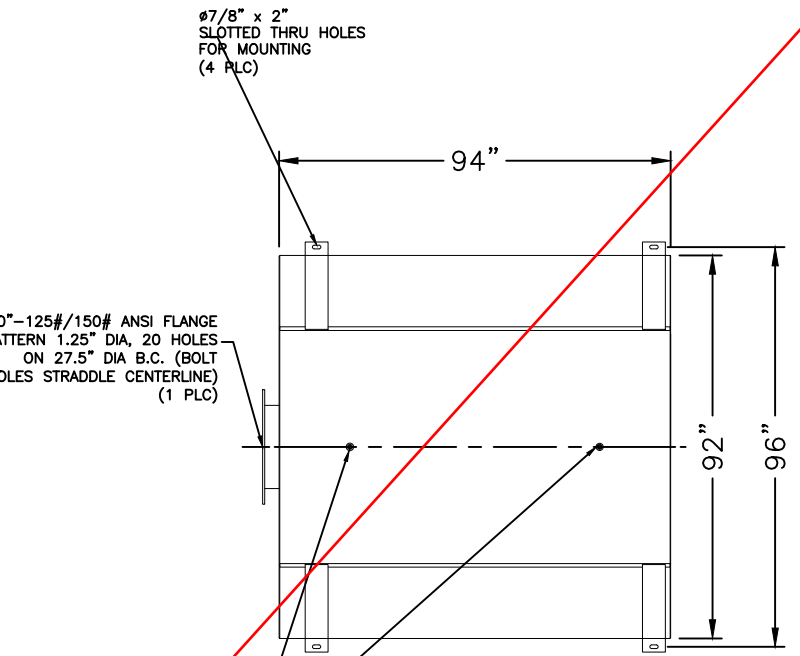
The gen-set was NOT available for physical review when this drawing was created. Please verify all dimensions prior to fabrication of parts connected to the location of the gen-set. If the dimensions do not match please contact Engineering.

REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE
D	-	SEE OTHER SHEETS	CE	JM	05/30/25
C	-	UPDATE GENSET PER NEW DWG	CE	JM	05/15/25
B	-	SEE OTHER SHEETS	ME	JM	04/24/25
A	-	UPDATE GCP LOCATION	CE	JM	04/16/25

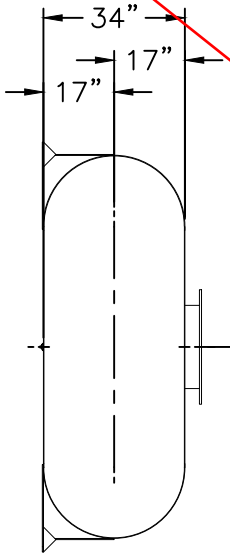
- ACS TO PROVIDE PER ENCLOSURE:
- ONE (1) SUPER CRITICAL GRADE FLASK STYLE MUFFLER AS SHOWN – CARBON STEEL CONSTRUCTION, PAINTED w/HIGH HEAT BLACK PAINT, & 2” INTERNAL INSULATION.
 - ONE (1) INTERIOR WYE FLEX ASSEMBLY AS SHOWN.
 - ONE (1) RAIN CAP AS SHOWN.
 - ONE (1) EXTERIOR ELBOW AS SHOWN.
 - ONE (1) OVERSIZED STAINLESS STEEL EXHAUST WEATHER COVER AS SHOWN.
 - ONE (1) TAIL PIPE AS SHOWN.
 - TWO (2) 12” CAT NBG KIT.
 - THREE (3) 20” ANSI NBG KIT.
 - ONE (1) 20” GASKET KIT.
 - REMOVABLE BLANKETS (COVERING INTERNAL WYE FLEX ASSEMBLY & FLANGES)



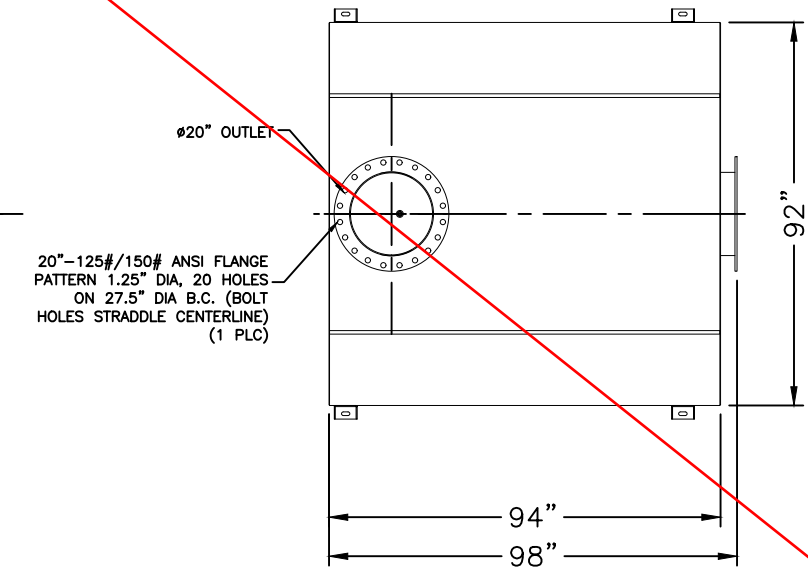
SIDE VIEW



BOTTOM VIEW



END VIEW



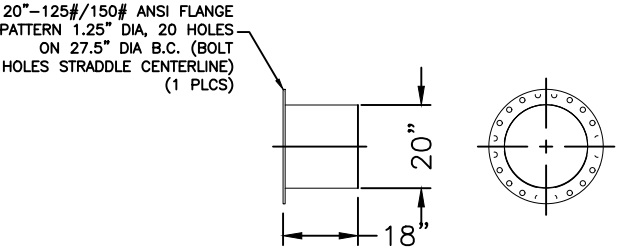
TOP VIEW

- ☐ APPROVED AS IS – Manufacturing may proceed.
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- ☐ NOT APPROVED – Correct drawing as noted and resubmit for approval before manufacturing begins.

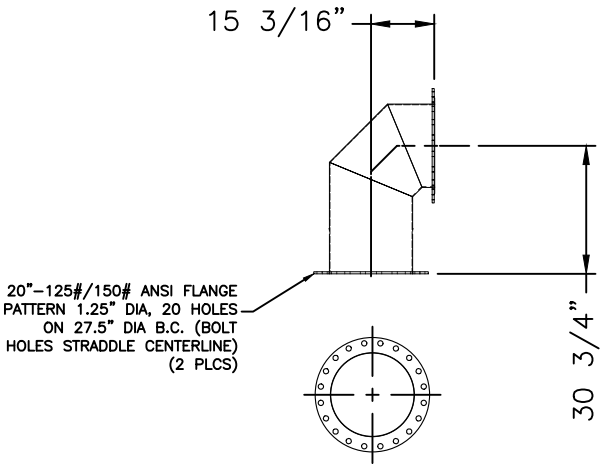
BY: _____ DATE: _____

COMPANY: _____

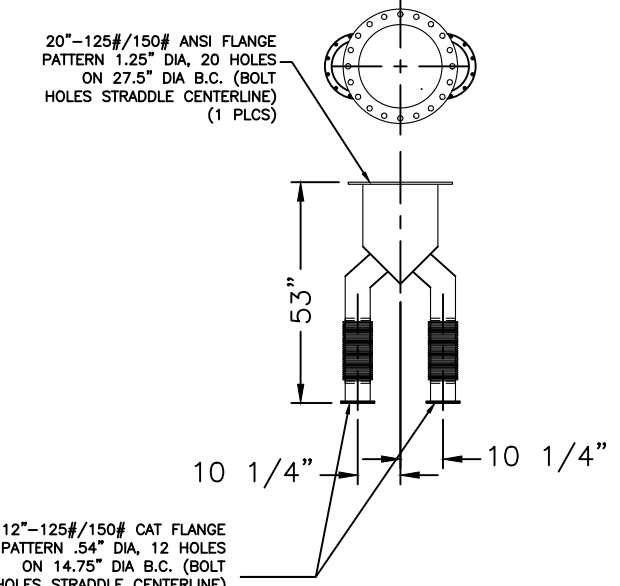
RETURNED APPROVAL DRAWINGS WITH SIGNATURE
REQUIRED BEFORE ACS WILL BEGIN
MANUFACTURING PROCESS



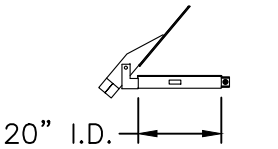
TAILPIPE DETAIL
QTY(1)



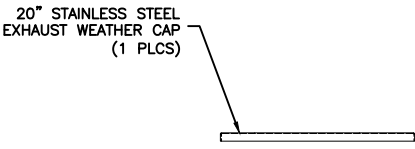
EXTERIOR ELBOW
QTY(1)



INTERIOR WYE FLEX DETAIL
QTY(1)



RAIN CAP DETAIL
QTY(1)



OVERSIZED EXHAUST WEATHER CAP
DETAIL
QTY(1)

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PO NO.: 425039PRP1-1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS



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D	-	UPDATE FLEX LENGTH	CE	JM	05/30/25	TOLERANCES (EXCEPT AS NOTED) DECIMAL ± 0.125 "
C	-	SEE OTHER SHEETS	CE	JM	05/14/25	FRACTIONAL $\pm 1/8$ "
B	-	SEE OTHER SHEETS	ME	JM	04/24/25	ANGULAR $\pm 3^\circ$
A	-	UPDATE EXHAUST WEATHER CAP DETAIL	CE	JM	04/16/25	SCALE 1 TO 1
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE	DATE 03/10/25

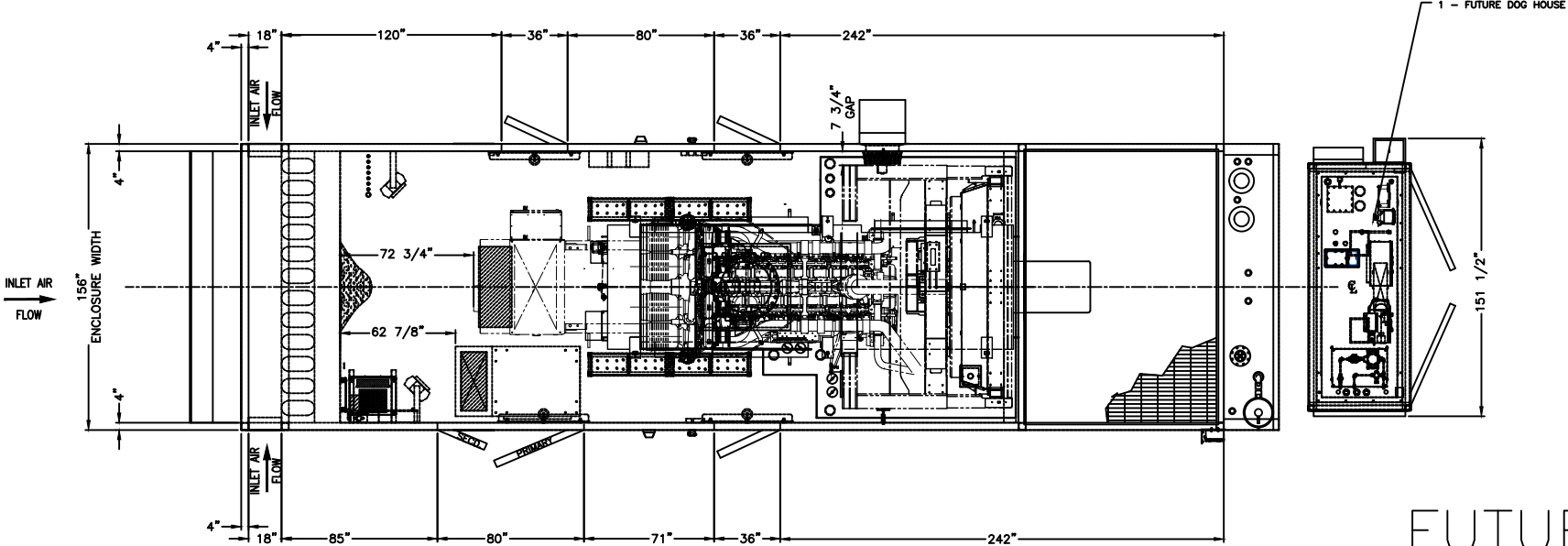
CARTER CAT		DRAWN BY: CE
		CHECKED BY:
		CHECKED BY:
TITLE EXHAUST COMPONENTS DETAIL SHEET		APPROVED BY: JM
DRAWING NUMBER 13758-10		SHEET 5 of 6
		REV. D

- ☐ APPROVED AS IS – Manufacturing may proceed.
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- ☐ NOT APPROVED – Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

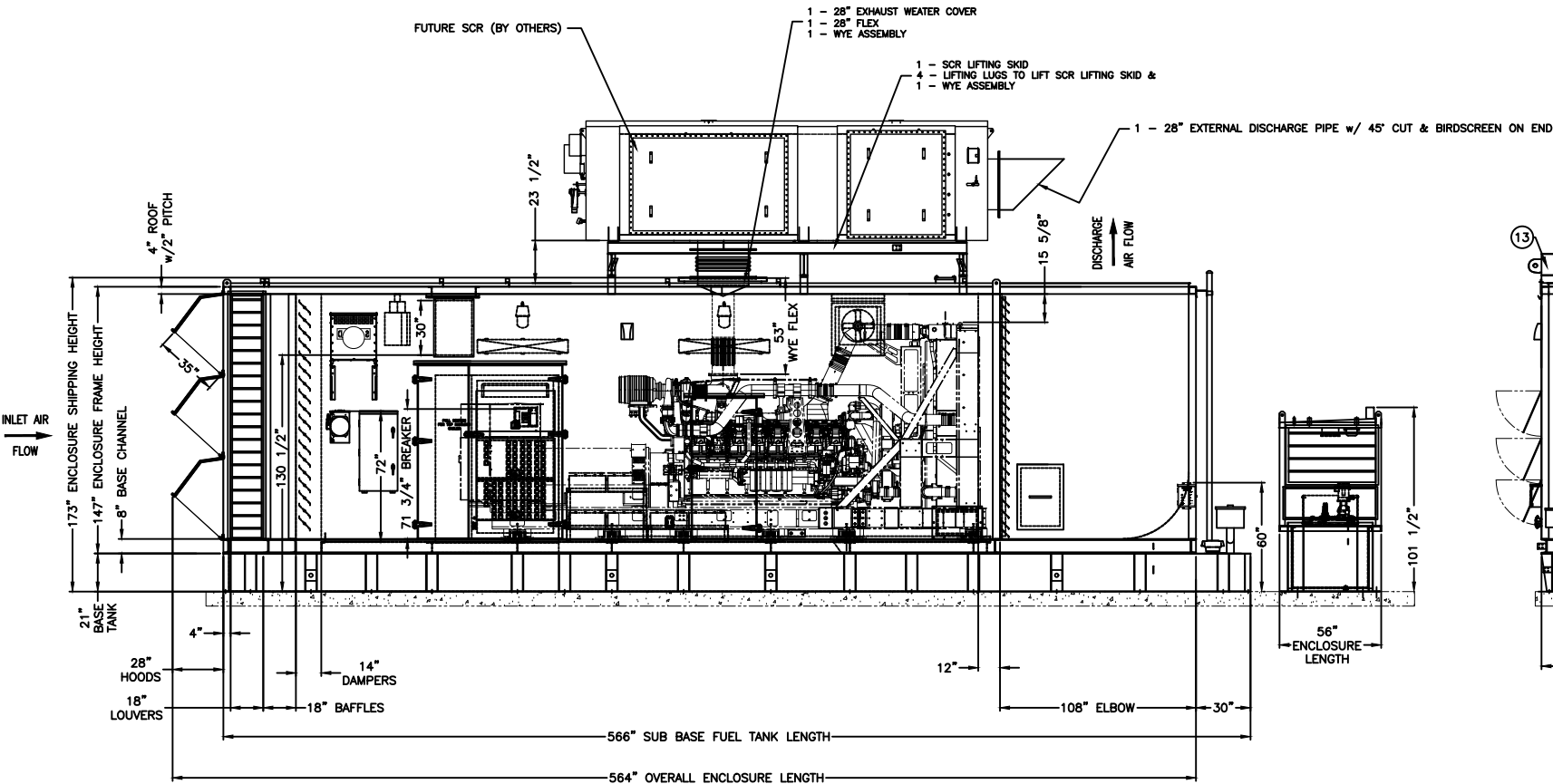
COMPANY: _____

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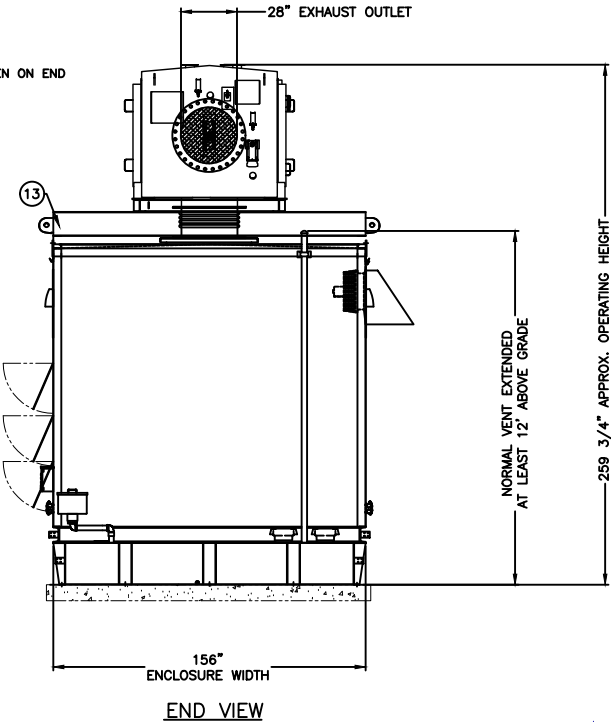


PLAN VIEW

FUTURE SCR EXHAUST SWAP OPTION
(FOR CUSTOMER REFFERENCE ONLY)



ELEVATION VIEW



END VIEW

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JOB NAME: PROLOGIS



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D	-	UPDATE PER CUSTOMER COMMENTS	CE	JM	05/30/25
C	-	UPDATE GENSET PER NEW DWG	CE	JM	05/14/25
B	-	SEE OTHER SHEETS	ME	JM	04/24/25
A	-	ADD SCR OPTION SHEET	CE	JM	04/17/25
REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE

TOLERANCES (EXCEPT AS NOTED)
DECIMAL $\pm 0.125"$
FRACTIONAL $\pm 1/8"$
ANGULAR $\pm 3^\circ$
SCALE 1 : 1
DATE 03/10/25

TITLE	CARTER CAT
TITLE	ACOUSTICAL GEN-SET ENCLOSURE ASSEMBLY
DRAWING NUMBER	13758-10

DRAWN BY: CE
CHECKED BY:
CHECKED BY:
APPROVED BY: JM
SHEET 6 OF 6
REV. D

CATALYTIC COMBUSTION

EMISSION TECHNOLOGIES

SUBMITTAL PACKAGE

Project No.:
WO234327
CO42961

Prepared For:
Carter CAT

Jack Argauer
Project Manager

Prepared By:
Cal Fadness
Project Manager
715-933-2668

cfadness@catalyticcombustion.com

Catalytic Combustion Corporation
311 Riggs Street
Bloomer, WI 54724
888-285-5940 | 715-568-2882
www.catalyticcombustion.com

CUSTOMER APPROVAL PAGE

<i>Submittal Date:</i>	6/30/2025
<i>Catalytic Combustion Project No.:</i>	WO234327
<i>Submittal Revision No.:</i>	0

<i>Contact and Shipping Information</i>			
<i>Company Name:</i>	Carter CAT		
<i>Contact Name:</i>	Jack Argauer	<i>Phone:</i>	443-401-2639
<i>E-Mail:</i>	Jack_Argauer@cartermachinery.com		
<i>Shipping Address:</i>	TBD		
	TBD		
	TBD		
	TBD		

<i>Comments / Site Specific Information</i>
<u>Project/Design Specifications (Per CCC Quote 301362 Rev 2):</u> <u>(24) Sized for CAT 3516E diesel generators rated at 3000kW to meet EPA Tier IV emissions</u> • 304 Stainless Steel Reactor Housing, Insulation Blanket, Oxidation, DPF, SCR Catalysts, horizontal exhaust stack with EPA sample ports and bird screen, urea injection, and mixing duct. • Air/DEF/Control skid which includes air compressor, painted carbon enclosure, 500-gallon poly urea tank, sensors, dosing and control panel, cold weather package. • Urea flow (32.5%) at max power is 14.80 gallons per hour. • Guaranteed Emissions for EPA Tier IV Compliance: - o NOx at 0.5 gr/bhp-hr. - o CO at 2.6 g/bhp-hr - o PM at 0.02 g/bhp-hr • Noise is controlled. Integrated attenuation is 35-45 dBA. • "Bottom Inlet, End Outlet" Reactor dimensions: - o Height = 83" Width = 88" Length = 229" - o Inlet flange dia. = 26" Outlet Duct = 30" <u>Clarifications/deviations:</u> • Compressors and tank heater will be 208 3 phase • Control panel will be 120 single phase • Urea must be protected from freezing • The ADC skids (Air DEF Control Skids) must be located next to the diesel generator as the pump and components have distance limitations.

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- Warranty = 24 month from engine startup and commissioning. Based on emergency standby engine operation. Start up and commissioning not to exceed 6 months from the date of factory shipment.

<i>Documents Included</i>	
<i>Description</i>	<i>Drawing / Document No.</i>
SCR System	726302_00
SCR Assembly	726257_00
ADC Skid Assembly	725710_00
Exhaust Stack	726260_00
30" NBG Kit	589410_A
26" NBG Kit	586051_A
Process & Instrumentation Diagram	WO234327_0
Junction Panel Schematics	716707_B
Field Interconnect Wiring	720949_1
Control Panel Schematics	726285_0

- APPROVED** ☐ No exceptions or comments noted.
- APPROVED** ☐ Requested changes noted in red ink.
- RESUBMIT** ☐ Unacceptable as submitted. Make requested changes and resubmit.

Please review and return to: Cal Fadness cfadness@catalyticcombustion.com

Date

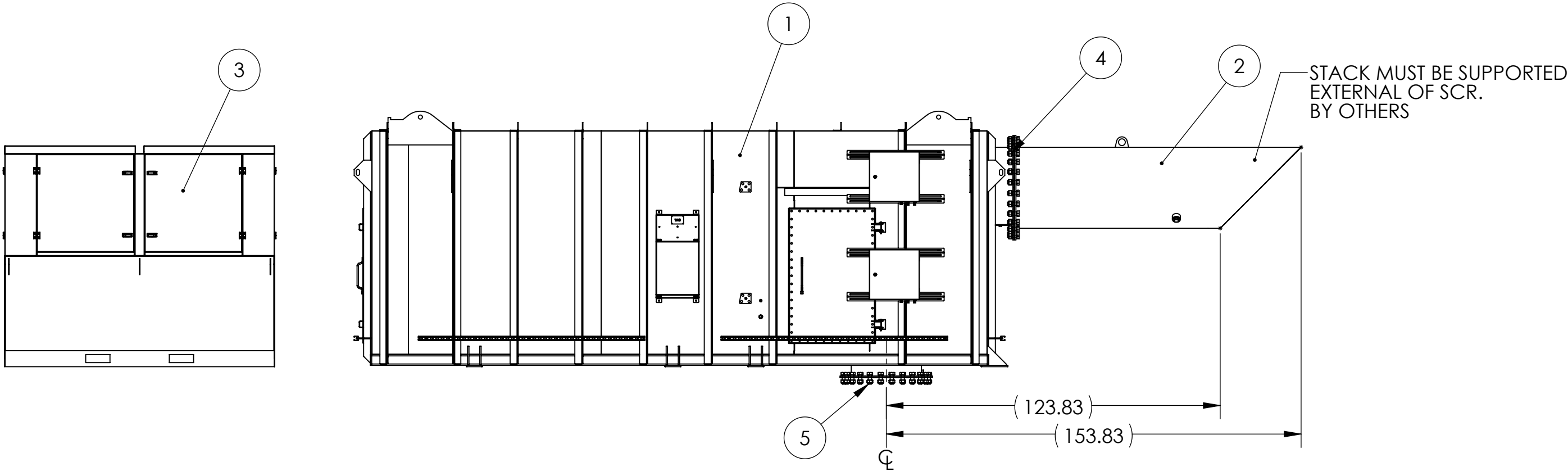
Signature

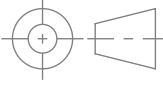
Company

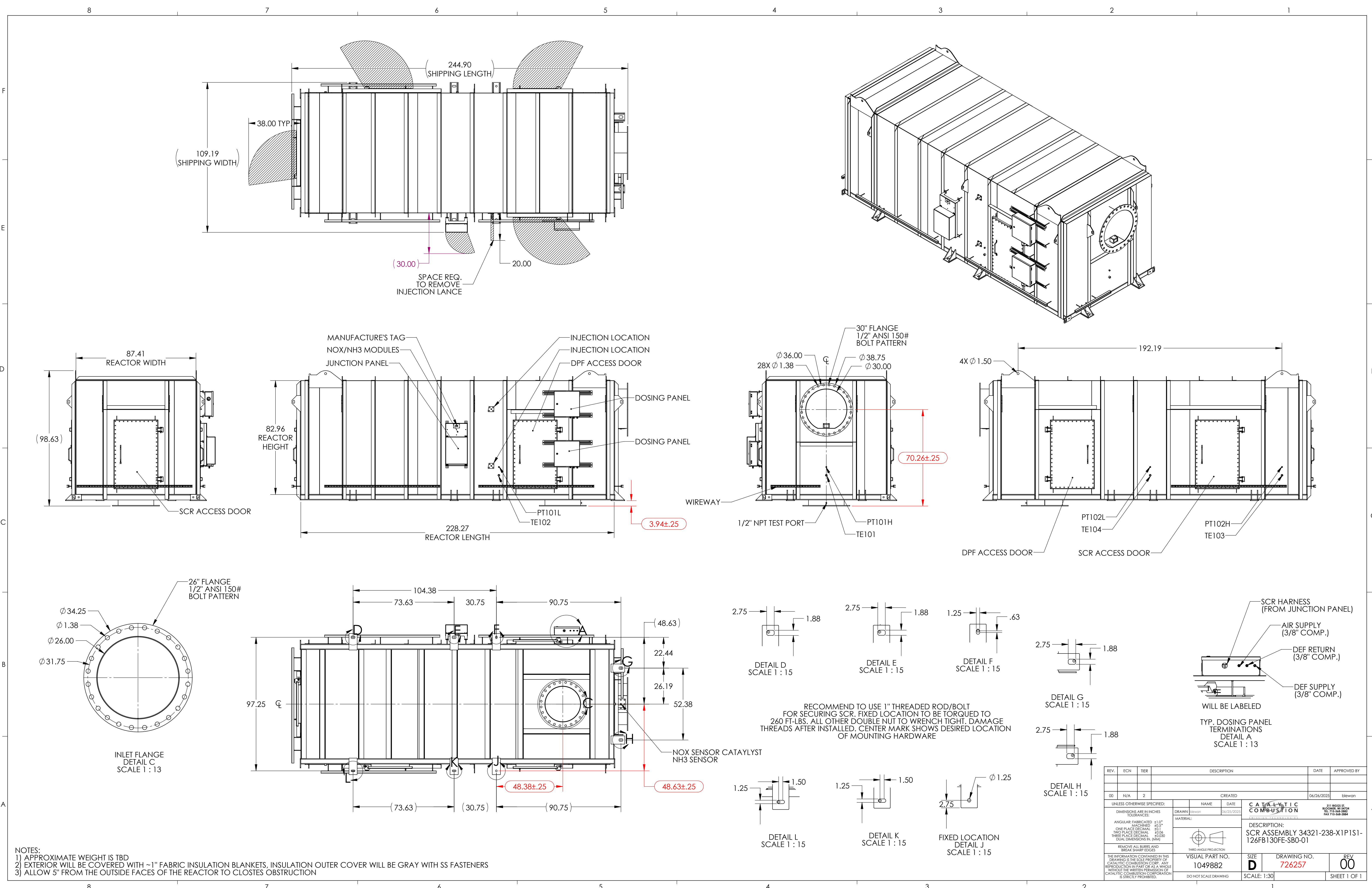
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ITEM NO.	DRAWING NUMBER	VISUAL P/N	DESCRIPTION	QTY.
1	726257	1049882	SCR ASSEMBLY 34321-238-X1P1S1-126FB130FE-SB0-01	1
2	726260	1049887	EXHAUST STACK ESS-30T#-3000C-106-10-2200C-01	1
3	725710	1049895	ADC SKID ASYM S1E1-A1DX-0500PDH110-C1-01	1
4	589410	1048535	NBG KIT 3000-FBZ	1
5	586051	1029241	NBG KIT 2600-FBZ	1

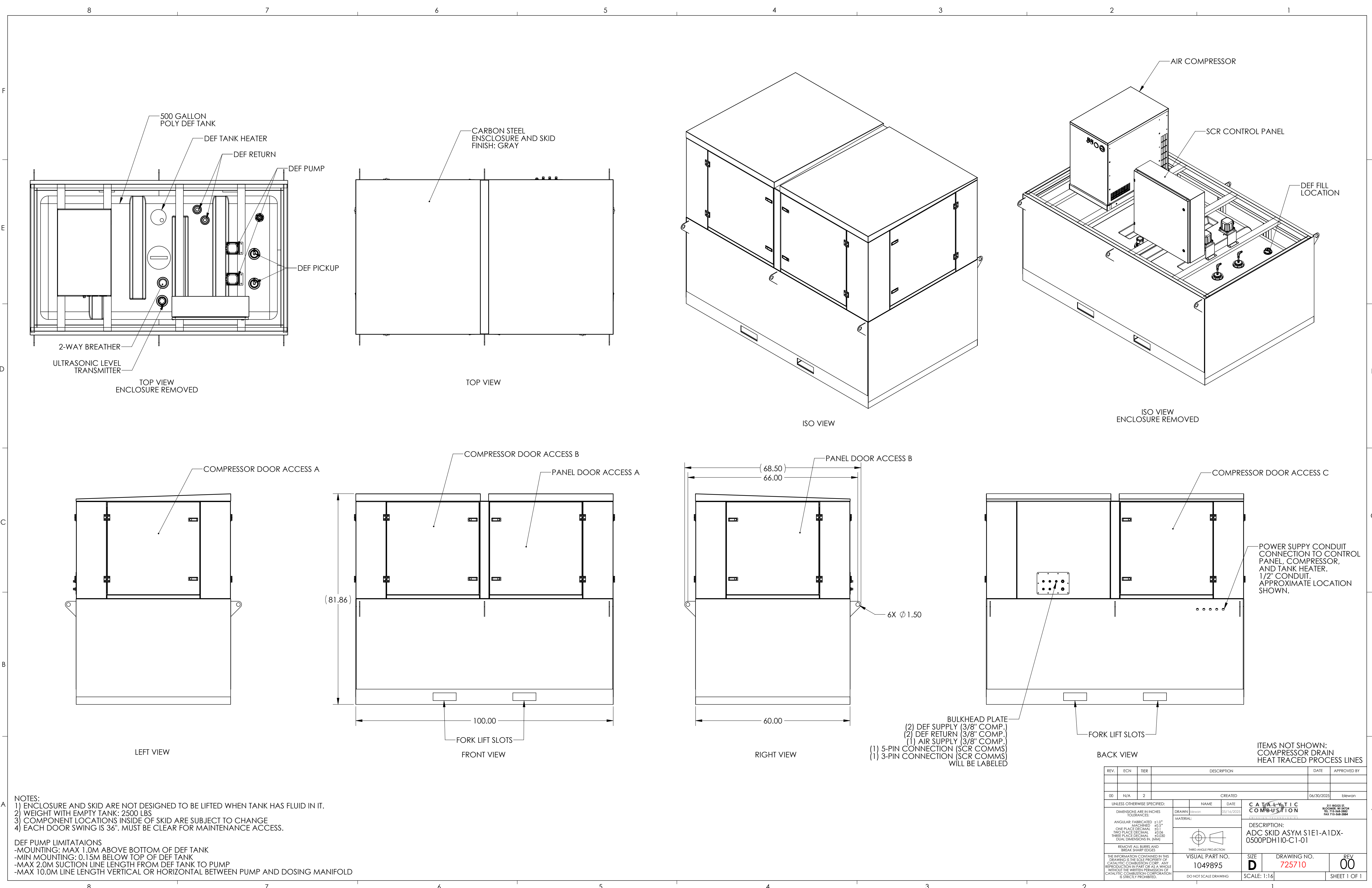


REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	06/30/2025	BLEWAN
UNLESS OTHERWISE SPECIFIED:			NAME	DATE	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES 311 RIGGS ST. BLOOMER, WI 54724 TEL 715-568-2882 FAX 715-568-2884 DESCRIPTION: SCR SYSTEM 34321-238-X1PFS1-126FB130FE-SB0-50E1-01
DIMENSIONS ARE IN INCHES TOLERANCES: ANGULAR: FABRICATED ±1.0° MACHINED ±0.5° ONE PLACE DECIMAL ±0.1 TWO PLACE DECIMAL ±0.06 THREE PLACE DECIMAL ±0.030 DUAL DIMENSIONS IN. (MM)			DRAWN BLEWAN	06/30/2025	
REMOVE ALL BURRS AND BREAK SHARP EDGES			MATERIAL:		
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			 THIRD ANGLE PROJECTION		
			VISUAL PART NO.	SIZE B	DRAWING NO. 726302
			DO NOT SCALE DRAWING	SCALE: 1:40	WT: 11813.76
					REV 00
					SHEET 1 OF 1



NOTES:
1) APPROXIMATE WEIGHT IS TBD
2) EXTERIOR WILL BE COVERED WITH ~1" FABRIC INSULATION BLANKETS, INSULATION OUTER COVER WILL BE GRAY WITH SS FASTENERS
3) ALLOW 5" FROM THE OUTSIDE FACES OF THE REACTOR TO CLOSEST OBSTRUCTION

REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	06/26/2025	blewan
UNLESS OTHERWISE SPECIFIED:			DRAWN: [signature] NAME: [blank] DATE: 06/25/2025		
DIMENSIONS ARE IN INCHES TOLERANCES:			CATALYTIC COMBUSTION		
ANGULAR: FABRICATED ±1.0°			MATERIAL: [blank]		
MACHINED ±0.01			DESCRIPTION: SCR ASSEMBLY 34321-238-X1P1S1-126FB130FE-SB0-01		
ONE PLACE DECIMAL ±0.1			VISUAL PART NO. 1049882		
TWO PLACE DECIMAL ±0.04			SIZE D		
THREE PLACE DECIMAL ±0.009			DRAWING NO. 726257		
DUAL DIMENSIONS IN (MM)			REV 00		
REMOVE ALL BURRS AND BREAK SHARP EDGES			DO NOT SCALE DRAWING		
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			SCALE: 1:30		
			SHEET 1 OF 1		



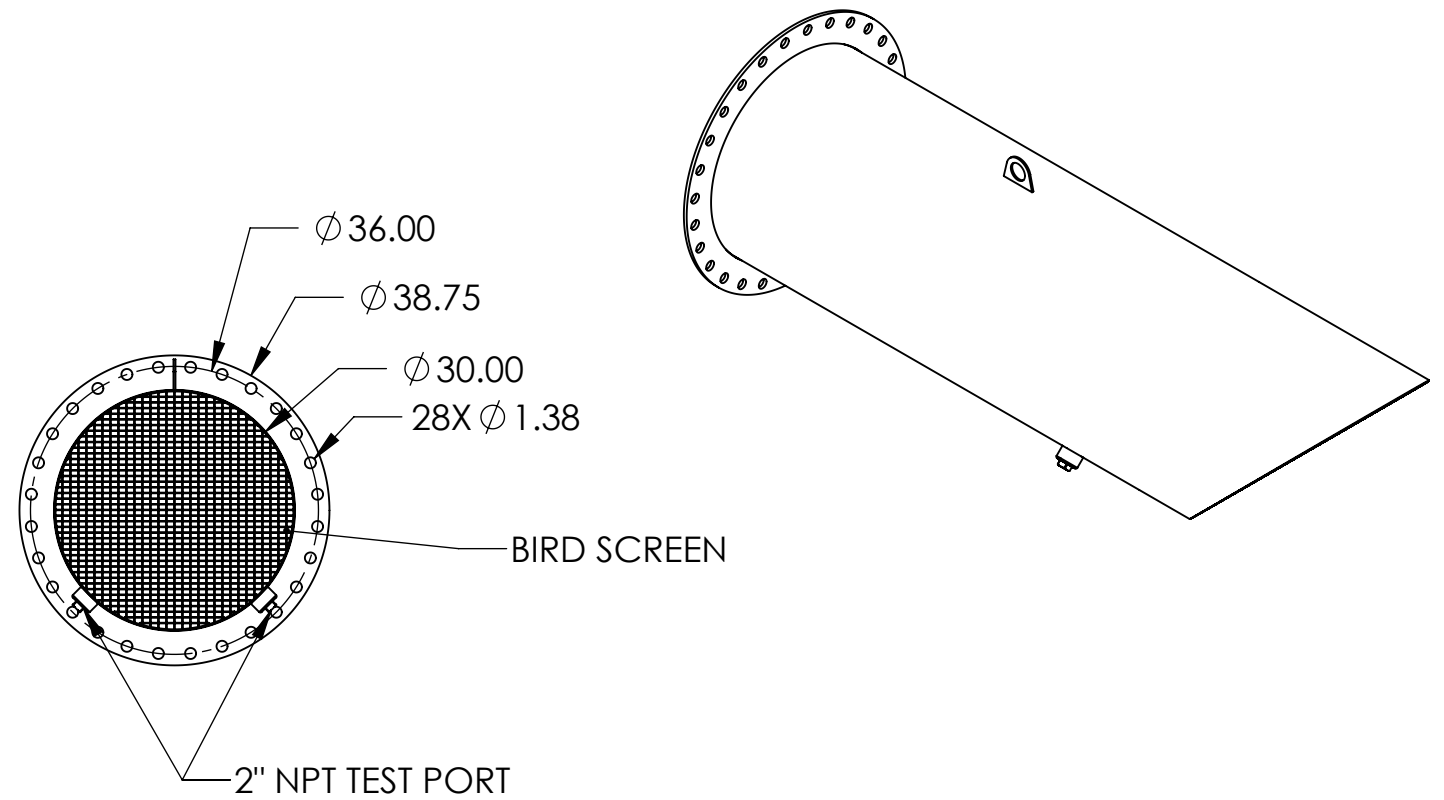
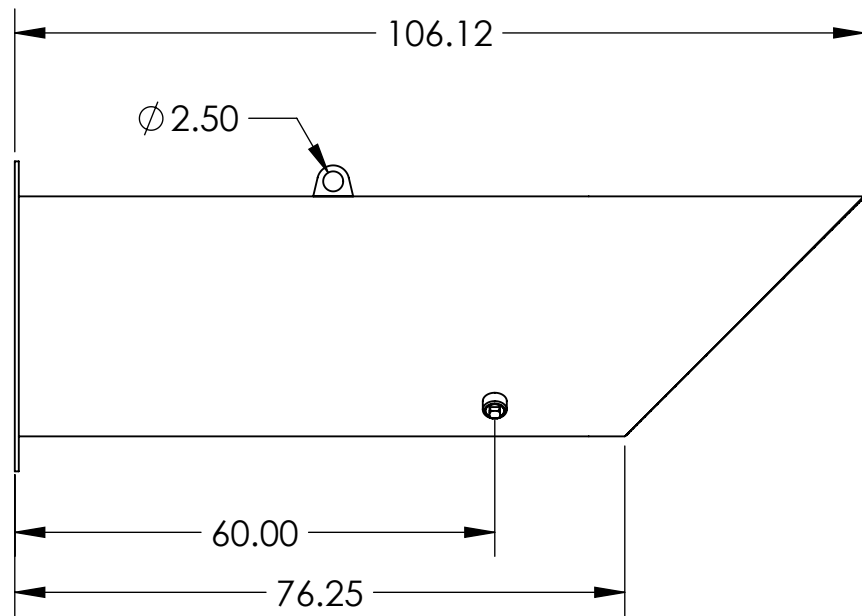
NOTES:
1) ENCLOSURE AND SKID ARE NOT DESIGNED TO BE LIFTED WHEN TANK HAS FLUID IN IT.
2) WEIGHT WITH EMPTY TANK: 2500 LBS
3) COMPONENT LOCATIONS INSIDE OF SKID ARE SUBJECT TO CHANGE
4) EACH DOOR SWING IS 36". MUST BE CLEAR FOR MAINTENANCE ACCESS.

DEF PUMP LIMITAIAONS
-MOUNTING: MAX 1.0M ABOVE BOTTOM OF DEF TANK
-MIN MOUNTING: 0.15M BELOW TOP OF DEF TANK
-MAX 2.0M SUCTION LINE LENGTH FROM DEF TANK TO PUMP
-MAX 10.0M LINE LENGTH VERTICAL OR HORIZONTAL BETWEEN PUMP AND DOSING MANIFOLD

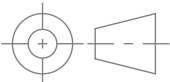
REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY
00	N/A	2	CREATED	06/30/2025	blewjan
UNLESS OTHERWISE SPECIFIED:			NAME	DATE	CATALYTIC COMBUSTION
DIMENSIONS ARE IN INCHES TOLERANCES:			DRAWN	05/16/2025	311 880-05 55 812-000-00 00 TEL 715-568-0865 FAX 715-568-2884
ANGULAR: FABRICATED ±1.0° MACHINED ±0.5° ONE PLACE DECIMAL ±0.1 TWO PLACE DECIMAL ±0.06 THREE PLACE DECIMAL ±0.030 DUAL DIMENSIONS IN (MM)			MATERIAL:	DESCRIPTION: ADC SKID ASYM S1E1-A1DX-0500PDH10-C1-01	
REMOVE ALL BURRS AND BREAK SHARP EDGES			THIRD ANGLE PROJECTION	VISUAL PART NO. 1049895	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			DO NOT SCALE DRAWING	SCALE: 1:16	REV 00
					SHEET 1 OF 1

B

A

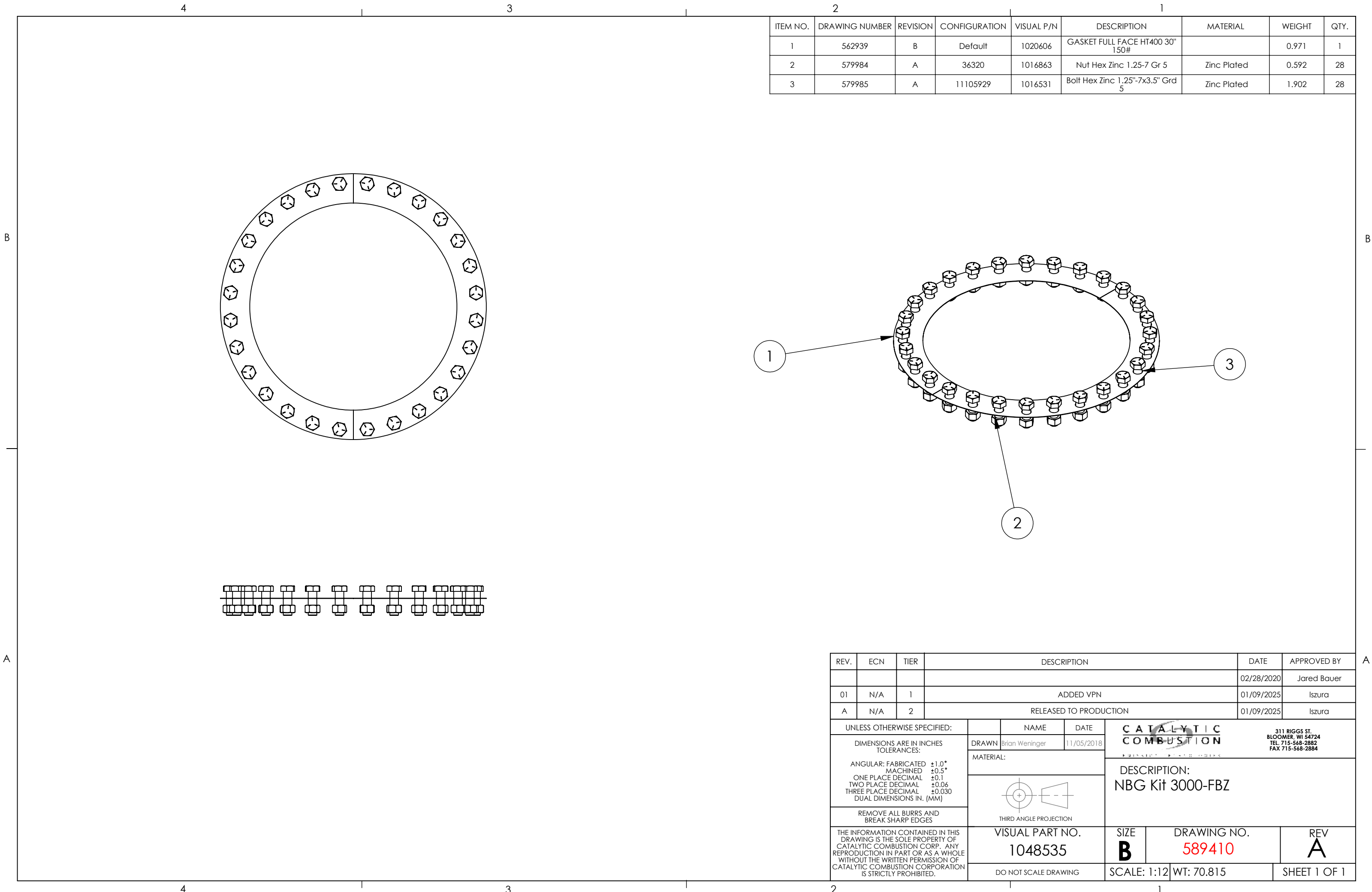


NOTES:
MATERIAL: CARBON STEEL
PAINT: HIGH TEMP BLACK

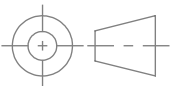
REV.	ECN	TIER	DESCRIPTION			DATE	APPROVED BY
00	N/A	2	CREATED			06/27/2025	BLEWAN
UNLESS OTHERWISE SPECIFIED:				NAME	DATE	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES 311 RIGGS ST. BLOOMER, WI 54724 TEL 715-568-2882 FAX 715-568-2884 DESCRIPTION: EXHAUST STACK ESS-30T#-3000C-106-10-2200C-01	
DIMENSIONS ARE IN INCHES TOLERANCES: ANGULAR: FABRICATED ±1.0° MACHINED ±0.5° ONE PLACE DECIMAL ±0.1 TWO PLACE DECIMAL ±0.06 THREE PLACE DECIMAL ±0.030 DUAL DIMENSIONS IN. (MM)			DRAWN	BLEWAN	06/25/2025		
			MATERIAL:		 THIRD ANGLE PROJECTION		
REMOVE ALL BURRS AND BREAK SHARP EDGES							
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			VISUAL PART NO. 1049887		SIZE B	DRAWING NO. 726260	REV 00
			DO NOT SCALE DRAWING		SCALE: 1:24 WT: 392.32		SHEET 1 OF 1

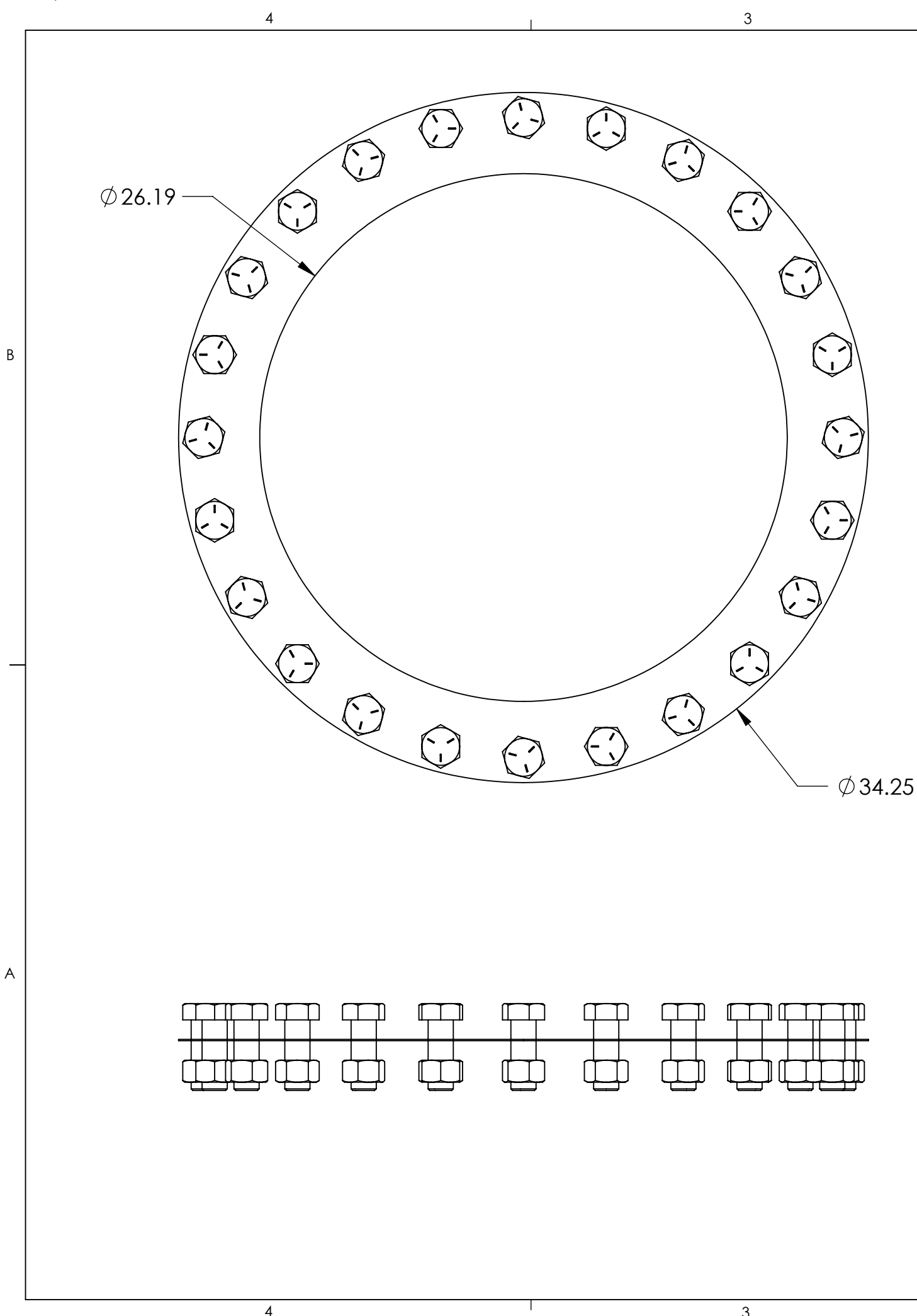
B

A

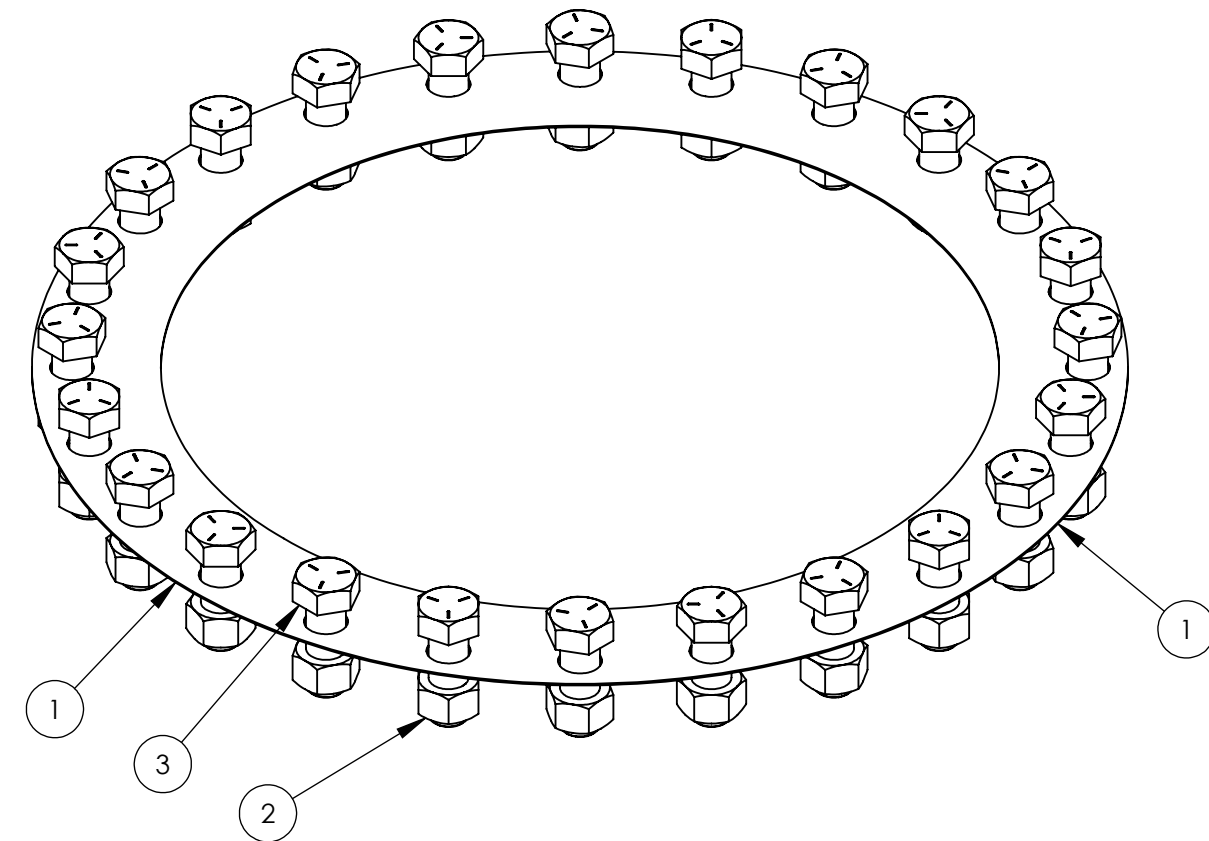


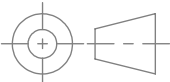
ITEM NO.	DRAWING NUMBER	REVISION	CONFIGURATION	VISUAL P/N	DESCRIPTION	MATERIAL	WEIGHT	QTY.
1	562939	B	Default	1020606	GASKET FULL FACE HT400 30" 150#		0.971	1
2	579984	A	36320	1016863	Nut Hex Zinc 1.25-7 Gr 5	Zinc Plated	0.592	28
3	579985	A	11105929	1016531	Bolt Hex Zinc 1.25"-7x3.5" Grd 5	Zinc Plated	1.902	28

REV.	ECN	TIER	DESCRIPTION			DATE	APPROVED BY
						02/28/2020	Jared Bauer
01	N/A	1	ADDED VPN			01/09/2025	Iszura
A	N/A	2	RELEASED TO PRODUCTION			01/09/2025	Iszura
UNLESS OTHERWISE SPECIFIED:				NAME	DATE	CATALYTIC COMBUSTION 311 RIGGS ST. BLOOMER, WI 54724 TEL 715-568-2882 FAX 715-568-2884 DESCRIPTION: NBG Kit 3000-FBZ	
DIMENSIONS ARE IN INCHES TOLERANCES: ANGULAR: FABRICATED ±1.0° MACHINED ±0.5° ONE PLACE DECIMAL ±0.1 TWO PLACE DECIMAL ±0.06 THREE PLACE DECIMAL ±0.030 DUAL DIMENSIONS IN. (MM)			DRAWN	Brian Weninger	11/05/2018		
			MATERIAL:				
			 THIRD ANGLE PROJECTION				
REMOVE ALL BURRS AND BREAK SHARP EDGES							
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			VISUAL PART NO. 1048535		SIZE B	DRAWING NO. 589410	REV A
			DO NOT SCALE DRAWING		SCALE: 1:12 WT: 70.815		SHEET 1 OF 1



2				1				
ITEM NO.	DRAWING NUMBER	REVISION	CONFIGURATION	VISUAL P/N	DESCRIPTION	MATERIAL	WEIGHT	QTY.
1	586049	A	Default	1029338	Gasket Full Face HT400 26" 150#	HT 400 Gasket	0.799	1
2	579984	A	36320	1016863	Nut Hex Zinc 1.25-7 Gr 5	Zinc Plated	0.592	24
3	579985	A	11105929	1016531	Bolt Hex Zinc 1.25"-7x3.5" Grd 5	Zinc Plated	1.902	24



