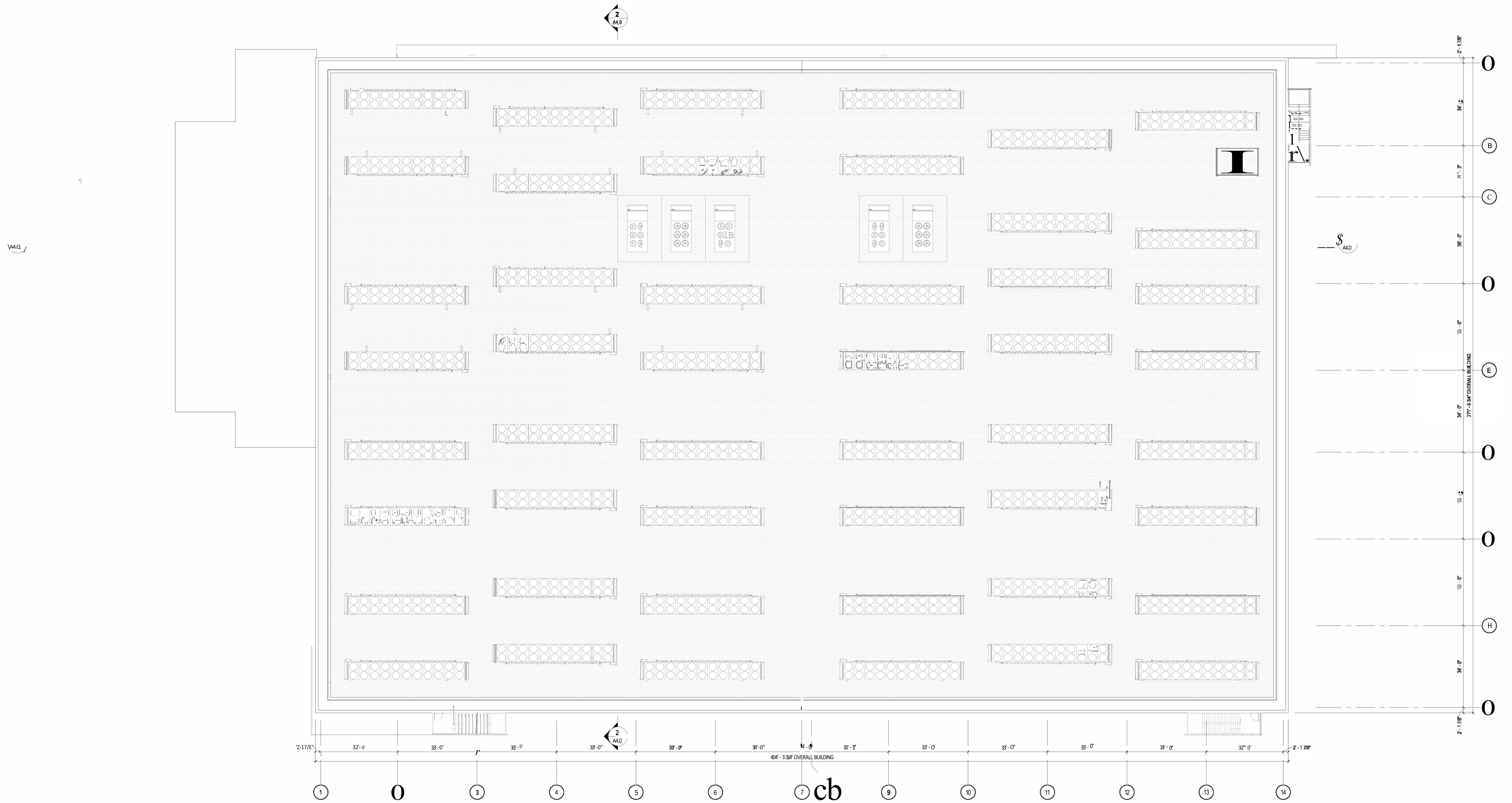
DOCKETED	
Docket Number:	21-SPPE-01
Project Title:	CA3 (Vantage) Backup Generating Facility
TN #:	237423
Document Title:	VDC CA3BGF SPPE Application Part II
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	4/12/2021 1:44:26 PM
Docketed Date:	4/12/2021



OVERALL ROOF PLAN
1/16" = 1'-0"

GENERAL NOTES

Figure 2-9

SHEET NOTES

NOTE: NOT ALL SHEET NOTES BELOW MAY BE USED ON THIS SHEET

SHEET LEGEND

KEY PLAN

OWNER

VANTAGE. DATA CENTERS

ARCHITECT

Mission Critical Engineering

LANDSCAPE ARCHITECT

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

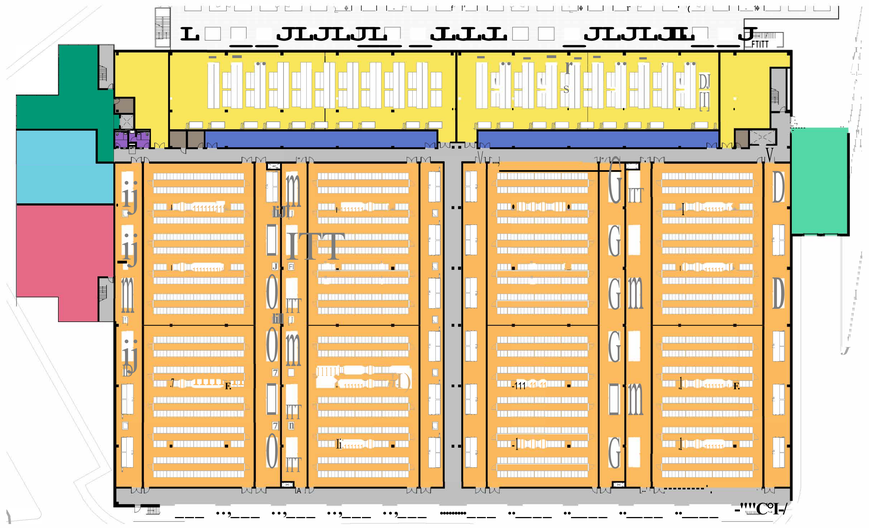
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

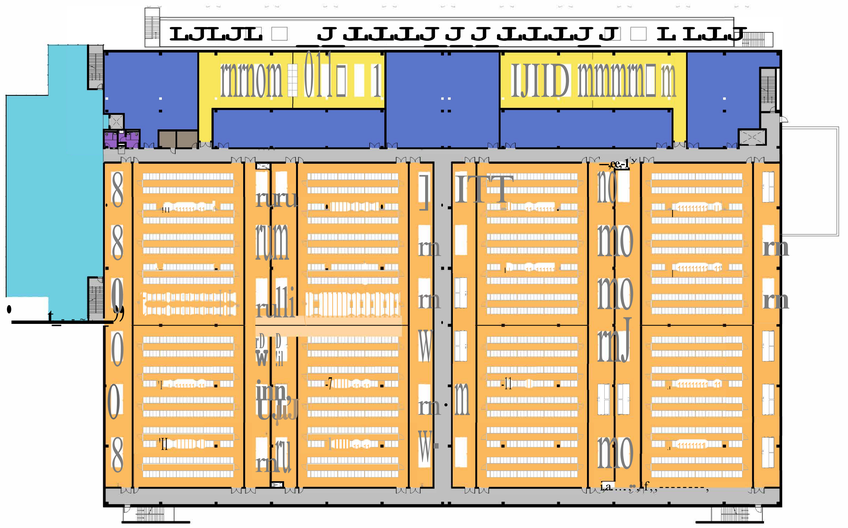
ROOF LEVEL FLOOR PLAN

A1.5

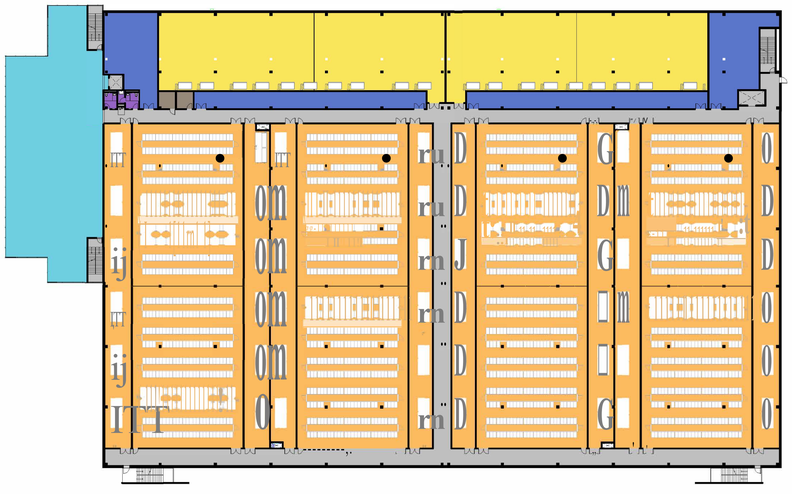
SCALE: AS NOTED



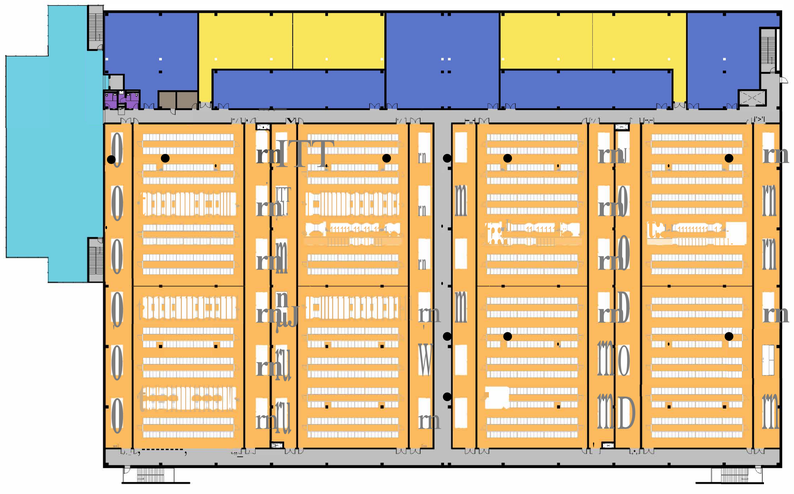
1 - AREA CALCULATIONS



2 - AREA CALCULATIONS



3 LEVEL 03 - AREA CALCULATIONS
1/32" = 1'-0"



4 LEVEL 04 - AREA CALCULATIONS
1/32" = 1'-0"

Figure 2-10

GENERAL NOTES

TOTAL GROSS AREA: 457,001 SF

TOTAL ADMIN AREA REQUIRED
19,200 SF (300 SF / MW)

TOTAL ADMIN AREA PROVIDED
26,250 SF (410 SF / MW)

TOTAL STORAGE AREA REQ.
19,200 SF (300 SF / MW)

TOTAL STORAGE AREA PROV.
35,465 SF (554 SF / MW)

TOTAL COMBINED AREA REQ.
38,400 SF (600 SF/MW)

TOTAL COMBINED AREA PROV.
61,715 SF (964 SF / MW)

NOTE: NOT ALL SPACES ARE PROGRAMMED, AREAS LIKELY TO REDUCE

AREA LEGEND

- ADMIN
- BACK OF HOUSE
- CIRCULATION
- COMMON AREA
- DATA HALL MODULE
- DATA MODULE SUPPORT
- LOADING DOCK
- LOBBY
- STORAGE
- VANTAGE FACILITY OPS

ADMIN

LEVEL 1	ADMIN	2338SF
LEVEL2	ADMIN	7970 SF
LEVEL3	ADMIN	7970 SF
LEVEL4	ADMIN	7970 SF
		26250 SF

BACK OF HOUSE

LEVEL 1	ELEVATOR MACHINE ROOM	85 SF
LEVEL 1	PREACTION ROOM	98SF
LEVEL 1	ELEVATOR MACHINE ROOM	0I SF
LEVEL 1	IDFROOM	100SF
LEVEL2	PREACTION ROOM	98SF
LEVEL2	IDFROOM	126SF
LEVEL3	PREACTION ROOM	98SF
LEVEL3	IDFROOM	100SF
LEVEL4	PREACTION ROOM	98SF
LEVEL4	IDFROOM	126SF
		1021 SF

CIRCULATION

LEVEL 1	STAIR	233SF
LEVEL 1	ELEVATOR	69SF
LEVEL 1	CORRIDOR	9517 SF
LEVEL 1	STAIR	231 SF
LEVEL 1	ELEVATOR	135SF
LEVEL 1	STAIR	233SF
LEVEL2	CORRIDOR	9500 SF
LEVEL2	STAIR	231 SF
LEVEL2	ELEVATOR	69SF
LEVEL2	ELEVATOR	135SF
LEVEL2	STAIR	233SF
LEVEL3	STAIR	231 SF
LEVEL5	ELEVATOR	135SF
LEVEL3	CORRIDOR	9517 SF
LEVEL4	CORRIDOR	9500 SF
LEVEL4	STAIR	233SF
LEVEL4	STAIR	231 SF
LEVEL4	ELEVATOR	69SF
LEVEL4	ELEVATOR	135SF
LEVEL4	STAIR	233SF
		41◆S F

COMMON AREA

LEVEL 1	RESTROOM- SINJ_E USER	70 SF
LEVEL 1	RESTROOM- SINGLE USER	73 SF
LEVEL 1	JANITOL CLOSET	COSF
LEVEL2	RESTROOM- SINGLE USER	70 SF
LEVEL2	JANITOR CLOSET	COSF
LEVEL2	RESTROOM- SINGLE USER	73 SF
LEVEL3	RESTROOM- SING E USER	70 SF
LEVEL3	RESTROOM- SINGLE USER	73 SF
LEVEL3	JANITOR CLOSET	COSF
LEVEL4	RESTROOM- SINGLE USER	70 SF
LEVEL4	JANITOR CLOSET	..JSF
LEVEL4	RESTROOM- SINGLE USER	73 SF
		693 SF

DATA HALI MODULE

LEVEL 1	DATA HALI 1	6347 SF
LEVEL 1	DATAHALI 2	6347 SF
LEVEL 1	DATAHALI_3	6347 SF
LEVEL 1	DATA HAU_4	6347 SF
LEVEL 1	DATA HALI 5	6349 SF
LEVEL 1	DATAHALI 6	6347 SF
LEVEL 1	DATA HAU_7	6349 SF
LEVEL 1	DATAHALIB	6347 SF
LEVEL 1	MECHNICAL GALLERY	JOO SF
LEVEL 1	MECHNICAL GALLERY	2691 SF
LEVEL 1	MECHPIICAL GALLERY	2692 SF
LEVEL 1	MECHNIICAL GALLERY	2701 SF
LEVEL 1	MECHNICAL GALLERY	2701 SF
LEVEL 1	MECHNIICAL GALLERY	2692 SF
LEVEL 1	MECHPIICAL GALLERY	2691 SF
LEVEL 1	MECHPIISCAL GALLERY	"40 SF
LEVEL2	DATA HALI.9	6349 SF
LEVEL2	DATA HALI. 10	63HSF
LEVEL2	DATA HU_ 11	6347 SF
LEVEL2	DATA HALI. 12	6347 SF
LEVEL2	DATA HAU. 13	6349 SF
LEVEL2	DATA HALI.14	6347 SF
LEVEL2	DATA HALI. 15	6349 SF
LEVEL2	DATA HAU_ 16	6347 SF
LEVEL2	MECHANICAL GALLERY	2691 SF
LEVEL2	MECHNIICAL GALLERY	2692 SF
LEVEL2	MECHPIIICAL GALLERY	2701 SF
LEVEL2	MECHMIICAL GALLERY	2701 SF
LEVEL2	MECHPI4CAL GALLERY	2691 SF
LEVEL2	MECHANICAL GALLERY	2691 SF
LEVEL2	MECHANICAL GALLERY	3041 SF
LEVEL3	MECHANICAL GALLERY	3090 SF
LEVEL3	DATAHALL25	6349 SF
LEVEL3	DATAHALL26	6347 SF
LEVEL3	DATAHALL27	6349 SF
LEVEL3	DATAHALL28	6347 SF
LEVEL3	DATAHALL29	6348 SF
LEVEL3	DATAHALL30	6347 SF
LEVEL3	DATAHALL31	6348 SF
LEVEL3	DATAHALL32	6347 SF
LEVEL3	MECHANICAL GALLERY	2691 SF
LEVEL3	MECHANICAL GALLERY	2692 SF
LEVEL3	MECHANICAL GALLERY	2701 SF
LEVEL3	MECHANICAL GALLERY	2701 SF
LEVEL3	MECHANICAL GALLERY	2692 SF
LEVEL3	MECHANICAL GALLERY	2691 SF
LEVEL3	MECHANICAL GALLERY	3041 SF
LEVEL3	MECHANICAL GALLERY	3.90 SF
		295522 SF

DATA MODULE SUPPORT

LEVEL 1	MMR	1352 SF
LEVEL 1	ELECTRICAL ROOM	3662 SF
LEVEL 1	MMR	1559 SF
LEVEL 1	ELECTRICAL ROOM	4262 SF
LEVEL 1	ELECTRICAL ROOM	3667 SF
LEVEL 1	ELECTRICAL ROOM	3691 SF
LEVEL2	BAmRYROOM	2020 SF
LEVEL2	BAmRYROOM	2020 SF
LEVEL2	BATTERY ROOM	1832 SF
LEVEL2	BATTERY ROOM	1832 SF
LEVEL3	ELECTRICAL ROOM	3669 SF
LEVEL3	ELECTRICAL ROOM	4262 SF
LEVEL3	ELECTRICAL ROOM	3667 SF
LEVEL3	ELECTRICAL ROOM	3691 SF
LEVEL4	BATTERY ROOM	2020 SF
LEVEL4	BATTERY ROOM	2020 SF
LEVEL4	BATTERY ROOM	1832 SF
LEVEL4	BATTERY ROOM	1832 SF
		48880 SF

LOADING DOCK

LEIIa 1	LOADING DOCK	2096 SF
		2096 SF

LOBBY

LEVEL1	LOBBY	2136SF
		2136 SF

STORAGE

LEVEL 1	STrnAGE	1374 SF
LEVEL 1	STRAGE	1428 SF
LEVEL2	STrnAGE	2547 SF
LEIa2	STORdGE	2394 SF
LEVEL2	STOOIGE	2310 SF
LEVEL2	STCR.GE	1812 SF
LEIa2	STORAGE	2310 SF
LEIa3	STORAGE	1459 SF
LEVEL3	STOOIGE	1374 SF
LEVEL3	STORAGE	1428 SF
LEVEL3	STORAGE	1655 SF
LEVEL4	STRiAGE	2547 SF
LEVEL4	STOOIGE	2394 SF
LEIa4	STCRIGE	2310 SF
LEVEL4	STRiAGE	1812 SF
LEVEL4	ST<TWOE	2310 SF
		35465 SF

VANTAGE FACILITY OPS

LEVEL 1	VANTAGEFACILITYOPS	3414SF
		3414 SF
		459927 SF

OWNER

VANTAGE DATA CENTERS

ARCHITECT

SHEEHAN NAGLE HARTRAY ARCHITECTS
130 East Randolph, Suite 3100
Chicago, IL 60601
O. 312.633.2900
CHICAGO | LONDON

MEP ENGINEER

KW Mission Critical Engineering
40 E. Rio Salado Parkway, 4th Floor
602.568.3144
C-10 LIC. NO. 174637

CUPERTINO ELECTRIC
1132 NORTH 7TH STREET
SAN JOSE, CA 95112
(408) 808-8000
C-10 LIC. NO. 174637

STRUCTURAL ENGINEER

CIVIL ENGINEER

LANDSCAPE ARCHITECT

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

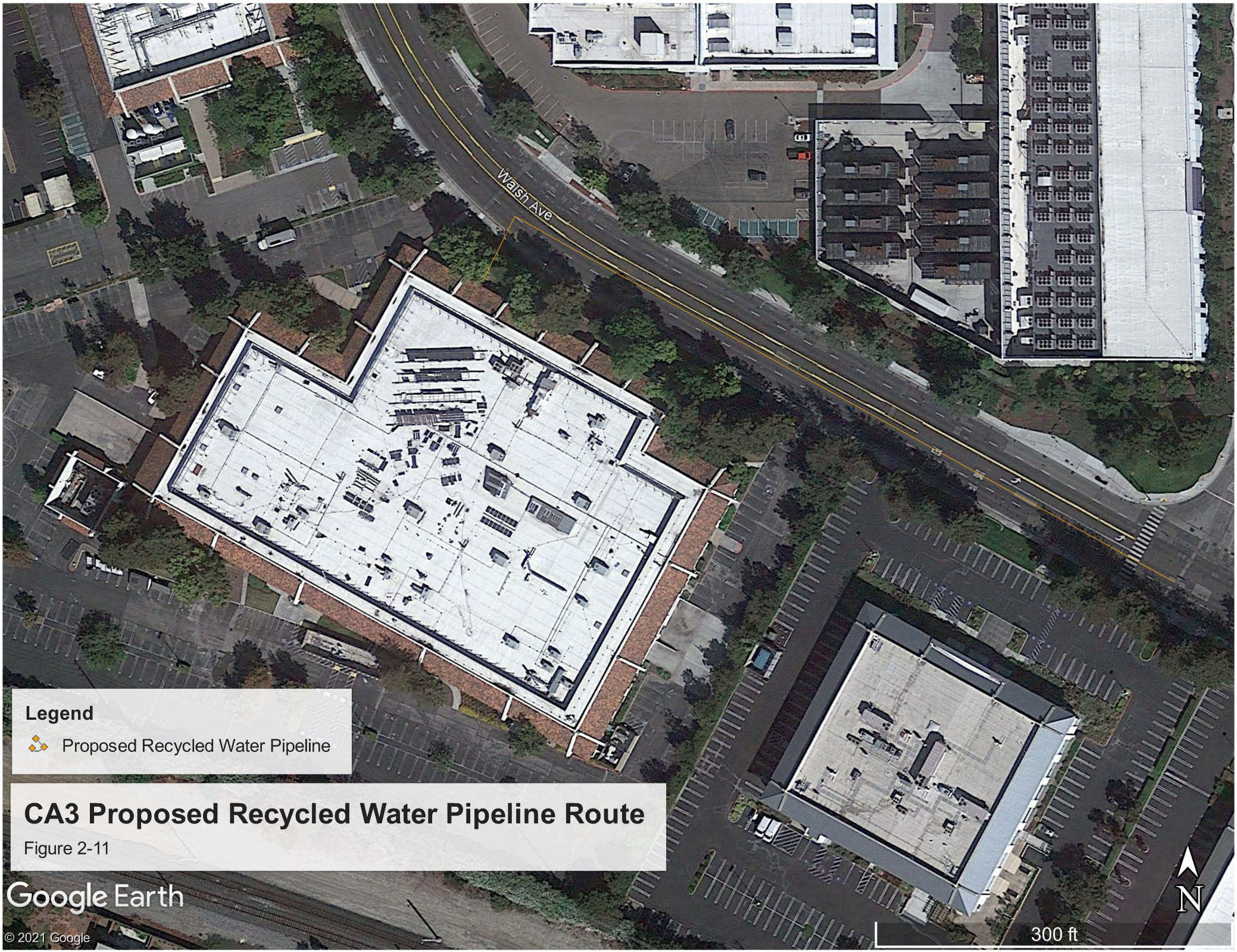
2590 WALSH AVENUE
SANTA CLARA, CA 95051

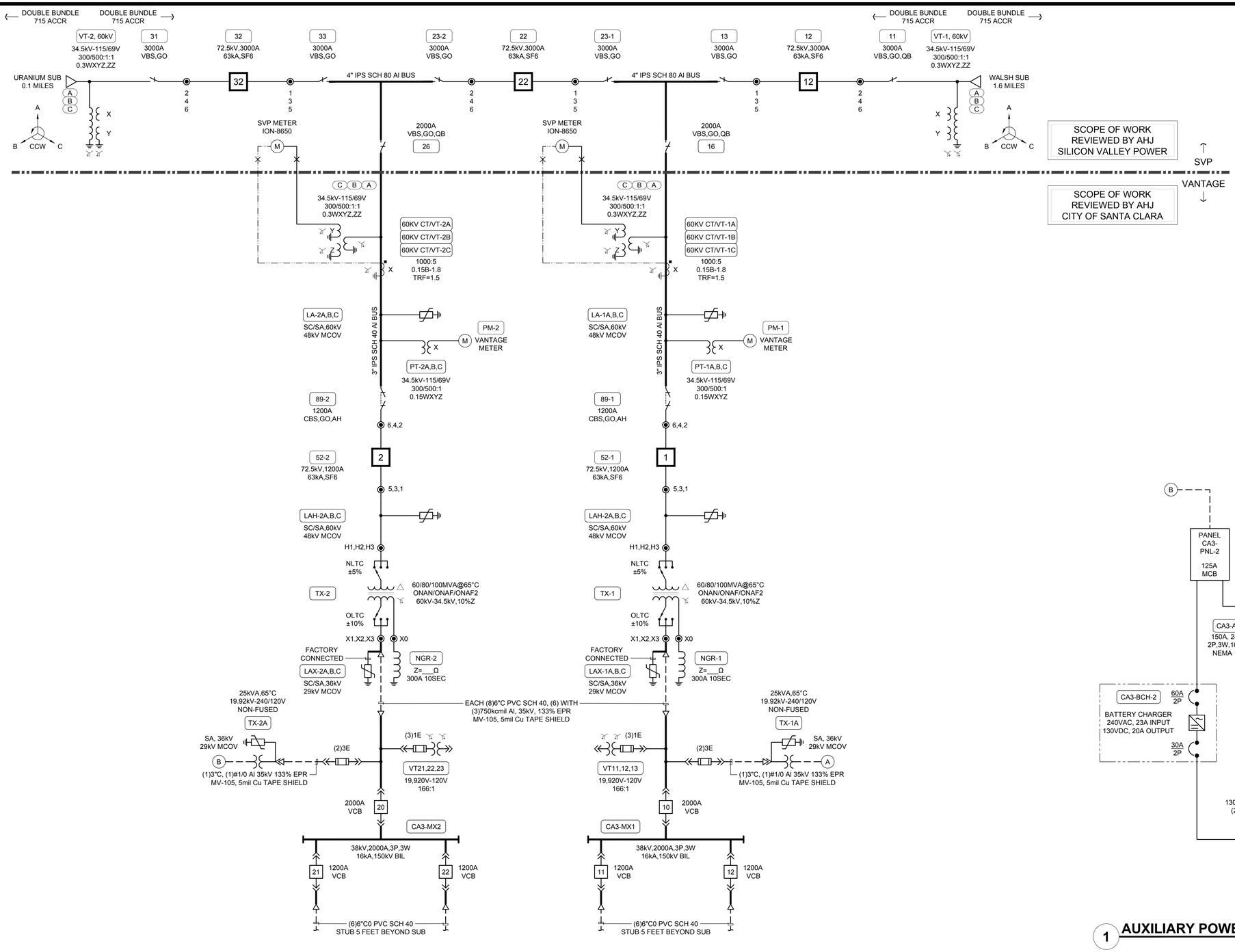
MASTERPLAN

AREA CALCULATIONS

A2.0

SCALE: AS NOTED


Walsh Ave
Legend
Proposed Recycled Water Pipeline
CA3 Proposed Recycled Water Pipeline Route
Figure 2-11
Google Earth
© 2021 Google
300 ft
N

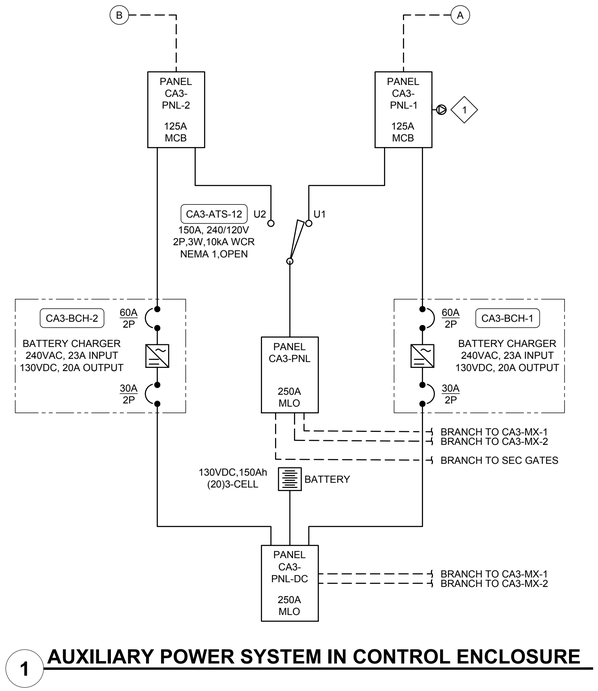


GENERAL NOTES:

1. ALL BREAKERS AND SWITCHES ARE CLOSED DURING NORMAL OPERATION UON.
2. SVP DOES NOT PERMIT CUSTOMER METERS ON UTILITY METER INSTRUMENT TRANSFORMERS. A STANDALONE PT IS PROVIDED FOR VANTAGE METER.
3. UTILITY IS NOT TO BE PARALLELED THROUGH CUSTOMER SWITCHGEAR.

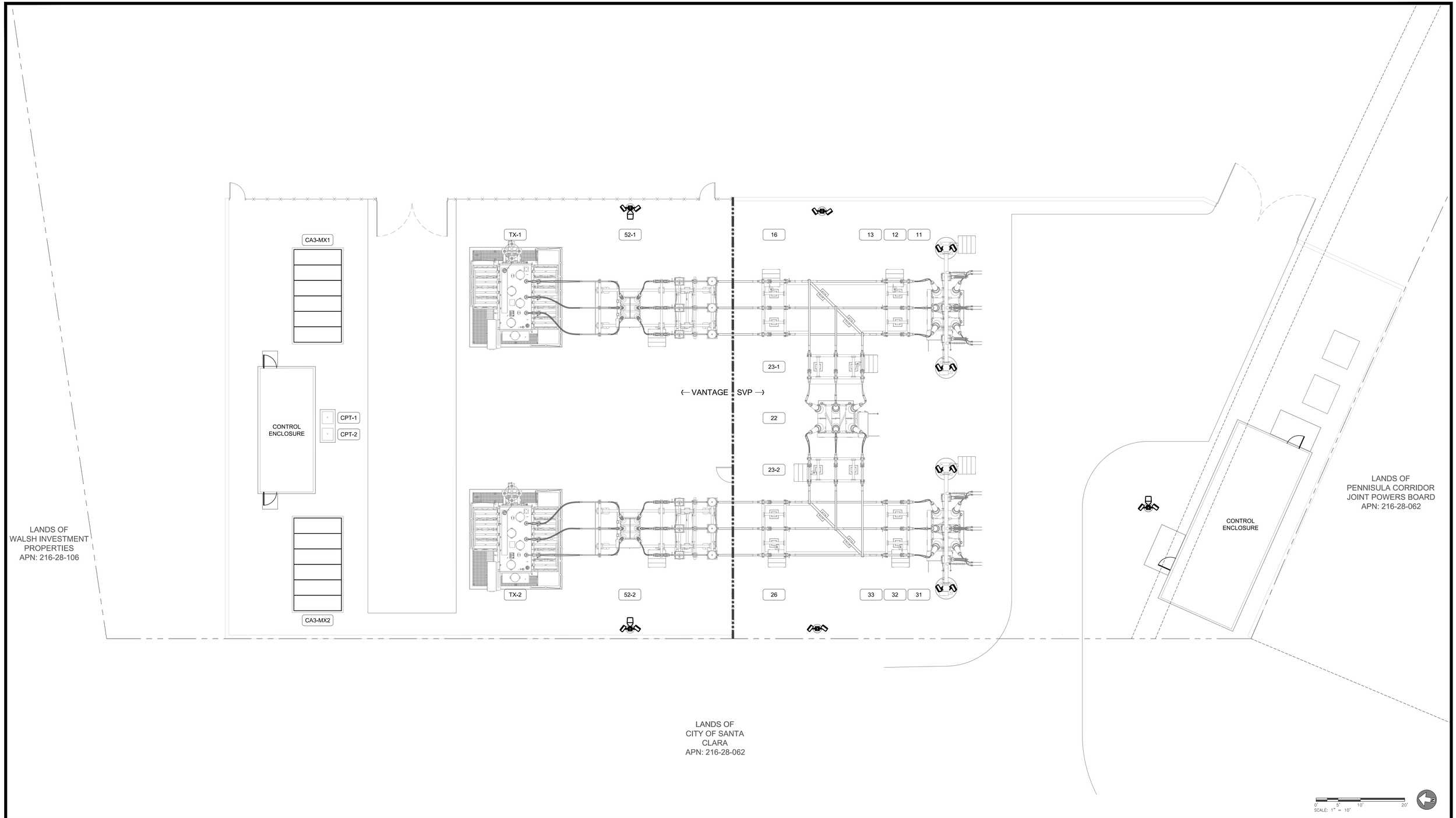
SHEET NOTES:

1. INTERLOCK PIN-N-SLEEVE CIRCUIT BREAKER IN PANEL AC1 WITH MAIN CIRCUIT BREAKER SO THAT ONLY 1 SOURCE IS PRESENT AT A TIME.



1 AUXILIARY POWER SYSTEM IN CONTROL ENCLOSURE

OWNER	GENERAL CONTRACTOR	ELECTRICAL CONTRACTOR	ENGINEERING LICENSE	DESIGN ISSUES	PROJECT	SHEET TITLE	SHEET NUMBER
VANTAGE DATA CENTERS	Figure 2-12	CUPERTINO ELECTRIC INC. 1132 North Seventh St San Jose, California 95112 Phone: 1.408.808.8000 Fax: 1.408.275.8575 www.cei.com C-10 LICENSE NO. 174637 THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY CUPERTINO ELECTRIC, INC. FOR THEIR EXCLUSIVE USE IN ACCORDANCE WITH SEC. 6737.3 OF THE PROFESSIONAL ENGINEERS ACT OF THE STATE OF CALIFORNIA		No. / DESCRIPTION / DATE CEC REVIEW 03.03.2021	CA3 SUBSTATION 2590 WALSH AVE	SWITCHING DIAGRAM	E1.10 PROJECT No ——



OWNER	GENERAL CONTRACTOR	ELECTRICAL CONTRACTOR	ENGINEERING LICENSE	DESIGN ISSUES	PROJECT	SHEET TITLE	SHEET NUMBER
VANTAGE™ DATA CENTERS	Figure 2-13	CUPERTINO ELECTRIC INC. 1132 North Seventh St San Jose, California 95112 Phone: 1.408.808.8000 Fax: 1.408.275.8575 www.cei.com C-10 LICENSE NO. 174637 THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY CUPERTINO ELECTRIC, INC. FOR THEIR EXCLUSIVE USE IN ACCORDANCE WITH SEC. 6737.3 OF THE PROFESSIONAL ENGINEERS ACT OF THE STATE OF CALIFORNIA		No. DESCRIPTION DATE CEC REVIEW 03.03.2021	CA3 SUBSTATION 2590 WALSH AVE	SUBSTATION PLAN	E2.10 PROJECT No —–

SECTION 2.0 PROJECT DESCRIPTION

2.1 OVERVIEW OF PROPOSED GENERATING FACILITIES

CA3BGF will be an emergency backup generating facility with a generation capacity of up to 96 MW to support the need for the CA3DC to provide uninterruptible power supply for its tenant's servers. The CA3BGF will consist of 44 diesel-fired backup generators arranged in a generation yard located on the north side of the CA3DC. Forty (40) of the generators would be dedicated to replace the electricity needs of the data center in case of a loss of utility power, and four (4) of the generators would be used to support redundant critical cooling equipment and other general building and life safety services (house generators). Project elements will also include switchgear and distribution cabling to interconnect the generators to their respective portion of the building.

2.2 GENERATING FACILITY DESCRIPTION, CONSTRUCTION AND OPERATION

2.2.1 Site Description

The proposed CA3DC site encompasses approximately 6.69 acres and is located at 2590 Walsh Avenue in Santa Clara, California, APN 216-28-112. The property is zoned ML-Light Industrial zoning. The site is currently developed with an approximately 115,000 square foot single-story office and warehouse building and associated paved surface parking and loading dock. The existing building consists of concrete, wood and stucco. The building facade consists of mission style stucco archways with sloping tile roof.

The single-story office and warehouse building would be demolished. The main entrance to the CA3DC building will be located on Walsh Avenue at the northeast corner of the property, with a secondary entrance also on Walsh Avenue near the northernmost portion of the property.

Native and non-native trees and ornamental landscaping are located along the Walsh Avenue frontage of the property, as well as the northern, western, and southern property boundaries. The project proposes to demolish the existing shrubs and groundcovers on the site, while protecting-in-place trees not in conflict with proposed utilities, grading, stormwater treatment facilities, and architectural improvements.

The property is irregularly shaped and is generally bound to the Northwest by an existing microelectronics testing facility, to the Northeast by a software research and development facility, to the South by an existing railroad line operated by CalTrain, to the East by Walsh Avenue, and to the West by an existing Silicon Valley Power (SVP) substation (Uranium Substation). The Vantage Santa Clara Data Center Campus CA1 is located to the east of the site across Walsh Avenue. The closest residential uses are to the south across the existing railroad right-of-way.

The project area consists primarily of commercial and industrial land uses to the north and east and residential uses to the south and west. Buildings in the area to the north

are similar in height and scale to the existing building on the project site. Buildings to the east are similar in height and scale to the proposed CADC building. The Norman Y. Mineta San José International Airport is located approximately 1.75 miles southeast of the site.

2.2.2 General Site Arrangement and Layout

The 44 emergency backup generators (40 for the data center suites and 4 house generators) will be located at the site in a generation yard adjacent to the south side of the CA3DC building. Figure 2-1 shows the General Arrangement and Site Layout of the CA3BGF within the CA3DC site.

Each backup generator is a fully independent package system each with dedicated diesel fuel tank and urea storage located on a skid below the generator and within the generator enclosure. The generation yard will be electrically connected to the CA3DC building through above ground cable bus to a location within the building that houses electrical distribution equipment.

2.2.3 Generating Capacity

2.2.3.1 Overview

In order to determine the generating capacity of the CA3BGF, it is important to consider and incorporate the following critical and determinative facts.

1. The CA3BGF uses internal combustion engines and not turbines.
2. The CA3BGF internal combustion engines have a peak rating and a continuous rating.
3. The CA3BGF through software technology and electronic devices is controlled exclusively by the (CA3DC).
4. The CA3BGF has been designed with a distributed redundant system with a 5 to make 4 redundancy. Each system will serve two of the 16 lineups as described in Section 2.2.4.1.
5. There will be a total of 8 data center generators which are redundant.
6. There will be a total of 4 house generators to provide electricity during emergencies to support portions of the admin building and features necessary for emergency response. Two of these generators are redundant.
7. The CA3BGF will only be operated for maintenance, testing and during emergency utility power outages.
8. The CA3BGF will only operate at a load equal to the demand of the CA3DC during an emergency utility outage.
9. The CA3BGF is only interconnected to the CA3DC and is not interconnected to the transmission or distribution grid.

2.2.3.2 Generating Capacity and PUE

Based on the methodology recently adopted by the Commission's Final Decisions Granting SPPEs for the last five Data Center Backup Generating Facilities, the maximum generating capacity of the CA3BGF is determined by the maximum of capacity of the load being served.

The design demand of the CA3DC, which the CA3BGF has been designed to reliably supply with redundant components during an emergency, is based on the maximum critical IT load and maximum mechanical cooling electrical load occurring during the hottest hour in the last 20 years. Such conditions are possible but extremely unlikely to ever occur. The CA3DC load on that worst-case day will be 96 MW.

It is important to understand that while the CA3DC will be designed to accommodate the full IT equipment load of the building, it is Vantage's experience that the customers that lease data center space do not utilize the entire load identified in their lease. This typically results in data center demand loads approximately 60 to 80 percent. Therefore, a fully leased 96 MW data center would only be expected to reach a demand load around 77 MW.

The data center industry utilizes a factor called the Power Utilization Efficiency Factor (PUE) to estimate the efficiency of its data centers. The PUE is calculated by dividing the total demand of the data center infrastructure serving the critical IT spaces (including IT load) by the Critical IT load itself. The theoretical peak PUE for the Worst Day Calculation would be 1.45 (Total 92.8 MW demand of Building on Worst Case Day divided by 64.0 MW Total Critical IT Load). The average annual PUE would be 1.26 (Total 80.7 MW demand of Building average conditions divided by 64.0 MW Design Critical IT Load). These PUE estimates are based on design assumptions and represent worst case.

As described above, the expected PUE is much lower because the Critical IT that is leased by clients is rarely fully utilized. Vantage's experience with operation of other data centers is that the actual annualized PUE will be closer to 1.25.

2.2.4 Backup Electrical System Design

2.2.4.1 Overview

As discussed above there will be 16 data center suites in the CA3DC. Each data center suite will be designed to handle 4 MW (megawatts) of IT equipment load. The total maximum load of each data center suite will be 6 MW which includes the IT equipment load, mechanical equipment to cool the IT equipment load, lighting and data center monitoring equipment. The sum of the 16 center suite will result in 64 MW of IT equipment load and 96 of total electrical load.

There are 16 data center suites or lineups. The backup electrical system has been designed to serve the lineups in pairs. Each redundant system of 5, 2.75 MW generators serves 2 data center lineups. Each 5 generator redundant system is

SECTION 3.0 PROJECT INFORMATION

3.1 PROJECT TITLE

CA3 Backup Generating Facility and CA3 Data Center

3.2 LEAD AGENCY CONTACT

Eric Veerkamp
Project Manager
Siting, Transmission and Environmental Protection (STEP) Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814
Phone: 916-651-0966
E-mail: Eric.Veerkamp@energy.ca.gov

3.3 PROJECT APPLICANT

Vantage Data Centers, Inc.
2820 Northwestern Parkway
Santa Clara, CA 95051

3.4 PROJECT LOCATION

2590 Walsh Avenue
Santa Clara, CA 95051

3.5 ASSESSOR'S PARCEL NUMBER

216-28-112

3.6 GENERAL PLAN DESIGNATION AND ZONING DISTRICT

General Plan Designation: Light Industrial
Zoning District: ML - Light Industrial

SECTION 4.0 ENVIRONMENTAL ANALYSIS

This section presents a brief overview of relevant plans, policies, and regulations that compose the regulatory framework for the project; describes the existing, physical environmental conditions at the project site and in the surrounding area, as relevant. This section also discusses the project's potential impacts on the environment as recommended in the checklist in Appendix G of the CEQA Guidelines.