REV.	ECN	TIER	DESCRIPTION			DATE	APPROVED BY
00						07/24/2018	Don Hopkins
A	N/A	1	Release for Manufacturing			05/27/2022	cmolls
UNLESS OTHERWISE SPECIFIED:				NAME	DATE	CATALYTIC COMBUSTION 311 RIGGS ST. BLOOMER, WI 54724 TEL. 715-568-2882 FAX 715-568-2884	
DIMENSIONS ARE IN INCHES TOLERANCES: ANGULAR: FABRICATED ±1.0° MACHINED ±0.5° ONE PLACE DECIMAL ±0.1 TWO PLACE DECIMAL ±0.06 THREE PLACE DECIMAL ±0.030 DUAL DIMENSIONS IN. (MM)			DRAWN	Don Hopkins	07/18/2018		
			MATERIAL:			DESCRIPTION: NBG Kit 2600-FBZ	
REMOVE ALL BURRS AND BREAK SHARP EDGES			 THIRD ANGLE PROJECTION				
			THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			VISUAL PART NO.	
1029241		B				586051	A
			DO NOT SCALE DRAWING		SCALE: 1:6	WT: 60.665	SHEET 1 OF 1

	GLOBE
	BALL
	BUTTERFLY
	CHECK
	GATE
	ORIFICE METERING
	LUBRICATED PLUG
	VACUUM RELIEF
	PRESSURE RELIEF
	PRESSURE REDUCING INTERNAL RELIEF
	PRESSURE REDUCING EXTERNAL PRESSURE
	PRESSURE REDUCING DIFFERENTIAL PRESSURE
	PRESSURE REDUCING VENTED
	3 WAY
	REDUCER
	Y-STRAINER
	SAMPLE/TEST PORT
	FLANGE
	UNION
	ORIFICE PLATE
	VALVE NORMALLY OPEN
	VALVE NORMALLY CLOSED

VAPOR/LIQUID SEPARATOR	AIR STRIPPER	HEAT EXCHANGER	VANE COMPRESSOR	LIQUID RING PUMP	INTAKE SCREEN	FLAME ARRESTOR	SPARK IGNITOR	DOUBLE-ACTING PNEUMATIC ACTUATOR
OIL/WATER SEPARATOR	CENTRIFUGAL FAN	CENTRIFUGAL PUMP	METERING PUMP	INLINE SILENCER	AIR INTAKE FILTER/SILENCER	FLAME TRAP	FLAME ROD	SPRING-RETURN SINGLE-ACTING PNEUMATIC ACTUATOR
GAS QUENCH/SCRUBBER	PARTICULATE SCRUBBER	PRESSURE BLOWER	PROGRESSIVE CAVITY PUMP	REGENERATIVE BLOWER	INLINE FILTER	FLEX CONNECTOR	SELF CHECKING UV SCANNER	COMPRESSED AIR RESERVOIR
CONTROL PANEL	POSITIVE DISPLACEMENT BLOWER	GAS BURNER	ROTARY CLAW BLOWER	PANEL FILTER	CATALYST REACTOR	COMPRESSED AIR FILTER WITH DRAIN	AIR FLOW INDICATOR	OBSERVATION VIEW PORT
VENTILATION FAN	ELECTRIC HEATER	CERAMIC HEAT EXCHANGE MEDIA	CATALYST REACTOR	LIQUID FLOW METER	PITOT STATIC	PITOT STATIC	PITOT STATIC	MECHANICAL LINK

AAH	ANALYTICAL ALARM HIGH	PI	PRESSURE INDICATOR
AAL	ANALYTICAL ALARM LOW	PIR	PRESSURE INDICATING RECORDER
AC	ALTERNATING CURRENT	PIS	PRESSURE INDICATING SWITCH
AE	ANALYTICAL ELEMENT	PIT	PRESSURE INDICATING TRANSMITTER
AI	ANALOG INPUT	PLC	PROGRAMMABLE LOGIC CONTROLLER
AM	AUTO MANUAL	PRV	PRESSURE RELIEF VALVE
AO	ANALOG OUTPUT	PRX	PRESSURE RELIEF RUPTURE DISK
AT	ANALYTICAL TRANSMITTER	PS	PRESSURE SWITCH
B	BURNER	PSH	PRESSURE SWITCH HIGH
CV	CONTROL VALVE	PSL	PRESSURE SWITCH LOW
DC	DIRECT CURRENT	PT	PRESSURE TRANSMITTER
DI	DIGITAL INPUT	SR	SPRING RETURN
DO	DIGITAL OUTPUT	SS	START-STOP
DPI	DIFFERENTIAL PRESSURE INDICATOR	SSOV	SAFETY SHUT OFF VALVE
DPS	DIFFERENTIAL PRESSURE SWITCH	SV	SOLENOID VALVE
EH	ELECTRIC HEATER	TAH	TEMPERATURE ALARM HIGH
ENET	ETHERNET	TAL	TEMPERATURE ALARM LOW
F	FAN	TCV	TEMPERATURE CONTROL VALVE
FAR	FORWARD AUTO REVERSE	TE	TEMPERATURE ELEMENT
FE	FLOW ELEMENT/SENSOR	TI	TEMPERATURE INDICATOR
FI	FLOW INDICATOR	TIC	TEMPERATURE INDICATING CONTROLLER
FIR	FLOW INDICATING RECORDER	TIR	TEMPERATURE INDICATING RECORDER
FIT	FLOW INDICATING TRANSMITTER	TIT	TEMPERATURE INDICATING TRANSMITTER
FS	FLOW SWITCH	TS	TEMPERATURE SWITCH
HOA	HAND OFF AUTO	TSH	TEMPERATURE SWITCH HIGH
HS	HAND SWITCH	TSL	TEMPERATURE SWITCH LOW
HV	HAND VALVE	TT	TEMPERATURE TRANSMITTER
LAH	LEVEL ALARM HIGH	VFD	VARIABLE FREQUENCY DRIVE
LAL	LEVEL ALARM LOW	VRV	VACUUM RELIEF VALVE
LEL	LOWER EXPLOSIVE LIMIT	XCV	CHECK VALVE
LSH	LEVEL SWITCH HIGH	XDA	DETONATION ARRESTOR
LSHH	LEVEL SWITCH HIGH HIGH	XFA	FLAME ARRESTOR
LSL	LEVEL SWITCH LOW	XFT	FLAME TRAP
LSLL	LEVEL SWITCH LOW LOW	XHE	HEAT EXCHANGER
LT	LEVEL TRANSMITTER	XIF	INLET FILTER
M	MOTOR	XIS	INLET SCREEN
MV	MOTORIZED VALVE	XJ	FLEX CONNECTOR/EXPANSION JOINT
N	NOZZLE	XS	SILENCER
NC	NORMALLY CLOSED	XSI	SPARK IGNITER
NO	NORMALLY OPENED	XUV	UV DETECTOR
OC	OPEN-CLOSE	XV	UNCLASSIFIED VALVE
OCA	OPEN-CLOSE-AUTO	YC	EVENT CLOSED
OO	ON-OFF	YI	EVENT INDICATOR
OOA	ON-OFF-AUTO	YO	EVENT OPEN
OOR	ON-OFF-REMOTE	ZAC	POSITION ALARM CLOSED
P	PUMP	ZAO	POSITION ALARM OPEN
PAH	PRESSURE ALARM HIGH	ZS	POSITION SWITCH
PAL	PRESSURE ALARM LOW	ZSC	POSITION SWITCH CLOSED
PC	PRESSURE CONTROL	ZSO	POSITION SWITCH OPEN
PCV	PRESSURE CONTROL VALVE	ZT	POSITION TRANSMITTER

EXAMPLE:

 CURRENT TO PNEUMATIC TRANSDUCER
(MOUNTED BEHIND-THE-PANEL)

A	ANALOG
D	DIGITAL
E	VOLTAGE
F	FREQUENCY
I	CURRENT
P	PNEUMATIC
PF	PULSE FREQUENCY
PD	PULSE DURATION

BUBBLE SYMBOL

ABBREVIATION

LSH

2

TYPE, ACTION OR CONTROL

INSTRUMENT IDENTIFICATION

INSTRUMENT LOCATION. TYPE OR ABSENCE OF LINE DENOTES LOCATION (SEE RIGHT)

INSTRUMENT LOCATION SYMBOL

FIELD MOUNTED INSTRUMENT

PANEL MOUNTED INSTRUMENT

BEHIND-THE-PANEL MOUNTED INSTRUMENT

PILOT LIGHT/ALARM LIGHT (LIGHT COLOR)

PROGRAMMABLE LOGIC CONTROLS

 ON AND OFF EVENT LIGHTS
 OPENED AND CLOSED POSITION LIGHTS
 OPENED AND CLOSED POSITION SWITCHES
 INTERLOCKS

 MOTOR	 MOTORIZED VALVE
 PNEUMATIC ACTUATOR	 PNEUMATIC VALVE
 VARIABLE FREQUENCY DRIVE	 SOLENOID VALVE
 MANUAL	 MANUAL VALVE

	PIPING		PNEUMATIC SIGNAL		NON CONNECTING LINES		HOSE
	PROCESS DUCTWORK		ELECTRICAL SIGNAL OTHER		CONNECTING LINES		LINE SIZE 6
	COMPRESSED AIR		ANALOG SIGNAL		DATA LINK		FLOW DIRECTION
							OTHERS
							CCC

	TEMPERATURE DEGREES FAHRENHEIT		VAPOR FLOW STANDARD CUBIC FEET PER MINUTE		PRESSURE POUNDS PER SQUARE INCH GAGE
	CONCENTRATION PARTS PER MILLION		WATER FLOW GALLONS PER MINUTE		PROCESS NO.

1. SPECIFICATIONS AND DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTIFICATION.
2. REFERENCE ANSI/ISA-S5.1 FOR SYMBOLS NOT SHOWN ON THIS LEGEND.
3. THIS IS A STANDARD LEGEND, THEREFORE, NOT ALL OF THIS INFORMATION MAY APPLY.
4. THESE SYMBOLS AND ABBREVIATIONS ARE SPECIFIC TO CATALYTIC COMBUSTION CORPORATION AND MAY DIFFER FROM ISA.

REV	DESCRIPTION	DATE	BY	DRAWING STATUS:		DATE:	BY:	MATERIAL:	Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		DATE:	CUSTOMER:			
00	CREATED	5/27/2025	BL					SEE BOM	 CATALYTIC COMBUSTION EMISSION TECHNOLOGIES	 THIRD ANGLE PROJECTION	05/27/2025	CARTER CAT VCV SPARTANBURG			
.				PRELIMINARY	5/27/2025	BL	WEIGHT:	SCALE:			TITLE: PROCESS & INSTRUMENTATION DIAGRAM				
.			X	FOR APPROVAL	6/30/2025	BL	N/A	NTS							
.				APPROVED FOR FAB			TOLERANCES:	DRAWN BY:							
.				AS BUILT			.X = 0.06 .XX = 0.03 .XXX = 0.015 L = 0.5"	BL							
.				AS FIELD MODIFIED			INCH [mm]	DO NOT SCALE THIS DRAWING.				CHECKED BY:			
											MB	WO234327	500	0	B

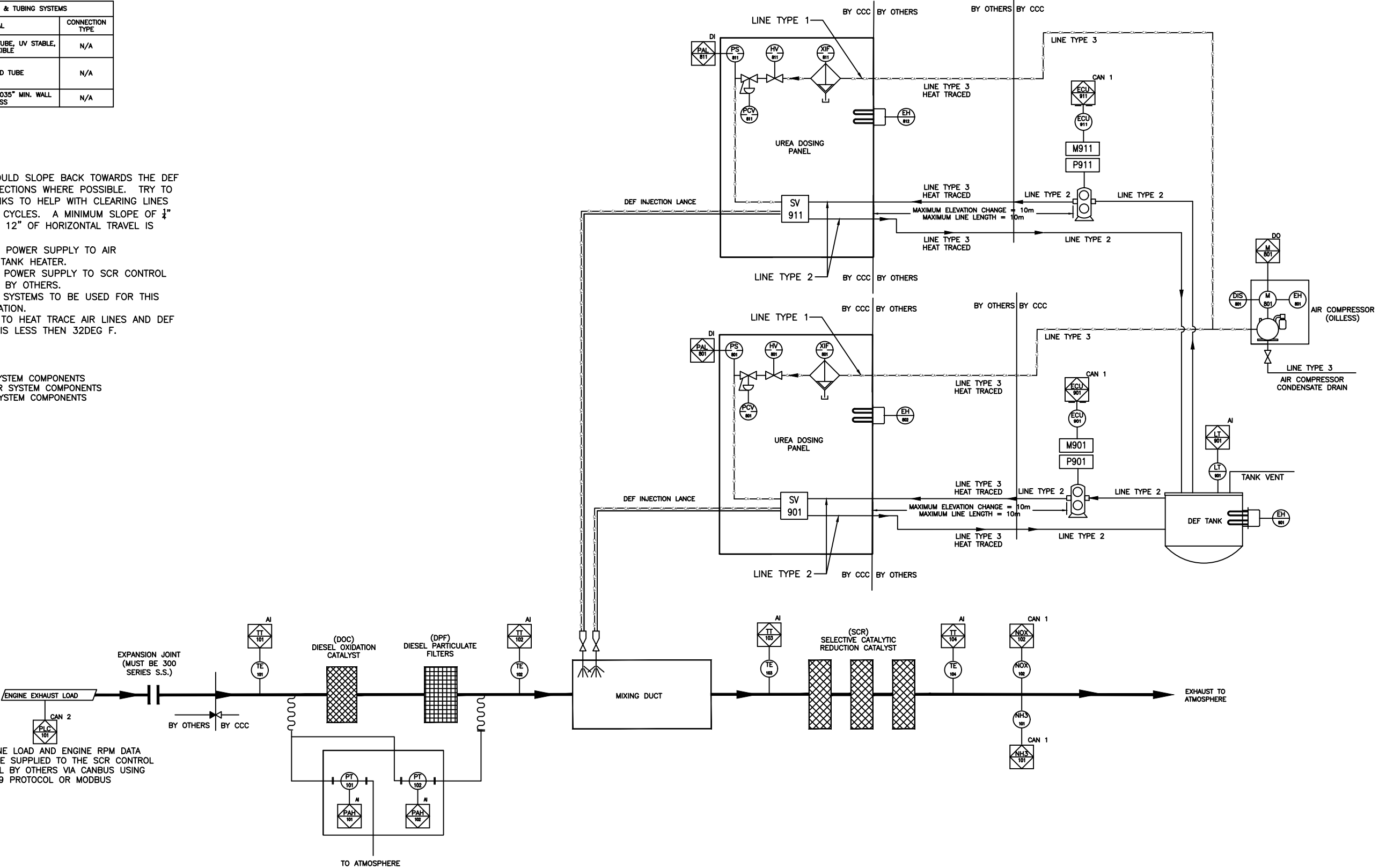
LEGEND OF PIPING, HOSE, & TUBING SYSTEMS		
LINE TYPE	MATERIAL	CONNECTION TYPE
1	1/2" OD NYLON BLACK TUBE, UV STABLE, SEMI-FLEXIBLE	N/A
2	PTFE 3/8" OD TUBE	N/A
3	3/8" OD SS TUBE 0.035" MIN. WALL THICKNESS	N/A

NOTES:

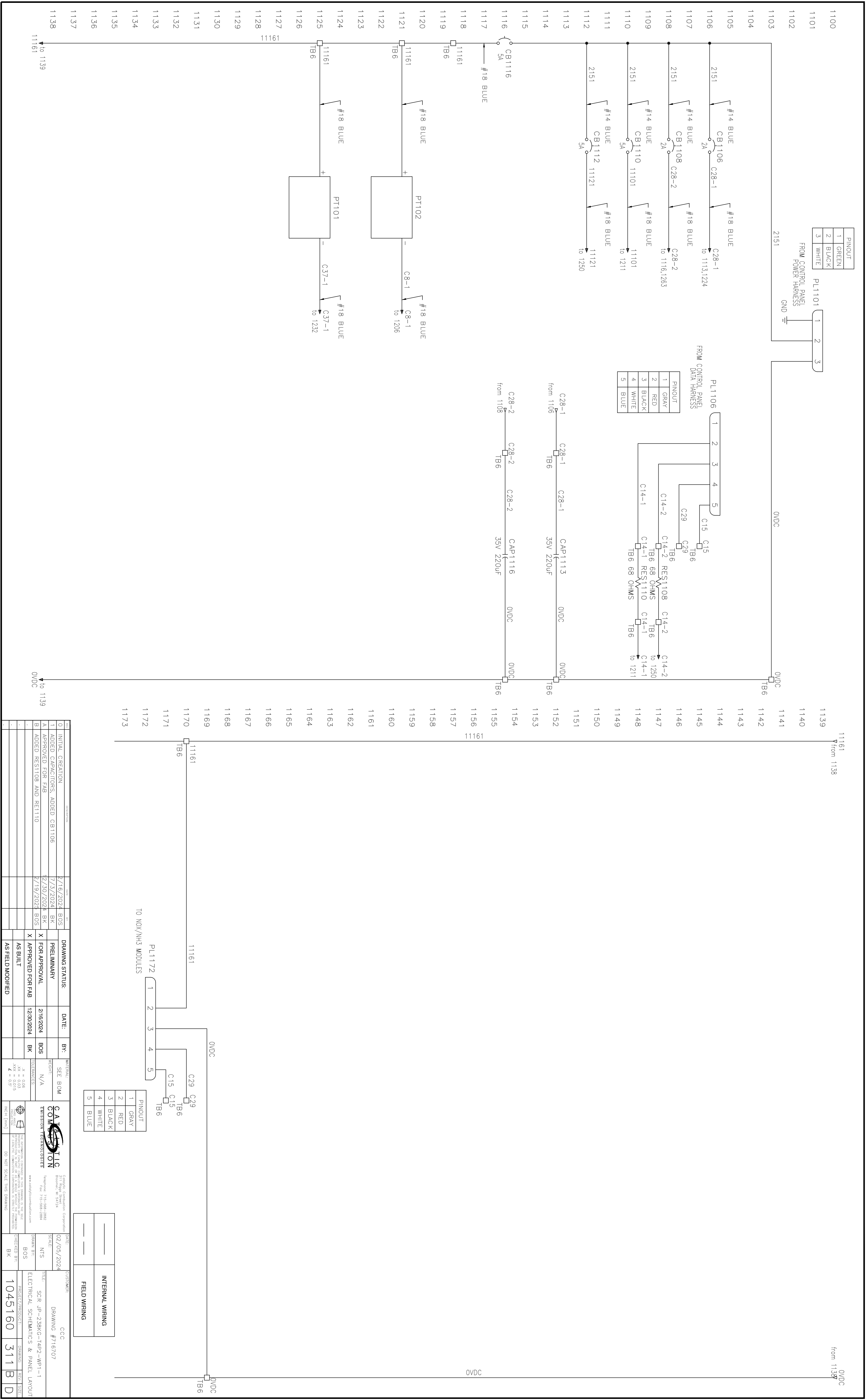
1. LINE TYPES 2 & 3 SHOULD SLOPE BACK TOWARDS THE DEF PUMP/HEAD UNIT CONNECTIONS WHERE POSSIBLE. TRY TO AVOID ANY DIPS OR KINKS TO HELP WITH CLEARING LINES OF DEF DURING PURGE CYCLES. A MINIMUM SLOPE OF 1/4" OF VERTICAL DROP PER 12" OF HORIZONTAL TRAVEL IS REQUIRED (2% GRADE)
2. 208VAC/3-PHASE/60HZ POWER SUPPLY TO AIR COMPRESSOR AND DEF TANK HEATER.
3. 120VAC/1-PHASE/60HZ POWER SUPPLY TO SCR CONTROL PANEL TO BE SUPPLIED BY OTHERS.
4. DUAL 38KG/HR DOSING SYSTEMS TO BE USED FOR THIS NOX REDUCTION APPLICATION.
4. HEAT TRACE: REQUIRED TO HEAT TRACE AIR LINES AND DEF LINES IF TEMPERATURE IS LESS THEN 32DEG F.

TAG SERIES LEGEND

100 SERIES - EXHAUST GAS SYSTEM COMPONENTS
800 SERIES - COMPRESSED AIR SYSTEM COMPONENTS
900 SERIES - DEF DELIVERY SYSTEM COMPONENTS



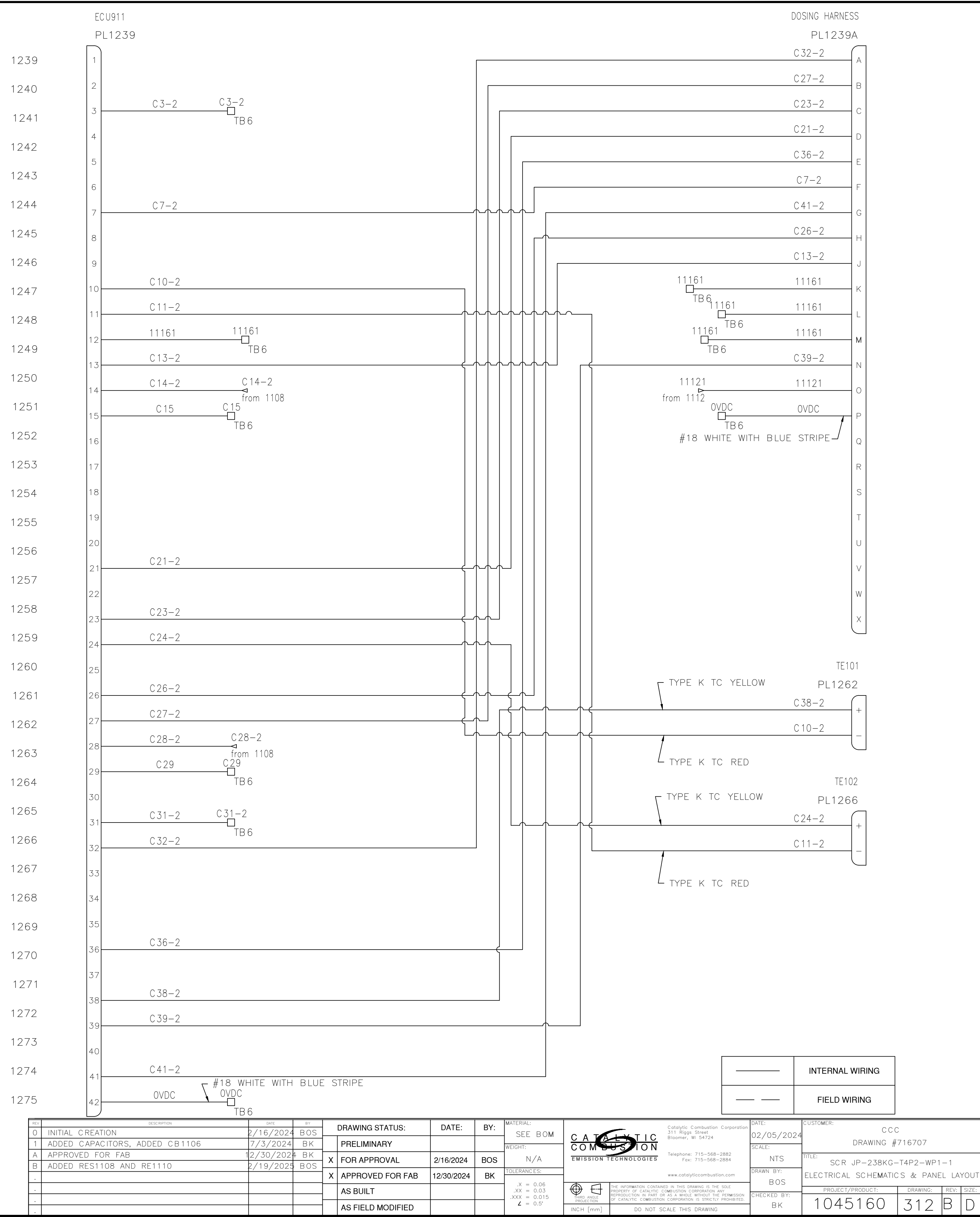
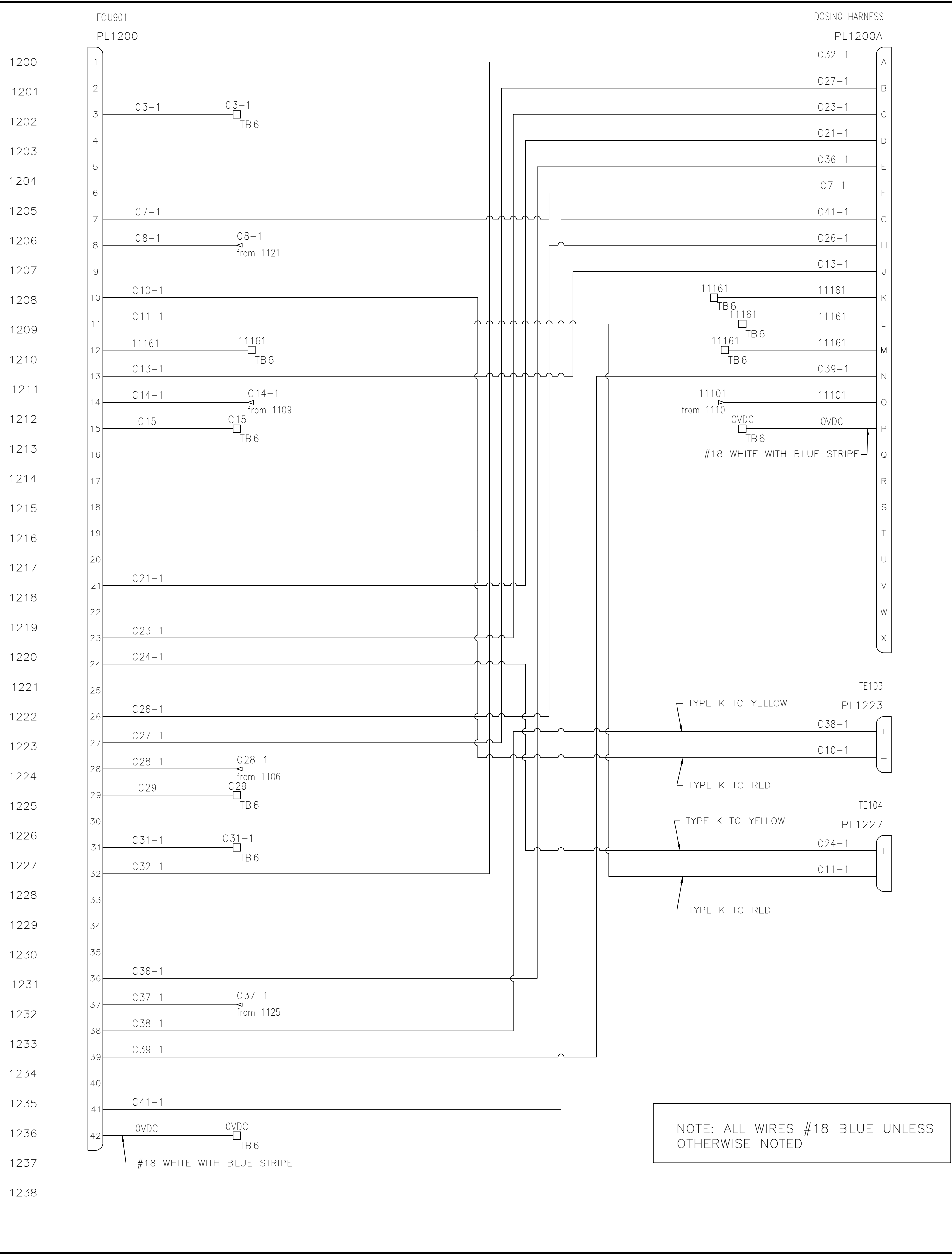
REV	DESCRIPTION	DATE	BY	DRAWING STATUS:		DATE:	BY:	MATERIAL:	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com THIRD ANGLE PROJECTION INCH [mm] THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORPORATION ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED. DO NOT SCALE THIS DRAWING.	DATE:	CUSTOMER:							
00	CREATED	5/27/2025	BL					SEE BOM		05/27/2025	CARTER CAT VCV SPARTANBURG							
.					PRELIMINARY	5/27/2025	BL	WEIGHT:			SCALE:	TITLE: PROCESS & INSTRUMENTATION DIAGRAM						
.				X	FOR APPROVAL	6/30/2025	BL	N/A			NTS							
.					APPROVED FOR FAB			TOLERANCES:			DRAWN BY:							
.											BL	PROJECT/PRODUCT:				DRAWING:	REV:	SIZE:
.					AS BUILT			.X = 0.06 .XX = 0.03 .XXX = 0.015 L = 0.5"				CHECKED BY:	W0234327			0	B	
.					AS FIELD MODIFIED													

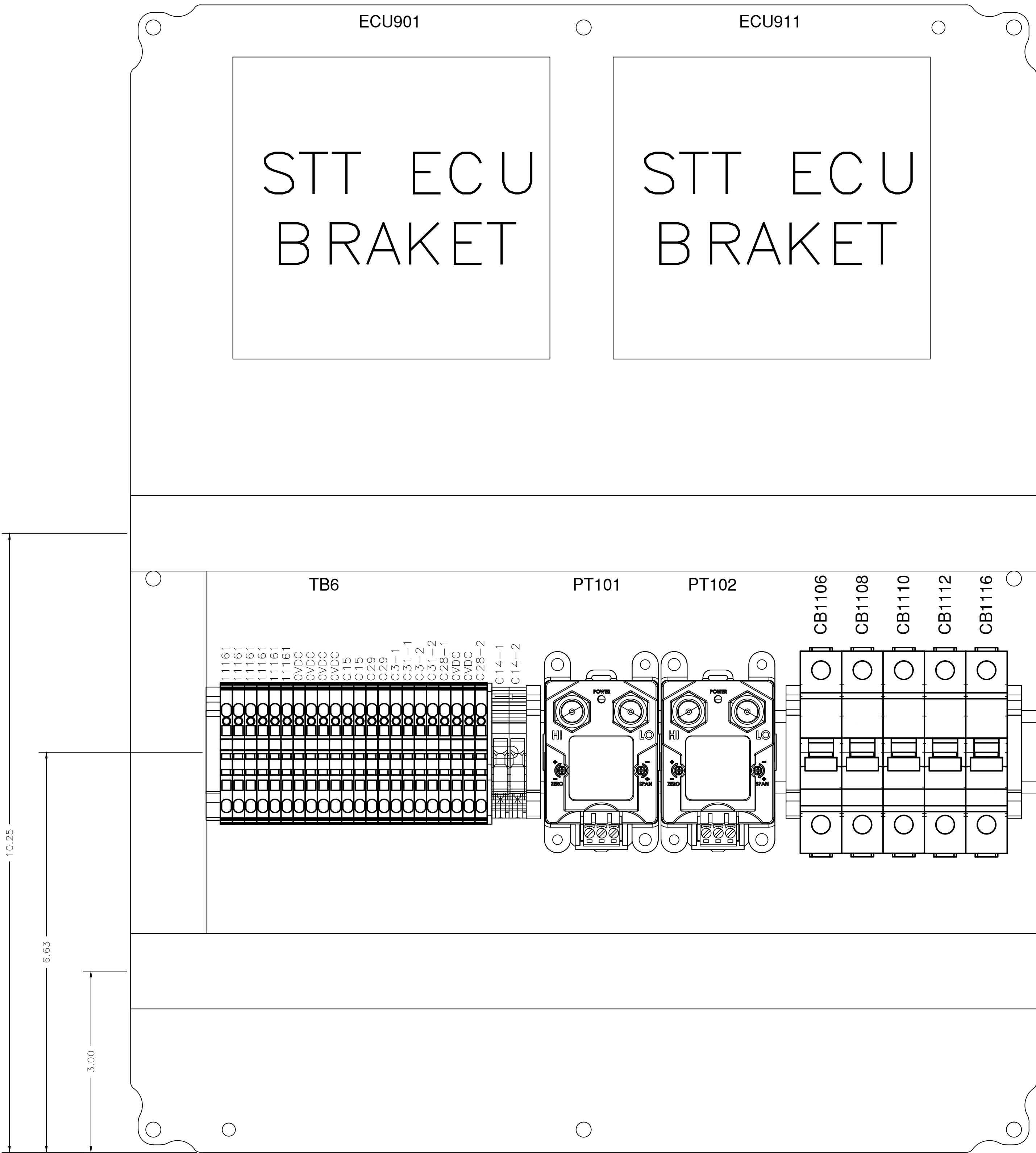


PINOUT	
1	GRAY
2	RED
3	BLACK
4	WHITE
5	BLUE

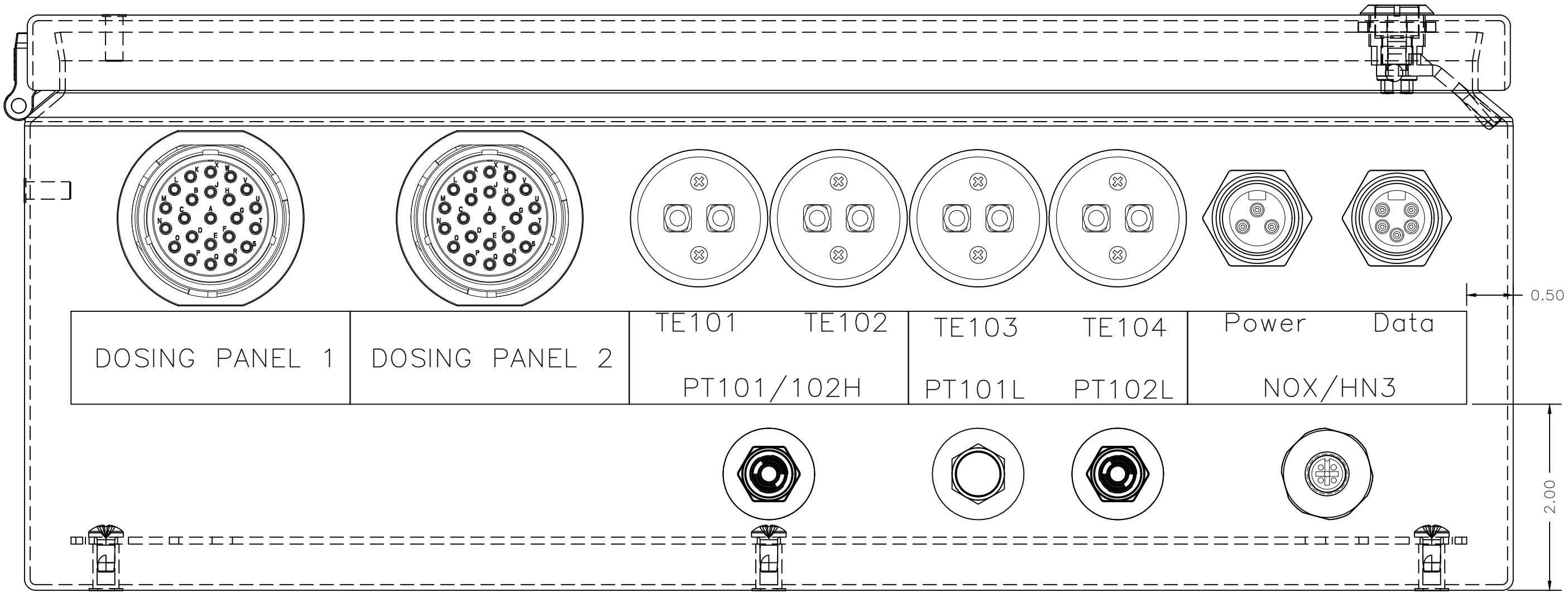
_____	INTERNAL WIRING
_____	FIELD WIRING

[illegible]





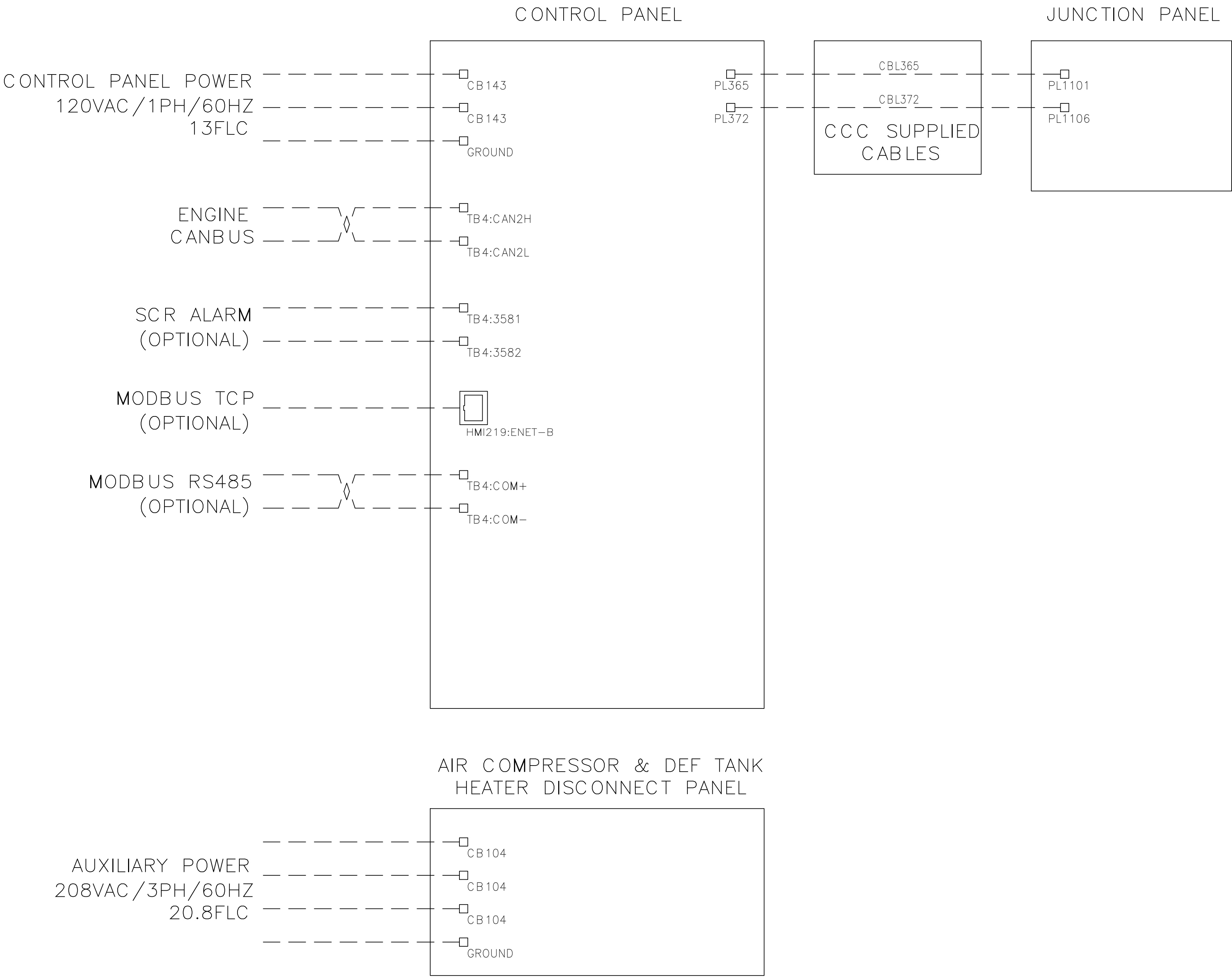
SUBPANEL FRONT VIEW



BOTTOM VIEW

REV		DESCRIPTION	DATE	BY	DRAWING STATUS:	DATE:	BY:	MATERIAL:	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES Catalytic Combustion Corporation 311 Riga Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com	DATE:	CUSTOMER:				
0	INITIAL CREATION		2/16/2024	BOS	PRELIMINARY			SEE BOM		02/05/2024	CCC				
1	ADDED CAPACITORS, ADDED CB1106		7/3/2024	BK				WEIGHT:		SCALE:	DRAWING #716707				
A	APPROVED FOR FAB		12/30/2024	BK	X FOR APPROVAL	2/16/2024	BOS	N/A		NTS					
B	ADDED RES1108 AND RE1110		2/19/2025	BOS	X APPROVED FOR FAB	12/30/2024	BK	TOLERANCES:	DRAWN BY:	BOS	SCR JP-238KG-T4P2-WP1-1				
-					AS BUILT			.X = 0.06 .XX = 0.03 .XXX = 0.015 ∠ = 0.5°	 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.	CHECKED BY:	PROJECT/PRODUCT:	DRAWING:	REV:	SIZE:	
-					AS FIELD MODIFIED					BK	1045160	319	B	D	
								INCH [mm]	DO NOT SCALE THIS DRAWING						

FIELD INTERCONNECT WIRING



AIR COMPRESSOR & DEF TANK
HEATER DISCONNECT PANEL

AUXILIARY POWER
208VAC / 3PH / 60HZ
20.8FLC

CB104

CB104

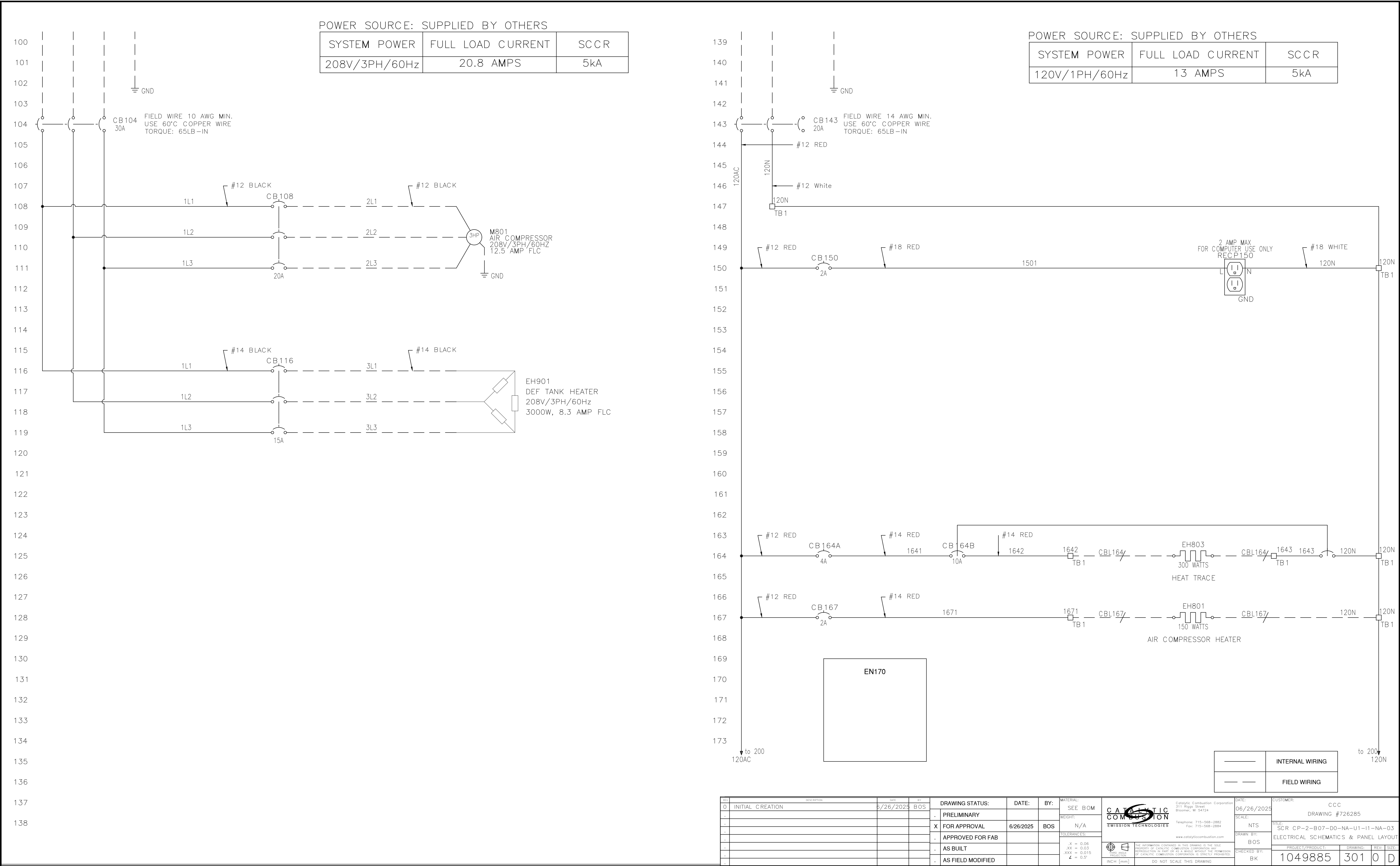
CB104

GROUND

INTERCONNECT WIRING				
DESCRIPTION	FROM	TO	WIRE SIZE/TYPE	SCHEMATIC LINE REFERENCE
CONTROL PANEL POWER	CUSTOMER	CB143	3x12AWG	143
AUXILIARY POWER	CUSTOMER	CB104	4x10AWG	104
ENGINE LOAD/SPEED	CUSTOMER	TB4	SHIELDED TWISTED PAIR 20AWG	226,231
JUNCTION PANEL POWER HARNESS	PL365	PL1101	3x14AWG	365,1101
JUNCTION PANEL DATA HARNESS	PL367	PL1106	2x16AWG 3x20AWG	367,1106
SCR ALARM	TB4	CUSTOMER	2x18AWG	358
MODBUS TCP	HMI219	CUSTOMER	ETHERNET	236
MODBUS RS485	TB4	CUSTOMER	SHIELDED TWISTER PAIR 20AWG	228,233

— — — — —	INTERNAL WIRING
— — — — —	FIELD WIRING

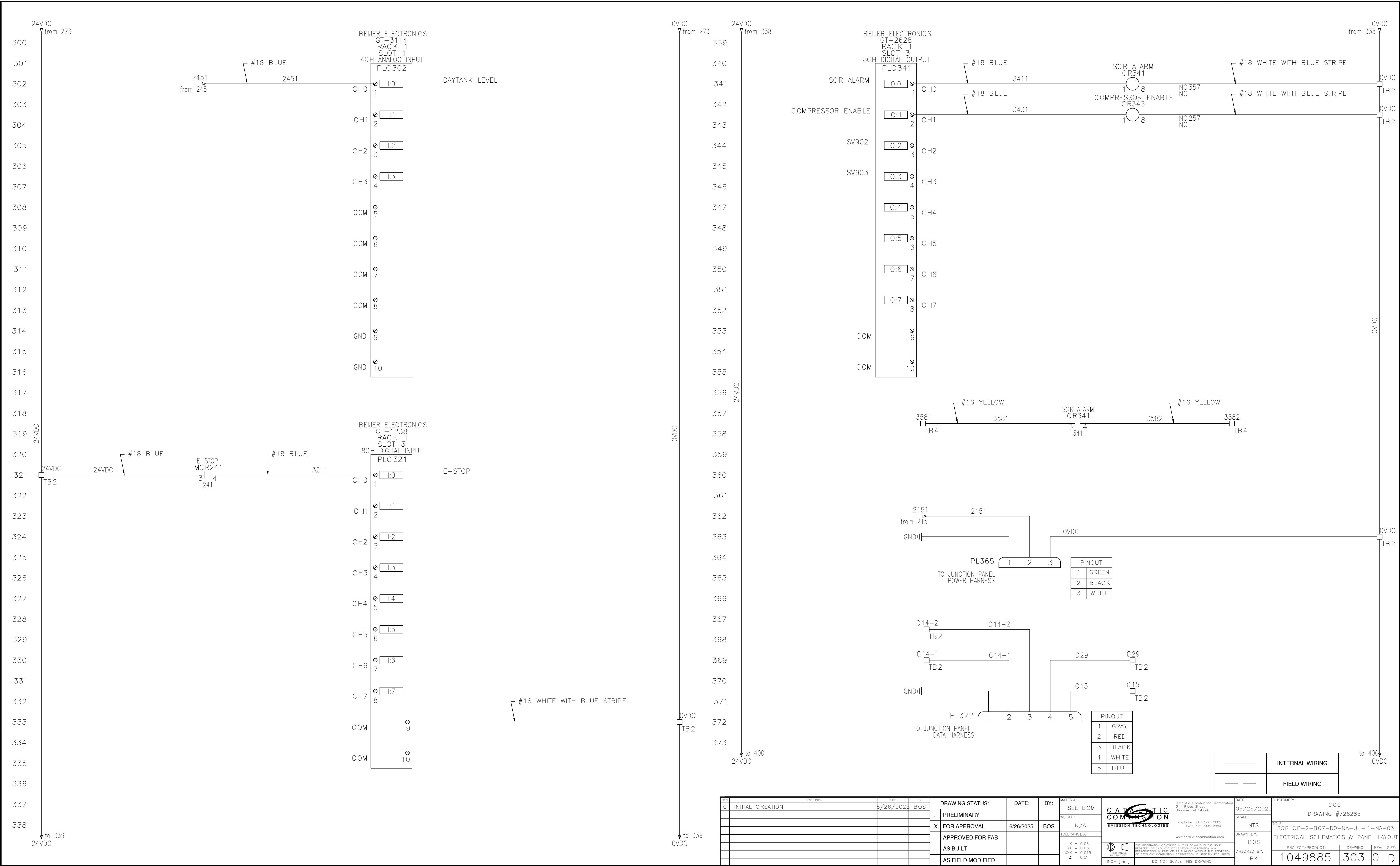
REV			DESCRIPTION	DATE	BY	DRAWING STATUS:		DATE:	BY:	MATERIAL:	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES		Catalytic Combustion Corporation 311 Piggs Street Bloomer, WI 54724	DATE:	CUSTOMER:
0	INITIAL CREATION			7/29/2024	BK	PRELIMINARY				SEE BOM	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS EXPRESSLY PROHIBITED. INCH (mm) DO NOT SCALE THIS DRAWING		07/29/2024	MUSTANG CAT	
1	SINGLE POWER FOR COMPRESSOR & HEATER			8/13/2024	BK	X FOR APPROVAL		7/29/2024	BK	WEIGHT:	N/A	Telephone: 715-568-2882 Fax: 715-568-2884		SCALE:	TITLE:
						APPROVED FOR FAB				TOLERANCES:		www.catalyticcombustion.com		NTS	SCR
						AS BUILT				.X = 0.06 .XX = 0.03 .XXX = 0.015 ∠ = 0.5°				DRAWN BY:	FIELD INTERCONNECT WIRING
						AS FIELD MODIFIED								BK	
														CHECKED BY:	PROJECT/PRODUCT:
														BOS	DRAWING: REV: SIZE:
														720949	3911 D



INTERNAL WIRING

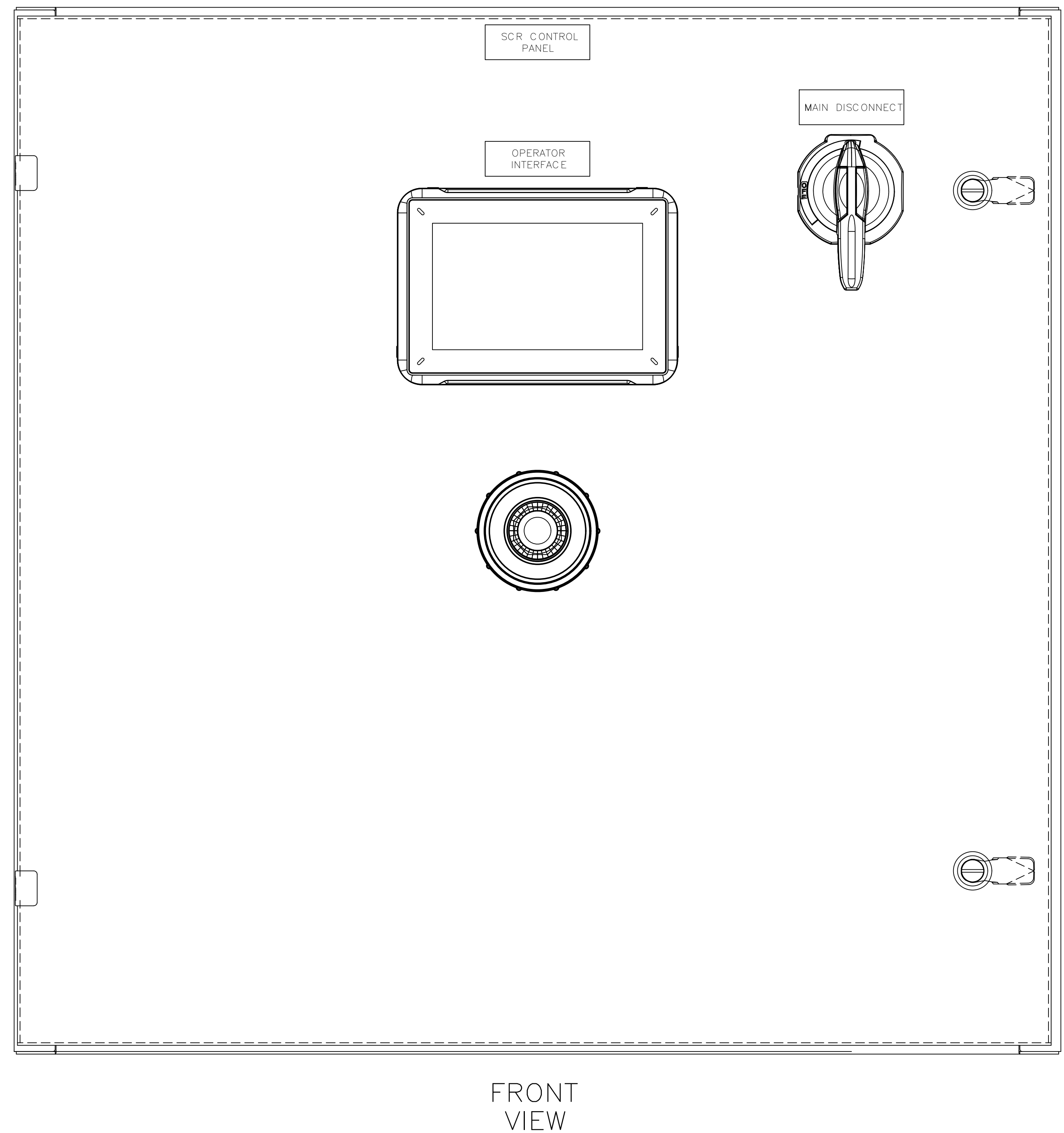
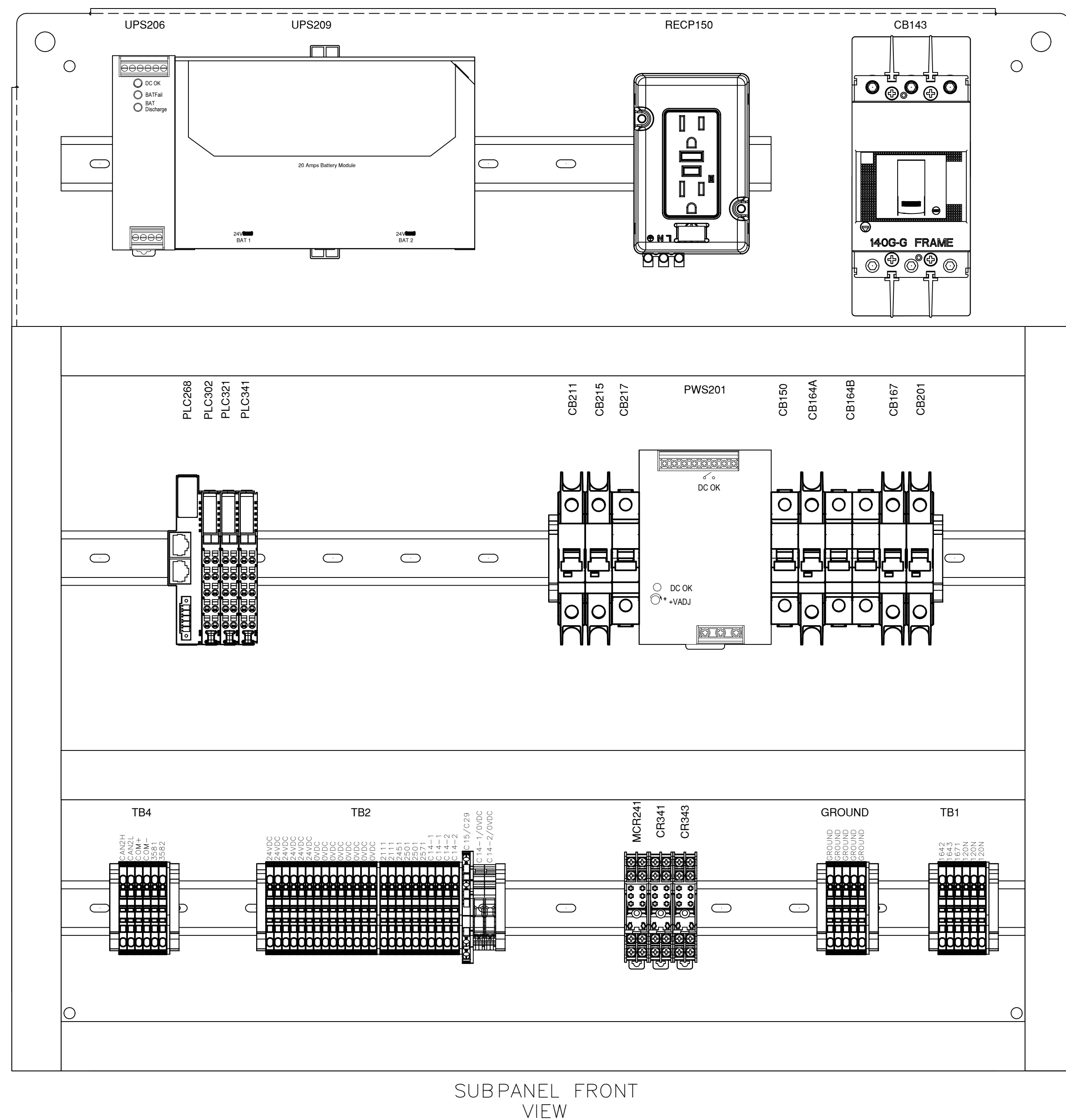
FIELD WIRING

REV	DESCRIPTION	DATE	BY	DRAWING STATUS:	DATE:	BY:	MATERIAL:	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com INCH (mm) DO NOT SCALE THIS DRAWING DATE: 06/26/2025 CUSTOMER: CCC SCALE: NTS DRAWN BY: BOS CHECKED BY: BK TITLE: SCR CP-2-B07-DO-NA-U1-I1-NA-03 ELECTRICAL SCHEMATICS & PANEL LAYOUT PROJECT/PRODUCT: 1049885 DRAWING: 301 REV: 0 SIZE: D
0	INITIAL CREATION	6/26/2025	BOS	PRELIMINARY			SEE BOM	
-				FOR APPROVAL	6/26/2025	BOS	N/A	
-				APPROVED FOR FAB				
-				AS BUILT			.X = 0.06 .XX = 0.03 .XXX = 0.015 .Z = 0.5"	
-				AS FIELD MODIFIED				



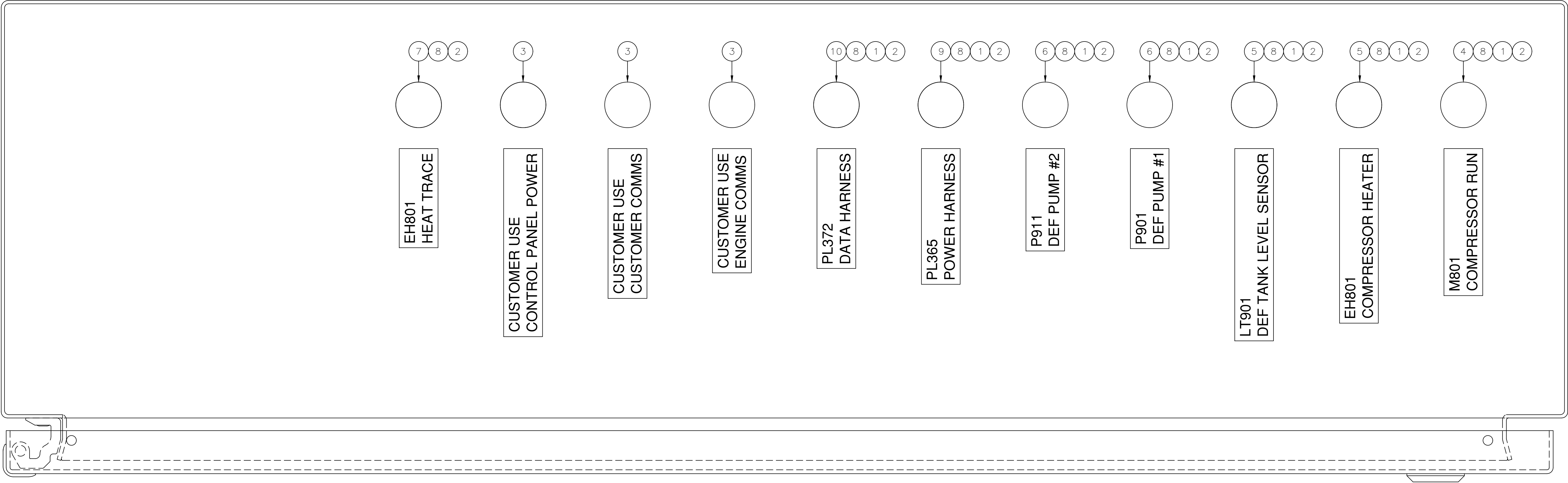
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					X FOR APPROVAL	6/26/2025	BOS				
					APPROVED FOR FAB						
					AS BUILT						
					AS FIELD MODIFIED						

CATALYTIC COMBUSTION EMISSION TECHNOLOGIES	Catalytic Combustion Corporation 311 Roger Street, Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com	DATE: 06/26/2025 SCALE: NTS DRAWN BY: BOS CHECKED BY: BK	CUSTOMER: CCC DRAWING #726285 TITLE: SCR CP-2-B07-DO-NA-U1-I1-NA-O3 PROJECT/PRODUCT: 1049885 DRAWING: 303 REV: 0 SIZE: D
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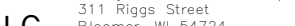


0		INITIAL CREATION		6/26/2025		BOS		DRAWING STATUS:		DATE:		BY:		MATERIAL:		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		DATE:		CUSTOMER:	
-		-		-		-		PRELIMINARY		DATE:		BY:		SEE BOM		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		06/26/2025		CCC	
-		-		-		-		FOR APPROVAL		6/26/2025		BOS		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		SCALE:		DRAWING #726285	
-		-		-		-		APPROVED FOR FAB		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		NTS		TITLE:	
-		-		-		-		AS BUILT		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		SCR CP-2-B07-DO-NA-U1-11-NA-03	
-		-		-		-		AS FIELD MODIFIED		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		ELECTRICAL SCHEMATICS & PANEL LAYOUT	
-		-		-		-		TOLERANCES:		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		PROJECT/PRODUCT:	
-		-		-		-		X = 0.06		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		DRAWING:	
-		-		-		-		XX = 0.03		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		REV:	
-		-		-		-		XXX = 0.015		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		SIZE:	
-		-		-		-		Z = 0.5		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		1049885	
-		-		-		-		DO NOT SCALE THIS DRAWING		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		309	
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-		-		-		-		DO NOT SCALE THIS DRAWING		DATE:		BY:		N/A		 Catalytic Combustion Corporation 311 Riggs Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com		BOS		D	

ITEM	CCC P/N	QTY	CATALOG	MFG	DESCRIPTION
1	1041227	7	101-S	BRIDGEPORT	CONDUIT LOCKNUT 1/2"
2	1001589	8	321	BRIDGEPORT	CONDUIT BUSHING PLASTIC 1/2"
3	1045068	3	SCE-HPSERIES15	SCE	HOLE SEAL 0.875" NEMA 4X
4	1001541	1	2520	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.125-0.250
5	1000481	2	2521	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.250-0.375
6	1001542	2	2522	THOMAS & BETTS	LIQUIDTIGHT CORD GRIP 1/2" 0.375-0.500
7	1005468	1	5252	THOMAS & BETTS	LIQUIDTIGHT CONDUIT FITTING 1/2" 90 DEGREE
8	1005941	8	5262	THOMAS & BETTS	LIQUIDTIGHT SEALING GASKET 1/2"
9	1044983	1	RKF 34-1M/NPT	TURCK	CONNECTOR BULKHEAD 3 POSITION FEMALE 7/8-16 TO FLYING LEAD
10	1044984	1	RKF 57-1M/14.5	TURCK	CONNECTOR BULKHEAD 5 POSITION FEMALE 7/8-16 TO FLYING LEAD



TOP VIEW (FROM INSIDE ENCLOSURE)

0	INITIAL CREATION	6/26/2025	BOS	DRAWING STATUS:	DATE:	BY:	MATERIAL:	 Catalytic Combustion Corporation 311 Roger Street Bloomer, WI 54724 Telephone: 715-568-2882 Fax: 715-568-2884 www.catalyticcombustion.com	DATE:	CUSTOMER:	
-				PRELIMINARY			SEE BOM		06/26/2025	CCC	
X	FOR APPROVAL	6/26/2025	BOS				WEIGHT:		N/A	SCALE:	DRAWING #726285
-	APPROVED FOR FAB						TOLERANCES:			NTS	TITLE:
-	AS BUILT						.X = 0.06 .XX = 0.03 .XXX = 0.015 Z = 0.5"	 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CATALYTIC COMBUSTION CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.	DRAWN BY:	SCR CP-2-B07-DO-NA-U1-I1-NA-03	
-	AS FIELD MODIFIED							INCH (mm)	BOS	ELECTRICAL SCHEMATICS & PANEL LAYOUT	
									CHECKED BY:	PROJECT/PRODUCT:	
									BK	1049885	
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Cat® 3512C

Diesel Generator Sets



Bore – mm (in)	170 (6.69)
Stroke – mm (in)	190 (7.48)
Displacement – L (in³)	51.8 (3161)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Image shown may not reflect actual configuration

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Continuous 60 Hz ekW (kVA)	Emissions Performance
1500 (1875)	1500 (1875)	1360 (1700)	1230 (1537)	U.S. EPA Stationary Emergency Use Only (Tier 2)

Features

Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

Generator Set Package

- Accepts 100% block load in one step
- Meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

Cat Energy Control System (ECS)

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements
- Graphical touchscreen display
- Easily upgradeable

Warranty

- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Standard and Optional Equipment

Engine

Air Cleaner

- ☒ Single element
- ☐ Dual element
- ☐ Heavy duty

Muffler

- ☐ Industrial grade (15 dB)

Starting

- ☒ Standard batteries
- ☐ Oversized batteries
- ☒ Standard electric starter(s)
- ☐ Dual electric starter(s)
- ☐ Air starter(s)
- ☒ Jacket water heater

Alternator

Output voltage

- ☐ 380V ☐ 6600V
- ☐ 440V ☐ 6900V
- ☒ 480V ☐ 12470V
- ☐ 600V ☐ 13200V
- ☐ 4160V ☐ 13800V
- ☐ 6300V

Temperature Rise (over 40°C ambient)

- ☐ 150°C
- ☐ 125°C/130°C
- ☒ 105°C
- ☐ 80°C

Winding type

- ☐ Random wound
- ☒ Form wound

Excitation

- ☐ Internal excitation (IE)
- ☒ Permanent magnet (PM)

Attachments

- ☒ Anti-condensation heater
- ☐ Stator and bearing temperature monitoring and protection

Power Termination

Type

- ☐ Bus bar
- ☒ Circuit breaker
- ☐ 1600A ☐ 2000A
- ☒ 2500A ☐ 3200A
- ☐ 3000A
- ☐ UL ☐ IEC
- ☒ 3-pole ☐ 4-pole
- ☐ Manually operated
- ☒ Electrically operated

Trip Unit

- ☐ LSI ☐ LSI-G
- ☒ LSIG-P

Control System

Controller

- ☒ Cat ECS 100
- ☐ Cat ECS 200
- ☐ EMCP 4.4

Attachments

- ☒ Local annunciator module
- ☐ Remote annunciator module
- ☐ Expansion I/O module
- ☐ Remote monitoring software

Charging

- ☐ Battery charger – 10A
- ☐ Battery charger – 20A
- ☐ Battery charger – 35A

Vibration Isolators

- ☒ Spring
- ☐ Seismic rated

Cat Connect

Connectivity

- ☒ Ethernet
- ☐ Cellular

Extended Service Options

Terms

- ☐ 2 year (prime)
- ☐ 3 year
- ☐ 5 year
- ☐ 10 year

Coverage

- ☐ Silver
- ☐ Gold
- ☐ Platinum
- ☐ Platinum Plus

Ancillary Equipment

- ☐ Automatic transfer switch (ATS)
- ☐ Paralleling switchgear
- ☐ Paralleling controls

Certifications

- ☒ ULC 2200 Listed
- ☐ IBC seismic certification
- ☐ OSHPD pre-approval

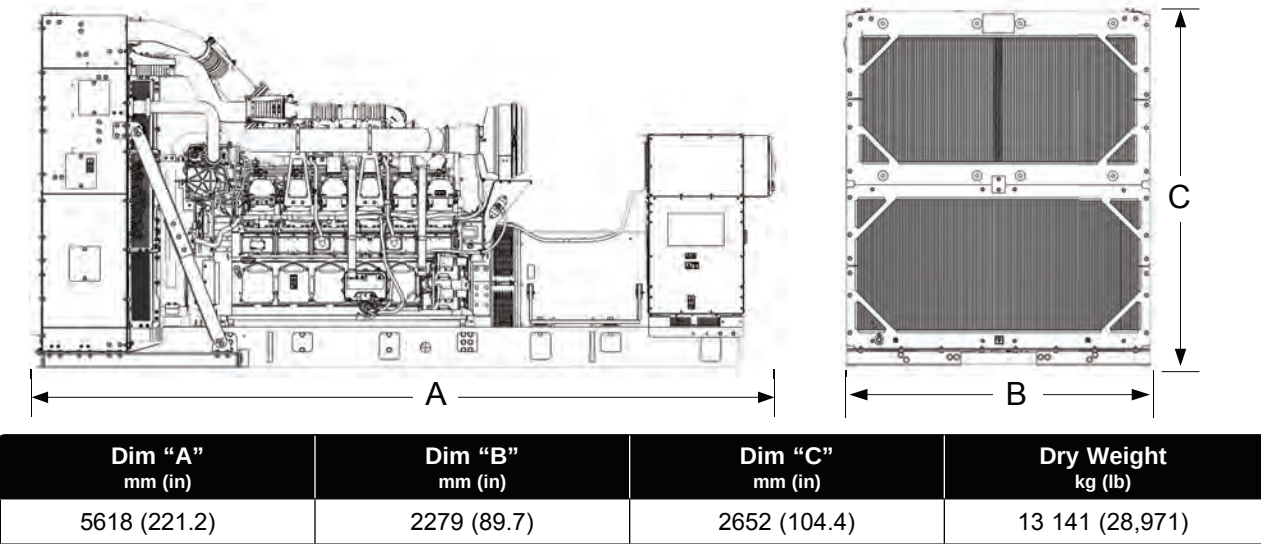
Note: Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

Package Performance

Performance	Standby	
Frequency	60 Hz	
Gen set power rating with fan	1500 ekW	
Gen set power rating with fan @ 0.8 power factor	1875 kVA	
Emissions	EPA ESE (Tier 2)	
Performance number	EM1898-01	
Fuel Consumption		
100% load with fan – L/hr (gal/hr)	383.3	(101.3)
75% load with fan – L/hr (gal/hr)	300.6	(79.4)
50% load with fan – L/hr (gal/hr)	212.7	(56.2)
25% load with fan – L/hr (gal/hr)	124.3	(32.8)
Cooling System		
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)
Radiator air flow – m³/min (cfm)	1745	(61624)
Engine coolant capacity – L (gal)	156.8	(41.4)
Radiator coolant capacity – L (gal)	128.0	(33.8)
Total coolant capacity – L (gal)	284.8	(75.2)
Inlet Air		
Combustion air inlet flow rate – m³/min (cfm)	135.8	(4794.6)
Exhaust System		
Exhaust stack gas temperature – °C (°F)	402.6	(756.6)
Exhaust gas flow rate – m³/min (cfm)	323.0	(11406.4)
Exhaust system backpressure (maximum allowable – kPa (in. water)	6.7	(27.0)
Heat Rejection		
Heat rejection to jacket water – kW (Btu/min)	499	(28363)
Heat rejection to exhaust (total) – kW (Btu/min)	1431	(81392)
Heat rejection to aftercooler – kW (Btu/min)	504	(28646)
Heat rejection to atmosphere from engine – kW (Btu/min)	125	(7084)
Heat rejection from alternator – kW (Btu/min)	74	(4208)
Emissions* (Nominal)		
NOx mg/Nm³ (g/hp-h)	2303.5	(5.32)
CO mg/Nm³ (g/hp-h)	230.3	(0.47)
HC mg/Nm³ (g/hp-h)	50.3	(0.12)
PM mg/Nm³ (g/hp-h)	12.6	(0.03)
Emissions* (Potential Site Variation)		
NOx mg/Nm³ (g/hp-h)	2764.3	(6.38)
CO mg/Nm³ (g/hp-h)	414.5	(0.84)
HC mg/Nm³ (g/hp-h)	66.9	(0.16)
PM mg/Nm³ (g/hp-h)	17.7	(0.04)

*mg/Nm³ levels are corrected to 5% O₂. Contact your local Cat dealer for more information.

Weights and Dimensions



Note: For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.

Ratings Definitions

Standby

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby rated ekW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical rated ekW. Typical peak demand up to 100% of rated ekW for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime

Output available with varying load for an unlimited time. Average power output is 70% of the prime rated ekW. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Continuous

Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous rated ekW. Typical peak demand is 100% of continuous rated ekW for 100% of the operating hours.

Applicable Codes and Standards

AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications

- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates

Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15°C (59°F) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

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Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

Perf No: EM1898

Change Level: 02

General

Heat Rejection

Sound

Emissions

Regulatory

Altitude Derate

Cross Reference

Supplementary Data

Perf Param Ref

View PDF

SALES MODEL:	3512C	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	2,206	FAN POWER (HP):	88.5
GEN POWER WITH FAN (EKW):	1,500.0	ASPIRATION:	TA
COMPRESSION RATIO:	14.7	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	STANDBY	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	210.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	PARALLEL
GOVERNOR TYPE:	ADEM3	TURBO QUANTITY:	4
ELECTRONICS TYPE:	ADEM3	TURBOCHARGER MODEL:	GTB4708BN-52T-0.96
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2006
IGNITION TYPE:	CI	CRANKCASE BLOWBY RATE (FT3 /HR):	2,203.4
INJECTOR TYPE:	EUI	FUEL RATE (RATED RPM) NO LOAD (GAL /HR):	9.8
FUEL INJECTOR:	3920220	PISTON SPD @ RATED ENG SPD (FT /MIN):	2,244.1
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	3,937		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

Top

Note(s)

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
1,500.0	100	2,206	307	0.332	0.326	103.2	101.3	0.488	0.479
1,350.0	90	1,983	276	0.336	0.330	94.0	92.2	0.494	0.484
1,200.0	80	1,768	246	0.343	0.336	85.5	83.8	0.505	0.496
1,125.0	75	1,662	232	0.346	0.339	81.0	79.4	0.510	0.501
1,050.0	70	1,556	217	0.348	0.341	76.4	74.9	0.516	0.506
900.0	60	1,349	188	0.352	0.346	67.0	65.7	0.528	0.518
750.0	50	1,144	159	0.355	0.349	57.3	56.2	0.542	0.532
600.0	40	940	131	0.359	0.352	47.6	46.7	0.563	0.552
450.0	30	736	103	0.368	0.361	38.1	37.4	0.601	0.590
375.0	25	632	88	0.376	0.368	33.5	32.8	0.633	0.621
300.0	20	527	73	0.388	0.380	28.8	28.3	0.681	0.668
150.0	10	312	43	0.443	0.434	19.5	19.1	0.920	0.902

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,500.0	100	2,206	77.5	120.9	1,145.6	74.6	756.6	82	449.8
1,350.0	90	1,983	72.2	116.1	1,102.7	68.8	727.5	77	428.8
1,200.0	80	1,768	66.9	113.2	1,069.1	63.0	713.4	71	409.0
1,125.0	75	1,662	63.4	111.5	1,052.3	59.5	706.7	68	396.6
1,050.0	70	1,556	59.7	109.8	1,035.2	55.8	700.0	64	382.6
900.0	60	1,349	51.1	107.1	1,000.5	47.6	687.3	55	350.3
750.0	50	1,144	40.6	107.5	963.6	38.4	696.7	44	309.9
600.0	40	940	30.0	108.4	921.9	29.4	702.2	33	266.6
450.0	30	736	20.9	107.1	856.0	21.9	685.3	23	224.6
375.0	25	632	16.9	106.2	809.5	18.8	664.9	19	204.3
300.0	20	527	13.3	105.2	754.5	16.0	636.4	15	184.2
150.0	10	312	7.3	103.2	609.7	11.4	540.6	9	148.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,500.0	100	2,206	4,794.6	11,406.4	21,167.1	21,899.0	4,610.8	4,188.7
1,350.0	90	1,983	4,598.6	10,640.5	20,285.8	20,952.1	4,406.6	4,013.7
1,200.0	80	1,768	4,378.0	9,981.4	19,285.7	19,892.1	4,183.4	3,822.5
1,125.0	75	1,662	4,246.6	9,595.7	18,674.6	19,249.2	4,045.1	3,700.9
1,050.0	70	1,556	4,098.2	9,181.5	17,984.1	18,526.3	3,892.6	3,565.4
900.0	60	1,349	3,753.0	8,273.8	16,379.2	16,854.4	3,546.8	3,254.6
750.0	50	1,144	3,280.4	7,230.6	14,251.7	14,658.2	3,074.4	2,822.7
600.0	40	940	2,787.5	6,155.4	12,057.0	12,394.7	2,604.7	2,394.2
450.0	30	736	2,363.4	5,134.0	10,186.4	10,456.9	2,204.7	2,032.9
375.0	25	632	2,179.8	4,645.2	9,382.2	9,619.6	2,030.9	1,877.5
300.0	20	527	2,011.4	4,165.1	8,648.1	8,852.3	1,868.3	1,733.0
150.0	10	312	1,730.9	3,244.5	7,428.8	7,566.8	1,594.8	1,494.1

Heat Rejection Data [Top](#)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
1,500.0	100	2,206	28,363	7,084	81,392	37,320	11,956	28,646	93,547	224,476	239,123
1,350.0	90	1,983	26,596	6,665	74,128	33,028	10,882	26,053	84,110	204,315	217,647
1,200.0	80	1,768	24,935	6,360	68,257	30,111	9,897	23,350	74,958	185,825	197,950
1,125.0	75	1,662	24,035	6,215	64,979	28,563	9,376	21,735	70,466	176,039	187,526
1,050.0	70	1,556	23,095	6,074	61,624	26,950	8,845	20,016	66,004	166,069	176,905
900.0	60	1,349	21,108	5,797	54,723	23,576	7,759	16,292	57,205	145,683	155,189
750.0	50	1,144	18,963	5,518	47,678	21,085	6,636	11,959	48,509	124,586	132,716
600.0	40	940	16,710	5,240	40,505	18,108	5,512	7,849	39,882	103,489	110,241
450.0	30	736	14,361	4,818	33,056	14,499	4,416	4,829	31,201	82,917	88,327
375.0	25	632	13,131	4,577	29,249	12,494	3,876	3,681	26,809	72,772	77,520
300.0	20	527	11,848	4,331	25,396	10,418	3,336	2,726	22,353	62,628	66,715
150.0	10	312	9,052	3,821	17,619	5,853	2,253	1,342	13,214	42,301	45,061

Sound Data [Top](#)

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	117.0	107.0	122.0	118.0	110.0
1,350.0	90	1,983	116.0	106.0	121.0	117.0	109.0
1,200.0	80	1,768	115.0	105.0	120.0	116.0	108.0
1,125.0	75	1,662	114.0	104.0	119.0	115.0	107.0
1,050.0	70	1,556	114.0	104.0	119.0	115.0	107.0
900.0	60	1,349	112.0	103.0	117.0	113.0	105.0
750.0	50	1,144	111.0	101.0	116.0	112.0	104.0
600.0	40	940	110.0	100.0	115.0	111.0	103.0
450.0	30	736	108.0	99.0	113.0	109.0	101.0
375.0	25	632	108.0	98.0	113.0	109.0	101.0
300.0	20	527	107.0	97.0	112.0	108.0	100.0
150.0	10	312	105.0	95.0	110.0	106.0	98.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	108.0	109.0	109.0	107.0
1,350.0	90	1,983	107.0	108.0	108.0	106.0
1,200.0	80	1,768	106.0	107.0	107.0	105.0
1,125.0	75	1,662	106.0	107.0	107.0	105.0
1,050.0	70	1,556	105.0	106.0	106.0	104.0
900.0	60	1,349	104.0	105.0	105.0	103.0
750.0	50	1,144	103.0	104.0	104.0	102.0
600.0	40	940	101.0	103.0	102.0	101.0
450.0	30	736	100.0	101.0	101.0	99.0
375.0	25	632	99.0	100.0	100.0	98.0
300.0	20	527	98.0	99.0	99.0	97.0
150.0	10	312	96.0	97.0	97.0	95.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	103.0	95.0	111.0	106.0	97.0
1,350.0	90	1,983	102.0	94.0	110.0	104.0	96.0
1,200.0	80	1,768	101.0	93.0	109.0	103.0	95.0
1,125.0	75	1,662	101.0	92.0	109.0	103.0	94.0
1,050.0	70	1,556	100.0	92.0	108.0	102.0	94.0
900.0	60	1,349	99.0	90.0	107.0	101.0	93.0
750.0	50	1,144	98.0	89.0	106.0	100.0	91.0
600.0	40	940	96.0	88.0	104.0	99.0	90.0
450.0	30	736	95.0	86.0	103.0	97.0	89.0
375.0	25	632	94.0	86.0	102.0	96.0	88.0
300.0	20	527	93.0	85.0	101.0	96.0	87.0
150.0	10	312	91.0	83.0	99.0	93.0	85.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	95.0	96.0	96.0	93.0
1,350.0	90	1,983	94.0	95.0	95.0	92.0
1,200.0	80	1,768	93.0	94.0	94.0	91.0
1,125.0	75	1,662	93.0	93.0	93.0	91.0
1,050.0	70	1,556	92.0	93.0	93.0	90.0
900.0	60	1,349	91.0	92.0	92.0	89.0
750.0	50	1,144	90.0	91.0	90.0	88.0
600.0	40	940	88.0	89.0	89.0	86.0
450.0	30	736	87.0	88.0	88.0	85.0
375.0	25	632	86.0	87.0	87.0	84.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
300.0	20	527	85.0	86.0	86.0	83.0
150.0	10	312	83.0	84.0	84.0	81.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	97.0	88.0	105.0	99.0	90.0
1,350.0	90	1,983	96.0	87.0	104.0	98.0	89.0
1,200.0	80	1,768	95.0	86.0	103.0	97.0	88.0
1,125.0	75	1,662	94.0	85.0	102.0	96.0	88.0
1,050.0	70	1,556	94.0	85.0	102.0	96.0	87.0
900.0	60	1,349	92.0	84.0	100.0	95.0	86.0
750.0	50	1,144	91.0	83.0	99.0	93.0	85.0
600.0	40	940	90.0	81.0	98.0	92.0	83.0
450.0	30	736	88.0	80.0	96.0	91.0	82.0
375.0	25	632	88.0	79.0	96.0	90.0	81.0
300.0	20	527	87.0	78.0	95.0	89.0	80.0
150.0	10	312	85.0	76.0	93.0	87.0	78.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	89.0	89.0	89.0	86.0
1,350.0	90	1,983	88.0	88.0	88.0	85.0
1,200.0	80	1,768	87.0	87.0	87.0	84.0
1,125.0	75	1,662	86.0	87.0	87.0	84.0
1,050.0	70	1,556	86.0	86.0	86.0	83.0
900.0	60	1,349	84.0	85.0	85.0	82.0
750.0	50	1,144	83.0	84.0	84.0	81.0
600.0	40	940	82.0	83.0	82.0	80.0
450.0	30	736	80.0	81.0	81.0	78.0
375.0	25	632	80.0	80.0	80.0	77.0
300.0	20	527	79.0	79.0	79.0	76.0
150.0	10	312	77.0	77.0	77.0	74.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	104.0	91.0	99.0	100.0	98.0
1,350.0	90	1,983	104.0	91.0	99.0	100.0	98.0
1,200.0	80	1,768	104.0	91.0	99.0	100.0	98.0
1,125.0	75	1,662	104.0	91.0	99.0	100.0	98.0
1,050.0	70	1,556	104.0	91.0	99.0	100.0	98.0
900.0	60	1,349	104.0	91.0	99.0	100.0	98.0
750.0	50	1,144	104.0	91.0	99.0	100.0	98.0
600.0	40	940	104.0	91.0	99.0	100.0	98.0
450.0	30	736	104.0	91.0	99.0	100.0	98.0
375.0	25	632	104.0	91.0	99.0	100.0	98.0
300.0	20	527	104.0	91.0	99.0	100.0	98.0
150.0	10	312	104.0	91.0	99.0	100.0	98.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	99.0	100.0	98.0	102.0
1,350.0	90	1,983	99.0	100.0	98.0	102.0
1,200.0	80	1,768	99.0	100.0	98.0	102.0
1,125.0	75	1,662	99.0	100.0	98.0	102.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
1,050.0	70	1,556	99.0	100.0	98.0	102.0
900.0	60	1,349	99.0	100.0	98.0	102.0
750.0	50	1,144	99.0	100.0	98.0	102.0
600.0	40	940	99.0	100.0	98.0	102.0
450.0	30	736	99.0	100.0	98.0	102.0
375.0	25	632	99.0	100.0	98.0	102.0
300.0	20	527	99.0	100.0	98.0	102.0
150.0	10	312	99.0	100.0	98.0	102.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	92.0	80.0	87.0	88.0	86.0
1,350.0	90	1,983	92.0	80.0	87.0	88.0	86.0
1,200.0	80	1,768	92.0	80.0	87.0	88.0	86.0
1,125.0	75	1,662	92.0	80.0	87.0	88.0	86.0
1,050.0	70	1,556	92.0	80.0	87.0	88.0	86.0
900.0	60	1,349	92.0	80.0	87.0	88.0	86.0
750.0	50	1,144	92.0	80.0	87.0	88.0	86.0
600.0	40	940	92.0	80.0	87.0	88.0	86.0
450.0	30	736	92.0	80.0	87.0	88.0	86.0
375.0	25	632	92.0	80.0	87.0	88.0	86.0
300.0	20	527	92.0	80.0	87.0	88.0	86.0
150.0	10	312	92.0	80.0	87.0	88.0	86.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	87.0	88.0	86.0	90.0
1,350.0	90	1,983	87.0	88.0	86.0	90.0
1,200.0	80	1,768	87.0	88.0	86.0	90.0
1,125.0	75	1,662	87.0	88.0	86.0	90.0
1,050.0	70	1,556	87.0	88.0	86.0	90.0
900.0	60	1,349	87.0	88.0	86.0	90.0
750.0	50	1,144	87.0	88.0	86.0	90.0
600.0	40	940	87.0	88.0	86.0	90.0
450.0	30	736	87.0	88.0	86.0	90.0
375.0	25	632	87.0	88.0	86.0	90.0
300.0	20	527	87.0	88.0	86.0	90.0
150.0	10	312	87.0	88.0	86.0	90.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	87.0	74.0	81.0	82.0	80.0
1,350.0	90	1,983	87.0	74.0	81.0	82.0	80.0
1,200.0	80	1,768	87.0	74.0	81.0	82.0	80.0
1,125.0	75	1,662	87.0	74.0	81.0	82.0	80.0
1,050.0	70	1,556	87.0	74.0	81.0	82.0	80.0
900.0	60	1,349	87.0	74.0	81.0	82.0	80.0
750.0	50	1,144	87.0	74.0	81.0	82.0	80.0
600.0	40	940	87.0	74.0	81.0	82.0	80.0
450.0	30	736	87.0	74.0	81.0	82.0	80.0
375.0	25	632	87.0	74.0	81.0	82.0	80.0
300.0	20	527	87.0	74.0	81.0	82.0	80.0
150.0	10	312	87.0	74.0	81.0	82.0	80.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,500.0	100	2,206	81.0	83.0	80.0	84.0
1,350.0	90	1,983	81.0	83.0	80.0	84.0
1,200.0	80	1,768	81.0	83.0	80.0	84.0
1,125.0	75	1,662	81.0	83.0	80.0	84.0
1,050.0	70	1,556	81.0	83.0	80.0	84.0
900.0	60	1,349	81.0	83.0	80.0	84.0
750.0	50	1,144	81.0	83.0	80.0	84.0
600.0	40	940	81.0	83.0	80.0	84.0
450.0	30	736	81.0	83.0	80.0	84.0
375.0	25	632	81.0	83.0	80.0	84.0
300.0	20	527	81.0	83.0	80.0	84.0
150.0	10	312	81.0	83.0	80.0	84.0

Emissions Data [Top](#)

Units Filter All Units ▼

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	1,500.0	1,125.0	750.0	375.0	150.0
ENGINE POWER		BHP	2,206	1,662	1,144	632	312
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	11,615	5,877	3,912	2,972	2,290
TOTAL CO		G/HR	1,019	634	898	1,060	1,024
TOTAL HC		G/HR	257	278	262	207	241
TOTAL CO2		KG/HR	1,063	828	584	342	198
PART MATTER		G/HR	67.7	68.8	104.8	127.8	77.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,303.5	1,458.7	1,352.5	1,792.1	2,400.6
TOTAL CO	(CORR 5% O2)	MG/NM3	230.3	181.4	384.5	802.1	1,284.5
TOTAL HC	(CORR 5% O2)	MG/NM3	50.3	69.9	90.2	128.2	263.2
PART MATTER	(CORR 5% O2)	MG/NM3	12.6	16.3	37.9	76.2	80.1
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	854.8	541.3	501.9	665.0	890.8
TOTAL CO	(CORR 15% O2)	MG/NM3	85.5	67.3	142.7	297.6	476.6
TOTAL HC	(CORR 15% O2)	MG/NM3	18.7	25.9	33.5	47.6	97.7
PART MATTER	(CORR 15% O2)	MG/NM3	4.7	6.0	14.1	28.3	29.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,122	711	659	873	1,169
TOTAL CO	(CORR 5% O2)	PPM	184	145	308	642	1,028
TOTAL HC	(CORR 5% O2)	PPM	94	130	168	239	491
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	416	264	244	324	434
TOTAL CO	(CORR 15% O2)	PPM	68	54	114	238	381
TOTAL HC	(CORR 15% O2)	PPM	35	48	62	89	182
TOTAL NOX (AS NO2)		G/HP-HR	5.32	3.57	3.45	4.73	7.39
TOTAL CO		G/HP-HR	0.47	0.39	0.79	1.69	3.30
TOTAL HC		G/HP-HR	0.12	0.17	0.23	0.33	0.78
PART MATTER		G/HP-HR	0.03	0.04	0.09	0.20	0.25
TOTAL NOX (AS NO2)		G/KW-HR	7.13	4.79	4.62	6.35	9.92
TOTAL CO		G/KW-HR	0.63	0.52	1.06	2.26	4.43
TOTAL HC		G/KW-HR	0.16	0.23	0.31	0.44	1.04
PART MATTER		G/KW-HR	0.04	0.06	0.12	0.27	0.34
TOTAL NOX (AS NO2)		LB/HR	25.61	12.96	8.62	6.55	5.05
TOTAL CO		LB/HR	2.25	1.40	1.98	2.34	2.26
TOTAL HC		LB/HR	0.57	0.61	0.58	0.46	0.53
TOTAL CO2		LB/HR	2,344	1,825	1,289	753	436
PART MATTER		LB/HR	0.15	0.15	0.23	0.28	0.17
OXYGEN IN EXH		%	10.9	12.0	12.7	13.7	15.7
DRY SMOKE OPACITY		%	1.0	1.3	2.9	5.0	3.0
BOSCH SMOKE NUMBER			0.77	0.79	1.02	1.30	1.04

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		EKW	1,500.0	1,125.0	750.0	375.0	150.0
ENGINE POWER		BHP	2,206	1,662	1,144	632	312
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	13,938	7,053	4,695	3,567	2,748
TOTAL CO		G/HR	1,834	1,142	1,617	1,908	1,843
TOTAL HC		G/HR	341	370	348	276	320
PART MATTER		G/HR	94.8	96.4	146.7	178.9	109.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,764.3	1,750.5	1,623.0	2,150.5	2,880.8
TOTAL CO	(CORR 5% O2)	MG/NM3	414.5	326.5	692.0	1,443.8	2,312.1
TOTAL HC	(CORR 5% O2)	MG/NM3	66.9	93.0	119.9	170.5	350.1
PART MATTER	(CORR 5% O2)	MG/NM3	17.7	22.8	53.1	106.7	112.2

GENSET POWER WITH FAN		EKW	1,500.0	1,125.0	750.0	375.0	150.0
ENGINE POWER		BHP	2,206	1,662	1,144	632	312
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,025.7	649.6	602.2	798.0	1,069.0
TOTAL CO	(CORR 15% O2)	MG/NM3	153.8	121.2	256.8	535.8	857.9
TOTAL HC	(CORR 15% O2)	MG/NM3	24.8	34.5	44.5	63.3	129.9
PART MATTER	(CORR 15% O2)	MG/NM3	6.6	8.5	19.7	39.6	41.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,346	853	791	1,047	1,403
TOTAL CO	(CORR 5% O2)	PPM	332	261	554	1,155	1,850
TOTAL HC	(CORR 5% O2)	PPM	125	174	224	318	654
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	500	316	293	389	521
TOTAL CO	(CORR 15% O2)	PPM	123	97	205	429	686
TOTAL HC	(CORR 15% O2)	PPM	46	64	83	118	243
TOTAL NOX (AS NO2)		G/HP-HR	6.38	4.28	4.14	5.68	8.87
TOTAL CO		G/HP-HR	0.84	0.69	1.42	3.04	5.95
TOTAL HC		G/HP-HR	0.16	0.22	0.31	0.44	1.03
PART MATTER		G/HP-HR	0.04	0.06	0.13	0.28	0.35
TOTAL NOX (AS NO2)		G/KW-HR	8.56	5.75	5.55	7.62	11.90
TOTAL CO		G/KW-HR	1.13	0.93	1.91	4.07	7.98
TOTAL HC		G/KW-HR	0.21	0.30	0.41	0.59	1.39
PART MATTER		G/KW-HR	0.06	0.08	0.17	0.38	0.47
TOTAL NOX (AS NO2)		LB/HR	30.73	15.55	10.35	7.86	6.06
TOTAL CO		LB/HR	4.04	2.52	3.56	4.21	4.06
TOTAL HC		LB/HR	0.75	0.82	0.77	0.61	0.71
PART MATTER		LB/HR	0.21	0.21	0.32	0.39	0.24

Regulatory Information [Top](#)

EPA EMERGENCY STATIONARY		2011 - ----		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.				
Locality	Agency	Regulation	Tier /Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data [Top](#)

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)													
AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,096	2,206
1,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,162	2,074	2,206
2,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,176	2,118	2,007	2,206
3,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,173	2,135	2,098	2,052	1,919	2,206
4,000	2,201	2,201	2,201	2,201	2,201	2,171	2,132	2,094	2,057	2,021	1,963	1,831	2,201
5,000	2,129	2,129	2,129	2,129	2,129	2,092	2,054	2,017	1,982	1,947	1,875	1,743	2,129
6,000	2,059	2,059	2,059	2,059	2,053	2,015	1,978	1,943	1,909	1,876	1,765	1,677	2,059
7,000	1,992	1,992	1,992	1,992	1,976	1,940	1,904	1,870	1,838	1,787	1,677	1,588	1,992
8,000	1,927	1,927	1,927	1,927	1,902	1,867	1,833	1,800	1,769	1,699	1,610	1,522	1,927
9,000	1,865	1,865	1,865	1,865	1,831	1,797	1,764	1,733	1,699	1,610	1,522	1,412	1,865
10,000	1,805	1,805	1,805	1,795	1,761	1,729	1,697	1,667	1,610	1,522	1,368	1,279	1,805
11,000	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,434	1,324	1,213	1,125	1,522
12,000	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,390	1,279	1,169	1,081	993	1,478
13,000	1,434	1,434	1,434	1,434	1,434	1,434	1,346	1,235	1,147	1,037	971	882	1,434
14,000	1,390	1,390	1,390	1,390	1,390	1,279	1,191	1,103	1,015	927	860	794	1,390
15,000	1,346	1,346	1,346	1,346	1,235	1,147	1,059	971	882	816	772	728	1,346

Cross Reference [Top](#)

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577179	LL1861	5084278	GS656	LS	CT200463	
4577179	LL1861	5157729	PG242	-	LYH00001	

Supplementary Data [Top](#)

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference [Top](#)

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set. Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for

atmospheric pressure and temperature conditions outside the values defined, see TM2001. Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.
REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative. Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.
WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded
EMISSIONS DEFINITIONS: Emissions : DM1176
EMISSION CYCLE DEFINITIONS 1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied. 2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied. 3. For constant-speed auxiliary engines test cycle D2 shall be applied. 4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.
HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500
RATING DEFINITIONS: Agriculture : TM6008 Fire Pump : TM6009 Generator Set : TM6035 Generator (Gas) : TM6041 Industrial Diesel : TM6010 Industrial (Gas) : TM6040 Irrigation : TM5749 Locomotive : TM6037 Marine Auxiliary : TM6036 Marine Prop (Except 3600) : TM5747 Marine Prop (3600 only) : TM5748 MSHA : TM6042 Oil Field (Petroleum) : TM6011 Off-Highway Truck : TM6039 On-Highway Truck : TM6038
SOUND DEFINITIONS: Sound Power : DM8702 Sound Pressure : TM7080
Date Released : 03 / 12 / 24

Systems Data

Reference Number: EM1898



August 25, 2025

For Help Desk Phone Numbers

[Click Here](#)**AIR INTAKE SYSTEM**

THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.

MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H2O
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H2O
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	4.4	IN-HG
CHARGE AIR FLOW AT RATED SPEED	337.7	LB/MIN
TURBO COMPRESSOR OUTLET TEMPERATURE AT RATED SPEED	451	DEG F
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET	59.5	LB
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET (AIR SHUT OFF INCLUDED)	17.6	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON AIR INLET	9.6	LB-FT
MAXIMUM ALLOWABLE STATIC WEIGHT ON TURBO OUTLET CONNECTION	0	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON TURBO OUTLET CONNECTION	0	LB-FT

COOLING SYSTEM

ENGINE ONLY COOLANT CAPACITY	41.4	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	210	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN

ENGINE SPEC SYSTEM

CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	12	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	7.5	IN
TOTAL CYLINDER DISPLACEMENT	3161	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-12-9-4-5-8-11-2-3-10-7-6	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	

EXHAUST SYSTEM

THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.

MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	27	IN-H2O
MANIFOLD TYPE	DRY	
MAXIMUM ALLOWABLE STATIC WEIGHT ON EXHAUST CONNECTION	63.9	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON EXHAUST CONNECTION	31.7	LB-FT

FUEL SYSTEM

MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	332.9	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	322.3	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	540	BTU/MIN
LUBE SYSTEM		
CRANKCASE VENTILATION TYPE	TO ATM	
MOUNTING SYSTEM		
CENTER OF GRAVITY LOCATION - X DIMENSION - FROM REAR FACE OF BLOCK - (REFERENCE TM7077)	37.4	IN
CENTER OF GRAVITY LOCATION - Y DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	9.8	IN
CENTER OF GRAVITY LOCATION - Z DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	0.0	IN
MASS MOMENT OF INERTIA - X AXIS	8851	LB IN SEC2
MASS MOMENT OF INERTIA - Y AXIS	61955	LB IN SEC2
MASS MOMENT OF INERTIA - Z AXIS	61955	LB IN SEC2
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM

GENERATOR DATA**OCTOBER 01, 2025**For Help Desk Phone Numbers [Click here](#)**Selected Model**

Engine: 3512 **Generator Frame:** 1622 **Genset Rating (kW):** 1500.0 **Line Voltage:** 480
Fuel: Diesel **Generator Arrangement:** 2523932 **Genset Rating (kVA):** 1875.0 **Phase Voltage:** 277
Frequency: 60 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 2255.3
Duty: STANDBY **Connection:** SERIES STAR **Application:** EPG **Status:** Current

Version: 20232 /20232 /20232 /660451

Spec Information

Generator Specification			Generator Efficiency		
Frame: 1622	Type: SR5	No. of Bearings: 1	Per Unit Load	kW	Efficiency %
Winding Type: FORM WOUND			0.25	375.0	90.5
Flywheel: 21.0			0.5	750.0	93.8
Connection: SERIES STAR			0.75	1125.0	94.7
Housing: 00			1.0	1500.0	94.7
Phases: 3					
No. of Leads: 6					
Poles: 4					
Wires per Lead: 4					
Sync Speed: 1800					
Generator Pitch: 0.67					

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.1204	0.0148
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1506	0.0185
TRANSIENT - SATURATED X'_d	0.1986	0.0244
SYNCHRONOUS - DIRECT AXIS X_d	2.0312	0.2496
SYNCHRONOUS - QUADRATURE AXIS X_q	1.2191	0.1498
NEGATIVE SEQUENCE X_2	0.1351	0.0166
ZERO SEQUENCE X_0	0.0285	0.0035

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	1.6600
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.1910
OPEN CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_{d0}	0.0200
SHORT CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_d	0.0120
OPEN CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0760
SHORT CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_q	0.0110
EXCITER TIME CONSTANT T_e	0.0940
ARMATURE SHORT CIRCUIT T_a	0.0300

Short Circuit Ratio: 0.57	Stator Resistance = 0.002 Ohms	Field Resistance = 0.427 Ohms
---------------------------	--------------------------------	-------------------------------

Voltage Regulation		Generator Excitation		
Voltage level adjustment: +/-	5.0%	No Load	Full Load, (rated) pf	
Voltage regulation, steady state: +/-	0.5%		Series	Parallel
Voltage regulation with 3% speed change: +/-	0.5%	Excitation voltage:	15.33 Volts	50.69 Volts
Waveform deviation line - line, no load: less than	2.0%	Excitation current	1.6 Amps	4.35 Amps
Telephone influence factor: less than	50			

Selected Model

Engine: 3512 **Generator Frame:** 1622 **Genset Rating (kW):** 1500.0 **Line Voltage:** 480
Fuel: Diesel **Generator Arrangement:** 2523932 **Genset Rating (kVA):** 1875.0 **Phase Voltage:** 277
Frequency: 60 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 2255.3
Duty: STANDBY **Connection:** SERIES STAR **Application:** EPG **Status:** Current

Version: 20232 /20232 /20232 /660451

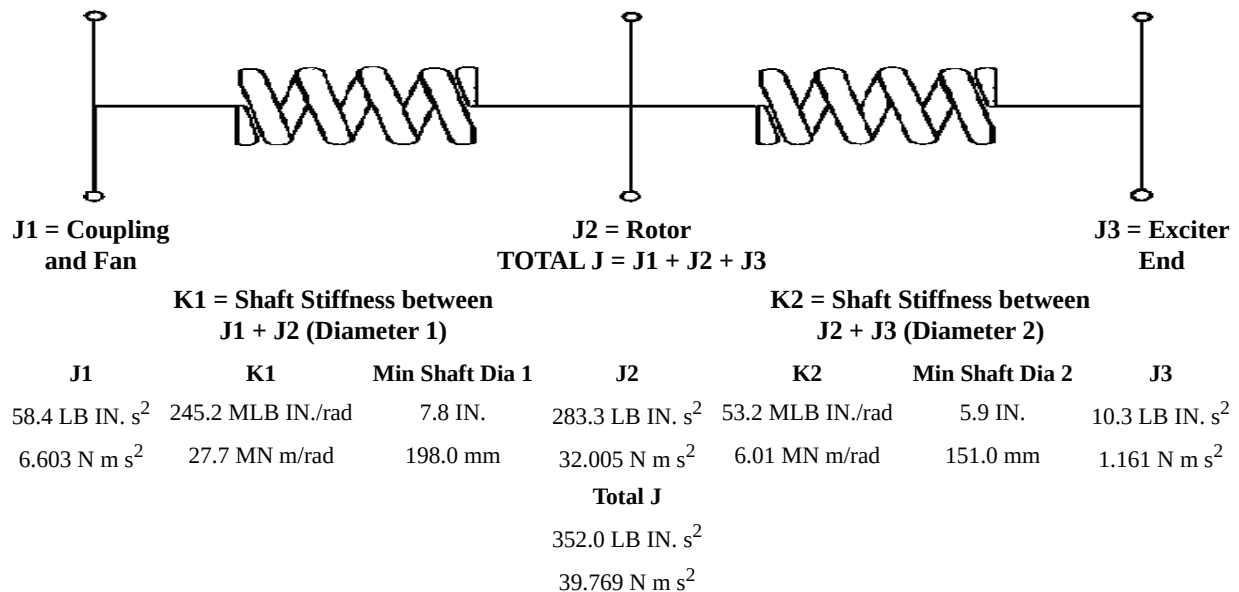
Generator Mechanical Information**Center of Gravity**

Dimension X	-897.6 mm	-35.3 IN.
Dimension Y	0.0 mm	0.0 IN.
Dimension Z	0.0 mm	0.0 IN.

- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 3480 kg * Rotor WT = 1346 kg * Stator WT = 1697 kg
 7,672 LB 2,967 LB 3,741 LB

Rotor Balance = 0.0508 mm deflection PTP
 Overspeed Capacity = 125% of synchronous speed

Generator Torsional Data**Selected Model**

Engine: 3512 **Generator Frame:** 1622 **Genset Rating (kW):** 1500.0 **Line Voltage:** 480
Fuel: Diesel **Generator Arrangement:** 2523932 **Genset Rating (kVA):** 1875.0 **Phase Voltage:** 277
Frequency: 60 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 2255.3
Duty: STANDBY **Connection:** SERIES STAR **Application:** EPG **Status:** Current

Version: 20232 /20232 /20232 /660451

Generator Cooling Requirements - Temperature - Insulation Data		
Cooling Requirements:		Temperature Data: (Ambient 40 °C)
Heat Dissipated: 83.9 kW	Stator Rise:	105.0 °C
Air Flow: 168.0 m ³ /min	Rotor Rise:	105.0 °C
Insulation Class: H		
Insulation Reg. as shipped: 100.0 MΩ minimum at 40 °C		

Thermal Limits of Generator	
Frequency:	60 Hz
Line to Line Voltage:	480 Volts
B BR 80/40	1750.0 kVA
F BR -105/40	1991.0 kVA
H BR - 125/40	2188.0 kVA
F PR - 130/40	2188.0 kVA
H PR - 150/40	2319.0 kVA

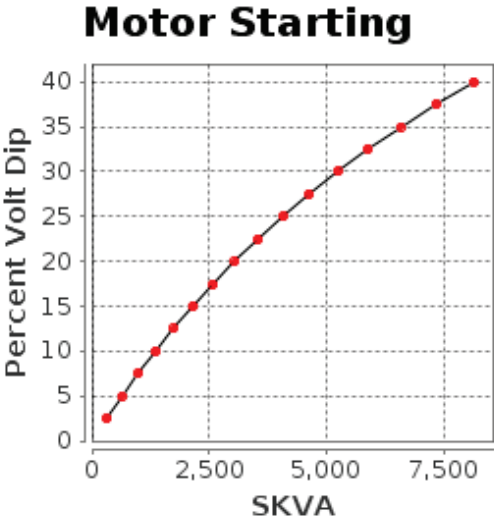
Selected Model

Engine: 3512	Generator Frame: 1622	Genset Rating (kW): 1500.0	Line Voltage: 480
Fuel: Diesel	Generator Arrangement: 2523932	Genset Rating (kVA): 1875.0	Phase Voltage: 277
Frequency: 60	Excitation Type: Permanent Magnet	Pwr. Factor: 0.8	Rated Current: 2255.3
Duty: STANDBY	Connection: SERIES STAR	Application: EPG	Status: Current

Version: 20232 /20232 /20232 /660451

Starting Capability & Current Decrement
Motor Starting Capability (0.4 pf)

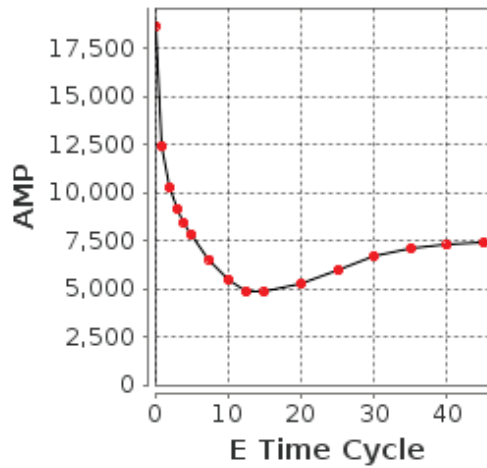
SKVA	Percent Volt Dip
313	2.5
643	5.0
991	7.5
1,358	10.0
1,746	12.5
2,157	15.0
2,593	17.5
3,056	20.0
3,549	22.5
4,075	25.0
4,637	27.5
5,239	30.0
5,886	32.5
6,583	35.0
7,335	37.5
8,150	40.0



Current Decrement Data

Current Decrement

E Time Cycle	AMP
0.0	18,665
1.0	12,379
2.0	10,221
3.0	9,168
4.0	8,433
5.0	7,817
7.5	6,532
10.0	5,504
12.5	4,828
15.0	4,806
20.0	5,276
25.0	5,939
30.0	6,669
35.0	7,073
40.0	7,252
45.0	7,352



Instantaneous 3 Phase Fault Current: 18665 Amps

Instantaneous Line - Line Fault Current: 15235 Amps

Instantaneous Line - Neutral Fault Current: 23750 Amps

Selected Model

Engine: 3512

Generator Frame: 1622

Genset Rating (kW): 1500.0

Line Voltage: 480

Fuel: Diesel

Generator Arrangement: 2523932

Genset Rating (kVA): 1875.0

Phase Voltage: 277

Frequency: 60

Excitation Type: Permanent Magnet

Pwr. Factor: 0.8

Rated Current: 2255.3

Duty: STANDBY

Connection: SERIES STAR

Application: EPG

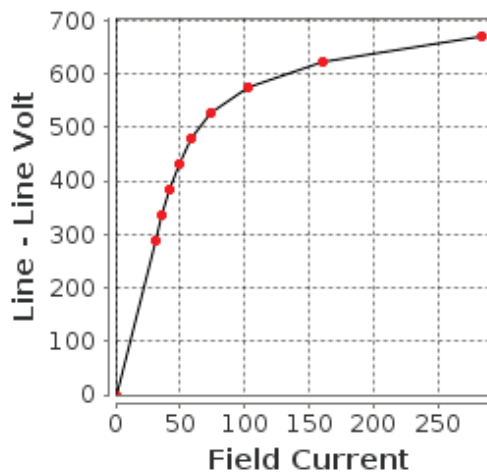
Status: Current

Version: 20232 /20232 /20232 /660451

Generator Output Characteristic Curves
Open Circuit Curve

Open Circuit

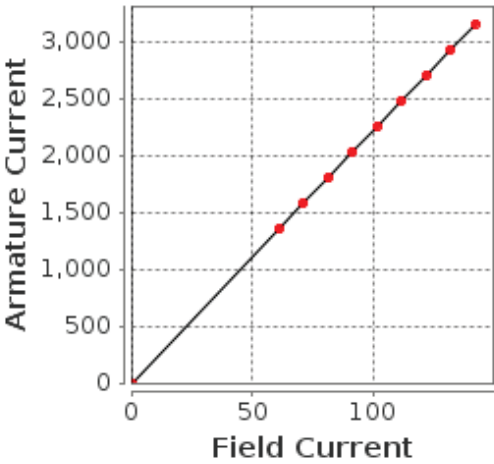
Field Current	Line - Line Volt
0.0	0
30.5	288
35.9	336
41.9	384
49.0	432
58.7	480
74.3	528
103.0	576
160.8	624
284.2	672



Short Circuit Curve

Short Circuit

Field Current	Armature Current
0.0	0
60.9	1,353
71.0	1,579
81.2	1,804
91.3	2,030
101.5	2,255
111.6	2,481
121.8	2,706
131.9	2,932
142.1	3,157



Selected Model

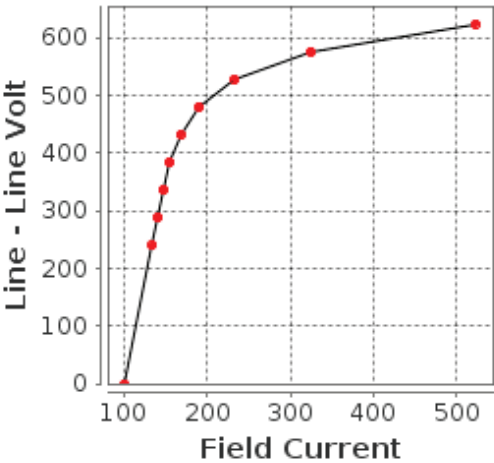
Engine: 3512	Generator Frame: 1622	Genset Rating (kW): 1500.0	Line Voltage: 480
Fuel: Diesel	Generator Arrangement: 2523932	Genset Rating (kVA): 1875.0	Phase Voltage: 277
Frequency: 60	Excitation Type: Permanent Magnet	Pwr. Factor: 0.8	Rated Current: 2255.3
Duty: STANDBY	Connection: SERIES STAR	Application: EPG	Status: Current

Version: 20232 /20232 /20232 /660451

Generator Output Characteristic Curves
Zero Power Factor Curve

Zero Power

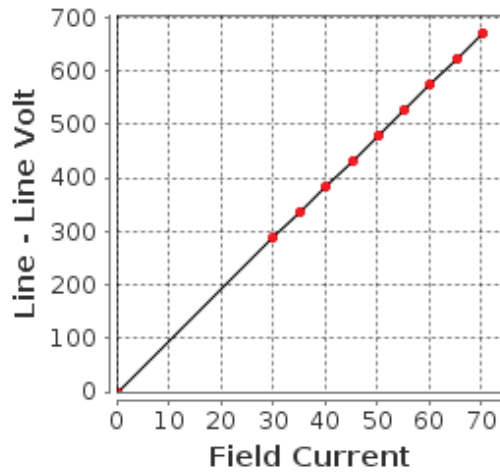
Field Current	Line - Line Volt
101.5	0
134.5	240
140.3	288
146.9	336
155.4	384
168.1	432
190.3	480
233.7	528
324.5	576
521.7	624



Air Gap Curve

Air Gap

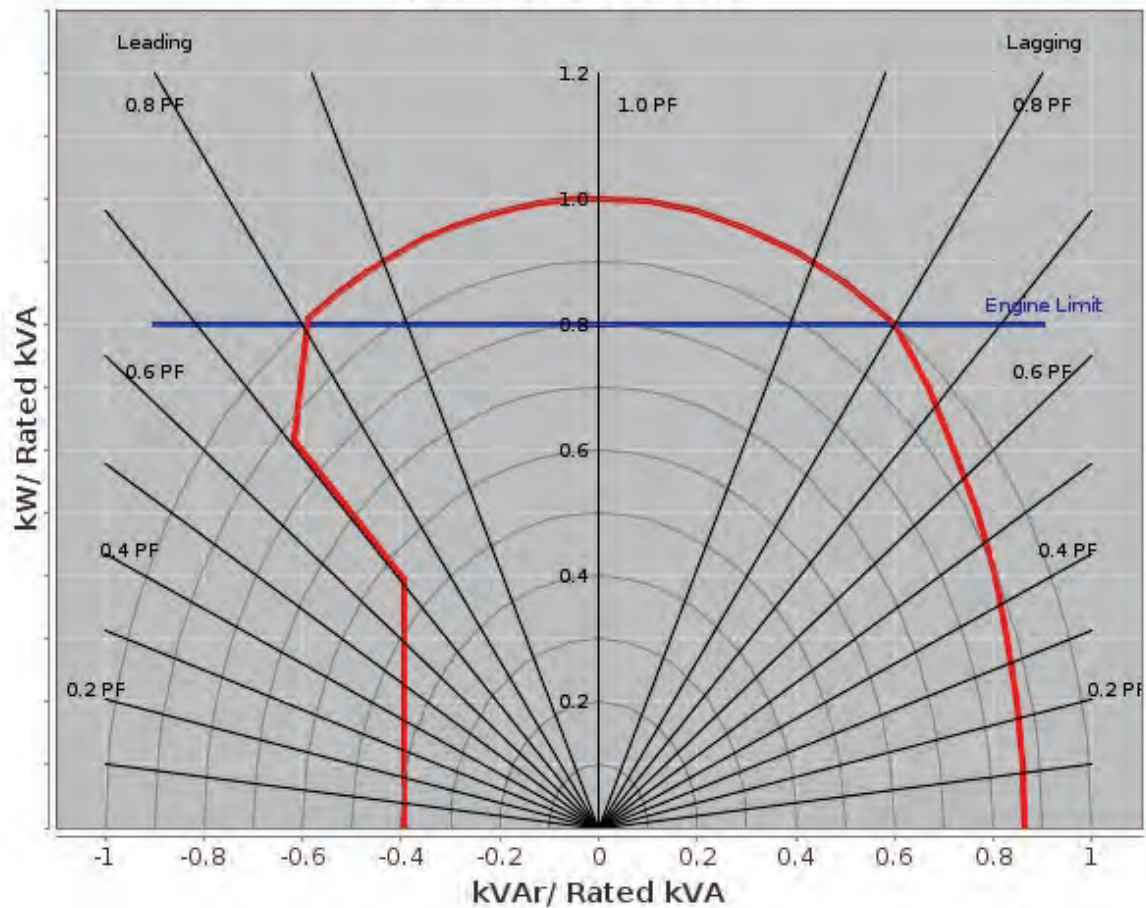
Field Current	Line - Line Volt
0.0	0
30.1	288
35.1	336
40.2	384
45.2	432
50.2	480
55.2	528
60.2	576
65.3	624
70.3	672



Selected Model

Engine: 3512 Generator Frame: 1622 Genset Rating (kW): 1500.0 Line Voltage: 480
Fuel: Diesel Generator Arrangement: 2523932 Genset Rating (kVA): 1875.0 Phase Voltage: 277
Frequency: 60 Excitation Type: Permanent Magnet Pwr. Factor: 0.8 Rated Current: 2255.3
Duty: STANDBY Connection: SERIES STAR Application: EPG Status: Current

Version: 20232 /20232 /20232 /660451

Reactive Capability Curve
Operating Chart

Selected Model

Engine: 3512	Generator Frame: 1622	Genset Rating (kW): 1500.0	Line Voltage: 480
Fuel: Diesel	Generator Arrangement: 2523932	Genset Rating (kVA): 1875.0	Phase Voltage: 277
Frequency: 60	Excitation Type: Permanent Magnet	Pwr. Factor: 0.8	Rated Current: 2255.3
Duty: STANDBY	Connection: SERIES STAR	Application: EPG	Status: Current

Version: 20232 /20232 /20232 /660451**General Information**

DM7825 Caterpillar SR5 Generators (50 Hz, 60 Hz)
Data for 1400, 1600, 1700, 1800 and 1900 frames Caterpillar SR5
generators built by Leroy Somer - USA and Leroy Somer France.