4.1 Aesthetics
4.2 Agricultural and Forestry Resources
4.3 Air Quality
4.4 Biological Resources
4.5 Cultural and Tribal Cultural Resources
4.6 Energy and Energy Resources
4.7 Geology and Soils
4.8 Greenhouse Gas Emissions
4.9 Hazards and Hazardous Materials
4.10 Hydrology and Water Quality
4.11 Land Use and Planning
4.12 Mineral Resources
4.13 Noise and Vibration
4.14 Population and Housing
4.15 Public Services
4.16 Recreation
4.17 Transportation
4.18 Utilities and Service Systems
4.19 Wildfire

The environmental analysis has been conducted to separately describe, where possible, the impacts of the CA3BGF and of the CA3DC. Where the word "project" is used it refers collectively refer both facilities. Where impacts associated with each facility differ, they are referred to individually as the "CA3BGF" or the "CA3DC".

4.1 AESTHETICS

4.1.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Aesthetics				
Would the project:				
1) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views[5] of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

4.1.2 Environmental Setting

4.1.2.1 Existing Conditions on Site

As discussed in Section 2.2.1 Existing Site Description, the 6.69-acre site is developed with an approximately 115,000 square foot single-story office and warehouse building and associated paved surface parking and loading dock. The existing building consists of concrete, wood and stucco. The building facade consists of mission style stucco archways with sloping tile roof.

The site is within a fully developed area in Santa Clara with flat topography. Views of the eastern foothills from public viewpoints are partially blocked by existing industrial structures in the area. The visual character of the project site can be viewed in Photos 1 through 6.

4.1.2.2 Surrounding Land Uses

The project area consists primarily of industrial land uses to the north and east and residential to the south and west. The property is irregularly shaped and is generally

[5] Public views are those that are experienced from publicly accessible vantage points.

bound to the Northwest by an existing microelectronics testing facility, to the Northeast by a software research and development facility, to the South by an existing railroad line operated by CalTrain, to the East by Walsh Avenue, and to the West by an existing Silicon Valley Power (SVP) substation. The Vantage Santa Clara Data Center Campus CA1 is located to the east of the site across Walsh Avenue. The closest residential uses are to the south across the existing railroad right-of-way.

The data center buildings to the east are larger in height and scale than the existing buildings on the project site. The buildings to the north and southeast are similar in height and scale to the existing building on the project site.

The Norman Y. Mineta San José International Airport is located approximately 1-3/4 miles east of the site. Aircraft, along with truck and other vehicle traffic, are readily apparent in the area.

There are no scenic vistas within the City of Santa Clara. There are also no scenic resources on-site, and the site is not visible from a scenic highway. Photographs 1 through 8 provide a visual presentation of the existing site conditions.

4.1.3 Environmental Impact Discussion

4.1.3.1 Would the MBGF have a substantial adverse effect on a scenic vista?

There are no scenic vistas within the City of Santa Clara. The project, therefore, would not have a substantial adverse effect on a scenic vista. **(No Impact)**

4.1.3.2 Would the MBGF substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The site is not visible from a scenic highway. The project, therefore, would not substantially damage scenic resources within a state scenic highway. **(No Impact)**

4.1.3.3 Would the project degrade the existing visual character or quality of public views of the site and its surroundings or would it conflict with applicable zoning and other regulations governing scenic quality

Aesthetic values are subjective. Opinions as to what constitutes a degradation of visual character differ among individuals. One of the best methods for assessing what constitutes a visually acceptable standard for new buildings are the City's design standards and implementation of those standards through the City's design process. The following discussion addresses the proposed changes to the visual setting of the project area and factors that are part of the community's assessment of the aesthetic values of a project's design.

The project will include demolition of the existing improvements on the site to construct a four-story 469,482 square foot data center building, utility substation, generator equipment yard (the CA3BGF), surface parking and landscaping. The CA3BGF would

be located directly adjacent to the northern side of the CA3DC and would be enclosed with 25 feet high perforated metal screen walls on the north, east, and west ends.

Landscaping consisting of trees, shrubs, and groundcover would be planted throughout the site, including along the building's perimeter and property boundaries. The project would remove existing vegetation throughout the parking lot and construct a building of greater mass than the existing buildings. The existing building would be demolished and would be replaced with a larger, four-story structure. Though the CA3DC building would be larger in mass and scale than the existing buildings, but would be similar in scale to development across Walsh Avenue. The exterior of the building and the proposed screening fences would be subject to the City's design review process and would conform to current community design guidelines and landscaping standards for the ML-Light Industrial zoning district. The guidelines were developed to support community aesthetic values, preserve neighborhood character, and promote a sense of community and place throughout the City.

For the reasons described above, the project would not degrade the existing visual character or quality of the site and its surroundings, nor would it conflict with applicable zoning and other regulations governing scenic quality. **(Less than Significant Impact)**

4.1.3.4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project would include pole mounted site light fixtures along the site perimeter, as well as along the perimeter of the CA3BGF utility yard, and outdoor security lighting along the CA3DC building and driveway entrances. The outside lighting would comply with the City's lighting requirements (City Code Section 18.48.140) and would be comparable in brightness to the ambient lighting in the surrounding area. Additionally, outdoor lighting would be angled downward and would include light visors and light hoods. The exterior surfaces of the CA3DC building would consist primarily of precast concrete and would not be a significant source of glare during daytime hours.

Building materials and lighting plans would be reviewed by the City's Architectural Committee and the Planning Division staff prior to issuance of building permits to ensure that the project would not create a substantial new source of light or glare. The project, therefore, would not create a new source of substantial light or glare, nor would it adversely affect day or nighttime views in the area. **(Less than Significant Impact)**

4.1.4 Mitigation Measures

No mitigation measures are required to support a finding by the Commission that the project will not result in significant adverse visual resource or aesthetic impacts.

4.1.5 Governmental Agencies

The only governmental agency with regulatory authority applicable to aesthetics and visual resources for the project would be the City of Santa Clara. Compliance with the City of Santa Clara requirements will be ensured through its design review process which is underway.

Photograph 1 – Existing view from Walsh Avenue looking west at northeast corner os existing building

Photograph 2 – Existing building parking lot facing northeast

Photograph 3 – Rear parking lot existing building facing northeast

Photograph 4 – Existing build southwest corner facing northeast

Photograph 5 – Existing building rear parking lot facing toward Bowers Avenue

Photograph 6 – View of site from northeast corner Bracher Park

4.2 AGRICULTURAL AND FORESTRY RESOURCES

4.2.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Agriculture and Forest Resources				
Would the project:				
1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
4) Result in a loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.2 Environmental Setting

According to the Santa Clara County Important Farmland 2016 Map, the project site is designated as *Urban and Built-Up Land. Urban and Built-Up Land* is defined as land with a density of at least six structures per 10-acre parcel. *Urban and Built-Up Land* is commonly used for residential, industrial and commercial purposes, golf courses, landfills, airports, sewage treatment, and water control structures.[6] According to the Santa Clara County Office of the Assessor, the site is not subject to a Williamson Act contract.

4.2.3 Environmental Impact Discussion

[6] California Department of Conservation, *Santa Clara County Important Farmland Map 2016.* Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/scl16.pdf

4.2.3.1 Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

According to the Santa Clara County Important Farmland 2016 Map, the project site is designated as *Urban and Built-Up Land.* The project, therefore, would not convert farmland to non-agricultural use. **(No Impact)**

4.2.3.2 Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The site is zoned M-L Light - Industrial. According to Santa Clara County Office of the Assessor, the site is not subject to a Williamson Act contract. The project, therefore, would not conflict with existing zoning for agricultural use, or a Williamson Act contract. **(No Impact)**

4.2.3.3 Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

The site is zoned ML – Light Industrial. The project, therefore, would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. **(No Impact)**

4.2.3.4 Would the project result in a loss of forest land or conversion of forest land to non-forest use?

No forestland is located on or near the site. The project, therefore, would not result in a loss of forest land or conversion of forest land to non-forest use. **(No Impact)**

4.2.3.5 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

As described above, no farmland or forest land is located on or near the site. The project, therefore, would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use. **(No Impact)**

4.2.4 Mitigation Measures

No mitigation measures are required to support a finding by the Commission that the project will not result in significant impacts to agricultural resources.

4.2.5 Governmental Agencies

There are no government agencies with agricultural or forest service-related regulatory authority applicable to the project.

4.3 AIR QUALITY

This section presents the evaluation of emissions and impacts resulting from the construction and operation of CA3 Backup Generating Facility (CA3BGF) which supports the CA3 Data Center (CA3DC), as well as the proposed design measures to be used to minimize emissions and limit impacts to below established significance thresholds. This section is based upon an analysis prepared by Ramboll US Consulting Inc. in accordance with the California Energy Commission (CEC) application requirements for a Small Power Plant Exemption (SPPE) pursuant to the power plant siting regulations, and the rules and regulations of the Bay Area Air Quality Management District (BAAQMD). This analysis is but one part of a larger analysis, which seeks an SPPE Decision from the CEC and an Authority to Construct (ATC) from the BAAQMD.

This section summarizes the methodology, findings and conclusions of the Air Quality and Public Health analyses contained in the reports included in Appendix A.

4.3.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Air Quality				
Would the project:				
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
3) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

4.3.2 Environmental Setting

Overall air quality in the San Francisco Bay Area Air Basin (SFBAAB) is better than most other areas, including the South Coast, San Joaquin Valley, and Sacramento regions. This is due to a more favorable climate, with cooler temperatures and better air

circulation[7]. CA3BGF's proximity to both the Pacific Ocean and the San Francisco Bay has a moderating influence on the climate. This portion of the Santa Clara Valley is bounded by the San Francisco Bay to the north, the Santa Cruz Mountains to the southwest, and the Diablo Range to the east. The surrounding terrain greatly influences winds in the valley, resulting in a prevailing wind that flows along the valley's northwest-southeast axis. Although air quality improvements have occurred, violations and exceedances of the state ozone and particulate matter standards continue to persist in the SFBAAB and still pose challenges to state and local air pollution control agencies (CARB, 2013).

Pollutants in the air can cause health problems, especially for children, the elderly, and people with heart or lung problems. Healthy adults may experience symptoms during periods of intense exercise. Pollutants can also cause damage to vegetation, animals, and property.

Air quality is determined by measuring ambient concentrations of criteria pollutants, which are those pollutants for which acceptable levels of exposure can be determined and for which standards have been set. Degradation of air quality is determined by comparing projected air concentrations to the available ambient air quality standards. Toxic air contaminants (TACs) are different from criteria pollutants as there are no ambient air quality standards for TACs, and a health risk assessment (HRA) is conducted to evaluate whether risks of exposure to TACs create an adverse impact.

Please see Section 4.8 of this document for more details on the project's greenhouse gas emissions.

4.3.2.1 Overview of Existing Air Quality

Air Quality Standards. The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following seven pollutants, termed criteria pollutants: ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and airborne lead. Similarly, the California Air Resources Board (CARB) has established California Ambient Air Quality Standards (CAAQS) for the seven pollutants listed above and for visibility-reducing particles (VRP), sulfates, hydrogen sulfide, and vinyl chloride. Unique meteorological conditions in California and differences of opinion by medical panels established by the CARB and EPA cause considerable diversity between state and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in Table 4.3-1.

[7] The rapid horizontal movement of air and injection of cleaner air.

Table 4.3-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary[c]	Secondary[d]
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.070 ppm	-- 0.070 ppm
CO	1 hour 8 hours	20 ppm 9 ppm	35 ppm 9 ppm	-- --
NO_2	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm[e] 0.053 ppm	-- 0.053 ppm
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.04 ppm --	0.075 ppm[f] -- 0.14 ppm 0.030 ppm	-- 0.5 ppm -- --
PM_{10}	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/ m^3 --	150 µg/ m^3 --
$PM_{2.5}$	24 hours Annual Arithmetic Mean	-- 12 µg/ m^3	35 µg/ m^3 12 µg/ m^3	35 µg/ m^3 15 µg/ m^3
Lead	30-Day Average Calendar Quarter Rolling 3-Month Average	1.5 µg/ m^3 -- --	-- 1.5 µg/ m^3 0.15 µg/ m^3	-- 1.5 µg/ m^3 0.15 µg/ m^3
VRP	8 hours	g	--	--
Sulfates	24 hours	25 µg/ m^3	--	--
Hydrogen Sulfide	1 hour	0.03 ppm	--	--
Vinyl Chloride	24 hours	0.01 ppm	--	--

Source: CARB, 2016.

[a] CAAQS for ozone, CO, SO_2 (1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP) are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] NAAQS (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.070 ppm or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour PM2.5 standard is attained when the 3-year average of the 98th percentile is less than the standard.

[c] Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.

[f] To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

[g] Statewide visibility reducing particle standard (except Lake Tahoe Air Basin) - Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent.

Notes:

-- = No standard has been adopted for this averaging time

µg/ m^3 = microgram(s) per cubic meter ppm = part(s) per million

Attainment Status. The EPA, CARB, and local air districts classify areas as attainment, unclassified, or nonattainment. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance

with the ambient air quality standards, respectively. CA3BGF would be located within Santa Clara County under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Table 4.3-2 summarizes attainment status for the criteria pollutants in the SFBAAB with regards to both the federal and state standards.

Table 4.3-2. Attainment Status for the San Francisco Bay Area Air Basin

Pollutant	Averaging Time	Federal Designation	State Designation
Ozone	1 hour 8 hours	-- Marginal Non-attainment[a]	Non-attainment Non-attainment
CO	1 hour 8 hours	Maintenance Maintenance	Attainment Attainment
NO_2	1 hour Annual Arithmetic Mean	Attainment Attainment	Attainment --
SO2	1 hour 3 hours 24 hours Annual Arithmetic Mean	Attainment Attainment Attainment Attainment	Attainment -- Attainment --
PM_{10}	24 hours Annual Arithmetic Mean	Unclassified --	Non-attainment Non-attainment
$PM_{2.5}$	24 hours Annual Arithmetic Mean	Non-attainment[b] Unclassified/Attainment	-- Non-attainment
Lead	30-Day Average Calendar Quarter Rolling 3-Month Average	Attainment Attainment --	-- -- --
VRP	8 hours	--	Unclassified
Sulfates	24 hours	--	Attainment
Hydrogen Sulfide	1 hour	--	Unclassified
Vinyl Chloride	24 hours	--	No information available

Sources: EPA, 2019b; CARB, 2019a; BAAQMD, 2017a

a On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. USEPA made recommendations on attainment designations for California by October 1, 2016 and issued final designations on June 4, 2018, classifying the San Francisco Bay Area Air Basin as being in Nonattainment (Federal Register Vol. 83, No. 107, pp. 25776-25848). Nonattainment areas will have until 2020 to 2037 to meet the health standard, with attainment dates varying based on ozone level in the area.

b On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key State Implementation Plan requirements as long as monitoring data continue to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the BAAQMD submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.

-- = No standard has been adopted for this averaging time

Existing Conditions. The existing conditions in the project area are summarized in Table 4.3-3, which provides the background ambient air concentrations of criteria pollutants for the previous 3 years (2017-2019) as measured at certified monitoring stations near the CA3BGF site. To evaluate air quality degradation as a result of CA3BGF, modeled air concentrations are combined with the respective background concentrations presented in Table 4.3-3 and used for comparison to the NAAQS and CAAQS.

Table 4.3-3. Summary of Background Ambient Air Concentrations[a]

Pollutant	Averaging Time	Units	2017	2018	2019
Ozone[b]	1 hour 8 hours	ppm ppm	0.121 0.098	0.078 0.061	0.095 0.081
CO	1 hour 8 hours	ppm ppm	2.1 1.8	2.5 2.1	1.7 1.3
NO_2	1 hour (maximum) 1 hour (98th percentile) Annual Arithmetic Mean	ppb ppb ppb	68 50 12.24	86 59 12.04	60 52 10.63
SO_2	1 hour (maximum) 1 hour (99th percentile) 3 hours[c] 24 hours Annual Arithmetic Mean	ppb ppb ppb ppb ppb	3.6 3.0 3.6 1.1 0.20	6.9 3.0 6.9 1.1 0.21	14.5 2.0 14.5 1.5 0.14
PM_{10}	24 hours Annual Arithmetic Mean[d]	$\mu g/m^3$ $\mu g/m^3$	69.4 20.7	115.4 20.9	75.4 18.4
$PM_{2.5}$	24 hours (98th percentile) Annual Arithmetic Mean	$\mu g/m^3$ $\mu g/m^3$	34.3 9.5	73.4 12.8	20.6 9.1

Source: EPA, 2019a; CARB, 2019b.

[a] Unless otherwise noted, background values were collected from Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California, as reported by EPA. Available at: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report

b Background values for Ozone (National Ozone Statistics) were collected for San Francisco Bay Area Air Basin from CARB. Available at: https://www.arb.ca.gov/adam/trends/trends1.php

[c] In the absence of monitored values, the 1-hour maximum background was conservatively used as background for the 3-hour averaging period.

[d] Background values were collected from the monitoring site located at 156B Jackson Street in San Jose, California, as reported by the CARB.

Each criteria pollutant and TAC is described in this section, including their known health risks.

Ozone. Ozone is a photochemical oxidant that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOX) react in the presence of ultraviolet sunlight. The principal sources of VOCs and NOX, often termed ozone precursors, are combustion processes (including motor vehicle engines) and evaporation of solvents, paints, and fuels. Exposure to levels of ozone above the current ambient air quality

standards can lead to human health effects such as lung inflammation, lung tissue damage, and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during smoggy periods. Elevated ozone levels can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics, and plastics.

Carbon Monoxide. CO is a colorless, odorless gas formed by incomplete combustion of fossil fuels. Exposure to CO near the levels of the NAAQS and CAAQS can lead to fatigue, headaches, confusion, and dizziness.

Nitrogen Dioxide. NO2 is a byproduct of combustion sources such as on-road and off-road motor vehicles or stationary fuel combustion sources. The principle form of nitrogen oxide produced by combustion is nitric oxide (NO); however, NO reacts quickly with oxygen to form NO2, creating a mixture of NO and NO2 commonly called NOX. Exposures to NO2, along with pollutants from vehicle exhaust, are associated with respiratory symptoms, episodes of respiratory illness, and impaired lung function.

Sulfur Dioxide. SO2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Effects from SO2 exposures at levels near the 1-hour standard include bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity.

Particulate Matter. Particulate matter (PM10 and PM2.5) includes a wide range of solid or liquid particles, including smoke, dust, aerosols, and metallic oxides. Extensive research indicates that exposures to ambient PM10 and PM2.5 concentrations that exceed current air quality standards are associated with increased risk of hospitalization for lung- and heart-related respiratory illness, including emergency room visits for asthma. Particulate matter exposure is also associated with increased risk of premature death, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown association between particulate matter exposure and reduced lung function and increased respiratory symptoms and illnesses.

TACs. The health effects associated with TACs are quite diverse, and generally are assessed locally, rather than regionally. TACs could cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches (BAAQMD, 2017c). Numerous other health effects also have been linked to exposure to TACs, including heart disease, Sudden Infant Death Syndrome, respiratory infections in children, lung cancer, and breast cancer (OEHHA, 2015).

4.3.2.2 Regulatory Background

Federal, state, and regional agencies regulate air quality in the SFBAAB, where CA3DC is located.

Federal. At the federal level, EPA is responsible for overseeing implementation of the federal Clean Air Act and its subsequent amendments (CAA). As required by the federal CAA, NAAQS have been established for the criteria pollutants described above.

CAA Section 112 (Title 42, U.S. Code Section 7412) addresses emissions of hazardous air pollutants (HAPs). This act requires new sources that emit more than 10 tons per year of any specified HAP or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

State. CARB is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California Clean Air Act. CARB also established the CAAQS, which are typically considered more stringent than the NAAQS.

TACs are primarily regulated through state and local risk management programs, which are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposures to TACs. A chemical becomes a regulated TAC in California based on designation by the California Office of Environmental Health Hazard Assessment (OEHHA) (BAAQMD, 2017c). Assembly Bill 2588, also known as the Air Toxics "Hot Spots" Information and Assessment Act,[8] requires that, based on results of an HRA conducted per CARB/OEHHA guidelines, TACs do not exceed acceptable levels. As part of its jurisdiction under Assembly Bill 2588,[9] OEHHA derives cancer potencies and reference exposure levels (RELs) for individual air contaminants, based on the current scientific knowledge that includes consideration of possible differential effects on the health of infants, children, and other sensitive subpopulations, and in accordance with the mandate of the Children's Environmental Health Protection Act.[10] Sections of the California Public Resources Code require a quantitative HRA for new or modified sources, including power plants that emit one or more TACs.[11]

Regional. BAAQMD is the primary regional agency responsible for attaining and maintaining air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, and enforcement (BAAQMD, 2017c). Some of the BAAQMD's key air plans and regulations are described below.

2017 Bay Area Clean Air Plan. The 2017 Bay Area Clean Air Plan was adopted by the BAAQMD on April 19, 2017, and provides a regional strategy to protect public health

[8] California Health and Safety Code Sections 44360 – 44366.

[9] California Health and Safety Code Section 44360(b)(2).

[10] Senate Bill 25, Escutia, Chapter 731, Statutes of 1999; California Health and Safety Code Sections 39669.5 et seq.

[11] California Public Resources Code Section 25523(a); Title 20, Sections 1752.5, 2300 – 2309 and Division 2, Chapter 5, Article 1, Appendix B, Part (1), California Code of Regulations (CCR); California Clean Air Act; California Health and Safety Code Section 39650, et seq.

and protect the climate. The 2017 Bay Area Clean Air Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, and is a multi-pollutant air quality plan addressing four categories of air pollutants (BAAQMD, 2017b):

1. Ground-level ozone and the key ozone precursor pollutants (VOCs and NOX)
2. Particulate matter (PM10 and PM2.5), as well as the precursors to secondary PM2.5
3. TACs
4. Greenhouse gases

BAAQMD Regulation 2, Rule 2: New Source Review. This rule applies to all new or modified sources requiring a Permit to Operate and requires Best Available Control Technology (BACT) for any new source with a Potential to Emit of 10.0 or more pounds per day (lb/day) of any single pollutant. Offsets are required at a ratio of 1:1 if more than 10 tons per year but less than 35 tons per year of NOX or Precursor Organic Compounds, or more than 100 tons per year of PM2.5, PM10, or SO2, are emitted. Offsets are required at a ratio of 1.15:1 if more than 35 tons per year of NOx o Precursor organic compound is emitted.

BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. This rule provides for the review of new and modified sources of TAC emissions to evaluate potential public exposure and health risk. Under this rule, a project would be denied an Authority to Construct if it exceeds any of the specified risk limits, which are consistent with BAAQMD's California Environmental Quality Act (CEQA) significance thresholds. Best Available Control Technology for Toxics (TBACT) would also be required for any new or modified source of TACs where the source has a cancer risk greater than 1.0 in 1 million or a chronic hazard index (HI) greater than 0.20. The specific toxicity values of each particular TAC, as identified by OEHHA, are listed in Table 2-5-1 of this rule for use in the HRA.

Local. The Santa Clara 2035 General Plan includes goals and policies to reduce exposure of Santa Clara's sensitive population to exposure of air pollution and TACs. The following goals, policies, and actions are applicable to the CA3BGF:

Air Quality Goals

5.10.2-G1 Improved air quality in Santa Clara and the region.

5.10.2-G2 Reduced greenhouse gas (GHG) emissions that meet the State and regional goals and requirements to combat climate change.

Air Quality Policies

5.10.2-P1 Support alternative transportation modes and efficient parking mechanisms to improve air quality.

5.10.2-P2 Encourage development patterns that reduce vehicle miles traveled and air pollution.

5.10.2-P3 Encourage implementation of technological advances that minimize public

health hazards and reduce the generation of air pollutants.

5.10.2-P4 Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.

5.10.2-P5 Promote regional air pollution prevention plans for local industry and businesses.

5.10.2-P6 Require “Best Management Practices” for construction dust abatement.

4.3.3 Environmental Impact Discussion

4.3.3.1 Significance Criteria

This analysis is based upon the general methodologies in the most recent BAAQMD CEQA Guidelines (last updated in May 2017 [BAAQMD, 2017c]) and numeric thresholds for the SFBAAB, including the criteria pollutant thresholds listed in Table 4.3-4.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Therefore, there are two kinds of thresholds for TACs. Cancer risk is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure. Acute and chronic exposure to non-carcinogens is expressed as an HI, which is the ratio of expected exposure levels to an acceptable REL (BAAQMD, 2017c).

The significance thresholds for TACs and PM2.5 applied to the siting of a new source are listed in Table 4.3-4 and summarized in the following text.

The significance thresholds for a single source are as follows:

- An excess lifetime cancer risk level of more than 10 in 1 million
- A non-cancer chronic HI greater than 1.0
- A non-cancer acute HI greater than 1.0
- An incremental increase in the annual average $PM_{2.5}$ concentration of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$)
-

The significance thresholds for cumulative impacts are also summarized below. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot distance from the fence line of a source plus the contribution from the project, exceeds the following:

- An excess lifetime cancer risk level of more than 100 in 1 million
- A non-cancer chronic HI greater than 10.0
- An annual average $PM_{2.5}$ concentration of greater than 0.8 µg/m3

For assessing community risks and hazards, a 1,000-foot distance is recommended around the project property boundary. BAAQMD recommends that any proposed project

that includes the siting of a new source assess associated impacts within 1,000 feet, taking into account both individual and nearby cumulative sources (that is, proposed project plus existing and foreseeable future projects).

Cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone (BAAQMD, 2017c).

Table 4.3-4. Bay Area Air Quality Management District Thresholds of Significance

Pollutant	Construction	Operation	
	verage Daily Emissions (lb/day)	erage Daily Emissions (lb/day)	Maximum Annual Emissions (tons per year)
VOCs, NOX	54	54	10
PM10	82 (exhaust only)	82	15
PM2.5	54 (exhaust only)	54	10
Fugitive Dust	BMPs	None	None
Risk and Hazards for New Sources and Receptors (Project)	ne as Operational Threshold	Increased cancer risk of > 10.0 in 1 million Increased non-cancer risk of > 1.0 HI (chronic or acute) Ambient PM2.5 increase of > 0.3 µg/m3 (Zone of influence: 1,000-foot radius from property line of source or receptor)	
Risk and Hazards for New Sources and Receptors (Cumulative)	ne as Operational Threshold	Increased cancer risk of > 100 in 1 million (from all local sources) Increased non-cancer risk of > 10.0 HI (from all local sources) (chronic) Ambient PM2.5 increase of > 0.8 µg/m3 (from all local sources) (zone of influence: 1,000-foot radius from property line of source or receptor)	

Source: BAAQMD, 2017c.
> = greater than
BMP = best management practice

The conclusions of the air quality analysis are summarized below as responses to CEQA checklist questions. A full discussion of the air quality analysis underlying these conclusions is presented in the following section.

4.3.3.2 Would the project conflict with or obstruct implementation of the applicable air quality plan?

The CA3DC and the CA3BGF project would not conflict with or obstruct the implementation of the applicable air quality plan due to the following:

- The CA3BGF will comply with all applicable rules and regulations of the BAAQMD regarding emissions of criteria pollutants.
- The CA3BGF will comply with all applicable rules and regulations of the BAAQMD regarding emissions of toxic pollutants.
- The proposed engines at the CA3BGF will comply with the applicable federal Tier 4 emissions standards for emergency standby electrical generation CI engines.

- The CA3BGF will comply with all applicable provisions of the applicable 2017 BAAQMD Air Quality Implementation Plan.
- The CA3BGF will obtain and maintain all required air quality related permits from the BAAQMD.

(Less than Significant Impact)

4.3.3.3 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The CA3BGF project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard, due to the following:

- The use of best management practices during the construction phase will ensure that the emissions do not result in a cumulative considerable net increase of any non-attainment pollutants. These emissions are generally short term in nature and vary widely from day to day.
- See offset mitigation requirements under the NSR discussion above.

(Less than Significant Impact with Mitigation Incorporated into the Project Design)

4.3.3.4 Would the project expose sensitive receptors to substantial pollutant concentrations?

The CA3BGF project would not expose sensitive receptors to substantial pollutant concentrations due to the following:

- The air quality impact analysis presented herein shows that the CA3BGF will not cause or contribute to a violation of any state or federal ambient air quality standard.
- The construction and operational health risk assessments presented herein indicate that the emissions of toxic air contaminants from the CA3BGF processes will not cause a significant risk to any sensitive or non-sensitive receptor with respect to cancer or acute and chronic impacts.

(Less than Significant Impact)

4.3.3.5 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The CA3BGF project would not result in other emissions or odors that would adversely affect a substantial number of people due to the following:

- Similar facilities, both larger and smaller in scale, have not been identified as sources of odors that would adversely affect offsite receptors.

- The CA3BGF and CA3DC are not one of the project types listed in the BAAQMD CEQA guidelines as producing odors that may affect offsite receptors.
- The analysis has not identified any operational or construction practices, that are planned for use at the project site, that would generate substantial amounts of odors that would affect offsite receptors.

(Less than Significant Impact)

4.3.3.6 Project Emissions, Air Quality Impact Analysis, and Health Risk Assessment

Project Emissions

Construction. Short-term construction emissions of CO, VOCs, NOX, SO_2, PM_{10}, and PM2.5 were evaluated. Detailed construction emission calculations, assumptions, and methodologies are detailed in Appendix A-2. Construction emissions are a result of construction equipment, material movement, paving activities, and on- and offsite vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles. The first phase of construction (Phase 1) is expected to begin in January 2022 and will take approximately 14 months to complete. Phase 1 construction includes demolition of the existing structure and infrastructure that cannot be reused, grading of the entire site, installation of utility services including interim power, construction of an on-site substation, and construction of one-half of the building. The second phase of construction (Phase 2) is expected to begin in 2024 and will take approximately 11 months. This phase includes construction of the remainder of the building.

Emissions from the 25-month construction period were estimated using CalEEMod, which incorporates construction equipment emission factors, horsepower, and load factors; paving emission factors; and on- and offsite vehicle exhaust emission factors. Fugitive dust emission factors for truck dumping/loading, grading activities, and vehicle travel on paved and unpaved roads were calculated using CalEEMod.

Estimated criteria pollutant emissions for construction of the CA3DC and CA3BGF are summarized in Table 4.3-5.

Table 4.3-5 – Construction Emission Estimates

	ROG	NOx	PM_{10}	$PM_{2.5}$
Construction Daily Emissions (lb/day)				
Phase 1	9.6	8.0	1.8	0.6
Phase 2	11.1	6.0	0.9	0.3
BAAQMD CEQA Thresholds	***54***	***54***	***82***	***54***

As shown in Table 4.3-5, construction of CA3DC and CA3BGF would not generate VOCs, NOX, PM10, or PM2.5 emissions in excess of BAAQMD's numeric thresholds. The BAAQMD's CEQA Guidelines consider fugitive dust impacts to be less than

significant through the application of best management practices (BMPs). To assure fugitive dust impacts are less than significant, Vantage will incorporate the BAAQMD's recommended BMPs as a project design feature incorporated into the project as **PD AQ-1**, provided in Section 4.3.4 below.

Operation. Operational emissions of CO, VOCs, NOX, SO2, PM10, and PM2.5 were evaluated. Detailed operation emission calculations are presented in Appendix A

. Operation emissions are a result of diesel fuel combustion from the standby diesel generators, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. Each of these emission sources are described in more detail below.

Stationary Sources. CA3BGF's 44 diesel back-up emergency generators would result in stationary combustion emissions. Each of the 44 generators for the data center suites 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 DPFs are expected to control particulate matter by approximately 71 percent. All generators would be tested routinely to ensure they would function during an emergency.

During routine readiness testing, criteria pollutants and TACs would be emitted directly from the generators. Criteria pollutant emissions from generator testing were quantified using information provided by the manufacturer, as specified in Appendix A-1, and accounting for particulate matter controls. SO2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight per Title 13, Section 2281, CCR), and an assumed 100 percent conversion of fuel sulfur to SO2.

TAC emissions resulting from diesel stationary combustion were assumed equal to PM10 emissions or estimated using speciated emission factors from ARB profile 818 (ARB, 2019). It was assumed that testing would occur for no more than 35 hours per year averaged over all engines for a total of 1,540 hours, and no more than 50 hours per year for each engine allowed by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). Consistent with BAAQMD permitting methods, no load factor was applied. Emissions resulting from emergency operations were not estimated because, when permitting standby diesel generators, the BAAQMD typically limits only emissions resulting from non-emergency use and quantifying emissions from emergency operation would require speculative assumptions[12]. Additionally, as the Commission has determined in all previous SPPE Application Final Decisions, emergency operations are rare and therefore such

[12] Note that the BAAQMD requires the assumption of 100 hours of emergency use for each engine for the purposes of estimating the offset requirements, only.

emissions would be extremely infrequent and further quantification would involve speculative estimation methodologies prohibited by CEQA.

Tables 4.3-6 and 4.3-7 provide daily and annual criteria pollutant emission estimates assuming each generator is operated 35 hours per year averaged over all engines for a total of 1,540 hours, with daily emissions estimated assuming all generators are operated at 35 hours per year, and then averaged over the year to get a daily average maximum emissions estimate.[13] BAAQMD's Regulation 2, Rule 2 requires new sources that emit more than 10 tons per year of NOX to fully offset emissions. As shown in Table 4.3-7, annual NOX emissions from the standby generators would total approximately 35 tons per year. The BAAQMD requires the assumption of 100 hours of emergency operation for the sole purposes of determining whether the offsets can be provided from the small facility bank or whether they should be provided by the applicant and to determine the offset ratio. Accordingly, the NOX emissions will be fully offset by the applicant through the air permitting process at a ratio of 1.15 to 1.

Table 4.3-6 Daily Criteria Pollutant Emission Estimates

Engine Model	Engine Horse-power	Emissions by Pollutant				
		Quantity of Engines	Average Operational Hours per Engine per Year[1]	Pollutant	Average Daily Emissions (lb/day)	CEQA Threshold (lb/day)
3516E	4,043	44	35	NOx[2]	193	54
				ROG[3]	2.4	54
				CO	24	-
				PM_{10}[4]	0.75	82
				$PM_{2.5}$[4]	0.75	54

Notes:

1. Daily emissions are based on an annual limit of 35 hours per generator for testing & maintenance operations of all 44 generators.
2. NOx emissions are conservatively based on uncontrolled Tier 2 emission factors. Offsets will be purchased to mitigate emissions of the threshold.
3. Emission factors for ROG are based on a minimum abatement efficiency of 40% due to the proposed DPF.
4. Emission factors for PM_{10} and $PM_{2.5}$ are conservatively assumed to be equal to the PM emission factor. PM emissions for the emergency generators area based on a minimum control efficiency of 70% of PM based on the proposed DPF.

[13] Daily emission rates were conservatively averaged over the period of a year since the backup emergency generators could potentially be tested at any time of day or day of the year.

Table 4.3-7 Annual Criteria Pollutant Emission Estimates

Engine Model	Engine Horse-power	Emissions by Pollutant				
		Quantity of Engines	Average Operational Hours per Engine per Year[1]	Pollutant	Average Annual Emissions (ton/year)	CEQA Threshold (ton/year)
3516E	4,043	44	35	NOx[2]	35	10
				ROG[3]	0.4	10
				CO	4	-
				PM_{10}[3]	0.14	15
				$PM_{2.5}$[4]	0.14	10
				GHG[5]	3,287	10,000

Notes:

1. Annual emissions are based on an annual limit of 35 hours per generator for testing & maintenance operations of all 44 generators.
2. NOx emissions are conservatively based on uncontrolled emission factors. Offsets will be purchased to mitigate emissions of the threshold.
3. Emission factors for ROG are based on a minimum abatement efficiency of 40% due to the proposed DPF.
4. Emission factors for PM_{10} and $PM_{2.5}$ are conservatively assumed to be equal to the PM emission factor. PM emissions for the emergency generators area based on a minimum control efficiency of 70% of PM based on the proposed DPF.
5. Annual greenhouse gas emissions are calculated in units of MT CO_2e/year. GHG emission factors for the generators are presented in Appendix A.

Miscellaneous Operational Emissions

Miscellaneous emissions from operational activities such as worker travel, deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, landscaping, etc. were evaluated by CalEEMod. Estimates of criteria pollutants from these activities along with the emissions from testing and maintenance of the emergency generators to represent total operational emissions from the CA3DC and CA3BGF are presented in Table 4.3-8.

Table 4.3-8 – Total Mass Emissions Operation Estimates of Criteria Pollutants

Emissions Source		CAP Emissions[1] [ton/year]				CAP Emissions[1] [lb/day]			
		ROG	NO_x	PM_{10} Total	$PM_{2.5}$ Total	ROG	NO_x	PM_{10} Total	$PM_{2.5}$ Total
Phase 1	Architectural Coating	0.13	0	0	0	0.72	-	-	-
	Consumer Products	0.97	0	0	0	5.33	-	-	-
	Landscaping	2.70E-04	3.00E-05	1.0E-05	1.0E-05	0.00	1.6E-04	5.5E-05	5.5E-05
	Building Energy Use[3]	0.00	0.00	0.00	0.00	0.00	0	0	0
	Mobile Emissions	0.04	0.09	0.15	0.04	0.22	0.5	0.827	0.225
Phase 2	Architectural Coating	0.25	0	0	0	1.4	-	-	-
	Consumer Products	1.8	0	0	0	10	-	-	-
	Landscaping	4.5E-04	4.0E-05	2.0E-05	2.0E-05	2.5E-03	2.2E-04	1.1E-04	1.1E-04
	Building Energy Use[3]	0	0	0	0	0	0	0	0
	Mobile Emissions	0.07	0.16	0.29	0.08	0.36	0.9	1.6	0.4
Emergency Generators[2]		0.44	35.14	0.14	0.14	2.4	193	0.75	0.75
Stationary Source Offsets[4]		--	**-35.14**	--	--	--	**-193**	--	--
Total Phase 1 Operational Emissions		**1.4**	**0.1**	**0.2**	**0.1**	**7.5**	**0.5**	**1.2**	**0.6**
Full Buildout Operational Emissions		**2.6**	**0.2**	**0.4**	**0.2**	**14.2**	**0.9**	**2.3**	**1.2**
BAAQMD Significance Threshold[5]		**10**	**10**	**15**	**10**	**54**	**54**	**82**	**54**

Notes:

1. Operational emissions estimated using CalEEMod version 2016.3.2 for all sources except building energy use and emergency generator usage.
2. Emissions from testing and maintenance of emergency generator emissions are estimated in Table 4.3-7.
3. The site does not have any natural gas consumption in buildings.
4. Operational mass emissions of NOx are conservatively based on Tier 2 emission factor. Vantage will purchase offsets to reduce the total NOx emissions to zero.
5. The Significance Thresholds were obtained from BAAQMD California Environmental Quality Act (CEQA) 2017 Guidelines.

As shown in Table 4.3-8, operation of CA3DC and CA3BGF would not generate VOCs, PM10, or PM2.5 emissions in excess of BAAQMD's numeric thresholds. While NOX emissions would exceed BAAQMD's numeric threshold, Because NOX emissions from

the standby generators would be fully offset during the permit process, emissions would not exceed BAAQMD's numeric threshold, resulting in a less-than-significant impact.

Air Quality Impact Analysis

An air dispersion modeling analysis was completed to reflect the normal operating conditions of the facility and analyze potential air quality impacts in relation to:

- the 1-hour nitrogen dioxide (NO_2) National Ambient Air Quality Standard (NAAQS) and the California Ambient Air Quality Standard (CAAQS); and
- to support the construction and operational Health Risk Assessment

The methodologies, input assumptions, and description of the modeling are presented in Appendix A.

Summary of NO2 Modeling Results

The results of the NO_2 modeling analyses are presented in Table 4.3-9 and demonstrate that there are no predicted violations of the NO_2 NAAQS or CAAQS.

Table 4.3-9 – NO2 NAAQS and CAAQA Results

Standard	Averaging Period	UTM East (m)	UTM North (m)	Total Ambient Conc.[a,b] (µg/m^3)	Threshold (µg/m^3)	Above Threshold?
1-Hour NAAQS[c]	5Y AVG H8H	590889.80	4136466.50	186.35	188	No
1-Hour CAAQS[c]	H1H	590884.83	4136530.57	337.71	339	No

Abbreviation:
CAAQS - California Ambient Air Quality Standard
H1H – 1st Highest High
H8H – 8th Highest High
M - meter
NAAQS - National Ambient Air Quality Standard
NO_2 – nitrogen dioxide
UTM - Universal Transverse Mercator
µg/m^3 - Micrograms per cubic meter

Notes:
[a] The value shown is the maximum from any of the 8 backup generator groupings or the 4 life safety generator grouping being tested for 15 minutes at 0% load.
[b] Total ambient concentration represents the modeled concentration plus the background concentration. For the CAAQS analysis the value includes the maximum 1-hr concentration plus the maximum hourly background concentration (168.87 ug/m^3) . Season-by-hour background were used for the NAAQS model, so this model output also represents the total ambient concentration at each receptor.
[c] The total ambient concentrations for the 1-hour NAAQS and 1-hour CAAQS are based on Tier II emission rates for NOx ,assuming that the SCR will not operate.