Refer to DM7821 for explanation of all generator data in Technical
Marketing Information (TMI) except generator efficiency for which the
explanation is given below.

GENERATOR EFFICIENCY

Generator efficiency is the percentage of engine flywheel (or other
prime mover) power that is converted into electrical output. The
generator efficiency shown is calculated by the summation of all
losses method, and is determined in accordance with the IEC Standard
60034. The efficiency considers only the generator. There is no
consideration of engine or parasitic losses here.

Refer to DM7829 for low and medium voltage protective setting values and
limits.

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NOTES:

1. ENCLOSURE ASSEMBLY:
- a.) FOR A CATERPILLAR 1500KW 3512C GEN-SET. (480VAC)
 - b.) FULLY ASSEMBLED ACOUSTICAL ENCLOSURE TO BE MOUNTED TO THE SUB BASE FUEL TANK THEN ANCHORED TO THE FOUNDATION.
 - c.) PANEL JOINTS ARE SKIP WELDED AND CAULKED.
 - d.) WIND LOAD: 120 MPH
 - e.) SEISMIC RATING: IBC RATED FOR JOB SITE w/ PE STAMP & SEAL (ANCHORING CALCS NOT INCLUDED)
2. ENCLOSURE CONSTRUCTION:
- a.) SKIN - 14 GA. GALVANNEAL STEEL (WALLS).
14 GA. GALVANNEAL STEEL (ROOF).
 - b.) FRAMING - A36 STRUCTURAL ANGLE & A500-B TUBING
 - c.) INNER LINER - 22 GA. GALVANIZED PERFORATED STEEL.
 - d.) INSULATION - MINERAL WOOL
 - e.) DOORS - THREE (3) SINGLE ACCESS SERVICE DOORS & TWO (2) DOUBLE ACCESS SERVICE DOOR WITH STAINLESS STEEL HINGES & CHROME PLATED REFRIGERATOR STYLE DOOR LATCHES w/ INSIDE RELEASE.
 - f.) INLET HOOD ASSEMBLY (GALVANNEAL CONSTRUCTION).
 - g.) INLET BAFFLE PANELS - (GALVANNEAL CONSTRUCTION).
 - h.) MOTORIZED INTAKE DAMPER ASSEMBLY (ALUMINUM CONSTRUCTION-CD356).
 - i.) GRAVITY BACKDRAFT DAMPERS - (ALUMINUM CONSTRUCTION - CBD2).
 - j.) INTERNAL DISCHARGE ELBOW - (GALVANNEAL INSULATED CONSTRUCTION).
3. DESIGN CONSTRUCTION:
- a.) AIR FLOW RATES;
RADIATOR - 61,624 CFM
COMBUSTION - 4,794 CFM
 - b.) PRESSURE DROPS;
INLET & DISCHARGE LOUVERS/BAFFLES 0.5" W.G. OR LESS (TOTAL).
 - c.) PERFORMANCE;
DESIGNED TO REDUCE THE GEN-SET EQUIPMENT NOISE LEVEL TO 75 dBA WHEN MEASURED AT A DISTANCE OF 23 FEET FROM THE ENCLOSURE AND 5 1/2 FEET ABOVE GRADE IN A FREE FIELD ENVIRONMENT. (PROVIDING THE EQUIPMENT NOISE DOES NOT EXCEED 119 dB @ 3 FEET).
4. PAINT:
- a.) ALL EXTERIOR GALVANNEAL SURFACES TO BE SOLVENT CLEANED
 - * PER SSPC-SP1 AND PAINTED AS FOLLOWS;
 - * FINISH - ONE COAT OF AMERSHIELD VOC.
 - b.) ALL CARBON STEEL SURFACES TO BE POWER TOOL CLEANED PER SSPC-SP3 AND PAINTED AS FOLLOWS;
 - * PRIMER - ONE COAT AMERCOAT 370.
 - * FINISH - ONE COAT OF AMERSHIELD VOC.
 - * INTERIOR WALL AND ROOF SURFACES WILL NOT BE PAINTED.
 - c.) COLOR: ENCLOSURE: T.B.D.
TANK: BLACK

5. ELECTRICAL: SEE SHEET 13869-10E
6. QUANTITY REQUIRED:
TWO (2) GEN-SET ENCLOSURE ASSEMBLIES AS SHOWN
TWO (2) U.L. LISTED 142 DAY FUEL TANKS AS SHOWN
7. WEIGHTS:
ESTIMATED WEIGHTS ARE AS FOLLOWS:
- | | |
|------------------------|--|
| a.) ENCLOSURE ASSEMBLY | - 26,000 LBS |
| b.) GEN-SET | - 38,000 LBS WET (CUSTOMER TO CONFIRM) |
| c.) SUB BASE FUEL TANK | - 16,000 LBS |
| TOTAL | - 80,000 LBS |
- d.) LIFTING SKID w/SCR - 14,000 LBS
8. PACKAGED ASSEMBLY SHIPPING SIZES:
- a.) ENCLOSURE PACKAGE ASSEMBLY - 518"L x 132"W x 146"H
 - b.) LIFTING SKID w/SCR - 203"L x 128"W x 116"H
9. ACS CONTACT INFORMATION
- SALES: WESLEY RITCHIE
TELEPHONE: 903.462.2034
E-MAIL: wesley.ritchie@acsmanufacturing.com
- PROJECT MANAGER: JIMMAY MUNDINE
TELEPHONE: 903.462.2001 EXT. 10089
E-MAIL: jimmayshun.mundine@acsmanufacturing.com

*CUSTOMER TO VERIFY ALL NOTES AND DIMENSIONS

☐ APPROVED AS IS - Manufacturing may proceed.

☐ APPROVED WITH NOTED CHANGES - Resubmit drawing; manufacturing may proceed.

☐ NOT APPROVED - Correct drawing as noted and resubmit for approval before manufacturing begins.

BY: _____ DATE: _____

COMPANY: _____

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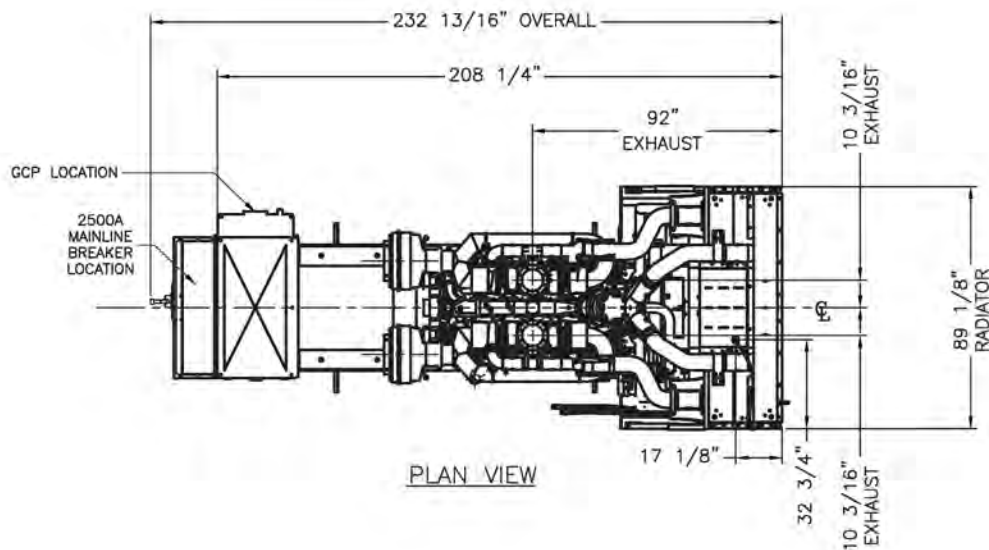
QUOTE NO.: 202507107
PO NO.: 425504PRP1-1
ACS MFG LOC.: TX
JOB NAME: PROLOGIS ATHENA

		ACS MANUFACTURING, INC.	
1601 COMMERCE BLVD. - DENISON, TEXAS - 75020			
TOLERANCES (UNLESS OTHERWISE NOTED)		DRAWN BY: CE	
DECIMAL ± 0.125"	TITLE ACOUSTICAL ENCLOSURE ASSEMBLY TEXT SHEET	CHECKED BY:	
FRACTIONAL ± 1/8"		CHECKED BY:	
ANGULAR ± 3°		APPROVED BY: JM	
SCALE 48:1		DATE 09/23/25	
DRAWING NUMBER 13869-10		SHEET 1 of 5	REV. —

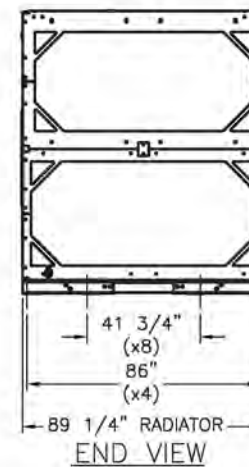
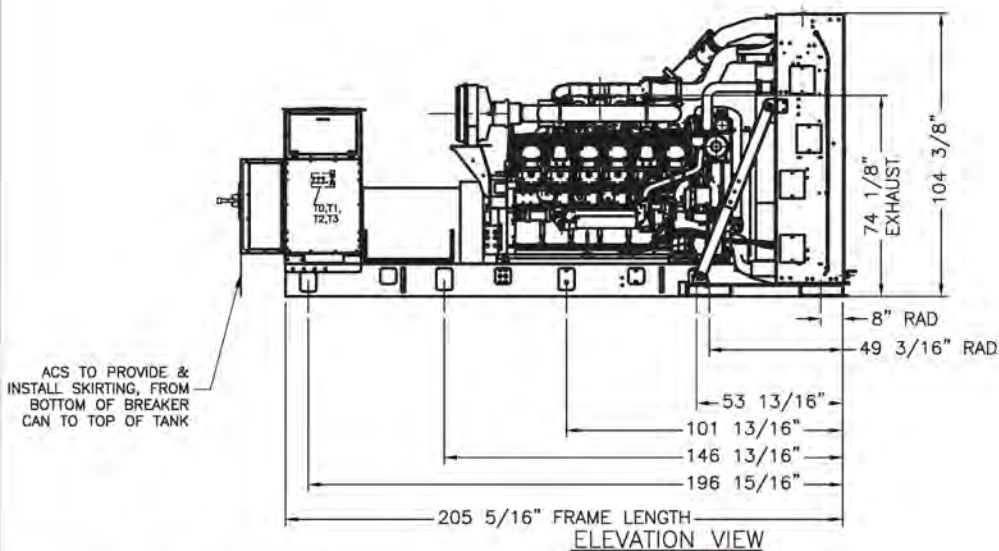
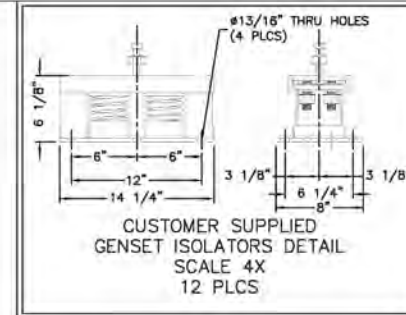
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REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE
					09/23/25



CATERPILLAR 1500KW 3512C GENSET



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- ☐ APPROVED WITH NOTED CHANGES - Resubmit drawing, manufacturing may proceed.
- ☐ NOT APPROVED - Correct drawing as noted and resubmit for approval before manufacturing begins.

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QUOTE NO.: 202507107
PO NO.: 425504PRP1-1
ACS MFG LOC: TX
JOB NAME: PROLOGIS ATHENA



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FRACTIONAL ± 1/8"		SPECIES BY:
ANGULAR ± 3°		CHECKED BY:
SCALE 1 TO 1		APPROVED BY: JM
DATE 09/23/25		SHEET 4 OF 5

CARTER CAT
GENSET ENCLOSURE ASSEMBLY
GENSET DETAILS

13869-10

REV	ECO NUMBER	DESCRIPTION	BY	APPD	DATE
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The gen-set was NOT available for physical review when this drawing was created. Please verify all dimensions prior to fabrication of parts connected to the location of the gen-set. If the dimensions do not match please contact Engineering.

CUSTOMER APPROVAL PAGE

<i>Submittal Date:</i>	9/16/2025
<i>Catalytic Combustion Project No.:</i>	WO241269
<i>Submittal Revision No.:</i>	0

<i>Contact and Shipping Information</i>			
<i>Company Name:</i>	Carter CAT		
<i>Contact Name:</i>	Mackenzie Young	<i>Phone:</i>	785-917-0048
<i>E-Mail:</i>	Mackenzie_Young@cartermachinery.com		
<i>Shipping Address:</i>	TBD		

<i>Comments / Site Specific Information</i>
<u>Project/Design Specifications (Per CCC Quote 306232 Rev 1):</u> <u>(2) Sized for Caterpillar 3512C rated at 1500kW to meet tier IV emissions:</u> SCR Reactor • 304 Stainless Steel reactor housing, Insulation Blanket, Oxidation, DPF, SCR Catalysts, Rain Cap, Short Exhaust Stack, Urea Injection, and Mixing duct. • Factory installed pressure, temperature NOx sensor(s), junction panel, and dosing panel. • Bottom Inlet, Top Outlet • Reactor Shipping Dimensions - o Height = 86" Width = 108" Length = 204" - o Weight (approximate) = 10,000 lbs. ADC Skid • Air Compressor • 300 Gallon Poly urea day tank • Urea flow rate (32.5% concentration) is 6.98 gallons per hour. • Sensor/Dosing Control Panel

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Emissions

- Guaranteed Emissions for EPA Tier IV Compliance:
 - o NOx at 0.5 gr/bhp-hr.
 - o CO at 2.6 g/bhp-hr
 - o THC at 0.14 g/bhp-hr
 - o PM at 0.022 g/bhp-hr
- Noise is controlled. Integrated attenuation is 35-45 dBA.
- Warranty = 24 months after startup or 27 months after delivery, whichever is sooner.

Documents Included

<i>Description</i>	<i>Drawing / Document No.</i>
SCR System	727821_00
SCR Assembly	727819_00
ADC Skid Assembly	727819_00
P&ID	727783_00
Control Panel Schematics	727020_00
Junction Panel Schematics	727796_00
Field Interconnect Schematics	727807_00

- APPROVED** ☐ No exceptions or comments noted.
- APPROVED** ☐ Requested changes noted in red ink.
- RESUBMIT** ☐ Unacceptable as submitted. Make requested changes and resubmit.

Please review and return
to: Cal Fadness

cfadness@catalyticcombustion.com

Date

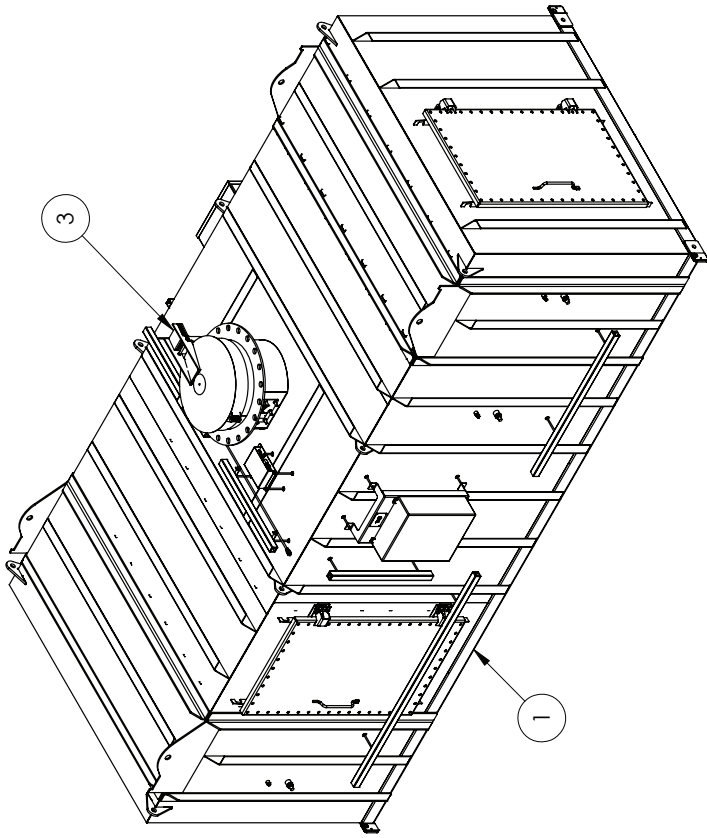
Signature

Company

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ITEM NO.	DRAWING NUMBER	REVISION	VISUAL P/N	DESCRIPTION	WEIGHT	QTY.
1	727692	00	1050357	SCR ASSEMBLY 33215-138-X0PFS1-118FB122FT-SB0-01	9422.94	1
2	727819	00	1050360	ADC SKID ASYM SYM STEADY-A1DX-0300P5H00-C1-01	843.63	1
3	725071	A	1049351	RAIN CAP RCF-22BS	34.49	1



REV.	ECN	TIER	DESCRIPTION		DATE	APPROVED BY
00	N/A	2	CREATED		09/14/2025	KHAILE
UNLESS OTHERWISE SPECIFIED:			NAME		DATE	CATALYTIC COMBUSTION
			DRAWN		09/16/2025	
DIMENSIONS ARE IN INCHES			MATERIAL:			
TOLERANCES:						
ANGULAR: FABRICATED $\pm 1.0^\circ$						
MACHINED $\pm 0.5^\circ$						
ONE PLACE DECIMAL ± 0.06						
TWO PLACE DECIMAL ± 0.006						
THREE PLACE DECIMAL ± 0.000						
LOCAL DIMENSIONS IN (MM)			DESCRIPTION: SCR SYSTEM 33215-138-X1PFS1- 118FB122FT-SB0-30E0-01			
REMOVE ALL BURRS AND BREAK SHARP EDGES			SIZE		DRAWING NO.	REV
THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF CATALYTIC COMBUSTION CORP. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CATALYTIC COMBUSTION CORPORATION IS STRICTLY PROHIBITED.			B		727821	00
			1050359			
DO NOT SCALE DRAWING			SCALE: 1/8"		WT: 10301.07	
					SHEET 1 OF 1	



Appendix AQ3

Air Quality Impact Modeling and Support Data

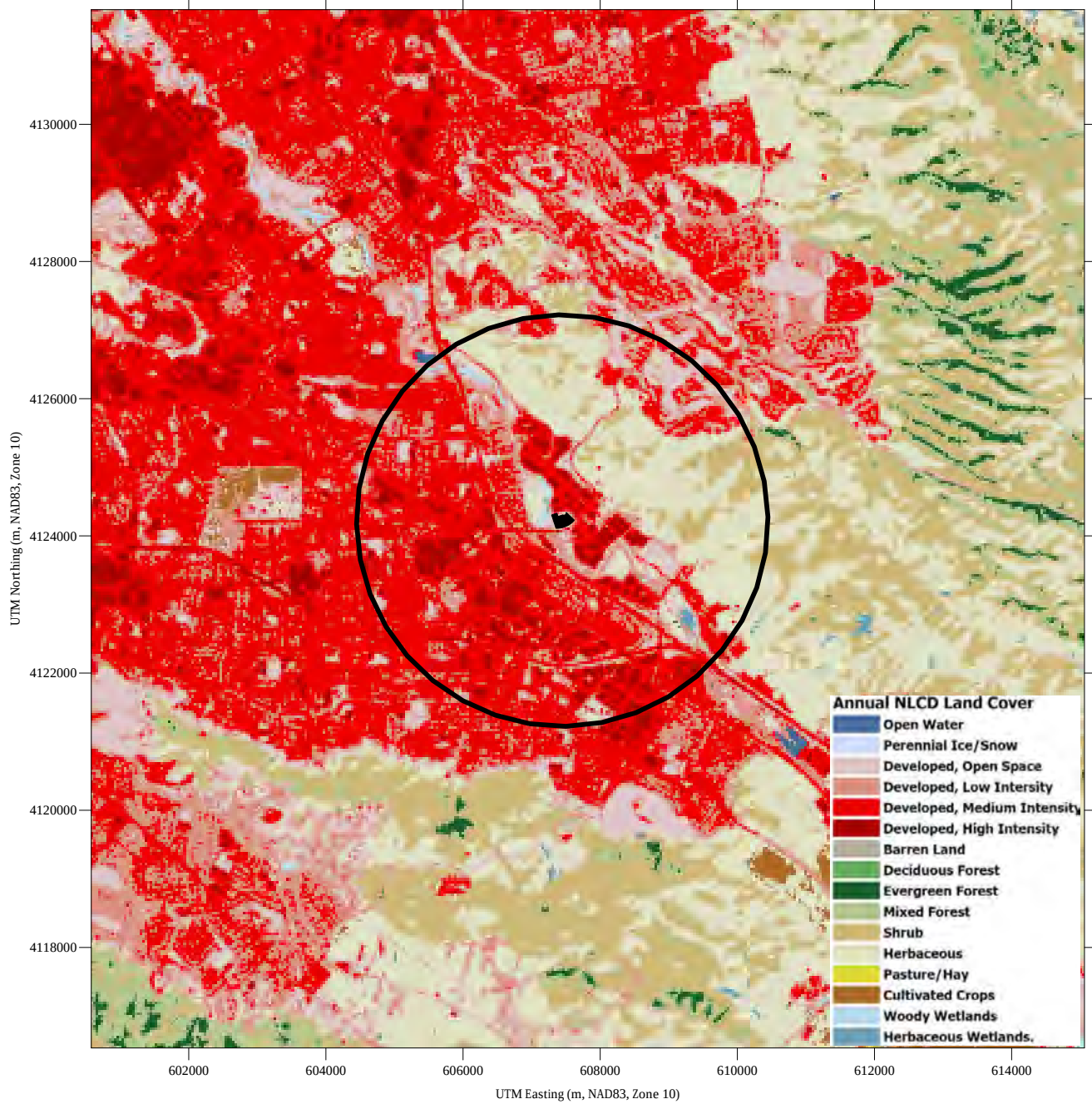


Figure: AQ3-1
Silver Creek Land Use
Categories within 3 km
NLCD 2024



Figure AQ3-2: Silver Creek Building and Stack Locations

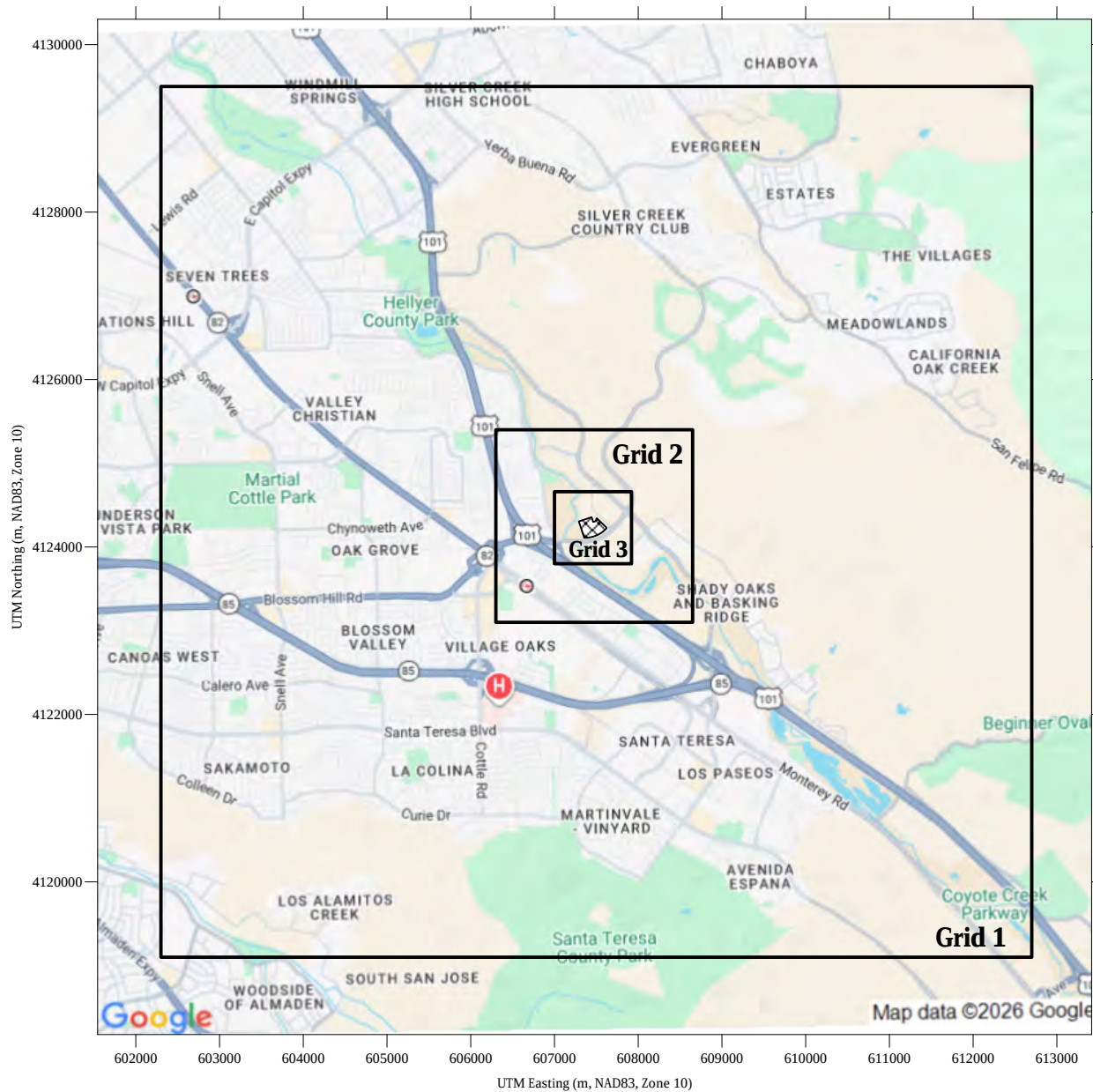


Figure AQ3-3: Silver Creek Receptor Grids
 Grid 1: 5000 m Extent, 200 m Spacing
 Grid 2: 1000 m Extent, 50 m Spacing
 Grid 3: 300 m Extent, 20 m Spacing
 Boundary: 10 m Spacing

Silver Creek 1-Hour NO₂ Screening

Maximum H1H						H8H Averaged Over 5 Years					
Stack	100% Load (µg/m ³)	75% Load (µg/m ³)	50% Load (µg/m ³)	25% Load (µg/m ³)	10% Load (µg/m ³)	Stack	100% Load (µg/m ³)	75% Load (µg/m ³)	50% Load (µg/m ³)	25% Load (µg/m ³)	10% Load (µg/m ³)
C1601100	216.19	174.20	138.91	100.72	74.66	C1601100	172.49	138.47	102.88	75.83	45.20
C1602100	244.90	198.45	147.64	124.02	80.94	C1602100	181.61	145.82	107.24	75.55	46.73
C1603100	249.28	201.72	157.12	124.61	80.54	C1603100	187.71	151.44	111.27	77.84	47.91
C1604100	232.81	182.62	134.68	100.57	64.21	C1604100	190.31	152.95	112.70	79.01	51.75
C1605100	227.81	180.27	135.76	98.49	60.42	C1605100	186.17	149.69	110.46	78.57	53.66
C1606100	222.29	172.99	130.83	95.87	60.70	C1606100	177.99	143.78	106.72	77.58	53.74
C1607100	216.28	170.65	130.02	98.14	60.94	C1607100	181.34	146.14	108.48	79.83	53.76
C1608100	211.31	170.20	131.60	97.81	61.78	C1608100	183.41	147.43	111.12	80.80	53.76
C1609100	215.13	172.93	131.51	97.88	63.70	C1609100	184.17	149.09	112.05	82.26	54.44
C1610100	213.55	176.57	132.00	212.00	65.29	C1610100	186.27	149.16	113.16	82.99	54.92
C1611100	216.52	174.25	130.50	96.48	64.53	C1611100	186.88	152.26	113.75	82.25	54.69
C1612100	214.31	173.41	131.87	94.73	63.84	C1612100	186.27	151.31	113.66	82.46	53.78
C1613100	216.19	178.09	132.45	95.90	63.80	C1613100	185.57	151.70	113.65	81.80	52.51
C1614100	215.96	173.94	131.25	95.68	65.90	C1614100	185.15	151.62	113.51	81.52	51.42
C1615100	230.02	184.48	136.25	103.01	70.57	C1615100	188.56	151.23	112.46	81.20	50.57
C1616100	218.50	178.68	134.57	103.62	66.85	C1616100	190.94	154.16	111.82	81.84	50.10
C1617100	230.04	184.65	137.18	105.66	67.14	C1617100	194.51	157.02	115.55	82.97	50.80
C1618100	234.50	189.48	140.18	103.74	65.24	C1618100	191.52	156.35	114.69	84.64	51.72
C1619100	234.39	189.13	139.83	99.71	60.10	C1619100	188.80	150.98	113.08	82.84	51.01
C1620100	221.37	179.44	133.19	97.84	61.50	C1620100	186.07	150.13	110.51	81.21	49.32
C1621100	223.31	181.12	135.62	100.23	62.37	C1621100	176.70	142.24	106.44	77.25	47.15
C1622100	220.60	178.86	133.05	101.83	65.47	C1622100	179.59	144.34	105.68	77.22	47.95
C1623100	226.95	184.35	137.71	106.31	69.07	C1623100	188.68	152.06	111.78	79.49	49.78
C1624100	231.86	187.26	139.14	106.01	69.50	C1624100	193.37	156.96	115.66	82.04	51.70
C1625100	230.52	185.03	137.21	103.19	67.35	C1625100	193.38	157.76	115.94	82.90	52.98
C1626100	224.52	183.14	137.90	100.30	63.32	C1626100	188.95	154.64	115.40	83.67	53.10
C1627100	215.65	177.00	133.27	97.44	61.37	C1627100	181.24	148.52	111.82	81.60	53.37
C1628100	215.10	174.10	128.47	95.07	62.85	C1628100	185.55	150.39	113.53	82.85	54.43
C1629100	216.57	175.94	130.46	96.02	64.64	C1629100	187.99	153.55	115.05	83.76	54.97
C1630100	222.84	178.40	131.74	97.43	65.35	C1630100	189.77	155.02	116.59	84.73	54.87
C1631100	222.28	178.65	133.68	98.38	64.57	C1631100	192.23	156.22	117.82	85.44	54.21
C1632100	223.35	181.60	135.81	98.95	63.61	C1632100	193.80	157.82	119.03	86.30	52.72
C1633100	225.13	178.78	136.55	98.55	62.94	C1633100	194.40	159.30	119.57	86.67	52.02
C1634100	223.61	181.87	135.22	98.16	63.08	C1634100	194.29	159.15	119.29	86.76	50.99
C1635100	222.59	180.22	136.84	97.05	63.04	C1635100	195.19	158.95	118.79	86.45	50.52
C1636100	222.06	179.16	135.03	97.62	66.62	C1636100	193.28	158.33	118.45	86.15	49.98
C1637100	229.78	178.13	133.05	100.98	63.53	C1637100	191.30	156.25	117.96	85.48	49.58
C1638100	235.99	187.39	140.42	104.00	64.83	C1638100	191.63	153.88	116.04	84.76	49.90
C1639100	241.31	197.18	145.13	104.58	63.25	C1639100	193.63	156.99	116.23	84.08	51.21
C1640100	238.03	191.91	142.43	101.87	63.99	C1640100	193.65	155.77	115.42	84.00	50.91
C1641100	229.32	184.75	139.08	100.46	66.59	C1641100	187.11	152.68	114.12	82.28	49.42
C1642100	230.67	184.41	139.52	102.58	65.62	C1642100	179.45	146.43	109.36	79.21	47.51
C1201100	143.06	118.48	91.58	67.33	43.08	C1201100	122.32	101.21	79.06	56.76	35.44
C1202100	145.28	119.94	94.42	66.07	45.45	C1202100	127.56	103.71	80.42	55.49	36.10

Appendix AQ4

Construction and Miscellaneous Operations Emissions and Support Data



Figure AQ4-1 : Silver Creek Construction Modeling
 Red Points = Construction Stacks
 Cyan Points = Receptor Locations
 Green Hashed Area = Fugitive Area Source
 Yellow Line = Property Boundary

Table AQ4-1 Data Center Construction Input Data for CalEEMod										
See Important Input notes at bottom!										
	Project Name:	Prologis Silver Creek	Construction Emissions Input Data					Total sf of buildings to be demolished		0
	Total Project Area, acres	15.13		Parking garage ft^2		0	Asphalt demolished/hailed, tons			
	Area to be disturbed during construction, acres	15.13		Parking garage # of spaces		0	Septic or Sewer ?		Sewer	
				Parking lot, streets, etc. ft^2		148000	Electric Utility ?		PG&E	
	Data Center , ft^2	516000	3 story bldg	Parking lot # of spaces		71	Water Agency ?		SCVWD	
	Each Bldg Floor, ft^2	172000		Construction Schedule, Hrs/day		10	Average construction days per month		25	
	Gen Yard, ft^2	~48000	Non-enclosed area	Days per week	6	Weeks per year	52	Anticipated start date of construction		1/1/2027
	Other, ft^2	235739	Landscaping	Construction period, total months		16	Facility Ops start year		2029	
Qty	Description	HP**	CARB Load Factor	Hours/day, see labor note	Total Onsite Days	Avg. Hours per day	Hours per Phase	HP/Hrs per Phase	Comments	Input Values
Demolition		Start Date:		Wrk Days/phase:						
		End Date:		0					Overall Import/Export Volumes	
0	Concrete/Industrial Saws	33	0.73	8	0	#DIV/0!	#DIV/0!	#DIV/0!	Demolition Volume	
0	Excavators	36	0.38	8	0	#DIV/0!	#DIV/0!	#DIV/0!	Square footage of buildings to be demolished	
0	Rubber-Tired Dozers	367	0.4	8	0	#DIV/0!	#DIV/0!	#DIV/0!	(or total tons to be hauled)	
0	Tractors/Loaders/Backhoes	84	0.37	8	0	#DIV/0!	#DIV/0!	#DIV/0!	Existing buildings, square feet or	
0	Rubber-Tired Loaders	150	0.36	8	0	#DIV/0!	#DIV/0!	#DIV/0!	Hauling volume (tons)	
0	Water truck	82	0.38	8	0	#DIV/0!	#DIV/0!	#DIV/0!		
									Any pavement demolished and hauled? tons	
Site Cleanup/Preparation		Start Date:	1/1/2027	Wrk Days/phase:						
		End Date:	2/1/2027	27						
2	Graders	148	0.41	8	15	4.4	67	19,733	Soil Hauling Volume	
1	Rubber Tired Dozers	367	0.4	8	20	5.9	119	43,496	Export volume = 0 cubic yards	
3	Tractors/Loaders/Backhoes	84	0.37	8	15	4.4	67	16,800	Import volume = 0 cubic yards	
1	Rubber -Tired Loaders	150	0.36	8	20	5.9	119	17,778		
1	Water truck	82	0.38	8	26	7.7	200.296	16,424		
Grading /Trenching/Foundations		Start Date:	2/1/2027	Wrk Days/phase:						
	(includes offsite trenching for linears)	End Date:	4/30/2027	76						
1	Scrapers	423	0.48	8	30	3.2	95	40,074	Soil Hauling Volume	
1	Rollers	36	0.38	8	40	4.2	168	6,063	Cut, yd3	16400
2	Graders	148	0.41	8	30	3.2	95	28,042	Fill, yd3	21500
1	Rubber Tired Loaders	150	0.36	8	50	5.3	263	39,474	Spoils, yd3	4000
4	Tractors/Loaders/Backhoes	84	0.37	8	25	2.6	66	22,105	Import, yd3	1100
1	Sweepers/Scrubbbers	36	0.46	8	65	6.8	445	16,011	Cut and Fill Balanced except for Import	
2	Excavators	36	0.38	8	30	3.2	95	6,821	at 20 yd3/truck = 55 loads	
1	Concrete pump	11	0.74	8	50	5.3	263	2,895	Concrete Trucks, Total yd^3 required	11200
1	Water truck	82	0.38	8	74	7.8	576	47,267	at 10 yd3/load Loads =	1120

Building Construction		Start Date:	5/1/2027	Wrk Days/phase:						
	Exterior and Interior	End Date:	3/31/2028	288						
2	Cranes	367	0.29	8	130	3.6	469	344,572		
6	Forklifts	82	0.2	8	200	5.6	1111	546,667		
4	Welders	46	0.45	8	175	4.9	851	156,528		
1	Concrete pump	11	0.74	8	80	2.2	178	1,956	Cement Trucks, Total yd^3 required	
8	Aerial Lift	46	0.31	8	100	2.8	278	102,222	See Applicant data above per ADI 3/2026	
1	Water truck	82	0.38	8	270	7.5	2025	166,050		
Paving Sitework		Start Date:	3/1/2028	Wrk Days/phase:						
		End Date:	4/30/2028	52						
1	Surfacing Equipment	399	0.3	8	30	4.6	138	55,246	Asphalt, total yd^3 required	1200
2	Pavers	81	0.42	8	35	5.4	188	30,531	Applicant data per ADI 3/2026	
1	Paving Equipment	89	0.36	8	35	5.4	188	16,773	at 20 yd3/truck =~ 60 loads	
2	Rollers	36	0.38	8	35	5.4	188	13,569		
0	Tractors/Loaders/Backhoes	84	0.37	8	0	0.0	0	-		
Architectural Coating		Start Date:	1/1/2028	Wrk Days/phase:						
		End Date:	3/1/2028	52						
3	Compressors	37	0.48	8	45	6.9	311.5	34,581	Low VOC coatings used on Exterior ?	Yes
1	Aerial Lifts	46	0.31	8	40	6.2	246.2	11,323	Low VOC coatings used on Interior?	Yes
0		0	0.00	8	0	0.0	0.0	-		
It is assumed that water trucks would be used during the following phases:				Add or subtract phases, equipment, HP, load factors as appropriate.						
Demolition and site prep, grading/trenching/foundations at 2X per day.										
Building construction at 2X per day.				Labor Note:						
Paving at 1X day.			Assuming union labor							
		Total Daily work schedule, hours:		10						
		Hours for lunch:		1						
		AM break, hours:		0.25						
		PM break, hours:		0.25						
		Equip maintenance, refueling, etc.		0.5						
		Resulting work period:		8						
***** Not all equipment listed per individual phase will be on-site each day. Equipment will be brought and removed from site on an as-needed basis. *****										
***** Parking lots, internal access areas to be paved with asphalt.						** Revised diesel equipment HP values from CalEEMod 2022.1, App G-12.				
Notes:						Other Misc Ops Data for CalEEMod Input (Final Buildout Ops)				
1. Equipment types by phase derived from: (1) CalEEMod, SCAQMD Const Survey, App E-1, 2020, OR						1. Power needs ~99 MW/hr PG&E Carbon Intensity Factor= 206 lbs CO2e/Mwh = 0.0934 MT CO2e/MWh				
(2) CalEEMod Tables 3.2, App D, 2020, OR (3) Applicant supplied data.						2. Reclaimed water use for bldg cooling ~ None				
2. Avg daily work hours are the total daily site hours minus labor lunch and rest breaks as well as equipment service and fueling time (typically a total of 2 hours per day). Example: 10 hour site day - 2 hours = 8 daily work hours						3. Potable water use for bldg employees ~6400 gals/yr/employee =~ 288,000 gals/yr = 0.884 acre/ft/yr. CBECS (2012), Table W1, EIA.gov				
3. Watering for fugitive dust control at a minimum of 2 times per day						4. Waste generation rates ~ 1.15 ton/yr/employee =~ 52 tons/yr				
4. Onsite speed will be limited to <=15 mph						5. OPs round trips/day: Employees = 45, Visitors = 12, Deliveries = 3				
5. Const phase will be serviced by only offsite paved roads						Estimated OPs total round trips/day = (45 x 1.25)+12+3= 71				
6. Trench construction times per: Southern Regional Water Pipeline Alliance, 3/08.						6. Landscaping water use is estimated by landscape engineer (Yamasaki) = 6.83 acre/ft/yr (reclaimed water only)				
Optimum trench construction progress rate is 80m (260ft) per day.						USDOE-FEMP-PNNL-19498, Table 3, July 2010 (San Francisco turf grass water use.)				
Non-optimum trench construction progress rate is 30m (100 ft) per day.						7. Ops phase will be serviced by only offsite paved roads				
An average progress of 180 ft/day is used where applicable, or the applicant supplied timeframe.						8. ~Total Bldg floor space = 516000 sq.ft. or 516 x10^3				
7. Phase start and end dates supplied by the Applicant.						71 avg daily round trips				
8. CalEEMod defaults used for worker estimates: No, see manpower data supplied by Applicant.						=~ 0.138 RT/day/1000 sq.ft.				
9. Avg month work days = 25										
10. Work schedule best estimates above results in ~416 work days (accounting for overlaps of schedules).										
11. Avg month daily workforce =~ 100, Peak month 150.										
12. Offsite soil hauling at 30 mi per RT.										

Prologis Silver Creek

CalEEMod Construction and Miscellaneous Operations Emissions Notes

Note 1- CalEEMod listing as “Unmitigated”

The emissions presented in the CalEEMOD output presented in Table AQ4-1 are “Mitigated” emissions, not Unmitigated as noted on the output pages, based on the following:

- a. All onsite construction equipment was specified as “Tier 4 Final” on the equipment listing pages for each phase.
- b. Fugitive dust emissions control from onsite construction were specified as; (1) watering twice daily for a control percentage of 61%, and (2) speed control onsite limited to 15 mph.
- c. All on and offsite construction and operations vehicles, i.e., employee vehicles, vendor vehicles, and hauling vehicles, emissions are based on the current year emissions factors as incorporated into the CalEEMod model and are therefore in compliance with state vehicle exhaust standards (based upon the current vehicle mix).
- d. Low VOC coatings were specified for all interior and exterior architectural coatings to be used on the project site.

Prologis Silver Creek DC Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Prologis Silver Creek DC
Construction Start Date	1/1/2027
Operational Year	2029
Lead Agency	CEC
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40000
Precipitation (days)	12.4000
Location	37.25849735869528, -121.7875103328772
County	Santa Clara
City	San Jose
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	6702
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.41

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	659.063	1000sqft	15.1300	516,000	235,739	—	—	Data Center

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.66565	0.62105	5.83588	21.3103	0.02855	0.07119	0.86188	0.92128	0.06995	0.20350	0.26239	3,759.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	117.902	117.841	10.3362	36.5212	0.05372	0.12397	1.24937	1.34696	0.12273	0.29498	0.39071	6,485.82
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.8426	16.8305	4.27053	17.0805	0.02414	0.05291	0.67811	0.73102	0.05235	0.15185	0.20420	3,075.51
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.07377	3.07156	0.77937	3.11719	0.00441	0.00966	0.12376	0.13341	0.00955	0.02771	0.03727	509.186

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.66565	0.62105	5.83588	21.3103	0.02855	0.07119	0.86188	0.92128	0.06995	0.20350	0.26239	3,759.60

2028	0.38335	0.37508	1.59324	9.58834	0.01370	0.02776	0.17378	0.20154	0.02753	0.04109	0.06862	1,658.68
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.84470	0.78152	5.88046	36.5212	0.05372	0.12397	1.05816	1.18212	0.12273	0.21021	0.33294	6,485.82
2028	117.902	117.841	10.3362	34.9440	0.04944	0.09759	1.24937	1.34696	0.09574	0.29498	0.39071	6,121.28
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.50327	0.46575	4.27053	17.0805	0.02414	0.05291	0.67811	0.73102	0.05235	0.15185	0.20420	3,075.51
2028	16.8426	16.8305	1.88152	6.43929	0.00908	0.01813	0.23749	0.25563	0.01777	0.05605	0.07381	1,136.73
Annual	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.09185	0.08500	0.77937	3.11719	0.00441	0.00966	0.12376	0.13341	0.00955	0.02771	0.03727	509.186
2028	3.07377	3.07156	0.34338	1.17517	0.00166	0.00331	0.04334	0.04665	0.00324	0.01023	0.01347	188.199

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.34453	0.33987	5.46879	17.6667	0.02762	0.06438	0.34823	0.41260	0.06314	0.03835	0.10150	2,785.32
2028	0.32089	0.32089	1.52112	8.89998	0.01347	0.02731	0.00000	0.02731	0.02731	0.00000	0.02731	1,463.70
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.59120	0.57998	5.46879	34.0960	0.05029	0.11716	0.34823	0.46539	0.11592	0.03835	0.15428	5,436.45
2028	117.467	117.462	9.75477	30.6889	0.04811	0.09492	0.00000	0.09492	0.09441	0.00000	0.09441	4,826.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.28589	0.28088	3.88676	14.9241	0.02290	0.05042	0.07251	0.12293	0.04987	0.00799	0.05786	2,357.65
2028	16.7595	16.7585	1.77928	5.63056	0.00882	0.01762	0.00000	0.01762	0.01751	0.00000	0.01751	885.986
Annual	—	—	—	—	—	—	—	—	—	—	—	—

2027	0.05218	0.05126	0.70933	2.72365	0.00418	0.00920	0.01323	0.02243	0.00910	0.00146	0.01056	390.336
2028	3.05861	3.05843	0.32472	1.02758	0.00161	0.00322	0.00000	0.00322	0.00320	0.00000	0.00320	146.685

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.32113	0.28118	0.67012	3.64356	0.00343	0.00681	0.86188	0.86373	0.00681	0.20350	0.20535	974.278
2028	0.06246	0.05419	0.07212	0.68837	0.00022	0.00044	0.17378	0.17423	0.00022	0.04109	0.04131	194.983
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.31209	0.27214	0.78836	3.12007	0.00343	0.00681	0.86188	0.86373	0.00681	0.20350	0.20535	1,049.36
2028	0.43494	0.37858	0.58147	4.25510	0.00133	0.00267	1.24937	1.25204	0.00133	0.29498	0.29631	1,295.08
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.21737	0.18488	0.38376	2.15641	0.00125	0.00248	0.60561	0.60809	0.00248	0.14386	0.14635	717.859
2028	0.08304	0.07195	0.10224	0.80873	0.00026	0.00051	0.23749	0.23800	0.00026	0.05605	0.05630	250.748
Annual	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.03967	0.03374	0.07004	0.39354	0.00023	0.00045	0.11052	0.11098	0.00045	0.02625	0.02671	118.850
2028	0.01515	0.01313	0.01866	0.14759	0.00005	0.00009	0.04334	0.04344	0.00005	0.01023	0.01028	41.5142

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.5153	16.0043	3.67214	27.5404	0.02726	0.29346	0.61428	0.90774	0.28351	0.15572	0.43923	10,942.1

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.5104	12.3065	3.51591	4.91033	0.02555	0.25360	0.61428	0.86788	0.25338	0.15572	0.40910	10,811.0
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	14.4772	14.1219	3.59587	15.9311	0.02626	0.27326	0.60938	0.88264	0.26824	0.15450	0.42273	10,862.2
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.64209	2.57725	0.65625	2.90743	0.00479	0.04987	0.11121	0.16108	0.04895	0.02820	0.07715	1,798.36

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.28433	0.26239	0.19157	2.33326	0.00617	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	637.002
Area	15.8689	15.5609	0.18883	22.4420	0.00134	0.03986	—	0.03986	0.03013	—	0.03013	92.6176
Energy	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	10,103.3
Water	—	—	—	—	—	—	—	—	—	—	—	9.75964
Waste	—	—	—	—	—	—	—	—	—	—	—	99.4164
Total	16.5153	16.0043	3.67214	27.5404	0.02726	0.29346	0.61428	0.90774	0.28351	0.15572	0.43923	10,942.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.27450	0.25167	0.22417	2.14527	0.00580	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	598.527
Area	11.8738	11.8738	—	—	—	—	—	—	—	—	—	—
Energy	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	10,103.3
Water	—	—	—	—	—	—	—	—	—	—	—	9.75964
Waste	—	—	—	—	—	—	—	—	—	—	—	99.4164
Total	12.5104	12.3065	3.51591	4.91033	0.02555	0.25360	0.61428	0.86788	0.25338	0.15572	0.40910	10,811.0

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.27118	0.24882	0.21101	2.09878	0.00585	0.00343	0.60938	0.61281	0.00320	0.15450	0.15770	604.068
Area	13.8439	13.6921	0.09312	11.0673	0.00066	0.01966	—	0.01966	0.01486	—	0.01486	45.6744
Energy	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	10,103.3
Water	—	—	—	—	—	—	—	—	—	—	—	9.75964
Waste	—	—	—	—	—	—	—	—	—	—	—	99.4164
Total	14.4772	14.1219	3.59587	15.9311	0.02626	0.27326	0.60938	0.88264	0.26824	0.15450	0.42273	10,862.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04949	0.04541	0.03851	0.38303	0.00107	0.00063	0.11121	0.11184	0.00058	0.02820	0.02878	100.010
Area	2.52652	2.49880	0.01699	2.01978	0.00012	0.00359	—	0.00359	0.00271	—	0.00271	7.56192
Energy	0.06608	0.03304	0.60074	0.50462	0.00360	0.04566	—	0.04566	0.04566	—	0.04566	1,672.71
Water	—	—	—	—	—	—	—	—	—	—	—	1.61582
Waste	—	—	—	—	—	—	—	—	—	—	—	16.4595
Total	2.64209	2.57725	0.65625	2.90743	0.00479	0.04987	0.11121	0.16108	0.04895	0.02820	0.07715	1,798.36

3. Construction Emissions Details

3.1. Site Preparation (2027)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26391	0.26391	1.37233	17.4289	0.02583	0.05278	—	0.05278	0.05278	—	0.05278	2,807.05

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01952	0.01952	0.10151	1.28926	0.00191	0.00390	—	0.00390	0.00390	—	0.00390	207.645
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00356	0.00356	0.01853	0.23529	0.00035	0.00071	—	0.00071	0.00071	—	0.00071	34.3780
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09021	0.08049	0.07401	0.91212	0.00000	0.00000	0.24799	0.24799	0.00000	0.05813	0.05813	232.473
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00658	0.00586	0.00538	0.06683	0.00000	0.00000	0.01820	0.01820	0.00000	0.00426	0.00426	17.4066
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00120	0.00107	0.00098	0.01220	0.00000	0.00000	0.00332	0.00332	0.00000	0.00078	0.00078	2.88186
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Grading (2027)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32730	0.31607	3.06803	16.6671	0.02446	0.06438	—	0.06438	0.06314	—	0.06314	2,629.40
Dust From Material Movement	—	—	—	—	—	—	0.34823	0.34823	—	0.03835	0.03835	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32730	0.31607	3.06803	16.6671	0.02446	0.06438	—	0.06438	0.06314	—	0.06314	2,629.40
Dust From Material Movement	—	—	—	—	—	—	0.34823	0.34823	—	0.03835	0.03835	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06815	0.06581	0.63882	3.47041	0.00509	0.01340	—	0.01340	0.01315	—	0.01315	547.491
Dust From Material Movement	—	—	—	—	—	—	0.07251	0.07251	—	0.00799	0.00799	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01244	0.01201	0.11659	0.63335	0.00093	0.00245	—	0.00245	0.00240	—	0.00240	90.6434

Dust From Material Movement	—	—	—	—	—	—	0.01323	0.01323	—	0.00146	0.00146	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12381	0.11085	0.08395	1.42639	0.00000	0.00000	0.33066	0.33066	0.00000	0.07751	0.07751	335.281
Vendor	0.03711	0.01298	0.50308	0.24826	0.00296	0.00593	0.11274	0.11866	0.00593	0.03115	0.03707	435.442
Hauling	0.00668	0.00152	0.08309	0.04162	0.00046	0.00088	0.01854	0.01942	0.00088	0.00508	0.00596	72.0998
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12028	0.10732	0.09868	1.21616	0.00000	0.00000	0.33066	0.33066	0.00000	0.07751	0.07751	309.964
Vendor	0.03640	0.01228	0.52791	0.25496	0.00296	0.00593	0.11274	0.11866	0.00593	0.03115	0.03707	434.929
Hauling	0.00659	0.00146	0.08777	0.04195	0.00046	0.00088	0.01854	0.01942	0.00088	0.00508	0.00596	71.9979
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02468	0.02198	0.02018	0.25080	0.00000	0.00000	0.06830	0.06830	0.00000	0.01600	0.01600	65.3285
Vendor	0.00765	0.00263	0.10781	0.05235	0.00062	0.00123	0.02332	0.02455	0.00123	0.00645	0.00768	90.6057
Hauling	0.00138	0.00031	0.01791	0.00869	0.00010	0.00018	0.00384	0.00402	0.00018	0.00105	0.00123	14.9992
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00450	0.00401	0.00368	0.04577	0.00000	0.00000	0.01247	0.01247	0.00000	0.00292	0.00292	10.8159
Vendor	0.00140	0.00048	0.01967	0.00955	0.00011	0.00023	0.00426	0.00448	0.00023	0.00118	0.00140	15.0008
Hauling	0.00025	0.00006	0.00327	0.00159	0.00002	0.00003	0.00070	0.00073	0.00003	0.00019	0.00023	2.48329

3.3. Building Construction (2027)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34453	0.33987	5.46879	17.6667	0.02762	0.05755	—	0.05755	0.05704	—	0.05704	2,785.32
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34453	0.33987	5.46879	17.6667	0.02762	0.05755	—	0.05755	0.05704	—	0.05704	2,785.32
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19822	0.19554	3.14643	10.1644	0.01589	0.03311	—	0.03311	0.03282	—	0.03282	1,602.51
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03618	0.03569	0.57422	1.85501	0.00290	0.00604	—	0.00604	0.00599	—	0.00599	265.315
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30953	0.27712	0.20988	3.56598	0.00000	0.00000	0.82665	0.82665	0.00000	0.19377	0.19377	838.203

Vendor	0.01160	0.00406	0.15721	0.07758	0.00093	0.00185	0.03523	0.03708	0.00185	0.00973	0.01159	136.075
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30071	0.26830	0.24670	3.04040	0.00000	0.00000	0.82665	0.82665	0.00000	0.19377	0.19377	774.909
Vendor	0.01138	0.00384	0.16497	0.07968	0.00093	0.00185	0.03523	0.03708	0.00185	0.00973	0.01159	135.915
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17047	0.15183	0.13940	1.73253	0.00000	0.00000	0.47182	0.47182	0.00000	0.11053	0.11053	451.282
Vendor	0.00661	0.00227	0.09309	0.04521	0.00053	0.00107	0.02013	0.02120	0.00107	0.00557	0.00663	78.2368
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03111	0.02771	0.02544	0.31619	0.00000	0.00000	0.08611	0.08611	0.00000	0.02017	0.02017	74.7149
Vendor	0.00121	0.00041	0.01699	0.00825	0.00010	0.00019	0.00367	0.00387	0.00019	0.00102	0.00121	12.9530
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Building Construction (2028)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34453	0.33987	5.46879	17.6667	0.02762	0.05755	—	0.05755	0.05704	—	0.05704	2,785.49
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07363	0.07263	1.16867	3.77535	0.00590	0.01230	—	0.01230	0.01219	—	0.01219	595.255
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01344	0.01325	0.21328	0.68900	0.00108	0.00224	—	0.00224	0.00222	—	0.00222	98.5513
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28969	0.25728	0.24449	2.85851	0.00000	0.00000	0.82665	0.82665	0.00000	0.19377	0.19377	761.626
Vendor	0.01034	0.00384	0.15761	0.07657	0.00093	0.00185	0.03523	0.03708	0.00093	0.00973	0.01066	132.447
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06143	0.05451	0.04579	0.60605	0.00000	0.00000	0.17525	0.17525	0.00000	0.04106	0.04106	164.721
Vendor	0.00245	0.00084	0.03303	0.01613	0.00020	0.00040	0.00748	0.00787	0.00020	0.00207	0.00227	28.3073
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01121	0.00995	0.00836	0.11061	0.00000	0.00000	0.03198	0.03198	0.00000	0.00749	0.00749	27.2714
Vendor	0.00045	0.00015	0.00603	0.00294	0.00004	0.00007	0.00136	0.00144	0.00004	0.00038	0.00041	4.68660
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Paving (2028)

3.5.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14958	0.14958	1.52112	8.89998	0.01347	0.02731	—	0.02731	0.02731	—	0.02731	1,463.70
Paving	0.17131	0.17131	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14958	0.14958	1.52112	8.89998	0.01347	0.02731	—	0.02731	0.02731	—	0.02731	1,463.70
Paving	0.17131	0.17131	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02131	0.02131	0.21671	1.26794	0.00192	0.00389	—	0.00389	0.00389	—	0.00389	208.527
Paving	0.02441	0.02441	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00389	0.00389	0.03955	0.23140	0.00035	0.00071	—	0.00071	0.00071	—	0.00071	34.5241
Paving	0.00445	0.00445	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05970	0.05322	0.03638	0.67047	0.00000	0.00000	0.16533	0.16533	0.00000	0.03875	0.03875	163.167
Vendor	0.00276	0.00097	0.03574	0.01790	0.00022	0.00044	0.00846	0.00890	0.00022	0.00234	0.00256	31.8165
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05794	0.05146	0.04890	0.57170	0.00000	0.00000	0.16533	0.16533	0.00000	0.03875	0.03875	152.325
Vendor	0.00248	0.00092	0.03783	0.01838	0.00022	0.00044	0.00846	0.00890	0.00022	0.00234	0.00256	31.7874
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00819	0.00727	0.00611	0.08081	0.00000	0.00000	0.02337	0.02337	0.00000	0.00547	0.00547	21.9628
Vendor	0.00039	0.00013	0.00528	0.00258	0.00003	0.00006	0.00120	0.00126	0.00003	0.00033	0.00036	4.52917
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00149	0.00133	0.00111	0.01475	0.00000	0.00000	0.00426	0.00426	0.00000	0.00100	0.00100	3.63619
Vendor	0.00007	0.00002	0.00096	0.00047	0.00001	0.00001	0.00022	0.00023	0.00001	0.00006	0.00007	0.74986
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Architectural Coating (2028)

3.6.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09049	0.09049	2.76486	4.12216	0.00701	0.01005	—	0.01005	0.01005	—	0.01005	577.003
Architectural Coatings	116.711	116.711	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01289	0.01289	0.39390	0.58727	0.00100	0.00143	—	0.00143	0.00143	—	0.00143	82.2032
Architectural Coatings	16.6273	16.6273	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00235	0.00235	0.07189	0.10718	0.00018	0.00026	—	0.00026	0.00026	—	0.00026	13.6097
Architectural Coatings	3.03448	3.03448	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07242	0.06432	0.06112	0.71463	0.00000	0.00000	0.20666	0.20666	0.00000	0.04844	0.04844	190.407
Vendor	0.00207	0.00077	0.03152	0.01531	0.00019	0.00037	0.00705	0.00742	0.00019	0.00195	0.00213	26.4895
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01024	0.00908	0.00763	0.10101	0.00000	0.00000	0.02921	0.02921	0.00000	0.00684	0.00684	27.4535
Vendor	0.00033	0.00011	0.00440	0.00215	0.00003	0.00005	0.00100	0.00105	0.00003	0.00028	0.00030	3.77431
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00187	0.00166	0.00139	0.01843	0.00000	0.00000	0.00533	0.00533	0.00000	0.00125	0.00125	4.54524
Vendor	0.00006	0.00002	0.00080	0.00039	< 0.000005	0.00001	0.00018	0.00019	< 0.000005	0.00005	0.00006	0.62488
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.28433	0.26239	0.19157	2.33326	0.00617	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	637.002
Total	0.28433	0.26239	0.19157	2.33326	0.00617	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	637.002
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.27450	0.25167	0.22417	2.14527	0.00580	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	598.527
Total	0.27450	0.25167	0.22417	2.14527	0.00580	0.00343	0.61428	0.61771	0.00320	0.15572	0.15892	598.527
Annual	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.04949	0.04541	0.03851	0.38303	0.00107	0.00063	0.11121	0.11184	0.00058	0.02820	0.02878	100.010
Total	0.04949	0.04541	0.03851	0.38303	0.00107	0.00063	0.11121	0.11184	0.00058	0.02820	0.02878	100.010

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	6,164.77
Total	—	—	—	—	—	—	—	—	—	—	—	6,164.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	6,164.77
Total	—	—	—	—	—	—	—	—	—	—	—	6,164.77
Annual	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1,020.65
Total	—	—	—	—	—	—	—	—	—	—	—	1,020.65

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	3,938.49
Total	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	3,938.49
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	3,938.49
Total	0.36209	0.18105	3.29174	2.76506	0.01975	0.25017	—	0.25017	0.25017	—	0.25017	3,938.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.06608	0.03304	0.60074	0.50462	0.00360	0.04566	—	0.04566	0.04566	—	0.04566	652.062
Total	0.06608	0.03304	0.60074	0.50462	0.00360	0.04566	—	0.04566	0.04566	—	0.04566	652.062

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	11.0424	11.0424	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.83136	0.83136	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	3.99510	3.68709	0.18883	22.4420	0.00134	0.03986	—	0.03986	0.03013	—	0.03013	92.6176
Total	15.8689	15.5609	0.18883	22.4420	0.00134	0.03986	—	0.03986	0.03013	—	0.03013	92.6176

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	11.0424	11.0424	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.83136	0.83136	—	—	—	—	—	—	—	—	—	—
Total	11.8738	11.8738	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.01524	2.01524	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.15172	0.15172	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.35956	0.33184	0.01699	2.01978	0.00012	0.00359	—	0.00359	0.00271	—	0.00271	7.56192
Total	2.52652	2.49880	0.01699	2.01978	0.00012	0.00359	—	0.00359	0.00271	—	0.00271	7.56192

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	9.75964
Total	—	—	—	—	—	—	—	—	—	—	—	9.75964
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	9.75964

Total	—	—	—	—	—	—	—	—	—	—	—	9.75964
Annual	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.61582
Total	—	—	—	—	—	—	—	—	—	—	—	1.61582

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	99.4164
Total	—	—	—	—	—	—	—	—	—	—	—	99.4164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	99.4164
Total	—	—	—	—	—	—	—	—	—	—	—	99.4164
Annual	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	16.4595
Total	—	—	—	—	—	—	—	—	—	—	—	16.4595

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2027	2/1/2027	6.00000	27.0000	Site Prep/Cleanup
Grading	Grading	2/1/2027	4/30/2027	6.00000	76.0000	Grading/Trenching/ Foundations
Building Construction	Building Construction	5/1/2027	3/31/2028	6.00000	288.000	DC Bldg/Substation etc.
Paving	Paving	3/1/2028	4/30/2028	6.00000	52.0000	Paving-Asphalt
Architectural Coating	Architectural Coating	1/1/2028	3/1/2028	6.00000	52.0000	Arch Coating

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.000000	5.90000	367.000	0.40000
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	3.00000	4.40000	84.0000	0.37000
Site Preparation	Graders	Diesel	Tier 4 Final	2.00000	4.40000	148.000	0.41000
Site Preparation	Rubber Tired Loaders	Diesel	Tier 4 Final	1.000000	5.90000	150.000	0.36000
Site Preparation	Other Construction Equipment	Diesel	Tier 4 Final	1.000000	7.70000	82.0000	0.42000
Grading	Excavators	Diesel	Tier 4 Final	2.00000	3.20000	36.0000	0.38000
Grading	Graders	Diesel	Tier 4 Final	2.00000	3.20000	148.000	0.41000
Grading	Scrapers	Diesel	Tier 4 Final	1.000000	3.20000	423.000	0.48000
Grading	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	4.00000	2.60000	84.0000	0.37000
Grading	Rollers	Diesel	Tier 4 Final	1.000000	4.20000	36.0000	0.38000
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.000000	5.30000	150.000	0.36000

Grading	Sweepers/Scrubbers	Diesel	Tier 4 Final	1.000000	6.80000	36.0000	0.46000
Grading	Pumps	Diesel	Tier 4 Final	1.000000	5.30000	11.0000	0.74000
Grading	Other Construction Equipment	Diesel	Tier 4 Final	1.000000	7.80000	82.0000	0.42000
Building Construction	Cranes	Diesel	Tier 4 Final	2.00000	3.60000	367.000	0.29000
Building Construction	Forklifts	Diesel	Tier 4 Final	6.00000	5.60000	82.0000	0.20000
Building Construction	Welders	Diesel	Tier 4 Final	4.00000	4.90000	46.0000	0.45000
Building Construction	Pumps	Diesel	Tier 4 Final	1.000000	2.20000	11.0000	0.74000
Building Construction	Aerial Lifts	Diesel	Tier 4 Final	8.00000	2.80000	46.0000	0.31000
Building Construction	Other Construction Equipment	Diesel	Tier 4 Final	1.000000	7.50000	82.0000	0.42000
Paving	Pavers	Diesel	Tier 4 Final	2.00000	5.40000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Tier 4 Final	1.000000	5.40000	89.0000	0.36000
Paving	Rollers	Diesel	Tier 4 Final	2.00000	5.40000	36.0000	0.38000
Paving	Surfacing Equipment	Diesel	Tier 4 Final	1.000000	4.60000	399.000	0.30000
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	3.00000	6.90000	37.0000	0.48000
Architectural Coating	Aerial Lifts	Diesel	Tier 4 Final	1.000000	6.20000	46.0000	0.31000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	30.0000	11.7000	LDA,LDT1,LDT2
Site Preparation	Vendor	0.00000	8.40000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	40.0000	11.7000	LDA,LDT1,LDT2
Grading	Vendor	16.0000	8.40000	HHDT,MHDT
Grading	Hauling	1.000000	20.0000	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	100.0000	11.7000	LDA,LDT1,LDT2
Building Construction	Vendor	5.00000	8.40000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	20.0000	11.7000	LDA,LDT1,LDT2
Paving	Vendor	1.20000	8.40000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	25.0000	11.7000	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.000000	8.40000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	774,000	258,000	148,000

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
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Grading	21,500.0	21,500.0	60.8000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	3.40000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Office Building	3.40000	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	203.983	0.03300	0.00400
2028	0.00000	203.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMt/Weekday	VMt/Saturday	VMt/Sunday	VMt/Year
General Office Building	90.9507	90.9507	90.9507	33,197.0	870.956	870.956	870.956	317,899

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	774,000	258,000	148,000

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	10,923,015	203.983	0.0330	0.0040	12,255,150

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	300,000	2,225,563

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	52.7250	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	14.6500	annual days of extreme heat
Extreme Precipitation	3.45000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	9.61000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi. Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters. Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	2	0	N/A
Sea Level Rise	1	1	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	2	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	1	1	4

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	26.6957
AQ-PM	11.9477
AQ-DPM	32.7816
Drinking Water	43.2996
Lead Risk Housing	7.98992
Pesticides	59.5862
Toxic Releases	21.6304
Traffic	84.5125
Effect Indicators	—
CleanUp Sites	84.2852
Groundwater	0.00000
Haz Waste Facilities/Generators	97.1674
Impaired Water Bodies	33.1583
Solid Waste	0.00000

Sensitive Population	—
Asthma	36.9890
Cardio-vascular	30.8574
Low Birth Weights	33.4360
Socioeconomic Factor Indicators	—
Education	25.4999
Housing	2.25602
Linguistic	30.6943
Poverty	2.91457
Unemployment	11.8688

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	93.09636854
Employed	76.78686
Median HI	96.39419992
Education	—
Bachelor's or higher	87.43744386
High school enrollment	12.44706788
Preschool enrollment	64.22430386
Transportation	—
Auto Access	92.6344155
Active commuting	50.48120108
Social	—
2-parent households	90.73527525
Voting	74.00230977

Neighborhood	—
Alcohol availability	97.0101373
Park access	47.64532273
Retail density	23.54677274
Supermarket access	16.16835622
Tree canopy	54.9980752
Housing	—
Homeownership	81.26523803
Housing habitability	87.21929937
Low-inc homeowner severe housing cost burden	60.50301553
Low-inc renter severe housing cost burden	87.9892211
Uncrowded housing	43.53907353
Health Outcomes	—
Insured adults	74.11779802
Arthritis	93.6
Asthma ER Admissions	86.4
High Blood Pressure	85.1
Cancer (excluding skin)	68.9
Asthma	95.7
Coronary Heart Disease	95.4
Chronic Obstructive Pulmonary Disease	97.2
Diagnosed Diabetes	86.4
Life Expectancy at Birth	73.4
Cognitively Disabled	94.6
Physically Disabled	97.9
Heart Attack ER Admissions	86.7
Mental Health Not Good	93.4
Chronic Kidney Disease	90.3

Obesity	91.3
Pedestrian Injuries	82.7
Physical Health Not Good	95.1
Stroke	95.7
Health Risk Behaviors	—
Binge Drinking	72.5
Current Smoker	93.7
No Leisure Time for Physical Activity	82.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	48.8
Elderly	81.3
English Speaking	55.0
Foreign-born	72.2
Outdoor Workers	84.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	73.1
Traffic Density	92.6
Traffic Access	47.2
Other Indices	—
Hardship	19.5
Other Decision Support	—
2016 Voting	72.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	17.0000

Healthy Places Index Score for Project Location (b)	91.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Site is 15.13 acres = 659063 sq.ft. DC Bldg is 516,000 sq.ft.
Construction: Construction Phases	Applicant estimated construction schedule = 16 months.
Construction: Off-Road Equipment	Best equipment and use rate estimates from Applicant and Consultant.
Construction: Off-Road Equipment EF	Pump emissions factors manually entered from CalEEMod App G-11 as required.
Construction: Dust From Material Movement	Cut and Fill only occurs during the Grading Phase, basically balanced on site, no offsite hauling is required. Import fill = 1100 yd ³ , but these trips (55) will be added manually to this phase.

Construction: Trips and VMT	No hauling or vendor deliveries during Site Prep. The grading/trenching/foundation phase will avg ~15 concrete deliveries per day (total deliveries 1120), 1 const supply delivery/day, and ~1 soil spoils hauling offsite per day (total hauling trips 55). The bldg phase will avg ~5 vendor deliveries per day, i.e., const supplies. The paving phase will avg ~1 vendor delivery per day (asphalt) for a total of 60 deliveries. Some days will receive more deliveries. The Arch coating phase will avg ~1 delivery every 3-4 days for coating supplies, etc. 1 delivery/day was used to be conservative.
Construction: Paving	Values based on civil engineering drawing and Applicant data.
Operations: Vehicle Data	0.138 trips/1000 sq.ft. based on Bldg area of 516000 sq.ft. and total estimated trips per day of 71 (employees, visitors, deliveries) per the applicant supplied data. CalEEMod has defaulted to the parcel size of 659063 sq.ft. which has nothing to do with trip rates or length. Cannot correct this!
Operations: Consumer Products	City park/golf course/ pesticides/fertilizer does not apply.
Operations: Architectural Coatings	5% re-application rate is reasonable for a new bldg constructed in 2027.
Operations: Water and Waste Water	Indoor water use based on 45 employees at 6400 gal/yr/employee = 288,000 gals/yr increased to 300,000 to account for visitor use. (see Table AQ4-1) Outdoor water use (landscaping) based on calculation (see Table AQ4-1)
Operations: Solid Waste	Based on 45 employees at a waste generation rate of 1.15 ton/yr/employee.
Operations: Refrigerants	No household refrigerators in use at this facility. Emissions from the bldg cooling systems have been calculated outside of CalEEMod and reported separately.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	659,063	516,000
Landscape Area	sq. ft	—	235,739

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
------------	------------	-----------------	---------------	-----------

Site Preparation	Site Preparation	Start Date	1/30/2027	1/1/2027
Site Preparation	Site Preparation	End Date	2/13/2027	2/1/2027
Site Preparation	Site Preparation	Days/Week	5.00000	6.00000
Site Preparation	Site Preparation	Work Days per Phase	10.00000	27.0000
Site Preparation	Site Preparation	Description	—	Site Prep/Cleanup
Grading	Grading	Start Date	2/14/2027	2/1/2027
Grading	Grading	End Date	3/28/2027	4/30/2027
Grading	Grading	Days/Week	5.00000	6.00000
Grading	Grading	Work Days per Phase	30.0000	76.0000
Grading	Grading	Description	—	Grading/Trenching/ Foundations
Building Construction	Building Construction	Start Date	3/29/2027	5/1/2027
Building Construction	Building Construction	End Date	5/22/2028	3/31/2028
Building Construction	Building Construction	Days/Week	5.00000	6.00000
Building Construction	Building Construction	Work Days per Phase	300.000	288.000
Building Construction	Building Construction	Description	—	DC Bldg/Substation etc.
Paving	Paving	Start Date	5/23/2028	3/1/2028
Paving	Paving	End Date	6/20/2028	4/30/2028
Paving	Paving	Days/Week	5.00000	6.00000
Paving	Paving	Work Days per Phase	20.0000	52.0000
Paving	Paving	Description	—	Paving-Asphalt
Architectural Coating	Architectural Coating	Start Date	6/21/2028	1/1/2028
Architectural Coating	Architectural Coating	End Date	7/19/2028	3/1/2028
Architectural Coating	Architectural Coating	Days/Week	5.00000	6.00000
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	52.0000
Architectural Coating	Architectural Coating	Description	—	Arch Coating

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
------------	----------------	-----------------	---------------	-----------

Site Preparation	Rubber Tired Dozers	Engine Tier	Average	Tier 4 Final
Site Preparation	Rubber Tired Dozers	Number per Day	3.00000	1.000000
Site Preparation	Rubber Tired Dozers	Hours Per Day	8.00000	5.90000
Site Preparation	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Site Preparation	Tractors/Loaders/Backhoes	Number per Day	4.00000	3.00000
Site Preparation	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	4.40000
Grading	Excavators	Engine Tier	Average	Tier 4 Final
Grading	Excavators	Hours Per Day	8.00000	3.20000
Grading	Graders	Engine Tier	Average	Tier 4 Final
Grading	Graders	Number per Day	1.000000	2.00000
Grading	Graders	Hours Per Day	8.00000	3.20000
Grading	Scrapers	Engine Tier	Average	Tier 4 Final
Grading	Scrapers	Number per Day	2.00000	1.000000
Grading	Scrapers	Hours Per Day	8.00000	3.20000
Grading	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Grading	Tractors/Loaders/Backhoes	Number per Day	2.00000	4.00000
Grading	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	2.60000
Building Construction	Cranes	Engine Tier	Average	Tier 4 Final
Building Construction	Cranes	Number per Day	1.000000	2.00000
Building Construction	Cranes	Hours Per Day	7.00000	3.60000
Building Construction	Forklifts	Engine Tier	Average	Tier 4 Final
Building Construction	Forklifts	Number per Day	3.00000	6.00000
Building Construction	Forklifts	Hours Per Day	8.00000	5.60000
Building Construction	Welders	Engine Tier	Average	Tier 4 Final
Building Construction	Welders	Number per Day	1.000000	4.00000
Building Construction	Welders	Hours Per Day	8.00000	4.90000
Paving	Pavers	Engine Tier	Average	Tier 4 Final
Paving	Pavers	Hours Per Day	8.00000	5.40000

Paving	Paving Equipment	Engine Tier	Average	Tier 4 Final
Paving	Paving Equipment	Number per Day	2.00000	1.000000
Paving	Paving Equipment	Hours Per Day	8.00000	5.40000
Paving	Rollers	Engine Tier	Average	Tier 4 Final
Paving	Rollers	Hours Per Day	8.00000	5.40000
Architectural Coating	Air Compressors	Engine Tier	Average	Tier 4 Final
Architectural Coating	Air Compressors	Number per Day	1.000000	3.00000
Architectural Coating	Air Compressors	Hours Per Day	6.00000	6.90000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Site Preparation	Worker	One-Way Trips per Day	20.0000	30.0000
Grading	Worker	One-Way Trips per Day	35.0000	40.0000
Grading	Hauling	One-Way Trips per Day	35.3684	1.000000
Building Construction	Worker	One-Way Trips per Day	165.120	100.0000
Building Construction	Vendor	One-Way Trips per Day	84.5724	5.00000
Paving	Worker	One-Way Trips per Day	15.0000	20.0000
Architectural Coating	Worker	One-Way Trips per Day	33.0240	25.0000

8.4.9. Paving

Phase Name	Land Use	Model Parameter	Units	Default Value	New Value
Paving	General Office Building	Area Paved	acres	0.00000	3.40000
Paving	General Office Building	% Asphalt	%	0.00000	100.0000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Weekday Trip Rate	size/day	9.74000	0.13800
General Office Building	Saturday Trip Rate	size/day	2.21000	0.13800
General Office Building	Sunday Trip Rate	size/day	0.70000	0.13800

8.5.2. Area Sources

8.5.2.2. Consumer Products

Model Parameter	Units	Default Value	New Value
City Park/Golf Course Pesticides/Fertilizers	lb/sqft/day	< 0.000005	0.00000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Indoor Water	gal/year	117,137,737	300,000
General Office Building	Outdoor Water	gal/year	2,520,151	2,225,563

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Solid Waste Generation Rate	ton/1000sqft/yr	0.93000	0.08000

Appendix AQ5

Risk Assessment Support Data

**1.0×10^{-6} Risk Isopleth
for DPM**



Table AQ5-1 Sensitive Receptor Listing (2.5 mile Radius Basis)

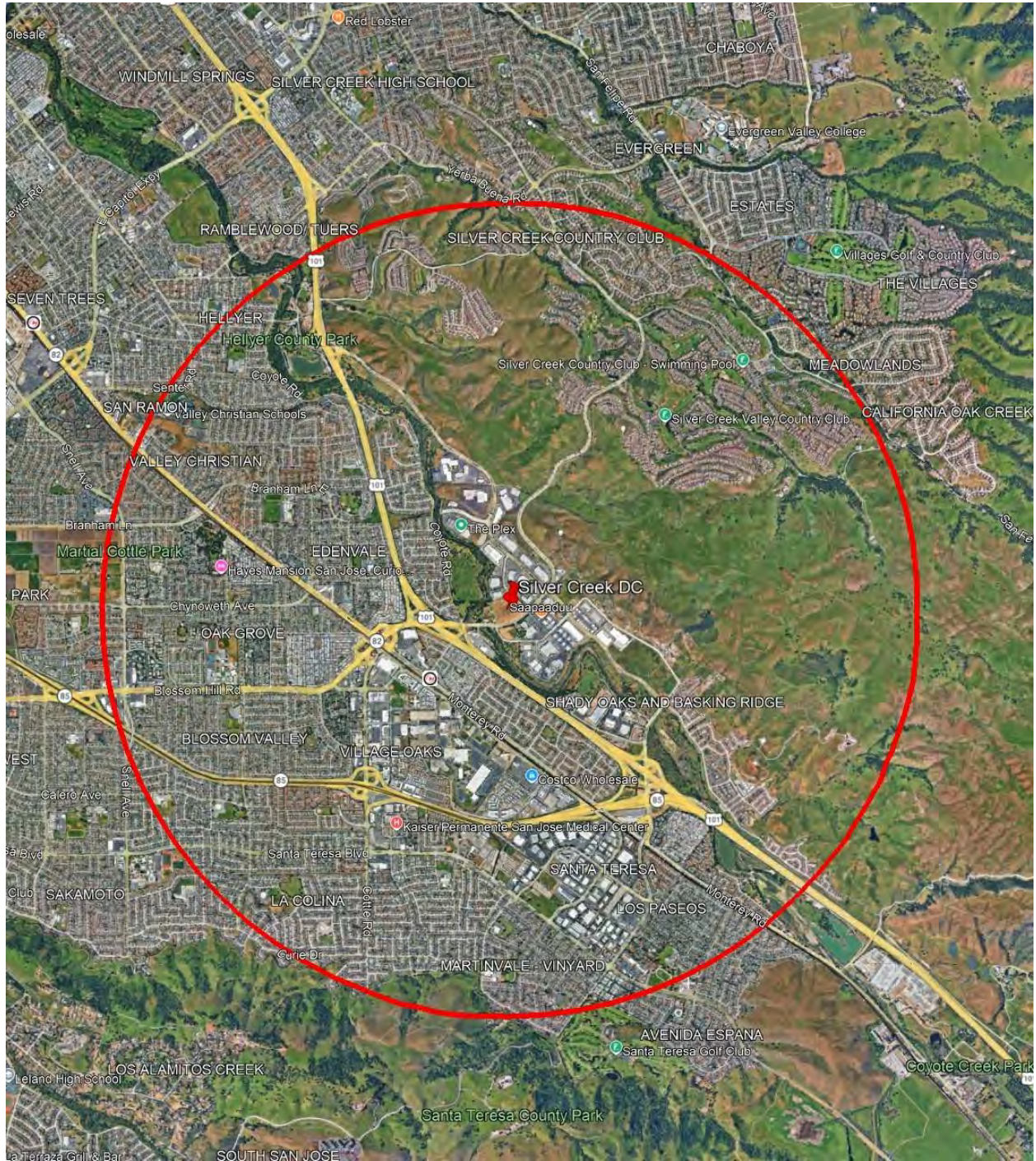
Table AQ5-1 Sensitive Receptor Listing (2.5 mile Radius Basis)				Distance from Site Mid-Point		
Receptor ID	Type	UTM Em	UTM Nm	meters	feet	miles
Site (approx. mid-point)		607424.90	4124261.32	na	na	
Prescience International Inc	University	607729.16	4123717.62	623.8	2,046.6	0.39
Adopt a College	University	606107.28	4124632.93	1,366.6	4,483.7	0.85
Carrington College	University	608446.61	4123106.03	1,542.8	5,061.8	0.96
Carrington College North San Jose Center	University	608488.33	4123125.97	1,556.0	5,104.9	0.97
Stipe Elementary School	Elementary School	605889.90	4125672.40	2,077.7	6,816.5	1.29
Oak Ridge Medical Center	Hospital	608748.40	4123099.40	1,761.2	5,778.1	1.09
Edendale Elementary School	Elementary School	605564.10	4125005.10	2,003.9	6,574.6	1.25
Bright Horizons at San Jose	Daycare	606662.95	4122146.63	2,251.5	7,386.8	1.40
Anderson Elementary School	Elementary School	605548.90	4122988.00	2,267.0	7,439.0	1.41
Davis Int School	School	605311.50	4125179.10	2,304.1	7,559.3	1.43
Kaiser Permanente San Jose Medical Center	Hospital	606328.87	4122121.62	2,407.1	7,897.2	1.50
Western State University	University	608390.75	4121794.99	2,653.1	8,704.3	1.65
Creekside School	School	604850.90	4123193.60	2,787.0	9,142.0	1.73
Oak Grove High School	High School	604657.79	4123503.81	2,863.7	9,395.4	1.78
Ledesma Elementary School	Elementary School	609777.80	4122604.20	2,878.0	9,442.0	1.79
Unitek College San Jose Campus	University	608004.54	4121178.42	3,143.3	10,312.8	1.95
Stratford School	Preschool	607389.20	4121070.47	3,198.0	10,492.1	1.99
Oak Ridge Elementary School	Elementary School	604765.20	4122243.50	3,339.0	10,953.0	2.07
Bernal Int School	Middle School	607554.50	4120771.90	3,492.0	11,456.0	2.17
Christopher Elementary School	Elementary School	604740.20	4126557.30	3,532.6	11,589.8	2.20
Taylor Elementary School	Elementary School	605746.90	4121122.60	3,559.0	11,677.0	2.21
Silver Oak Elem Sch	Elementary School	609914.80	4126649.9	3,450.4	11,320.0	2.14
Legacy Christian School	Daycare	605074.86	4121418.68	3,689.7	12,105.4	2.29
3D Preschool	Preschool	603724.58	4123933.83	3,707.1	12,162.5	2.30
Los Paseos Elementary School	Elementary School	609145.40	4120915.80	3,762.0	12,343.0	2.34
Valley Christian Schools	Elementary School	604018.12	4126166.71	3,899.4	12,793.4	2.42

Prologis Silver Creek

BAAD Stationary Source Mapping for the Default 1000 ft. Distance from the Site Boundary

Table AQ5-2 (see the following pages)

Figure AQ5-1
Sensitive Receptor Mapping – 2.5 Mile Radius from Site
(Refer to Table AQ5-1)



Near Me Report

Area of Interest (AOI) Information

Area: 12,543,415.58 ft²

Date: Wed Mar 18 2026 16:59:39 GMT-0700 (Pacific Daylight Time)



Permitted Stationary Sources



Bay Area Air District Boundary



Overburdened Communities

Permitted Stationary Sources | Total count: 11

#	OBJECTID	FacilityID	FacilityName
1	5634	23501	Commonwealth Central Credit Union
2	6776	200646	EGP 5855 San Jose LLC
3	7477	202665	Kaiser Foundation Health Plan - Project Genetics Lab
4	4902	22175	M West Propco XVII LLC
5	2540	16813	Renesas Electronics America Inc
6	2165	15797	San Jose Bioscience II LLC
7	10785	200357-1	Silver Creek Valley Shell
8	1311	13633	Stryker Corporation
9	6359	24870	The Realty Associates Fund XII Portfolio LP
10	4964	22290	Veldodyne LiDAR
11	5871	23982	Veolia WTS Services USA Inc.

#	Address	City	State
1	5890 Silver Crek Vily Rd	San Jose	CA
2	5855 SILVER CREEK VALLEY RD	San Jose	CA
3	5901 OPTICAL COURT	San Jose	CA
4	5710 Fontanoso Way	San Jose	CA
5	6024 Silver Crek Vily Rd	San Jose	CA
6	5941 Optical Court	San Jose	CA
7	5801 SILVER CREEK VALLEY RD	San Jose	CA
8	5900 Optical Court	San Jose	CA
9	5729 Fontanoso Way	San Jose	CA
10	5521 Hellyer Avenue	San Jose	CA
11	5900 Silver Creek Vly Rd	San Jose	CA

#	Zip	County	Latitude
1	95138	Santa Clara	37.260511
2	95138	Santa Clara	37.255575
3	95138	Santa Clara	37.255202
4	95138	Santa Clara	37.261592
5	95138	Santa Clara	37.256718
6	95138	Santa Clara	37.253785
7	95138	Santa Clara	37.256386
8	95138	Santa Clara	37.255427
9	95138	Santa Clara	37.260972
10	95138	Santa Clara	37.263528
11	95138	Santa Clara	37.259188

#	Longitude	SourceType	NAICS
1	-121.782926	Generator	522130
2	-121.791596	Generator	531210
3	-121.785931	Generator	621111
4	-121.787792	Generator	531120
5	-121.785889	No data	334419
6	-121.785210	Generator	541720
7	-121.791885	Retail Gas Station	457110
8	-121.783842	Generator	322291
9	-121.789816	Generator	332994
10	-121.789526	Generator	334413
11	-121.783686	No data	334512

#	NAICS Sector	NAICS Subsector	NAICS Industry
1	Finance and Insurance	Credit Intermediation and Related Activities	Credit Unions
2	Real Estate and Rental and Leasing	Real Estate	Offices of Real Estate Agents and Brokers
3	Health Care and Social Assistance	Ambulatory Health Care Services	Offices of Physicians (except Mental Health Specialists)
4	Real Estate and Rental and Leasing	Real Estate	Lessors of Nonresidential Buildings (except Miniwarehouses)
5	Manufacturing	Computer and Electronic Product Manufacturing	Other Electronic Component Manufacturing
6	Professional, Scientific, and Technical Services	Professional, Scientific, and Technical Services	Research and Development in the Social Sciences and Humanities
7	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores
8	Manufacturing	Paper Manufacturing	Sanitary Paper Product Manufacturing
9	Manufacturing	Fabricated Metal Product Manufacturing	Small Arms Manufacturing
10	Manufacturing	Computer and Electronic Product Manufacturing	Semiconductor and Related Device Manufacturing
11	Manufacturing	Computer and Electronic Product Manufacturing	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use

#	CancerRisk	ChronicHI	PM25	Throughput_Gal/yr
1	0	0.00	0.00	No data
2	10	0.00	0.01	No data
3	61	0.02	0.08	No data
4	4	0.00	0.01	No data
5	83	0.32	1.40	No data
6	3	0.00	0.00	No data
7	No data	No data	0.00	4280000.0
8	3	0.00	0.00	No data
9	0	0.00	0.00	No data
10	0	0.00	0.00	No data
11	1	0.00	0.00	No data

OBJECTID	FacilityID	Facility Name	Address	City	State	Zip	County	Latitude	Longitude	Source Type	NAICS	NAICS Sector	NAICS Sub: NAICS Industry	Cancer Risk	Chronic Hazard Index	PM2.5	Throughput (gallons/year)	ADI Cancer	ADI Chronic	ADI PM2.5
5634	23501	Commonwealth Central Credit Union	5890 Silver Creek Vly Rd	San Jose	CA	95138	Santa Clara	37.26051	-121.783	Generator	522130	Finance and Insurance	Credit Inter Credit Unions		0	0	0			
6776	200646	EGP 5855 San Jose LLC	5855 SILVER CREEK VALLEY RD	San Jose	CA	95138	Santa Clara	37.25558	-121.792	Generator	531210	Real Estate and Rental	Real Estate Offices of Real Estate Agents and Brokers	10	0	0.01		6.4		
7477	202665	Kaiser Foundation Health Plan - Project Genetics Lab	5901 OPTICAL COURT	San Jose	CA	95138	Santa Clara	37.2552	-121.786	Generator	621111	Health Care and Social	Ambulatory Specialists Offices of Physicians (except Mental Health	61	0.02	0.08		10.98	0.036	0.0144
4902	22175	M West Propco XVII LLC	5710 Fontanoso Way	San Jose	CA	95138	Santa Clara	37.26159	-121.788	Generator	531120	Real Estate and Rental	Real Estate Miniwarehouses) Lessors of Nonresidential Buildings (except	4	0	0.01		4		
2540	16813	Renasas Electronics America Inc	6024 Silver Creek Vly Rd	San Jose	CA	95138	Santa Clara	37.25672	-121.786		334419	Manufacturing	Computer & Other Electronic Component Manufacturing Research and Development in the Social	83	0.32	1.4		6.64	0.0256	0.112
2165	15797	San Jose Bioscience II LLC	5941 Optical Court	San Jose	CA	95138	Santa Clara	37.25379	-121.785	Generator	541720	Professional, Scientific,	Profession: Sciences and Humanities	3	0	0		3		
10785	200357-1	Silver Creek Valley Shell	5801 SILVER CREEK VALLEY RD	San Jose	CA	95138	Santa Clara	37.25639	-121.792	Retail Gas Station	457110	Retail Trade	Gasoline SI Gasoline Stations with Convenience Stores			0	4280000	1.38	0	
1311	13633	Stryker Corporation	5900 Optical Court	San Jose	CA	95138	Santa Clara	37.25543	-121.784	Generator	322291	Manufacturing	Paper Mfg Sanitary Paper Product Manufacturing	3	0	0		3		
6359	24870	The Realty Associates Fund XII Portfolio LP	5729 Fontanoso Way	San Jose	CA	95138	Santa Clara	37.26097	-121.79	Generator	332994	Manufacturing	Fabricated Small Arms Manufacturing Semiconductor and Related Device	0	0	0		0		
4964	22290	Veldodyne LIDAR	5521 Hellyer Avenue	San Jose	CA	95138	Santa Clara	37.26353	-121.79	Generator	334413	Manufacturing	Computer & Manufacturing Automatic Environmental Control	0	0	0		0		
5871	23982	Veolia WTS Services USA Inc.	5900 Silver Creek Vly Rd	San Jose	CA	95138	Santa Clara	37.25919	-121.784		334512	Manufacturing	Computer & and Appliance Use Manufacturing for Residential, Commercial,	1	0	0		1		

2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool
Version 1.0 - February 18, 2022

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	4280000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	1000	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8880	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	223	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	500	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	223	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	no	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
Risk Value	Results	
Max Residential Cancer Risk (chances/million)	0.65	
Max Worker Cancer Risk (chances/million)	0.01	
Chronic HI	0.00	
Acute HI	0.02	

3/18/2026 5:30 PM

APPENDIX G

Arborist Reports

ARBORIST REPORT

October 29, 2025
5559.00

PROJECT

5977 Silver Creek Valley Rd.
San Jose, CA

PREPARED FOR

David J. Powers & Associates, Inc.

PREPARED BY

HMH
1570 Oakland Road
San Jose, CA 95131
William Sowa
RLA #4466
ISA Certified Arborist #WE-12270A
ISA TRAQ Credentialed



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INTRODUCTION AND OVERVIEW

HMH was contracted to complete a survey, assessment and arborist report for trees located within the limit of work illustrated on Exhibit A. The project site encompasses a parcel totaling approximately 14.98 acres. The parcel is not developed. There are commercial parcels to the north, south, and east of the site, and a City of San Jose property to the west. Our scope of services includes locating, measuring DBH, assessing, and photographing the condition of all trees within the limit of work. Disposition and health recommendations are based on current site conditions. Site development/design may affect the preservation suitability. In addition, trees located outside the limit of work may be included if they may potentially be impacted by development of the site. These trees will not be measured, nor health assessed due to limited access. Tree locations are approximate, and their exact location should be determined by a licensed land surveyor. It should not be assumed that all trees inventoried are owned by the property owner. Check city and/or county codes for regulations regarding trees in the public right of way, setbacks, and/or easements.

METHODOLOGY

Our tree survey work is a deliberate and systematic methodology for cataloging trees on site:

1. Identify each tree species.
2. Note each tree's location on a site map.
3. Measure each trunk circumference at 4.5' above grade per ISA standards.
4. Evaluate the health, structure, and form of each tree using the following numerical standard:
 - 81% - 100% - Excellent**
 - 61% - 80% - Good**
 - 41% - 60% - Fair**
 - 21% - 40% - Poor**
 - 6% - 20% - Very Poor**
 - 0% - 5% - Dead**

SUMMARY OF FINDINGS

HMH conducted a tree inventory of 7 trees located within the limit of work outlined in Exhibit A. Six (6) of the trees inventoried are classified as ordinance-sized trees under the City of San Jose Tree Removal permit.

An ordinance-size tree is:

Single Trunk - 38 inches or more in circumference at 4 ½ feet above ground; or

Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.

Table 1 - Tree Quantity Summary summarizes tree quantities by both species and size. Each species that was inventoried as part of this scope is included. This is a useful tool for analyzing the mixture of trees as part of the project. The size table is useful when calculating mitigation requirements in the case of tree removal as well as aiding in determining tree maturity.

Table 2 - Tree Evaluation Summary lists each tree number, botanical name, common name, DBH, circumference, ordinance trees, health, structure, and form rating, general notes and observations and recommendations.

See Exhibit A for Existing Tree Locations

See Table 1 for Tree Quantity Summary by species and size.

See Table 2 for Tree Evaluation Summary for sizes, notes and recommendations regarding each tree.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

Species: *Juglans hindsii* (Northern California Black Walnut)

Quantity: 3

Tree Numbers: 1, 2, 4

Observations / Recommendations:

There are three Northern California Black Walnut trees on the property. The trees are generally in moderate to poor health and shape. The trees appear to be volunteers, not purposely planted, and not irrigated or maintained. Two of the trees have leaf gall mites and they are showing signs of stress.

Species: *Olea europaea* (Olive)

Quantity: 1

Tree Numbers: 7

Observations / Recommendations:

The cluster of olives is in poor shape and health. It is a multitrunk cluster with a few trunks large enough to be included in a tree inventory. Most of the trunks are in decline or dead.

Species: *Quercus agrifolia* (Coast Live Oak)

Quantity: 1

Tree Numbers: 5

Observations / Recommendations:

There is one coast live oak on the site in moderate health and shape. It has many trunks and has more of the form of a large shrub than tree. There is some branch die back.

Species: *Robinia pseudoacacia* (Black Locust)

Quantity: 1

Tree Numbers: 6

Observations / Recommendations:

There is a black locust that is in moderate health and form. It has some signs of stress probably due to the lack of irrigation and maintenance.

Species: *Sambucus cerulea* (Blue Elderberry)

Quantity: 1

Tree Numbers: 3

Observations / Recommendations:

The blue elderberry is in poor health and form. It is in decline and is mostly dead.

RECOMMENDATIONS FOR TREE PROTECTION DURING CONSTRUCTION

Site preparation: All existing trees shall be fenced within or at the drip line (foliar spread) of the tree. Depending on the location of the tree the fencing may not be able to be at the dripline. Examples of this would be public right of way, near property lines or around existing structures to remain. Where complete drip line fencing is not possible, the addition of straw waddles and orange snow fencing wrapping the trunk shall be installed per the tree protection detail. The fence should be a minimum of six feet high, made of galvanized 11-gauge wire mesh with galvanized posts or any material superior in quality. A tree protection zone (TPZ) sign shall be affixed to fencing at appropriate intervals as determined by the arborist on site. If the fence is within the drip line of the trees, the foliar fringe shall be raised to offset the chance of limb damage from active construction.

Active Construction: All contractors, subcontractors and other personnel shall be warned that encroachment within the fenced area and dripline is prohibited without the consent of the certified arborist on the job. This includes, but is not limited to, storage of lumber and other materials, disposal of paints, solvents or other noxious materials, parked cars, grading equipment or other heavy equipment. If construction activity needs to happen in the TPZ the fence can be moved temporarily for delivery of construction materials. The contractor should make accommodations to off load items such as trusses, timber, plasterboard, wallboard, concrete, gypsum board, flooring, roofing or any other heavy construction material outside the foliar spread of the tree so there is no heavy equipment needed that could cause damage to the canopy of the tree or compact the root zone. The tree protection fencing should be reestablished per the plans and details immediately after any activity through the TPZ. Penalties, based on the cost of remedial repairs and the evaluation guide published by the International Society of Arboriculture, shall be assessed for damages to the trees.

Grading/excavating: All grading plans that specify grading within the drip line of any tree, or within the distance from the trunk as outlined in the site preparation section above when said distance is outside the drip line, shall first be reviewed by a certified arborist. Provisions for aeration, drainage, pruning, tunneling beneath roots, root pruning or other necessary actions to protect the trees shall be outlined by an arborist. If trenching is necessary within the area as described above, said trenching shall be undertaken by hand labor and dug directly beneath the trunk of the tree. All roots 2 inches or larger shall be tunneled under and other roots shall be cut smoothly to the trunk side of the trench. The trunk side should be draped immediately with two layers of untreated burlap to a depth of 3 feet from the surface. The burlap shall be soaked nightly and left in place until the trench is back filled to the original level. An arborist shall examine the trench prior to back filling to ascertain the number and size of roots cut, so as to suggest the necessary remedial repairs.

Remedial repairs: An arborist shall have the responsibility of observing all ongoing activities that may affect the trees and prescribing necessary remedial work to ensure the health and stability of the trees. This includes, but is not limited to, all arborist activities brought out in the previous sections. In addition, pruning, as outlined in International Society of Arboriculture Best Management Practices: Pruning and ANSI A300 Part 1 Standard Practices: Pruning, shall be prescribed as necessary. Fertilizing, aeration, irrigation, pest control and other activities shall be prescribed according to the tree needs, local site requirements, and state agricultural pest control laws. All specifications shall be in writing. For pest control operations, consult the local county agricultural commissioner's office for individuals licensed as pest control advisors or pest control operators.

Final inspection: Upon completion of the project, the arborist shall review all work undertaken that may impact the existing trees. Special attention shall be given to cuts and fills, compacting, drainage, pruning and future remedial work. An arborist should submit a final report in writing outlining the ongoing remedial care following the final inspection.

MAINTENANCE RECOMMENDATIONS FOR TREES TO REMAIN

Regular maintenance, designed to promote plant health and vigor, ensures longevity of existing trees. Regular inspections and the necessary follow-up care of mulching, fertilizing, and pruning, can detect problems and correct them before they become damaging or fatal.

Tree Inspection: Regular inspections of mature trees at least once a year can prevent or reduce the severity of future disease, insect, and environmental problems. During tree inspection, four characteristics of tree vigor should be examined: new leaves or buds, leaf size, twig growth, and absence of crown dieback (gradual death of the upper part of the tree). A reduction in the extension of shoots (new growing parts), such as buds or new leaves, is a fairly reliable cue that the tree's health has recently changed. Growth of the shoots over the past three years may be compared to determine whether there is a reduction in the tree's typical growth pattern. Further signs of poor tree health are trunk decay, crown dieback, or both. These symptoms often indicate problems that began several years before. Loose bark or deformed growths, such as trunk conks (mushrooms), are common signs of stem decay. Any abnormalities found during these inspections, including insect activity and spotted, deformed, discolored, or dead leaves and twigs, should be noted and observed closely.

Mulching: Mulch, or decomposed organic material, placed over the root zone of a tree reduces environmental stress by providing a root environment that is cooler and contains more moisture than the surrounding soil. Mulch can also prevent mechanical damage by keeping machines such as lawn mowers and string trimmers away from the tree's base. Furthermore, mulch reduces competition from surrounding weeds and turf. To be most effective, mulch should be placed 2 to 4 inches deep and cover the entire root system, which may be as far as 2 or 3 times the diameter of the branch spread of the tree. If the area and activities happening around the tree do not permit the entire area to be mulched, it is recommended that as much of the area under the drip line of the tree is mulched as possible. When placing mulch, care should be taken not to cover the actual trunk of the tree. This mulch-free area, 1 to 2 inches wide at the base, is sufficient to avoid moist bark conditions and prevent trunk decay. An organic mulch layer 2 to 4 inches deep of loosely packed shredded leaves, pine straw, peat moss, or composted wood chips is adequate. Plastic should not be used as it interferes with the exchange of gases between soil and air, which inhibits root growth. Thicker mulch layers, 5 to 6 inches deep or greater, may also inhibit gas exchange.

Fertilization: Trees require certain nutrients (essential elements) to function and grow. Urban landscape trees may be growing in soils that do not contain sufficient available nutrients for satisfactory growth and development. In certain situations, it may be necessary to fertilize to improve plant vigor. Fertilizing a tree can improve growth; however, if fertilizer is not applied wisely, it may not benefit the tree at all and may even adversely affect the tree. Mature trees making satisfactory growth may not require fertilization. When considering supplemental fertilizer, it is important to consider nutrients deficiencies and how and when to amend the deficiencies. Soil conditions, especially pH and organic matter content, vary greatly, making the proper selection and use of fertilizer a somewhat complex process. To that end, it is recommended that the soil be tested for nutrient content. A soil testing laboratory can give advice on application rates, timing, and the best blend of fertilizer for each tree and other landscape plants on site. Mature trees have expansive root systems that extend from 2 to 3 times the size of the leaf

canopy. A major portion of actively growing roots is located outside the tree's drip line. Understanding the actual size and extent of a tree's root system before applying fertilizer is paramount to determine quantity, type and rate at which to best apply fertilizer. Always follow manufacturer recommendations for use and application.

Pruning: Pruning is often desirable or necessary to remove dead, diseased, or insect-infested branches and to improve tree structure, enhance vigor, or maintain safety. Because each cut has the potential to change the growth of (or cause damage to) a tree, no branch should be removed without reason. Removing foliage from a tree has two distinct effects on growth: (1) it reduces photosynthesis and, (2) it may reduce overall growth. Pruning should always be performed sparingly. Caution must be taken not to over-prune as a tree may not be able to gather and process enough sunlight to survive. Pruning mature trees may require special equipment, training, and experience. Licensed and insured tree maintenance companies are equipped to provide a variety of services to assist in performing the job safely and reducing risk of personal injury and property damage and should be consulted for this type of work. (See also *ANSI A300 Part 1 Pruning Standards*- <https://www.tcia.org>).

Planting and Irrigation: Any new planting and irrigation that is to occur under the drip line of an existing tree should be conducted with care to avoid the root system. Generally installation of an irrigation mainline should be avoided under the dripline of the existing tree. Refer to the Grading/Excavating section for installation of any irrigation lines to be installed under the drip line of an existing tree. Any new planting should match the water use of the existing tree (as defined by WUCOLS). The irrigation hydro zone for the new planting should also match the requirements of the existing tree.

Removal: There are circumstances when removal is necessary. An arborist can help decide whether or not a tree should be removed. Professionally trained arborists have the skills and equipment to safely and efficiently remove trees. Removal is recommended when a tree: (1) is dead, dying, or considered irreparably hazardous; (2) is causing an obstruction or is crowding and causing harm to other trees and the situation is impossible to correct through pruning; (3) is to be replaced by a more suitable specimen, and; (4) should be removed to allow for construction. Pruning or removing trees, especially large trees, can be dangerous work. It should be performed only by those trained and equipped to work safely in trees.

TERMS AND CONDITIONS

The following terms and conditions apply to all oral and written reports and correspondence pertaining to consultations, inspections and activities of HMM.

1. The scope of any report or other correspondence is limited to the trees and conditions specifically mentioned in those reports and correspondence. HMM assumes no liability for the failure of trees or parts of trees, either inspected or otherwise. HMM assumes no responsibility to report on the condition of any tree or landscape feature not specifically requested by the named client.
2. No tree described in this report was climbed, unless otherwise stated. HMM does not take responsibility for any defects, which could have only been discovered by climbing. A full root collar inspection, consisting of excavating the soil around the tree to uncover the root collar and major buttress roots was not performed unless otherwise stated. HMM does not take responsibility for any root defects, which could only have been discovered by such an inspection.
3. HMM shall not be required to provide further documentation, give testimony, be deposed, or attend court by reason of this appraisal or report unless subsequent contractual arrangements are made, including payment of additional fees for such services as described by HMM or in the schedule of fees or contract.
4. HMM guarantees no warranty, either expressed or implied, as to the suitability of the information contained in the reports for any reason. It is the responsibility of the client to determine applicability to his/her case.
5. Any report and the values, observations and recommendations expressed therein represent the professional opinion of HMM, and the fee for services is in no manner contingent upon the reporting of a specified value nor upon any particular finding to be reported.
6. Any photographs, diagrams, graphs, sketches or other graphic material included in any report, being intended solely as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys, unless otherwise noted in the report. Any reproductions of graphic material or the work produced by other persons, is intended solely for clarification and ease of reference. Inclusion of said information does not constitute a representation by HMM as to the sufficiency or accuracy of that information.
7. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Existing Tree Map Exhibit A



TABLE 1 - TREE QUANTITY SUMMARY

Tree Quantity by Species		
Species	Quantity	% of Site
Juglans hindsii	3	43%
Olea europaea	1	14%
Quercus agrifolia	1	14%
Robinia pseudoacacia	1	14%
Sambucus cerulea	1	14%
Total Trees	7	100%

Tree Quantity by Size		
Circumference	Native Qty.	Non-Native Qty
38" or more	5	1
19 up to 38"	0	1
Less than 19"	0	0
Total	5	2

TABLE 2 - TREE EVALUATION SUMMARY

Prepared By: William Sowa ISA Certified Arborist WE-12270A

PROJECT NUMBER: 5559.00

PROJECT NAME: 5977 SILVER CREEK VALLEY RD
DBH MEASUREMENT HEIGHT: 54"
Date of Evaluation:10/23/2025

CITY: SAN JOSE

Condition Components				
Percent Rating	Category	Health	Structure	Form
81% to 100%	Excellent	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.
61% to 80%	Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/ deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.
41% to 60%	Fair	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/ or dead branches may comprise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/ deviations from species norm and/or intended use. Function and/or aesthetics are compromised.
21% to 40%	Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/ or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/ abnormal. Detracts from intended use and/or aesthetics to a significant degree.
6% to 20%	Very Poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.
0% to 5%	Dead			
Abbreviations and Definitions				
BDB	Branch dieback	Condition where branch tips or entire sections of branches die off. Typically indicative of tree stress.		
CD	Codominant branches	Forked branches nearly the same size in diameter, arising from a common junction an lacking a normal branch union.		
CDB	Dieback in Crown	Condition where branches in the tree crown die from the tips toward the center.		
CR	Crowded	Tree is bounded closely by one or more of the following: structure, tree, Etc.		
D	Decline	Tree shows obvious signs of decline, which may be indicative of the presence of multiple biotic and abiotic disorders.		
DBH	Diameter at Breast Height	Measurement of tree diameter in inches. Measurement height varies by City and is noted above.		
EG	Epicormic Growth	Watersprouting on trunk and main leaders or suckers, sprouts arising out of roots. Typically indicative of tree stress.		
EH	Exposed Heartwood	Exposure of the tree's heartwood is typically seen as an open wound that leaves a tree more susceptible to pathogens, disease or infection.		
GR	Girdling Roots	Roots that grow around or across other roots. Can cause restriction of nutrient and water uptake, swelling, dieback or structural instability.		
HD	Headed	Poor pruning practice of cutting back branches. Often practiced under utility lines to limit tree height.		
IB	Included Bark	Structural defect where bark is included between the branch attachment so the wood can't join. Such defect can have a higher probability of failure.		
LN	Leaning Tree	Tree leaning, see notes for severity.		
MT	Multi Trunk	Multiple central leaders originating below the DBH measurement.		
SD	Structural Defects	Naturally or secondary conditions including cavities, poor branch attachments, cracks, or decayed wood in any part of the tree that may contribute to structural failure.		
SR	Surface Roots	Roots visible at finished grade.		
ST	Stress	Environmental factor inhibiting regular tree growth. Includes drought, salty soils, nitrogen and other nutrient deficiencies in the soil.		
	Ordinance Tree	Ordinance-Size Trees. An ordinance-size tree is: Single Trunk - 38 inches or more in circumference at 4 ½ feet above ground; or Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.		