Health Risk Assessment

Construction HRA Results Summary

Table 4.3-10 shows the excess lifetime cancer risk, chronic noncancer HI, acute noncancer HI and annual $PM_{2.5}$ concentration at the maximally exposed individual resident (MEIR), maximally exposed individual worker (MEIW), maximally exposed school receptor (MESR), maximally exposed daycare receptor (MEDR) and the maximally exposed recreational receptor (MERR) during construction of the Project. Project construction is expected to occur over two phases, with Phase 1 construction lasting for about 14 months, and Phase 2 construction lasting for 11 months. Construction health risk impacts are based on the assumption that all construction offroad equipment meets Tier 4 final engine standards and that all exposed areas in the site will undergo watering twice a day. The risks and health impacts reported here are for the entire duration of construction period. As shown in Table 4.3-10, the maximum cancer risk impact, chronic HI, acute HI and $PM_{2.5}$ concentrations at all receptors are below the thresholds of significance.

Table 4.3-10 – Construction Health Risk Impacts

Receptor Type[1,2]		Cancer Risk[3]	Chronic Hazard Index	$PM_{2.5}$ Concentration
		(in a million)	(unitless)	($\mu g/m^3$)
Residential	**Total Risk**	**1.5**	**0.0017**	**0.09**
	UTMx	590,840	590,840	590,840
	UTMy	4,136,360	4,136,360	4,136,360
Worker[4]	**Total Risk**	**0.45**	**0.0050**	**0.27**
	UTMx	590,880	590,740	590,740
	UTMy	4,136,440	4,136,560	4,136,560
Daycare[5]	**Total Risk**	**0.80**	**2.6E-04**	**0.014**
	UTMx	591,240	591,240	591,240
	UTMy	4,136,040	4,136,040	4,136,040
School[5]	**Total Risk**	**0.17**	**3.9E-04**	**0.021**
	UTMx	590,880	590,880	590,880
	UTMy	4,136,180	4,136,180	4,136,180
Recreational	**Total Risk**	**0.10**	**8.2E-04**	**0.044**
	UTMx	590,720	590,720	590,720
	UTMy	4,136,400	4,136,400	4,136,400
BAAQMD Significance Threshold		10	1	0.3[6]

Notes

1. Construction emissions and associated health impacts are based on the assumption that all construction offroad equipment meets Tier 4 final engine standard.

2. There are no acute risks associated with offroad diesel construction equipment since only DPM emissions from off-road construction equipment and on-road vehicles are analyzed.

3. The cancer risk impacts presented in this table are based on exposure of each receptor type to all emissions associated with project construction over a period of 3 years.

4. Worker exposure is assumed at any non-resident and non-school, non-daycare or non-recreational receptor, including fenceline and sidewalk receptors adjacent to the Project Site. Risks at the worker receptors include a Worker Adjustment Factor of 4.2 (7/5*24/8) to account for the hours a worker is present at a site.

5. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.

6. Note that this significance threshold is based on an annual average and is not properly compared to short term exposures such as fenceline (which is the worker exposure here)

Operations HRA Results Summary

Table 4.3-11 shows the excess lifetime cancer risk, chronic noncancer HI, acute noncancer HI and annual $PM_{2.5}$ concentration at the MEIR, MEIW, MESR, MEDR and the MERR during backup generator operation. The health impacts presented in this table are based on an annual maximum operating limit of 35 hours for testing and maintenance operations. As shown in Table 4.3-11, the maximum cancer risk impact, chronic HI, acute HI and $PM_{2.5}$ concentrations at all receptors are below the thresholds of significance.

Table 4.3-11 – Operations Health Risk Impacts

Receptor Type[1]		Cancer Risk	Chronic Hazard Index	$PM_{2.5}$ Concentration	Acute Hazard Index
		(in a million)	(unitless)	($\mu g/m^3$)	(unitless)
Residential	**Total Risk**	**9.48**	**0.0036**	**0.013**	**0.61**
	UTMx	590,860	590,860	590,860	590,760
	UTMy	4,136,340	4,136,340	4,136,340	4,136,360
Worker[2]	**Total Risk**	**8.2**	**0.0089**	**0.032**	**0.54**
	UTMx	590,880	590,880	590,880	590,680
	UTMy	4,136,440	4,136,440	4,136,440	4,136,540
Daycare[3]	**Total Risk**	**7.0**	**0.0014**	**0.0051**	**0.24**
	UTMx	591,240	591,240	591,240	590,560
	UTMy	4,136,040	4,136,040	4,136,040	4,136,180
School[3]	**Total Risk**	**2.0**	**1.1E-03**	**0.0038**	**0.25**
	UTMx	590,900	590,900	590,900	590,700
	UTMy	4,136,160	4,136,160	4,136,160	4,136,120
Recreational	**Total Risk**	**0.25**	**7.5E-04**	**0.0027**	**0.59**
	UTMx	590,720	590,720	590,720	590,720
	UTMy	4,136,400	4,136,400	4,136,400	4,136,400
BAAQMD Significance Threshold		**10**	**1**	**0.3**	**1**

Notes

1. The health risk impacts presented in this table are based on an annual average of 35 hours of testing and maintenance operations per generator. We are proposing an annual facility-wide limit of 1,540 hours of operations for testing and maintenance.

2. Worker exposure is assumed at any non-resident and non-school, non-daycare or non-recreational receptor, including fenceline and sidewalk receptors adjacent to the Project Site. Risks at the worker receptors include a Worker Adjustment Factor of 4.2 (7/5*24/8) to account for the hours a worker is present at a site.

3. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.

4.3.4 Mitigation Measures

Construction. No mitigation measures for construction related air quality impacts because Vantage incorporates the following measure into the design of the project.

PD AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement the BAAQMD's recommended BMPs during the construction phase. These BMPs are incorporated into the design of the project and will include:

- Water all exposed areas (e.g. parking areas, graded areas, unpaved access roads) twice a day.
- Maintain a minimum soil moisture of 12% in exposed areas by maintaining proper watering frequency.
- Cover all haul trucks carrying sand, soil or other loose material.
- Suspend excavation, grading and/or demolition activities when average wind speed exceeds 20 miles per hour.
- Pave all roadways, driveways and sidewalks as soon as possible. Lay building pads as soon as grading is completed, unless seeding or soil binders are used.
- Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction with a maximum 50 percent air porosity.
- Use a power vacuum to sweep and remove any mud or dirt-track next to public streets, if visible soil material is carried onto the streets.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Minimize idling time for all engines by shutting engines when not in use or limiting idling time to a maximum of 5 minutes. Provide clear signage for construction workers at all access points.
- Properly tune and maintain construction equipment in accordance with manufacturer's specifications. Check all equipment against a certified visible emissions calculator.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints
- Install vegetative ground cover in disturbed areas as soon as possible and water appropriately until vegetation is established.
- Limit simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
- Install water washers to wash all trucks and equipment prior to leaving site.
- Treat site access to a distance of 100 feet from the paved road with a 6 to 12-inch compacted layer of wood chip, mulch or gravel

- Install sandbag or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Minimize idling time of diesel-powered construction vehicles to two minutes
- Develop a plan demonstrating that off-road equipment (more than 50
- horsepower) used for construction would achieve a project wide fleet-average 20 percent NOX reduction and 45 percent PM reduction compared to the most recent ARB fleet average. These include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- All construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
- All contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines

Operations. No mitigation measures are required for operations related air quality impacts because the project will fully offset its NOx emissions in accordance with BAAQMD rules.

4.3.5 Governmental Agencies

As discussed above the BAAQMD has regulatory authority over the air emissions from the CA3BGF. The CA3BGF will obtain and comply with the BAAQMD's Authority to Construct and Permit to Operate requirements.

4.4 BIOLOGICAL RESOURCES

This section evaluates potential effects on biological resources that may result from project implementation. This section is based on the Biological Resources Assessment (BRA prepared by First Carbon Solutions included in Appendix B). The BRA describes the results of the survey conducted by FCS and assesses the site's potential to support special-status species, sensitive biological communities such as wetlands or riparian habitats, and the potential presence of other sensitive biological resources protected by local, State, and federal laws and regulations.

An arborist report for the project site was prepared by Arborwell Professional Tree Management to identify and map the trees present on-site, determine each tree's overall condition, and determine if any trees are regulated under any local policies or city ordinances. The arborist report is presented as Attachment C to the BRA which is included in Appendix B.

4.4.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Biological Resources				
Would the project:				
1) 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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
3) 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?	☐	☐	☐	☒
4) 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 wildlife nursery sites?	☐	☐	☐	☒
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

4.4.2 Environmental Setting

The project site lies within the central portion of the Santa Clara Valley, near the urban center. The proposed CA3DC site encompasses approximately 6.69 acres in Santa Clara, California. The property is zoned ML-Light Industrial zoning. The property is irregularly shaped and is generally bound to the Northwest by an existing microelectronics testing facility, to the Northeast by a software research and development facility, to the South by an existing railroad line operated by CalTrain, to the East by Walsh Avenue, and to the West by an existing Silicon Valley Power (SVP) substation. The Vantage Santa Clara Data Center Campus CA1 is located to the east

of the site across Walsh Avenue. The closest residential uses are to the south across the existing railroad right-of-way.

The project area consists primarily of commercial and industrial land uses to the north and east and residential uses to the south and west. Buildings in the area to the north are similar in height and scale to the existing building on the project site. Buildings to the east are similar in height and scale to the proposed CADC building. The Norman Y. Mineta San José International Airport is located approximately 1.75 miles southeast of the site.

The entire project site is designated Urban/Developed (6.69 acres). The site currently contains an approximately 112,000 square foot single-story office and warehouse building and associated paved surface parking and loading dock. The existing building consists of concrete, wood and stucco. The building facade consists of mission style stucco archways with sloping tile roof. Native and non-native trees and ornamental landscaping are located along the Walsh Avenue frontage of the property, as well as the northern, western, and southern property boundaries.

4.4.3 Environmental Impact Discussion

4.4.3.1 Would the project 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 Wildlife or U.S. Fish and Wildlife Service

The Special-status Plant Species Table (contained in the BRA, Appendix B) queries listed 58 special-status plant species and CNPS sensitive species that have been recorded within the *San Jose West, California* Topographic Quadrangle and the eight surrounding quadrangles by the CNDDB and CNPSEI.[14,15,16]The table also includes the species' status and required habitat. None of the species in the table have the potential to occur within the project site, as no native natural habitats occur on the project site that could support native special status plants. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

Based upon the literature review, field survey, and professional experience, no special-status plant species are expected to occur on the project site due to the absence of suitable habitat, previous land use, and the urban/developed land cover.

[14] United States Geological Survey (USGS). 2020. National Geospatial Program. Website: https://www.usgs.gov/core-science-systems/national-geospatial-program/us-topo-maps-america?qt-science_support_page_related_con=4#qt-science_support_page_related_con

[15] California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 23, 2021.

[16] California Native Plant Society (CNPS). 2021. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed February 23, 2021.

The literature search identified 60 federal and State-listed threatened and/or endangered wildlife species and State Species of Special Concern that have the potential to occur within the *San Jose West* and *California,* Topographic Quadrangles and the eight surrounding quadrangles. The table includes the species' status, required habitat types and features.

No fish or other aquatic species are expected to occur on-site due to the lack of suitable water features. Additionally, the lack of vernal pools precludes the presence of vernal pool fairy shrimp (*Branchinecta lynchi*). No suitable habitat exists for amphibian and semi-aquatic species such as California tiger salamander (*Ambystoma californiense*) and western pond turtle (*Emys marmorata*).

The numerous ornamental trees and the stand of large eucalyptus trees along the eastern boundary of the project site could provide suitable habitat for a variety of species of nesting birds. Relatively undisturbed grassland and barren areas provide potential nesting opportunities for ground-nesting birds. Construction activities that occur during the avian nesting season (generally February 15 to August 31) could disturb nesting sites for bird species protected under the FGC or MBTA. The removal of trees during the nesting season could result in direct harm to nesting birds, while noise, light, and other man-made disturbances may cause nesting birds to abandon their nests.

Maternity colonies for pallid bat (Antrozous pallidus) or any other bat species are unlikely to be present on the project site, as no evidence of a bat roost was observed and no structures or trees with high-quality roost sites were detected on the site during the reconnaissance-level site visit on February 24, 2021. Pallid bats may move through the site occasionally, as this species forages for miles surrounding a maternity colony; however, the site does not provide preferred foraging habitat (other than illuminated lamps in the parking lot that attract insects) because no open habitat is present.

The project applicant has incorporated nesting bird avoidance and minimization measures in PD BIO-1 and roosting or nesting bat species avoidance and minimization measures in PD-BIO-2 to ensure that project impacts on migratory birds and sensitive bats are less than significant. The project design measures are included in Section 4.4.4 below.

4.4.3.2 Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The land cover present on the project site is entirely classified as Urban/Developed and does not contain any aquatic or riparian habitats. **(No Impact)**

4.4.3.3 Would the project 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?

The project site does not support aquatic or wetland habitats or waters of the U.S. or State of California. **(No Impact)**

4.4.3.4 Would the project 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 wildlife nursery sites?

The project site does not lie along any known wildlife movement corridor. The project site is entirely developed, and is also surrounded by roads, highways, and urban development that limits wildlife movement. Due to the presence of existing barriers, the project site does not function as a wildlife corridor or wildlife nursery site. Therefore, there are no impacts related to wildlife corridors, linkages, and wildlife movement. **(No Impact)**

4.4.3.5 Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

According to the arborist report, the project site contains a total of 108 trees comprised of twelve species. The CA3DC proposes to remove 65 (mostly parking lot) trees on-site, due to transmission line clearance requirements mandated by Silicon Valley Power (SVP) and various conflicts with proposed civil and architectural improvements (Exhibit 6). Six of these trees are already dead or in poor health and should be removed as a safety precaution. It appears 43 trees can be avoided during construction. The City of Santa Clara's landscape ordinance mandates a 2:1 replacement with 24-inch box size trees, or 1:1 replacement with 36-in box size trees. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

New landscaping consisting of trees, large and medium shrubs, and groundcovers will be installed along the property boundaries, building perimeters, stormwater treatment facilities, and landscape beds distributed throughout the parking facilities. Trees would be planted five feet away from new or existing water mains or utility lines.

Therefore, Vantage has incorporate measures into the project design to require application for removal permits as described in PD BIO-3 and shall avoid and minimize impacts to the trees to be preserved by implementing PD BIO-4. With the implementation of these measures, potential impacts to protected trees by the development of the proposed project will be reduced to less than significant levels.

4.4.3.6 Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

The proposed project does not lie within the boundaries of any adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan. Therefore, no impact would occur. **(No Impact)**

4.4.4 Mitigation Measures

No mitigation measures are necessary to ensure less than significant biological resource impacts because the applicant has incorporated the following Project Design Measures into the project.

PD BIO-1: The project will incorporate the following measures to reduce impacts to nesting birds.

- If removal of the trees on-site would take place between January and September, a pre-construction survey for nesting raptors shall be conducted by a qualified ornithologist to identify active nesting raptor nests that may be disturbed during project implementation. Between January and April (inclusive) pre-construction surveys shall be conducted no more than 14 days prior to the initiation of construction activities or tree relocation or removal. Between May and August (inclusive), pre-construction surveys shall be conducted no more than 30 days prior to the initiation of these activities. The surveying ornithologist shall inspect all trees in and immediately adjacent to the construction area to be disturbed by these activities, and the ornithologist shall, in consultation with the State of California, Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone (typically 250 feet) around the nest until the end of the nesting activity.
- The applicant shall submit a report indicating the results of the survey and any designated buffer zones to the satisfaction of the Director of Planning and Inspection prior to the issuance of a tree removal permit by the City Arborist.

PD BIO-2 Avoid and Minimize Impacts to Bat Species

- If suitable roosting habitat for special-status bats will be affected by Project construction (e.g., removal or buildings, modification of bridges), a qualified wildlife biologist will conduct surveys for special-status bats during the appropriate time of day to maximize

detectability to determine if bat species are roosting near the work area no less than 7 days and no more than 14 days prior to beginning ground disturbance and/or construction. Survey methodology may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., Anabat, etc.). Visual surveys will include trees within 0.25 mile of Project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required.

- If evidence of bat use is observed, the number and species of bats using the roost will be determined. Bat detectors may be used to supplement survey efforts.
- If roosts are determined to be present and must be removed, the bats will be excluded from the roosting site before the facility is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).

PD BIO-3 Tree Removal Permit

The project applicant shall obtain the appropriate tree removal permits from the City of Santa Clara for removal of all healthy mature trees. Acquisition of this permit will include details of the final mitigation numbers. The City of Santa Clara's landscape ordinance mandates a 2:1 replacement with 24-inch box size trees, or 1:1 replacement with 36-in box size trees. The CA3DC proposes to mitigate for the loss of 65 trees through a combination of 24-inch box size and 36-inch box size.

PD BIO-4 Trees to Remain: Avoidance and Minimization of Impacts

The project applicant will follow the Tree Protection Measures for trees that are to remain in place, as stated in the attached arborist report on pages 5-12 (Appendix B). These measures include but are not limited to fencing, erosion control, pruning, root cutting, no compaction tree protection zones, watering/irrigation considerations, etc.

4.4.5 Governmental Agencies

Because the site does not support or is adjacent to wildlife habitat that would require any special wildlife agency permit, the only agency that may be affected by the project would be the City of Santa Clara, which would enforce its tree ordinance through the PCC design process and tree removal permitting.

4.5 CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

This section describes the existing cultural resources setting and potential effects from project implementation on the project site and its surrounding area. Descriptions and analysis in this section are based on information provided by the California Native American Heritage Commission (NAHC), Northwest Information Center (NWIC), National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historic Landmarks list, California Points of Historical Interest list, and California Built Environment Resource Directory (BERD) for Santa Clara County. A Phase I Cultural Resources Assessment (CRA) has been prepared by First Carbon Solutions. The information contained in this section relies on the CRA, which will be docketed separately with a Request For Confidential Designation. Non-confidential pedestrian survey photos and correspondence with the NAHC and Tribal representatives are included in Appendix C.

4.5.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Cultural Resources and Tribal Cultural Resources				
Would the project:				
1) Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?	☐	☒	☐	☐
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
3) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
4) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☒	☐
5) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

4.5.2 Environmental Setting

4.5.2.1 Northwest Information Center

A records search was conducted on March 3, 2021, at the NWIC, located at Sonoma State University at Rohnert Park, for the project site and a 0.5-mile radius surrounding it. The purpose of this search was to access existing cultural resource survey reports, archaeological site records, historic aerial photographs, and historic maps and evaluate whether any previously documented prehistoric or historic archaeological sites,

architectural resources, cultural landscapes, or other resources exist within or near the project site.

Results from the NWIC indicate that five historic resources and one historic/prehistoric resource are located within a 0.5-mile radius of the project, none of which are located within the project site itself. The closest archaeological resource (P-43-000433) is located approximately 0.5 miles from the project site. In addition, Fifty-four area-specific survey reports are on file with the NWIC for the 0.5-mile search radius, none of which address the project site, suggesting the project has not been previously surveyed for cultural resources.

4.5.2.2 Pedestrian Survey

On March 18, 2021, FCS Senior Archaeologist Dr. Dana DePietro and FCS Historian Ti Ngo conducted a pedestrian survey for unrecorded cultural resources at the proposed project site. The project site is completely developed and hardscaped, consisting of a large office warehouse building that borders Walsh Ave. to the north, the City of Santa Clara Uranium Substation to the west, and is completely surrounded by parking lots, associated infrastructure, and landscaping elements. None of these structures or elements on the project site are over 45 years in age, and thus, are ineligible for inclusion on the CRHR and do not warrant further consideration as potential historic resources under CEQA.

The survey began in the northeast corner of the roughly pentagonal development site and moved west, using north-south transects spaced at approximately 5-meter intervals across the site whenever possible. Given the fully developed nature of the site, visibility of native soils was almost non-existent, however soils in landscaping elements and on the edges of the property were closely inspected, and while highly disturbed, provided some information on soil profiles across the site. Visible soils were largely composed of dark brown (7.5YR 2.5/2) loam with moderate clay content, interspersed with small (2-3 cm) stones primarily composed of quartz and schist.

Survey conditions were documented using digital photographs and field notes. During the survey, Dr. DePietro and Mr. Ngo examined all areas of the exposed ground surface for prehistoric artifacts (e.g., fire-affected rock, milling tools, flaked stone tools, tool-making debris, ceramics), soil discoloration and depressions that might indicate the presence of a cultural midden, faunal and human osteological remains, and features indicative of the former presence of structures or buildings (e.g., postholes, standing exterior walls, foundations) or historic debris (e.g., glass, metal, ceramics).

All areas of the project site were inspected for culturally modified soils or other indicators of potential historic or prehistoric resources. No historic or prehistoric artifacts, cultural resources, or raw materials commonly used in the manufacture of tools (e.g., obsidian, Franciscan chert, etc.) were found within the project site.

4.5.2.3 Native American Heritage Commission

On February 23, 2021. FCS sent a request to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project site. A response was received on March 9, 2021 indicating that the Sacred Lands File search failed to locate the presence of Native American cultural resources in the immediate project site. The NAHC included a list of ten tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential TCRs that may be affected by implementation of the proposed project are addressed, FCS sent letters all ten tribal representatives on March 10, 2021. No responses have been received to date.

4.5.3 Environmental Impact Discussion

4.5.3.1 Would the project cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?

Construction

Results from the NWIC indicate that five historic resources and one historic/prehistoric resource are located within a 0.5-mile radius of the project, none of which are located within the project site itself. None of these build environment historic resources will be impacted by construction, and no additional resources were encountered during the pedestrian field survey. As described previously, all structures located on or adjacent to the project site are less than 50 years old, are ineligible for the CRHR, and should not be considered potential historic resources under CEQA. While unlikely, subsurface construction activities always have the potential to damage or destroy previously undiscovered historic resources such as wood, stone, foundations, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramic, and other refuse, if encountered. This would represent a potentially significant impact related to historic resources. Implementation of Project Design Measure PD CUL-1 would ensure that, in the event a previously undiscovered historic resource is encountered during subsurface activities, all construction within a 100-foot radius of the find shall cease until a qualified archaeologist determines whether the resource requires further study. Therefore, impacts would be less than significant with mitigation incorporated. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

Operation

Impacts related to a substantial adverse change in historic resources are limited to construction impacts because no subsurface activity would occur during operation that could uncover previously undiscovered historic resources. Therefore, no impacts would occur at operation. **(No Impact)**

4.5.3.2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Construction

Results from the NWIC indicate that five historic resources and one historic/prehistoric resource are located within a 0.5-mile radius of the project, none of which are located within the project site itself. The closest archaeological resource (P-43-000433) is located approximately 0.5 miles from the project site. Although no known archeological resources have been recorded within the project boundary, the proximity to P-43-000433 coupled with the inability to observe or evaluate native soils increases the potential that undiscovered archeological resources could be uncovered during subsurface construction activity and excavation. Such resources could consist of but are not limited to stone, bone, wood, or shell artifacts or features, including hearths and structural elements. This represents a potentially significant impact related to archeological resources. However, implementation of Project Design Measure PD CUL-1 would ensure that in the event a previously undiscovered archeological resource is encountered during subsurface activities all construction within a 100-foot radius of the find shall cease until a qualified Archaeologist determines whether the resource requires further study. Therefore, impacts would be less than significant with mitigation incorporated. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

Operation

Impacts related to a substantial adverse change in the significance of an archeological resource are limited to construction impacts. No respective direct or indirect operational impacts related to archeological resources would occur. **(No Impact)**

4.5.3.3 Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction

No human remains or cemeteries are known to exist within or near the project site. However, there is always the possibility that subsurface construction activities associated with the proposed project, such as trenching and grading, could potentially damage or destroy previously undiscovered human remains. This represents a potentially significant impact related to human remains. Project Design Measure PD CUL-3 would require that work is halted, and the County Coroner is called to make a determination as to the nature of the remains and to confirm the next steps regarding contacting the NAHC and appropriate tribal representatives. In addition, in the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5(d)—Effects on Human Remains, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. Therefore, with implementation of PD CUL-3 and compliance with aforementioned CEQA Guidelines, direct and indirect impacts related to disturbance of human remains would be less than significant. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

Operation

Impacts related to a project's potential to disturb human remains are limited to construction impacts as no subsurface activity or excavation would occur during operation. Therefore, no respective direct or indirect operational impacts related to human remains would occur. **(No Impact)**

4.5.3.4 Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Construction

No listed or potentially eligible TCRs have been identified within the project site. Specifically, a review of the CRHR, the NAHC Sacred Lands File, a records search conducted at the NWIC, and a pedestrian survey of the project site failed to identify any listed TCRs that could be adversely affected by construction of the proposed project. As such, there are no known eligible or potentially eligible TCRs that could be adversely affected by the proposed project. Therefore, impacts related to previously listed TCRs would be less than significant. **(Less Than Significant Impact)**

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a State listed or eligible TCR are limited to construction impacts. No respective operational impacts would occur. **(No Impact)**

4.5.3.5 Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

Construction

On February 23, 2021, FCS sent a request to the Native American Heritage Commission (NAHC) in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Master Plan area. A response was received on March 9, 2021, indicating that the Sacred Lands File search failed to locate the presence of Native American cultural resources in the immediate project area. The NAHC included a

list of 10 tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential Tribal Cultural Resources (TCRs) that may be affected by implementation of the proposed project are addressed, FCS sent letters to all 10 tribal representatives on March 10, 2021. No responses have been received to date. Additionally, the lead agency has not identified any Tribal Cultural Resources significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 that may be adversely impacted by the project. Therefore, impacts related to previously listed TCRs would be less than significant. **(Less Than Significant Impact)**

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a State listed or eligible TCR are limited to construction impacts. No respective operational impacts would occur. **(No Impact)**

4.5.4 Mitigation Measures

No mitigation measures are necessary to ensure less than significant archaeological, historical or tribal cultural impacts because the applicant has incorporated the following Project Design Measures into the project.

PD CUL-1: The project proposes to implement the following measures to ensure the project's impacts to archaeological resources are less than significant:

- A Secretary of the Interior-qualified archaeologist and a Native American cultural resources monitor shall be on site to monitor grading of native soil once all pavement is removed from the project site. The project applicant shall submit the name and qualifications of the selected archaeologist and Native American Monitor to the Director of Planning and Inspection prior to the issuance of a grading permit. Preference in selecting Native American monitors shall be given to Native Americans with:
    - Traditional ties to the area being monitored.
    - Knowledge of local historic and prehistoric Native American village sites.
    - Knowledge and understanding of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.
    - Ability to effectively communicate the requirements of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.
    - Ability to work with law enforcement officials and the Native American Heritage Commission to ensure the return of all associated grave goods taken from a Native American grave during excavation.
    - Ability to travel to project sites within traditional tribal territory.

- Knowledge and understanding of Title 14, California Code of Regulations, Section 15064.5.
- Ability to advocate for the preservation in place of Native American cultural features through knowledge and understanding CEQA mitigation provisions.
- Ability to read a topographical map and be able to locate site and reburial locations for future inclusions in the Native American Heritage Commission's Sacred Lands Inventory.
- Knowledge and understanding of archaeological practices, including the phases of archaeological investigation.

- After removal of pavement and prior to grading, the archaeologist shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. The archaeologist will monitor full-time all grading and ground disturbing activities in native soils associated with construction of the proposed project. If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, then a letter report detailing the rationale for making such a reduction and summarizing the monitoring results shall be provided to the Director of Planning and Inspection. Department of Recreation 523 forms shall be submitted along with the report for any cultural resources encountered over 50 years old.
- In the event that prehistoric or historic resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Planning and Inspection shall be notified, and a Secretary of the Interior-qualified archaeologist shall examine the find and record the site, including field notes, measurements, and photography for a Department of Parks and Recreation 523 Primary Record form. The archaeologist shall make a recommendation regarding eligibility for the California Register of Historical Resources, data recovery, curation, or other appropriate mitigation. Ground disturbance within the 50-foot radius can resume once these steps are taken and the Director of Planning and Inspection has concurred with the recommendations. Within 30 days of the completion of construction or cultural resources monitoring, whichever comes first, a report of findings documenting any cultural resource finds, recommendations, data recovery efforts, and other pertinent information gleaned during cultural resources monitoring shall then be submitted to the Director of Planning and Inspection. Once finalized, this report shall be submitted to the Northwest Information Center at Sonoma State University.
- Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program training to all existing and any new employees. This training should include: a discussion of applicable laws and penalties under the laws; samples or visual aids of artifacts that could be

encountered in the project vicinity, including what those artifacts may look like partially buried, or wholly buried and freshly exposed; and instructions to halt work in the vicinity of any potential cultural resources discovery, and notify the city-approved archaeologist and Native American cultural resources monitor.

PD CUL-2: The project proposes to implement the following measure to ensure the project's impacts to human remains are less than significant:

- In the event that human remains are discovered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped. The Santa Clara County Coroner shall be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. All actions taken under this mitigation measure shall comply with Health and Human Safety Code § 7050.5(b).

4.5.5 Governmental Agencies

As described in Section 4.5.3.5 no responses to notification from any Tribal Government have been received. The City of Santa Clara will ensure the project applicant complies with all archaeological or historic resource related regulations as part of its permitting review and compliance process.

4.6 ENERGY AND ENERGY RESOURCES

4.6.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Energy and Energy Resources				
Would the project:				
1) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	☐	☐	☒	☐
2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

4.6.2 Environmental Setting

4.6.2.1 Regulatory Framework

Federal and State

Energy Star and Fuel Efficiency

At the federal level, energy standards set by the EPA apply to numerous consumer products and appliances (e.g., the EnergyStar™ program). The EPA also sets fuel efficiency standards for automobiles and other modes of transportation.

Renewables Portfolio Standard Program

In 2002, California established its Renewables Portfolio Standard Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent of retail sales by 2010. In 2008, Executive Order S-14-08 was signed into law, requiring retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. In October 2015, Governor Brown signed SB 350 to codify California's climate and clean energy goals. A key provision of SB 350 requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from renewable sources by 2030. SB 100, passed in 2018, requires 100 percent of electricity in California to be provided by 100 percent renewable and carbon-free sources by 2045.

California Building Standards Code

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6 of the California Code of Regulations (Title 24), was

established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 is updated approximately every three years, and the 2019 Title 24 updates went into effect on January 1, 2020[17]. Compliance with Title 24 is mandatory at the time new building permits are issued by city and county governments. [18]

California Green Building Standards Code

CALGreen establishes mandatory green building standards for buildings in California. CALGreen was developed to reduce GHG emissions from buildings, promote environmentally responsible and healthier places to live and work, reduce energy and water consumption, and respond to state environmental directives. The most recent update to CALGreen went into effect on January 1, 2019, and covers five categories: planning and design, energy efficiency, water efficiency and conservation, material and resource efficiency, and indoor environmental quality.

Advanced Clean Cars Program

CARB adopted the Advanced Clean Cars program in 2012 in coordination with the EPA and National Highway Traffic Safety Administration. The program combines the control of smog-causing pollutants and GHG emissions into a single coordinated set of requirements for vehicle model years 2015 through 2025. The program promotes development of environmentally superior passenger cars and other vehicles, as well as saving the consumer money through fuel savings. [19]

Local

Santa Clara General Plan

The General Plan includes several energy use and conservation policies designed to protect energy resources in the City. These policies include the following:

Policy 5.10.3-P1: Promote the use of renewable energy resources, conservation and recycling programs.

Policy 5.10.3-P4: Encourage new development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities.

Policy 5.10.3-P5: Reduce energy consumption through sustainable construction practices, materials and recycling.

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[17] California Building Standards Commission. "Welcome to the California Building Standards Commission." Accessed March 5, 2021. http://www.bsc.ca.gov/.
[18] California Energy Commission (CEC). "2019 Building Energy Efficiency Standards." Accessed March 5, 2021. https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency.
[19] California Air Resources Board. "The Advanced Clean Cars Program." Accessed March 5, 2021. https://www.arb.ca.gov/msprog/acc/acc.htm.

Policy 5.10.3-P6: Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.

Policy 5.10.4-P8: Provide incentives for LEED certified, or equivalent development.

4.6.2.2 Existing Conditions

Total energy usage in California was approximately 7,967 trillion British thermal units (Btu) in the year 2018, the most recent year for which this data was available. Out of the 50 states, California is ranked second in total energy consumption and 48th in energy consumption per capita. The breakdown by sector was approximately 18.3 percent (1,439 trillion Btu) for residential uses, 19.2 percent (1,509 trillion Btu) for commercial uses, 23.5 percent (1,848 trillion Btu) for industrial uses, and 39.1 percent (3,170 trillion Btu) for transportation[20]. This energy is primarily supplied in the form of natural gas, petroleum, nuclear electric power, and hydroelectric power.

Electricity

Electricity in Santa Clara County in 2019 was consumed primarily by the commercial sector (76 percent), followed by the residential sector consuming 24 percent. In 2019, a total of approximately 16,665 gigawatt hours (GWh) of electricity was consumed in Santa Clara County[21].

Silicon Valley Power (SVP) is the City of Santa Clara's energy utility and would provide electricity service to the project site. For commercial customers, SVP offers several options for participation in green energy programs, including a carbon-free energy option[22].

Natural Gas

PG&E provides natural gas services within the City of Santa Clara. In 2018, approximately one percent of California's natural gas supply came from in-state production, while the remaining supply was imported from other western states and Canada[23]. In 2018, residential and commercial customers in California used 34 percent of the state's natural gas, power plants used 35 percent, the industrial sector used 21 percent, and other uses used 10 percent. Transportation accounted for one percent of

[20] United States Energy Information Administration. *State Profile and Energy Estimates, 2018.* Accessed March 5, 2021. https://www.eia.gov/state/?sid=CA#tabs-2.
[21] California Energy Commission. Energy Consumption Data Management System. "Electricity Consumption by County." Accessed March 5, 2021. http://ecdms.energy.ca.gov/elecbycounty.aspx.
[22] Silicon Valley Power. "Did you Know." Accessed March 5, 2021. http://www.siliconvalleypower.com/.
[23] California Gas and Electric Utilities. 2019 *California Gas Report.* Accessed March 5, 2021. https://www.socalgas.com/regulatory/documents/cgr/2019_CGR_Supplement_7-1-19.pdf.

natural gas use in California. In 2018, Santa Clara County used approximately 3.5 percent of the state's total consumption of natural gas[24].

Fuel for Motor Vehicles

In 2019, 15.4 billion gallons of gasoline were sold in California.[25] The average fuel economy for light-duty vehicles (autos, pickups, vans, and sport utility vehicles) in the United States has steadily increased from about 13.1 miles per gallon (mpg) in the mid-1970s to 24.9 mpg in 2019.[26] Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007. That standard, which originally mandated a national fuel economy standard of 35 miles per gallon by the year 2020, was subsequently revised to apply to cars and light trucks model years 2020 through 2035. [27,28]

4.6.3 Environmental Impact Discussion

4.6.3.1 Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation*?*

Construction

Construction of the project would require energy for the demolition of existing buildings, manufacture and transportation of building materials, site preparation and grading, and the actual construction of the buildings and infrastructure. As discussed in Section 4.3 Air Quality, the project would implement measures to minimize the idling of construction equipment. Additionally, the project would participate in the City's Construction and Demolition Debris Recycling Program by recycling or diverting at least 50 percent of materials generated for discards by the project in order to reduce the amount of demolition and construction waste going to the landfill. Diversion saves energy by reusing and recycling materials for other uses (instead of landfilling materials and using additional non-renewable resources).

CA3BGF Operation

[24] California Energy Commission. "Natural Gas Consumption by County." Accessed March 5, 2021. http://ecdms.energy.ca.gov/gasbycounty.aspx.
[25] California Department of Tax and Fee Administration. "Net Taxable Gasoline Gallons." Accessed March 5, 2021. https://www.cdtfa.ca.gov/dataportal/dataset.htm?url=VehicleTaxableFuelDist.
[26] United States Environmental Protection Agency. "The 2020 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975." January, 2021. Accessed Match 5, 2021. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1010U68.pdf
[27] United States Department of Energy. *Energy Independence & Security Act of 2007.* Accessed March 5, 2021. http://www.afdc.energy.gov/laws/eisa.
[28] Public Law 110–140—December 19, 2007. *Energy Independence & Security Act of 2007.* Accessed March 5, 2021. http://www.gpo.gov/fdsys/pkg/PLAW-110publ140/pdf/PLAW-110publ140.pdf.

Energy would be consumed by the CA3BGF during regular testing and maintenance of the 44 emergency backup generators. Each generator would be limited to a maximum of 50 hours per year of operation. Assuming a worst-case scenario where all generators are tested at full load for the full 50 hours per year, the CA3BGF would consume up to 421,740 gallons of fuel per year. According to the California Energy Commission's 2020 Weekly Fuel's Watch Report, the annual capacity of CARB Diesel Fuel in California was 187,416,000 barrels annually. The proposed consumption of CARB Diesel Fuel by the CA3BGF is less than 0.0053 percent of the total California annual capacity. Because the generators would only be operated when necessary for testing and maintenance, and would not be used regularly for electricity generation, the CA3BGF would not result in a wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. Additionally, the CA3BGF would not have a significant adverse effect on local or regional energy supplies and will not create a significant adverse impact on California's energy resources.

It is important to note that maintenance and readiness testing of the emergency backup generators are crucial to the project's viability. The most important data center criterion is reliability. Crucial services such as the 911, Offices of Emergency Management, and utilities infrastructure are increasingly using data centers for their operation. Reliability and data security requirements of a data center would be compromised by limiting or reducing fuel consumption for the purpose of maintenance and readiness testing. This includes the primary generators as well as the redundant ones. Even though the redundant generators are purposed to provide backup service to the rest of the generators, their operational reliability is equally important. If any of the primary generators fails to operate, a redundant generator must be ready to run to take up the lost load. So, it is crucial that the redundant generators be regularly tested and maintained according to the same testing and maintenance requirements as the primary ones and as prescribed by the manufacturer's warranty conditions. The use of diesel fuel for the generators for readiness testing and maintenance would not be unnecessary, inefficient, or wasteful.

The use of the standby generators for emergency purposes would be limited to times when there is an interruption of SVP's electric service. Under emergency conditions, defined as the loss of electrical power to the data center, which are infrequent and short-duration events, the generators could operate and use diesel fuel, as necessary, to maintain data center operations. The Caterpillar emergency backup generator models selected for the CA3BGF have an efficiency rating comparable to other commercially available diesel-fueled generators of similar generating capacity.

CA3DC Operation

Operation of the CA3DC would consume energy for multiple purposes including, but not limited to, building heating and cooling, lighting, appliances and electronics. Energy would also be consumed during each vehicle trip generated by employees and visitors. The CA3DC would be built in accordance with Title 24 and CALGreen and include green building measures to reduce energy consumption. The CA3DC would also utilize lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. Water efficient landscaping and ultra-low flow plumbing fixtures in the building would be implemented to limit water consumption. Due to the energy efficiency measures incorporated into the facility, the CA3DC would not result in a wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. **(Less than Significant Impact)**

4.6.3.2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

During operation, CA3DC would use both nonrenewable energy resources and renewable energy resources in SVP's portfolio of resources. SVP's 2018 Integrated Resource Plan identified that it expects to exceed 50 percent eligible renewable resources in its portfolio by 2030[29]. As SVP procures more renewable energy for its portfolio, less nonrenewable energy sources will be needed and therefore less nonrenewable power would be provided to MCDC. In addition, the City of Santa Clara and SVP have adopted what is referred to as "Reach Codes," which are local energy targets that "reach" beyond the state minimum requirements for energy use in building design and construction.[30] Additionally, the CA3DC would not obstruct SVP from implementing its 2018 Integrated Resource Plan and achieving the State's goals pursuant to SB 100.

The project's quantities of diesel fuel is a significant departure from typical power generating facilities that use fossil fuels as their primary source of energy, as the CA3BGF's generators would operate only during testing and during emergencies when the primary source of energy to operate the project, electricity from SVP, is cut off. The project's use of diesel fuel would not obstruct SVP's ability to meet the requirements of SB 100.

The project would participate in the city's Construction and Demolition Debris Recycling Program and implement measures to promote walking, bicycling, and transit use, thereby reducing motor vehicle use. Through the city's design review process, CA3DC

[29] Silicon Valley Power 2018 Integrated Resource Plan, https://www.siliconvalleypower.com/home/showpublisheddocument?id=62481

[30] https://www.siliconvalleypower.com/sustainability/commitment-to-renewable-energy/building-electrification-and-electric-vehicle-reach-codes

would be required to comply with the California Green Building Code and the city's General Plan Land Use Policies related to energy—Santa Clara's 2010–2035 Master Plan, which are consistent with the EPA's Energy Star and Fuel Efficiency program.

Power Usage Effectiveness (PUE) is a metric used to compare the efficiency of facilities that house computer servers. It is defined as the ratio of total facility energy draw (including the facility's mechanical and electrical loads) to IT server electrical power draw (PUE = total facility source energy [including the Critical IT source energy]/ Critical IT source energy). While the PUE is always greater than 1, the closer it is to 1, the greater the portion of the power drawn by the facility that goes to the Critical IT server equipment.

The PUE has been used as a guideline for assessing and comparing energy and power efficiencies associated with data centers since 2007. According to the Uptime Institute 2019 Annual Data Center Survey Results the current average PUE is 1.67. As discussed in Section 2.2.3.2 Vantage estimates that for the CA3DC, the maximum peak PUE is expected to be 1.45, the average annual PUE is expected to be 1.26, and actual PUE will be about 1.25, all well below the industry average.

Measure 2.3 of the Santa Clara Climate Action Plan (CAP) encourages completion of a feasibility study of energy efficient practices for new data center projects with an average rack power rating of 15 kW or more to achieve a PUE of 1.2 or lower. As described in Section 2.2.2.1 the design for CA3DC is for an average rack power rating of 8.3 kW which is below the CAP's suggestion that a feasibility study be performed to achieve a PUE of 1.2 or lower.

Through energy efficient design and increased renewable electricity use, the project would neither conflict with, nor obstruct state or local plans for renewable energy or energy efficiency, and therefore would have no adverse impact on them. **(Less Than Significant Impact)**

4.6.4 Mitigation Measures

No mitigation measures are necessary as the project is designed to ensure no significant energy or energy resource-related environmental impacts.