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMFERENCE (INCHES)	ORDINANCE TREE	NATIVE/NON-NATIVE/ORCHAR D	REPLACEMENT RATIO	CANOPY (APX FEET)	HEIGHT (APX FEET)	HEALTH %	STRUCTURE %	FORM %	NOTES
1	<i>Juglans hindsii</i>	Northern California Black Walnut	3, 5.5, 6	46	YES	NATIVE	5:1	20	15	60%	70%	80%	ST, leaf gall mites
2	<i>Juglans hindsii</i>	Northern California Black Walnut	9, 5, 11, 10	110	YES	NATIVE	5:1	50	30	60%	70%	80%	leaf gall mites
3	<i>Sambucus cerulea</i>	Blue Elderberry	10, 4, 3.5, 3.5, 11.5, 11, 6, 4, 3	177	YES	NATIVE	5:1	30	25	30%	50%	50%	D, mostly dead
4	<i>Juglans hindsii</i>	Northern California Black Walnut	5, 5, 5, 5, 4	75	YES	NATIVE	5:1	30	25	60%	70%	80%	ST
5	<i>Quercus agrifolia</i>	Coast Live Oak	5.5, 7, 3, 3, 4, 4	83	YES	NATIVE	5:1	30	20	70%	60%	60%	BDB
6	<i>Robinia pseudoacacia</i>	Black Locust	6, 8.5, 4, 2	64	YES	NON-NATIVE	4:1	32	25	65%	70%	80%	ST
7	<i>Olea europaea</i>	Olive	2.5, 3, 4	30	NO	NON-NATIVE	2:1	20	13	35%	50%	50%	cluster, EHW, mostly dead







ARBORIST REPORT

October 29, 2025
5559.00

PROJECT

455 Piercy Road
San Jose, CA

PREPARED FOR

David J. Powers & Associates, Inc.

PREPARED BY

HMH
1570 Oakland Road
San Jose, CA 95131
William Sowa
RLA #4466
ISA Certified Arborist #WE-12270A
ISA TRAQ Credentialed



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INTRODUCTION AND OVERVIEW

HMH was contracted to complete a survey, assessment and arborist report for trees located within the limit of work illustrated on Exhibit A. The project site encompasses a parcel totaling approximately 14.19 acres. The parcel is not developed. There are commercial parcels to the north, and west of the site, and a large undeveloped hillside area to the east. Our scope of services includes locating, measuring DBH, assessing, and photographing the condition of all trees within the limit of work. Disposition and health recommendations are based on current site conditions. Site development/design may affect the preservation suitability. In addition, trees located outside the limit of work may be included if they may potentially be impacted by development of the site. These trees will not be measured, nor health assessed due to limited access. Tree locations are approximate, and their exact location should be determined by a licensed land surveyor. It should not be assumed that all trees inventoried are owned by the property owner. Check city and/or county codes for regulations regarding trees in the public right of way, setbacks, and/or easements.

METHODOLOGY

Our tree survey work is a deliberate and systematic methodology for cataloging trees on site:

1. Identify each tree species.
2. Note each tree's location on a site map.
3. Measure each trunk circumference at 4.5' above grade per ISA standards.
4. Evaluate the health, structure, and form of each tree using the following numerical standard:
81% - 100% - Excellent
61% - 80% - Good
41% - 60% - Fair
21% - 40% - Poor
6% - 20% - Very Poor
0% - 5% - Dead

SUMMARY OF FINDINGS

HMH conducted a tree inventory of 15 trees located within the limit of work outlined in Exhibit A. Twelve (12) of the trees inventoried are classified as ordinance-sized trees under the City of San Jose Tree Removal permit.

An ordinance-size tree is:

Single Trunk - 38 inches or more in circumference at 4 ½ feet above ground; or

Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.

Table 1 - Tree Quantity Summary summarizes tree quantities by both species and size. Each species that was inventoried as part of this scope is included. This is a useful tool for analyzing the mixture of trees as part of the project. The size table is useful when calculating mitigation requirements in the case of tree removal as well as aiding in determining tree maturity.

Table 2 - Tree Evaluation Summary lists each tree number, botanical name, common name, DBH, circumference, ordinance trees, health, structure, and form rating, general notes and observations and recommendations.

See Exhibit A for Existing Tree Locations

See Table 1 for Tree Quantity Summary by species and size.

See Table 2 for Tree Evaluation Summary for sizes, notes and recommendations regarding each tree.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

Species: *Ailanthus altissima* (Tree of Heaven)

Quantity: 3

Tree Numbers: 13-15

Observations / Recommendations:

There are three Tree of Heaven trees, but many more stems that are growing that aren't large enough to be included in the tree inventory. There is a cluster of stems near Trees 13-15. *Ailanthus* are considered invasive by the California Invasive Plants Council (Cal-IPC) because of their ability to spread and grow quickly as well as their allelopathic properties (ability to suppress the growth of surrounding vegetation). It is recommended to remove all of the *Ailanthus* stems and trees.

Species: *Quercus agrifolia* (Coast Live Oak)

Quantity: 1

Tree Numbers: 1

Observations / Recommendations:

There is one Coast Live Oak on the property that is growing crowded next to the perimeter fence. It appears to be a volunteer, or not purposely planted. It is in moderate shape and health. It is more of a shrubby form with many small trunks. There are also brown spots over all the leaves, which may be leaf galls. They do not necessarily pose a threat to the health of the tree, but they are unsightly.

Species: *Schinus molle* (Peruvian Peppertree)

Quantity: 11

Tree Numbers: 2-12

Observations / Recommendations:

The majority of the trees on the site are Peruvian Peppertrees. All but one are along the north property line. They do not seem to be maintained or irrigated. They are all in moderate to poor health and shape. Peruvian Peppertrees are considered mildly invasive by the Cal-IPC. Tree 12 is on the east side of the property and is at the top of a hill. There is an old asphalt roadway that tree 12 appears to be breaking through. If any of these trees are to be retained, structural pruning and irrigation are recommended.

RECOMMENDATIONS FOR TREE PROTECTION DURING CONSTRUCTION

Site preparation: All existing trees shall be fenced within or at the drip line (foliar spread) of the tree. Depending on the location of the tree the fencing may not be able to be at the dripline. Examples of this would be public right of way, near property lines or around existing structures to remain. Where complete drip line fencing is not possible, the addition of straw waddles and orange snow fencing wrapping the trunk shall be installed per the tree protection detail. The fence should be a minimum of six feet high, made of galvanized 11-gauge wire mesh with galvanized posts or any material superior in quality. A tree protection zone (TPZ) sign shall be affixed to fencing at appropriate intervals as determined by the arborist on site. If the fence is within the drip line of the trees, the foliar fringe shall be raised to offset the chance of limb damage from active construction.

Active Construction: All contractors, subcontractors and other personnel shall be warned that encroachment within the fenced area and dripline is prohibited without the consent of the certified arborist on the job. This includes, but is not limited to, storage of lumber and other materials, disposal of paints, solvents or other noxious materials, parked cars, grading equipment or other heavy equipment. If construction activity needs to happen in the TPZ the fence can be moved temporarily for delivery of construction materials. The contractor should make accommodations to off load items such as trusses, timber, plasterboard, wallboard, concrete, gypsum board, flooring, roofing or any other heavy construction material outside the foliar spread of the tree so there is no heavy equipment needed that could cause damage to the canopy of the tree or compact the root zone. The tree protection fencing should be reestablished per the plans and details immediately after any activity through the TPZ. Penalties, based on the cost of remedial repairs and the evaluation guide published by the International Society of Arboriculture, shall be assessed for damages to the trees.

Grading/excavating: All grading plans that specify grading within the drip line of any tree, or within the distance from the trunk as outlined in the site preparation section above when said distance is outside the drip line, shall first be reviewed by a certified arborist. Provisions for aeration, drainage, pruning, tunneling beneath roots, root pruning or other necessary actions to protect the trees shall be outlined by an arborist. If trenching is necessary within the area as described above, said trenching shall be undertaken by hand labor and dug directly beneath the trunk of the tree. All roots 2 inches or larger shall be tunneled under and other roots shall be cut smoothly to the trunk side of the trench. The trunk side should be draped immediately with two layers of untreated burlap to a depth of 3 feet from the surface. The burlap shall be soaked nightly and left in place until the trench is back filled to the original level. An arborist shall examine the trench prior to back filling to ascertain the number and size of roots cut, so as to suggest the necessary remedial repairs.

Remedial repairs: An arborist shall have the responsibility of observing all ongoing activities that may affect the trees and prescribing necessary remedial work to ensure the health and stability of the trees. This includes, but is not limited to, all arborist activities brought out in the previous sections. In addition, pruning, as outlined in International Society of Arboriculture Best Management Practices: Pruning and ANSI A300 Part 1 Standard Practices: Pruning, shall be prescribed as necessary. Fertilizing, aeration, irrigation, pest control and other activities shall be prescribed according to the tree needs, local site requirements, and state agricultural pest control laws. All specifications shall be in writing. For pest control operations, consult the local county agricultural commissioner's office for individuals licensed as pest control advisors or pest control operators.

Final inspection: Upon completion of the project, the arborist shall review all work undertaken that may impact the existing trees. Special attention shall be given to cuts and fills, compacting, drainage, pruning and future remedial work. An arborist should submit a final report in writing outlining the ongoing remedial care following the final inspection.

MAINTENANCE RECOMMENDATIONS FOR TREES TO REMAIN

Regular maintenance, designed to promote plant health and vigor, ensures longevity of existing trees. Regular inspections and the necessary follow-up care of mulching, fertilizing, and pruning, can detect problems and correct them before they become damaging or fatal.

Tree Inspection: Regular inspections of mature trees at least once a year can prevent or reduce the severity of future disease, insect, and environmental problems. During tree inspection, four characteristics of tree vigor should be examined: new leaves or buds, leaf size, twig growth, and absence of crown dieback (gradual death of the upper part of the tree). A reduction in the extension of shoots (new growing parts), such as buds or new leaves, is a fairly reliable cue that the tree's health has recently changed. Growth of the shoots over the past three years may be compared to determine whether there is a reduction in the tree's typical growth pattern. Further signs of poor tree health are trunk decay, crown dieback, or both. These symptoms often indicate problems that began several years before. Loose bark or deformed growths, such as trunk conks (mushrooms), are common signs of stem decay. Any abnormalities found during these inspections, including insect activity and spotted, deformed, discolored, or dead leaves and twigs, should be noted and observed closely.

Mulching: Mulch, or decomposed organic material, placed over the root zone of a tree reduces environmental stress by providing a root environment that is cooler and contains more moisture than the surrounding soil. Mulch can also prevent mechanical damage by keeping machines such as lawn mowers and string trimmers away from the tree's base. Furthermore, mulch reduces competition from surrounding weeds and turf. To be most effective, mulch should be placed 2 to 4 inches deep and cover the entire root system, which may be as far as 2 or 3 times the diameter of the branch spread of the tree. If the area and activities happening around the tree do not permit the entire area to be mulched, it is recommended that as much of the area under the drip line of the tree is mulched as possible. When placing mulch, care should be taken not to cover the actual trunk of the tree. This mulch-free area, 1 to 2 inches wide at the base, is sufficient to avoid moist bark conditions and prevent trunk decay. An organic mulch layer 2 to 4 inches deep of loosely packed shredded leaves, pine straw, peat moss, or composted wood chips is adequate. Plastic should not be used as it interferes with the exchange of gases between soil and air, which inhibits root growth. Thicker mulch layers, 5 to 6 inches deep or greater, may also inhibit gas exchange.

Fertilization: Trees require certain nutrients (essential elements) to function and grow. Urban landscape trees may be growing in soils that do not contain sufficient available nutrients for satisfactory growth and development. In certain situations, it may be necessary to fertilize to improve plant vigor. Fertilizing a tree can improve growth; however, if fertilizer is not applied wisely, it may not benefit the tree at all and may even adversely affect the tree. Mature trees making satisfactory growth may not require fertilization. When considering supplemental fertilizer, it is important to consider nutrients deficiencies and how and when to amend the deficiencies. Soil conditions, especially pH and organic matter content, vary greatly, making the proper selection and use of fertilizer a somewhat complex process. To that end, it is recommended that the soil be tested for nutrient content. A soil testing laboratory can give advice on application rates, timing, and the best blend of fertilizer for each tree and other landscape plants on site. Mature trees have expansive root systems that extend from 2 to 3 times the size of the leaf

canopy. A major portion of actively growing roots is located outside the tree's drip line. Understanding the actual size and extent of a tree's root system before applying fertilizer is paramount to determine quantity, type and rate at which to best apply fertilizer. Always follow manufacturer recommendations for use and application.

Pruning: Pruning is often desirable or necessary to remove dead, diseased, or insect-infested branches and to improve tree structure, enhance vigor, or maintain safety. Because each cut has the potential to change the growth of (or cause damage to) a tree, no branch should be removed without reason. Removing foliage from a tree has two distinct effects on growth: (1) it reduces photosynthesis and, (2) it may reduce overall growth. Pruning should always be performed sparingly. Caution must be taken not to over-prune as a tree may not be able to gather and process enough sunlight to survive. Pruning mature trees may require special equipment, training, and experience. Licensed and insured tree maintenance companies are equipped to provide a variety of services to assist in performing the job safely and reducing risk of personal injury and property damage and should be consulted for this type of work. (See also *ANSI A300 Part 1 Pruning Standards*- <https://www.tcia.org>).

Planting and Irrigation: Any new planting and irrigation that is to occur under the drip line of an existing tree should be conducted with care to avoid the root system. Generally installation of an irrigation mainline should be avoided under the dripline of the existing tree. Refer to the Grading/Excavating section for installation of any irrigation lines to be installed under the drip line of an existing tree. Any new planting should match the water use of the existing tree (as defined by WUCOLS). The irrigation hydro zone for the new planting should also match the requirements of the existing tree.

Removal: There are circumstances when removal is necessary. An arborist can help decide whether or not a tree should be removed. Professionally trained arborists have the skills and equipment to safely and efficiently remove trees. Removal is recommended when a tree: (1) is dead, dying, or considered irreparably hazardous; (2) is causing an obstruction or is crowding and causing harm to other trees and the situation is impossible to correct through pruning; (3) is to be replaced by a more suitable specimen, and; (4) should be removed to allow for construction. Pruning or removing trees, especially large trees, can be dangerous work. It should be performed only by those trained and equipped to work safely in trees.

TERMS AND CONDITIONS

The following terms and conditions apply to all oral and written reports and correspondence pertaining to consultations, inspections and activities of HMM.

1. The scope of any report or other correspondence is limited to the trees and conditions specifically mentioned in those reports and correspondence. HMM assumes no liability for the failure of trees or parts of trees, either inspected or otherwise. HMM assumes no responsibility to report on the condition of any tree or landscape feature not specifically requested by the named client.
2. No tree described in this report was climbed, unless otherwise stated. HMM does not take responsibility for any defects, which could have only been discovered by climbing. A full root collar inspection, consisting of excavating the soil around the tree to uncover the root collar and major buttress roots was not performed unless otherwise stated. HMM does not take responsibility for any root defects, which could only have been discovered by such an inspection.
3. HMM shall not be required to provide further documentation, give testimony, be deposed, or attend court by reason of this appraisal or report unless subsequent contractual arrangements are made, including payment of additional fees for such services as described by HMM or in the schedule of fees or contract.
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7. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Existing Tree Map
Exhibit A



TABLE 1 - TREE QUANTITY SUMMARY

Tree Quantity by Species		
Species	Quantity	% of Site
Ailanthus altissima	3	20%
Quercus agrifolia	1	7%
Schinus molle	11	73%
Total Trees	15	100%

Tree Quantity by Size		
Circumference	Native Qty.	Non-Native Qty
38" or more	1	11
19 up to 38"	0	2
Less than 19"	0	1
Total	1	14

TABLE 2 - TREE EVALUATION SUMMARY

Prepared By: William Sowa ISA Certified Arborist WE-12270A

PROJECT NUMBER: 5559.00

PROJECT NAME: 455 PIERCY RD.

CITY: SAN JOSE

DBH MEASUREMENT HEIGHT: 54"

Date of Evaluation: 10/23/2025

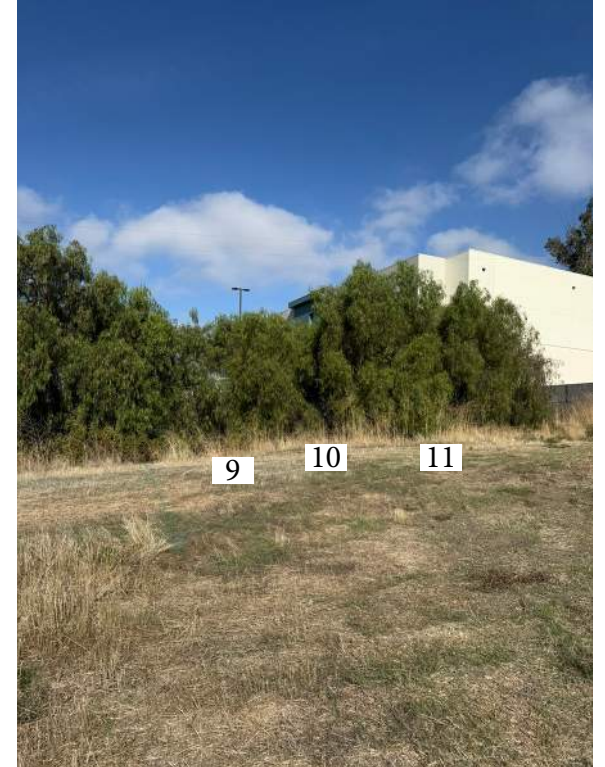
Condition Components				
Percent Rating	Category	Health	Structure	Form
81% to 100%	Excellent	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.
61% to 80%	Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/ deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.
41% to 60%	Fair	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/ or dead branches may comprise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/ deviations from species norm and/or intended use. Function and/or aesthetics are compromised.
21% to 40%	Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/ or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/ abnormal. Detracts from intended use and/or aesthetics to a significant degree.
6% to 20%	Very Poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.
0% to 5%	Dead			
Abbreviations and Definitions				
BDB	Branch dieback	Condition where branch tips or entire sections of branches die off. Typically indicative of tree stress.		
CD	Codominant branches	Forked branches nearly the same size in diameter, arising from a common junction lacking a normal branch union.		
CDB	Dieback in Crown	Condition where branches in the tree crown die from the tips toward the center.		
CR	Crowded	Tree is bounded closely by one or more of the following: structure, tree, Etc.		
D	Decline	Tree shows obvious signs of decline, which may be indicative of the presence of multiple biotic and abiotic disorders.		
DBH	Diameter at Breast Height	Measurement of tree diameter in inches. Measurement height varies by City and is noted above.		
EG	Epicormic Growth	Watersprouting on trunk and main leaders or suckers, sprouts arising out of roots. Typically indicative of tree stress.		
EH	Exposed Heartwood	Exposure of the tree's heartwood is typically seen as an open wound that leaves a tree more susceptible to pathogens, disease or infection.		
GR	Girdling Roots	Roots that grow around or across other roots. Can cause restriction of nutrient and water uptake, swelling, dieback or structural instability.		
HD	Headed	Poor pruning practice of cutting back branches. Often practiced under utility lines to limit tree height.		
IB	Included Bark	Structural defect where bark is included between the branch attachment so the wood can't join. Such defect can have a higher probability of failure.		
LN	Leaning Tree	Tree leaning, see notes for severity.		
MT	Multi Trunk	Multiple central leaders originating below the DBH measurement.		
SD	Structural Defects	Naturally or secondary conditions including cavities, poor branch attachments, cracks, or decayed wood in any part of the tree that may contribute to structural failure.		
SR	Surface Roots	Roots visible at finished grade.		
ST	Stress	Environmental factor inhibiting regular tree growth. Includes drought, salty soils, nitrogen and other nutrient deficiencies in the soil.		
	Ordinance Tree	Ordinance-Size Trees. An ordinance-size tree is: Single Trunk - 38 inches or more in circumference at 4 ½ feet above ground; or Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.		

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF- ERENCE (INCHES)	ORDINANCE TREE	NATIVE/NON- NATIVE/ORCHAR D	REPLACEMENT RATIO	CANOPY (APX FEET)	HEIGHT (APX FEET)	HEALTH %	STRUCTURE %	FORM %	NOTES
1	<i>Quercus agrifolia</i>	Coast Live Oak	4, 2, 2, 2, 2, 3, 3, 3, 3, 1, 1, 1, 1	88	YES	NATIVE	5:1	20	13	60%	50%	50%	brown leaf spots, possibly leaf galls, CR fence
2	<i>Schinus molle</i>	Peruvian Peppertree	16, 8	75	YES	NON-NATIVE	4:1	40	25	60%	50%	50%	CR old barbed wire fence, Sap sucker damage
3	<i>Schinus molle</i>	Peruvian Peppertree	25, 21, 24	220	YES	NON-NATIVE	4:1	30	25	60%	50%	50%	BDB, hollows, CR old barbed wire fence, sap sucker damage
4	<i>Schinus molle</i>	Peruvian Peppertree	6.0	19	NO	NON-NATIVE	1:1	12	12	65%	65%	5%	CR old barbed wire fence, sap sucker damage
5	<i>Schinus molle</i>	Peruvian Peppertree	9, 12.5	68	YES	NON-NATIVE	4:1	28	20	35%	40%	40%	D, CR powerlines and old barbed wire fence, sap sucker damage
6	<i>Schinus molle</i>	Peruvian Peppertree	5, 10, 5.5, 6	83	YES	NON-NATIVE	4:1	25	24	60%	60%	60%	CR Tree 7 & old barbed wire fence, Sap sucker damage
7	<i>Schinus molle</i>	Peruvian Peppertree	6.5, 17, 16, 11, 7	181	YES	NON-NATIVE	4:1	30	22	60%	60%	60%	CR old barbed wire fence, Sap sucker damage
8	<i>Schinus molle</i>	Peruvian Peppertree	5, 3, 3	35	NO	NON-NATIVE	2:1	15	15	60%	60%	60%	CR tree 9 & old barbed wire fence, Sap sucker damage
9	<i>Schinus molle</i>	Peruvian Peppertree	10, 7.5, 8, 4, 4, 12	143	YES	NON-NATIVE	4:1	35	22	60%	60%	60%	CR old barbed wire fence, Sap sucker damage
10	<i>Schinus molle</i>	Peruvian Peppertree	11.5, 14, 14, 6, 3, 13	193	YES	NON-NATIVE	4:1	30	25	60%	60%	60%	CR old barbed wire fence, Sap sucker damage
11	<i>Schinus molle</i>	Peruvian Peppertree	9.5, 12, 3	77	YES	NON-NATIVE	4:1	30	30	60%	60%	60%	CR old barbed wire fence, Sap sucker damage
12	<i>Schinus molle</i>	Peruvian Peppertree	6, 12, 10.5, 11.5, 21	192	YES	NON-NATIVE	4:1	48	40	70%	65%	70%	growing through asphalt
13	<i>Ailanthus altissima</i>	Tree of Heaven	6, 7, 2, 4, 1, 1, 1, 1, 5, 5	104	YES	NON-NATIVE	4:1	33	25	65%	65%	65%	Invasive, termites
14	<i>Ailanthus altissima</i>	Tree of Heaven	9.5, 10	61	YES	NON-NATIVE	4:1	28	25	50%	65%	65%	Invasive, CD, IB, CDB
15	<i>Ailanthus altissima</i>	Tree of Heaven	3.5, 5.5, 1	31	NO	NON-NATIVE	2:1	15	18	65%	65%	65%	Invasive, possibly offsite, IB













HMH



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10/29/25

APPENDIX H

Biological Resources Report



H. T. HARVEY & ASSOCIATES

Ecological Consultants

50 years of field notes, exploration, and excellence



Silver Creek Data Center Biological Resources Report

Project #5005-01

Prepared for:

Mimi McNamara

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April 3, 2026

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Section 1. Introduction

This report describes the biological resources present on the Silver Creek Data Center project site, as well as the potential biological impacts of proposed site redevelopment and measures necessary to reduce these impacts to less-than-significant levels under the California Environmental Quality Act (CEQA). This assessment is based on the project maps and description provided to H. T. Harvey & Associates by David J. Powers & Associates through March 2026.

1.1 Project Location

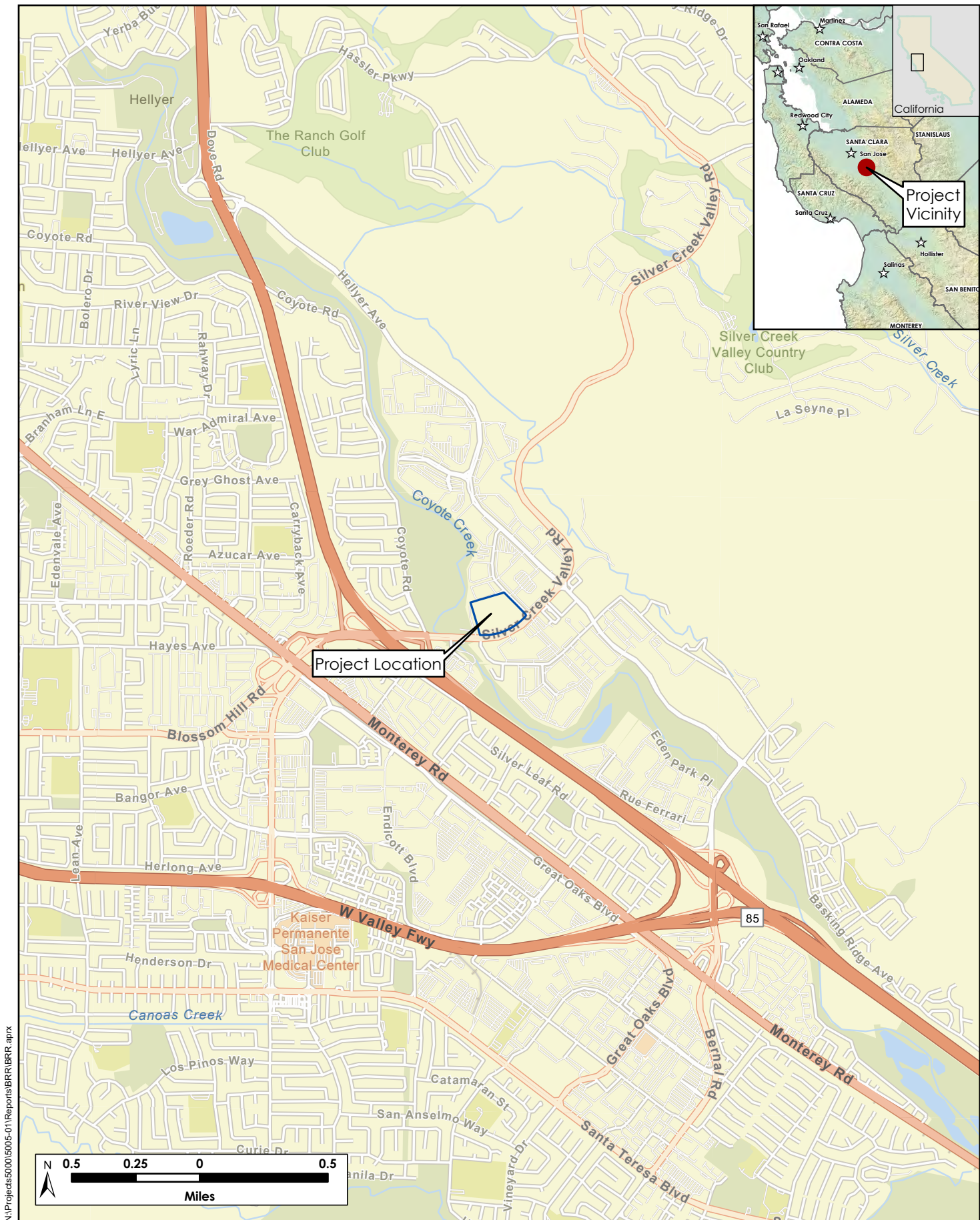
The project site is located at 5977 Silver Creek Valley Road in San José, California at the northwest corner of the Silver Creek Valley Road and Fontanoso Way intersection (Figures 1 and 2). The 15.1-acre site consists of two vacant undeveloped parcels, and Coyote Creek flows south to north 160 feet northwest of the project site (160 feet is the distance to top of bank) (Figure 2). Surrounding areas consist of commercial development to the north and east; Silver Creek Valley Road, commercial development, and an undeveloped vacant lot to the south; and Coyote Creek and an undeveloped vacant lot to the west (Figure 2). The project site is located on the *San Jose East, California* 7.5-minute United States Geological Survey (USGS) quadrangle.

The project site is located within the Santa Clara Valley Habitat Plan (VHP) permit area, and the proposed project is a *covered project* under the VHP (ICF International 2012). As a result, the proposed project is required to implement conservation measures specified by VHP conditions. Thus, all applicable VHP conditions (see Section 6.1) are considered part of the proposed project description rather than as mitigation measures.

1.2 Project Description

1.2.1 Generating Facilities

The proposed Project would include an emergency backup generating facility with a generation capacity of up to 99 megawatts (MW) to support the need for the data center to provide uninterruptible power supply for its tenant's servers. The generating facility will consist of 44 diesel-fired emergency generators arranged in a generation yard located on the north side of the data center building. Of the 44 emergency generators, 42 of the generators (with each having a 3-MW capacity) would be dedicated to replacing the electricity needs of the data center and the remaining two emergency generators (with each having a 1.5-MW capacity) would be used to support general office loads along with building and life safety services in the case of a loss of utility power.



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Figure 1. Vicinity Map
Silver Creek Data Center Biological Resources Report (5005-01)
April 2026



1.2.1.1 Generator System Description

Each of the 42 large generators will be Caterpillar Model 3516E standby emergency diesel fired generators, equipped with Selective Catalytic Reduction (SCR) equipment and diesel particulate filters (DPF) to comply with Tier 4 emissions standards. The two smaller house generators will be Caterpillar Model 3512C standby emergency diesel fired generators, which will also be equipped with SCR equipment and DPF to comply with Tier 4 emissions standards.

The maximum peak generating capacity of each large generator is 3 MW and 1.5 MW for each small generator for standby applications (short duration operation). Under normal operation with all when all generators are active, the maximum load on each generator is designed to be 80 percent of the peak capacity.

Each individual generator will be provided with its own package system. Within that package, the prime mover and alternator will be automatically turned on and off by a utility-generator programmable logic controller transfer controller located in the 480-volt main switchboard located within the data center. Each generator will be controlled by a separate, independent transfer controller. The generator will be turned on if the electrical utility power becomes unavailable and will be turned off after utility power has been restored and the transfer controller has returned the utility to the active source of power serving the computer and mechanical loads within the data center.

The generator package will integrate SCR equipment and Diesel Exhaust Fluid (DEF) tank. The generators will be constructed in a stacked configuration. The bottom generators will be placed on a concrete slab and the upper generators will be supported on a raised structural steel platform. The generators enclosures will be approximately 13 feet wide, 50 feet long and 24 feet high. Generators will have stack heights approximately 63 feet above ground level. Each pair of generators will be spaced approximately seven feet apart horizontally.

1.2.1.2 Hazardous Materials

The generating facility will prepare a Spill Prevention, Control and Countermeasure Plan to address the storage, use and delivery of diesel fuel for the generators.

Each generator unit and its integrated fuel tanks have been designed with double walls. The interstitial space between the walls of each tank is continuously monitored electronically for the existence of liquids. Additionally, the standby generator units are housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel will be delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of ~17,500 gallons. The tanker truck parks on the access road to the south of the generator yard and extends the fuel fill hose through one of multiple hinged openings in the precast screen wall surrounding the generator equipment yard or via a centralized fueling station with located on the exterior of the precast screen wall.

There are no loading/unloading racks or containment for re-fueling events; however, a spill catch basin is located at each fill port for the generators. To prevent a release from entering the storm drain system, storm drains will be temporarily blocked off by the truck driver and/or facility staff during fueling events. Rubber pads or similar devices will be kept in the generation yard to allow quick blockage of the storm sewer drains during fueling events.

To further minimize the potential for diesel fuel to come into contact with stormwater, to the extent feasible, fueling operations will be scheduled at times when storm events are improbable.

Warning signs and/or wheel chocks will be used in the loading and/or unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off will be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures will be posted at the loading and unloading areas.

DEF is used as part of the diesel engine combustion process to meet the emissions requirements. Each enclosure will have a 550-gallon DEF tank. Dosing is addressed at each generator within the enclosure.

1.2.1.3 Construction

Since the site preparation activities for the data center will include the ground preparation and grading of the entire site, the only construction activities for the generator facilities would involve construction of the generation yard. This will include construction of concrete slabs, fencing, installation of underground and above ground conduit and electrical cabling to interconnect to the data center building switchgear, and placement and securing the generators.

The generators themselves will be assembled off-site and delivered to site by truck. Each generator will be placed within the generation yard by a crane.

Construction of the generation yard and placement of the generators is expected to take six months and is included in the overall construction schedule for the data center as described in Section 1.2.2.6 *Construction* below. Construction personnel for the generating facility are estimated to range from 10 to 15 workers including one crane operator.

1.2.1.4 Facility Operation

The backup generators will be run for short periods for testing and maintenance purposes and otherwise will not operate unless there is a disturbance or interruption of the utility supply. The Bay Area Air District's Authority to Construct and the California Air Resources Board's Airborne Toxic Control Measures limits each engine to no more than 50 hours annually for reliability purposes (i.e., testing and maintenance). Maintenance and testing of each of the generators are anticipated to be once a month. Each generator will be tested individually during monthly and annual testing. Generators will only be run simultaneously during an emergency utility outage.

1.2.2 Data Center Facilities

The proposed project would construct a three-story data center building with a loading dock, backup generators, an on-site substation, associated power infrastructure, two stormwater retention ponds, vehicle and truck parking, and landscape areas. The building would be approximately 516,000 gross square feet and 83.5 feet in height to the top of the parapet wall. The building would dedicate approximately 30,000 gross square feet of administrative office space that will house support facilities such as the building lobby, restrooms, conference rooms, landlord office space, customer office space, loading dock and storage.

1.2.2.1 Data Center Building

The data center project's main component will be a three-story 516,000 square-foot data center building that will house computer servers for private clients in a secure and environmentally controlled structure and would be designed to provide 72 MW of power to information technology (Critical IT) equipment.

The data center building will consist of two main components: (1) the data center suites that will house client servers and (2) the administrative facilities. The data center suite components will consist of three levels of data center space. Each level will contain two data center suites and corresponding electrical/UPS rooms. The data center is being designed with an average rack power rating of seven kilowatts. The administrative facilities will include support facilities such as the building lobby, restrooms, conference rooms, landlord office space, customer office space, loading dock and storage.

The data center is expected to have between 30 and 45 employees and 12–15 visitors (including deliveries) visit the site per day.

Massing, Heights, and Setbacks. The three-story data hall building will be composed of administrative, data hall, and loading dock masses. The administrative portion will encompass approximately 30,121 square feet and will be located on the south side of the building. The administrative portion will be clad with glass and metal panel systems. The data hall portion will be clad primarily in insulated metal panels and/or exterior insulation and finishing systems. The top of the roof will be at 75 feet and the top of the parapet at the administrative and data hall will be at 83 feet. A rooftop dunnage platform will be provided at 87 feet for mechanical equipment. Access to the platform will be provided by a freight elevator and staircases in the building. The top of the elevator parapet will be at 95 feet.

The building will be located near the center of the site, orientating its longer axis east to west, and will be set back at a minimum of 1,200 feet from the nearest residential property to the west. The data center building will be set back a minimum of 156 feet from the property line to the west, a minimum of 56 feet from the property line to the east, a minimum of 137 feet from the property line to the south, and a minimum of 354 feet from the property line to the north.

Cooling Technology. Air cooled chillers will be used to remove the heat generated in the data center. They will be sized to be able to carry the full heat load under without any water requirement. The air-cooled chillers will not evaporate any water. Conditioned air will cool the IT equipment rejecting heat to Hot Aisle Containment and then migrates into the return air plenum above the ceiling. The heat above the ceiling will be drawn back to the gallery and conditioned by the fan wall units before being distributed back to the data hall. The office and storage areas will be conditioned via variable air volume systems consisting of Roof Top Units connected to interior variable air volume systems boxes.

1.2.2.2 Project Substation

The project would construct a new 100 mega volt-ampere (MVA) electrical substation (Project Substation) adjacent to the north side of the data center. The two-bay Project Substation (two 100 MVA 117 kV-34.5 kV step-down transformers and primary distribution switchgear) will be designed to allow one of the two transformers to be taken out of service, effectively providing 100 MVA of total power (a 2-to-make-1 design). The Project Substation will have an all-weather drivable surface. An 8-foot high chain like fence will surround all sides of the substation. An oil containment pit surrounding each transformer will capture unintended oil leaks.

The Project Substation will be capable of delivering electricity to the data center from PG&E's new Hellyer Switching Station but will not allow any electricity generated from the generator facility to be delivered to the transmission grid. Availability of Project Substation control systems will be ensured through a redundant direct current battery backup system.

The Project Substation will use two 123-kilovolt, 63-kiloamp rated sulfur hexafluoride gas insulated high voltage breakers. These would be procured prior to the January 1, 2028, phase out date and arrive on-site within 24 months of purchase date as required for this class of gas-insulated equipment.

1.2.2.3 Site Access and Parking

The overall project site will include one primary entrance from Fontanos Way located in the northeast corner of the site. A secondary emergency entrance from Silver Creek Valley Road will be located in the southwestern corner of the site.

The project would provide a total of 67 parking spaces on the site with four of these spaces being accessible parking spaces. Of the 63 standard parking spaces, seven spaces will be designated as electric vehicle Supply Equipment spaces with the electrical charging equipment available.

Twenty-six parking spaces will be categorized as electric vehicle capable, and the remaining 31 spaces will be standard spaces. Of the four accessible parking spaces, one will be an electric vehicle parking space. Additionally, the project will provide up to two motorcycle parking spaces and 16 bicycle parking spaces (four long-term and 12 short-term bicycle parking spaces).

1.2.2.4 Landscaping

There are seven existing trees on the data center site. Of the seven trees, two are identified as non-native trees, while the remaining five trees are native trees. Six of the trees are considered ordinance-sized trees. All seven trees would be removed and replaced in accordance with the City of San Jose's Tree Ordinance. A tree removal permit from the City of San José would be required to remove any trees from the project site.

1.2.2.5 Storm Water Controls and Features

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has issued the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit to regulate stormwater discharges from municipalities and local agencies. Under Provision C.3 of the NPDES permit, new and redevelopment projects that create or replace 5,000 square feet or more of impervious surface area are required to implement site design, source control, and Low Impact Development (LID)-based stormwater treatment controls to treat post-construction stormwater runoff. LID-based treatment controls are intended to maintain or restore the site's natural hydrologic functions, maximizing opportunities for infiltration and evapotranspiration, and using stormwater as a resource (e.g., rainwater harvesting for non-potable uses). Examples of C.3 LID measures include bioretention areas, flow-through planters, and subsurface infiltration systems.

The data center proposes to construct stormwater treatment areas consisting of LID bioretention areas totaling approximately 39,500 square feet, based on preliminary impervious calculations, sized according to the requirements of the NPDES permit. The stormwater treatment areas will be located around the perimeter of the site, and adjacent to paved parking areas.

The existing site is undeveloped vacant land with five storm drain laterals stubbed at the eastern and southern property lines for future use. There are two storm drain laterals on Fontanoso Way and three laterals on Silver Creek Valley Road. The proposed on-site storm drain system will connect to one existing lateral at the northern end of Fontanoso Way and two laterals on Silver Creek Valley Road. Building roof drainage and pavement runoff will be conveyed to the bioretention areas through curb and gutter, valley gutters, and curb notches. The bioretention planters will include perforated underdrains and overflow structures that connect to the on-site storm drain system.

1.2.2.6 Construction

Site grading, excavation, and construction is anticipated to begin in July 2027 and proceed for a total of approximately 16 months. The peak construction workforce will be approximately 150 workers per month with an average of approximately 100 workers per month. This workforce estimate includes the workers necessary to construct the generator facility and the PG&E Hellyer Switching Station and transmission line interconnection (a separate project).

The proposed site grading will involve cut and fill operations utilizing cut material as engineered fill. Based on preliminary grading designs, it is anticipated approximately 1,100 cubic yards of material will be imported to the site. Maximum cut depths are estimated to be 10 feet below existing grade, particularly for gravity utilities. As recommended in the preliminary geotechnical engineering report, the foundation system for the data center building be a cast in place aggregate pier system extending at least 10 feet into underlying formational material. Shallow foundations placed on engineered fill or stable underlying formational material may be used for ancillary support features.

The maximum depth below existing grade for any of the drainage facilities (bioretention areas) will be approximately 5.5 feet below existing grade. Utility pipeline trenches are not expected to exceed 10 feet in depth.

Section 2. Methods

2.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed the project description, plans, and maps provided by David J. Powers & Associates; aerial images (Google, LLC. 2026); a USGS topographic map; the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDDB) (2026); the City of San José's General Plan *Envision San José 2040* (City of San José 2025); habitat and species information from the VHP (ICF International 2012); and other relevant reports, scientific literature, and technical databases. For the purposes of this report, the *project vicinity* is defined as the area within a 5-mile radius surrounding the project site.

In addition, for plants, we reviewed all species on current California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1A, 1B, 2A, 2B, 3, and 4 lists occurring in the project region, which is defined as the *San Jose East, California* USGS 7.5-minute quadrangles and surrounding eight quadrangles (*Milpitas, Calaveras Reservoir, Mount Day, San Jose West, Lick Observatory, Los Gatos, Santa Teresa Hills, and Morgan Hill*). In addition, we queried the CNDDDB (2026) for natural communities of special concern that occur on the project site, and we perused records of birds reported in nearby areas, such as along the Coyote Creek Trail, on eBird (Cornell Lab of Ornithology 2026) and on the South-Bay-Birds List Serve (2026).

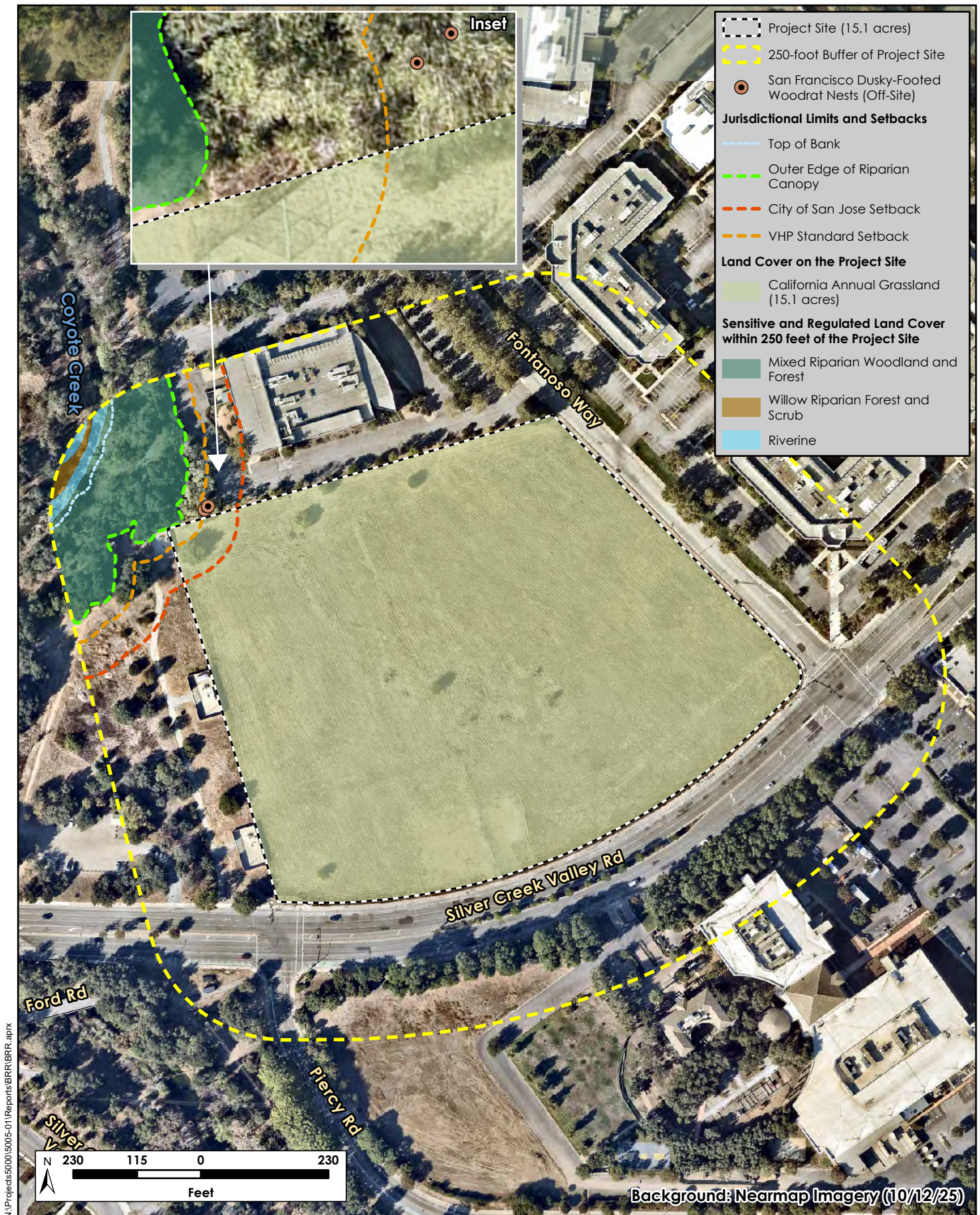
2.2 Site Visits

H. T. Harvey & Associates plant and wetland ecologist Katherine Marlin, M.S., conducted reconnaissance-level surveys of the project site on October 23, 2025 and February 20, 2026; wildlife ecologist Lauren Salazar, B.A., conducted a reconnaissance-level survey of the project site on November 11, 2025; and senior wildlife ecologist Robin Carle, M.S., conducted a reconnaissance-level survey of the adjacent riparian corridor on February 21, 2026. The purpose of the surveys was to provide an impact assessment specific to the proposed construction of the project, as described above. Specifically, the survey was conducted to (1) assess existing biotic habitats and plant and animal communities on the project site, (2) assess the project site for its potential to support special-status species and their habitats, and (3) identify potential jurisdictional and sensitive habitats, such as waters of the U.S./state and riparian habitat. L. Salazar also conducted a focused survey for (1) burrowing owls (*Athene cunicularia*) and suitable burrowing owl roosting and nesting habitat (i.e., burrows of California ground squirrels [*Otospermophilus beecheyi*]) on and within 250 feet of the site, (2) evidence of previous raptor nesting activity (i.e., large stick nests) on and immediately adjacent to the site, (3) potential bat roosting habitat on the site, (4) northwestern pond turtles (*Actinemys marmorata*) and suitable habitat for this species on and adjacent to the site, and (5) San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) and suitable habitat for this species on and adjacent to the site.

Because the proposed project is a covered project under the approved VHP (ICF International 2012), VHP mapping of land cover types was field-verified and modified as necessary based upon site conditions observed during the surveys. In addition, because the reach of Coyote Creek west of the project site is mapped by the VHP as potentially suitable nesting habitat for the tricolored blackbird (*Agelaius tricolor*), K. Marlin and L. Salazar conducted a habitat survey to determine whether any potential nesting substrate for tricolored blackbirds was present within 250 feet of the project site, per Condition 17 of the VHP.

Due to the close proximity of Coyote Creek to the project site, K. Marlin also mapped the limits of the riparian canopy and the top of bank on the east side of the creek adjacent to the site using a sub-meter GPS in the field. Per California Energy Commission (CEC) requirements, K. Marlin also mapped the approximate boundaries of potentially sensitive and regulated habitats, such as wetlands, other waters of the U.S./state, and riparian habitat, within 250 feet of the site. Biotic habitats on the project site, sensitive and regulated habitats within 250 feet of the site, and the top of bank of Coyote Creek are shown on Figure 3.

Per CEC requirements, a list of all plant and animal species observed on the site during the surveys is provided in Appendix A.



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3. Land Cover Map
Silver Creek Data Center Biological Resources Report (5005-01)
April 2026

Section 3. Regulatory Setting

Biological resources on the project site are regulated by a number of federal, state, and local laws and ordinances, as described below.

3.1 Federal Regulations

3.1.1 Clean Water Act

The Clean Water Act (CWA) functions to maintain and restore the physical, chemical, and biological integrity of waters of the U.S., which include, but are not limited to, tributaries to traditionally navigable waters currently or historically used for interstate or foreign commerce, and adjacent wetlands. Historically, in non-tidal waters, U.S. Army Corps of Engineers (USACE) jurisdiction extends to the ordinary high water (OHW) mark, which is defined in Title 33, Code of Federal Regulations, Part 328.3. If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark to the outer edges of the wetlands. Wetlands that are not adjacent to waters of the U.S. are termed “isolated wetlands” and, depending on the circumstances, may be subject to USACE jurisdiction. In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line. The high tide line is defined in 33 Code of Federal Regulations Part 328.3 as “the line of intersection of the land with the water’s surface at the maximum height reached by a rising tide.” If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark or high tide line to the outer edges of the wetlands.

A May 25, 2023, U.S. Supreme Court decision in *Sackett v. Environmental Protection Agency* limited the definition of jurisdictional wetlands that are considered waters of the U.S. to those wetlands having a continuous surface connection with traditional navigable waters. In September 2023, the EPA released the current definition of waters of the U.S., called the conforming rule. The San Francisco District of the USACE has not yet issued specific guidance regarding exactly how these *Sackett* limitations affect the identification of jurisdictional wetlands for sites such as the project site.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of Section 401 Water Quality Certification. The State Water Resources Control Board (SWRCB) is the state agency (together with the RWQCBs) charged with implementing water quality certification in California.

Project Applicability: The project site does not support wetland or aquatic habitats. Coyote Creek, located off-site to the west, is considered waters of the U.S. based the presence of an OHW mark, regular flow, and direct hydrologic connectivity to the San Francisco Bay. All wetlands associated with Coyote Creek occur within the OHW mark. These jurisdictional wetlands and waters are located approximately 160 feet outside of the project

site, and no project activities are proposed within the bed and banks of Coyote Creek. As a result, a permit from the USACE would not be required for the project.

3.1.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits the creation of any obstruction to the navigable capacity of waters of the U.S., including discharge of fill and the building of any wharfs, piers, jetties, and other structures without Congressional approval or authorization by the Chief of Engineers and Secretary of the Army (33 U.S.C. 403).

Navigable waters of the U.S., which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide, and/or those which are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as “the line on the shore reached by the plane of the mean (average) high water.” It is important to understand that the USACE does not regulate wetlands under Section 10, only the aquatic or open waters component of bay habitat, and that there is overlap between Section 10 jurisdiction and Section 404 jurisdiction. According to 33 CFR, Part 329.9, a waterbody that was once navigable in its natural or improved state retains its character as “navigable in law” even though it is not presently used for commerce as a result of changed conditions and/or the presence of obstructions. Historical Section 10 waters may occur behind levees in areas that are not currently exposed to tidal or muted-tidal influence, and meet the following criteria: (1) the area is presently at or below the mean high water line; (2) the area was historically at or below mean high water in its “unobstructed, natural state”; and (3) there is no evidence that the area was ever above mean high water.

As mentioned above, Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of dredged or fill material into waters of the U.S. If a project also proposes to discharge dredged or fill material and/or introduce other potential obstructions in navigable waters of the U.S., a Letter of Permission authorizing these impacts must be obtained from the USACE under Section 10 of the Rivers and Harbors Act.

Project Applicability: Coyote Creek contains current Section 10 waters only along the river’s lower reaches where it is subject to tidal influence (miles downstream from the project site). However, no current or historical Section 10 Waters are present within or close to the project site. Therefore, a Letter of Permission from the USACE is not required.

3.1.3 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or *take*, which is broadly defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.” *Take* can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as *take* even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA but may become listed in the near future and are often included in their review of a project.

Project Applicability: No federally listed or candidate plant species occur on the site. The federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) is known to occur in Coyote Creek 160 feet from the project site; however, due to the intervening distance between the site and the creek, project activities are not expected to directly or indirectly affect the steelhead. The monarch butterfly (*Danaus plexippus*), which is proposed for listing under FESA, may occur on the project site as an occasional nonbreeding forager or dispersant, but it is not known to roost on the project site and no suitable breeding habitat (i.e., milkweeds [*Asclepias* spp.]) is present; thus, it is not expected to be impacted substantively by the project. The northwestern pond turtle, federally proposed as threatened, may also occur on the project site, and there is some potential for the project to result in impacts on this species if it is present.

3.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH and respond in writing to recommendations by NMFS.

Project Applicability: The Pacific Fisheries Management Council has designated EFH for the Pacific Coast Salmon FMP within Coyote Creek 160 feet northwest of the project site due to the presence of the Chinook salmon (*Oncorhynchus tshawytscha*). However, due to intervening distance between the site and the creek, project activities are not expected to directly or indirectly affect this species.

3.1.5 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An *active* nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

Project Applicability: All native bird species that occur on the project site are protected under the MBTA.

3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the state. Their authority comes from the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the state as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California’s jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that “shallow” waters of the state include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB’s Assistant Executive Director has stated that, in practice, the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The *Procedures* describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs to impact.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that a proposed project will uphold state water quality standards. Because California’s jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the state require Water Quality Certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA NPDES permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: No waters of the state or riparian habitat occur on the project site. Adjacent to the project site, waters of the state include all potential waters of the U.S., including Coyote Creek and its associated wetlands. The RWQCB will also consider the riparian vegetation and areas of the riparian banks above OHW and below top of bank to be important buffers to waters of the state associated with the river. No impacts to waters of the state or riparian habitat will result from the project because no work is proposed within the Coyote

Creek channel or its riparian corridor, and a Section 401 permit or Waste Discharge Requirement from the RWQCB would not be required.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in *take* of individuals (i.e., “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of *take* under the California Fish and Game Code. The CDFW, however, has interpreted *take* to include the “killing of a member of a species which is the proximate result of habitat modification.”

Project Applicability: Crotch’s bumble bee (*Bombus crotchii*), a candidate for listing under CESA, may occur on the project site in small numbers, and can potentially nest there. No state-listed plant species or additional state-listed animal species are reasonably expected to occur on or near the project site.

3.2.3 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in the FESA and the CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of “species of special concern” that serve as “watch lists”. Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential

rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the CNPS Inventory of Rare and Endangered Plants. The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.
- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California;
- .2—fairly endangered in California;
- .3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects to these species may be considered significant. Impacts on plants that are listed by the CNPS on CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of natural communities of special concern, in addition to plant and wildlife species. Vegetation types of "special concern" are tracked in Rarefind (CNDDDB 2025). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings are a reflection of the condition of a habitat within California. If an alliance is marked as a G1–G3, all of the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP's) currently accepted list of vegetation alliances and associations (CDFW 2026).

Project Applicability: All potential impacts on biological resources will be considered during CEQA review of the project in the context of this biological resources report. Project impacts are discussed in Section 6 below.

3.2.4 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A *stream* is defined in Title 14, California Code of Regulations Section 1.72, as “a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code Section 2786 defines *riparian habitat* as “lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source.” The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction over a stream’s bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, CDFW regulates any project proposed by any person that will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds.” California Fish and Game Code Section 1602 requires an entity to notify CDFW of any proposed activity that may modify a river, stream, or lake. If CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Certain sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered *take* by the CDFW. Raptors (e.g., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the

code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered *take* by the CDFW.

Project Applicability: CDFW jurisdiction under Section 1602 of the California Fish and Game Code would extend up to the top of bank or to the outer edge of the riparian canopy (whichever is greater) along Coyote Creek west of the project site. There will be no project impacts within the banks of Coyote Creek or within the riparian corridor that is subject to CDFW jurisdiction because no work is proposed within these areas. Therefore, a CDFW LSAA would not be required for the project.

Most native bird, mammal, and other wildlife species that occur on the project site and in the immediate vicinity are protected under the California Fish and Game Code. Project impacts on these species are discussed in Section 6.

3.2.5 State Water Resources Control Board Stormwater Regulation

Construction Phase. Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with state requirements to control the discharge of stormwater pollutants under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Board Order No. 2009-0009-DWQ, as amended and administratively extended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Pollution Prevention Plan must be developed and maintained during the project, and it must include the use of best management practices (BMPs) to protect water quality until the site is stabilized.

Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors. Additionally, the Construction General Permit does not extend coverage to projects if stormwater discharge-related activities are likely to jeopardize the continued existence or result in take of any federally listed endangered or threatened species.