4.6.5 Governmental Agencies

The only governmental agency affected by the project's energy use is the City of Santa Clara and its municipal utility Silicon Valley Power. Through the design review and energy contracting processes, SVP will be able to ensure that the project will not negatively affect its ability to comply with its Integrated Resources Plan and its ability to serve its customers.

4.7 GEOLOGY AND SOILS

The following discussion is based on a Limited Preliminary Geotechnical Investigation (July 17, 2020) prepared by Murray Engineers Inc. The report is attached as Appendix D of this Application.

4.7.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Geology and Soils				
Would the project:				
1) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)?	☐	☒	☐	☐
- Strong seismic ground shaking?	☐	☒	☐	☐
- Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
- Landslides?	☐	☒	☐	☐
2) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
3) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
4) Be located on expansive soil, as defined in the current California Building Code, creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
6) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

4.7.2 Environmental Setting

4.7.2.1 Regulatory Framework

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed following the 1971 San Fernando earthquake. The act regulates development in California near known active faults due to hazards associated with surface fault ruptures. Alquist-Priolo maps are distributed to affected cities, counties, and state agencies for their use in planning and controlling new construction. Areas within an Alquist-Priolo Earthquake Fault Zone require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) was passed in 1990 following the 1989 Loma Prieta earthquake. The SHMA directs the California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. CGS has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, landslides, and ground shaking, including the central San Francisco Bay Area. The SHMA requires that agencies only approve projects in seismic hazard zones following site-specific geotechnical investigations to determine if the seismic hazard is present and identify measures to reduce earthquake-related hazards.

California Building Standards Code

The California Building Standards Code (CBC) prescribes standards for constructing safer buildings. The CBC contains provisions for earthquake safety based on factors including occupancy type, soil and rock profile, ground strength, and distance to seismic sources. The CBC requires that a site-specific geotechnical investigation report be prepared for most development projects to evaluate seismic and geologic conditions, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. The CBC is updated every three years; the current version is the 2019 CBC.

California Division of Occupational Safety and Health Regulations

Excavation, shoring, and trenching activities during construction are subject to occupational safety standards for stabilization by the California Division of Occupational Safety and Health (Cal/OSHA) under Title 8 of the California Code of Regulations and Excavation Rules. These regulations minimize the potential for instability and collapse that could injure construction workers on the site.

Paleontological Resources Regulations

Paleontological resources are the fossilized remains of organisms from prehistoric environments found in geologic strata. They range from mammoth and dinosaur bones to impressions of ancient animals and plants, trace remains, and microfossils. These are valued for the information they yield about the history of the earth and its past ecological settings. The California Public Resources Code (Section 5097.5) specifies that unauthorized removal of a paleontological resource is a misdemeanor. Under the CEQA Guidelines, a project would have a significant impact on paleontological resources if it would disturb or destroy a unique paleontological resource or site or unique geologic feature. Paleontological resources are fossils, the remains or traces of prehistoric life preserved in the geologic record. They range from the well-known and well publicized (such as mammoth and dinosaur bones) to scientifically important fossils.

Local

Santa Clara General Plan

General Plan policies geology and soils-related policies applicable to the project include the following.

Policy 5.6.3-P1: Require that new development avoid or reduce potential impacts to archaeological, paleontological and cultural resources.

Policy 5.6.3-P40: Require that a qualified paleontologist/archaeologist monitor all grading and/or excavation if there is a potential to affect archeological or paleontological resources, including sites within 500 feet of natural water courses and the Old Quad neighborhood.

Policy 5.6.3-P5: In the event that archeological/paleontological resources are discovered, require that work be suspended until the significance of the find and recommended actions are determined by a qualified archeologist/paleontologist.

Policy 5.10.5-P5: Regulate development, including remodeling or structural rehabilitation, to ensure adequate mitigation of safety hazards, including flooding, seismic, erosion, liquefaction and subsidence dangers.

Policy 5.10.5-P6: Require that new development is designed to meet current safety standards and implement appropriate building codes to reduce risks associated with geologic conditions.

Policy 5.10.5-P7: Implement all recommendations and design solutions identified in project soils reports to reduce potential adverse effects associated with unstable soils or seismic hazards.

Santa Clara City Code

Title 15 of the Santa Clara City Code includes the City's adopted Building and Construction Code. These regulations are based on the CBC and include requirements for building foundations, walls, and seismic resistant design. Requirements for grading and excavation permits and erosion control are included in Chapter 15.15 Building Code. Requirements for building safety and earthquake reduction hazard are addressed in Chapter 15.55 Seismic Hazard Identification.

4.7.2.2 Existing Conditions

The project site is located in the Santa Clara Valley, a relatively flat alluvial basin, bounded by the Santa Cruz Mountains to the southwest and west, the Diablo Mountain Range to the east, and the San Francisco Bay to the north.

Soil Conditions

According to the Geologic Map of the San Jose West Quadrangle, California (Wentworth and others, 1999), the site is located in an area underlain by Holocene age (less than 11,000 years old) levee deposits and basin deposits. Levee deposits are generally described as loose, moderate- to well-sorted sandy or clayey silt grading to sandy or silty clay. Basin deposits are generally described as dark-colored clay with very fine silty clay, rich in organic material, and deposited beyond the levees and flood plains in the flood basins where stilling flood waters drop their finest sediment. These geologic materials may be susceptible to some degree of compressibility when subject to new building loads.

Groundwater

Based on cone penetration testing performed during the soil borings completed for the Limited Preliminary Geotechnical Investigation (refer to Appendix D), depth to groundwater in the area can range from approximately 4 to 10 feet below ground surface (bgs). Fluctuations in groundwater levels are common due to seasonal fluctuations, underground drainage patterns, regional fluctuations, and other factors.

Seismicity and Seismic Hazards

The San Francisco Bay Area is one of the most seismically active areas in the United States. While seismologists cannot predict earthquake events, the U.S. Geological Survey's Working Group on California Earthquake Probabilities estimates there is a 72 percent chance of at least one magnitude 6.7 earthquake occurring in the Bay Area region between 2002 and 2032. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances. The faults considered capable

of generating significant earthquakes in the area are generally associated with the well-defined areas of crustal movement, which trend northwesterly.

The three major faults in the region are the Calaveras Fault (approximately 9.4 miles east of the site), the San Andreas Fault (approximately 11.3 miles west of the site), and the Hayward Fault (approximately 6.1 miles east of the site). The project site is not located within a fault rupture zone.[31]

Ground shaking at the project site is predicted to be strong to very strong as determined by the Association of Bay Area Governments (ABAG). The project site is not located within the limits of an Alquist-Priolo Earthquake Fault Zone and there are no known active faults within the City limits of Santa Clara.

Liquefaction

Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a substantial loss of strength during seismic events. Loose, water-saturated soils are transformed from a solid to a liquid state during ground shaking. Liquefaction can result in significant deformations and ground rupture or sand boils. Soils most susceptible to liquefaction are loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface. According to the State of California Official Seismic Hazard Zones Map for the San Jose West Quadrangle (California Geological Survey, 2002), the site is located in an area considered potentially susceptible to earthquake-induced liquefaction.

Plate 1.2 of the State Seismic Hazard Zone Report 058 (California Geological Survey, 2002) estimates the depth to groundwater in the site vicinity to be less than 10 feet below existing site grades. In addition, according to the Association of Bay Area Governments (ABAG) Earthquake Liquefaction Susceptibility Map (Knudsen and others, 2000), the site is located in an area considered to have a moderate susceptibility to earthquake-induced liquefaction.

Lateral Spreading

Lateral spreading is a type of ground failure related to liquefaction. It consists of the horizontal displacement of flat-lying alluvial material toward an open face, such as the steep bank of a stream channel.

There are no stream channels on or adjacent to the site, therefore the project site would not be subject to lateral spreading.

[31] Santa Clara County. *Santa Clara County Geologic Hazard Zones.* October 26, 2012.

Paleontological Resources

The City of Santa Clara is situated on alluvial fan deposits of the Holocene age. These relatively young sediments have low potential to yield fossil resources or to contain significant nonrenewable paleontological resources. However, these recent sediments overlie sediments of older Pleistocene sediments with high potential to contain paleontological resources. These older sediments, often found at depths of ten feet or more below the ground surface, have yielded the fossil remains of plants and extinct terrestrial Pleistocene vertebrates. Ground disturbing activities of ten feet or more have the potential to impact undiscovered paleontological resources in older Pleistocene sediments. [32]

4.7.3 Environmental Impact Discussion

4.7.3.1 Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides.?

As discussed in Section 4.7.1.2, there are no known active or potentially active faults crossing the project site. The site is not located within an Earthquake Fault Zone as defined by the State of California Alquist-Priolo Earthquake Fault Zoning Act. The project site is not located within a fault rupture zone.

The project site is located in a seismically active region. Geologic conditions on the site would require the new building be designed and constructed in accordance with standard engineering techniques and current California Building Code requirements, to avoid or minimize potential damage from seismic shaking and liquefaction on the site.

The project site is located in a mapped liquefaction hazard zone. The site is not located within a landslide hazard zone. The project incorporates Project Design Measure PD GEO-1 outlined in Section 4.7.4 below. With the incorporation of this Project Design Measure the project will not result in earthquake-related impacts. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

4.7.3.2 Would the project result in substantial soil erosion or the loss of topsoil?

Ground disturbance at the site would be required for demolition and on-site improvements. Ground disturbance would expose soils and increase the potential for wind or water related erosion and sedimentation at the site until construction is complete. Compliance with the erosion control measures, as required by the National

[32] City of Santa Clara. City of Santa Clara Draft 2010-2035 General Plan. January 2011. Page 328.

Pollutant Discharge Elimination System (NPDES) is the primary means of enforcing erosion control measures through the grading and building permit process. In accordance with General Plan policies, construction activities would be subject to the requirements of the regulatory programs and policies in place and, therefore, would have a less than significant soil erosion impact.

With respect to the CA3BGF facility components, construction will involve limited ground disturbance as the site grading for the CA3DC will be completed prior to installation of the CA3BGF components. The only ground disturbance directly attributable to the CA3BGF will be the minor trenching for electrical interconnection to the CA3DC. **(Less than Significant Impact)**

4.7.3.3 Would the project be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The project site is located in a mapped liquefaction hazard zone. The site is not located within a landslide hazard zone. The project has incorporated Project Design Measure PD GEO-1, which would avoid or reduce impacts related to the stability of soil on-site. The project would not change or exacerbate the geologic conditions of the project area and would not result in a significant geology hazards impact. **(Less than Significant Impact)**

4.7.3.4 Would the project be located on expansive soil, as defined in the current California Building Code, creating substantial direct or indirect risks to life or property?

The project site is located on expansive soil as defined in Section 1803.5.3 of the CBC. The project would be required to adhere to the SHMA and CBC, which would reduce impacts related to expansive soils to a less than significant level. The policies of the City of Santa Clara 2010-2035 General Plan have been adopted for the purpose of avoiding or mitigating environmental effects resulting from planned development within the City. Santa Clara General Plan Policy 5.10.5-P6 requires that new development be designed to meet current safety standards and implement appropriate building codes to reduce risk associated with geologic conditions. **(Less than Significant Impact)**

4.7.3.5 Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project site is located within an urban area of Santa Clara where sewers are available to dispose wastewater from the project site. Therefore, the project site would not need to support septic tanks or alternative wastewater disposal systems. **(No Impact)**

4.7.3.6 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

There are no known unique paleontological resources or unique geological features within the City. However, ground disturbing activities of ten feet or more have the potential to impact undiscovered paleontological resources. The CA3DC would require excavation trenching of depths of up to 15 feet. Foundations will be augered piles, likely to exceed depths of 30 feet. Although unlikely, paleontological resources could be encountered during construction of the CA3DC. The applicant has incorporated Project Design Measure PD GEO-2 to address the potential for discovery of paleontological resources during excavation in native materials. See Section 4.7.4.

Although the CA3DC site will be graded and any excavation for deep foundations would be completed prior to installation of any of the CA3BGF facilities, the CA3BGF would perform trenching to install the underground cabling for the electrical interconnection between each generator yard and the CA3DC building it serves. This trenching is most likely to occur in previously disturbed soils shallower than 10 feet. In the unlikely event the trenching activities encounter potential paleontological resources, implementation of PD GEO-2 would ensure that any potential impacts from the trenching activities for the CA3BGF would be reduced to less than significant levels. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

4.7.4 Mitigation Measures

No mitigation measures are necessary because the project applicant has incorporated the following Project Design Measures into the project.

PD GEO-1: In order to ensure the project design conforms to the requirements of a final geotechnical engineering investigation and California and local building standards and codes, the following is proposed as mitigation incorporated into the project. Incorporation will ensure seismic hazards are reduced to less than significant levels.

- To avoid or minimize potential damage from seismic shaking, the project would be built using standard engineering and seismic safety design techniques. Building redevelopment design and construction at the site shall be completed in conformance with the recommendations of a design-level geotechnical investigation, which will be included in a report to the City. The report shall be reviewed and approved by the City of Santa Clara's Building Division as part of the building permit review and issuance process. The building shall meet the requirements of applicable Building and Fire Codes, including the 2019 California Building Code, as adopted or updated by the City. The project shall be designed to withstand potential geologic hazards identified on the site and the project shall be designed to reduce the risk to life or property to the extent feasible and in compliance with the Building Code.

PD GEO-2: The project proposes to implement the following measures to as best management practices to ensure impacts to paleontological resources are less than significant.

- Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology, who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and shall follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance.
- If a fossil is found and determined by the qualified paleontologist to be significant and avoidance is not feasible, the paleontologist shall develop and implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in these areas shall be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report shall be prepared that outlines the results of the mitigation program. The Director of Planning and Inspection shall be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.

4.7.5 Governmental Agencies

The only governmental agency that would be affected by the project is the City of Santa Clara as it is the agency with authority to implement the building codes during its project review and monitoring of construction. The City of Santa Clara is likely to incorporate compliance with the building codes as conditions of approval and will ensure they are complied with during construction.

4.8 GREENHOUSE GAS EMISSIONS

This section is based in part on an Air Quality and Greenhouse Gas Emissions study completed by Ramboll US Consulting, Inc. The report is included in Appendix A.

4.8.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Greenhouse Gas Emissions				
Would the project:				
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

4.8.2 Environmental Setting

4.8.2.1 Background Information

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO2 equivalents (CO2e). The most common GHGs are carbon dioxide (CO2) and water vapor but there are also several others, most importantly methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO2 and N2O are byproducts of fossil fuel combustion.
- N2O is associated with agricultural operations such as fertilization of crops.
- CH4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents, but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and SF6 emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

An expanding body of scientific research supports the theory that global climate change is currently causing changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

4.8.2.2 Regulatory Framework

State

Assembly Bill 32

Under the California Global Warming Solutions Act, also known as AB 32, CARB established a statewide GHG emissions cap for 2020, adopted mandatory reporting rules for significant sources of GHGs, and adopted a comprehensive plan, known as the Climate Change Scoping Plan, identifying how emission reductions would be achieved from significant GHG sources.

In 2016, SB 32 was signed into law, amending the California Global Warming Solution Act. SB 32, and accompanying Executive Order B-30-15, require CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. CARB updated its Climate Change Scoping Plan in December of 2017 to express the 2030 statewide target in terms of million metric tons of CO2E (MMTCO2e). Based on the emissions reductions directed by SB 32, the annual 2030 statewide target emissions level for California is 260 MMTCO2e.

Senate Bill 375

SB 375, known as the Sustainable Communities Strategy and Climate Protection Act, was signed into law in September 2008. SB 375 builds upon AB 32 by requiring CARB to develop regional GHG reduction targets for automobile and light truck sectors for 2020 and 2035. The per-capita GHG emissions reduction targets for passenger vehicles in the San Francisco Bay Area include a seven percent reduction by 2020 and a 15 percent reduction by 2035.

Consistent with the requirements of SB 375, the Metropolitan Transportation Commission (MTC) partnered with the Association of Bay Area Governments (ABAG), BAAQMD, and the Bay Conservation and Development Commission to prepare the region's Sustainable Communities Strategy (SCS) as part of the Regional

Transportation Plan process. The SCS is referred to as Plan Bay Area 2040. Plan Bay Area 2040 establishes a course for reducing per-capita GHG emissions through the promotion of compact, high-density, mixed-use neighborhoods near transit, particularly within identified Priority Development Areas (PDAs).

Regional and Local

2017 Clean Air Plan

To protect the climate, the 2017 CAP (prepared by BAAQMD) includes control measures designed to reduce emissions of methane and other super-GHGs that are potent climate pollutants in the near-term, and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines are intended to serve as a guide for those who prepare or evaluate air quality impact analyses for projects and plans in the San Francisco Bay Area. The jurisdictions in the San Francisco Bay Area Air Basin utilize the thresholds and methodology for assessing GHG impacts developed by BAAQMD within the CEQA Air Quality Guidelines. The guidelines include information on legal requirements, BAAQMD rules, methods of analyzing impacts, and recommended mitigation measures.

Other Implementing Laws and Regulations

There are a number of laws that have been adopted as a part of the State of California's efforts to reduce GHG emissions and their contribution to climate change. State laws and regulations related to growth, development, planning and municipal operations in Santa Clara include, but are not limited to:

- California Mandatory Commercial Recycling Law (AB 341)
- California Water Conservation in Landscaping Act of 2006 (AB 1881)
- California Water Conservation Act of 2009 (SBX7-7)
- Various Diesel-Fuel Vehicle Idling regulations in Chapter 13 of the California Code of Regulations
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

Implementation of the policies in the City's General Plan as a part of the City's development permitting and other programs provides for meeting building standards for

energy efficiency, recycling, and water conservation, consistent with the laws and regulations designed to reduce GHG emissions.

Local

City of Santa Clara General Plan

The Santa Clara 2010-2035 General Plan includes policies that address the reduction of GHG gas emissions during the planning horizon of the General Plan. Goals and policies that address sustainability (see Appendix 8.13: Sustainability Goals and Policies Matrix in the General Plan) are aimed at reducing the City's contribution to GHG emissions. As described below, the development of a comprehensive GHG emissions reduction strategy for the City is also included in the General Plan.

5.3.1-P10: Provide opportunities for increased landscaping and trees in the community, including requirements for new development to provide street trees and a minimum 2:1 on- or off-site replacement for trees removed as part of the proposal to help increase the urban forest and minimize the heat island effect.

5.3.1-P14: Encourage TDM strategies and the provision of bicycle and pedestrian amenities in all new development greater than 25 housing units or more than 10,000 non-residential square feet, and for City employees, in order to decrease use of the single-occupant automobile and reduce vehicle miles traveled, consistent with the Climate Action Plan.

5.8.5-P1: Require new development and City employees to implement TDM programs that can include site-design measures, including preferred carpool and vanpool parking, enhanced pedestrian access, bicycle storage and recreational facilities.

5.8.5-P5: Encourage TDM programs that provide incentives for the use of alternative travel modes to reduce the use of single-occupant vehicles.

5.4.1-P15: Work with Valley Transportation Authority to improve transit access, information and frequency along El Camino Real, including the implementation of a Bus Rapid Transit or similar transit service near Regional Mixed-Use areas.

Climate Action Plan

The City of Santa Clara has a comprehensive GHG emissions reduction strategy (Climate Action Plan) to achieve its fair share of statewide emissions reductions for the 2020 timeframe consistent with AB 32, the Global Warming Solutions Act. The Climate Action Plan was adopted on December 3, 2013. The City of Santa Clara Climate Action Plan specifies the strategies and measures to be taken for a number of focus areas (coal-free and large renewables, energy efficiency, water conservation, transportation and land use, waste reduction, etc.) citywide to achieve the overall emission reduction

target, and includes an adaptive management process that can incorporate new technology and respond when goals are not being met.

A key reduction measure that is being undertaken by the City of Santa Clara under the Climate Action Plan is in the Coal-Free and Large Renewables focus area. The City of Santa Clara operates Silicon Valley Power (SVP), a publicly owned utility that provides electricity for the community of Santa Clara, including the project site. Data centers constitute a large portion of the electricity used in the City of Santa Clara; about 28 percent on average. Since nearly half (48 percent) of Santa Clara's GHG emissions result from electricity use, removing GHG-intensive sources of electricity generation (such as coal) is a major focus area in the Climate Action Plan for achieving the City's GHG reduction goals.

CEQA clearance for all discretionary development proposals are required to address the consistency of individual projects with reduction measures in the Climate Action Plan and goals and policies in the General Plan designed to reduce GHG emissions. Compliance with appropriate measures in the Climate Action Plan would ensure an individual project's consistency with an adopted GHG reduction plan.

In December 2018, SVP published an updated Integrated Resources Plan that outlines goals and actions for achieving 2030 GHG emission reductions consistent with the legislation described above. All electricity from SVP has been coal-free since January 2018. Beginning in December 2018, SVP underwent a six-month process to update its Integrated Resource Plan to lay out needed steps to meet the 50 percent Renewable Portfolio Standard set by SB 32. SVP plans to exceed the 50 percent target.

4.8.2.3 Existing Conditions

Unlike emissions of criteria and toxic air pollutants, which have regional and local impacts, emissions of GHGs have a broader, global impact. Global warming is a process whereby GHGs accumulating in the upper atmosphere contribute to an increase in the temperature of the earth and changes in weather patterns.

The project site is currently developed with an office/warehouse building and associated paved parking and loading dock area. The main source of GHG emissions associated with the existing uses on-site is the electricity use of the existing building. Additional emissions also result from vehicle trips associated with the building's daily operations.

4.8.3 Environmental Impact Discussion

GHG emissions worldwide contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. No single land use project could generate sufficient GHG emissions on its own to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects in Santa Clara, the entire state of California, and across the nation and around the

world, contribute cumulatively to the phenomenon of global climate change and its associated environmental impacts.

Per the CEQA Guidelines, a lead agency may analyze and mitigate significant GHG emissions in a plan for the reduction of GHG emissions that has been adopted in a public process following environmental review. The City of Santa Clara adopted its CAP (a GHG reduction strategy) in 2013 in conformance with its most recent General Plan Update. The City's projected emissions and the CAP are consistent with measures necessary to meet statewide 2020 goals established by AB 32 and addressed in the Climate Change Scoping Plan. For projects that would be operational by the end of 2020, the threshold of significance for whether a development project in the City of Santa Clara would generate GHG emissions that would have a significant impact on the environment therefore would be whether or not the project conforms to the applicable reduction measures in the City's CAP. Because the project would not become operational prior to the end of 2020, consistency with the CAP cannot be used to determine significance under CEQA. The project, however, would still be required to be consistent with the requirements of the CAP, and implementation of required CAP measures would reduce GHG emissions from the project. The City is embarking on a process to update the CAP to reflect 2030 GHG reduction targets in SB 32, but that process is ongoing and would not precede the subject project application.

Per BAAQMD guidance for stationary-source projects such as the CA3BGF, the threshold to determine the significance of an impact from GHG emissions is 10,000 metric tons of CO2e per year. This threshold is consistent with stationary source thresholds adopted by other air quality management districts throughout the state and is intended to capture 95 percent of all GHG emissions from new permit applications from stationary sources in the San Francisco Bay Area Basin. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require a BAAQMD permit to operate. The standby generators included as part of the project would be permitted sources, and as such, the BAAQMD's 10,000 metric tons of CO2e per year threshold is appropriate for analyzing the significance of emissions produced by the generators. If annual emissions of operational-related GHGs exceed these levels, the CA3BGF would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change. Emissions from mobile sources and area sources, such as electricity use and water delivery, associated with CA3DC operation would not be included for comparison to this threshold, based on guidance in the BAAQMD's CEQA Guidelines. GHG impacts from the CA3DC would be considered to have a less than significant impact if the CA3DC is consistent with applicable regulatory programs and policies adopted by CARB or other California agencies.

4.8.3.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Overview of GHG Emissions

GHG emissions from the proposed project would consist of emissions from vehicle trips to and from the building and emissions related to the generation of electricity used in the data center building. Data centers are an energy-intensive land use, requiring more electricity than other types of development. The primary function of the data center is to house computer servers, which require electricity and cooling 24 hours a day to operate.

Silicon Valley Power Electricity Generation

Electricity for the data center facility is provided by SVP, which is the public electric utility of the City of Santa Clara. Santa Clara currently has ownership interest, or has purchase agreements for 1,079.15 megawatt (MW) of electricity.[33] In 2018, approximately 31 percent of that generation is eligible as renewable (as defined by the California Energy Commission) and an additional 11 percent is otherwise a non-GHG emitting resource (i.e. large-hydroelectric).[34] This capacity far exceeds City of Santa Clara's current peak electricity demand of approximately 526.2 MW. No new generation peak capacity is necessary to meet the capacity requirements of new construction, or redeveloped facilities within the City to meet the near or projected future demand.

The City of Santa Clara follows the State's preferred loading order in procuring new energy resources. First, the current load (customer) is encouraged to participate in energy efficiency programs to reduce their usage, thus freeing up existing resources (and any related emissions) for the new load (electricity demand). In addition, the City of Santa Clara encourages the use of renewable resources and clean distributed generation, and has seen a significant increase in its applications for large and small rooftop photovoltaics (PV). Demand displaced by customer-based renewable projects is also available to meet new load requests.

The City of Santa Clara seeks to meet its Renewable Portfolio Standard (RPS) through the addition of new renewable resources. In order to meet anticipated increases in energy needs (as separate from peak generation capacity requirements) the City of Santa Clara has contracted for additional wind energy including the Big Horn II Wind Project that would provide the City of Santa Clara up to an additional 17.5 MW of GHG-emission-free electricity.

[33] Silicon Valley Power, City of Santa Clara. The Silicon Valley Power Resources Map. Accessed: April 9, 2020. Available at: http://www.siliconvalleypower.com/home/showdocument?id=5763.
[34] Silicon Valley Power. "Power Content Label". Accessed: April 9, 2020. Available at: http://siliconvalleypower.com/svp-and-community/about-svp/power-content-label

SVP has a lower emission rate than the statewide California power mix because it utilizes a much higher portion of renewable sources. A comparison of SVP's and the statewide power mix is shown in Table 4.8-1.

Table 4.8-1: Comparison of SVP And Statewide Power Mix

Energy Resources	2018 SVP Power Mix	2018 CA Power Mix (For Comparison)
Eligible Renewables (Biomass & Waste, Geothermal, Eligible Hydro, Solar, Wind)	28%	31%
Coal	0%	3%
Large Hydro	16.5%	11%
Natural Gas	8.5%	35%
Nuclear	0%	9%
Other	41.25%	<1%
Unspecified Source of Power (Not Traceable to Specific Sources)	5.75%	11%
Total	**100.0%**	**100.0%**

It is important to note that SVP's carbon intensity factor for electricity generation would continue to change as SVP's power mix continues to reduce the percentage of electricity produced by coal-fired power plants and increase the use of renewable resources. As noted above, the City of Santa Clara and SVP have committed to be coal-free and increase large renewables power generation as a part of the City's Climate Action Plan.

Proposed Efficiency Measures

Overview: Power Usage Effectiveness During Operation

Power Usage Effectiveness, or PUE, is a metric used to compare the efficiency of facilities that house computer servers. PUE is defined as the ratio of total facility energy use to Information Technology (IT) (i.e., server) power draw (e.g., PUE = Total Facility Source Energy/IT Source Energy). For example, a PUE of two, means that the data center or laboratory must draw two watts of electricity for every one watt of power consumed by the IT/server equipment. It is equal to the total energy consumption of a data center (for all fuels) divided by the energy consumption used for the IT equipment. The theoretically ideal PUE is one where all power drawn by the facility goes to the IT infrastructure. The theoretical ideal PUE is unachievable since power must be drawn to cool the IT infrastructure and provide ancillary services to the building.

The theoretical peak PUE for the Worst Day Calculation would be 1.45 (Total 92.8 MW demand of Building on Worst Case Day divided by 64.0 MW Total Critical IT Load). The average annual PUE would be 1.26 (Total 80.7 MW demand of Building average

conditions divided by 64.0 MW Design Critical IT Load). These PUE estimates are based on design assumptions and represent worst case. The expected PUE is much lower because the Critical IT that is leased by clients is rarely fully utilized. Vantage's experience with operation of other data centers is that the actual annualized PUE will be closer to 1.25.

Energy and Water Use Efficiency Measures in Building Design

Due to the heat generated by the data center equipment, cooling is one of the main uses of electricity in data center operations. In order to reduce GHG emissions and reduce the use of energy related to building operations, the project proposes to implement the following efficiency measures:

- Daylight penetration to offices
- Reflective roof surface
- Meet or exceed Title 24 requirements
- Electric vehicle (EV) parking
- Low flow plumbing fixtures
- Landscaping would meet City of Santa Clara requirements for low water use

Construction-Related Emissions

GHG emissions associated with construction were computed to be 686 and 335 MT of CO_2e for each phase of construction, respectively. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City of Santa Clara nor BAAQMD have a threshold for construction emissions. These emissions would be temporary in nature and would be less than the indirect emissions associated with operation of the proposed uses. Construction emissions would occur during building construction, trenching and minor paving and landscape installation.

As a Best Management Practice (BMP), the project would participate in the City's Construction and Demolition Debris Recycling Program by recycling or diverting at least 50 percent of materials generated for discards by the project in order to reduce the amount of demolition and construction waste going to the landfill.

CA3BGF Stationary Equipment Emissions from Routine Testing

The consumption of diesel fuel to test generators at the CA3BGF would result in direct CO_2 emissions. On an annual basis, the project's total operational emissions related to emergency backup generator maintenance and testing use would be approximately 3,287 metric tons of CO_2e per year. See Appendix A for the GHG emission calculation

data. This is well below the BAAQMD threshold for stationary sources of 10,000 metric tons per year of CO_2e for stationary sources.

CA3DC Operational Emissions

SVP's carbon intensity factor for electricity generation will continue to change as SVP's power mix continues to reduce the percentage of electricity produced by coal-fired power plants and increase the use of renewable resources. As noted above, the City and SVP have committed to be coal-free and increased large renewables power generation as a part of the City's CAP.

Project Electricity Usage

Data centers are an energy-intensive land use, requiring more electricity than other types of development. The primary function of the data center is to house computer servers, which require electricity and cooling 24 hours a day to operate. The projected maximum demand for the CA3DC is 96 MW but will be built in phases. Annual GHG emissions associated with electricity usage are the product of the maximum estimated annual electricity usage and the utility-specific carbon intensity factor, which depends on the utility's portfolio of power generation sources. The proposed CA3DC is served by SVP. The energy use emissions for first phase of operations for the CA3DC were conservatively based on the annual average CO_2 intensity per Megawatts Hour (MWh) for 2023 and 2024. Energy use emissions for full buildout in 2025 were based on the CO_2 intensity per MWh for 2025 obtained from "SVP Email to City of Santa Clara on Carbon Intensity Factor" from the Sequoia Data Center Project as provided in the California Energy Commission (CEC) proceedings (CEC 2019). For the GHG emissions from all other sources except energy[35], Ramboll used a carbon intensity value of 222 pounds CO_2 per MWh for Phase 1 operations in 2023.

For the second year of operation, 2025, Ramboll used a carbon intensity value of 277 pounds CO_2 per MWh. To be conservative, since it is not clear whether the SVP carbon intensity already includes CH_4 and N_2O, the CalEEMod® default CH_4 and N_2O intensity factors of 0.029 and 0.006 pounds of CO_2e per MWh, respectively, were used for all years considered.

Energy use from the data center activities for Phase 1 was estimated to be 473,040 MWh/year. After full build-out, energy use from the data center activities was estimated to be 832,200 MWh/year.

[35] GHG emissions from other sources include emissions from water, solid waste, and landscaping which contribute to less than 1% of total GHG emissions.

Project Mobile Emission Sources

Ramboll relied on a project operational trip generation consistent with the transportation operational analysis memo prepared for the small power plant exemption (SPPE) application (See Appendix A). The transportation analysis estimates an overall net reduction in trips with full buildout. The analysis states that the net project trip rate is negative (-658 trips per day) based on an estimate of 1,125 trips per day from the existing land use and 467 trips per day from Project operations. However, the air quality analysis conservatively assumes that the existing trip rate is zero, and hence analyzes impacts based on 467 trips per day for the Project.

Project Water Consumption and Waste Generation

Water consumption results in indirect emissions from electricity usage for water conveyance and wastewater treatment. Indoor uses at the project site would generate a potable water demand of approximately 3 acre-feet per year equal to or less than the current water use of the site.

GHG emissions generated by the CA3DC are summarized in Table 4.8-2.

Table 4.8-2 - Operational Mass Emissions of Greenhouse Gas Emissions

Emissions Source		GHG Emissions[1] MT CO_2e/yr
Phase 1	Landscaping	0.006
	Data Center Energy Use[2]	54,192
	Water Use	1.3
	Waste Disposed	150
	Mobile Emissions	137
Phase 2	Landscaping	0.0102
	Data Center Energy Use[2]	105,530
	Water Use	2
	Waste Disposed	284
	Mobile Emissions	248
Total GHG Emissions During Full Buildout(Excluding Emergency Generators)		**106,063**

Emissions Source	GHG Emissions[4] MT CO_2e/yr
Emergency Generators	3,287
BAAQMD Stationary Source Threshold[3]	**10,000**

Notes:

1. Operational emissions estimated using CalEEMod version 2016.3.2 for all sources except building energy use and emergency generator usage.
2. Data Center Energy Use is calculated based on energy use projections for the maximum usage year, and Silicon Valley Power Carbon Intensity estimates for Phase 1 operational year (average 2023 and 2024 intensities) and Phase 2 operational year 2025. For Phase 1, this maximum energy usage is 55% of total capacity (54 MW), since the project will only be partially completed in Phase 1. Phase 2 energy usage is based on the worst-case maximum estimate of 95 MW.
3. The Significance Thresholds were obtained from BAAQMD California Environmental Quality Act (CEQA) 2017 Guidelines.
4. Calculated based on emission factors from AP-42 Chapter 3.4 Table 3.4-1 (Large Stationary Diesel And All Stationary Dual-fuel Engines) and scaled by engine horsepower, proposed annual operating hours, and number of proposed generators.

As shown in Table 4.8-2 the primary source (99 percent) of GHG emissions from the CA3DC is energy use. As described above, electricity to the CA3DC would be provided by SVP. To reduce GHG emissions and the use of energy related to building operations, the CA3DC includes a variety of energy efficiency measures, as described above. The CA3DC would comply with all applicable City and state green building measures, including Title 24, Part 6, California Energy Code baseline standard requirements for energy efficiency, based on the 2016 Energy Efficiency Standards requirements, and the 2019 California Green Building Standards Code, commonly referred to as CALGreen (California Code of Regulations, Part 11).

The City of Santa Clara is currently preparing the 2030 Climate Action Plan, which would include strategies for meeting the GHG emission reduction targets required by

SB 32, and would identify further actions the City can undertake to further reduce GHG emissions. As a result of the 2030 CAP, SVP requirements would be updated to meet SB 32 targets. Because the CA3DC would receive electricity from a utility on track to meet the SB 32 2030 GHG emission reduction target, would result in lower emissions than the statewide average for an equivalent facility (roughly 13 percent) due to SVP's power mix, would include energy efficiency measures to reduce emissions to the extent feasible, and would be consistent with applicable plans and policies adopted to reduce GHG emissions, the CA3DC would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. **(Less than Significant Impact)**

4.8.3.2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Santa Clara Climate Action Plan

As described previously, the City of Santa Clara Climate Action Plan (CAP) was adopted in December 2013, and the City is currently preparing the 2030 CAP, which would include strategies for meeting the GHG emission reduction targets required by SB 32 and identify further actions the City can undertake to further reduce GHG emissions and meet new targets.

The 2013 CAP, which is part of the City's General Plan, identifies a series of GHG emissions reduction measures to be implemented by development projects that would allow the City to achieve its GHG reduction goals. The measures center around seven focus areas: coal-free and large renewables, energy efficiency, water conservation, waste reduction, off-road equipment, transportation and land use, and urban heat island effect.

The CAP includes measures applicable to City government, existing development and new development projects in Santa Clara. The project's conformance with applicable reduction measures for new development in the CAP are discussed below.

Energy Efficiency Measures

Measure 2.3 Data Centers calls for completion of a feasibility study of energy efficient practices for new data center projects with an average rack power rating[36] of 15 kilowatts or more to achieve a power usage effectiveness (PUE) of 1.2 or lower.

The average rack power rating for the CA3DC is estimated at 8.3 kW, which is significantly below the threshold to trigger a formal feasibility study of energy efficient

[36] Average rack power rating is a measure of the power available for use on a rack used to store computer servers. The higher the value of kilowatts, the greater power density per rack and generally more energy use per square foot of building area in a data center.

practices. The annual average PUE of the proposed data center would be 1.26 if the building was fully leased and every client utilized its full capacity. Vantage has found that clients do not utilize the full capacity of what they lease and therefore expects the actual PUE to on the order of 1.25 or lower, which is slightly above Measure 2.3's goal of a PUE of 1.2 or lower.

Water Conservation Measures

Measure 3.1 Water Conservation calls for a reduction in per capita water use to meet Urban Water Management targets by 2020. Development standards for water conservation would be applied to increase efficiency in indoor and outdoor water use areas. Water conservation measures include the use of:

- recycled or non-potable graywater for landscape irrigation;
- water efficient landscaping with low water usage plant material to minimize irrigation requirements; and
- ultra-low flow toilets and plumbing fixtures in the building.

Waste Reduction Measures

Measure 4.2 Increased Waste Diversion calls for an increase in solid waste diversion rate through recycling efforts, curbside food waste pickup, and construction and demolition waste programs. The project would divert construction and demolition waste during project construction to help the City reach its 80 percent waste diversion rate.

Off-Road Equipment

Measure 5.2 Alternative Construction Fuels requires construction projects to comply with BAAQMD best management practices, including alternative-fueled vehicles and equipment. The project would adopt BAAQMD best management practices, as described 4.3 Air Quality.

Transportation and Land Use

Measure 6.1 Transportation Demand Management Program requires new development located in the City's transportation districts to implement a transportation demand program (TDM) to reduce drive-alone trips. The project site is located within Transportation District 1 – North of CalTrain. Based on Table 9: Minimum Vehicle Miles Traveled Reduction Requirements by Transportation District and Land Use Designation of the Climate Action Plan, the project would be required to have a 25 percent vehicle miles traveled (VMT) reduction, with 10 percent coming from TDM measures. An exception to these reduction requirements is made for projects located on properties

with a General Plan designation of Light Industrial, such as the project site. Nevertheless, the project would be required to comply with General Plan Policy 5.8.5-P1, which requires new development to implement TDM programs that can include site-design measures, including preferred carpool and vanpool parking, enhanced pedestrian access, bicycle storage and recreational facilities. Additionally, the project would implement 2030 CAP requirements after the CAP is in place.

Applicable General Plan Policies

In addition to the reduction measures in the Climate Action Plan, the City of Santa Clara General Plan has goals and policies to address sustainability (see Appendix 8.13: Sustainability Goals and Policies Matrix in the General Plan) aimed at reducing the City's contribution to GHG emissions. For the proposed project, implementation of policies that increase energy efficiency or reduce energy use would effectively reduce indirect GHG emissions associated with energy generation. The consistency of the proposed project with the Land Use, Air Quality, Energy, and Water Policies of the General Plan is described in Table 4.8-3.

Table 4.8-3: General Plan Sustainability Policies

Emission Reduction Policies	Project Consistency
Air Quality Policies	
5.10.2-P3 Encourage implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants.	The project proposes to use emergency generators with advanced air pollution controls. The generator testing schedule includes measures to reduce local air quality impacts.
5.10.2-P4 Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.	Water conservation and energy efficiency measures included in the project would reduce GHG emissions associated with the generation of electricity
Energy Policies	
5.10.3-P1 Promote the use of renewable energy resources, conservation and recycling programs.	The project would divert at least 50 percent of construction waste. The project would utilize lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. Water efficient landscaping and ultra-low flow plumbing fixtures in the building would be installed to limit water consumption.
5.10.3-P4 Encourage new development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities.	
5.10.3-P5 Reduce energy consumption through sustainable construction practices, materials and recycling.	
5.10.3-P6 Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.	
5.10.3-P8 Provide incentives for LEED certified, or equivalent development.	
Water Policies	
5.10.4-P7 Require installation of native and low-water consumption plant species with landscaping new development and public spaces to reduce water usage.	The project would use water efficient landscaping with low water usage plant material to minimize irrigation requirements.

Bay Area 2017 Clean Air Plan

The Bay Area 2017 Clean Air Plan includes performance objectives, consistent with the State's climate protection goals under AB 32, SB 375, and SB 32, designed to reduce emissions of GHG emissions to 1990 levels by 2020 and 40 percent below 1990 levels

by 2030. The 2017 Clean Air Plan identifies a range of control measures that make up the Clean Air Plan's control strategy for emissions, including GHGs.

Due to the relatively high electrical demand of the data center uses on the site, energy efficiency measures have been included in the design and operation of the electrical and mechanical systems on the site. This is in keeping with the general purpose of Energy Sector Control Measures in the Clean Air Plan.

Plan One Bay Area/California Senate Bill 375 –

Redesigning Communities to Reduce Greenhouse Gases

Under the requirements of SB 375, the Metropolitan Planning Organizations (MPO) in partnership with ABAG have developed a Sustainable Community Strategy with the adopted *Plan One Bay Area* to achieve the Bay Area's regional GHG reduction target. Targets for the MTC in the San Francisco Bay Area, originally adopted in September 2010 by CARB, include a seven percent reduction in GHG per capita from passenger vehicles by 2020 compared to emissions in 2005. The adopted target for 2035 is a 15 percent reduction per capita from passenger vehicles when compared to emissions in 2005. The emission reduction targets are for those associated with land use and transportation strategies only.

The project has a low concentration of employment and would not contribute to a substantial increase in passenger vehicle travel within the region.

Applicable State Climate Change Strategies and Policies

In 2008, the Governor of California issued Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how State agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. The 2009 California Climate Adaptation Strategy was developed in response to the executive order. Adaptation to projected sea level rise is addressed in Section 4.9 Hydrology and Water Quality.

The CARB-approved Climate Change Scoping Plan outlines a comprehensive set of actions intended to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. Actions associated with energy efficiency standards and renewables portfolio standards are measures that would most greatly influence GHG emissions of the project over time.

The project would be generally consistent with the Climate Change Scoping Plan, as updated, and appropriate GHG Control Measures in the Bay Area 2017 Clean Air Plan (as discussed above).

As discussed above, the project would not conflict with plans, policies or regulations adopted for the purpose of reducing the emissions of GHG. Therefore, the project would not conflict with any currently adopted local plans, policies, or regulations pertaining to GHG emissions and would not generate GHG emissions that would have a significant impact on the environment. **(Less than Significant Impact)**

4.8.4 Mitigation Measures

No mitigation measures are required as the project will not cause significant greenhouse emission environmental impacts.

4.8.5 Governmental Agencies

The City of Santa Clara is the only agency with regulatory authority covering the project's greenhouse gas emissions. The City of Santa Clara will administer its authority through its permit review and implementation process.

4.9 HAZARDS

The following discussion is based on a Phase I Environmental Site Assessment (August 20, 2020) and a Phase II Site Investigation Report (December, 2020) both prepared by TRC. The reports are attached as Appendix E of this Application.

4.9.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hazards				
Would the project:				
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?	☐	☐	☒	☐
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
6) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
7) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

4.9.2 Environmental Setting

4.9.2.1 Regulatory Framework

Overview

The storage, use, generation, transport, and disposal of hazardous materials and waste are highly regulated under federal and state laws. Federal regulations and policies related to development include the Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, and the Resource Conservation and Recovery Act. In California, the EPA has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (CalEPA). In turn, local agencies, including the Santa Clara County Department of Environmental Health (SCCDEH) have been granted responsibility for implementation and enforcement of many hazardous materials regulations under the Certified Unified Program Agency (CUPA) program.

Worker health and safety and public safety are key issues when dealing with hazardous materials. Proper handling and disposal of hazardous material is vital if it is disturbed during project construction. Cal/OSHA enforces state worker health and safety regulations related to construction activities. Regulations include exposure limits, requirements for protective clothing, and training requirements to prevent exposure to hazardous materials. Cal/OSHA also enforces occupational health and safety regulations specific to lead and asbestos investigations and abatement.

Federal and State

Government Code Section 65962.5

Section 65962.5 of the Government Code requires CalEPA to develop and update a list of hazardous waste and substances sites, known as the Cortese List. The Cortese List is used by state and local agencies and developers to comply with CEQA requirements. The Cortese List includes hazardous substance release sites identified by the Department of Toxic Substances Control (DTSC), State Water Resources Control Board (SWRCB), and Santa Clara County. The project site is not on the Cortese List.[37]

California Accidental Release Prevention Program

The California Accidental Release Prevention (CalARP) Program aims to prevent accidental releases of regulated hazardous materials that represent a potential hazard beyond the boundaries of a property. Facilities that are required to participate in the CalARP Program use or store specified quantities of toxic and flammable substances (hazardous materials) that can have off-site consequences if accidentally released. The

[37] CalEPA. "Cortese List Data Resources." Accessed October 10, 2019. https://calepa.ca.gov/sitecleanup/corteselist.

Santa Clara County Department of Environmental Health reviews CalARP risk management plans as the CUPA.

Asbestos-Containing Materials

Friable asbestos is any asbestos containing material (ACM) that, when dry, can easily be crumbled or pulverized to a powder by hand, allowing the asbestos particles to become airborne. Common examples of products that have been found to contain friable asbestos include acoustical ceilings, plaster, wallboard, and thermal insulation for water heaters and pipes. Common examples of non-friable ACMs are asphalt roofing shingles, vinyl floor tiles, and transite siding made with cement. The EPA phased out use of friable asbestos products between 1973 and 1978. National Emission Standards for Hazardous Air Pollutants guidelines require that potentially friable ACMs be removed prior to building demolition or remodeling that may disturb the ACMs.

CCR Title 8, Section 1532.1

The United States Consumer Product Safety Commission banned the use of lead-based paint in 1978. Removal of older structures with lead-based paint is subject to requirements outlined by Cal/OSHA Lead in Construction Standard, CCR Title 8, Section 1532.1 during demolition activities. Requirements include employee training, employee air monitoring, and dust control. If lead-based paint is peeling, flaking, or blistered, it is required to be removed prior to demolition.

Local

Other regional agencies responsible for programs regulating emissions to the air, surface water, and groundwater include the Bay Area Air Quality Management District (BAAQMD), which has oversight over air emissions, and the Regional Water Quality Control Board (RWQCB) which regulates discharges and releases to surface waters and groundwater.

Municipal Regional Permit Provision C.12.f

Polychlorinated biphenyls (PCBs) were produced in the United States between 1955 and 1978 and used in hundreds of industrial and commercial applications, including building and structure materials such as plasticizers, paints, sealants, caulk, and wood floor finishes. In 1979, the EPA banned the production and use of PCBs due to their potential harmful health effects and persistence in the environment. PCBs can still be released to the environment today during demolition of buildings that contain legacy caulks, sealants, or other PCB-containing materials.

With the adoption of the San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (MRP) by the San Francisco Bay Regional Water Quality Control Board on November 19, 2015, Provision C.12.f requires that permittees develop an assessment protocol methodology for managing materials with PCBs in applicable structures planned for demolition to ensure PCBs do not enter municipal storm drain systems.[38] Municipalities throughout the Bay Area are currently modifying demolition permit processes and implementing PCB screening protocols to comply with Provision C.12.f. As of July 1, 2019, buildings constructed between 1955 and 1978 that are proposed for demolition must be screened for the presence of PCBs prior to the issuance of a demolition permit.

4.9.2.2 Existing Conditions

Historic Uses

Beginning with the 1939 aerial photograph (aerial) the eastern portion of the Site was covered by agricultural orchards and the western portion of the Site was undeveloped. A narrow creek was visible extending north to south through approximately the center of the Site, creating the natural boundary between the two Site operations. A small residential structure was also apparent near the center of the Site. No other development was apparent. Site conditions remained consistent through the 1968 aerial.

The 1974 aerial depicted the Site being completely cleared of all agricultural orchards and residences, with no site improvements, and the Site appeared to be dirt covered.

Beginning with the 1982 aerial, the Site had been redeveloped as a commercial property. One commercial building was located on the Site. The buildings appears to be consistent with the current location and orientation of the current building. The remainder of the site appeared to be asphalt covered parking with landscaped areas. A road consistent with Walsh Avenue was visible along the northern Site boundary. On-Site conditions remained consistent through the 1998 aerial provided by EDR and the December 2005 aerial available on Google Earth.

The 2006 aerial depicted the previously described building still on-Site, and paved parking areas similar to previous aerial photographs; however, structures consistent with the current improvements (i.e liquid nitrogen and liquid argon storage areas to the southwest and southeast, respectively, and dust collection area to the southeast).

It does not appear that topographic contours in the Site area have significantly changed during the time period reviewed.

[38] California Regional Water Quality Control Board. *San Francisco Bay Region Municipal Regional Stormwater NPDES Permit.* November 2015.

Current Uses

The site is currently leased by Mia Sole for operation as a solar panel manufacturing facility. The property consists one one-story building, totaling approximately 111,585 square feet (assessor's parcel number 216-28-112) with loading docks in each end and exterior enclosures for propane, liquid nitrogen, and liquid argon/metallic dust storage. The exterior of the subject property consists of paved parking, landscaping, and concrete sidewalks.

On-Site Sources of Contamination

Residual Herbicide or Pesticide Contaminants

The project site and surrounding area has historically been used as agricultural land prior to the current industrial development; therefore, soils on-site could have residual herbicide or pesticide contaminants. In addition, the rail spur along the western boundary of the site may have involved the application of herbicide or pesticides and/or treated wood railroad ties.

Residual Chloroform

For the soil vapor samples, analyses detected no VOCs exceeding respective commercial ESLs, except chloroform at SP4. Although the source of the chloroform is unknown at this time, chloroform is often found as a laboratory contaminant, and the opinion of the author of the Phase II Site Investigation is that detected soil vapor concentrations do not represent a significant adverse impact to the planned data center use.

A review of federal, state, and local regulatory agency databases was completed to evaluate the likelihood of contamination incidents at and near the project site. The project site is not identified on any of the regulatory databases and is not on the Cortese list.[39]

Off-Site Sources of Contamination

The Phase I Site Assessment identified surrounding properties that were identified using an environmental data base search. Eight properties within a one mile radius of the site with a shared history of agricultural orchard operations have cited historical pesticide use as the source of elevated concentrations of arsenic, lead, and organochlorine pesticides in soil, which has led to ongoing oversight and management as well as land use restrictions.

[39] CalEPA. "Cortese List Data Resources." Accessed October 10, 2019. https://calepa.ca.gov/sitecleanup/corteselist.

Wildland Fire Hazards

The project site is located in an urban area and is not within a Very-High Fire Hazard Severity Zone for wildland fires. [40]

4.9.3 Environmental Impact Discussion

On December 17, 2015, the California Supreme Court issued an opinion in "CBIA vs. BAAQMD" holding that CEQA is primarily concerned with the impacts of a project on the environment and generally does not require agencies to analyze the impact of existing conditions on a project's future users or residents, with certain important exceptions. One of those exceptions is that environmental documents must consider potential noise and safety impacts on projects due to proximity to an airport, pursuant to Public Resources Code 21096.

4.9.3.1 Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

During the construction phase of the project, the only hazardous materials used would be paints, cleaners, solvents, gasoline, motor oil, welding gases, and lubricants. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with local, state, and federal requirements. Any impacts resulting from spills or other accidental releases of these materials would be limited to the site due to the small quantities involved and their infrequent use, hence reduced chances of release. Temporary containment berms would also be used to help contain any spills during the construction of the project.

During construction, all 44 diesel generator fuel tanks would have to be filled. The transportation of the diesel fuel to the site would take several tanker truck trips. Diesel fuel has a long history of being routinely transported and used as a common motor fuel. It is appropriate to rely upon the extensive regulatory program that applies to the shipment of hazardous materials on California highways and roads to ensure safe handling in general transportation (see Federal Hazardous Materials Transportation Law 49 USC § 5101 et seq., DOT regulations 49 C.F.R. subpart H, §§ 172–700, and California Department of Motor Vehicles (DMV) regulations on hazardous cargo). Thus, the transportation of diesel fuel would pose a less than significant risk to the surrounding public.

[40] Sources: 1) State of California Department of Forestry and Fire Protection. *Santa Clara County Fire Hazard Severity Zones in SRA.* Adopted November 7, 2007. and 2) State of California Department of Forestry and Fire Protection. *Santa Clara County Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE.* Adopted October 8, 2008.

Therefore, the routine transport, use or disposal of hazardous materials during construction would have a less than significant impact to the public or the environment. **(Less Than Significant Impact)**

Operations

During the operational phase of the project, diesel fuel would be stored on-site but the generators would only be filled to 95 percent capacity of its tank. The diesel fuel would be used during emergencies, testing, and maintenance. Each generator would be run once a month for up to 30 minutes with no load on the engine. The no load test would require the tanks to be refilled to 95 percent capacity approximately every three to five months. Each generator would also be required to run for a total of four hours per year, under maximum load, for yearly testing purposes.

CA3BGF would use Vantage's and industry standard practice for fuel quality and maintenance of stored diesel fuel. Standard practice includes that each engine would have a dual fuel filter system and that the fuel would be replenished after testing. The fuel water separators (a three bank system) would be the primary fuel filter. The secondary fuel filter, installed just before the fuel would be injected into the engine, would filter the fuel down to particles less than five microns in size. Routine replacement of the engine dual fuel filters would reduce any effects of fuel degradation on engine components and operation. Commercial diesel fuels also contain biocides that prevent microbial growth and additives that help to stabilize the fuel for several months. Additionally, the diesel fuel would be replenished with fresh fuel when needed to maintain 24 hours of emergency electrical capacity for the CA3DC.

The proposed diesel generators would use selective catalytic reduction (SCR) to meet Tier 4 requirements. The SCR works by injecting a liquid-reductant through a special catalyst into the exhaust stream of the diesel engine to reduce the amount of oxides of nitrogen in the final exhaust stream. The reductant, commonly called diesel exhaust fluid (DEF), is a non-hazardous solution of 67.5 percent water and 32.5 percent automotive grade urea, as is used for SCR on highway-going diesel transport trucks. DEF consumption would vary depending upon the environment, operation, and duty cycle of equipment. On average, DEF consumption would be 3 percent to 5 percent of diesel fuel consumption. DEF will be stored in 2, 55 gallon drums within each generator enclosure and fluid levels would be monitored and refilled as necessary.

With the above listed safety features and precautions, the risk to the off-site public or environment through the routine transport, use or disposal of hazardous materials would have a less than significant impact. **(Less than Significant Impact)**

4.9.3.2 Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

As described under the discussion for impact criterion a., project construction would require the limited use of hazardous materials, such as fuels, lubricants, and solvents. The storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials typically associated with minor spills or leaks. However, hazardous materials would be stored, handled, and used in accordance with applicable regulations. Personnel would be required to follow instructions on health and safety precautions and procedures to follow in the event of a release of hazardous materials. All equipment and materials storage would be routinely inspected for leaks. Records would be maintained for documenting compliance with the storage and handling of hazardous materials.

The limited subsurface investigation conducted during the Phase II Site Investigation found low levels of fuel-related VOCs, arsenic and chloroform, but at levels that are acceptable for the commercial development. Construction workers could be exposed to contaminated soil and or groundwater during excavation, grading, and construction activities.

The project applicant proposes Project Design Measure PD HAZ-1 (See Section 4.9.4) to ensure that ensure contaminated soil and or groundwater exposed during construction would result in less than significant impacts to construction workers and the public. With implementation of PD HAZ-1 the proposed project would result in a less than significant soil and groundwater contamination impacts. **(Less than Significant Impact with Mitigation Incorporated into the Project Design)**

Operations

The project would not create a significant hazard to the public or environment due to an accidental release of a hazardous material. Although a substantial quantity of diesel fuel would be stored on-site, its storage would be split among many separate tanks, with a portion of it stored in the double-walled belly tank beneath each generator, effectively limiting a worse case spill to the quantity held within one tank. Each tank is capable of holding 6,800 gallons of diesel fuel.

Each generator's integrated fuel tank would be of a double-walled high integrity design. The interstitial space between the inner and outer walls of each tank would be continuously monitored electronically for the presence of leaks through the inner wall. The monitoring system would be electronically linked to an alarm system in the security office that would alert personnel if a leak were detected in any of the inner tanks.

Deliveries of diesel fuel by tanker truck during the project's operation would be scheduled on an as needed basis. Diesel tanker trucks would use wheel chocks to

prevent the truck from moving before complete disconnection of the transfer lines. An emergency pump shut-off would be available in case a pump hose breaks during the fueling. In addition, a temporary spill catch basin would be located at the fill port of each belly tank during refilling. With the incorporation the design and handling features described above the project would not result in significant soil or groundwater impacts during operations. **(Less Than Significant Impact)**

4.9.3.3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

While the Bracher Elementary school is located within one-quarter mile south of the project site, the project would not emit hazardous emissions in quantities or concentrations that would cause health impacts (See Section 4.1, Air Quality), nor would it handle hazardous or acutely hazardous materials, substances or waste. In addition, the project would comply with all relevant laws and regulations in regards to hazardous materials, as discussed in Sections 4.9.3.1 and 4.9.3.2. While the project site may contain contaminated soil, unknown fill, groundwater and soil vapor from previous on- and off-site uses and spills, implementation of PD HAZ-1, which is incorporated into the project, would reduce impacts to less than significant. **(Less than Significant Impact)**

4.9.3.4 Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?

According to a review of the Envirostor and GeoTracker databases, the project site does not have any known, open cases on the hazardous materials sites compiled pursuant to Government Code section 65962.5.

Ground disturbing activities associated with the demolition of existing buildings, the removal of underground utilities, and construction of the project would have the potential to encounter contaminated soil. The contaminated soil could contain residual pesticides and herbicides from agricultural use or fuel-related VOCs and chloroform from industrial use. While not required to mitigate any impact, if contaminated soils are found, the project would halt construction and the soil would be treated in place or removed to an appropriate disposal facility in accordance with PD HAZ-1. Therefore, the construction of the project would create a less than significant impact to the public or the environment. **(Less Than Significant Impact)**

4.9.3.5 Would the project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?

The proposed project site is within two miles west of the Norman Y. Mineta San José International Airport, but is not within the area of influence, nor any of the safety hazard or noise influence areas identified in the Santa Clara County Comprehensive Land Use Plan (CLUP). Therefore none of the policies outlined in the CLUP apply and the project would not result in significant airport related impacts. **(Less than Significant Impact)**

4.9.3.6 Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The project would be constructed in accordance with current building and fire codes to ensure structural stability and safety in the event of a seismic or seismic-related hazard. In addition, the Fire Department would review the site development plans to ensure fire protection design features are incorporated and adequate emergency access is provided. For these reasons, the proposed project would not impair implementation of or physically interfere with the City's Emergency Operations Plan. **(Less than Significant Impact)**

4.9.3.7 Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project site is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones; therefore, the project would not result in wildfire impacts. **(No Impact)**

4.9.4 Mitigation Measures

No mitigation measures are necessary as the project has included the following Project Design Measure into the design of the Project

PD HAZ-1: The project will implement the following measures to would reduce potentially significant soil and or groundwater impacts to construction workers to a less than significant level.

- Prior to the issuance of grading permits, shallow soil samples shall be taken in areas where soil disturbance is anticipated to determine if contaminated soils with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division prior to initiation of work. Once the soil sampling analysis is complete, a report of the findings will be

provided to the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division and other applicable City staff for review.

- Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable Environmental Screening Levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements.
- A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include: 1) a detailed discussion of the site background; 2) a summary of the analytical results; 3) preparation of a Health and Safety Plan by an industrial hygienist; 4) protocols for conducting earthwork activities in areas where impacted soil and/or groundwater are present or suspected; 5) worker training requirements, health and safety measures and soil handing procedures shall be described; 6) protocols shall be prepared to characterize/profile soil suspected of being contaminated so that appropriate mitigation, disposal or reuse alternatives, if necessary, can be implemented; 7) notification procedures if previously undiscovered significantly impacted soil or groundwater is encountered during construction; 8) notification procedures if previously unidentified hazardous materials, hazardous waste, underground storage tanks are encountered during construction; 9) on-site soil reuse guidelines; 9) sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility; 10) soil stockpiling protocols; and 11) protocols to manage groundwater that may be encountered during trenching and/or subsurface excavation activities. Prior to issuance of grading permits, a copy of the SMP must be approved by the Santa Clara County Environmental Health Department, and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division.
- If contaminated soils are found in concentrations above risk-based thresholds pursuant to the terms of the SMP, remedial actions and/or mitigation measures will be taken to reduce concentrations of contaminants to levels deemed appropriate by the selected regulatory oversight agency for ongoing site uses. Any contaminated soils found in concentrations above thresholds to be determined in coordination with regulatory agencies shall be either 1) managed or treated in place, if deemed appropriate by the oversight agency or 2) removed and disposed of at an appropriate disposal facility according to California Hazardous Waste Regulations and applicable local, state, and federal laws.

4.9.5 Governmental Agencies

The City of Santa Clara Fire Prevention/Hazardous Materials Division is the agency responsible for regulating potential hazards discussed above under its Comprehensive Unified Agency Program (CUPA) status and will review the project plans during the City of Santa Clara's permit review process and conduct inspections during construction.

4.10 HYDROLOGY AND WATER QUALITY

4.10.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hydrology and Water Quality				
Would the project:				
1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
- result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
- substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
- impede or redirect flood flows?	☐	☐	☒	☐
4) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
5) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

4.10.2 Environmental Setting

4.10.2.1 Regulatory Framework

Water Quality

The federal Clean Water Act and California's Porter-Cologne Water Quality Control Act are the primary laws related to water quality in California. Regulations set forth by the U.S. Environmental Protection Agency (EPA) and the State Water Resources Control Board (SWRCB) have been developed to fulfill the requirements of this legislation. EPA regulations include the National Pollutant Discharge Elimination System (NPDES) permit program, which controls sources that discharge pollutants into the waters of the United States (e.g., streams, lakes, bays, etc.). These regulations are implemented at the regional level by the Regional Water Quality Control Boards (RWQCBs). These regulations are implemented at the regional level by water quality control boards, which for the Santa Clara area is the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Federal

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) established the National Flood Insurance Program (NFIP) in order to reduce impacts of flooding on private and public properties. The program provides subsidized flood insurance to communities that comply with FEMA regulations protecting development in floodplains. As part of the program, FEMA publishes Flood Insurance Rate Maps (FIRM) that identify Special Flood Hazard Areas (SFHA). An SFHA is an area that would be inundated by the one-percent annual chance flood, which is also referred to as the base flood or 100-year flood.

State

Statewide Construction General Permit

The SWRCB has implemented a NPDES General Construction Permit for the State of California (Construction General Permit). For projects disturbing one acre or more of soil, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) must be prepared by a qualified professional prior to commencement of construction. The Construction General Permit includes requirements for training, inspections, record keeping, and for projects of certain risk levels, monitoring. The general purpose of the requirements is to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges.

Regional

San Francisco Bay Basin Plan

The San Francisco Bay RWQCB regulates water quality in accordance with the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The Basin Plan lists the beneficial uses that the San Francisco Bay RWQCB has identified for local aquifers, streams, marshes, rivers, and the San Francisco Bay, as well as the water quality objectives and criteria that must be met to protect these uses. The San Francisco Bay RWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements, including permits for nonpoint sources such as the urban runoff discharged by a City's stormwater drainage system. The Basin Plan also describes watershed management programs and water quality attainment strategies.

Municipal Regional Stormwater Permit

The San Francisco Bay RWQCB has issued a Municipal Regional Stormwater NPDES Permit[41] (MRP) to regulate stormwater discharges from municipalities and local agencies (co-permittees) in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the cities of Fairfield, Suisun City, and Vallejo.

Provision C.3 – New Development and Redevelopment

Under Provision C.3 of the MRP, new and redevelopment projects that create or replace 10,000 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). The MRP also requires that stormwater treatment measures are properly installed, operated and maintained.

In addition to water quality controls, the MRP requires all new and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation or other impacts to beneficial uses of local rivers, streams, and creeks. Projects may be deemed exempt from these requirements if they do not meet the size threshold, drain into tidally influenced areas or directly into the Bay, drain into hardened channels, or are infill projects in subwatersheds or catchment areas that are greater than or equal to 65 percent impervious.

[41] MRP Number CAS612008

Provision C.12 – PCBs Controls

Provision C.12 of the MRP requires the co-permittee agencies to implement a control program for polychlorinated biphenyls (PCBs) that reduces PCBs loads by a specified amount during the term of the permit, thereby making substantial progress toward achieving the urban runoff PCBs wasteload allocation in the Basin Plan by March 2030.[42] The program must include focused implementation of PCBs control measures (source control, treatment control, and pollution prevention strategies) through a collaborative effort. One of the strategies that has been recently adopted by municipalities region-wide is the updating of their building demolition permitting processes to incorporate the management of PCBs in building materials. The goal is to ensure that PCBs are not discharged to storm drains during demolition of buildings that contain PCBs in building materials (such as certain older caulks, paints, and mastics).

The Bay Area Stormwater Management Agencies Association (BASMAA) is assisting Bay Area municipalities to comply with these new stormwater permit building demolition requirements.

Santa Clara Valley Water District

The Santa Clara Valley Water District (Valley Water) operates as the flood control agency for Santa Clara County. Their stewardship also includes creek restoration, pollution prevention efforts, and groundwater recharge. Permits for well construction and destruction work, most exploratory boring for groundwater exploration, and projects within Valley Water property or easements are required under Valley Water's Water Resources Protection Ordinance and District Well Ordinance.

Impaired Surface Water Bodies

Under Section 303(d) of the 1972 Clean Water Act, states are required to identify impaired surface water bodies and develop total maximum daily loads (TMDLs) for contaminants of concern.[43] The TMDL is the quantity of pollutant that can be safely assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the water body cannot support the beneficial uses; rather, the intent is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for future water quality degradation. The Guadalupe River is listed as an impaired waterbody in the U.S. EPA's Section 303(d) Listed Waters for California. The source of impairment is

[42] San Francisco Bay RWQCB, Municipal Regional Stormwater Permit, Provision C.12. November 19, 2015.
[43] California State Water Resources Control Board. Total Maximum Daily Load Program. Available at: < http://www.swrcb.ca.gov/water_issues/programs/tmdl/303d_lists2006_approved.shtml>. Accessed October 25, 2019.

attributed to urban runoff/storm sewers, mine tailings, and illegal dumping. The contaminants listed include diazinon, mercury and trash.[44]

National Flood Insurance Program

The National Flood Insurance Program (NFIP) makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The Federal Emergency Management Agency (FEMA) manages the NFIP and creates Flood Insurance Rate Maps (FIRMs) that designate 100-year flood hazard zones and delineate other flood hazard areas. A 100-year flood hazard zone is the area that has a one in one hundred (i.e., one percent) chance of being flooded in any one year based on historical data.

Santa Clara General Plan

General Plan policies related to hydrology and water quality and applicable to the project include the following.

Policy 5.10.5-P11: Require that new development meet stormwater and water management requirements in conformance with state and regional regulations.

Policy 5.10.5-P13: Require that development complies with the Flood Damage Protection Code.

Policy 5.10.5-P15: Require new development to minimize paved and impervious surfaces and promote on-site Best Management Practices for infiltration and retention, including grassy swales, pervious pavement, covered retention areas, bioswales, and cisterns, to reduce urban water run-off.

Policy 5.10.5-P16: Require new development to implement erosion and sedimentation control measures to maintain an operational drainage system, preserve drainage capacity and protect water quality.

Policy 5.10.5-P17: Require that grading and other construction activities comply with the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control Measures and with the California Stormwater Quality Association, Stormwater Best Management Practice Handbook for Construction.

Policy 5.10.5-P18: Implement the Santa Clara Valley Nonpoint Source Pollution Control Program, Santa Clara Valley Urban Runoff Pollution Prevention Program and the Urban Runoff Management Plan.

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[44] U.S. EPA. *California 303(d) Listed Waters for Reporting Year 2010.* December 2010. Available at: < http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml> Accessed on October 25, 2019.

Policy 5.10.5-P20: Maintain, upgrade and replace storm drains in the City to reduce potential flooding.

Policy 5.10.5-P21: Require that storm drain infrastructure is adequate to serve all new development and is in place prior to occupancy.

Santa Clara City Code

Chapter 13.20, Storms Drains and Discharges, of City Code is enacted for the protection of health, life, resources and property through prevention and control of unauthorized discharges into watercourses. The primary goal of this chapter is the cleanup of stormwater pollution from urban runoff that flows to creeks and channels, eventually discharging into the San Francisco Bay. The City Code also includes Flood Damage Prevention Code (Chapter 15.45) and requirements for grading and excavation permits and erosion control (Chapter 15.15).

4.10.2.2 Existing Conditions

Flooding

According to the FEMA's Flood Insurance Rate Map, the project site is located within Zone X,[45] with a 0.2 percent Annual Chance Flood Hazard designation, and Areas of 1 percent chance of flood with average depth less than 1 foot or of drainage areas of less than 1 square mail. The existing elevation is approximately 46 feet above mean sea level (msl).

Inundation Hazards

The proposed project site is located approximately 2-1/4 miles southwest of the Guadalupe River and approximately 1/4 mile west of the San Tomas Aquino Creek. There are no dams or levee systems in the project area.

In the ocean, seismically-induced waves are caused by displacement of the sea floor by a submarine earthquake and are called tsunamis. Seiches are waves produced in a confined body of water such as a lake or reservoir by earthquake ground shaking or land sliding. Seiches are possible at reservoir, lake or pond sites. The project area is not subject to inundation from a seiche, tsunami, or mudflow.[46]

[45] Federal Emergency Management Agency, Flood Insurance Rate Map, Community Panel No. 06085C0226H, May 18, 2009.
[46] Association of Bay Area Governments, San Francisco Bay Area Hazards, July 12, 2018.

Storm Drainage

The City of Santa Clara owns and maintains the municipal storm drainage system in the project vicinity. Stormwater on site currently drains to an on-site catch basin or drains as sheet flow towards the storm drainage system on Lafayette Street. The runoff eventually empties into the Guadalupe River and flows into the San Francisco Bay.

Groundwater

The project site is located within the Santa Clara Valley groundwater basin and the Santa Clara sub-basin.[47,48] The site is within the Santa Clara Plain Confined Area and is not within an area used for in-stream or other groundwater recharge.[49] Based on cone penetration testing performed during the soil borings completed for the Limited Preliminary Geotechnical Investigation (refer to Appendix D-2), depth to groundwater in the area can range from approximately 4 to 10 feet below ground surface (bgs) and flows in a northeasterly direction. The depth to groundwater can vary due to factors such as variations in rainfall, temperature, runoff, irrigation, and groundwater withdrawal and/or recharge. The regional topographic gradient is generally north northeast towards the bay.

4.10.3 Environmental Impact Discussion

4.10.3.1 Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The CA3DC would create or replace more than 10,000 square feet of impervious surface area and, therefore, is classified as a Regulated Project under the MRP's Provision C.3, meaning it is subject to the LID source control, site design and stormwater treatment control requirements of Provision C.3. The CA3DC would include stormwater quality best management practices (BMPs) such as directing site runoff into bioswales and replacing a portion of the existing paved parking area with pervious pavement (turf block). In addition, the use of beneficial landscaping (i.e., minimizing irrigation, pesticides and fertilizer application) would be implemented. These measures are consistent with the site design, treatment control and source control requirements of Provision C.3.

Implementation of the project would disturb approximately 6-1/2 acres. Therefore, requirements under the City's MRP would apply to the project. Construction activities could generate dust, sediment, litter, oil, and other pollutants that could temporarily contaminate water runoff from the site. The City of Santa Clara has developed Standard

[47] California Department of Water Resources. *A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins.* May 2003. Figure 9.
[48] Santa Clara Valley Water District. Groundwater Management Plan. 2012.
[49] Santa Clara Valley Water District. Groundwater Management Plan. 2012.

Permit Conditions based on the RWQCB BMPs to reduce construction-related water quality impacts. The CA3DC would include Project Design Measure PD HYD-1 to avoid or reduce construction-related water quality impacts to less than significant level. **(Less Than Significant Impact with Mitigation Incorporated into the Project Design)**

4.10.3.2 Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project does not propose to pump groundwater or install groundwater extraction wells. In addition, the project site is not within an area used for groundwater recharge. For these reasons, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. **(Less Than Significant Impact)**

4.10.3.3 Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows?

The project would not alter the course of a stream, river, or other waterway. As discussed under Impact HYD-1, the CA3DC would not result in an increase in surface runoff from the site compared to existing conditions. As a result, no off-site flooding would occur. In addition, as discussed Section 4.10.3.1, the project would implement best management practices to reduce stormwater runoff water quality impacts to a less than significant level. **(Less than Significant Impact)**

Impervious and Pervious Surfaces

The CA3DC drainage infrastructure would include overland stormwater management basins and would connect to the existing City of Santa Clara storm drain system. Bioretention areas would be installed in on-site landscape areas as part of the CA3DC, which would help to detain stormwater runoff and infiltrate water into the soil. Additional C.3/post-construction measures, such as directing runoff to vegetated swales, would be implemented. On-site drainage facilities would be designed to meet City of Santa Clara standards and would drain to the existing storm drain system.

Table 4.10-1 below shows the differences in impervious and pervious cover between the proposed project and existing conditions. The current site includes 86 percent

impervious cover and the proposed project would include 86 percent impervious cover; therefore, the impervious area amount would remain constant.

Table 4.10-1: Pervious/Impervious Surfaces

	Impervious (sf)	Pervious (sf)	Total Area (sf)	Percent Impervious
Existing	251,006	40,610	291,616	86%
Proposed	251,383	40,233	291,616	86%

Since the CA3DC would not lead to an increase in the amount of pervious surface on the site, the CA3DC would not alter the overall amount of runoff that leaves the site and enters the existing storm drain system. The CA3DC would, therefore, not contribute runoff water that would exceed the capacity of the existing City of Santa Clara stormwater drainage systems. **(Less than Significant Impact)**

4.10.3.4 Would the project risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones?

Flooding, Tsunami and Seiche

A portion of the project site is located within Flood Zone AH, which has a one percent annual chance of shallow flooding. In response, the elevation of the CA3BGF and the first floor elevations of the CA3DC would conform to the City's Flood Damage Prevention Code by being elevated to/above the base flood elevation, ensuring that the proposed facilities do not flood. Hazardous materials on-site would be stored and contained in accordance with regulations to prevent accidental release (refer to Section 4.9 for additional details). For this reason, the project would not risk release of pollutants due to project flooding. Additionally, as discussed in Section 4.10.1.2, the project area is not subject to inundation from a seiche, tsunami, or mudflow.

Dam Inundation Hazards

The project area is within the dam failure inundation area for Lexington Reservoir (Lenihan Dam).[50] Lexington Reservoir is maintained by the Santa Clara Valley Water District (SCVWD) and the dam is continuously monitored for seepage and settling and inspected when an earthquake occurs. Due to the inspection and monitoring program, the distance from the site, and the nature of the on-site uses, proposed site improvements are not anticipated to result in a new substantial hazard from dam failure. While inundation resulting from dam failure could result in damage to structures, the

[50] Santa Clara Valley Water District. *Lenihan (Lexington) Dam 2016 Flood Inundation Maps*. 2016. Accessed: March 12, 2021. https://www.valleywater.org/sites/default/files/Lexington%20Dam%20Inundation%20Map%202016.pdf

probability of such a failure is extremely remote. The project, therefore, would not be subject to a significant risk of inundation from dam failure.

For the reasons described above, the project would have a less than significant impact. **(Less than Significant Impact)**

4.10.3.5 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed under Impact HYD-1, the project would comply with applicable water quality control regulations and would not substantially decrease groundwater supplies or interfere with groundwater recharge. **(Less than Significant Impact)**

4.10.4 Mitigation Measures

No mitigation measures are necessary as the project applicant has incorporated the following Project Design Measure into the design of the project.

PD HYD-1: The CA3DC will incorporate the following into the design and these measures should be treated as mitigation incorporated into the project. The following will reduce construction-related water quality impacts:

- Burlap bags filled with drain rock shall be installed around storm drains to route sediment and other debris away from the drains.
- Earthmoving or other dust-producing activities shall be suspended during periods of high winds.
- All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary.
- Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered.
- All trucks hauling soil, sand, and other loose materials shall be required to cover all trucks or maintain at least two feet of freeboard.
- All paved access roads, parking areas, and staging areas adjacent to the construction sites shall be swept daily (with water sweepers).
- Vegetation in disturbed areas shall be replanted as quickly as possible.
- All unpaved entrances to the site shall be filled with rock to knock mud from truck tires prior to entering City streets. A tire wash system may also be employed at the request of the City.

4.10.5 Government Agencies

The City of Santa Clara is the only agency with regulatory authority over the hydrology and water quality related effects of the project. The City of Santa Clara will ensure compliance with its requirements during its permit review and implementation process.

4.11 LAND USE AND PLANNING

4.11.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Land Use and Planning				
Would the project:				
1) Physically divide an established community?	☐	☐	☐	☒
2) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

4.11.2 Environmental Setting

4.11.2.1 Regulatory Framework

General Plan Land Use Designation

The Land Use Diagram of the 2010-2035 General Plan contains three phases: Phase 1: 2010-2015, Phase II: 2015-2025, and Phase III: 2025-2035. The project site is designated as Light Industrial and would retain its designation for Phases I and II through 2025. The Light Industrial classification is intended to accommodate a range of light industrial uses including general service, warehousing, storage, distribution and manufacturing. It includes "flexible space, such as buildings that allow combinations of single and multiple users, warehouses, mini-storage, wholesale, bulk retail, gas stations, data centers, indoor auto-related uses and other uses that require large, warehouse-style buildings". The maximum FAR is 0.60.

Zoning Designation

Under the City's current Zoning Ordinance, the Site is zoned ML—Light Industrial Zoning. This district is intended to provide an optimum general industrial environment, and it is intended to accommodate industries operating substantially within an enclosed building. Such permitted uses may not be objectionable or detrimental to adjacent properties because of signing, noise, smoke, odor, dust, noxious gases, vibrations, glare, heat, fire hazards, or industrial wastes emanating from the property. (Zoning Ordinance § 18.48.020.).

The maximum permitted building height within this zone is 70 feet. The City's Zoning Code defines height of buildings as the vertical distance from the adjacent ground elevation "to the highest point of the coping of a flat roof…" (City of Santa Clara 2019,

§§ 18.06.010, subd. (h)(1); 18.48.070). The Zoning Administrator has the authority to permit a "minor modification" to the building height regulation so long as the increase does not exceed 25 percent of the zoning district's permitted maximum height. The height of mechanical equipment and any accompanying screening is subject to architectural committee approval (City of Santa Clara 2019, §§ 18.90.020, subd. (a); 18.48.140, subd.(f)).

Norman Y. Mineta San José International Airport

The proposed project site is approximately 1-3/4 miles west of the Norman Y. Mineta San José International Airport (Airport) and is not located within the Airport Influence Area (AIA) defined by the Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan (CLUP) for the Airport.

4.11.2.2 Existing Conditions

The project area consists primarily of commercial and industrial land uses to the north and east and residential uses to the south and west. Buildings in the area to the north are similar in height and scale to the existing building on the project site. Buildings to the east are similar in height and scale to the proposed CADC building.

The project site is designated as Light Industrial in the General Plan and is zoned ML-Light Industrial. The surrounding land uses are designated to the north as High Intensity Office/R&D, to the south as Medium and Low Density Residential, to the west and east as Light Industrial.

4.11.3 Environmental Impact Discussion

4.11.3.1 Would the project physically divide an established community?

The project site is located in a light industrial and commercial area surrounded by industrial development and office uses and residential uses south of the CalTrain railroad. The project would be constructed and operated on a single parcel of land. The parcel boundaries would remain the same, and the project would be consistent with previous uses. No changes are proposed involving construction of new off-site facilities that could physically divide the community (e.g., blocking of roadways or sidewalks) and would not interfere with the movement of residents through a neighborhood. Therefore, project construction, operation and maintenance activities would not physically divide an established community, and no impact would occur. **(No Impact)**

4.11.3.2 Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Consistency with Applicable Local Plans, Policies, and Regulations

City of Santa Clara General Plan

The project site is designated Light Industrial and would retain its designation until 2025 at which time the project would have obtained its entitlements and begun construction. The Light Industrial classification specifically allows data centers. Therefore, the proposed project is consistent with the General Plan.

The proposed FAR of the CA3DC, 1.61, is greater than the maximum FAR of 0.60 identified in the General Plan for the Light Industrial land use classification. While the CA3DC is not strictly consistent with this component of the land use classification, the maximum FAR described in the General Plan is not a policy adopted for the purpose of avoiding or mitigating an environmental effect. Because the FAR is not such a policy, the project's FAR is not deemed a significant environmental impact. The City has approved data centers and other industrial projects with FARs greater than identified by the General Plan designations because the City treats the FAR as a guideline rather than as a strict policy. Specifically, the City has made findings that FAR overages are supported because data centers have very low employee density compared to other uses, which results in less trips, better jobs/housing balance, and economic benefits to the City. Vantage has been working closely with the City of Santa Clara and believes that the CA3DC project FAR will be acceptable to the City of Santa Clara.

Noise and lighting levels associated with the proposed project are not anticipated to adversely affect adjacent properties. The proposed project, therefore, would not introduce a land use to the site that would create a land use compatibility conflict in the project area.

City of Santa Clara Zoning Code

The Zoning Code grants the City Zoning Administrator the authority to permit minor modifications of height, area, and yard regulations. A "minor modification" cannot be greater than 25 percent of the dimensions of an area, space, or height, or other requirement provided for in the Zoning Code (City of Santa Clara 2019, § 18.90.020, subd. (a)). The Zoning Code also provides that where a proposed alteration or variation exceeds 25 percent of any requirement, the modification is deemed to be a variance, which requires approval by the Planning Commission at a noticed public hearing (City of Santa Clara 2019, §§ 18.90.020, subd. (a)(5); 18.108.030).

The proposed site arrangement provides setback areas on all sides of the project site that exceed minimum yard depths specified in the Zoning Code, but not beyond the 25% threshold.

Maximum permitted building height in the ML zoning district is 70 feet (City of Santa Clara 2019, § 18.48.070). As stated above, height of buildings is defined as the vertical distance from the adjacent ground elevation "to the highest point of the coping of a flat roof…" (City of Santa Clara 2019, § 18.06.010, subd. (h)(1)). The data center building would have a typical height of 87.5 feet from adjacent grade to the top of the parapet.[51]

The proposed building height would be a 25 percent exceedance, which is within the 25 percent limit the Zoning Administrator can grant as a minor modification to the regulation. Thus, if the Zoning Administrator grants the minor modification to the regulation to allow the 25 percent exceedance, the project would conform to the regulation limiting height of buildings in the ML zoning district, and no conflict would occur.

The Zoning Code regulates additional development standards for the ML zoning district. The height of mechanical equipment and any accompanying screening is subject to architectural committee approval (City of Santa Clara 2019, § 18.48.140, subd. (f)). The service elevator will have a penthouse that will be 112.7 feet. The project would include a rooftop penthouse, the top of which would be 112.7 feet. The roof top mechanical equipment will be mounted on a dunnage platform. The dunnage platform will have a screen wall around the mechanical equipment. The height to the top of the mechanical screen wall will be 104.8 feet. The Zoning Code's Special Height Regulations specify additional requirements, conditions, and exceptions for height limits. "[T]he height limitations contained in the schedule of district regulations do not apply to spires, belfries, cupolas, antennas, water tanks, ventilators, chimneys, or other mechanical appurtenances usually required to be placed above the roof level and not intended for human occupancy or to be used for any commercial or advertising purposes" (City of Santa Clara 2019, § 18.64.010, subd. (a)). Therefore, the heights and screening for the mechanical equipment and the penthouse would conform to the City's Special Height Regulations.