Post-Construction Phase. In many Bay Area counties, including Santa Clara County, projects must also comply with the California RWQCB, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2015-0049, as amended). This permit requires that all projects implement BMPs and incorporate LID practices into the design that prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

Project Applicability. The project will comply with the requirements of the NPDES Statewide Storm Water Permit and Statewide General Construction Permit. Therefore, construction-phase activities would not result in detrimental water quality effects on biological or regulated resources.

3.3 Local Regulations

3.3.1 City of San José Tree Ordinance

The City of San José promotes the health, safety, and welfare of the city by regulating the planting, removal, and maintenance of trees in the city. The City provides tree protection under the Municipal Code Section 13.28 (street trees, hedges, and shrubs), 13.32 (tree removal controls), and 13.44.220 (damaging park property). The Municipal Code details permit requirements for tree related work, including removal, pruning, and planting. Removal of trees within the street right-of-way are subject to tree removal permitting by the City of San José. Street trees are located in the public right-of-way between the curb and the sidewalk. Pruning or removal of street trees is illegal without a permit issued by the City. Replacement trees are required for the removal of ordinance-size street trees. A single trunk tree qualifies as an ordinance-size tree if it measures 38 inches or more in circumference at 4.5 feet above ground (approximately 12 inches diameter at breast height). A multi-trunk tree qualifies as ordinance-size if the combined measurement of each trunk circumference (at 4.5 feet above ground) adds up to 38 inches or more. As part of the permit application, it is required to contact the planning division with regard to the replacement of ordinance-size trees.

Removal of trees on private property, commercial, and industrial properties are also subject to tree removal permitting by the City of San José. A permit is required to remove a tree of “any size” from a commercial and industrial property. A separate “permit adjustment application” is required to be filed for non-ordinance-sized trees that will be removed from commercial and industrial properties. As part of the permit application, it is required to contact the City’s planning division with regard to the replacement of trees on private, commercial and industrial properties.

Project Applicability: Ordinance-sized trees are present on the project site, and three ordinance-sized trees will be removed to support the project. The project will comply with the City of San José’s tree replacement guidelines and policies for any trees that need to be removed.

3.3.2 City of San José Riparian Corridor Protection and Bird-Safe Design Policy

Measures to protect riparian corridors are provided in the City’s *Riparian Corridor Policy Study* (City of San José 1999), which was incorporated into the City’s Envision San José 2040 General Plan (City of San José 2025); the Zoning Code (Title 20 of the San José Municipal Code); and the City Council-adopted VHP, specifically Condition 11. The term *riparian corridor* as defined by the City means any defined stream channel, including the area up to the bank full-flow line, as well as all characteristic streamside vegetation in contiguous adjacent uplands.

In 2016, the City released Council Policy 6-34 to provide guidance on the implementation of riparian corridor protection consistent with all City policies and requirements that provide for riparian protection. Council Policy 6-34 indicates that riparian setbacks should be measured from the outside edges of riparian habitat or the top of bank, whichever is greater, and that development of new buildings and roads generally should be set back 100 feet from the riparian corridor. However, Council Policy 6-34 also indicates that a reduced setback may be considered under limited circumstances, including the existence of legal uses within the minimum setback, and utility or equipment installations or replacements that involve no significant disturbance to the riparian corridor during construction and operation and that generate only incidental human activity.

Project Applicability: A riparian corridor associated with Coyote Creek is located immediately adjacent to the project site. The top of bank and riparian edge along this corridor were mapped as part of the field surveys described in Section 2.2 (Figure 3). The edges of the riparian corridor correspond to the outer edge of the riparian canopy, which is farther landward from the creek than the top of bank. Therefore, the City's riparian setback would extend 100 feet from the edge of the riparian corridor, as shown on Figure 3.

The project would need to comply with the City's riparian corridor policy, which includes guidance for allowable uses within the riparian setback. The City's policy also includes bird-safe design for new buildings and structures; however, no new structures are proposed within the setback on the project site.

3.3.3 Santa Clara Valley Habitat Plan

The VHP (ICF International 2012) provides a framework for promoting the protection and recovery of natural resources, including endangered and threatened species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The VHP allows the County of Santa Clara, Valley Water, the Santa Clara Valley Transportation Authority, and the cities of Gilroy, Morgan Hill, and San José (collectively, the Local Partners or Permittees) to receive endangered species permits for activities and projects they conduct and those under their jurisdiction. The Santa Clara Valley Open Space Authority also contributed to VHP preparation. The VHP will protect, enhance, and restore natural resources in specific areas of Santa Clara County and contribute to the recovery of endangered species. Rather than separately permitting and mitigating individual projects, the VHP evaluates natural-resource impacts and mitigation requirements comprehensively in a way that is more efficient and effective for at-risk species and their essential habitats.

The VHP was developed in association with the USFWS and CDFW and in consultation with stakeholder groups and the general public. The USFWS has issued the Permittees a 50-year permit that authorizes incidental take of listed species under FESA, while CDFW has issued a 50-year permit that authorizes take of all covered species under the Natural Community Conservation Planning Act. This approach allows the Permittees to streamline future mitigation requirements into one comprehensive program. In addition to obtaining take authorization for each participating agency's respective activities, the cities and County will be able to extend take authorization to project applicants under their jurisdiction.

The USFWS and CDFW will also provide assurances to the Permittees that no further commitments of funds, land, or water will be required to address impacts on covered species beyond that described in the VHP to address changed circumstances. In addition to strengthening local control over land use and species protection, the VHP provides a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites created under the current approach.

The VHP and associated documents are approved and adopted by the six Local Partners (Cities of Gilroy, Morgan Hill and San José, County of Santa Clara, Santa Clara Valley Transportation Authority, and Valley Water).

Project Applicability. The project site is located within the VHP permit area. Therefore, project activities are considered covered under the VHP and are required to comply with applicable VHP conditions (ICF International 2012). VHP conditions that apply to the project are discussed in detail in Section 6.1 below.

Section 4. Environmental Setting

4.1 General Project Area Description

The project site is located in San José in Santa Clara County, California (Figure 1). The climate in the project vicinity is coastal Mediterranean, with most rain falling in the winter and spring. Mild cool temperatures are common in the winter. Hot-to-mild temperatures are common in the summer. Climate conditions in the vicinity include a 30-year average of approximately 16.38 inches of annual precipitation with a monthly average temperature range from 48.2°F to 72.0°F (PRISM Climate Group 2026). Elevations on the project site range from 202 to 206 feet above mean sea level (Google, LLC 2026). The Natural Resources Conservation Service has mapped two soil units on the project site: (1) Urbanland, 0–2% slopes, alluvial fans; and (2) Urbanland-Elpaloalto complex, 0–2% slopes. Both of these complexes are found on basin floors and alluvial fans, are well-drained, and are composed of disturbed and human transported material (Natural Resources Conservation Service 2026).

4.2 Land Cover

As described above, biotic habitats on the project site were classified according to the land cover classification system described in the VHP (ICF International 2012), with modifications based upon site conditions verified during the 2025 field survey. The reconnaissance-level survey identified California annual grassland habitat throughout all areas of the project site (Figure 3). This land cover type is described in detail below. Plant and animal species observed during the reconnaissance-level survey are listed in Appendix A.

4.2.1 California Annual Grassland

Vegetation. California annual grassland occupies 15.1 acres of the project site (Figure 3). This land cover occurs throughout the site in previously disturbed and graded areas (Photos 1 and 2 in Appendix B). Portions of the site appear to have been historically developed or landscaped, with evidence of past clearing and soil disturbance. Small patches of bare ground and gravel are scattered throughout the grassland area. During the October 2025 site visit, vegetation was fully grown and past flowering, with nonnative annual grasses ranging from approximately 1–2 feet tall. The grassland is dominated by nonnative grasses including wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), and smilo grass (*Stipa milacea*). Dominant forbs include nonnative curly dock (*Rumex crispus*), cheeseweed (*Malva parviflora*), field bindweed (*Convolvulus arvensis*), prickly lettuce (*Lactuca serriola*), short-podded mustard (*Hirschfeldia incana*), horseweed (*Erigeron canadensis*), wild beet (*Beta vulgaris*), and bull thistle (*Cirsium vulgare*). Scattered woody vegetation is present throughout the grassland. Observed tree and shrub species include native coast live oak (*Quercus agrifolia*), California black walnut (*Juglans hindsii*), coyote brush (*Baccharis pilularis*), and blue elderberry (*Sambucus mexicana*), as well as nonnative black locust (*Robinia pseudoacacia*) and European olive (*Olea europaea*). These individuals appear to be either remnant native trees or planted landscape species and do not form a continuous canopy.

Wildlife. Wildlife use of grasslands on the project site is limited by disturbance (e.g., periodic mowing as well as human activity in surrounding areas), the limited extent of the grassland area, and the isolation of this habitat from more extensive grasslands in the region (i.e., in the Diablo Range to the east). As a result, some of the wildlife species associated with extensive grasslands in the South Bay, such as the grasshopper sparrow (*Ammodramus savannarum*), are absent from the grasslands on the project site. Many of the wildlife species found in this grassland area occur primarily in adjacent developed or riparian areas and use the grasslands on the project site for foraging. These include birds such as the house finch (*Haemorrhous mexicanus*), bushtit (*Psaltirparus minimus*), and lesser goldfinch (*Spinus psaltria*), which forage on seeds in grassland areas, and the black phoebe (*Sayornis nigricans*), cliff swallow (*Petrochelidon pyrrhonota*), and Mexican free-tailed bat (*Tadarida brasiliensis*), which forage aerially over grassland habitats for insects. Mammals associated with nearby urban areas will also use the grassland habitats on the project site for foraging; these include the native striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*) as well as the nonnative Virginia opossum (*Didelphis virginiana*) and feral cat (*Felis catus*).

Approximately 15 burrows of California ground squirrels were observed on the project site during the November 2025 site visit. Other common rodent species that can occur in grasslands on the project site include the Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*) and deer mouse (*Peromyscus maniculatus*). Diurnal raptors such as red-tailed hawks (*Buteo jamaicensis*) and red-shouldered hawks (*Buteo lineatus*) forage for these small mammals over grasslands during the day, and at night nocturnal raptors, such as barn owls (*Tyto alba*), will forage for nocturnal rodents, such as deer mice. Several reptile species can also occur in this grassland habitat, including the western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and southern alligator lizard (*Elgaria multicarinata*).

4.3 Adjacent Habitat Areas

The project site is located east of Coyote Creek, which supports mixed riparian woodland and forest habitats 1 foot northwest of the project site and riverine habitat 160 feet northwest of the project site (Figure 3).

The mixed riparian woodland and forest habitat along Coyote Creek is characterized by a moderately dense canopy with native mature trees and an understory of smaller trees, saplings, shrubs, herbaceous species, and grasses (Photos 3 and 4 in Appendix B). Native coast live oak is the dominant riparian tree species, with many California buckeye (*Aesculus californica*), Fremont cottonwood (*Populus fremontii*), and blue elderberry also present. The understory is relatively open, and supports shrubs include native poison oak (*Toxicodendron diversilobum*) and nonnative Himalayan blackberry (*Rubus armeniacus*), as well as herbaceous common annual grassland species such as Italian ryegrass (*Festuca perennis*). Channel bars within and along Coyote Creek support willow riparian forest and scrub habitat (Photo 5 in Appendix B). This habitat is dominated by native sandbar willow (*Salix exigua*) and arroyo willow (*Salix lasiolepis*), with localized infestations of nonnative giant reed (*Arundo donax*).

Riparian habitats in California generally support exceptionally rich animal communities and contribute disproportionately to landscape-level species diversity. The presence of perennial flow and abundant invertebrate fauna provide foraging opportunities, and the diverse habitat structure provides cover and breeding opportunities for many species along this reach of Coyote Creek. Many bird species that are attracted to

herbaceous vegetation and aquatic habitats along the river are expected to move past the project site when flying to, from, or along Coyote Creek. The numbers of these birds moving through the site will vary by time of year and by species. Many birds, such as waterfowl, often tend to move in large groups, while other species, such as migrating landbirds, will move through individually or in smaller flocks. Local bird numbers also vary by time of year, as many birds form small to large flocks during winter and migration, and occur in more widely spaced pairs during the breeding season.

We consider the riparian habitat along this reach of the Coyote Creek to be of moderately high quality for birds. The large numbers of mature native trees contribute positively to the value of this habitat for birds. However, the relatively narrow width of the riparian canopy, the relatively open understory, the regularly disturbed nature of the stream channel (for stream maintenance/flood prevention purposes), and trampling/disturbance of this habitat from homeless encampments negatively affect the quality of this habitat for birds. This riparian habitat is also fragmented due to the surrounding high-density urban development and the presence of bridges and road crossings along nearby portions of the river, which reduces connectivity with riparian habitat and other natural areas upstream and downstream. Nevertheless, songbirds that migrate along the Pacific Flyway and travel through the site's vicinity are expected to be attracted to this reach of the Coyote Creek, and this habitat is used fairly heavily by migrating birds. This reach of the Coyote Creek is also used regularly by resident birds that are present in the vicinity year-round and are attracted to the riparian habitat for foraging and nesting opportunities. According to eBird, a database of bird sightings curated by Cornell University's Laboratory of Ornithology, approximately 142 bird species have been recorded at the Coyote Creek Parkway-Silver Creek Staging Area 250 feet west of the site, demonstrating relatively high bird diversity along this reach of Coyote Creek (Cornell Lab of Ornithology 2026).

Reptiles such as the gopher snake, western fence lizard, and southern alligator lizard are present in the riparian habitat along the Coyote Creek. Amphibians such as the arboreal salamander (*Aneides lugubris*) occur in the leaf litter in this habitat and the native Pacific tree frog (*Pseudacris regilla*) is also known to be present. Urban-adapted mammals, such as the native raccoon and striped skunk, as well as the nonnative Virginia opossum, feral cat, and eastern gray squirrel (*Sciurus carolinensis*), reside in riparian habitat and adjacent habitats along Coyote Creek.

4.4 Wildlife Movement

Wildlife movement within and in the vicinity of the project site takes many forms and is different for the various suites of species associated with these lands. Bird and bat species move readily over the landscape in the project vicinity, foraging over and within both natural lands and landscaped areas. Mammals of different species move within their home ranges, but also disperse between patches of habitat. Generally, reptiles and amphibians similarly settle within home ranges, sometimes moving to central breeding areas, upland refugia, or hibernacula in a predictable manner, but also dispersing to new areas. Some species, especially among the birds and bats, are migratory, moving into or through the project vicinity during specific seasons. Aside from bats, there are no other mammal species in the vicinity of the site that are truly migratory. However, the young of many mammal species disperse from their natal home ranges, sometimes moving over relatively long distances in search of new areas in which to establish.

Movement corridors are segments of habitat that provide linkages for wildlife through the mosaic of suitable and unsuitable habitat types found within a landscape while also providing cover. On a broader level, corridors also function as paths along which wide-ranging animals can travel, populations can move in response to environmental changes and natural disasters, and genetic interchange can occur. In California, environmental corridors often consist of riparian areas along streams, rivers, or other natural features.

Due to the presence of development north, east, and south of the project site there are currently no well-defined or important movement corridors for mammals, amphibians, or reptiles on or through the project site. Wildlife species may move through the area using cover and refugia as they find them available. Coyote Creek, which eventually drains to the open waters of the San Francisco Bay, and its associated riparian corridor adjacent to the site serves as a movement corridor for several common and special-status species of birds fish, mammals, reptiles, and amphibians. In addition, a number of birds, mammals, reptiles, and amphibians utilize the riparian corridor of Coyote Creek for movement purposes, as it provides sufficient vegetative cover preferred by these species when navigating across the landscape. Specifically, migratory passerines, rabbits, striped skunks, raccoons, Pacific tree frogs, and alligator lizards, amongst other species, are expected to move along this corridor adjacent to the project site.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected by state, federal, or local governments as “threatened, rare, or endangered”; such species are typically described as “special-status species”. For the purpose of the environmental review of the project, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Section 3 above.

For purposes of this analysis, “special-status” plants are considered plant species that meet one or more of the following criteria:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

For purposes of this analysis, “special-status” animals are considered animal species that meet one or more of the following criteria:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur on the project site was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 4 depicts CNDDDB records of special-status plant species in the general vicinity of the project site and Figure 5 depicts CNDDDB records of special-status animal species. These generalized maps show areas where special-status species are known to occur or have occurred historically. Per CEC requirements, these maps include CNDDDB records within 10 miles of the project site and the boundaries of applicable local Habitat Conservation Plans (i.e., the VHP permit area). No wildlife nursery sites (e.g., egret rookeries) are present near the project site (San Francisco Bay Bird Observatory 2026).

5.1 Special-Status Plant Species

The CNPS (2026) and CNDDB (2026) identify 69 special-status plant species as potentially occurring in at least one of the nine USGS 7.5-minute quadrangles containing or surrounding the project site for species in CRPR 1 and 2, or in Santa Clara County for CRPR 3 and 4 species. Of the 69 potentially occurring special-status plant species, all but one were determined to be absent from the project site for at least one of the following reasons: (1) absence of suitable habitat types; (2) lack of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the elevation range of the species is outside of the range of the project site; and/or (4) the species is presumed extirpated from the project region (Appendix C). Many species are known to occur in marsh habitat associated with the San Francisco Bay to the northwest, or serpentine and alkaline soils associated with the Diablo Range to the east where outcrops of serpentine geology and soils are present. Serpentine soils do not occur on or adjacent the project site. Project activities will be restricted to California annual grassland that has been previously disturbed.

Suitable habitat, edaphic requirements, and elevation range are present on the project site for only one special-status plant species, Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Congdon's tarplant has been documented by the CNDDB in the project vicinity (Figure 4) and can persist in disturbed grasslands. An expanded discussion of this species is provided below.

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Federal Listing Status: None; State Listing Status: None; CRPR: 1B.1. Congdon's tarplant is an annual herb in the composite family (Asteraceae) that is endemic to California. It has a variable blooming period extending from approximately May through November. Congdon's tarplant occurs in valley and foothill grassland habitat, floodplains, and swales, particularly those with alkaline substrates; and in disturbed areas with nonnative grasses such as wild oats, ripgut brome, Italian rye grass (*Festuca perennis*), and seaside barley (*Hordeum marinum*) (Baldwin et al. 2012, CNDDB 2025, CNPS 2025). Congdon's tarplant occurs in Alameda, Contra Costa, Monterey, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, and Solano Counties (CNDDB 2026). In Santa Clara County, populations occur in ruderal grassland at Moffett Federal Airfield; in ruderal grassland and seasonal wetland habitats within Sunnyvale Baylands Park; in annually disked ruderal grassland in Alviso, north of Highway 237 and east of North First Street; and in ruderal grassland along railroad tracks in Milpitas.

The closest location of Congdon's tarplant is 13.0 miles to the northwest in Milpitas (CNDDB 2026). The California annual grassland habitat on the project site provides some suitable habitat for Congdon's tarplant, though the soils on the site are not alkaline, which Congdon's tarplant prefers. Due to the lack of alkaline soils and regular disturbance from mowing, the habitat on the project site is considered only marginally suitable for this species (CNPS 2026). During the survey performed in October 2025, which was conducted during the blooming period of this species, K. Marlin conducted a focused survey for Congdon's tarplant within areas of suitable habitat (i.e., areas of California annual grassland) throughout the project site as well as a 50-foot surrounding buffer, as access allowed. No individuals of Congdon's tarplant were observed during the survey,

and no additional special-status plant species were detected. Therefore, Congdon's tarplant is determined to be absent from the project site.

5.2 Special-Status Animal Species

The legal status and likelihood of occurrence on the project site of special-status animal species known to occur, or potentially occurring, in the surrounding region are presented in Table 1. Most of the special-status species listed in Table 1 are not expected to occur on the project site because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat.

The following special-status species that are present in less urbanized settings in the South Bay, or in specialized habitats in the South Bay, are absent from the project site due to a lack of suitable habitat and/or isolation of the site from populations by urbanization: the Bay checkerspot butterfly (*Euphydryas editha bayensis*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylei*), burrowing owl, Swainson's hawk (*Buteo swainsoni*), bald eagle (*Haliaeetus leucocephalus*), loggerhead shrike (*Lanius ludovicianus*), least Bell's vireo (*Vireo bellii pusillus*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis mutica*), Townsend's big-eared bat (*Corynorhinus townsendii*), and mountain lion (*Puma concolor*). While bald eagles may fly over the project site at times, none are expected to nest in, or make regular/heavy use of, any resources on the project site. The western bumble bee (*Bombus occidentalis*) occurred historically in the South Bay but no longer occurs in the region due to range contractions.

No aquatic habitats to support special-status fish species are present on the project site; however, the site is located 160 feet from Coyote Creek, which provides habitat for the Central California Coast steelhead, Central Valley fall-run Chinook salmon, Pacific lamprey (*Entosphenus tridentatus*), Sacramento hitch (*Lavinia exilicauda exilicauda*), and Central California roach (*Lavinia symmetricus symmetricus*). The riffle sculpin (*Cottus gulosus*) is known to occur upstream in Coyote Creek, but unlikely to be present in the reach of the creek west of the project site. These special-status species will not be directly or indirectly affected by project activities due to the intervening distance between the site and the creek. As a result, these species are not discussed further in this report.

A number of special-status bird species can occasionally occur on the project site as nonbreeding foragers (i.e., they do not nest or breed on the site). These are the monarch butterfly, Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), tricolored blackbird, golden eagle (*Aquila chrysaetos*), and pallid bat (*Antrozous pallidus*). These species are not expected to nest, roost, or breed in or immediately adjacent to the project site due to a lack of suitable nesting, roosting, or breeding habitat, and will be affected very little, if at all, by the proposed project. In addition, the grasshopper sparrow, a bird species that is considered a California species of special concern only when it is nesting, may occur occasionally in grasslands on the project site as a nonbreeding transient, forager, or migrant, but no suitable nesting habitat for this species occurs on the project site. Because

the grasshopper sparrow is only considered a species of special concern when nesting, it is not “special-status species” when it occurs as a nonbreeding visitor to the site.

The yellow warbler (*Setophaga petechia*) can potentially nest in riparian habitat along Coyote Creek adjacent to the project site, and nests of the San Francisco dusky-footed woodrat were observed in this habitat adjacent to the site. Although these species will not be directly affected by project activities, there is some potential for project activities to result in indirect effects on nesting individuals due to their close proximity to the project site. Individuals of either species will also occasionally occur on the project site as nonbreeding foragers.

The Crotch’s bumble bee, northwestern pond turtle, and white-tailed kite (*Elanus leucurus*) are addressed in greater detail in Table 1 below because these species can potentially breed or occur on or immediately adjacent to the project site and/or may be significantly impacted by project construction (see Section 6 *Impacts and Mitigation Measures* below).

Table 1. Special-status Animal Species, Their Status, and Potential Occurrence on the Project Site

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (<i>Euphydryas editha bayensis</i>)	FT, VHP	Native grasslands on serpentine soils. Larval host plants are <i>Plantago erecta</i> and/or <i>Castilleja exserta</i> or <i>C. densiflora</i> .	Absent. No suitable native grasslands or serpentine soils to support this species are present on the project site to support this species, and the VHP does not map suitable habitat on the project site (ICF International 2012). Determined to be absent.
Monarch butterfly (<i>Danaus plexippus</i>)	FC	Requires milkweeds for egg-laying and larval development, but adults obtain nectar from a wide variety of flowering plants in many habitats. Individuals congregate in winter roosts, primarily in Mexico and in widely scattered locations on the central and southern California coast.	May be Present as Nonbreeder. The monarch butterfly occurs throughout the region primarily as a migrant. No larval host plants were observed on the project site during the October 2025 survey, when milkweeds, if present, would have been detectable. Therefore, no suitable breeding habitat for monarchs occurs on the project site. Small numbers of individuals may forage throughout the project site, especially during spring and fall migration. However, the site does not provide high-quality foraging habitat for this species. No suitably dense groves of trees are present on the project site to provide overwintering habitat for monarchs, and no current or historical overwintering sites are known as far inland as the project site; the nearest known overwintering location is more than 15 miles to the northwest at Sunnyvale Baylands Park (Xerces Society 2026).
Crotch's bumble bee (<i>Bombus crotchii</i>)	SC	Open grassland and scrub habitats.	May be Present. Concern over possible population declines and range contractions led CDFW (2019) to consider this species a candidate for listing under CESA. However, since 2019, there have been documented occurrences of more than 150 individuals from about 25 locations in Santa Clara County (Bumble Bee Watch 2026, iNaturalist 2026, S. Rottenborn, pers. obs.), indicating that the species is still extant, and fairly widespread (albeit in low numbers in most locations) in the county. The project site does not provide high-quality habitat for this species, as few flowering plants are present and the grasslands are periodically maintained by mowing. Due to the low quality of the habitat, nesting on the site is unlikely under current conditions. However, individuals may occur occasionally and in small numbers as foragers, and the possibility that nesting could occur on the site cannot be ruled out.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Western bumble bee (<i>Bombus occidentalis</i>)	SC	Meadows and grasslands with abundant floral resources.	Absent. Although the species was historically found throughout much of central and northern California, including the project vicinity, it is not expected to occur on the site due to recent range contractions. Determined to be absent.
Central California Coast steelhead (<i>Oncorhynchus mykiss</i>)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for steelhead, and this species is absent from the project site. However, steelhead are known to occur in all accessible reaches of Coyote Creek (i.e., from the San Francisco Bay upstream as far as Anderson Dam), and these areas are mapped as critical habitat for steelhead (NMFS 2005). Therefore, suitable habitat for steelhead is present 160 feet to the northwest along Coyote Creek. Suitable spawning and rearing habitat for steelhead is concentrated primarily in the colder reach of Coyote Creek between Anderson Dam and the Ogier Ponds, located approximately 7.5 miles upstream of the project site. High water temperatures reduce habitat quality within the creek, making spawning unlikely adjacent to the project site (Smith 2013). This reach of Coyote Creek functions as a migration corridor for individuals traveling between the San Francisco Bay and spawning and rearing habitat present farther upstream.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, ST, VHP	Vernal or temporary pools in annual grasslands or open woodlands.	Absent. Populations located on the Santa Clara Valley floor have been extirpated due to habitat loss, and the species is now considered absent from the majority of the Valley floor, including the project site (H. T. Harvey & Associates 1999a and 2012, Valley Water 2011). No recent records of California tiger salamanders are located anywhere in the project vicinity (CNDDDB 2026). Determined to be absent.
California red-legged frog (<i>Rana draytonii</i>)	FT, CSSC, VHP	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	Absent. No aquatic habitat to support this species occurs on the project site. The VHP maps Coyote Creek adjacent to the site as breeding habitat for California red-legged frogs (ICF International 2012). However, this species has been extirpated from the majority of the project region, including the entire urbanized Santa Clara Valley floor, due to development, the alteration of hydrology of its aquatic habitats, and the introduction of nonnative predators such as nonnative fishes and bullfrogs (H. T. Harvey & Associates 1997, Valley Water 2011). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Foothill yellow-legged frog (<i>Rana boylei</i>)	FPT, SE, VHP	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	Absent. No aquatic habitat to support this species occurs on the project site. The VHP maps Coyote Creek adjacent to the site as secondary habitat for foothill yellow-legged frogs (ICF International 2012). However, this species has been extirpated from valley floor areas of Santa Clara County, and is no longer known to occur along the County's streams below major reservoirs, including Calero and Almaden Reservoirs which are located upstream of the project (H. T. Harvey & Associates 1999b). Determined to be absent.
Northwestern pond turtle (<i>Actinemys pallida</i>)	CSSC, VHP, FPT	Permanent or nearly permanent water in a variety of habitats.	May be Present. No suitable aquatic habitat is present on the project site, and breeding populations of northwestern pond turtles have been extirpated from most urbanized areas in the region. However, individuals of this long-lived species still occur in urban streams and ponds in the Santa Clara Valley (CNDDB 2026). Known to occur in Coyote Creek and at the Metcalf Pond/Parkway Lakes complex approximately 1.9 miles to the southeast. The VHP maps primary habitat for northwestern pond turtles along Coyote Creek adjacent to the project site, and secondary habitat in adjacent grasslands on the site (ICF International 2012). No pond turtles were observed on or adjacent to the site during the November 2025 or February 2026 site visits. Potentially suitable nesting habitat for northwestern pond turtles is present in grassland areas on the project site, and it is possible that an individual could access the project site and potentially nest there.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Burrowing owl (<i>Athene cunicularia</i>)	CSSC, VHP, SC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels.	Absent. Burrows of California ground squirrels on the project site provide ostensibly suitable nesting and roosting habitat for this species, and grasslands on the site provide ostensibly suitable foraging habitat. However, burrowing owls are not known to occur on the project site, and no individuals were observed during the November 2025 site visit. The VHP does not map the project site as occupied breeding habitat (ICF International 2012), and surveys for breeding burrowing owls conducted annually for the VHP have not documented breeding activity in the project vicinity in recent years (Santa Clara Valley Habitat Agency and Talon Research Group 2024). Nonbreeding burrowing owls are known to occur along Coyote Ridge and in the foothills east of San Jose during winter months (Cornell Lab of Ornithology 2026). However, they are not expected to occur on the project site due to the limited extent of suitable habitat, presence of surrounding human disturbances, and presence of trees that provide perches for predatory raptors. Rather, burrowing owls that occur in the vicinity are expected to overwinter in higher-quality habitat on Coyote Ridge nearby. Determined to be absent.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	SE, SP	Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers. Feeds mostly on fish.	Absent. Nests and forages in the region primarily at inland reservoirs. No suitable nesting or foraging habitat is present on the project site.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE, SE, VHP	Nests in heterogeneous riparian habitat, often dominated by cottonwoods and willows.	Absent. This species has not been recorded nesting along Coyote Creek, which does not provide high-quality nesting habitat, or anywhere in the project vicinity. The only breeding records in Santa Clara County are from Llagas Creek southeast of Gilroy in 1997 and the Pajaro River south of Gilroy in 1932 (Rottenborn 2007a). Otherwise, records in the County of potential least Bell's vireos include 1–2 singing males along lower Llagas Creek in May 2001 (CNDDDB 2026), a singing male in June 2006 along Coyote Creek near the Coyote Creek Golf Club (H. T. Harvey & Associates 2007; not seen, so subspecies not confirmed), and a singing male on May 23, 2016 in Alviso (Jeffers, pers. comm.). The VHP does not map suitable habitat for this species as occurring within or adjacent to the project site (ICF International 2012). Although the abundance and distribution of this species may increase as core populations increase, it is unlikely to be more than a rare and very locally occurring breeder along southern Santa Clara County streams (south of the project site). Determined to be absent.
Tricolored blackbird (<i>Agelaius tricolor</i>)	ST, VHP	Nests near fresh water in dense emergent vegetation.	Absent as Breeder. In Santa Clara County, has bred in only a few scattered locations, and is absent from, or occurs only as a nonbreeder in, most of the County (Rottenborn 2007b). Typically nests in extensive stands of tall emergent herbaceous vegetation in non-tidal freshwater marshes and ponds. No suitable nesting habitat is present on the project site or along Coyote Creek adjacent to the project site; this species (whose colonies are loud and conspicuous) has never been recorded nesting on or adjacent to the project site, and high levels of adjacent disturbance likely preclude nesting by this species. Thus, this species is expected to occur only in low numbers, and only occasionally, as a nonbreeding forager.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, ST, VHP	Annual grassland or mixed shrub and grassland habitats throughout low, rolling hills and in valleys.	Absent. This species has not been recorded in the site vicinity, and is not expected to occur on the project site. The closest area of potential occurrence (based on VHP mapping) is more than 20 miles southeast of the project site in the vicinity of Pacheco Creek and the uppermost reaches of the Pajaro River, where it may occur infrequently and in low numbers during dispersal (ICF International 2012). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Mountain lion (<i>Puma concolor</i>) Southern California/Central Coast ESU	SE	Has a large home range size and occurs in a variety of habitats. Natal dens are typically located in remote, rugged terrain far from human activity. May occasionally occur in areas near human development, especially during dispersal.	Absent. In the project region, mountain lions occur primarily in the Santa Cruz Mountains and the Diablo Range. This species is not expected to occur on the project site owing to high levels of human activity and the project's location in urbanized San José. Determined to be absent.
California Species of Special Concern			
Central Valley fall-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Present in Adjacent Waters. No aquatic habitats are present on the project site to support Chinook salmon, and this species is absent from the project site. Chinook salmon are known to occur in Coyote Creek below Anderson Dam, although the quality of potential spawning and rearing habitat within and downstream of the project site is limited due to water quality issues (e.g., due to runoff) (Smith 2013). This species could potentially occur in the reach of Coyote Creek adjacent to the site during migration between the ocean and upstream spawning and rearing areas. However, genetic analyses indicate that Chinook salmon in South Bay streams are all derived from Central Valley fall-run or Columbia River stock (Salsbery et al. 2004, Garza and Pearse 2008). There is no evidence that adults are successfully returning to spawn in these creeks, and thus there is no evidence that the species has naturalized in South Bay streams (Valley Water 1998–2005, Salsbery 2009).
Pacific lamprey (<i>Entosphenus tridentatus</i>)	CSSC	Medium- and large-sized, low-gradient cold rivers and streams, with a wide range of habitats (e.g., gravel, low-gradient riffles).	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Pacific lamprey, and this species is absent from the project site. This species is known to be present in Coyote Creek adjacent to the project site (Buchan et al. 2002, Valley Water 2008). Spawning is expected to occur primarily in cooler water; ammocoetes may be present in warmer areas farther downstream (Valley Water 2008).

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Central California roach (<i>Lavinia symmetricus symmetricus</i>)	CSSC	Generally found in small streams, they are well adapted to intermittent watercourses (e.g., tolerant of high temperatures and low oxygen levels).	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Central California roach, and this species is absent from the project site. This species is known to be present in Coyote Creek (Buchan et al. 2002, Leidy 2007, Valley Water 2008). It occurs widely, often in unshaded pools with warm temperatures, and is expected to occur within Coyote Creek west of the project site.
Sacramento hitch (<i>Lavinia exilicauda exilicauda</i>)	CSSC	Warm, lowland, waters including clear streams, turbid sloughs, lakes, and reservoirs. Has a high tolerance for varying stream conditions and water temperature.	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Sacramento hitch, and this species is absent from the project site. This species is known to be present in Coyote Creek (Buchan et al. 2002, Leidy 2007, Valley Water 2008, Smith 2017, Smith 2018). It has been recorded upstream nearly to Anderson Dam and with its high tolerance of stream conditions and water temperatures it is expected to occur adjacent to the project site.
Riffle sculpin (<i>Cottus gulosus</i>)	CSSC	Permanent, cool, headwater streams with an abundance of riffles and rocky substrates.	Likely Absent from Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for riffle sculpin. Although this species is known to be present in upper Coyote Creek, it is not known to occur downstream from Anderson Dam (Smith 2006). Not expected to occur along the reach of Coyote Creek west of the project site.
Loggerhead shrike (<i>Lanius ludovicianus</i>)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	Absent. Nests (or at least formerly nested) in a number of locations around the South Bay where open grassland, ruderal, or agricultural habitat with scattered brush, chaparral, or trees provides perches and nesting sites (Bousman 2007), though populations have declined in recent years as suitable habitat has been increasingly developed. Potentially suitable nesting habitat for loggerhead shrikes is present in dense shrubs and trees on the project site. However, this species has disappeared from much of the urban valley floor, and the habitat on the site is not sufficiently extensive to support a nesting pair. Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Yellow warbler (<i>Setophaga petechia</i>)	CSSC (nesting)	Nests in riparian woodlands.	May be Present in Adjacent Areas. No suitable nesting habitat for yellow warblers is present on the project site. However, suitable riparian nesting habitat for this species is present west of the site along Coyote Creek. Yellow warblers forage along Coyote Creek in large numbers during migration, and up to one or two pairs of yellow warblers can potentially nest adjacent to the project site.
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	CSSC (nesting)	Nests and forages in grasslands, meadows, fallow fields, and pastures.	Absent as Breeder. Known to occur in the region primarily in grasslands and less frequently disturbed agricultural habitats, mostly in the foothills. This species does not breed on grassland on the Santa Clara Valley floor. Small numbers of individuals may forage in grasslands in the project site during migration.
Bryant's savannah sparrow (<i>Passerculus sandwichensis alaudinus</i>)	CSSC	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat.	Absent as Breeder. In the South San Francisco Bay, nests primarily in short pickleweed-dominated portions of diked/muted tidal salt marsh habitat and in adjacent ruderal habitats (Rottenborn 2007c). No suitable nesting habitat occurs on the project site. Individuals of several savannah sparrow subspecies, including <i>alaudinus</i> , may forage on the project site during migration and winter.
Pallid bat (<i>Antrozous pallidus</i>)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	Absent as Breeder. Historically, pallid bats were likely present in a number of locations throughout the project region, but their populations have declined in recent decades. This species has been extirpated as a breeder from urban areas close to the Bay, as is the case in the project site. No suitable roosting habitat is present on the project site, and no known maternity colonies of this species are present within or adjacent to the project site. There is a low probability that the species occurs in the site vicinity at all due to urbanization; however, individuals from more remote colonies could potentially forage on the project site on rare occasions.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	Absent. No known extant populations of the Townsend's big-eared bat occur on the Santa Clara Valley floor. Suitable breeding habitat is not present on the project site, and no colonies are known from the site vicinity. Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
San Francisco dusky-footed woodrat (<i>Neotoma fuscipes annectens</i>)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	Present in Adjacent Areas. No suitable habitat for this species is present on the project site, and no woodrat nests were observed on the site during the November 2025 focused survey. However, suitable habitat for this species is present adjacent to the project site, and two woodrat nests were observed adjacent to the site during the November 2025 survey (Figure 3).
American badger (<i>Taxidea taxus</i>)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	Absent. Known to occur in the project region primarily in extensive grasslands and agricultural habitats, mostly in the foothills of the Diablo Range to the east. Suitably extensive grasslands or agricultural habitats to support this species are not present on the project site, and the site is isolated from suitably extensive grasslands in the foothills to the east by high-density urban development. Determined to be absent.
State Fully Protected Species			
Golden eagle (<i>Aquila chrysaetos</i>)	SP	Breeds on cliffs or in large trees (rarely on electrical towers); forages in open areas.	Absent as Breeder. No suitable nesting habitat for golden eagles is present on the project site. Nevertheless, this species may occur on the project site as an occasional forager.
White-tailed kite (<i>Elanus leucurus</i>)	SP	Nests in tall shrubs and trees; forages in grasslands, marshes, and ruderal habitats.	May be Present. Potentially suitable nesting habitat for this species is present in trees on and adjacent to the project site, and suitable foraging habitat is present in grasslands on the project site. Up to one pair of white-tailed kites may nest on or adjacent to the site, and occasional individuals may forage on the site year-round.

Key to Abbreviations:

Status: Federally Endangered (FE); Federally Threatened (FT); Federal Candidate for Listing (FC); Federally Proposed as Threatened (FPT); State Endangered (SE); State Threatened (ST); State Candidate (SC); State Fully Protected (SP); California Species of Special Concern (CSSC); Santa Clara Valley Habitat Plan Covered Species (VHP).

5.3 Sensitive Natural Communities, Vegetation Alliances, and Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types and tracks sensitive communities in its Rarefind database (CNDDDB 2026). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings are a reflection of the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (Faber-Langendoen et al. 2012):

G1/S1:	Critically imperiled
G2/S2:	Imperiled
G3/S3:	Vulnerable.
G4/S4:	Apparently secure
G5/S4:	Secure

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority (CDFW 2026). The CDFW provides VegCAMP's currently accepted list of vegetation alliances and associations (CDFW 2026).

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, must be considered and evaluated under CEQA (Title 14, Division 6, Chapter 3, Appendix G of the California Code of Regulations). Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS.

5.3.1 Sensitive Natural Communities

A query of sensitive habitats in the CNDDDB (2026) identified three sensitive natural communities as occurring within the nine 7.5-minute USGS quadrangles containing or surrounding the project site: (1) sycamore alluvial woodland (Rank G1/S1.1), (2) northern coastal salt marsh (Rank G3/S3.2), and (3) serpentine bunchgrass (Rank G2/S2.2). The mixed riparian woodland and forest habitat along Coyote Creek adjacent to the site does not meet the definition of the *sycamore alluvial woodland* natural community type, which is dominated by western sycamore (*Platanus racemosa*) trees and occurs within braided, depositional channels of intermittent streams, usually with cobble or boulder substrate (Holland 1986). Wetlands occurring within Coyote Creek adjacent to

the site do not meet the definition of *northern coastal salt marsh*, which is dominated by salt-tolerant hydrophytes and located along the inland margins of bays and estuaries (Holland 1986). Grassland habitat does occur on the project site, but this habitat is not located on serpentine soils nor does it contain native bunchgrasses indicative of the *serpentine bunchgrass* natural community. Therefore, sensitive natural communities are absent from the project site.

5.3.2 Sensitive Vegetation Alliances

The project site is dominated by wild oats and *Bromus* sp. and would be considered “Wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp.)” alliance (CDFW 2026). This alliance does not have a global or state ranking, but because it is defined by dominance of nonnative species, is not considered sensitive by VegCAMP. No sensitive alliances occur on the project site.

5.3.3 CDFW Riparian Habitat

Due to its rarity and disproportionately high habitat values and functions to wildlife, the CDFW considers riparian habitat to be sensitive. As described above in Section 3.2.4, the CDFW would likely claim jurisdiction over areas at, and below, the tops of bank on either side of Coyote Creek regardless of the vegetative composition of these areas, as well as associated riparian habitat located outside of the tops of bank. However, riparian habitat associated with the Coyote Creek corridor does not occur on the project site and would not be directly or indirectly impacted by project activities.

5.3.4 Sensitive Habitats (Waters of the U.S./State)

No waters or wetlands of the U.S./state occur on the project site. Coyote Creek to the west is considered jurisdictional waters of the U.S. up to the ordinary high-water marks, and the RWQCB may claim the banks of the creek, and riparian habitat rooted below top of bank, as waters of the state.

5.3.5 Nonnative and Invasive Species

Several nonnative, invasive plant species occur on the project site (Appendix A). Of these, the following have a rating of *limited* invasiveness (considered invasive but their ecological impacts are minor on a statewide level and their reproductive biology and other attributes result in low to moderate rates of invasiveness) according to the California Invasive Plant Council (Cal-IPC) (2026): black locust, European olive, and curly dock. The following species have a *moderate* rating, indicating that they have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure, and that their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment would be generally dependent upon ecological disturbance: bull thistle, short-podded mustard, foxtail barley, ripgut brome, and wild oat. Species with a “high” invasive rating by the Cal-IPC have the potential to cause severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate-to-high rates of dispersal and establishment, and most are widely distributed ecologically (Cal-IPC 2026). No species with a “high” invasive rating were observed on the project site. Due to their ubiquity in the region, and the fact that proposed

project activities are expected to clear and develop all areas where populations of invasive species are located, project activities are not expected to result in the spread of nonnative and invasive plant species.

Section 6. Impacts and Mitigation Measures

CEQA and the State CEQA Guidelines provide guidance in evaluating impacts of projects on biological resources and determining which impacts will be significant. The Act defines “significant effect on the environment” as “a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.”

Appendix G of State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G (Chapter IV) may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

- A. “have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service”
- B. “have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service”
- C. “Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means”
- D. “interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites”
- E. “conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance”
- F. “conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan”

Potential impacts on biological resources as a result of the proposed project were systematically evaluated at the project level based on the project plans, description, and impact area provided to us by David J. Powers & Associates through March 2026. Based on this information, it is our understanding that all project impacts, including grading, construction, staging, and access, will occur within the limits of the project site, and that all project impacts within this boundary will be permanent.

6.1 Santa Clara Valley Habitat Plan

The proposed project is classified as an *Urban Development* project, which is a *covered project* under the VHP (ICF International 2012). Urban Development projects include private development projects within the planning limits of urban growth in San José. The Santa Clara Valley Habitat Agency (SCVHA) leads the implementation of the VHP, which is a regional partnership between the CDFW, the USFWS, and six local partners, including Valley Water, the County of Santa Clara, the Santa Clara Valley Transportation Authority, and the Cities of San José, Gilroy, and Morgan Hill. The VHP was adopted in 2013 by all local participating agencies, and permits were issued from the USFWS and CDFW. The VHP is both a habitat conservation plan and natural community conservation plan. The planning document helps private and public entities plan and conduct projects and activities in ways that lessen impacts on natural resources, including specific threatened and endangered species. The VHP identifies regional lands (called reserves) to be preserved or restored to the benefit of at-risk species and describes how reserves will be managed and monitored to ensure that they benefit those species. In providing a long-term, coordinated planning for habitat restoration and conservation, the VHP aims to enhance the viability of threatened and endangered species throughout the Santa Clara Valley.

The VHP defines measures to avoid, minimize, and mitigate impacts on covered species and their habitats while allowing for the implementation of certain covered projects. Chapter 6 of the VHP includes detailed and comprehensive conditions to avoid and minimize impacts on the 18 “covered species” (nine animal species and nine plant species) included in the plan area, which consists of 519,506 acres, or approximately 62% of Santa Clara County. These conditions are designed to achieve the following objectives:

- provide avoidance of certain covered species during implementation of covered activities throughout the project site;
- prevent take of individuals of certain covered species from covered activities as prohibited by law (e.g., take of fully protected species);
- minimize impacts on natural communities and covered species where conservation actions will take place; and
- avoid and minimize impacts on jurisdictional wetlands and waters throughout the study area to facilitate project-by-project wetland permitting.

In conformance with the VHP, project proponents are required to pay impact fees in accordance with the types and acreage of habitat or “land cover” impacted, and to implement conservation measures specified by the VHP. Land cover impacts are used because it is the best predictor of potential species habitat, and is applicable to all of the covered species (with the exception of the burrowing owl). The SCVHA has mapped the following three fee zones in the VHP area: (1) rangeland and natural lands, (2), agricultural and valley floor lands, and (3) small vacant sites (SCVHA 2022). The following areas are exempt from land cover fees:

- all development that occurs on land mapped by the VHP as urban-suburban, landfill, reservoir (excluding dams), or agriculture developed land cover types;
- urban development in Fee Zones A–C on parcels less than 0.5 acre;
- additions to structures within 50 feet of an existing structure that result in less than 5,000 feet of impervious surface so long as there is no effect on wetland or serpentine land cover types; and
- construction of recreational facilities within the reserve system.

Additional fees in-lieu of providing compensatory mitigation are imposed for projects that impact serpentine habitat, wetlands, and burrowing owls, and for certain projects that result in atmospheric nitrogen emissions, although in some cases, project proponents may provide land to restore or create habitats protected by the VHP in lieu of payment of fees.

The project is located within the VHP Urban Service Area for the City of San José (Figure 6). In regards to the VHP's land cover fee zones, the project site falls entirely within Fee Zone B (Agricultural and Valley Floor Lands) (Figure 6). The project will also engender an anticipated 362 daily vehicle trips per month by personnel visiting the facilities and may therefore be required to pay fees for nitrogen emissions.

The impact assessment in Section 6.2 below summarizes the types of applicable fees and conservation measures that are required by the VHP. VHP conditions that apply to the proposed project are as follows:

Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

Several wildlife species that occur in the project vicinity are protected under state and federal laws. Some of these animal species are listed as fully protected under the California Fish and Game Code (e.g., the white-tailed kite), and eagles are protected under the Bald and Golden Eagle Protection Act. Further, all native bird species and their nests are protected under the MBTA and California Fish and Game Code. Actions conducted under the VHP must comply with the provisions of the MBTA and California Fish and Game Code.

Condition 3. Maintain Hydrologic Conditions and Protect Water Quality

Condition 3 applies to all projects and identifies a set of programmatic BMPs, performance standards, and control measures to minimize increases of peak discharge of storm water and to reduce runoff of pollutants to protect water quality, including during project construction. These requirements include preconstruction, construction site, and post-construction actions. Preconstruction conditions are site design planning approaches that protect water quality by preventing and reducing the adverse impacts of stormwater pollutants and increases in peak runoff rate and volume. They include hydrologic source control measures that focus on the protection of natural resources. Construction site conditions include source and treatment control measure to prevent pollutants from leaving the construction site and minimizing site erosion and local stream sedimentation during construction. Post-construction conditions include measures for stormwater treatment and flow control.



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 6. VHP Urban Service Area, Development Areas, and Fee Zones
Silver Creek Data Center Biological Resources Report (5005-01)
April 2026

Condition 11. Stream and Riparian Setbacks

Condition 11 applies to covered projects that may affect streams and associated riparian vegetation within the VHP plan area. This condition requires new covered projects to adhere to setbacks from creeks and streams and associated riparian vegetation to minimize and avoid impacts on aquatic and riparian land cover types, covered species, and wildlife corridors. The standard required setback for Coyote Creek (a Category 1 stream) is 100 feet from the top of bank or 35 feet from the outer edge of the riparian canopy, whichever is greater. On the project site, the VHP setback is 35 feet from the outer edge of the riparian canopy because the slope of the project is less than 30%, no areas 100 feet from the top of bank extend past the 35-foot buffer, and the project site is located inside the VHP-designated urban service area. However, some exceptions may be applicable depending on the nature of the channel. Further, as described in Section 3.3.2, City Council Policy 6-34 provides guidance on the implementation of riparian corridor protection consistent with all City policies and requirements that may provide for riparian protection, including those contained in the Council-adopted VHP, and calls for a setback of 100 feet from the edge of riparian canopy rather than from top of bank (or 35 feet from edge of canopy) in accordance with VHP Condition 11.

The VHP setback along Coyote Creek overlaps a portion of the project site (Figure 3). Project improvements within this area are subject to compliance with Condition 11.

Condition 17. Tricolored Blackbird

This condition applies to projects that are located within 250 feet of any riparian, coastal, and valley freshwater marsh land cover types and helps to protect tricolored blackbirds by prescribing preconstruction surveys, construction buffer zones, biological monitoring, and other requirements. If a project is located within 250 feet of habitat mapped as pond by the VHP, a qualified biologist must confirm that the pond land cover type is present. If a qualified biologist verifies that the project area is within 250 feet of pond habitat, a qualified biologist must conduct a field investigation to identify and map potential nesting substrate. If suitable nesting substrate is identified, avoidance and minimization measures must be implemented (see pages 4-43 to 4-44 of the VHP).

Although tricolored blackbirds have never been recorded nesting on or near the project site, the proposed project is located within 250 feet of an area (i.e., the Coyote Creek) mapped by the VHP as suitable nesting habitat for the tricolored blackbird (ICF International 2012). Therefore, per Condition 17 of the VHP, H. T. Harvey & Associates wildlife ecologist L. Salazar, B.A., conducted a field investigation to identify and map potential nesting substrate for tricolored blackbirds on November 11, 2025. No suitable vegetation for nesting by tricolored blackbirds was present along Coyote Creek within 250 feet of the project site due to predominance by woody riparian vegetation and shorter ruderal vegetation, and the absence of large stands of emergent vegetation or other tall, dense herbaceous vegetation. Thus, no tricolored blackbird nesting colonies are expected to occur on or within 250 feet of the site, and no additional surveys or avoidance and minimization measures pertaining to this species are required.

6.2 Impacts on Special-Status Species: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Less than Significant with Mitigation)

6.2.1 Impacts on California Annual Grassland and Associated Common Plant and Wildlife Species (Less than Significant)

Proposed project activities would result in 15.1 acres of permanent impacts on California annual grassland habitat on the project site. These impacts would reduce the extent of vegetation within the impact area and result in a reduction in abundance of some of the common plant and wildlife species that occur on the site. However, the area of California annual grassland to be impacted occurs in a location in San José that has been subject to disturbance and fragmentation in the past and is embedded within a highly developed urban area, such that this area does not provide regionally rare or especially high-value habitat for native vegetation or wildlife, or special-status species. In addition, California annual grassland is abundant and widespread regionally and is not particularly sensitive, and the habitat on the project site is not especially valuable (from the perspective of providing important plant or wildlife habitat or an exemplary occurrence of this habitat type. Therefore, impacts on this habitat are considered less than significant. Further, because the number of individuals of any common plant or animal species within this habitat, and the proportion of these species' regional populations that could be disturbed, is very small, the project's impacts would not substantially reduce regional populations of these species. Thus, these impacts do not meet the CEQA standard of having a *substantial* adverse effect, and would not be considered significant under CEQA.

6.2.2 Impacts on Water Quality and Special-Status Fish (Less than Significant)

No direct impacts are proposed within the bed and banks of Coyote Creek, which is located 160 feet northwest of the project site, and no indirect impacts on the creek, water quality within the channel, or fish species inhabiting the creek are expected to occur as a result of project activities.

Additionally, the project shall comply with all VHP conditions, including Condition 3, which requires implementation of design phase, construction phase, and post-construction phase measures, including programmatic BMPs, performance standards, and control measures, to minimize increases of peak discharge of storm water and to reduce runoff of pollutants to protect water quality, including during construction. Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with state requirements to control the discharge of storm water pollutants under the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ, as amended and administratively extended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Pollution Prevention Plan must be developed and maintained during the project and it must include the use of best management practices to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site

sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

In many Bay Area counties, including Santa Clara County, projects must also comply with the California RWQCB, San Francisco Bay Region, Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit (Water Board Order No. R2-2015-0049). This permit requires that all projects implement BMPs and incorporate LID practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

The intervening distance between the project site and Coyote Creek, as well as compliance with these permit requirements and VHP Condition 3, will minimize the potential for impacts on water quality due to increases in erosion, sedimentation, and turbidity as well as releases of pollutants into the creek water. Therefore, project activities are not expected to result in substantial adverse indirect effects on water quality and special-status fish in Coyote Creek, and such impacts would be less than significant.

6.2.3 Impacts on Nonbreeding Special-Status Invertebrates, Birds, and Mammals (Less than Significant)

Several special-status invertebrate, bird, and mammal species may occur on the project site as nonbreeding migrants, transients, or foragers, but they are not known or expected to breed or occur in large numbers within or near the project impact area. These are the monarch butterfly, tricolored blackbird, Bryant's savannah sparrow, grasshopper sparrow, golden eagle, and pallid bat.

The monarch butterfly (a federal candidate) may forage in the site vicinity, especially during spring and fall migration, but is not expected to breed or overwinter on the project site due to a lack of suitable habitat. The tricolored blackbird (a state threatened species and covered under the VHP) is not expected to occur on or close to the project site as a breeder due to the absence of suitable habitat, but individuals may occur occasionally as foragers during the nonbreeding season. The Bryant's savannah sparrow (a California species of special concern) breeds in marshes along the San Francisco Bay to the north, and individuals may forage in California annual grassland on the project site during the nonbreeding season. Similarly, the grasshopper sparrow (a California species of special concern) breeds in expansive grassland habitats in the foothills, and individuals may occasionally forage in grasslands in the project site during migration. The golden eagle (state fully protected species) is not expected to breed in the project site due to a lack of suitable nesting habitat, though single individuals of this species may occasionally forage on the project site. The pallid bat (a California species of special concern) is not expected to breed on the project site due to a lack of suitable habitat, and there are no known maternity colonies near the project site. Nevertheless, individuals from more remote colonies could potentially forage over open grasslands on the project site on rare occasions.

Activities under the proposed project would have some potential to impact foraging habitats and/or disturb individuals of these species. Construction activities might result in a temporary direct impact through the alteration of foraging patterns (e.g., avoidance of work sites because of increased noise and activity levels during maintenance activities) but would not result in the loss of individuals, as individuals of these species would fly away from any construction areas or equipment before they could be injured or killed. Further, the project site does not provide important foraging habitat used regularly or by large numbers of individuals of any of these species. As a result, impacts of the project will have little impact on these species' foraging habitat and no substantive impact on regional populations of these species. Therefore, this impact would be less than significant.

6.2.4 Impacts on the Yellow Warbler, White-Tailed Kite, and San Francisco Dusky-Footed Woodrat (Less than Significant)

The yellow warbler (a California species of special concern) could potentially nest adjacent to the project site in riparian trees along Coyote Creek. The white-tailed kite (a state fully protected species) may nest in trees along Coyote Creek or in landscape and woodland areas adjacent to the project site. Nests of San Francisco dusky-footed woodrats are present in woodland habitat adjacent to the project site (Figure 3). These three species are assessed together because the potential impacts of the project on these species would be similar.

Based on site observations, the areal extent of suitable habitats within and adjacent to the project site, and known nesting densities of these species, it is likely that no more than 1–2 pairs of yellow warblers would nest adjacent to the site along Coyote Creek, and one pair of white-tailed kites could potentially nest on or adjacent to the site. In addition, two nests of San Francisco dusky-footed woodrats are present adjacent to the project site (Figure 3). The project would not result in the loss of suitable nesting or foraging habitat for the yellow warbler or San Francisco dusky-footed woodrat, as no activities are proposed within riparian habitat along Coyote Creek. However, the project would result in the permanent loss of suitable nesting and foraging habitat for the white-tailed kite. In addition, activities that occur during the nesting season and cause a substantial increase in noise or human activity near active nests may result in the abandonment of active nests of all of these species (i.e., bird nests with eggs or young or woodrat nests with young). Heavy ground disturbance, noise, and vibrations caused by project activities could also potentially disturb nesting and foraging individuals and cause them to move away from work areas.