A few purposes of a height limit are to preserve a scenic vista, protect the public view of a scenic resource, and to maintain the character of a site and surrounding area. As analyzed in section 4.1 of this Application, the project would not significantly affect a scenic vista or scenic resources, and inclusive of the minor modification in allowable building height, the project would maintain the character of the site and surrounding area without causing a conflict with applicable zoning and other regulations governing scenic quality.

[51] The parapet refers to that part of a perimeter wall immediately adjacent to a roof and extending above the roof. As a roofing term, coping is a protective cover on top of the wall that is typically slanted or curved to shed water.

The proposed project, therefore, would not conflict with the City's General Plan or Zoning Ordinance. For all the reasons listed above, the project would not conflict with any land use plans, policies, or regulations; therefore, the project would have a less than significant impact. **(Less than Significant Impact)**

4.11.4 Mitigation Measures

No mitigation measures are required.

4.11.5 Governmental Agencies

The City of Santa Clara is the land use and planning authority and will implement its requirements as part of its permit process.

4.12 MINERAL RESOURCES

4.12.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mineral Resources				
Would the project:				
1) Result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state?	☐	☐	☐	☒
2) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.12.2 Environmental Setting

4.12.2.1 Regulatory Framework

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) was enacted by the California Legislature in 1975 to address the need for a continuing supply of mineral resources, and to prevent or minimize the negative impacts of surface mining to public health, property and the environment. As mandated under SMARA, the State Geologist has designated mineral land classifications in order to help identify and protect mineral resources in areas within the state subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board, after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance.

4.12.2.2 Existing Conditions

The City of Santa Clara is located in an area zoned MRZ-1 for aggregate materials by the State of California. MRZ-1 zones are areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. The area is not known to support significant mineral resources of any type. No mineral resources are currently being extracted in the City. The State Office of Mine Reclamation's list of mines (AB 3098 list) regulated under the Surface Mining and Reclamation Act does not include any mines within the City.

4.12.3 Environmental Impact Discussion

4.12.3.1 Would the project result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state?

The project site does not contain any known or designated mineral resources. The project, therefore, would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state. **(No Impact)**

4.12.3.2 Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The project site is not delineated in the General Plan or other land use plan as a locally important mineral resource recovery site. For this reason, the project would not result in the loss of availability of locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. **(No Impact)**

4.12.4 Mitigation Measures

No mitigation measures are necessary.

4.12.5 Government Agencies

No governmental agencies with regulatory authority over mineral resources are affected by the project.

4.13 NOISE AND VIBRATION

The following discussion is based, in part, on a Noise Assessment Report prepared by Ramboll US Consulting, Inc. in March, 2021, which is included as Appendix F to this application.

4.13.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Noise and Vibration				
Would the project:				
1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
2) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

4.13.2 Environmental Setting

4.13.2.1 Introduction

Noise

Noise is sometimes defined as unwanted sound, and the terms noise and sound are used more or less synonymously in this exhibit. The human ear responds to a very wide range of sound intensities. The decibel scale (dB) used to describe sound is a logarithmic rating system which accounts for the large differences in audible sound intensities. Using this scale, changes in noise levels are perceived as follows: 3 dBA as barely perceptible, 5 dBA as readily perceptible, and 10 dBA as a doubling or halving of noise. Therefore, a 70-dB sound level will sound about twice as loud as a 60-dB sound level. People generally cannot detect differences of 1 to 2 dB in a complex acoustical environment.

On the logarithmic scale used to measure noise, a doubling of sound-generating activity (i.e., a doubling of the sound energy) causes a 3-dB increase in average sound produced by that source, not a doubling of the loudness of the sound (which requires a 10-dB increase). For example, if traffic on a road is causing a 60-dB sound level at a

nearby location, a doubling of the number of vehicles on this same road would cause the sound level at this same location to increase to 63 dB. Such an increase might not be discernible in a complex acoustical environment.

When addressing the effects of noise on people, it is necessary to consider the frequency response of the human ear, or those frequencies that people hear the best. Sound measuring instruments are therefore often designed to "weight" sounds based on the way people hear. The frequency weighting most often used to evaluate environmental noise is A weighting because it best reflects how humans perceive sound. Measurements from instruments using this system, and associated noise levels, are reported in "A weighted decibels," or dBA.

For any noise source, several factors affect the efficiency of sound transmission traveling from the source, which in turn affects the potential noise impact at off-site locations. Important factors include distance from the source, frequency of the sound, absorbency and roughness of the intervening ground (or water) surface, the presence or absence of obstructions and their absorbency or reflectivity, and the duration of the sound. Table 4.13-1 presents typical sound levels of some familiar noise sources and activities. (Caltrans, 2013).

Table 4.13-1 – Typical Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Larger business office
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, larger conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, p. 2-20, September 2013.

Although a measured A-weighted noise level will adequately indicate the level of environmental noise at any instant in time, community noise levels typically vary continuously. Several noise descriptors have been developed to characterize community noise by accounting for the total acoustical energy content of the noise over defined periods of time. The noise descriptors used in this evaluation that consider noise levels over time are the Equivalent Sound Level (Leq), the Community Noise Equivalent Level (CNEL), and the Day-Night Sound Level (Ldn). These metrics are described below.

The Leq is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. That is, an Leq is a single number representing the level of a constant sound containing the same amount of sound energy as the varying sound levels over a specific period. Thus, the

Leq is the "energy average" noise level for the measurement time interval. The Leq can be measured for any time period but is typically measured for one hour. It is the energy sum of all the events and background noise levels that occur during that time period.

The CNEL is the predominant noise descriptor in use in California for land use compatibility assessments and represents a time-weighted 24-hour average noise level based on hourly Leqs measured (or calculated) in A-weighted decibels. Time-weighted refers to the fact that the CNEL adds a 5-dBA penalty to noise occurring during evening hours from 7 PM to 10 PM, and a 10-dBA penalty to sounds occurring between the hours of 10 PM to 7 AM, to account for the increased sensitivity to noise events that occur during the late evening and nighttime periods.

The Ldn is similar to the CNEL but does not include the 5-dBA penalty to the evening hours between 7 PM and 10 PM. The Ldn is widely used in the US to compensate for the increased undesirability of noise during sleep periods.

Groundborne Vibration Fundamentals

Equipment that strikes the ground or uses vibration to compact soil produces vibrational waves, called groundborne vibration, that radiate along the surface of the earth and downward into the earth, potentially resulting in effects that range from annoyance to structural damage. As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate by a few ten-thousandths to a few thousandths of an inch. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate or velocity of particle movement is the commonly accepted descriptor of the vibration “strength.” This is referred to as the peak particle velocity (ppv) and is typically measured in inches per second.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High frequency vibrations reduce much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level, however, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people

who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

4.13.2.2 Regulatory Framework

State and Local

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) has published several documents characterizing assessment procedures and impact criteria related to traffic noise and groundborne vibration. Caltrans published the "*Technical Noise Supplement*" in 2013, which describes the measurement, modeling, and noise impact assessment procedures for evaluating noise from traffic. The document states the following, "Changes in noise levels are perceived as follows: 3 dBA as barely perceptible, 5 dBA as readily perceptible, and 10 dBA as a doubling or halving of noise."

Caltrans has also provided guidance on the evaluation and impact criteria related to groundborne vibration, as documented in the "*Transportation and Construction Vibration Guidance Manual*"[52]. The manual provides guidelines to assess the potential for annoyance and potential damage to structures, see Table 4.13-2.

52 California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Manual. Available online at: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf

Table 4.13-2 Reaction of People and Damage to Buildings, PPV (in/sec)

Vibration Level Peak Particle Velocity PPV (in/sec)	Human Reaction	Effect on Buildings
0.006-0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic but would cause "architectural" damage and possibly minor structural damage. At 0.5 PPV possible cosmetic structural damage to buildings built of reinforced concrete, steel or timber.

Santa Clara General Plan

The City of Santa Clara General Plan contains goals and policies that are designed to control noise within the city. In addition, the General Plan identifies noise and land use compatibility standards for various land uses. Table 4.13-3 includes acceptable noise levels for various land uses.

The City of Santa Clara General Plan Noise Element also includes goals to minimize impacts in the community; to protect sensitive land uses from noise intrusion; and to consider noise levels in consideration of land use proposals. General Plan Noise Element policies intended to implement those policies that apply to the analysis of impacts associated with proposed project are presented below.

Policy 5.10.6-P1. Review all land use development proposal for consistency with the General Plan compatibility standards and acceptable noise exposure levels defined on Table 8.

Policy 5.10.6-P2. Incorporate noise attenuation measures for all projects that have noise exposure levels greater than General Plan "normally acceptable" levels, as defined on Table 8.

Policy 5.10.6-P3. New development should include noise control techniques to reduce noise to acceptable levels, including site layout (setbacks, separation and shielding), building treatments (mechanical ventilation system, sound-rated windows, solid core doors and baffling) and structural measures (earthen berms and sound walls).

Policy 5.10.6-P4. Encourage the control of noise at the source through site design, building design, landscaping, hours of operation and other techniques.

Policy 5.10.6-P5. Require noise-generating uses near residential neighborhoods to include solid walls and heavy landscaping along common property lines, and to place compressors and mechanical equipment in sound-proof enclosures.

Table 4.13-3 - General Plan Noise Standards

Noise and Land Use Compatibility (Ldn & CNEL)								
Land Use	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**
Residential								
Educational								
Recreational								
Commercial								
Industrial								
Open Space								
	Compatible							
	Require Design and insulation to reduce noise levels							
	Incompatible. Avoid land use except when entirely indoors and interior noise level of 45 Ldn can be maintained.							
Source: City of Santa Clara General Plan Appendix 8.14 Noise. Table 8.14-1								

Santa *Clara* City Code (SCCC)

The City's noise ordinance is codified in Chapter 9.10, Regulation of Noise and Vibration, of the SCCC. The noise ordinance requires protection from unnecessary, excessive, and unreasonable noise or vibration from fixed sources in the community. Specifically, SCCC Section 9.10.40 states that it is unlawful for a fixed noise source on an originating property to produce sound levels on any other property that exceed the maximum sound levels shown in Table 4.13-4.

Table 4.13-4 - City of Santa Clara Noise Limits

Receiving Zone Zoning Category	Time Period	Noise Level (dBA)
Category 1 and Category 2		
Single Family and duplex residential (R1, R2); Multiple-family residential, public space (R3, B)	7 AM to 10 PM	55
	10 PM to 7 AM	50
Category 3		
Commercial Office (C, O)	7 AM to 10 PM	65
	10 PM to 7 AM	60
Category 4		
Light Industrial (MI, MP)	Anytime	70
Heavy Industrial (MH)	Anytime	75

Source: SCCC Section 9.10.040

Notes: Except as otherwise provided in this chapter, the noise or sound standards for the various zone districts as presented in the above table shall apply to all such properties within a specified zone, as designated on the most recent update of the official zoning map of the City. For planned development, agricultural or mixed zoning site, the most restrictive noise standard for the comparable zone district, as determined by the Director of Planning and Inspection, shall apply.

Section 9.10.060(c) states that if the measured ambient noise level differs from those levels set forth in SCCC Section 9.10.040, the allowable noise standard should be "adjusted in five dBA increments in each category as appropriate to encompass or reflect said ambient noise level".

Section 9.10.070(a) exempts "emergency generators and pumps or other equipment necessary to provide services during an emergency."

SCCC Section 9.10.050 provides vibration standards and states that, "it shall be unlawful for any person to operate or cause, permit, or allow the operation of, any fixed source of vibration of disturbing, excessive, or offensive vibration on property owned, leased, occupied, or otherwise controlled by such person, such that the vibration originating from such source is above the vibration perception threshold of an individual at the closest property line point to the vibration source on the real property affected by the vibration."

4.13.2.3 Existing Conditions

To characterize the background noise environment in the project vicinity, Ramboll measured the ambient sound levels at four locations in the project vicinity representative of the nearest sensitive receivers to the site. The measurements were taken using Type I sound level meters, with microphones placed in acoustically neutral wind screens positioned approximately five feet above ground. The meters were factory calibrated within the previous 12 months and were field calibrated immediately prior to use.

One long-term, 24-hour measurement was taken on the southern boundary of the project site from February 8, 2021 to February 9, 2021. This location is representative of the existing noise environment at the second-floor residences directly across the CalTrain line from the measurement location with direct line-of-sight to trains. A summary of the long-term noise measurement results is provided in Table 4.13-5. The long-term sound level measurement location is displayed in Figure 4.13-1

Table 4.13-5 - Long-Term Noise Monitoring Results in the Project Vicinity (dBA)

SLM	Date	Range of Leqs			Ldn/CNEL
		Day	Evening	Night	
LT-1	2/8 – 2/9/2021	57 - 60	57 - 64	45-59	62/63
Source: Ramboll, 2021					

The long-term measurement was supplemented by short-term (10-minute) measurements at three additional locations representing nearby sensitive receivers. At each short-term location, measurements were taken during the day, evening, and nighttime hours. Table 4.13-6 provides a summary of the short-term noise measurement results, and the short-term sound level measurement locations are displayed in Figure 4.13-1.

Table 4.13-6 - Short-Term Noise Monitoring Results in the Project Vicinity (dBA)

SLM	Time	Date	Leq	Lmax
ST-1	10:45 AM	2/8/2021	51	73
	8:12 PM	2/8/2021	59	81
	11:27 PM	2/8/2021	59	76
ST-2	12:31 PM	2/8/2021	51	66
	8:30 PM	2/8/2021	49	72
	11:45 PM	2/8/2021	48	62
ST-3	12:45 PM	2/8/2021	59	81
	8:44 PM	2/8/2021	49	66
	12:00 AM	2/9/2021	50	68
Source: Ramboll, 2021				

The general noise environment is one dominated by nearby and distant traffic and by cooling and mechanical noise from various facilities. Noise events that interrupt this relatively stable background noise are caused by train passbys, loud vehicle passbys, vehicle horns and alarms. Less dominant noise sources included bird noise, overhead high elevation aircraft, residential activities, and conversation. Train passbys significantly affected the average noise level. Field worksheets and detailed noise measurement output data are included in Appendix F.

To further characterize sound levels in the project vicinity, Ramboll reviewed projected noise contour figures found in Chapter 5 of the Santa Clara General Plan. Figure 5.10-4 of the General Plan (included in Appendix F) identifies projected CNEL levels at the residential areas in the project vicinity to be between 60 and 65 dBA due to noise from roads and the CalTrain line, which correlates well to the measured sound levels of 62 and 63 dBA, Ldn and CNEL, at LT-1.

Figure 4.13-1 - Noise Measurement Locations

4.13.3 Environmental Impact Discussion

4.13.3.1 Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment. Reference noise levels for typical construction equipment utilized in the RCNM model are presented in Table 4.13-7.

Table 4.13-7 - Construction Equipment Sound Levels (dBA)

Equipment Type	Sound Level at 50 feet (dBA)
Backhoe	78
Compactor (ground)	83
Compressor (air)	78
Concrete Saw	90
Crane	81
Dozer	82
Drill Rig Truck	79
Dump Truck	76
Excavator	81
Forklift	61
Front End Loader	79
Generator	81
Grader	85
Hydra Break Ram	90
Man Lift	75
Paver	77
Pumps	81
Roller	80
Tractor	84
Source: FHWA Roadway Construction Noise Model User's Guide. January 2006.	

Noise associated with each phase of construction was calculated at the nearest sensitive receiver. The nearest sensitive receiver is a two-story multiple family residential building located south of the project site and south of the existing rail line. The second-floor residences associated with this building are not shielded by the existing concrete barrier along the property line and will be exposed to project construction noise. Construction noise levels at these residences is expected to range between 56 and 70 dBA Leq, depending on construction phase. The worst-case modeled sound level of 70 dBA would not exceed the FTA noise impact criteria of 80 dBA Leq (8 hr) during the daytime. Therefore, construction noise impacts would be less than significant, and no mitigation is required. RCNM modeling data output is provided in Appendix F. **(Less Than Significant)**

Operation

Noise Model

Ramboll estimated future noise generated by the facility as received at nearby sensitive receivers using the Computer Aided Noise Abatement (CadnaA) noise model. CadnaA is a software program that enables noise modeling of complex industrial sources using sound propagation factors as adopted by International Organization for Standardization (ISO) 9613.[53] Atmospheric absorption was estimated for conditions of 10°C and 70 percent relative humidity (i.e., conditions that favor propagation) and computed in accordance with ISO 9613-1. The modeling process included the following steps: (1) characterizing the noise sources, (2) creating 3-dimensional maps of the site, proposed structures, and vicinity to enable the model to evaluate effects of distance, structural interference, and topography on noise attenuation, and (3) assigning the equipment sound levels to appropriate locations on the site. CadnaA then constructed topographic cross sections to calculate sound levels in the vicinity of the project site.

Model Receptor Locations

For the modeling effort, Ramboll used numerous modeling "receptor" locations representing the residences and other sensitive receivers nearest the project site and the worst-affected property line locations. The modeling receptors considered in the noise modeling are depicted in Figure 4.13-2.

53 The ISO has established internationally recognized standard methods for calculating noise attenuation through the atmosphere.

Figure 4.13-2 - Model Receptor Locations

Noise Sources

The assessment considered the noise implications of full buildout of the facility. The site layout was based on computer-aided design (CAD) drawings provided to Ramboll for the proposed construction (Figure 4.13-2). The primary noise sources associated with operation of the facility were identified by Vantage and equipment sound levels provided by the equipment manufacturers. The equipment locations, numbers, and sound levels used for this evaluation are provided in Table 4.13-8.

Table 4.13-8 - Equipment Sound Levels

Equipment		Location	#Units	Sound Power (dBA)
Trane Air-Cooled Chillers	Condenser Fans	Rooftop	48	100
	Compressor			87
Transformers		Substation	2	83
Backup Generators (2.75 MW)		Gen Yard	44	105

Project Elements Included in Noise Assessment

All of the operating scenarios considered in this noise assessment include the following project elements:

- A 15-foot high wall around much of the substation perimeter
- Installation of back-up generators housed in acoustically enhanced enclosures
- Installation of Trane air-cooled chillers fitted with the "Superior" sound option package
- Solid barrier attached to dunnage platform traveling the full length of the south side of the platform and continuing halfway up the east and west sides of the platform, extending 3 feet above top of chiller fans no more than 2 feet above the rooftop

Mechanical Scenario

Continuous operation of the CA3 facility with Phase 1 and Phase 2 would include operation of 48 rooftop air-cooled chillers and two transformers located in the substation. These standard mechanical operations are expected to occur 24-hours a day and would be subject to both the daytime and the more stringent nighttime noise limits applied by the City of Santa Clara. Model-calculated sound levels of CA3 mechanical operations at full build-out with both Phase 1 and Phase 2 will be less than 50 dBA at the nearest residential receivers and community park to the facility and will comply with both the daytime noise limit of 55 dBA and the more stringent 50 dBA limit during nighttime hours. Furthermore, modeled sound levels at the property boundaries that abut light industrial properties are well below the 70-dBA noise limit applicable during all hours. See Table 4.13-9. **(Less Than Significant Impact)**

Table 4.13-9 - Modeled Sound Levels of Continuous Mechanical Operations (dBA)

Scenario	R1	R2	R3	R4	NPL	EPL	SPL	WPL
Mechanical	48.5	49.9	48.2	47.9	55.6	52	45.5	49.8
Applicable Noise Limit	50	50	50	50	70	70	70	70

Generator Maintenance and Testing Scenario

At CA3, each backup generator is expected to undergo maintenance and testing on a regular basis, with each generator being tested for approximately 15 minutes per testing event. As a worst-case scenario, Ramboll modeled a maintenance scenario assuming the westernmost 8 backup generators and the easternmost 4 house generators were tested concurrently, in addition to the continuous mechanical sources identified above. Under such a scenario, the model-calculated sound levels remain 50 dBA or less at the nearby residential receivers south of the facility. However, the modeled sound level of

76 dBA at the northern property line exceeds the applicable noise limit of 70 dBA (Table 4.13-10) without consideration of noise mitigation. Therefore, Vantage has incorporated an 8-foot high wall along a portion of the northern property boundary, extending from the driveway entrance approximately 200 feet to the southwest (identified as 8' Noise Wall in Figure 4.13-2).

With incorporation of the noise wall, maintenance and testing of the backup generators would comply with the City standards at all nearby properties (see Table 4.13-1), and noise impacts from maintenance of the generators would be less than significant. **(Less Than Significant)**

Table 4.13-10 - Modeled Sound Levels of Generator Maintenance/Testing (dBA)

Scenario	R1	R2	R3	R4	NPL	EPL	SPL	WPL
Gen Maintenance – Without Noise Wall	48.6	50.0	48.3	47.9	**75.9**	69.3	57.7	50.0
Gen Maintenance - With Noise Wall	48.6	50	48.3	47.9	63.4	69.3	57.7	50
Applicable Noise Limit Day/Night	55/50	55/50	55/50	55/50	70	70	70	70

4.13.3.2 Would the project generate excessive groundborne vibration or groundborne noise levels?

Construction Vibration

Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, detectable at moderate levels, and have the potential to result in building damage at the highest levels. Groundborne vibration levels associated with various types of construction equipment are summarized in Table 4.13-11.

Table 4.13-11 - Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft (in/sec)
Vibratory roller	0.21
Large bulldozer	0.089
Caisson drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003
Crack-and-seat operations	2.4
Sources: Caltrans Transportation and Construction Vibration Guidance Manual April 2020.	

Per the guidelines presented in Table 4.13-2, steady state groundborne vibration is readily perceptible at 0.08 PPV in/sec. At 0.20 PPV in/sec there is a risk for "architectural" damage to normal dwellings (houses with plastered walls and ceilings).

The most vibratory piece of equipment likely to be used on the project site is the vibratory roller. No pile driving would occur during construction of the project, nor would blasting be required. Based on information in Table 4.13-11, use of a vibratory roller may result in a PPV of 0.21 in/sec at a distance of 25 feet. The nearest structure to the project construction area is an existing light industrial building located approximately 60 feet southeast of the project site. At a distance of 60 feet, vibration associated with the most vibratory piece of equipment (a vibratory roller) would attenuate to 0.056 PPV in/sec, which would not be perceptible to nearby residents or employees nor have the potential to result in architectural damage to nearby buildings. Vibration impacts from construction would not be significant. **(Less Than Significant Impact)**

4.13.3.3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site does not lie within any applicable noise contours shown in the Norman Y. Mineta San José International Airport Environmental Impact Report published in February 2020, nor any noise contours in its applicable Airport Land Use Master Plan. Therefore, there would be a less than significant impact. **(Less than Significant Impact)**

4.13.4 Mitigation Measures

No mitigation measures are necessary as with the noise reduction measure incorporated into the design of the project, it will comply with the City of Santa Clara's requirements and not result in significant noise or vibration related impacts.

4.13.5 Government Agencies

The City of Santa Clara has regulatory authority over noise within its limits and will review and enforce noise-related requirements as part of its permit review and implementation process.

4.14 POPULATION AND HOUSING

4.14.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Population and Housing				
Would the project:				
1) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
2) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.14.2 Environmental Setting

4.14.2.1 Regulatory Framework

State

Housing-Element Law

State requirements mandating that housing be included as an element of each jurisdiction's general plan is known as housing-element law. The Regional Housing Need Allocation (RHNA) is the state-mandated process to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate in its housing element. California housing-element law requires cities to: 1) zone adequate lands to accommodate its RHNA; 2) produce an inventory of sites that can accommodate its share of the RHNA; 3) identify governmental and non-governmental constraints to residential development; 4) develop strategies and a work plan to mitigate or eliminate those constraints; and 5) adopt a housing element and update it on a regular basis.[54] The City of Santa Clara Housing Element and related land use policies were last updated in December of 2014.

[54] California Department of Housing and Community Development. "Regional Housing Needs Allocation and Housing Elements" Accessed April 27, 2018. http://hcd.ca.gov/community-development/housing-element/index.shtml.

Regional and Local

Plan Bay Area 2040

Plan Bay Area 2040 is a long-range transportation, land-use, and housing plan intended to support a growing economy, provide more housing and transportation choices, and reduce transportation-related pollution and GHG emissions in the Bay Area.[55] Plan Bay Area 2040 promotes compact, mixed-use residential and commercial neighborhoods near transit, particularly within identified Priority Development Areas (PDAs).[56]

ABAG allocates regional housing needs to each city and county within the nine-county San Francisco Bay Area, based on statewide goals. ABAG also develops forecasts for population, households, and economic activity in the Bay Area. ABAG, MTC, and local jurisdiction planning staff created the Regional Forecast of Jobs, Population, and Housing, which is an integrated land use and transportation plan through the year 2040 (upon which Plan Bay Area 2040 is based).

4.14.2.2 Existing Conditions

The project is proposed in the City of Santa Clara in Santa Clara County. Nearby cities include the cities of Campbell, Cupertino, Milpitas, San Jose, and Sunnyvale. Vantage estimates the construction and operations workers would come from the greater Bay Area. Because of their proximity to the project site, local workers from the greater Bay Area are not likely to temporarily (during construction) or permanently (during operations) move closer to the project. Workers with a greater commute would be considered non-local and would tend to seek lodging closer to the project site (temporarily during construction or permanently during operations).

Population Growth

The City of Santa Clara has an estimated land area of 18.4 square miles. The Housing Element of the Comprehensive General Plan for the City of Santa Clara (adopted December 2014) forecasts population and housing estimates in three phases, reflecting the near (2010-2015), mid (2015-2023), and long term (2023-2035) horizons. By 2035, the general plan would allow for an additional 32,400 residents (Santa Clara 2014, pg. 2-4). The estimated 2019 population for the city was 127,401 people.[57]

[55] Association of Bay Area Governments. Plan *Bay Area 2040 Final.* July 2017.
[56] Association of Bay Area Governments and Metropolitan Transportation Commission. "Project Mapper." http://projectmapper.planbayarea.org/.
[57] State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2019 and 2020.* Sacramento, California, May 2019.

4.14.3 Environmental Impact Discussion

4.14.3.1 Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project would demolish the existing approximately 112,000 square foot single-story office and warehouse building and associated paved surface parking and loading dock. The CA3DC is anticipated to require a total of 19-21 employees, with approximately 10-14 tenant employees visiting the CA3DC daily. The CA3BGF would not have any dedicated employees. The project would be a low employment generating use and substantially less than the number of employees currently working at the existing building on site. Therefore, approval of the project would not substantially increase jobs in the City. The proposed project would not induce substantial population growth in the City or substantially alter the City's job/housing ratio. Therefore, the data center project would result in a less than significant impact. **(Less than Significant Impact)**

4.14.3.2 Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The existing project site does not include residents or housing units and, therefore, the project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. **(No Impact)**

4.14.4 Mitigation Measures

No mitigation measures are necessary to ensure that population and housing impacts are less than significant.

4.14.5 Government Agencies

The only agency with regulatory authority related to growth and housing is the City of Santa Clara. The project is consistent with the City of Santa Clara requirements for land use development at the site.

4.15 PUBLIC SERVICES

4.15.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Public Services				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1) Fire Protection?	☐	☐	☒	☐
2) Police Protection?	☐	☐	☒	☐
3) Schools	☐	☐	☒	☐
4) Parks	☐	☐	☒	☐
5) Other Public Facilities	☐	☐	☐	☒

4.15.2 Environmental Setting

4.15.2.1 Regulatory Framework

State

Government Code Section 66477

The Quimby Act (included within Government Code Section 66477) requires local governments to set aside parkland and open space for recreational purposes. It provides provisions for the dedication of parkland and/or payment of fees in lieu of parkland dedication to help mitigate the impacts from new residential developments. The Quimby Act authorizes local governments to establish ordinances requiring developers of new residential subdivisions to dedicate parks, pay a fee in lieu of parkland dedication, or perform a combination of the two.

Government Code Section 65995 through 65998

California Government Code Section 65996 specifies that an acceptable method of offsetting a project's effect on the adequacy of school facilities is the payment of a school impact fee prior to the issuance of a building permit. Government Code Sections 65995 through 65998 set forth provisions for the payment of school impact fees by new development by "mitigating impacts on school facilities that occur (as a result of the

planning, use, or development of real property" (Section 65996[a]). The legislation states that the payment of school impact fees "are hereby deemed to provide full and complete school facilities mitigation" under CEQA (Section 65996[b]).

Developers are required to pay a school impact fee to the school district to offset the increased demands on school facilities caused by the proposed residential development project. The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Regional and Local

Countywide Trails Master Plan

The Santa Clara County Trails Master Plan Update is a regional trails plan approved by the Santa Clara County Board of Supervisors. It provides a framework for implementing the County's vision of providing a contiguous trail network that connects cities to one another, cities to the county's regional open space resources, County parks to other County parks, and the northern and southern urbanized regions of the County. The plan identifies regional trail routes, sub-regional trail routes, connector trail routes, and historic trails.[58]

4.15.2.2 Existing Conditions

Fire Service

Fire protection services for the project site are provided by the City of Santa Clara Fire Department (SCFD). The SCFD consists of 10 stations consisting of eight engines, two trucks, two ambulances, one rescue/light unit, one hazardous materials unit, and one command vehicle.[59] The closest fire station to the project site is Station 2, located at 1900 Walsh Avenue, which is approximately 0.8 miles east of the project site.

The SCFD responds to all emergencies within six minutes, 90 percent of the time.[60]

Police Service

Police protection services are provided by the City of Santa Clara Police Department (SCPD). The SCPD consists of 239 full-time employees and a varying number of part-time or per diem employees, community volunteers, Police Reserves and Chaplains. Police headquarters are located at 601 El Camino Real, approximately 2-1/4 miles southeast of the project site.[61]

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[58] Santa Clara County. *Santa Clara County Countywide Trails Master Plan Update*. November 1995.
[59] City of Santa Clara Fire Department. "About Us." https://www.santaclaraca.gov/services/emergency-services Accessed on March 12, 2021.
[60] Ibid
[61] City of Santa Clara Police Department. "About Us. https://www.santaclaraca.gov/our-city/departments-g-z/police-department/about-us/fact-sheet Accessed on March 14, 2021.

The General Plan identifies a public service goal to maintain the SCPD response time average of three minutes for all areas of the City.[62]

Parks, Schools, and Libraries

The nearest public parks to the project site are Bracher Park, located at 2560 Alhambra Drive, directly west of the project site across the CalTrain railroad right of way; Bowers Park located at 2582 Cabrillo Avenue, approximately 0.8 miles south of the project site; and Warburton Park, located at 2250 Royal Drive, approximately 1.2 miles south of the site.

The nearest public schools to the project site are Bracher Elementary School, located at 2700 Chromite Drive, approximately 1/4 mile south of the site; Adrian Wilcox High School, located at 3250 Monroe Street, approximately 0.6 miles west of the site; Bowers Elementary School, located at 2755 Barkley Avenue, approximately 0.8 miles south of the site, and Cabrillo Middle School, located at 2550 Cabrillo Avenue, approximately 0.8 miles south of the site. The nearest private school to the site is the Bright Beginnings Preschool, located at 2445 Cabrillo Avenue, approximately 0.8 miles south of the site.

The nearest library to the project site is the Northside Branch Library, located at 695 Moreland Way, approximately 2-1/4 miles northeast of the site.

4.15.3 Environmental Impact Discussion

4.15.3.1 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection services?

The project site is currently served by the SCFD. The proposed project may result in an incremental increase in the need for fire services associated with increased building area but would not require the construction of new facilities or stations.

The project would be constructed in conformance with current building and fire codes, and the SCFD would review project plans to ensure appropriate safety features are incorporated to reduce fire hazards. The potential incremental increase in fire protection services would not require new or expanded fire protection facilities, the construction of which could cause significant environmental impact, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection services. **(Less than Significant Impact)**

[62] City of Santa Clara. *City of Santa Clara 2010-2035 General Plan*. Section 5.9.3. November 2010.

4.15.3.2 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection services?

The project site is currently served by the SCPD. The CA3DC may result in an incremental increase in the need for police services associated with increased building area and employees but would not require the construction of new facilities or stations.

The Police Department would review the final site design, including proposed landscaping, access, and lighting, to ensure that the project provides adequate safety and security measures. The potential incremental increase in police protection services would not require new or expanded police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives for police protection services. **(Less than Significant Impact)**

4.15.3.3 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?

The proposed project would not generate substantial population growth in the project area or result in the use of public facilities in the area by new residents. The project proposes a data center facility, not a residential use, and would therefore not generate students. The project, therefore, would not require new or expanded school facilities, the construction of which could cause environmental impacts. **(No Impact)**

4.15.3.4 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?

The proposed project would not generate substantial population growth in the project area or result in the use of public facilities in the area by new residents. Some CA3DC employees at the project site may visit local parks; however, this use would not create the need for any new facilities or adversely impact the physical condition of existing facilities. **(Less than Significant Impact)**

4.15.3.5 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

The proposed project would not generate substantial population growth in the project area or result in the use of public facilities in the area by new residents. Some CA3DC employees at the project site may visit nearby libraries; however, this would not create the need for any new facilities or adversely impact the physical condition of existing facilities. **(No Impact)**

4.15.4 Mitigation Measures

No mitigation is necessary since the project does not adversely affect public services.

4.15.5 Government Agencies

The City of Santa Clara and its divisions have regulatory authority over public services within the project area and will ensure compliance with any of its requirements through its permit review process.

4.16 RECREATION

4.16.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Recreation				
1) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility will occur or be accelerated?	☐	☐	☒	☐
2) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

4.16.2 Environmental Setting

4.16.2.1 Regulatory Framework

State

Government Code Section 66477

The Quimby Act (included within Government Code Section 66477) requires local governments to set aside parkland and open space for recreational purposes. It provides provisions for the dedication of parkland and/or payment of fees in lieu of parkland dedication to help mitigate the impacts from new residential developments. The Quimby Act authorizes local governments to establish ordinances requiring developers of new residential subdivisions to dedicate parks, pay a fee in lieu of parkland dedication, or perform a combination of the two.

Local

The City of Santa Clara Parks & Recreation Department provides parks and recreational services in the City. The Department is responsible for maintaining and programming the various parks and recreation facilities and works cooperatively with public agencies in coordinating all recreational activities within the City. Overall, as of June 2017, the Department maintains and operates Central Park (45.04-acre community park), 25 neighborhood parks (122.67 acres), four mini parks (2.59 acres), public open space (56.21 acres total: 16.13 acres improved and 40.08 acres unimproved), recreational facilities (23.8 acres total: 14.76 acres improved and 9.04 acres unimproved, excluding Santa Clara Golf and Tennis Club/BMX), recreational trails (7.59 acres), and joint use facilities (48.52 acres) throughout the City, totaling

approximately 257.3 improved acres. In general, community parks total over 15 acres, neighborhood parks range between one to 15 acres, and mini parks are typically less than one acre in size.

The Department of Parks and Recreation also maintains a strong recreational program that supports a wide variety of activities. The Community Recreation Center is the hub of the City's recreational programs. The area in Central Park, west of Saratoga Creek, contains group and individual picnic facilities, playgrounds, restroom facilities, an amphitheater, two lighted tennis courts, basketball courts, and the Veterans Memorial. East of the creek is the world famous George F. Haines International Swim Center, open space, a lake, large group picnic areas, restroom facilities, a lawn bowling green, an exercise course, the Bob Fatjo Sports Center, which includes the Tony Sanchez Field as well as a lighted softball field, and the Santa Clara Tennis Center, which includes eight lighted tennis courts as well as a practice wall.[63]

In addition to the parklands and facilities within Central Park, the City currently has a gymnastics center, a bicycle track, a dog park, a golf and tennis club, a youth activity center, a teen center, a senior center, and a skate park. The City's recreational system is augmented by local school facilities, which are available to the general public after school hours.

4.16.3 Environmental Impact Discussion

4.16.3.1 Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility will occur or be accelerated?

The proposed project would not increase employment substantially. Some CA3DC employees may use nearby parks and recreational facilities; however, this would not have an impact on these facilities such that adverse physical effects would result. **(Less than Significant Impact)**

4.16.3.2 Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project would not include recreational facilities. Some CA3DC employees may use nearby parks and recreational facilities; however, this would not require the construction or expansion of recreational facilities. **(Less than Significant Impact)**

[63] City of Santa Clara. Parks: Central Park. http://santaclaraca.gov/Home/Components/ServiceDirectory/ServiceDirectory/318/2654. Accessed on May 31, 2019.

4.17 TRANSPORTATION

This section is based on a traffic technical memo prepared by Kimley-Horn to analyze the project's potential impacts to traffic in March 2021 (See Appendix G).

4.17.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Transportation				
Would the project:				
1) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
2) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) regarding vehicle miles travelled?	☐	☐	☐	☒
3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
4) Result in inadequate emergency access?	☐	☐	☐	☒

4.17.2 Environmental Setting

4.17.2.1 Regulatory Framework

State and Local

In 2018, the California state legislature, in approving SB 743, directed the Office of Planning and Research to develop guidelines for assessing transportation impacts based on VMT. In response to SB 743, CEQA guidelines were significantly amended regarding the methods by which lead agencies are to evaluate a project's transportation impacts.

Under SB 743, over 50 percent of development within the State could forego transportation analysis and mitigation entirely. This includes affordable housing, projects within ½-mile of transit, projects generating fewer than 110 trips per day, and local serving projects. Based upon the City of Santa Clara VMT threshold, adopted pursuant to SB 743, a project which consist of changing an existing land use that resulted in fewer than a 110-net number of daily trips are presumed to have a less than significant impact with respect to VMT

4.17.2.2 Existing Conditions

The Project is located at 2590 Walsh Avenue in Santa Clara, California. The project consists of redeveloping an existing 115,550-square foot office building into a 472,180-square foot data center.

Similar to other Vantage sites, the CA3DC will be operational 24-hours, 7-days a week. Table 4.17-1 summarizes the anticipated headcount of personnel and visitors that would be on-site throughout a typical day. It is anticipated that on an average day there will be 33-35 people at the building throughout the day, with 17-30 people in the building at the same time. It should be noted that some personnel will be shared with a Vantage site (CA1) across Walsh Avenue.

Table 4.17-1 Anticipate Average Daily Headcount

Type	Daily Persons	Persons Per Shift
Operational	14	2-9[1]
Security	5	2-5[2]
Janitor	2	1-2
Tenant Personnel	10-12	10-12
Visitors	2	2
Total	**33-37**	**17-30**

4.17.3 Environmental Impact Discussion

4.17.3.1 Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

A trip generation analysis was conducted to determine the change in the number of trips the project will generate. The trip generation was determined based on average rates from the Institute of Transportation Engineer's (ITE) publication, Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual, 10th Edition is a standard reference used by jurisdictions throughout the country for the estimation of trip generation potential of proposed projects. This manual provides trip rates based on land use. For the existing land use, ITE Land Use 710: General Office Building was assumed and ITE Land Use 160: Data Center for the proposed CA3DC. Table 4.17-2 presents the trip generation for the project. The project is expected to generate net new -658 daily trips, -82 trips in the AM peak hour, and -91 trips in the PM peak hour.

Table 4.17-2 - Project Trip Generation

Land Use	Size	Daily Trips	AM Peak			PM Peak		
			Total	In	Out	Total	In	Out
General Office Building (Existing)	115,500 SF	1,125	134	115	19	133	21	112
Data Center	472,180 SF	467	52	29	23	42	13	29

(Proposed)								
Net New Project Trips		**-658**	**-82**	**-86**	**4**	**-91**	**-8**	**-83**

Beyond the trip generation analysis, no level of service assessment has been conducted or warranted due to the findings above and a shift in CEQA analysis requirements to vehicle miles traveled (VMT) metrics that took place in July 2020. Transit, roadway, bicycle, and pedestrian facilities are not expected to change and therefore will not be impacted due to the project. For all these reasons, the project will not cause transportation-related impacts **(No Impact)**.

4.17.3.2 Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) regarding vehicle miles travelled?

Under SB 743, over 50 percent of development within the State could forego transportation analysis and mitigation entirely. This includes affordable housing, projects within ½-mile of transit, projects generating fewer than 110 trips per day, and local serving projects. Based upon the City's VMT threshold, a project which consist of changing an existing land use that resulted in fewer than a 110-net number of daily trips are presumed to have a less than significant impact with respect to VMT. CA3 will generate a net new -658 daily trips, which is less than the 110-daily trip threshold. The net decrease in trips will reduce VMT; therefore, a VMT analysis is not required for the project and therefore the project is not inconsistent with CEQA regarding vehicle miles traveled. **(No Impact)**

4.17.3.3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

A review of the detailed project site plan was conducted as part of the traffic memo to identify any issues related to access, internal circulation, pedestrian crossings, and truck circulation.

Overall access to the site would not allow public access and be restricted to persons having business on-site. For vehicle access, vehicles will be able enter the site from the gated entrance located at the eastern driveway and the western driveway. However, the security protocols will most likely require vehicles to enter through the security checkpoint located at the eastern driveway. Vehicles exiting the site may exit from the western or eastern driveways. The existing curb locations and geometric design will remain in their current location; therefore, the project will not increase hazards. **(Less Than Significant Impact)**

4.17.3.4 Would the project result in inadequate emergency access?

As mentioned above, a review of the project site plan was performed by Kimley-Horn as part of the traffic memo to determine whether adequate site access would be provided. The project will not change the physical configuration of the surrounding road network or existing curb locations, and therefore will not affect emergency vehicle access. **(No impact)**

4.17.4 Mitigation Measures

No mitigation measures are necessary as the project will not negatively affect transportation related resources.

4.17.5 Government Agencies

The City of Santa Clara has regulatory authority over the transportation infrastructure that could be affected by the project and will ensure compliance with any requirements during its permit review and implementation process.

4.18 UTILITIES AND SERVICE SYSTEMS

4.18.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Utilities and Service Systems				
Would the project:				
1) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
2) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
3) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
4) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
5) Be noncompliant with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

4.18.2 Environmental Setting

4.18.2.1 Regulatory Framework

State

State Water Code

Pursuant to the State Water Code, water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (approximately 980 million gallons) of water annually must prepare and adopt an urban water management plan (UWMP) and update it every five years. As part of a UWMP, water agencies are required to evaluate and describe their water resource supplies and projected needs over a 20-year planning horizon, water conservation, water service reliability, water recycling, opportunities for water transfers, and contingency plans for

drought events. The City of Santa Clara adopted its most recent UWMP in November 2016.

A Water Supply Assessment (WSA) is required pursuant to State Water Code Section 10910 if the project meets certain requirements outline in Section 10912. A WSA is required for:

- A residential development of more than 500 units;
- A hotel or motel having more than 500 rooms;
- A commercial office building employing 1,000 people or having more than 250,000 sq. feet of floor space;
- An industrial, manufacturing or industrial park planned to house more than 1,000 employees or having more than 650,000 sq. feet of floor space;
- A mixed use project that contains one or more of the criteria above; or
- Any project that has a water demand equal to or greater than the amount of water required by a 500 dwelling unit development.

Assembly Bill 939

The California Integrated Waste Management Act of 1989, or AB 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures.

Assembly Bill 341

AB 341 sets forth the requirements of the statewide mandatory commercial recycling program Businesses that generate four or more cubic yards of garbage per week and multi-family dwellings with five or more units in California are required to recycle. AB 341 sets a statewide goal for 75 percent disposal reduction by the year 2020.

Senate Bill 1383

SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The bill grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that at least 20 percent of currently disposed edible food is recovered for human consumption by 2025.

4.18.2.2 Existing Conditions

Water Service

Potable Water

Water services to the site are provided by the City of Santa Clara Department of Water and Sewer Utilities. The water system consists of more than 335 miles of water mains, 27 active water wells and seven storage tanks with 28.8 million gallons of water storage capacity.[64] Drinking water is provided by an extensive underground aquifer (accessed by the City's wells) and by two wholesale water importers: the Santa Clara Valley Water District (imported from the Sacramento-San Joaquin Delta) and the San Francisco Hetch-Hetchy System (imported from the Sierra Nevada). About 30 percent of the City's water comes from these imported treated water supplies. The remaining 70 percent is pumped from the City's system of 26 active water wells.[65] The three sources are used interchangeably or are blended together. In 2015, the Water Utility had approximately 25,715 water service connections with an average potable water demand of 16.8 million gallons per day (MGD) potable water and an average demand of 3.2 MGD recycled water demand.[66]

Recycled Water

Tertiary treated (or 'recycled') water serves as a fourth source of water supply and comprises approximately 16 percent of the City's overall water supply.[67] Recycled water is supplied from South Bay Recycled Water, which provides advanced tertiary treated water from the San Jose—Santa Clara Regional Wastewater Facility (formerly known as the San Jose/Santa Clara Water Pollution Control Plant). The City of Santa Clara recycles approximately one percent of its water through non-potable uses by businesses, industries, parks, and schools along pipeline routes. The City's recycled water program delivers recycled water throughout the City for landscaping, parks, public services and businesses. The nearest recycled water lines are located in Walsh Avenue at the intersection of Northwestern Parkway.[68]

Wastewater

Wastewater from the City of Santa Clara is treated at the San José – Santa Clara Regional Wastewater Facility (RWF). The RWF is owned jointly by the two cities and is

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[64] City of Santa Clara. *2015 Urban Water Management Plan, City of Santa Clara Water Utility*. Page 12. Adopted November 2016. Accessed: March 11, 2020. Available at: http://santaclaraca.gov/index.aspx?page=1984.
[65] *Ibid.*
[66] *Ibid*.
[67] City of Santa Clara. *Water Utility.* Updated July 2012. Accessed: March 12, 2021. https://www.santaclaraca.gov/our-city/departments-g-z/water-sewer-utilities/water-utility
[68] City of Santa Clara. *Recycled Water System Map. City of Santa Clara, California.* Updated July 2012. Accessed: March 21, 2021. Available at: http://santaclaraca.gov/home/showdocument?id=14883.

operated by the City of San José's Department of Environmental Services. The facility is one of the largest advanced wastewater treatment facilities in California and serves over 1,400,000 people in San José, Santa Clara, Milpitas, Campbell, Cupertino, Los Gatos, Saratoga, and Monte Sereno.[69] The Regional Wastewater Facility provides primary, secondary, and tertiary treatment of wastewater and has the capacity to treat 167 million gallons of wastewater a day. Approximately 10 percent of the RWF's effluent is recycled for non-potable uses and the remainder flows into San Francisco Bay. The NPDES permit for RWF includes wastewater discharge requirements.

Wastewater from the existing buildings on-site currently discharges to a either a 12 or 15-inch sanitary sewer line that flows to a 30-inch line and is eventually conveyed to the RWF. Sanitary sewer lines that serve the project site are maintained by the City of Santa Clara Sewer Utility.

Storm Drainage

The City of Santa Clara owns and maintains the municipal storm drainage system which serves the project site. Existing stormwater runoff exits the site at multiple locations. There are (2) 15" SD lines serving the site directly off of Walsh Ave. There is an additional 36" SD line serving the site in the southeast corner exiting the site to the easterly adjacent property before heading north to Walsh Ave. The on-site drainage system is comprised of overland release flows, and an underground pipe network to convey the anticipated peak flows that eventually discharge to the Guadalupe River, which ultimately flows to the San Francisco Bay.

Solid Waste

Solid waste collection in the City of Santa Clara is provided by Mission Trail Waste System through a contract with the City. The City has an arrangement with the owners of Newby Island Sanitary Landfill (NISL), located in San José, to provide disposal capacity for the City of Santa Clara through 2024. Recycling services are provided through Stevens Creek Disposal and Recycling.

Electricity and Natural Gas Services

Electric service is provided to the site by Silicon Valley Power and natural gas is provided by Pacific Gas and Electric (PG&E).

[69] City of Santa Clara. *San Jose-Santa Clara Regional Wastewater Facility*.

4.18.3 Environmental Impact Discussion

4.18.3.1 Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects

The CA3BGF would not require new connections to utilities.

The CA3DC would utilize existing connections to connect the City's stormwater, electric, telecommunications, and waste systems to the extent feasible. The CA3DC would incrementally increase the demand on existing facilities in the City of Santa Clara.

As described below, the proposed project will use slightly less water than the existing project. Similarly, the proposed project will discharge sewage to the sanitary sewer in quantities that are equal to or less than those of the existing development. Therefore, the CA3DC will not increase the demand on the City's sewer system or wastewater treatment plant.

As described in Section 2.3.8, as part of the CA3DC, Vantage will construct a new on-site switching station to SVP specifications and an on-site CA3DC owned substation to provide 60kV service to the site. The switching station will ultimately be owned and operated by SVP as part of its 60kV loop system. The proposed switching station will be located to adjacent to the existing Uranium substation and cut-in to the existing 60kV line passing nearby. The station will be configured as a loop with two radial taps to the CA3DC substation. Reliability is maintained such that, if there is a fault along any section of the Loop, electric service is still supplied from the receiving station at the other of the 60kV loop. The impacts associated with construction of the substation have been incorporated into the construction assumptions for the project that have been analyzed throughout this SPPE application.

PG&E owns natural gas distribution facilities within the City of Santa Clara. The CA3DC would incrementally increase natural gas use but would not require the construction of any additional off-site facilities.

Because the CA3DC would use existing connections to utilities where feasible and has analyzed the new recycled water pipeline described in Section 2.3.8, and the new substation described in Section 2.3.8, as part of this application which has found no significant environmental impacts, the project will not result in less than significant impacts. **(Less than Significant Impact)**

4.18.3.2 Would the project have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Site Grading and Construction. Grading and construction of the CA3DC including the CA3BGF is estimated to utilize 1.75 acre feet of water over the 24 month construction period for Phase I and Phase II.

CA3DC Operation. The CA3DC could require water when outside air temperatures approach design to augment its adiabatic cooling system. The data center will be designed to use up to 0.8 AFY of recycled water when supply for cooling when it is available and provided by the City of Santa Clara, and a potable water connection will be provided as a back-up source to the recycled water system in the interim period.

Total potable water use at full buildout of the CA3DC is estimated to be approximately 2 AFY. Landscaping for the site is estimated to use up to 1 AFY.

Currently the activities at the site have a historic water use of approximately 3.2 AFY. Since the total maximum water at the site is very near historical use, there will be a sufficient supply of water for peak use. **(Less than Significant Impact)**

4.18.3.3 Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The RWF has the capacity to treat 167 million gallons of wastewater per day.[70] Currently, the RWF is operating under a 120 million gallon per day dry weather effluent flow constraints. The CA3DC will not increase the wastewater discharge above the existing site use. Since the CA3DC will not result in new or increased wastewater discharge, the RWF would still operate below the required 120 million gallons per day constraint and would not increase the need for wastewater treatment beyond the capacity of the RWF. **(Less than Significant Impact)**

4.18.3.4 Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

The Newby Island Landfill, located in San José, has an agreement with the City to provide disposal capacity through 2024. On a tons-per-day basis, the Newby Island Landfill has spare daily capacity of 860 tons. There is no specific solid waste generation rates for public storage facilities. On a day to day basis, it can be assumed that waste generation is minimal and associated with the on-site office. Nevertheless, when customers clean out their storage facilities, it is likely that some waste is generated.

Based on data from CalRecycle, a generic manufacturing/warehouse facility would generate approximately 1.42 pounds of solid waste per 100 square feet of building area

[70] City of San José. San José-Santa Clara Regional Wastewater Facility. Accessed: November 8, 2019. Available at: http://sanjoseca.gov/index.aspx?nid=1663.

per day.[71] Using this rate, the CA3DC would generate approximately 6,674 pounds of waste per day. This is a very conservative estimate and represents approximately 0.3 percent of Newby Island's excess daily capacity. In addition, the City of Santa Clara continues to exceed its waste diversion goal of 50 percent, which would result in an even smaller contribution.

If the Newby Island Landfill is not available to accept waste after 2024, the City shall prepare a contract with another landfill with capacity, such as Guadalupe Mines in San José, which is not anticipated to close until 2048. Because the project can be served by a landfill with capacity and would not result in a significant increase in solid waste or recyclable materials, the project's impacts related to solid waste would be less than significant. **(Less than Significant Impact)**

4.18.3.5 Would the project be noncompliant with federal, state, and local management and reduction statutes and regulations related to solid waste?

The construction and operation of the project would comply with federal, state, and local regulations related to diversion of materials from disposal and appropriate disposal of solid waste. **(Less than Significant Impact)**

4.18.4 Mitigation Measures

No mitigation measures are necessary because the project will not cause adverse effects on existing utilities and service systems.

4.18.5 Government Agencies

The City of Santa Clara has regulatory authority over the utilities and service systems analyzed in this section and will impose requirements as necessary as part of its permit review and implementation process.

[71] CalRecycle. "Estimated Solid Waste Generation Rates". Accessed March 12, 2021. https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

4.19 WILDFIRE

4.19.1 CEQA Checklist

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Wildfire				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
1) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
2) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
3) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
4) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐		☒

4.19.2 Environmental Setting

The project site is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones.[72]

4.19.3 Environmental Impact Discussion

The project site is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones; therefore, the project would not result in wildfire impacts. **(No Impact)**

[72] State of California Department of Forestry and Fire Protection. Santa Clara County Fire Hazard Severity Zones in SRA. Adopted November 7, 2007.

SECTION 5.0 ALTERNATIVES

5.1 EVALUATION CRITERIA

The primary goal of the CA3DC is to be a state-of-the-art data center that provides greater than 99.999 percent reliability (fine nines of reliability). The CA3DC has been designed to reliably meet the increased demand of digital economy, its customers and the continued growth. The CA3DC's purpose is to provide its customers with mission critical space to support their servers, including space conditioning and a steady stream of high-quality power supply. Interruptions of power could lead to server damage or corruption of the data and software stored on the servers by Vantage's clients. The CA3DC will be supplied electricity by SVP through a new distribution substation constructed on the CA3DC site and owned and operated by SVP.

To ensure a reliable supply of high-quality power, the CA3BGF was designed to provide backup electricity to the CA3DC only in the event electricity cannot be supplied from SVP and delivered to the CA3DC building. To ensure no interruption of electricity service to the servers housed in the CA3DC building, the servers will be connected to uninterruptible power supply (UPS) systems that store energy and provide near-instantaneous protection from input power interruptions. However, to provide electricity during a prolonged electricity interruption, the UPS systems will require a flexible and reliable backup power generation source to continue supplying steady power to the servers and other equipment. The CA3BGF provides that backup power generation source.

The CA3DC's Project Objectives are as follows:

- Develop a state of the art data center large enough to meet projected growth;
- Develop the Data Center on land that has been zoned for data center use at a location acceptable to the City of Santa Clara;
- Develop a Data Center that can be constructed in two phases which can be timed to match projected growth;
- To incorporate the most reliable and flexible form of backup electric generating technology into the CA3BGF considering the following evaluation criteria.
    - **Reliability**. The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility.
        - The CA3BGF must provide a higher reliability than 99.999 percent in order for the CA3DC to achieve an overall reliability of equal to or greater than 99.999 percent reliability.
        - The CA3BGF must provide reliability to greatest extent feasible during natural disasters including earthquakes.
        - The selected backup electric generation technology mush have a proven built-in resilience so if any of the backup unit fails due to external or internal failure, the system will have redundancy to continue to operate without interruption.

- The CA3DC must have on-site means to sustain power for 24-hours minimum in failure mode, inclusive of utility outage.

- **Commercial Availability and Feasibility**. The selected backup electric generation technology must currently be in use and proven as an accepted industry standard for technology sufficient to receive commercial guarantees in a form and amount acceptable to financing entities. It must be operational within a reasonable timeframe where permits and approvals are required.
- **Technical Feasibility**. The selected backup electric generation technology must utilize systems that are compatible with one another.

As part of the preliminary planning and design of the CA3DC and the CA3BFG, Vantage considered alternatives to the proposed backup generators and use of a smaller capacity system. For completeness purposes, a discussion of the No Project Alternative is also included.

5.2 REDUCED CAPACITY SYSTEM

Vantage considered a backup generating system with less emergency generators but like the No Project Alternative discussed below, any generating capacity less than the total demand of the data center at maximum occupancy would not allow Vantage to provide the critical electricity that would be needed during an emergency. It is important to note that in addition to the electricity that is directly consumed by the servers themselves, the largest load of the data center is related to cooling the rooms where the servers are located. In order for the servers to reliably function, they must be kept within temperature tolerance ranges. The industry standard is to design and operate a building that can meet those ranges even during a loss of electricity provided by the existing electrical service provider. Therefore, in order for Vantage to provide the reliability required by its clients it was necessary to provide a backup generating system that could meet the maximum load of the CA3DC during full occupancy and include redundancy as described in Section 2.2.3. A reduced capacity system would not fulfill the basic project objectives of the CA3BGF.

5.3 BACKUP ELECTRIC GENERATION TECHNOLOGY ALTERNATIVES

Vantage considered using potentially available alternative technologies: gas-fired turbines; flywheels; gas-fired reciprocating internal combustion engines, batteries; fuel cells; and alternative fuels. As discussed below, none of the technologies considered could meet the overall Project Objectives because they were commercially or technically infeasible and/or would not meet the necessary standard of reliability during an emergency.

5.3.1 Flywheels

Flywheel energy storage systems use electric energy input which is stored in the form of kinetic energy. Kinetic energy can be described as “energy of motion,” in this case the motion of a spinning mass, called a rotor. The rotor spins in a nearly frictionless enclosure. When short-term backup power is required because utility power fluctuates or is lost, the inertia allows the rotor to continue spinning and the resulting kinetic energy is converted to electricity.

Vantage has concluded that flywheel technology would not be a viable option and could not meet the Project Objectives for the following reasons:

- Flywheel technology does not perform within the required reliability levels of Vantage and is prone to system failure.
- Flywheel technology requires an extensive amount of maintenance to keep each energy storage system functioning.
- Flywheel systems cannot provide sufficient time duration (e.g 24 hours or more) as a backup generation as the fly wheel motion can typically only sustain 10-30sec outages at a time.

5.3.2 Gas-Fired Turbines

Vantage considered using natural gas-fired turbines instead of diesel generators to supply backup power for the CA3DC. This technology option was rejected because it would not meet the project objectives. Natural gas turbines have the advantages of better emission of NOx and CO than diesel. However, as an emergency backup choice, it has the following deficiencies:

1) The gas infrastructure is more likely to have curtailment of the natural gas supplies during due natural disasters and other emergency loss of utility power.
2) Onsite storage or delivery of natural gas to address the curtailment issues during an emergency is impossible to support long duration of backup (24 hours or longer time) due to the volume required.
3) The natural gas turbine is better suited for continuous operation instead of standby mode, which makes maintenance challenging.
4) The natural gas turbine needs minimum loads (30%), so additional load banks are required on site, leading to the change of design in terms of reliability and the use of more fuel than is necessary and leading to the wasting of electricity through the load bank.
5) Typical turbine engines have larger system sizes (4MW-50MW), while the smaller ones such as micro-turbines of 2.5MW will use twice the physical footprint and cost twice as much as the proposed generation technology.

Therefore, natural gas turbines are not considered reliable enough to meet the extremely high reliability requirements of a mission critical data center like the CA3DC. A fixed fuel source such as a natural gas pipeline introduces another potential point of failure or load curtailment. Taking into account the natural gas outages from

maintenance and repair by the utility, interruption due to construction accidents within the system, long-term damage and interruption during an earthquake, or outages caused by problems within the greater distribution system are higher probability occurrences than being able to obtain diesel fuel for longer than 24 hour outages. Therefore, this alternative was rejected as not being able to meet the Project Objectives.

5.3.3 Gas-Fired Reciprocating Engines

Vantage considered using natural gas-fired reciprocating engines instead of diesel generators to supply emergency backup power for the CA3DC. This technology option was rejected because it would not meet the Project Objectives. While natural gas engines could achieve start up times sufficient to work with the UPS systems design and there are 2.5MW/3.1MW engines available, this lack sufficient resilience to accept large block transfer of load associated with restart sequences when transferring from utility grid to backup generation. Therefore, natural gas reciprocating engines are not considered technically feasible or reliable enough to meet the industry standard or needs of the CA3DC. As discussed above, storage of sufficient natural gas on site to maintain emergency backup electricity demands of the CA3DC during an outage would not be tenable given the volume of natural gas that would be required.

5.3.4 Battery Storage

Vantage considered using batteries alone as a source of emergency backup power. The primary reason batteries alone were rejected was the limited duration of battery power. Batteries can provide power quickly, which is the reason Vantage has incorporated them into the overall backup electrical system design through the use of the UPS. As described in Section 2.2.4.2, batteries in the UPS System would be initiated at the first sign of electricity interruption. However, the current state of battery technology does not allow for very long durations of discharge at building loads as high as planned for the CA3DC. Maximum discharging time is about 5 hours when doubled up from one ISO container to two, which needs more physical space. In addition, Lithium-ion batteries have more restrictive California fire code regulations. Renewable non-Lithium-ion battery such as ZnMnO2 is not commercially feasible for data centers yet. Once the standalone batteries are completely discharged, the only way they can be recharged without onsite generation is if the utility electrical system is back up and running. Since it is not possible to predict the duration of an electricity outage, batteries are not a viable option for emergency electrical power. Therefore, because battery storage cannot provide the duration that may be necessary during an emergency, this technology option was rejected as technically and commercially infeasible and unable to allow the CA3DC to meet its Project Objectives.

The proposed diesel generators provide 24 hours of backup electricity without the need for refueling. In order to provide for the same 24 hour capacity, approximately 10 ISO containers representing approximately 10 times the amount of real estate would be required. The site will not accommodate the amount of batteries necessary.

5.3.5 Fuel Cells – Backup Replacement

Vantage is very familiar with fuel cell technology as it has considered fuel cells at its current data centers. Fuel cells can provide both primary and off grid power. The fuel cells utilized by Bloom Energy and others are solid Oxide Fuel Cells (SOFC) that operate in high temperature of 750 Deg C, they need to stay hot to provide power. As a choice of backup, fuel cells need to run continuously in dual modes, as a primary source, or a standby mode when the grid is off (islanding mode). The fuel cells have additional ultra-capacitors to cope with the 10-20 second load transfer time to match up with diesel generation technology.

The fuel cell has the following technical issues that negatively affect its ability to utilized as an emergency backup generation option.

1) It needs to run continuously to provide base load electricity to stay hot. This is why large data centers (Equinix, Apple, Yahoo) use Bloom Energy as primary source and maintain their existing emergency diesel generation fleet as backup.
2) Fuel cells require approximately 3 times more space than the emergency generators proposed for the CA3BGF and stacking is challenging and difficult and expensive to design to applicable codes.
3) Fuel cells rely on the natural gas as feed stock, so the issues with natural gas infrastructure and onsite storage described above also limit reliability.

There are fuel cell technologies (Proton Exchange Membrane) that utilize liquid hydrogen as a fuel. This type of fuel cell is mostly used for mobile sources and can start cold quicker similar to a combustion engine. Vantage understands that there are pilot programs to scale this type of fuel cell to larger sizes. However, the issues that affect the Project Objectives of this technology include:

1) The technology is not yet commercially available at sizes necessary for a large data center.
2) The footprint is projected to be about twice the size of the proposed emergency generators.
3) Onsite storage of 24 hours of liquid hydrogen will take significant additional space not available at the site.
4) The potential for on-site and offsite impacts of a large release of liquid hydrogen which would be stored at pressure (6000 PSI) at the project site would be likely unacceptable within Santa Clara.

5.3.6 Fuel Cells – Primary Generation/Grid Backup

Vantage has evaluated generating primary electricity with fuel cells on-site and relying on the electricity grid for emergency backup electricity. One example of primary power is that Equinix has partnered with Bloom Energy over the last 5 years to deploy over 45 MW of fuel cell technology at various sites around the country using fuel cells as base load. There are other sites, such as Home Depot where Bloom Energy fuel cells provide primary electricity. However, we are unaware of any data center fuel cell application where fuel cells provide the full electricity needs for the data center without the bulk of the primary power being delivered by a utility.

There are two primary reasons that this solution cannot achieve the Vantage's CA3 DC Project Objectives. The first is that it is unlikely that Silicon Valley Power (SVP) would procure and reserve the amount of electricity necessary to power the CA3DC in perpetuity as a backup source on a moment's notice. The magnitude of electricity for such an event after full buildout of the CA3DC would render such an option infeasible.

As currently designed, the CA3BGF will provide a N+1 protection scheme for the CA3DC. In other words, the primary electricity will be provided by the extremely reliable AVP electric system and if that system fails, the diesel-fired emergency generators would provide the electricity that the CA3DC requires. Utilizing fuel cells as the primary generation and relying on the grid as backup in the event or fuel cell failure would also provide a N+1 protection scheme. However, this alternative would provide lower reliability during an earthquake - the design natural disaster for California projects. During an earthquake, it is possible that the natural gas system cannot deliver the fuel to the fuel cells at the same time that the SVP electrical system is experiencing an outage. In that case, in order to provide the same reliability as the proposed design, emergency backup generators would still be necessary (N+2) to provide electricity to the CA3DC during the design natural disaster case. Therefore, in order to have the same reliability, the same number and size of emergency backup generators would be required.

Therefore use of fuel cells as primary generation would not replace the proposed emergency backup generators in order to meet the Project Objectives.

5.3.7 Alternative Fuels

Vantage evaluated the use of biodiesel and renewable diesel as replacement for the CARB diesel proposed for use in the CA3BGF. Neither alternative provides a highly reliable source of fuel, nor provides any demonstrable reduction in emissions.

Typical biodiesel fuels tend to more unstable than petroleum-based diesel with very little, if any environmental benefit. Renewable diesel fuel has been claimed to be as stable, if not more stable as petroleum-based diesel fuels, while offering significant environmental benefits. However; no certified data has been located that can be used to document the environmental benefit claims, at this time. As the emission standards

from biofuel combustion are yet to be well-established, emission guarantees would be necessary to ensure that the use of the renewable diesel would meet the needs of financing entities.

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SECTION 7.0 NOTIFICATION LIST

Appendix H provides a list of site addresses including owner's addresses if different from the site address with a 1000 feet radius of the site including a map of the radius provided by First American Title Company.

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SECTION 9.0 ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AFY	Acre-feet per year
AIA	Airport Influence Area
ALUC	Airport Land Use Commission
ACM	Asbestos containing material
amsl	above mean sea level
ATCM	Air Toxics Control Measure
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BASMAA	Bay Area Stormwater Management Agencies Association
BES	Bulk Electric System
bgs	below ground surface
BPIP-PRIME	Building Profile Input Program – Plume Rise Model Enhancements
BMPs	Best Management Practices
Btu	British thermal units
CAA	Clean Air Act
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
Cal/OSHA	California Division of Occupational Safety and Health
CAP	City of Santa Clara Climate Action Plan
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CBC	California Building Standards Code
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geologic Survey

CH_4	Methane
CHRIS	California Historical Resources Information System
CLUP	Comprehensive Land Use Plan
CMP	Congestion Management Program
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalents
CNEL	Community Noise Equivalent Level
CUPA	Certified Unified Program Agency
dBA	A-weighted decibels
DNL	Day-Night Average Sound Level
DPF	Diesel particulate filters
DPM	Diesel particulate matter
DTSC	Department of Toxic Substances Control
EJ	Environmental justice
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Floor area ratio
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
g/bhp-hr	grams/brake horse-power hour
GHGs	Greenhouse gas emissions
GPM	Gallons per minute
GWh	Gigawatt hours
H_2S	Hydrogen sulfide
HAPs	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
HRA	Health risk assessment
HREC	Historical recognized environmental conditions
ISZ	Inner Safety Zone

km	Kilometer
L_{max}	Maximum A-weighted noise level
LBGF	Lafayette Backup Generating Facility
LDC	Lafayette Data Center
LID	Low Impact Development
LOS	Level of service
MBTA	Migratory Bird Treaty Act
MEIR	Maximum exposed individual residential receptor
MEIS	Maximum exposed individual sensitive receptor
MEIW	Maximum exposed individual worker receptor
MGD	million gallons per day
$MMTCO_2e$	Million metric tons of carbon dioxide equivalents
MND	Mitigated Negative Declaration
mpg	Miles per gallon
MPO	Metropolitan Planning Organizations
MRP	Municipal Regional Permit
msl	mean sea level
MTC	Metropolitan Transportation Commission
MVA	megavolt amps
MW	Megawatts
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAD83	North American Datum of 1983
NAHC	Native American Heritage Commission
NED	National Elevation Dataset
NFIP	National Flood Insurance Program
NISL	Newby Island Sanitary Landfill
NO_2	Nitrogen dioxide
NOD	Notice of Determination
NOI	Notice of Intent
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System

NSPS	New Source Performance Standards
NWIC	Northwest Information Center
O_3	Ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
Pb	Lead
PCBs	Polychlorinated biphenyls
PDAs	Priority Development Areas
PFCs	Perfluorocarbons
PG&E	Pacific Gas and Electric
$PM_{2.5}$	Sub 2.5-micron particulate matter
PM_{10}	Sub 10-micron particulate matter
PMI	Point of maximum impact
PMVMRM	Plume Molar Volume Molar Ratio Method
POC	Precursor organic compounds
ppm	parts per million
PPV	Peak Particle Velocity
PUE	Power Usage Effectiveness
PV	Photovoltaics
RECs	Recognized environmental conditions
REL	Reference Exposure Level
RHNA	Regional Housing Need Allocation
ROG	Reactive organic
RPS	Renewable Portfolio Standard
RWF	Santa Clara Regional Wastewater Facility
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCCDEH	Santa Clara County Department of Environmental Health
SCFD	City of Santa Clara Fire Department
SCPD	City of Santa Clara Police Department
SCS	Sustainable Communities Strategy
SVCWD	Santa Clara Valley Water District

SFBAAB	San Francisco Bay Area Basin
SFHA	Special Flood Hazard Areas
SHMA	Seismic Hazards Mapping Act
SF_6	Sulfur hexafluoride
SMARA	Surface Mining and Reclamation Act
SMP	Site Management Plan
SO_x	Sulfur oxides
SO_2	Sulfur dioxide
SPPE	Small Power Plant Exemption
SVP	Silicon Valley Power
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCRs	Tribal Cultural Resources
TDM	Transportation Demand Management
TMDLs	Total maximum daily loads
TPZ	Traffic Pattern Zone
TSZ	Turning Safety Zone
USFWS	United States Fish and Wildlife Service
UTM	Universal Transverse Mercator
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
VOC	Volatile organic compounds
VRP	Visibility reducing particulate
VSD	Virtually safe dose
WSA	Water Supply Assessment

APPENDIX A

Air Quality Technical Reports

APPENDIX A-1

NOx Modeling Report

Prepared for
California Energy Commission

Prepared by
Ramboll US Consulting, Inc.
San Francisco, California

Project Number
1690020771

Date
March 2021

AIR DISPERSION MODELING REPORT FOR 1-HOUR NO_2 CAAQS AND NAAQS – VANTAGE CA3 DATA CENTER
VANTAGE DATA CENTERS
SANTA CLARA, CALIFORNIA

RAMBOLL

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ACRONYMS AND ABBREVIATIONS

AERMOD	American Meteorological Society/Environmental Protection Agency regulatory air dispersion model
AQS	Air Quality System
CAAQS	California Ambient Air Quality Standard
CAPCOA	California Air Pollution Control Officers Association
CEC	California Energy Commission
DPF	Diesel Particulate Filter
GEP	Good Engineering Practice
km	Kilometers
MRLC	Multi-Resolution Land Characteristics
MW	Megawatts
NAAQS	National Ambient Air Quality Standard
NED	National Elevation Data
NO_2	Nitrogen Dioxide
NO_x	Nitrous Oxide
NWS	National Weather Service
ppb	Part Per Billion
PRIME	Plume Rise Modeling Enhancements
PSD	Prevention of Significant Deterioration
PVMRM	Plume Volume Molar Ratio Method
RICE	Reciprocating Internal Combustion Engines
SCR	Selective-Catalytic Reduction Unit
SPPE	Small Power Plant Exemption
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
$\mu g/m^3$	Micrograms per cubic meter

1. INTRODUCTION

Vantage Data Centers (Vantage)'s Project CA3 (the "Project" or "facility") at 2590 Walsh Ave is a proposed new data center and backup generating facility in Santa Clara, California. The proposed buildout plan for CA3 includes forty-four (44) 2.75-megawatts (MW) emergency diesel generators with a generation capacity of up to 95 MW to provide uninterruptible power supply for its tenants' servers. 40 out of the 44 generators provide back-up power for the data center and 4 of the generators are life safety or house generators that provide electricity during emergencies to support portions of the admin building and features necessary for emergency response.

Ramboll is submitting this air dispersion NO_2 modeling report to the California Energy Commission (CEC) on behalf of Vantage Data Centers in support of its application for a Small Power Plant Exemption (SPPE). The SPPE application provides a detailed facility description, the quantification of emissions from facility sources, a review of applicability of federal and state air regulations, and the manufacturer's specification sheets for the proposed emergency generators. There are no stationary combustion sources at the facility other than the emergency standby generators.

A list of generator models at the facility and the generator ID numbers for the proposed generators at the facility are included in **Attachment B, Table B-1**.

2. AIR QUALITY ANALYSIS APPROACH

An air dispersion modeling analysis was completed to reflect the normal operating conditions of the facility and analyze potential air quality impacts in relation to the 1-hour nitrogen dioxide (NO_2) National Ambient Air Quality Standard (NAAQS) and the California Ambient Air Quality Standard (CAAQS). The analyses were conducted consistent with the following federal and state guidance documents:

- United States Environmental Protection Agency (USEPA) Guideline on Air Quality Models 40 CFR 51, Appendix W (Revised, January 17, 2017), herein referred to as Appendix W;
- USEPA's AERMOD Implementation Guide (Revised, August 3, 2015);
- California Air Pollution Control Officers Association (CAPCOA) Guidance Document "Modeling Compliance of the Federal 1-Hour NO_2 NAAQS" (Dated October 27, 2011)

The applicable values for the NO_2 NAAQS and CAAQS for the 1-hour averaging period are provided in **Table 1**.

Table 1. Applicable NAAQS and CAAQS

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-Hour	188 [a]	339 [b]

Abbreviation:
CAAQS - California Ambient Air Quality Standard
NAAQS - National Ambient Air Quality Standard
NO_2 – nitrogen dioxide
$\mu g/m^3$ - Micrograms per cubic meter

Notes:
[a] Standard of 100 ppb converted to $\mu g/m^3$. 98th percentile of 1-hour daily maximum concentrations, averaged over three years.
[b] Standard of 180 ppb converted to $\mu g/m^3$. Maximum 1-hour

2.1 NAAQS and CAAQS Analysis

The NAAQS and CAAQS modeling evaluation incorporates the 40 backup generators that will be tested in groups of 8 for the backup generators, and the 4 house generators that will be tested as one group on a monthly basis at the project site. A seasonal-by-hour representative background concentration from concurrent historical NO_2 monitoring data near the site was then added to the modeled concentrations on an hour-by-hour basis for comparison against the applicable NAAQS concentration to represent the contribution of sources not explicitly modeled. For the CAAQS analysis, the concurrent 1-hour NO_2 concentrations from the 5 years of monitoring data were added to the modelled concentration and compared to the standard. The model outputs that were used for assessing compliance with the NAAQS and CAAQS are summarized in **Table 2**.

Table 2. Modeling Output for NAAQS & CAAQS Compliance Demonstration

Pollutant and Averaging Period	Model Output
1-Hour NAAQS NO_2	Daily maximum 1-hour average of the 8th high across 5 years, on a receptor-by-receptor basis
1-Hour CAAQS NO_2	Single maximum 1-hour concentration across 5 years on a receptor-by-receptor basis
Abbreviation: CAAQS - California Ambient Air Quality Standard NAAQS - National Ambient Air Quality Standard NO_2 – nitrogen dioxide	

2.1.1 Background Concentrations

NO_2 background data for the 1-hour NO_2 NAAQS and CAAQS analyses were obtained from the AQS Monitoring Station in San Jose (Jackson, 06-085-0005), the nearest station to the facility. These data, spanning the period from January 2017 through December 2019, ranged in value from 0.0 to 86.1 part per billion (ppb). Missing values for one or two consecutive hours were replaced by the larger value of the preceding or following hour. When 3 or more consecutive hours were missing, the monthly-by-hour maximum for the 3-year period was used to substitute for the missing hours. For the NAAQS analysis, these data were then used to calculate the seasonal-by-hour background using the five-year average of the 3rd highest value of the available monitoring data, determined by accounting for both season and hour-of-day. The 3rd, 2nd, or 1st highest season by hour-of-day value for each year was used to average over the five years depending on the completeness of the seasonal data for that year (3rd highest with more than 60 valid days per season, 2nd highest with between 30 and 60 days, and 1st highest with more than 15 days). For the CAAQS model, the 5-year dataset was used to generate hourly files concurrent with the meteorological data, which were added to the concentration on an hour-by-hour basis.[1]

[1] Minnesota Pollution Control Agency. Filling Missing Ozone Data for OLM and PVMRM Applications. 2014. Available at: https://www.pca.state.mn.us/sites/default/files/aq2-69.pdf

3. MODELING METHODOLOGY, SETTINGS, AND INPUTS

This section outlines the technical approach used in the NO_2 modeling evaluations. Figures and tables supporting this modeling evaluation and outlining the model inputs are provided in **Attachment A** and **Attachment B**, respectively. Manufacturer performance data sheets are included in **Attachment C**.

3.1 Model Selection and Settings

To estimate off-property ambient concentrations of NO_2, the applicant used version (19191) of the AERMOD modeling system.[2] AERMOD is USEPA's recommended air dispersion model for near-field (within 50 kilometers [km]) modeling analyses. AERMOD is appropriate for use in estimating ground-level, short-term ambient air concentrations resulting from non-reactive buoyant emissions from sources located in simple and complex terrain. This analysis was conducted using AERMOD's regulatory default settings, except for the NO_2/Nitrous Oxide (NO_X) in stack ratio (discussed in Section 3.1.1).

Ambient concentrations were estimated using AERMOD in conjunction with information about the site, the locations of the NO_X-emitting stacks, representative meteorological data, and nearby receptors. The North American Datum of 1983 (NAD83) of the Universal Transverse Mercator (UTM) Coordinate System (Zone 10) was used, which provides a constant distance relationship anywhere on the map or domain. The units of the coordinates are in meters.

3.1.1 NO_2 Modeling Approach

The applicant used the Tier 3 Plume Volume Molar Ratio Method (PVMRM) for the NO_2 Significance Analyses and to demonstrate compliance with the NO_2 NAAQS and Prevention of Significant Deterioration (PSD) Increment standards. As part of the 2017 Appendix W updates, USEPA incorporated the PVMRM as a regulatory default method for NO_2 modeling.

The applicant used a NO_2/NO_X in stack ratio of 0.10 for the facility's proposed backup emergency generators. This value was selected based on data from onsite generators of the same make and model as the proposed generators, and from USEPA's In-Stack Ratio Database for diesel/kerosene-fired reciprocating internal combustion engines (RICE).[3] The USEPA database has data for 57 diesel-fired RICE that indicate a median, mean, and even a second-high value, that are less than a 0.10 NO_2/NO_X ratio.

Hourly ozone data from the San Jose AQS Monitoring Station were used (Jackson, 06-085-0005) with missing data substituted in two stages. If one or two consecutive hours were missing, the values were replaced by the larger value of the preceding or following hour. If three or more consecutive hours were missing, those values were replaced by the maximum values of the month-by-hour data set (i.e., the highest monitored value of the five years of data categorized by month of year and hour of day).[4]

[2] A newer version of AERMOD was released on March 22, 2018 (version 18081), after most analyses had been completed for this project. To remain consistent with previous analyses, the same version of AERMOD was used for the updated modelling presented in this report (version 16216r).

[3] https://www3.epa.gov/scram001/no2_isr_database.htm

[4] Minnesota Pollution Control Agency. Filling Missing Ozone Data for OLM and PVMRM Applications. 2014. Available at: https://www.pca.state.mn.us/sites/default/files/aq2-69.pdf

3.2 Modeled Sources and Release Parameters

The NAAQS and CAAQS analyses added NO_2 impacts from the applicant's facility sources and the background to yield a cumulative impact. The following sections describe the release parameters that were used in the model.

3.2.1 Proposed Facility Sources

This included an assessment of 1-hour NO_2 impacts from the facility's proposed sources (**Attachment A, Figure 1**). The emissions from the generators at the site exhaust through vertical stacks with barometric rain covers. The generator stacks have flapper-style rain caps that open with the exhaust flow such that they do not obstruct the exhaust from the release point. The site's emission sources were modeled as point sources using manufacturer-provided stack parameters (**Attachment B, Table B-2**).

For the 1-hour NO_2 NAAQS and CAAQS analyses for the 2.75 MW emergency back-up generators, a typical monthly testing scenario was modeled that includes one monthly 15-minute preventive maintenance test that is conducted for eight generators at a time for maintenance and readiness testing. Since the monthly preventive maintenance tests are only 15 minutes long, we assumed that this time will not be enough for the SCR to start up. As a result, the modeling is conservatively based on Tier 2 NOx emission factors since the SCRs are not expected to operate during these tests. For comparison with the NAAQS and CAAQS, the 10% load hourly emission rate was used in both models, whereas the actual testing would operate for 15 minutes of testing at 0% load.

A detailed derivation of the modeled hourly NO_X emission rates used in the models is provided in **Attachment B, Table B-3**.

3.3 Building Downwash

The AERMOD model incorporates Plume Rise Modeling Enhancements (PRIME) to account for downwash. The direction-specific building downwash dimensions used as inputs were determined by the latest version (04274) of the Building Profile Input Program, PRIME (BPIP PRIME). BPIP PRIME uses building downwash algorithms incorporated into AERMOD to account for the plume dispersion effects of the aerodynamic wakes and eddies produced by buildings and structures.

The applicant evaluated onsite buildings at the facility for downwash effects on each modeled point source, as well as nearby offsite buildings. Each generator is located inside its own weather-proof enclosure. Several additional structures including the Selective-Catalytic Reduction Unit /Diesel Particulate Filter (SCR/DPF) assembly were also represented atop the enclosures with the generator stack extending from the side of the SCR/DPF assembly. Each generator enclosure and accessory structures was included as a downwash structure in the model, as a three-tiered onsite building. The modeled parameters for the buildings and the weather-proof enclosures for the generators are provided in **Attachment B, Table B-4**.

3.4 Good Engineering Practice Stack Height Analysis

USEPA has promulgated regulations that limit the maximum stack height one may use in a modeling analysis to no more than the Good Engineering Practice (GEP) stack height. The purpose of this requirement is to prevent the use of excessively tall stacks to reduce the modeled concentrations of a pollutant. GEP stack height is impacted by the heights of nearby structures. In general, the maximum value for GEP stack height is 65 meters. The stack heights for the facility's generator stacks do not exceed the GEP stack height.

3.5 Terrain Data and Land Use

Per USEPA guidance, terrain elevations were incorporated into the model using of AERMAP (version 11103), AERMOD's terrain preprocessor. Terrain elevation data for the entire modeling domain was extracted from 1/3 arc-second National Elevation Data (NED) files with a resolution of approximately 10 meters. The NED files were obtained from the United States Geological Survey (USGS) Multi-Resolution Land Characteristics (MRLC) Consortium.[5] AERMAP was configured to assign elevations for the sources, buildings, property line receptors, and discrete gridded receptors in the modeling domain. All onsite features were assumed to be at the same elevation.