The project is also expected to increase the number of human users of the Coyote Creek trail, potentially subjecting nesting special-status birds and woodrats within the riparian corridor to increased human disturbance. However, this trail is already heavily used by pedestrians and cyclists, and present of homeless encampments along the creek already introduces human disturbance within the riparian habitat. The increase in users of the Coyote Creek trail as a result of this project is not expected to contribute substantially to human disturbance of special-status birds or woodrats that nest within the Coyote Creek corridor.

Given the abundance of yellow warblers, white-tailed kites, and San Francisco dusky-footed woodrats in the region, project impacts on 1–2 pairs of yellow warblers, one pair of white-tailed kites, and/or two nests of San

Francisco dusky-footed woodrats would represent a marginal impact on their regional populations. Therefore, neither the potential loss of individuals nor the disturbance of nesting and foraging habitat would rise to the CEQA standard of having a *substantial* adverse effect, and these impacts would thus not constitute a significant impact on these species or their habitat under CEQA. All native bird species are protected from direct take by federal and state statutes, and the project shall comply with VHP Condition 1 either by restricting work to the non-nesting season (September 1 through January 31) or by conducting preconstruction surveys prior to project activities and maintaining appropriate buffers around active nests of protected birds.

6.2.1 Impacts on Crotch's Bumble Bee (Less than Significant)

The California annual grassland habitat on the project site provides only low-quality habitat for Crotch's bumble bee, as the area supports limited floral resources and is regularly maintained by mowing. Given the low quality of the habitat on the project site, as well as the sparse nature of this species' occurrence in the South Bay (with widely scattered records but no high concentrations known to occur in lowland areas such as the project site), few, if any, Crotch's bumble bee individuals are expected to be present on the site when work occurs.

Nevertheless, should small numbers of individuals be present, construction activities would result in the loss of foraging habitat for Crotch's bumble bees, and potentially the loss of individuals due to crushing by construction personnel or equipment, vegetation removal, excavations, and placement of soil stockpiles. In addition, the project could potentially impact a nest of this species (e.g., in a ground squirrel burrow).

If the project impacts Crotch's bumble bee at all, given that the project site supports only a very small proportion of the species' regionally available habitat (i.e., grassland, scrub, and woodland throughout the South San Francisco Bay area), it would impact only a small number of individuals/nests representing a very small proportion of the species' regional population. The areas of California annual grassland that would be impacted by the project do not support high-quality foraging habitat for this species. Thus, due to the abundance of suitable foraging habitat in the project region (i.e., east and southeast of the project site in the foothills of the Diablo Range and along Coyote Ridge), the project is not expected to result in a *substantial* impact on regional Crotch's bumble bee populations or nesting and foraging habitat for this species. Therefore, these impacts would not constitute a significant impact on this species or its habitat under CEQA, which specifies that a project should have a "substantial adverse effect" for impacts to be significant.

Crotch's bumble bee is not currently a covered species under the VHP, though it is proposed for addition as a covered species via the VHP amendment currently in progress. Nevertheless, compliance with VHP conditions will help reduce project impacts on this species by reducing impacts to biological resources in general. Further, Crotch's bumble bee will benefit from the VHP conservation program (i.e., the preservation, enhancement, and management of numerous habitat types throughout the VHP Reserve System) to which the project applicant would contribute via payment of VHP impact fees. As discussed in Section 6.1 above and in the EIR for the VHP (USFWS et al. 2012), as a Natural Community Conservation Plan the VHP's reserve system will benefit whole communities of plant and animal species in Santa Clara County, including many common and rare animal species. The reserve system will benefit Crotch's bumble bee based on the wide distribution of this

species' habitats in Santa Clara County, the known occurrence of the species on some existing reserves, and its expected occurrence on future acquisitions, given the locations of recent occurrences in Santa Clara County. Therefore, the payment of VHP fees and compliance with the VHP's conditions is expected to have a net benefit on the conservation of this species.

If Crotch's bumble bee is still a candidate or is listed under CESA and not covered by the VHP at the time impacts occur, the applicant might consider implementing take avoidance surveys to avoid take under CESA. However, because the project would not result in a substantial impact on regional populations or nesting and foraging habitat for this species, take avoidance surveys are not necessary to reduce project impacts to less-than-significant levels under CEQA, in our opinion.

6.2.2 Impacts on the Northwestern Pond Turtle (Less than Significant)

Northwestern pond turtles occurring along Coyote Creek can potentially travel to the project site and occur there, and grasslands on the site provide suitable nesting habitat for this species. Due to the potential for pond turtles to access the site, project activities could potentially disturb upland habitat used for nesting by pond turtles. Individual turtles or their eggs that are present in the work areas may be harmed or killed due to crushing by construction personnel or equipment, or as a result of desiccation or burying (e.g., during grading). Although pond turtles are widespread in the project region, the species is not particularly abundant, and the loss of individuals could reduce the viability of a population to the extent that it would be extirpated.

The VHP does not provide species-level avoidance and minimization measures for the northwestern pond turtle. Nevertheless, the project would adhere to the general conditions of the VHP described in Section 6.1 above, which will help to reduce proposed project impacts on the northwestern pond turtle and its habitats. Applicable VHP Conditions that will minimize potential project impacts on the northwestern pond turtle are Conditions 3 and 11. Because the project will comply with all relevant VHP conditions, impacts on the northwestern pond turtle will be less than significant under CEQA.

6.2.3 Impacts due to Bird Collisions (Less than Significant)

Under existing conditions, the project site predominantly consists of undeveloped areas dominated by grasslands. Terrestrial land uses and habitat conditions in areas immediately surrounding the project site consist of commercial buildings with associated parking lots, roads, and landscape vegetation to the north, east, and south, and Coyote Creek with associated native riparian trees and vegetation to the west. Extensive urban residential development is present east of Coyote Creek, and extensive areas of undeveloped grasslands are present approximately 0.3 mile northeast of the site in the Silver Creek Hills.

Vegetation in commercial and residential areas surrounding the project site is absent or very limited in extent, and consists primarily of nonnative landscape trees and shrubs. Nonnative vegetation supports fewer of the resources required by native birds compared to native vegetation, and the structural simplicity of the vegetation (without well-developed ground cover, understory, and canopy layers) further limits resources available to birds

(Anderson et al. 1977, Mills et al. 1989). As a result, the number of individual landbirds that inhabit and regularly use vegetation within these developed areas at any given time is relatively low under existing conditions.

As discussed in Section 4.3, the riparian habitat along Coyote Creek adjacent to the project site supports relatively high bird diversity and abundance, and songbirds that migrate along the Pacific Flyway disperse and forage along Coyote Creek in relatively large numbers (Cornell Lab of Ornithology 2026, South-Bay-Birds List Serve 2026). Resident birds that are present in the vicinity year-round are similarly attracted to this riparian habitat in relatively large numbers for foraging and nesting opportunities compared to regional populations (Cornell Lab of Ornithology 2026, South Bay Birds List Serve 2026). In contrast, grassland-associated bird species that occur in the Silver Creek Hills are not expected to occur on the project site in large numbers due to the relatively limited extent and low quality (compared to Silver Creek Hills and Coyote Ridge) of the grassland habitat on the site. Although these bird species are expected to periodically use the vegetation on the project site, they would typically do so in low numbers.

Under proposed conditions, the project site may provide habitat of greater value to landbirds compared to existing conditions due to the addition of landscape trees on the site. Four existing trees on the site will be removed, and these trees provide some limited habitat value to birds. However, the project's preliminary landscape plan indicates that approximately 250 new trees will be planted on the site following construction. Proposed trees to be planted include native coast live oak, valley oak (*Quercus agrifolia*), vine maple (*Acer circinatum*), and western redbud (*Cercis occidentalis*), as well as nonnative Canary Island pine (*Pinus canariensis*), maple (*Acer x freemanii*), deodar cedar (*Cedrus deodara*), African fern pine (*Afrocarpus gracilior*), Jacaranda (*Jacaranda mimosifolia*), golden rain tree (*Koelreuteria paniculata*), and elm (*Ulmus parvifolia*). The presence of these trees will increase the availability of nesting, foraging, and cover resources for landbirds on the site following construction. In particular, native coast live oak and valley oak trees provide high-quality foraging resources for landbirds, including riparian-associated species. A number of planting areas for shrubs, herbs, and ground cover are also included in the project's plans, but the species composition of these areas is unknown. It is anticipated that these areas will provide some habitat value to birds (e.g., as cover and foraging resources), but the quality of this habitat would depend on the plant species present (e.g., native versus nonnative) as well as the habitat structure (e.g., dense versus open).

Based on the project's tree planting plan, the future landscape vegetation that will be planted on the site is expected to provide more extensive foraging opportunities for landbirds compared to the existing grassland vegetation due to the addition of greater numbers of trees compared to existing conditions. The proposed mix of native and nonnative trees and their limited extent on the site limits the value of these habitat resources for birds. Nevertheless, under proposed conditions, we expect birds to move between the riparian habitat along Coyote Creek and planted trees on the project site (i.e., toward the proposed building) to look for feeding and resting opportunities in the new vegetation. In contrast, we expect grassland-associated bird species that occur in the Silver Creek Hills to the east to use the project site less frequently following project construction due to the conversion of the majority of the grassland habitat on the site to development.

It is well documented that glass windows and building façades can result in injury or mortality of birds due to birds' collisions with these surfaces (Klem et al. 2009, Sheppard and Phillips 2015). Because birds do not perceive glass as an obstruction the way humans do, they may collide with glass when the sky or vegetation is reflected in glass (e.g., they see the glass as sky or vegetated areas); when transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners); and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach that vegetation. The greatest risk of avian collisions with buildings occurs in the area within 40–60 feet of the ground, because this is the area in which most bird activity occurs (San Francisco Planning Department 2011, Sheppard and Phillips 2015). Very tall buildings (e.g., buildings 500 feet or more high) may also pose a threat to birds that are migrating through the area, particularly to nocturnal migrants that may not see the buildings or that may be attracted to lights on the buildings (San Francisco Planning Department 2011).

Some migrating landbirds are expected to disperse from the riparian habitat along Coyote Creek onto the project site from the west. Rows of trees that extend alongside the north, east, and south sides of the proposed building provide connectivity between the habitat along Coyote Creek and portions of the project site located farther to the south and east (Figure 7). Therefore, there is some potential for collisions of moderate numbers of birds with glazed areas of the proposed building due to the connectivity of the landscape vegetation located adjacent to and opposite this glazing with Coyote Creek.

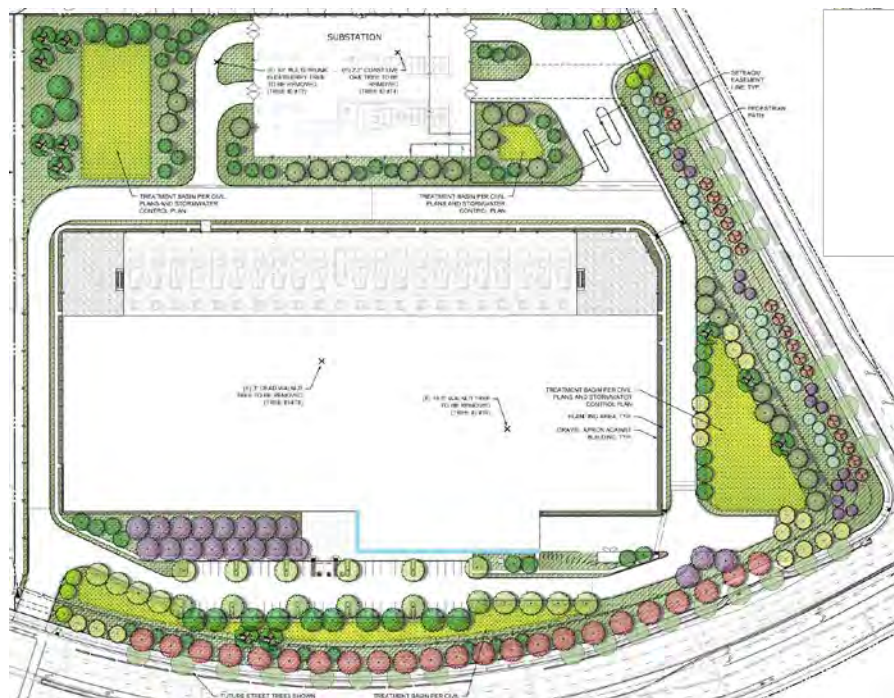


Figure 7. The Project's Preliminary Landscape Plan. The proposed building as well as the landscape areas and trees to be planted on the project site are shown. Glazed facades of the building are outlined in blue.

Glazing is proposed on portions of the south facade of the proposed building; all remaining facades of the building will be composed of opaque insulated metal panels (Figure 8). There is potential for birds to collide with glazed areas of the building for the following reasons:

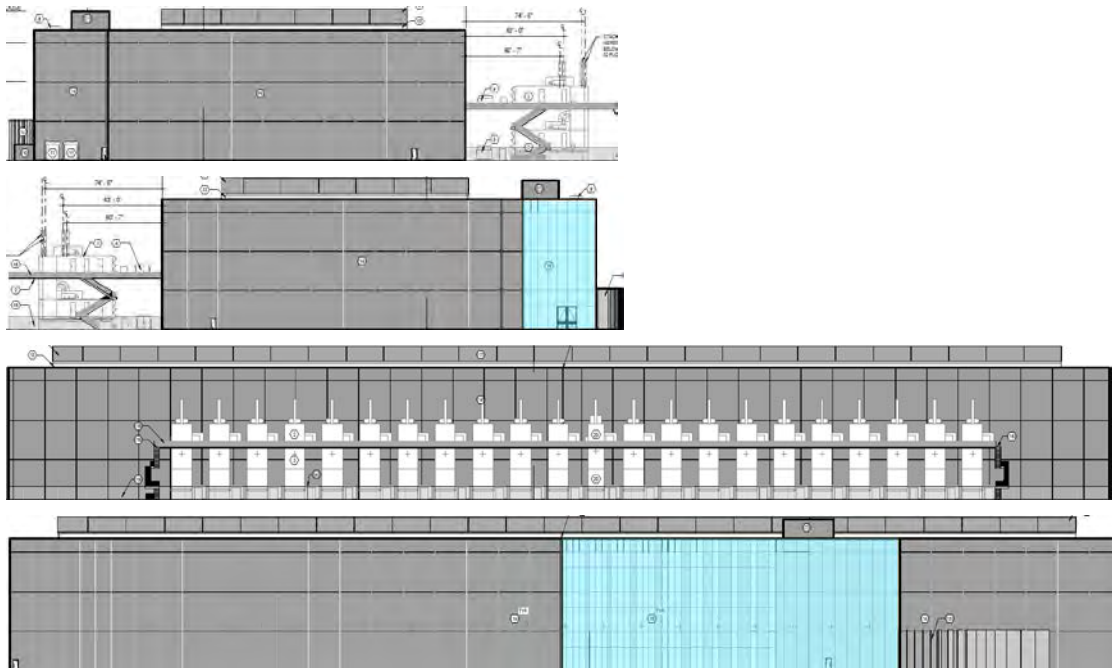


Figure 8. The East (Top), West (Second From Top), North (Second From Bottom), and South (Bottom) Elevations of the Proposed Data Center Building. Glazed areas are shaded in blue.

- Songbirds utilizing habitat along Coyote Creek may disperse outward looking for other foraging, nesting, or roosting sites. Where glass is present on the facades of the building, birds making such movements are unlikely to be able to distinguish these façades as solid features to avoid and, as a result, some of these birds are expected to collide with the building.
- Under the project, trees and other landscaping will be present adjacent to and opposite glass façades of the proposed building. Such vegetation is expected to attract birds. Once birds are using that vegetation, they may not perceive the glass as a solid structure. Vegetation will be reflected in the glass of the building's façades, potentially causing birds to attempt to fly in to the reflected "vegetation" and strike the glass. As a result, some birds that are attracted to the trees and other landscaping that are located adjacent to or opposite the glass façades are expected to collide with the glass.
- Reflections of the sky in glass façades may be perceived by birds as an open flight path (i.e., the sky) rather than solid glass, and birds may then collide with the facades.
- Night lighting associated with new building has some potential to disorient birds, especially during inclement weather when night migrating birds descend to lower altitudes. As a result, some birds moving

through the project site at night may be disoriented by night lighting and potentially collide with the proposed building.

Several features of the architecture of the proposed building would reduce the potential for avian collisions. Based on the project plans, the building facades are composed primarily of opaque wall panels (Figure 8). As a result, only limited areas of the building represent collision hazards to birds. Further, no free-standing glass features are proposed as part of the project, and the project proposes to use glazing treated with a bird-safe glazing treatment to reduce the potential for collisions. Because the proposed bird-safe glazing would have a rated Threat Factor of 30 or lower, it is expected to effectively reduce the potential for collisions.

The large area of glazing at the building's main entrance on the south façade, which faces future areas of landscape vegetation, represents a collision hazard to birds (Figures 7 and 8). Because vegetation will be planted adjacent to and opposite this glazing, birds moving along the creek may be attracted to this vegetation, where they would be more likely to collide with glazing on this façade. However, this glazing represents only a small portion of the overall façade area. In addition, this glazing will be treated with a bird-safe glazing treatment, and will face away from Coyote Creek such that birds using habitats along the creek would need to travel around the building to be exposed to this collision hazard (Figures 7 and 8). Due to these combined factors, the number of bird collisions with proposed glazing on the project building is expected to be relatively low.

In summary, some of the birds using riparian habitats adjacent to the project site are expected to occasionally collide with glazing on the new building, resulting in injury or death. However, we expect the number and frequency of avian collisions with glass façades on the proposed building to be low due to the predominantly opaque nature of the building facades, the project's use of bird-safe glazing, and the orientation of the proposed glazing away from Coyote Creek. Due to the low number of expected collisions, the project would not result in the loss of a substantial proportion of any species' Bay-area populations or any Bay-area bird community, and according to CEQA standards, we would consider such impacts to be less than significant.

6.2.4 Impacts due to Increased Lighting (Less than Significant with Mitigation)

The project will result in the construction of buildings and other features (e.g., pedestrian walkways and parking areas) that will increase the amount of lighting on and around the project site. Lighting from the project would be the result of light fixtures illuminating buildings, building architectural lighting, and parking lot and pedestrian lighting. Depending on the location, direction, and intensity of exterior lighting, this lighting can potentially spill into adjacent natural areas, thereby resulting in an increase in lighting compared to existing conditions. Areas to the north, east, and south are primarily developed urban habitats that do not support sensitive species that might be significantly impacted by illuminance from the project, and lighting from the project is not expected to spill past surrounding buildings to illuminate grassland habitats within Silver Creek Hills to the east/northeast. However, the riparian and wetland habitats along Coyote Creek provide suitable habitat for a variety of wildlife species, including sensitive species such as the yellow warbler, and are close enough to the project site to be affected by an increase in lighting.

Many animals are sensitive to light cues, which influence their physiology and shape their behaviors, particularly during the breeding season (Ringer 1972, de Molenaar et al. 2006). Artificial light has been used as a means of manipulating breeding behavior and productivity in captive birds for decades (de Molenaar et al. 2006) and has been shown to influence the territorial singing behavior of wild birds (Longcore and Rich 2004, Miller 2006, de Molenaar et al. 2006). While it is difficult to extrapolate results of experiments on captive birds to wild populations, it is known that photoperiod (the relative amount of light and dark in a 24-hour period) is an essential cue triggering physiological processes as diverse as growth, metabolism, development, breeding behavior, and molting (de Molenaar et al. 2006). This holds true for birds, mammals (Beier 2006), and other taxa as well, suggesting that increases in ambient light may interfere with these processes across a wide range of species, resulting in impacts on wildlife populations.

Artificial lighting may also indirectly impact mammals and birds by increasing the nocturnal activity of predators like owls, hawks, and mammalian predators (Negro et al 2000, Longcore and Rich 2004, DeCandido and Allen 2006, Beier 2006). The presence of artificial light may also influence habitat use by rodents (Beier 2006) and by breeding birds (Rogers et al. 2006, de Molenaar et al. 2006), by causing avoidance of well-lit areas, resulting in a net loss of habitat availability and quality.

Birds that encounter beams from up-lights are likely to respond to the lights, and may become disoriented or attracted to the lights to the point that they collide with buildings or other nearby structures, but the range of the effect of the lights is unknown. Observations of bird behavioral responses to up-lights indicate that their behaviors return to normal quickly once up-lights are completely switched off (Van Doren et al. 2017), but no studies are available that demonstrate bird behavioral responses to reduced or dimmed up-lights. In general, up-lights within very dark areas are more likely to “capture” and disorient migrating birds, whereas up-lights in brightly lit areas (e.g., highly urban areas, such as Burlingame) are less likely to capture birds (Sheppard 2017). Birds are also known to be more susceptible to capture by artificial light when they are descending from night migration flights in the early mornings compared to when they ascend in the evenings; as a result, switching off up-lights after midnight can minimize adverse effects on migrating birds (Sheppard 2017). However, more powerful up-lights (e.g., 3,000 lumen spotlights) may create issues for migrating birds regardless of the time of night they are used (Sheppard 2017).

Although the literature has shown how an increase in artificial lighting may indirectly affect birds, mammals, fish, and nesting sea turtles, little is known about potential effects of artificial lighting on many species of amphibians and reptiles, including freshwater turtles (Perry et al. 2008). Northwestern pond turtles, which can occur along Coyote Creek adjacent to the site, most likely exhibit physiological and behavioral responses in the presence of novel artificial light sources. However, few studies have revealed any conclusive data on what the impacts may be from artificial lighting in urban environments on adjacent habitats where freshwater turtles may occur (Perry et al 2008). To our knowledge, no specific studies have been conducted that have attempted to elucidate pond turtle responses to an increase in artificial lighting conditions in their natural aquatic habitats. Northwestern pond turtles are primarily active during the day, spending the majority of their time basking on haul-out structures, such as patches of floating vegetation and logs near the edges or in the middle of their

aquatic habitats, where they can quickly escape if threatened (Jennings and Hayes 1994). Some crepuscular and nocturnal movements have been observed by the species, but pond turtles typically take refuge at the bottom of aquatic habitats, burying themselves in muddy bottoms or dense vegetation during the night, and thus, in our opinion, would not be significantly affected by an increase in artificial light conditions.

Wildlife species inhabiting the sensitive habitats along Coyote Creek are already habituated to the existing artificial illuminance from a variety of urban and natural light sources that are found nearby. However, due to the ecological importance of the riparian and aquatic habitats of Coyote Creek and the fish and wildlife communities they support, substantial increases in illuminance of Coyote Creek and its associated riparian and aquatic habitats could result in a potentially significant impact under CEQA by disrupting the natural behaviors of the species using these habitats. Although there is agreement throughout the literature that increases in illuminance can affect wildlife behavior, as described above, there is no quantitative level of illuminance increase (above ambient light) that is agreed upon as a threshold for significant impacts to animals. In our professional opinion, implementation of Mitigation Measure BIO-1 below would ensure that lighting on the project site is minimized to reduce this impact to a less-than-significant level under CEQA. Because wildlife species along Coyote Creek can be affected by new lighting on the project site both directly (e.g., due to lighting that is directed at the riparian corridor) and indirectly (e.g., due to an increase in lighting in adjacent areas and associated glow that spills light outwards), Mitigation Measure BIO-1 includes measures both to reduce lighting directed at Coyote Creek and other lighting on the project site itself.

Mitigation Measure BIO-1. Minimize Project Lighting. Due to the potential for lighting on the project site to affect wildlife species that occur on the site and along Coyote Creek adjacent to the site, the project will implement the following measures to minimize lighting on the site.

- All exterior lighting shall be fully shielded to block illumination from shining outward towards Coyote Creek.
- Up-lighting shall be avoided in the project design. All fixtures shall have a BUG up-light rating of B0, and all lighting shall be shielded and directed to block illumination from spilling upwards above the horizontal plane.
- All project lighting shall have a correlated color temperature of no more than 3,000 Kelvins.
- Exterior fixtures shall comply with lighting zone LZ-2, *Moderate Ambient*, as recommended by the International Dark-Sky Association (2011) for light commercial business districts and high-density or mixed-use residential districts. The allowed total initial luminaire lumens for the project site is 2.5 lumens per square foot of hardscape, and the BUG rating for individual fixtures shall not exceed B3 or G2, as follows:
 - B3: 2,500 lumens high (60–80 degrees), 5,000 lumens mid (30–60 degrees), 2,500 lumens low (0–30 degrees)

- o G2: 225 lumens (forward/back light 80–90 degrees), 5,000 lumens (forward 60–80 degrees), 1,000 lumens (back light 60–80 degrees asymmetrical fixtures), 5,000 lumens (back light 60–80 degrees quadrilateral symmetrical fixtures)
- Exterior lighting shall be minimized (i.e., total outdoor lighting lumens shall be reduced by at least 30% or extinguished, consistent with recommendations from the International Dark-Sky Association [2011]) from 10:00 p.m. until sunrise, except as needed for safety and City code compliance.

6.2.5 Impacts due to Increased Noise Levels (Less than Significant)

There is some potential for wildlife inhabiting the riparian habitat along Coyote Creek (located as close as 160 feet northwest of the proposed improvements) to vacate portions of the creek and riparian habitat located near the project site due to increased noise levels during or following construction. Wildlife individuals that move away from the site due to disturbance from project-related noise may be exposed to increased competition from conspecifics already occupying the area to which they are displaced and/or increased levels of predation because of unfamiliarity with the new area or lack of sufficient cover.

According to the project's noise study, existing measured ambient noise levels in the riparian habitat along Coyote Creek adjacent to the project site range from 49–59 decibels (dBA), with an hourly average of 53 dBA (Illingworth & Rodkin Inc. 2026). Additionally, an existing generator is located along the western boundary of the project site. This generator operates on an intermittent basis generating instantaneous noise levels of approximately 80 dBA in the Coyote Creek riparian corridor. The schedule for the operation of this generator is unknown.

Daily operational noise levels following construction within the Coyote Creek corridor are anticipated to increase to an hourly average of approximately 60 dBA during normal operating conditions (i.e., when no generators are operating) and up to 75 dBA when the generators are operating (Illingworth & Rodkin Inc. 2026). As discussed under Section 1.2.1.4 *Facility Operation* above, the backup generators will run for short periods for testing and maintenance purposes and otherwise will not operate unless there is a disturbance or interruption of the utility supply. Typically, not more than one generator would be tested in any one hour, and generator testing would be limited to the hours of 7:00 a.m. to 7:00 p.m. (Illingworth & Rodkin Inc. 2026). The frequency and duration of power interruptions are unknown but are expected to be infrequent and of limited duration. As a result, generator use is not expected to contribute to future ambient noise levels; rather, their use would represent intermittent disturbances.

Anticipated noise levels during construction, estimated as worst-case hourly averages, range from 75–84 dBA at 50 feet from the site and 62–75 dBA at 350 feet from the site (Illingworth & Rodkin Inc. 2026). These distances encompass much of the adjacent riparian corridor (Figure 3). Thus, noise levels along Coyote Creek would increase to regular or sustained levels of approximately 62–83 dBA (e.g., similar to an appliance such as an air conditioner or dishwasher) during construction. Construction activities would occur for a period of 504 working days over 16 months.

Wildlife that inhabit the adjacent Coyote Creek corridor are acclimated to existing noise levels typically ranging from 49–59 dBA, with an hourly average of 53 dBA and periodic peaks of 80 dBA. These noise levels will increase during and following construction of the project, as described above. Noise levels along the Coyote Creek corridor from the existing generator (80 dBA) are similar to the anticipated noise levels from construction activities (75–84 dBA) and from future generator use (75 dBA). Due to this, as well as general high levels of disturbance in the immediately surrounding areas (e.g., related to surrounding development, the Coyote Creek Trail, and busy roadways), wildlife along the Coyote Creek corridor are not expected to avoid the area or stop using the adjacent riparian habitat due to construction-related noise, or post-construction operation of generators on the site. The proposed increase in noise levels along the creek due to operational noise levels following construction (i.e., an increase from an hourly average of 53 dBA to 60 dBA, similar to an increase from the sound of rainfall to the sound of a conversation), is relatively limited and also not expected to affect wildlife use of the creek. Conversations occur regularly along the adjacent Coyote Creek Trail, and wildlife in this area are well acclimated to those noise levels. As a result, impacts of the project due to increases in noise levels from construction, post-construction generator use, and post-construction operational noise are less than significant.

6.2.6 Nitrogen Deposition Impacts (Less than Significant)

Several special-status plant and animal species that are absent from the project site and its vicinity occur on serpentine substrates in hills on either side of the Santa Clara Valley. These species include the Bay checkerspot butterfly and a number of rare plants, including the VHP-covered Tiburon Indian paintbrush (*Castilleja affinis* var. *neglecta*), coyote ceanothus (*Ceanothus ferrisiae*), Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*), Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*), fragrant fritillary (*Fritillaria liliacea*), Loma Prieta hoita (*Hoita strobilina*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*), and most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*).

The USFWS has identified critical habitat for the federally threatened Bay checkerspot butterfly (73 FR 50406) east of Piercy Road in San José, approximately 0.4 mile east of the project site (USFWS 2008). The conservation of critical habitat is considered essential for the conservation of the Bay checkerspot butterfly, and this serpentine habitat also supports serpentine-associated rare plant species (including the VHP-covered species listed above). Nonnative grasses have been reported to increase in these habitats, crowding out native rare plants as well the native larval host plants needed by the Bay checkerspot butterfly, due to increased nitrogen deposition from human sources throughout San José and the greater Bay Area.

Nitrogen deposition contribution estimates in Santa Clara County were made as a part of the development of the VHP (ICF International 2012). About 46% of nitrogen deposition on habitat areas of concern for the base years (2005–2007) was estimated to come from existing development and traffic generated locally within the VHP study area, which includes all of San José. The remainder of Santa Clara County was estimated to contribute a substantially smaller amount (17% of the nitrogen deposition) while the other eight Bay Area counties account for about 11%. Nitrogen deposition modeling completed for future years (2035 and 2060) as a part of the VHP process assumed that urban and rural development in the County and broader San Francisco

Bay Area is expected to increase air pollutant emissions due to an increase in passenger and commercial vehicle trips and other new industrial and nonindustrial sources.

Construction of the project will result in an estimated 362 new operational vehicle trips per day to the project site. Providing new office space in San José (which is housing rich) may reduce some vehicle trips currently occurring to other cities in the region and thus reduce NO_x emissions to some extent. Nevertheless, these new vehicle trips will result in an increase in NO_x emissions, which in turn will contribute to the effects of nitrogen deposition on the serpentine grassland ecosystem. To mitigate this impact, a conservation strategy in the VHP includes collection of fees within the VHP area based upon the generation of new vehicle trips to fund acquisition and management of serpentine grasslands in the Coyote Ridge area and elsewhere in the foothills along the Santa Clara Valley. The goal of this strategy is to improve the viability of existing populations of the Bay checkerspot butterfly and rare plants, increase the number of populations, and expand the geographic distribution to ensure the long-term persistence of serpentine-associated species in the VHP area.

A nexus study was completed for the VHP to assist with identifying appropriate fees to fund measures in the VHP. The nitrogen deposition fee was calculated and adopted based on VHP costs related to mitigating the impacts of airborne nitrogen deposition from covered activities in the VHP area. The amount of the fee is based on the number of new daily vehicle trips generated by a covered activity. The fee-per-vehicle-trip is a surrogate that captures the overall effects of a project, recognizing that vehicle trips are not the only source of a project's NO_x emissions. Due to an increase in NO_x emissions under CEQA, the project shall be required to pay nitrogen deposition fees, which will then be used to fund the acquisition and management of habitat for the serpentine-associated species potentially impacted by nitrogen deposition. As a result, the project's nitrogen deposition impacts will be less than significant under CEQA.

6.3 Impacts on Sensitive Communities: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS (Less than Significant with Mitigation)

6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (No Impact)

The CDFW defines sensitive natural communities and vegetation alliances using NatureServe's standard heritage program methodology (CDFW 2026), as described above in Section 5.3. Aquatic, wetland, and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS (see Section 6.4 below). Project impacts on sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, were considered and evaluated.

Coyote Creek flows from south to north adjacent to, but not through, the project site. The entirety of ground-disturbing project impacts will occur outside of the riparian corridor. Thus, the proposed project will have no direct permanent or temporary impacts on riparian habitat.

6.3.2 Impacts Due to Encroachment into the Stream/Riparian Buffer (Less than Significant with Mitigation)

To protect the ecological functions and values of a stream, buffers are often prescribed between new development and the stream (or its banks or associated riparian habitat). These buffers provide habitat for plants and animals associated with the stream, provide habitat connectivity (i.e., areas used for wildlife movement, including flight paths for birds), reduce indirect effects of adjacent development (e.g., noise, lighting, human activity, or invasive species) on the natural stream and riparian habitats, allow for the possible future expansion of natural habitat, help to maintain site hydrology, and in some areas allow for runoff to be treated (e.g., by flowing through vegetated areas) before it enters the stream. In addition, along streams such as Coyote Creek, vegetative communities within stream buffers may provide important refugia for animals associated with wetland and riparian habitats along the creek during flood events, when little to no such refugia may be present within the banks of the creek itself. In general, larger buffers protect more of the ecological functions and values of the stream than smaller buffers.

Discussion of Project Encroachment Impacts and Applicable Policies

The City of San José's riparian buffer policy is administered through use of the City's Policy Study document that describes suggested buffer widths (City of San José 1999). The Policy Study, which was incorporated into the City's Envision San José 2040 General Plan (City of San José 2025) and further clarified by the Riparian Corridor Protection and Bird Safe Design Council Policy (City of San José 2016), states that riparian setbacks should be measured 100 feet from the outside edges of riparian habitat or the top of bank, whichever is greater. However, the Policy Study also states that setback distances for individual sites may vary if consultation with the City and a qualified biologist, or other appropriate means, indicates that a smaller or larger setback is more appropriate for consistency with riparian preservation objectives (City of San José 1999). Goal E2.2 of the City's General Plan also requires a 100-foot setback in all but a limited number of instances, and only where no significant environmental impacts would occur (City of San José 2025).

Similarly, the City Council-adopted VHP, specifically Condition 11, includes an analysis of relevant literature and studies informing the applicant of appropriate setbacks based on stream hydrology and function that are adequate to provide protection of habitat functions and values (ICF International 2012). The standard required setback for Coyote Creek (a Category 1 stream) is 100 feet from the top of bank or 35 feet from the outer edge of the riparian canopy, whichever is greater. On the project site, the VHP setback is 35 feet from the outer edge of the riparian canopy because the slope of the project site is, on average, less than 30%, all areas 35 feet from the edge of riparian vegetation extend past the 100-foot buffer from top of bank, and the project site is located inside the VHP-designated urban service area. The VHP provides for exceptions to standard stream setbacks, including an exception to prevent denying an owner economically viable use of their land or adversely affecting recognized real property interests (ICF International 2012), which the SCVHA may grant in the case of the project. Because the project will impact land cover types (California annual grassland), the project is considered covered under the VHP, and Condition 11 applies to the project.

For the purposes of this project, the City's standard 100-foot setback extends landward from the outer edge of the riparian habitat along Coyote Creek, and the VHP setback extends 35 feet landward from the edge of the riparian habitat (Figure 3). As a result, the City's setback extends 65 feet farther onto the project site than the VHP setback. These setbacks are applicable to all proposed project improvements.

Under the proposed project, all areas within the VHP and City setbacks on the project site will be modified in some way. The project proposes <0.01 acre of permanent impacts within the VHP standard setback (measured 35 feet from the edge of the riparian canopy) and 0.3 acre of encroachment into the City of San José setback area (measured 100 feet from the edge of the riparian canopy) (Figure 3). Within the VHP setback, the project will plant new landscape vegetation of unknown composition. Within the City setback, the project will construct a portion of a stormwater treatment basin, plant new landscape vegetation of unknown composition, and plant several native coast live oak and valley oak trees (Figure 7). No new impervious surface or structures are proposed within the setback areas.

Currently, areas within the VHP and City setbacks on the project site consist of California annual grassland. The project will convert 0.3 acre of California annual grassland into a stormwater treatment basin surrounded by landscape vegetation of unknown composition, with an overstory of coast live oak and valley oak trees. This conversion of habitat would require a setback exception under the VHP and may require a setback exception from the City. The project will obtain exceptions from these agencies prior to implementation; thus, impacts due to conflicts with City and VHP riparian setback policies are less than significant.

Assessment of Project-Specific Encroachment Impacts under CEQA

Under CEQA, owing to the importance of maintaining setbacks (and maintaining habitat quality within those setbacks) between new development and riparian habitat, impacts of encroachment into the riparian buffer would be significant for the project (due to the ecological impacts of closer development to sensitive riparian communities) if (a) new development is located any closer to the creek than existing conditions, or (b) changes in existing development or landscaping would result in substantial adverse effects on the ecological functions and values of the creek/riparian corridor. In our opinion, based on the quality of the riparian habitat present and the high diversity and abundance of native birds present at this location, coupled with the ecological value of Coyote Creek on the scale of the Santa Clara Valley, a 100-foot standard setback (measured from the edge of the riparian canopy) is appropriate between new construction and Coyote Creek on the project site to maintain suitable riparian functions and values. The proposed project improvements will be set back only 1 foot from the riparian canopy and would therefore be within the setbacks specified by the City of San José and VHP (Figure 3).

New development, consisting of a stormwater treatment basin, is proposed within the setback, and would result in the creation of a new, constructed feature closer to the creek compared to existing conditions. However, the existing California annual grassland habitat at this location does not provide especially high-quality habitat for riparian-associated species, and this basin is not expected to substantively change use of the constructed area

by wildlife compared to existing conditions. Although the basin is a constructed feature, it would be entirely covered in pervious surface and herbaceous vegetation. Thus, wildlife species that use the riparian corridor and forage or move opportunistically within the California annual grasslands currently present in the basin area will continue to be able to use the future landscape vegetation for foraging and movement following project construction. The relative value of the future vegetation to wildlife depends on its composition, which is unknown; this is discussed in greater detail in the paragraph below (in combination with areas in the setback that immediately surround the basin, where vegetation composition is also unknown). The basin would also hold water following rain events; however, due to the brief periods during which it would hold water, it is not expected to have substantive value to wildlife (e.g., as a pond, wetland, or water source).

Encroachment into the riparian setback along Coyote Creek could potentially affect habitat quality within the riparian corridor, or for animals that use the riparian corridor (some of which use habitat both within and adjacent to the riparian corridor). Because the existing California annual grassland habitat does not provide especially high-quality habitat for riparian-associated species, planting native coast live oak and valley oak trees within the setback is expected to improve habitat quality (e.g., by increasing breeding and foraging habitat) for some riparian animal species relative to existing conditions. However, the composition of other vegetation to be planted in the setback (e.g., shrubs, forbs, and ground cover), including within the stormwater treatment basin), is unknown; as a result, the effects of this vegetation on the riparian corridor and associated wildlife species is also unknown. In general, because these areas will continue to be dominated by vegetation, wildlife species that use the riparian corridor will continue to be able to use these areas for foraging and movement following project construction. However, if locally native, riparian-compatible vegetation is used, such vegetation would provide higher-quality resources for native wildlife and would potentially represent a net benefit compared to existing conditions. In contrast, if nonnative invasive species are used, such species would provide low-quality habitat for native wildlife and potentially spread to the adjacent riparian corridor. The spread of nonnative invasive species into the adjacent riparian corridor would be considered a significant impact under CEQA due to the potential for such species to degrade the quality of the adjacent habitat for wildlife.

Mitigation Measure BIO-2 below would ensure that the project's planting plan is compatible with the adjacent riparian corridor, and avoids planting invasive species. With the implementation of this measure, the project's proposed conversion of 0.3 acre of California annual grassland to a landscape area is not expected to affect regional populations of any animal species that use the Coyote Creek riparian corridor adjacent to the project site, and with the planting of native oak trees, is expected to represent a net benefit for wildlife. Thus, in our opinion, within the implementation of Mitigation Measure BIO-2, impacts of the proposed project due to encroachment into 0.3 acre of California annual grassland habitat would not rise to the level of significance under CEQA.

Mitigation Measure BIO-2. Plant Riparian-Compatible Species. All vegetation planted within the riparian setback on the project site will consist of locally native or sterile nonnative species, and will avoid species identified by the Cal-IPC as invasive.

6.4 Impacts on Wetlands: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (No Impact)

Wetlands and other waters of the U.S./state are present 160 feet northwest of the project site within the bed and banks of Coyote Creek. The project design avoids all direct and indirect impacts on state or federally protected wetlands and aquatic habitats to the project site. Thus, no wetland habitat will be impacted directly or indirectly by the project.

6.5 Impacts on Wildlife Movement: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Less than Significant)

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

Coyote Creek and its associated riparian corridor provide an important movement pathway for both aquatic and terrestrial wildlife species, connecting the associated wetlands to the San Francisco Bay. Songbirds that migrate along the Pacific Flyway disperse and forage along Coyote Creek in relatively large numbers. Common, urban-adapted species such as raccoons and striped skunks may use the vegetation along the river to move north and south through the San José area. Small mammals, such as mice and shrews, will also use this vegetation to move between habitats. Common species of reptiles and amphibians, such as Pacific tree frogs, and alligator lizards, amongst other species, are also expected to move along this corridor adjacent to the project site. Proposed project development along the creek will not result in any loss of aquatic, wetland, or riparian habitat along Coyote Creek or in any substantial reduction in the value of the Coyote Creek corridor for wildlife movement. The project is expected to increase the number of human users of the Coyote Creek trail, potentially subjecting animals within the riparian corridor to increased human disturbance. However, this trail is already heavily used by pedestrians and cyclists, and use of the riparian habitat along the river by homeless already introduces human disturbance within the riparian habitat. The increase in users of the Coyote Creek trail as a result of this project is not expected to contribute substantially to human disturbance of animals using the Coyote Creek corridor. Thus, aquatic and terrestrial species would continue to be able to move north to south along Coyote Creek following project development. Therefore, the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and this impact is determined to be less than significant.

6.6 Impacts due to Conflicts with Local Policies: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Less than Significant)

6.6.1 Impacts Due to the Removal of Ordinance-Sized Trees (Less than Significant)

The project proposes to remove four existing trees on the site, three of which would be considered ordinance-sized trees as defined by the City of San José, and the project proponent will submit a permit application for tree removal. In accordance with the provisions of the San José Municipal Code, the Standard Permit Conditions listed below would be implemented by the project.

Standard Permit Conditions

Trees impacted by the project will be replaced in accordance with all applicable laws, policies or guidelines, including Chapter 13 of the San José Municipal Code, General Plan policies MS-21.4, MS-21.5, MS-21.6, and CD-1.24, and City tree replacement ratios outlined in Table 2 below. Following the removal of trees on the site, a greater number of trees will be planted on the project site following construction.

Where applicable, the project proponent will implement a Tree Protection Plan and include measures to implement during project construction to minimize impacts to trees to remain. The measures include marking trees to remain in place in project plans and have tree protection zones established around the canopy drip line zone to avoid serious injury or loss.

Table 2 shows tree replacement ratios required by the project proponent. The species of trees to be planted shall be determined in consultation with the City Arborist and the Department of Planning, Building and Code Enforcement.

Table 2. City of San José Standard Tree Replacement Ratios

Diameter of Tree to Be Removed	Type of Tree to be Removed ¹			Minimum Size of Each Replacement Tree
	Native	Nonnative	Orchard	
38 inches or greater	5:1	4:1	3:1	15-gallon container
19 up to 38 inches	3:1	2:1	none	15-gallon container
Less than 19 inches	1:1	1:1	none	15-gallon container

¹x:x = tree replacement to tree loss ratio; Trees greater than 38" diameter shall not be removed unless a Tree Removal Permit, or equivalent, has been approved for the removal of such trees.

In the event the project site does not have sufficient area to accommodate the required tree mitigation, one or more of the following measures would be implemented during the final design phase of the project, to the satisfaction of the City Arborist and the Director of Planning, Building and Code Enforcement:

- During the final design phase, the size of a 15-gallon replacement tree may be increased to 24-inch box and count as two replacement trees to be planted on the project site.
- The project may pay Off-Site Tree Replacement Fee(s) to the City, prior to the issuance of Public Works grading permit(s), in accordance with the City Council approved Fee Resolution. The City will use the off-site tree replacement fee(s) to plant trees at alternative sites.

With the incorporation of the above measures to ensure compliance with the City of San José tree ordinance, any potential impacts related to conflict with local policies or ordinances protecting trees would be less than significant.

6.7 Impact due to Conflicts with an Adopted Habitat Conservation

Plan: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (Less Than Significant)

The City of San José is a signatory to the VHP, which is a Habitat Conservation Plan and Natural Community Conservation Plan. As described in Section 6.1, the project is considered a *covered project* under the VHP. All VHP-covered species that may be affected by the proposed project are discussed in this report. Similarly, impacts on sensitive habitats for which the VHP requires specific impact fees (the project will have no impacts on such habitats) are discussed in this report. The project will apply for VHP coverage and will adhere to all applicable VHP Conditions during project implementation. Conditions applicable to the proposed project include Conditions 1 (avoid direct impacts to legally protected plant and wildlife species), 3 (maintain hydrologic conditions and protect water quality), 11 (stream and riparian setbacks), and 17 (tricolored blackbird). Therefore, the proposed project would not be in conflict with the VHP.

The proposed project would not be in conflict with any other adopted habitat conservation plans or natural community conservation plans, or with any other approved local, regional, or state habitat conservation plans or natural community conservation plans. Thus, impacts associated with conflicts between the proposed project and any adopted habitat conservation plan or natural community conservation plan are less than significant.

VHP Condition 11 requires new covered projects to adhere to setbacks from creeks and streams and associated riparian vegetation to minimize and avoid impacts on aquatic and riparian land cover types, covered species, and wildlife corridors. The standard required setback for the reach of Coyote Creek (a Category 1 stream) adjacent to the project site is 35 feet from the edge of the riparian canopy (Figure 3), and the project would obtain an exception from the SCVHA for proposed encroachment within the standard VHP stream setback. Thus, impacts associated with conflicts with the VHP due to encroachment into the riparian setback are less than significant.

Construction disturbance and project tree removal during the avian breeding season (February 1 through August 31 inclusive, for most species) could result in the incidental loss of eggs or nestlings, either directly

through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Because such an impact would conflict with Condition 1 of the VHP, it would be considered a significant impact under CEQA. Mitigation Measures BIO-3 and BIO-4 would be implemented to reduce impacts due to conflicts with Condition 1 of the VHP to a less-than-significant level.

Mitigation Measure BIO-3. Nesting-Season Avoidance. To the extent feasible, commencement of construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to commence outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code would be avoided. The nesting season for most birds in Santa Clara County extends from February 1 through August 31, inclusive.

Mitigation Measure BIO-4. Preconstruction/Pre-disturbance Surveys and Buffers. If it is not possible to schedule commencement of construction activities and/or tree removal between September 1 and January 31, preconstruction surveys for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests shall be disturbed during project implementation. These surveys shall be conducted no more than seven days prior to the initiation of demolition or construction activities, including tree removal and pruning. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist shall determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code shall be disturbed during project implementation.

6.8 Cumulative Impacts (Less than Significant with Mitigation)

Cumulative impacts arise due to the linking of impacts from past, current, and reasonably foreseeable future projects in the region. Future development activities in the City of San José and development activities covered by the VHP will result in impacts on the same habitat types and species that will be affected by the proposed project. The proposed project, in combination with other projects in the area and other activities that impact the species that are affected under the project, could contribute to cumulative effects on special-status species. Other projects in the area include both development and maintenance projects that could adversely affect these species and restoration projects that will benefit these species.

The cumulative impact on biological resources resulting from the project in combination with other projects in the region would be dependent on the relative magnitude of adverse effects of these projects on biological resources compared to the relative benefit of impact avoidance and minimization efforts prescribed by planning documents, CEQA mitigation measures, and permit requirements for each project; compensatory mitigation and proactive conservation measures associated with each project, and the benefits to biological resources accruing from the VHP. In the absence of such avoidance, minimization, compensatory mitigation, and conservation measures, cumulatively significant impacts on biological resources would occur.

However, the San José General Plan contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources and the VHP includes numerous conservation measures to offset adverse effects on covered activities. Many projects in the region that impact resources similar to those impacted by the proposed project will be covered activities under the VHP and will mitigate impacts on sensitive habitats and many special-status species through that program, which will require payment of fees for habitat restoration. Further, the project would implement a number of best management practices and mitigation measures to reduce impacts on both common and special-status species, as described above. Thus, the project will not contribute to substantial cumulative effects on biological resources.

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Appendix A. Plants and Animals Observed

Table A-1. Plant Species Observed

Family	Common Name	Scientific Name	Cal-IPC Status ¹
Amaranthaceae	Wild beet	<i>Beta vulgaris</i>	
Asteraceae	Bull thistle	<i>Cirsium vulgare</i>	Moderate
	Coyote brush*	<i>Baccharis pilularis</i>	
	Horseweed	<i>Erigeron canadensis</i>	
	Prickly lettuce	<i>Lactuca serriola</i>	
Brassicaceae	Short-podded mustard	<i>Hirschfeldia incana</i>	Moderate
Convolvulaceae	Field bindweed	<i>Convolvulus arvensis</i>	
Fabaceae	Black locust	<i>Robinia pseudoacacia</i>	Limited
Fagaceae	Coast live oak*	<i>Quercus agrifolia</i>	
Juglandaceae	California black walnut*	<i>Juglans hindsii</i>	
Malvaceae	Cheeseweed	<i>Malva parviflora</i>	
Oleaceae	European olive	<i>Olea europaea</i>	Limited
Poaceae	Foxtail barley	<i>Hordeum murinum</i>	Moderate
	Ripgut brome	<i>Bromus diandrus</i>	Moderate
	Smilo grass	<i>Stipa milacea</i>	
	Wild oat	<i>Avena fatua</i>	Moderate
Polygonaceae	Curly dock	<i>Rumex crispus</i>	Limited
Sambucaceae	Blue elderberry*	<i>Sambucus mexicana</i>	

¹Cal-IPC Status (Cal-IPC 2026):

L = Limited. These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score.

M = Moderate. These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure.

*Native

Table A-2. Animal Species Observed

Common Name	Scientific Name
California ground squirrel	<i>Otospermophilus beecheyi</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
American kestrel	<i>Falco sparverius</i>
Anna's hummingbird	<i>Calypte anna</i>
Northern flicker	<i>Colaptes auratus</i>
Black phoebe	<i>Sayornis nigricans</i>
Northern mockingbird	<i>Mimus polyglottos</i>

Common Name	Scientific Name
Oak titmouse	<i>Baeolophus inornatus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Steller's jay	<i>Cyanocitta stelleri</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
House finch	<i>Haemorhous mexicanus</i>
California towhee	<i>Melospiza crissalis</i>
European starling*	<i>Sternus vulgaris</i>

*Nonnative

Appendix B. Photographs of the Survey Area



Photo 1. Representative photo of California annual grassland habitat on the project site.



Photo 2. Representative photo of California annual grassland habitat on the project site.



Photo 3. Representative photo of mixed riparian woodland and forest habitat along Coyote Creek northwest of the project site.



Photo 4. Representative photo of mixed riparian woodland and forest habitat along Coyote Creek northwest of the project site.



Photo 5. Representative Photo of willow riparian forest and scrub habitat along Coyote Creek to the northwest.

Appendix C. Special-Status Plants Considered but Rejected

Common Name	Scientific Name	Outside Geographic Range	Suitable Habitat	Edaphic Conditions	Elevation
alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>			X	
arcuate bushmallow	<i>Malacothamnus arcuatus</i> var. <i>arcuatus</i>		X		
bay buckwheat	<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i>		X	X	X
bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	X			
big-scale balsamroot	<i>Balsamorhiza macrolepis</i>			X	
Brewer's calandrinia	<i>Calandrinia breweri</i>		X		
Brewer's clarkia	<i>Clarkia breweri</i>		X	X	X
brittlescale	<i>Atriplex depressa</i>			X	
California alkali grass	<i>Puccinellia simplex</i>			X	
California androsace	<i>Androsace elongata</i> ssp. <i>acuta</i>				X
California seablite	<i>Suaeda californica</i>		X		
chaparral harebell	<i>Ravenella exigua</i>		X		X
chaparral ragwort	<i>Senecio aphanactis</i>		X	X	
clay buckwheat	<i>Eriogonum argillosum</i>		X		X
coast iris	<i>Iris longipetala</i>		X	X	
Contra Costa goldfields	<i>Lasthenia conjugens</i>			X	
Coyote ceanothus	<i>Ceanothus ferrisiae</i>			X	X
Douglas' spineflower	<i>Chorizanthe douglasii</i>			X	
dwarf soaproot	<i>Chlorogalum pomeridianum</i> var. <i>minus</i>		X		X
elongate copper moss	<i>Mielichhoferia elongata</i>		X	X	
fragrant fritillary	<i>Fritillaria liliacea</i>			X	
hairless popcornflower	<i>Plagiobothrys glaber</i>		X		
Hall's bushmallow	<i>Malacothamnus hallii</i>		X		
Hickman's popcornflower	<i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i>		X		

Common Name	Scientific Name	Outside Geographic Range	Suitable Habitat	Edaphic Conditions	Elevation
Hoover's button-celery	<i>Eryngium aristulatum</i> var. <i>hooveri</i>		X		X
Jepson's woolly sunflower	<i>Eriophyllum jepsonii</i>		X	X	X
large-flowered leptosiphon	<i>Leptosiphon grandiflorus</i>			X	
lesser saltscare	<i>Atriplex minuscula</i>			X	
Lewis' clarkia	<i>Clarkia lewisii</i>		X		
Loma Prieta hoita	<i>Hoita strobilina</i>		X	X	
maple-leaved checkerbloom	<i>Sidalcea malachroides</i>		X		
Metcalf Canyon jewelflower	<i>Streptanthus albidus</i> ssp. <i>albidus</i>		X		
most beautiful jewelflower	<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>			X	X
Mt. Day rockcress	<i>Boechera rubicundula</i>		X	X	X
Mt. Diablo phacelia	<i>Phacelia phacelioides</i>		X	X	X
Mt. Hamilton coreopsis	<i>Leptosyne hamiltonii</i>		X		X
Mt. Hamilton lomatium	<i>Lomatium observatorium</i>		X		X
Mt. Hamilton thistle	<i>Cirsium fontinale</i> var. <i>campylon</i>			X	X
Oakland star-tulip	<i>Calochortus umbellatus</i>			X	X
phlox-leaf serpentine bedstraw	<i>Galium andrewsii</i> ssp. <i>gatense</i>		X	X	X
pink creamsacs	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>			X	
Point Reyes salty bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>palustre</i>		X		
prostrate vernal pool navarretia	<i>Navarretia prostrata</i>		X	X	
robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>		X	X	
rock sanicle	<i>Sanicula saxatilis</i>			X	X
saline clover	<i>Trifolium hydrophilum</i>		X		
San Francisco collinsia	<i>Collinsia multicolor</i>		X	X	
San Francisco gumplant	<i>Grindelia hirsutula</i> var. <i>maritima</i>			X	

Common Name	Scientific Name	Outside Geographic Range	Suitable Habitat	Edaphic Conditions	Elevation
San Francisco wallflower	<i>Erysimum franciscanum</i>			X	X
San Joaquin spearscale	<i>Extriplex joaquinana</i>			X	
Sanford's arrowhead	<i>Sagittaria sanfordii</i>		X		
Santa Clara red ribbons	<i>Clarkia concinna</i> ssp. <i>automixa</i>		X		X
Santa Clara thorn-mint	<i>Acanthomintha lanceolata</i>		X	X	X
Santa Clara Valley dudleya	<i>Dudleya abramsii</i> ssp. <i>setchellii</i>			X	
Santa Cruz Mountains beardtongue	<i>Penstemon rattanii</i> var. <i>kleei</i>		X		X
Santa Cruz Mountains pussypaws	<i>Calyptridium parryi</i> var. <i>hesseae</i>		X	X	X
Satan's goldenbush	<i>Isocoma menziesii</i> var. <i>diabolica</i>		X		
serpentine leptosiphon	<i>Leptosiphon ambiguus</i>			X	X
small spikerush	<i>Eleocharis parvula</i>		X		
small-flowered morning-glory	<i>Convolvulus simulans</i>			X	
small-leaved lomatium	<i>Lomatium parvifolium</i>		X	X	
smooth lessingia	<i>Lessingia micradenia</i> var. <i>glabrata</i>			X	X
South Coast Range morning-glory	<i>Calystegia collina</i> ssp. <i>venusta</i>			X	X
spring lessingia	<i>Lessingia tenuis</i>		X		X
Tiburon paintbrush	<i>Castilleja affinis</i> var. <i>neglecta</i>		X		
western leatherwood	<i>Dirca occidentalis</i>		X	X	
woodland woollythreads	<i>Monolopia gracilens</i>			X	X
woolly-headed lessingia	<i>Lessingia hololeuca</i>			X	