Land use classification determines the type of area to be modeled. The different classifications, urban or rural, incorporate distinct pollutant dispersion characteristics and affect the estimation of downwind concentrations when used in the model. Based on the land use around the facility, the urban boundary layer option in the model was selected. The population for the urban mode was based on the population of the San Jose Urban Area (1,664,496).

3.6 Meteorological Data

AERMOD requires a meteorological input file to characterize the transport and dispersion of pollutants in the atmosphere. Surface and upper air meteorological data inputs, as well as surface parameter data describing the land use and surface characteristics near the site, are processed using AERMET, the meteorological preprocessor to AERMOD. The output file generated by AERMET is the meteorological input file required by AERMOD.

A representative meteorological data set was developed using a combination of surface data from the National Weather Service (NWS) station at the San Jose Airport (KSJC, located approximately 2 km west of the facility) and NWS upper air data from the Oakland Airport (KOAK, located approximately 50 km northwest of the facility).

Per Appendix W, five years of representative meteorological data are considered adequate for dispersion modeling applications. Hourly and 1-minute wind speed and wind direction data from January 2015 through December 2019 were processed using AERMINUTE (version 15272) and AERMET (version 19191). The meteorological data was processed using the ADJ_U* option that reduces overprediction of modeled concentrations that occur in stable conditions with low wind speeds due to underprediction of the surface friction velocity (u*). Underprediction of u* results in an underestimation of the mechanical mixing height and thus overprediction of ambient concentrations. The ADJ_U* option is now considered a regulatory default option with the recent update to Appendix W.

Additional meteorological variables and geophysical parameters are required for use in the AERMOD dispersion modeling analysis to estimate the surface energy fluxes and construct boundary layer profiles. Surface characteristics including albedo, Bowen ratio, and surface roughness length were determined for the area surrounding the San Jose Airport meteorological station using the AERMET surface characteristic preprocessor, AERSURFACE (v20060), and the 2016 MRLC Consortium data sets including Land Cover, Tree Canopy, and Impervious Surface information. Monthly surface parameters were determined using AERSURFACE according to USEPA's guidance.

[5] http://www.mrlc.gov

Monthly albedo and Bowen ratio values were based on averaging over a 10-km by 10-km region centered on the San Jose Airport meteorological site. Monthly surface roughness values were calculated for twelve 30-degree sectors within 1 km of the San Jose Airport meteorological station.

3.7 Receptor Grid

Ground-level concentrations were calculated at receptors placed along the facility fence line and on a circular, Cartesian grid. For this analysis, receptors extending up to 1 km from the fence line, as needed, were modeled using the following resolutions (**Attachment A, Figure 2**):

- 10 meter resolution for fence line receptors;
- 20 meter resolution extending from the fence line to 500 meters;
- 50 meter resolution extending from 500 meters to 1,500 meters.
- 100 meter resolution extending from 1,500 meters to 3,000 meters

4. SUMMARY OF MODELING RESULTS

The following sections summarize the results of the NO_2 dispersion modeling analyses and demonstrate that the proposed project will not cause or contribute to a violation of the NAAQS or CAAQS.

4.1 NAAQS and CAAQS Analyses

Modeling was conducted to demonstrate compliance with the 1-hour and NO_2 NAAQS and CAAQS. The results of these analyses are presented in **Table 3** and demonstrate that there are no predicted violations of the NO_2 NAAQS or CAAQS.

Table 3. NO_2 NAAQS and CAAQS Results

Standard	Averaging Period	UTM East (m)	UTM North (m)	Total Ambient Conc.[a,b] (µg/m³)	Threshold (µg/m³)	Above Threshold?
1-Hour NAAQS[c]	5Y AVG H8H	590889.80	4136466.50	186.35	188	No
1-Hour CAAQS[c]	H1H	590884.83	4136530.57	337.71	339	No

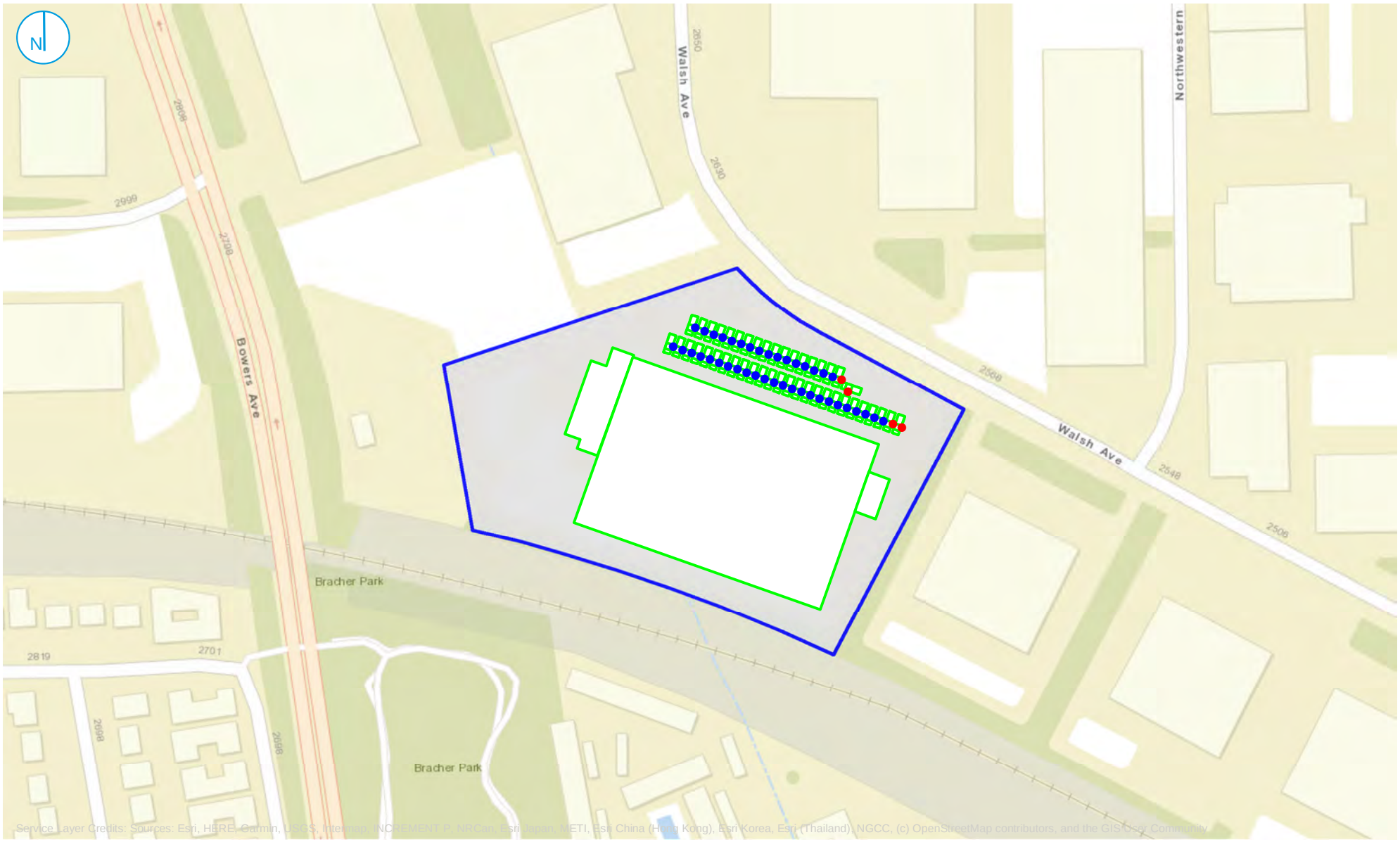
Abbreviation:
CAAQS - California Ambient Air Quality Standard
H1H – 1st Highest High
H8H – 8th Highest High
M - meter
NAAQS - National Ambient Air Quality Standard
NO_2 – nitrogen dioxide
UTM - Universal Transverse Mercator
µg/m³ - Micrograms per cubic meter

Notes:
[a] The value shown is the maximum from any of the 8 backup generator groupings or the 4 life safety generator grouping being tested for 15 minutes at 0% load.
[b] Total ambient concentration represents the modeled concentration plus the background concentration. For the CAAQS analysis the value includes the maximum 1-hr concentration plus the maximum hourly background concentration (168.87 ug/m³) . Season-by-hour background were used for the NAAQS model, so this model output also represents the total ambient concentration at each receptor.
[c] The total ambient concentrations for the 1-hour NAAQS and 1-hour CAAQS are based on Tier II emission rates for NOx ,assuming that the SCR will not operate.

The maximum ambient concentration for the 1-hour NO_2 NAAQS analysis and the contributing generator are presented in **Attachment A, Figure 3**. The maximum ambient concentration for the 1-hour NO_2 CAAQS analysis and the contributing generator are presented in **Attachment A, Figure 4**. The modeled 1-hour NO_2 concentrations shown in **Table 3** are representative of the maximum value from all of the modeled generators. A full summary of the model results for the 1-hour NO_2 NAAQS and CAAQS analyses are provided in **Attachment B, Table B-5 and B-6,** respectively.

ATTACHMENT A
FIGURES

PROJECT: 1690020771 | DATED: 3/15/2021 | DESIGNER: DCW



Facility Boundary
Buildings & Structures
Backup Generator Stacks
Life Safety Generator Stacks

0 50 100 Meters

PROJECT LOCATION AND FACILITY LAYOUT
VANTAGE CA3 CAMPUS

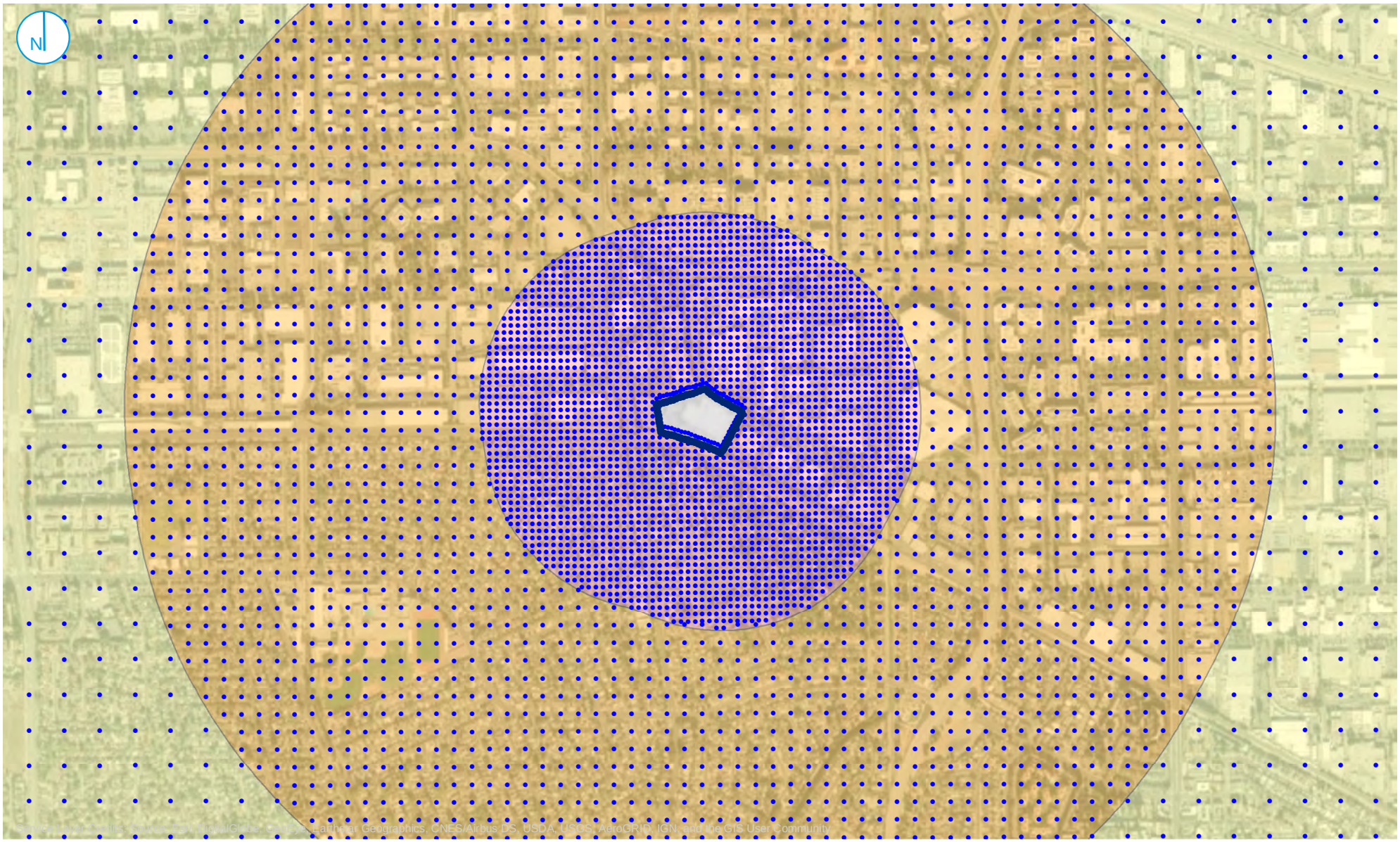
Vantage CA3
2590 Walsh Avenue
Santa Clara, California

FIGURE 01

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1690020771 | DATED: 3/9/2021 | DESIGNER: DCW



- 10 m Boundary Receptors
- 25 m Receptor Grid (to 500 m)
- 50 m Receptor Grid (to 1500 m)
- 100 m Receptor Grid (to 3000 m)

0 500 1,000 Meters

MODELLED RECEPTOR LOCATIONS
VANTAGE CA3 CAMPUS

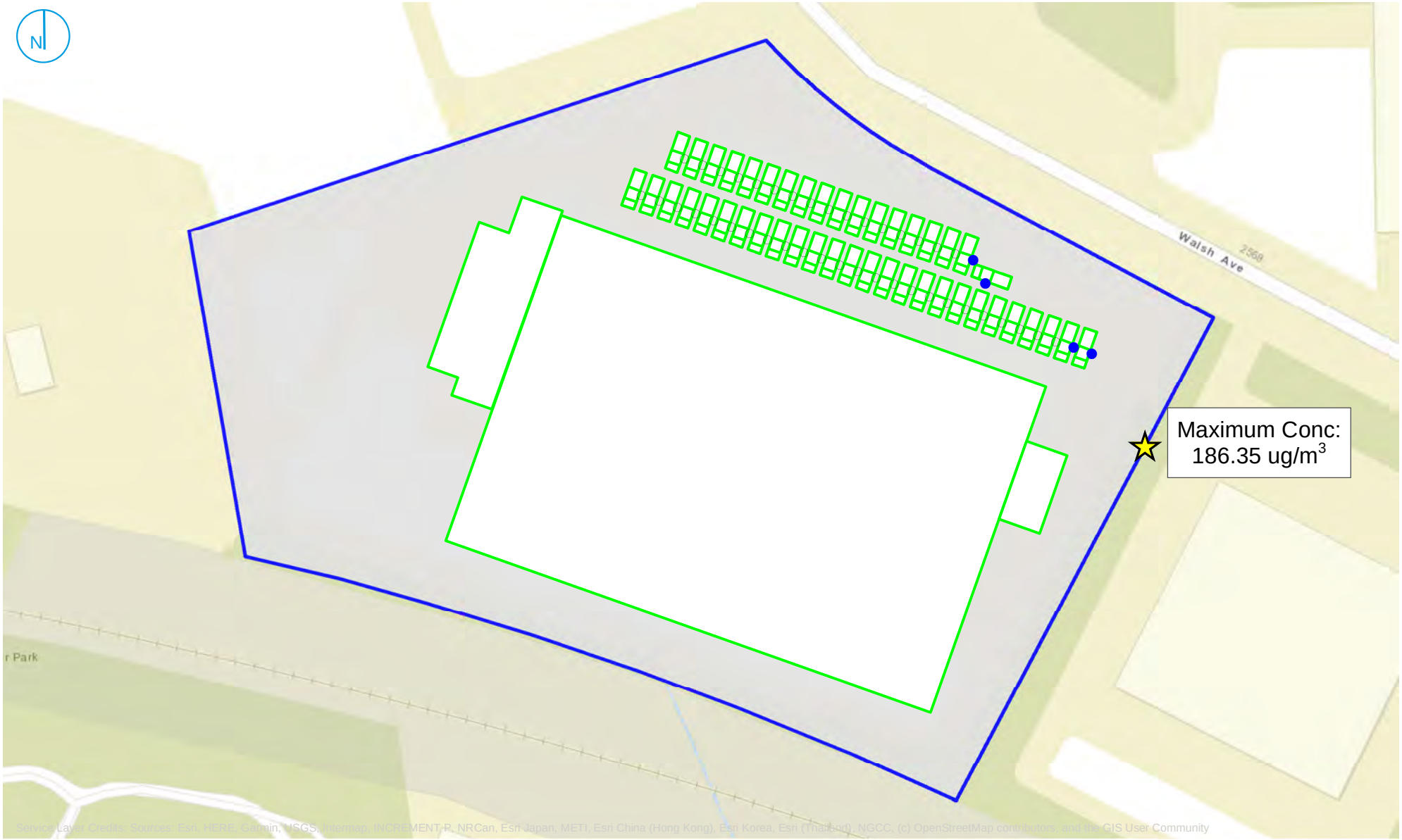
Vantage CA3
2590 Walsh Avenue
Santa Clara, California

FIGURE 02

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1690020771 | DATED: 3/15/2021 | DESIGNER: DCW



Facility Boundary
Buildings & Structures
Contributing Generator Stacks

0 50 100 Meters

MAXIMUM 1-HOUR NO2 CONCENTRATION (NAAQS, BACKGROUND INCLUDED) AND CONTRIBUTING GENERATORS

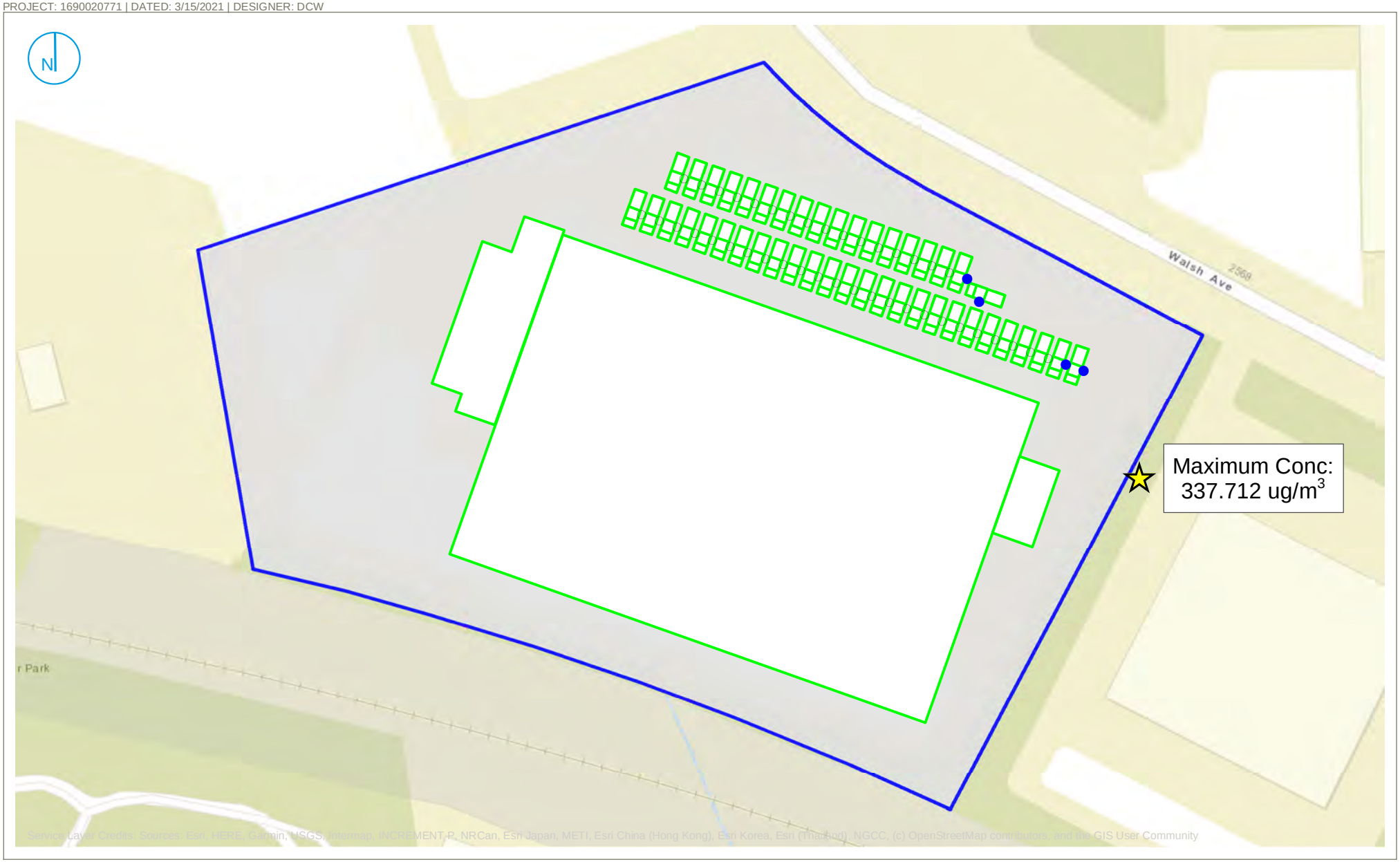
Vantage CA3
2590 Walsh Avenue
Santa Clara, California

FIGURE 03

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1690020771 | DATED: 3/15/2021 | DESIGNER: DCW



Facility Boundary
Buildings & Structures
Contributing Generator Stacks

0 50 100 Meters

MAXIMUM 1-HOUR NO2 CONCENTRATION (CAAQS, NO BACKGROUND INCLUDED) AND CONTRIBUTING GENERATORS

Vantage CA3
2590 Walsh Avenue
Santa Clara, California

FIGURE 04

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

ATTACHMENT B
TABLES

Table B-1
Source Descriptions for the CA3 Facility Sources
Vantage CA3 Project
Santa Clara, California

Model ID	Description	Type of Generator[2]	Specifications				
			Make	Model	USEPA Tier	Rated Power Output (kW)	Rated Power Output (HP)
R1EG01	2.75 MW CAT 3516E Generator	IT Generator	Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG02	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG03	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG04	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG05	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG06	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG07	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG08	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG09	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG10	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG11	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG12	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG13	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG14	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG15	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG16	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG17	2.75 MW CAT 3516E Generator	Life Safety Generator	Caterpillar	3516E	4 Eq.	2,750	4,043
R1EG18	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG01	2.75 MW CAT 3516E Generator	IT Generator	Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG02	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG03	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG04	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG05	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043

Table B-1
Source Descriptions for the CA3 Facility Sources
Vantage CA3 Project
Santa Clara, California

R2EG06	2.75 MW CAT 3516E Generator	IT Generator	Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG07	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG08	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG09	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG10	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG11	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG12	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG13	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG14	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG15	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG16	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG17	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG18	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG19	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG20	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG21	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG22	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG23	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG24	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG25	2.75 MW CAT 3516E Generator	Life Safety Generator	Caterpillar	3516E	4 Eq.	2,750	4,043
R2EG26	2.75 MW CAT 3516E Generator		Caterpillar	3516E	4 Eq.	2,750	4,043

Notes:

1. Engine specifications were provided by Peterson Power Systems for the Safety Power ecoCUBE design criteria engine
2. The NAAQS and CAAQS modeling evaluation incorporates the 40 backup generators that will be tested in groups of 8 for the backup generators, and the 4 life safety generators that will be tested as one group on a monthly basis at the project site.

Abbreviations:

Eq. - equivalent
HP - horsepower
kW - kilowatts
MW - megawatts

Table B-2
Modeling Parameters for Emergency Generators
Vantage CA3 Project

Model ID	Description	UTM Zone 10 Coordinates (m)		Elevation (m)	Emission Rate (1-Hour Max.) (g/s)	Stack Height (m)	Stack Temp. (K)	Stack Velocity (m/s)	Stack Diameter (m)
		X	Y						
R1EG01	2.75 MW CAT 3516E Generator	590,789.27	4,136,552.53	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG02	2.75 MW CAT 3516E Generator	590,793.57	4,136,551.01	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG03	2.75 MW CAT 3516E Generator	590,797.87	4,136,549.49	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG04	2.75 MW CAT 3516E Generator	590,802.17	4,136,547.97	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG05	2.75 MW CAT 3516E Generator	590,806.47	4,136,546.45	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG06	2.75 MW CAT 3516E Generator	590,810.77	4,136,544.93	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG07	2.75 MW CAT 3516E Generator	590,815.07	4,136,543.41	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG08	2.75 MW CAT 3516E Generator	590,819.37	4,136,541.89	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG09	2.75 MW CAT 3516E Generator	590,823.67	4,136,540.37	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG10	2.75 MW CAT 3516E Generator	590,827.97	4,136,538.85	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG11	2.75 MW CAT 3516E Generator	590,832.27	4,136,537.33	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG12	2.75 MW CAT 3516E Generator	590,836.57	4,136,535.81	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG13	2.75 MW CAT 3516E Generator	590,840.87	4,136,534.29	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG14	2.75 MW CAT 3516E Generator	590,845.17	4,136,532.77	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG15	2.75 MW CAT 3516E Generator	590,849.47	4,136,531.25	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG16	2.75 MW CAT 3516E Generator	590,853.77	4,136,529.73	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG17	2.75 MW CAT 3516E Generator	590,858.07	4,136,528.21	14.33	0.433750	10.09	566.93	9.45	0.56
R1EG18	2.75 MW CAT 3516E Generator	590,861.02	4,136,522.56	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG01	2.75 MW CAT 3516E Generator	590,778.92	4,136,543.77	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG02	2.75 MW CAT 3516E Generator	590,783.22	4,136,542.25	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG03	2.75 MW CAT 3516E Generator	590,787.52	4,136,540.73	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG04	2.75 MW CAT 3516E Generator	590,791.82	4,136,539.21	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG05	2.75 MW CAT 3516E Generator	590,796.12	4,136,537.69	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG06	2.75 MW CAT 3516E Generator	590,800.42	4,136,536.17	14.33	0.433750	10.09	566.93	9.45	0.56

Table B-2
Modeling Parameters for Emergency Generators
Vantage CA3 Project

R2EG07	2.75 MW CAT 3516E Generator	590,804.72	4,136,534.65	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG08	2.75 MW CAT 3516E Generator	590,809.02	4,136,533.13	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG09	2.75 MW CAT 3516E Generator	590,813.32	4,136,531.61	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG10	2.75 MW CAT 3516E Generator	590,817.62	4,136,530.09	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG11	2.75 MW CAT 3516E Generator	590,821.92	4,136,528.57	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG12	2.75 MW CAT 3516E Generator	590,826.22	4,136,527.05	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG13	2.75 MW CAT 3516E Generator	590,830.52	4,136,525.53	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG14	2.75 MW CAT 3516E Generator	590,834.82	4,136,524.01	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG15	2.75 MW CAT 3516E Generator	590,839.12	4,136,522.49	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG16	2.75 MW CAT 3516E Generator	590,843.42	4,136,520.97	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG17	2.75 MW CAT 3516E Generator	590,847.72	4,136,519.45	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG18	2.75 MW CAT 3516E Generator	590,852.02	4,136,517.93	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG19	2.75 MW CAT 3516E Generator	590,856.32	4,136,516.41	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG20	2.75 MW CAT 3516E Generator	590,860.62	4,136,514.89	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG21	2.75 MW CAT 3516E Generator	590,864.92	4,136,513.37	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG22	2.75 MW CAT 3516E Generator	590,869.22	4,136,511.85	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG23	2.75 MW CAT 3516E Generator	590,873.52	4,136,510.33	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG24	2.75 MW CAT 3516E Generator	590,877.82	4,136,508.81	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG25	2.75 MW CAT 3516E Generator	590,882.12	4,136,507.29	14.33	0.433750	10.09	566.93	9.45	0.56
R2EG26	2.75 MW CAT 3516E Generator	590,886.42	4,136,505.77	14.33	0.433750	10.09	566.93	9.45	0.56

Notes:

1. Engine specifications were provided by Peterson Power Systems for the Safety Power ecoCUBE design criteria engine

Abbreviations:

g - grams
K - kelvin
m - meters
MW - megawatts
s - seconds
UTM - Universal Transverse Mercator coordinate system

Table B-3
Modeled Emissions Rate for 1-Hour NO2 Modeling
Vantage CA3 Project

Generator Model	Number of Generators[1]	Load-Specific Emission Rates (g/s/gen)	Hourly NOX Emissions per Generator[2] (g/s/gen)
		10%	
2.75 MW CAT 3516E Generator	44	1.735	0.434

Notes:

1. Backup generators are tested in groups of 8 and life safety generators are tested in groups of 4, however, the monthly tests will typically involve few generators tested together.
2. Hourly NOx emission rates for the NAAQS and CAAQS analyses for the 2.75 MW CAT gens assumed the worst case scenario of operating at 0% load (10% is lowest available data) for 15 minutes. The emission rates are based on Tier II emissions standards.

Abbreviations:

CAAQS - California Ambient Air Quality Standards
g - grams
MW - megawatts
NAAQS - National Ambient Air Quality Standards
NOx - oxides of nitrogen
s - seconds

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

Model ID	Description	UTM Zone 10 Coordinates (m)		Elevation (m)	Height (m)
		X	Y		
ADMN_BLDG	Administrative Building	590788.61	4136557.11	14.33	27.05
LOAD_DOCK	Loading Dock	590785.33	4136550.89	14.33	6.76
MAIN_BLDG	Main Data Building	590787.26	4136550.21	14.33	27.05
R1GE01A	SCR/DPF	590787.51	4136554.00	14.33	9.10
R1GE01B	Exhaust Plenum	590789.63	4136549.37	14.33	8.81
R1GE01C	Exhaust Plenum	590787.06	4136552.72	14.33	8.81
R1GE01D	Accessory Structure	590792.91	4136555.59	14.33	10.09
R1GE01X	Generator Enclosure	590791.56	4136548.69	14.33	5.77
R1GE02A	SCR/DPF	590791.81	4136552.48	14.33	9.10
R1GE02B	Exhaust Plenum	590793.93	4136547.85	14.33	8.81
R1GE02C	Exhaust Plenum	590791.36	4136551.20	14.33	8.81
R1GE02D	Accessory Structure	590797.21	4136554.07	14.33	10.09
R1GE02X	Generator Enclosure	590795.86	4136547.17	14.33	5.77
R1GE03A	SCR/DPF	590796.11	4136550.96	14.33	9.10
R1GE03B	Exhaust Plenum	590798.23	4136546.33	14.33	8.81
R1GE03C	Exhaust Plenum	590795.66	4136549.68	14.33	8.81
R1GE03D	Accessory Structure	590801.51	4136552.55	14.33	10.09
R1GE03X	Generator Enclosure	590800.16	4136545.65	14.33	5.77
R1GE04A	SCR/DPF	590800.41	4136549.44	14.33	9.10
R1GE04B	Exhaust Plenum	590802.53	4136544.81	14.33	8.81
R1GE04C	Exhaust Plenum	590799.96	4136548.16	14.33	8.81
R1GE04D	Accessory Structure	590805.81	4136551.03	14.33	10.09
R1GE04X	Generator Enclosure	590804.46	4136544.13	14.33	5.77
R1GE05A	SCR/DPF	590804.71	4136547.92	14.33	9.10
R1GE05B	Exhaust Plenum	590806.83	4136543.29	14.33	8.81

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R1GE05C	Exhaust Plenum	590804.26	4136546.64	14.33	8.81
R1GE05D	Accessory Structure	590810.11	4136549.51	14.33	10.09
R1GE05X	Generator Enclosure	590808.76	4136542.61	14.33	5.77
R1GE06A	SCR/DPF	590809.01	4136546.40	14.33	9.10
R1GE06B	Exhaust Plenum	590811.13	4136541.77	14.33	8.81
R1GE06C	Exhaust Plenum	590808.56	4136545.12	14.33	8.81
R1GE06D	Accessory Structure	590814.41	4136547.99	14.33	10.09
R1GE06X	Generator Enclosure	590813.06	4136541.09	14.33	5.77
R1GE07A	SCR/DPF	590813.31	4136544.88	14.33	9.10
R1GE07B	Exhaust Plenum	590815.43	4136540.25	14.33	8.81
R1GE07C	Exhaust Plenum	590812.86	4136543.60	14.33	8.81
R1GE07D	Accessory Structure	590818.71	4136546.47	14.33	10.09
R1GE07X	Generator Enclosure	590817.36	4136539.57	14.33	5.77
R1GE08A	SCR/DPF	590817.61	4136543.36	14.33	9.10
R1GE08B	Exhaust Plenum	590819.73	4136538.73	14.33	8.81
R1GE08C	Exhaust Plenum	590817.16	4136542.08	14.33	8.81
R1GE08D	Accessory Structure	590823.01	4136544.95	14.33	10.09
R1GE08X	Generator Enclosure	590821.66	4136538.05	14.33	5.77
R1GE09A	SCR/DPF	590821.91	4136541.84	14.33	9.10
R1GE09B	Exhaust Plenum	590824.03	4136537.21	14.33	8.81
R1GE09C	Exhaust Plenum	590821.46	4136540.56	14.33	8.81
R1GE09D	Accessory Structure	590827.31	4136543.43	14.33	10.09
R1GE09X	Generator Enclosure	590825.96	4136536.53	14.33	5.77
R1GE10A	SCR/DPF	590826.21	4136540.32	14.33	9.10
R1GE10B	Exhaust Plenum	590828.33	4136535.69	14.33	8.81
R1GE10C	Exhaust Plenum	590825.76	4136539.04	14.33	8.81
R1GE10D	Accessory Structure	590831.61	4136541.91	14.33	10.09
R1GE10X	Generator Enclosure	590830.26	4136535.01	14.33	5.77
R1GE11A	SCR/DPF	590830.51	4136538.80	14.33	9.10

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R1GE11B	Exhaust Plenum	590832.63	4136534.17	14.33	8.81
R1GE11C	Exhaust Plenum	590830.06	4136537.52	14.33	8.81
R1GE11D	Accessory Structure	590835.91	4136540.39	14.33	10.09
R1GE11X	Generator Enclosure	590834.56	4136533.49	14.33	5.77
R1GE12A	SCR/DPF	590834.81	4136537.28	14.33	9.10
R1GE12B	Exhaust Plenum	590836.93	4136532.65	14.33	8.81
R1GE12C	Exhaust Plenum	590834.36	4136536.00	14.33	8.81
R1GE12D	Accessory Structure	590840.21	4136538.87	14.33	10.09
R1GE12X	Generator Enclosure	590838.86	4136531.97	14.33	5.77
R1GE13A	SCR/DPF	590839.11	4136535.76	14.33	9.10
R1GE13B	Exhaust Plenum	590841.23	4136531.13	14.33	8.81
R1GE13C	Exhaust Plenum	590838.66	4136534.49	14.33	8.81
R1GE13D	Accessory Structure	590844.51	4136537.35	14.33	10.09
R1GE13X	Generator Enclosure	590843.16	4136530.45	14.33	5.77
R1GE14A	SCR/DPF	590843.41	4136534.24	14.33	9.10
R1GE14B	Exhaust Plenum	590845.53	4136529.61	14.33	8.81
R1GE14C	Exhaust Plenum	590842.96	4136532.97	14.33	8.81
R1GE14D	Accessory Structure	590848.81	4136535.83	14.33	10.09
R1GE14X	Generator Enclosure	590847.46	4136528.93	14.33	5.77
R1GE15A	SCR/DPF	590847.71	4136532.72	14.33	9.10
R1GE15B	Exhaust Plenum	590849.83	4136528.09	14.33	8.81
R1GE15C	Exhaust Plenum	590847.26	4136531.45	14.33	8.81
R1GE15D	Accessory Structure	590853.11	4136534.31	14.33	10.09
R1GE15X	Generator Enclosure	590851.76	4136527.41	14.33	5.77
R1GE16A	SCR/DPF	590852.01	4136531.20	14.33	9.10
R1GE16B	Exhaust Plenum	590854.13	4136526.57	14.33	8.81
R1GE16C	Exhaust Plenum	590851.56	4136529.93	14.33	8.81
R1GE16D	Accessory Structure	590857.41	4136532.79	14.33	10.09
R1GE16X	Generator Enclosure	590856.06	4136525.89	14.33	5.77

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R1GE17A	SCR/DPF	590856.31	4136529.68	14.33	9.10
R1GE17B	Exhaust Plenum	590859.36	4136526.47	14.33	8.81
R1GE17C	Exhaust Plenum	590855.86	4136528.41	14.33	8.81
R1GE17D	Accessory Structure	590865.57	4136523.19	14.33	10.09
R1GE17X	Generator Enclosure	590858.68	4136524.54	14.33	5.77
R1GE18A	SCR/DPF	590862.47	4136524.28	14.33	9.10
R1GE18B	Exhaust Plenum	590859.96	4136519.47	14.33	8.81
R1GE18C	Exhaust Plenum	590861.19	4136524.73	14.33	8.81
R1GE18D	Accessory Structure	590743.59	4136518.32	14.33	10.09
R1GE18X	Generator Enclosure	590778.26	4136548.35	14.33	5.77
R2GE01A	SCR/DPF	590774.98	4136542.13	14.33	9.10
R2GE01B	Exhaust Plenum	590776.91	4136541.45	14.33	8.81
R2GE01C	Exhaust Plenum	590777.16	4136545.25	14.33	8.81
R2GE01D	Accessory Structure	590779.28	4136540.61	14.33	10.09
R2GE01X	Generator Enclosure	590776.71	4136543.97	14.33	5.77
R2GE02A	SCR/DPF	590782.56	4136546.83	14.33	9.10
R2GE02B	Exhaust Plenum	590781.21	4136539.93	14.33	8.81
R2GE02C	Exhaust Plenum	590781.46	4136543.73	14.33	8.81
R2GE02D	Accessory Structure	590783.58	4136539.09	14.33	10.09
R2GE02X	Generator Enclosure	590781.01	4136542.45	14.33	5.77
R2GE03A	SCR/DPF	590786.86	4136545.31	14.33	9.10
R2GE03B	Exhaust Plenum	590785.51	4136538.41	14.33	8.81
R2GE03C	Exhaust Plenum	590785.76	4136542.21	14.33	8.81
R2GE03D	Accessory Structure	590787.88	4136537.57	14.33	10.09
R2GE03X	Generator Enclosure	590785.31	4136540.93	14.33	5.77
R2GE04A	SCR/DPF	590791.16	4136543.79	14.33	9.10
R2GE04B	Exhaust Plenum	590789.81	4136536.89	14.33	8.81
R2GE04C	Exhaust Plenum	590790.06	4136540.69	14.33	8.81
R2GE04D	Accessory Structure	590792.18	4136536.05	14.33	10.09

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R2GE04X	Generator Enclosure	590789.61	4136539.41	14.33	5.77
R2GE05A	SCR/DPF	590795.46	4136542.27	14.33	9.10
R2GE05B	Exhaust Plenum	590794.11	4136535.37	14.33	8.81
R2GE05C	Exhaust Plenum	590794.36	4136539.17	14.33	8.81
R2GE05D	Accessory Structure	590796.48	4136534.53	14.33	10.09
R2GE05X	Generator Enclosure	590793.91	4136537.89	14.33	5.77
R2GE06A	SCR/DPF	590799.76	4136540.75	14.33	9.10
R2GE06B	Exhaust Plenum	590798.41	4136533.85	14.33	8.81
R2GE06C	Exhaust Plenum	590798.66	4136537.65	14.33	8.81
R2GE06D	Accessory Structure	590800.78	4136533.01	14.33	10.09
R2GE06X	Generator Enclosure	590798.21	4136536.37	14.33	5.77
R2GE07A	SCR/DPF	590804.06	4136539.23	14.33	9.10
R2GE07B	Exhaust Plenum	590802.71	4136532.33	14.33	8.81
R2GE07C	Exhaust Plenum	590802.96	4136536.13	14.33	8.81
R2GE07D	Accessory Structure	590805.08	4136531.50	14.33	10.09
R2GE07X	Generator Enclosure	590802.51	4136534.85	14.33	5.77
R2GE08A	SCR/DPF	590808.36	4136537.71	14.33	9.10
R2GE08B	Exhaust Plenum	590807.01	4136530.81	14.33	8.81
R2GE08C	Exhaust Plenum	590807.26	4136534.61	14.33	8.81
R2GE08D	Accessory Structure	590809.38	4136529.98	14.33	10.09
R2GE08X	Generator Enclosure	590806.81	4136533.33	14.33	5.77
R2GE09A	SCR/DPF	590812.66	4136536.19	14.33	9.10
R2GE09B	Exhaust Plenum	590811.31	4136529.29	14.33	8.81
R2GE09C	Exhaust Plenum	590811.56	4136533.09	14.33	8.81
R2GE09D	Accessory Structure	590813.68	4136528.46	14.33	10.09
R2GE09X	Generator Enclosure	590811.11	4136531.81	14.33	5.77
R2GE10A	SCR/DPF	590816.96	4136534.67	14.33	9.10
R2GE10B	Exhaust Plenum	590815.61	4136527.77	14.33	8.81
R2GE10C	Exhaust Plenum	590815.86	4136531.57	14.33	8.81

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R2GE10D	Accessory Structure	590817.98	4136526.94	14.33	10.09
R2GE10X	Generator Enclosure	590815.41	4136530.29	14.33	5.77
R2GE11A	SCR/DPF	590821.26	4136533.15	14.33	9.10
R2GE11B	Exhaust Plenum	590819.91	4136526.25	14.33	8.81
R2GE11C	Exhaust Plenum	590820.16	4136530.05	14.33	8.81
R2GE11D	Accessory Structure	590822.28	4136525.42	14.33	10.09
R2GE11X	Generator Enclosure	590819.71	4136528.77	14.33	5.77
R2GE12A	SCR/DPF	590825.56	4136531.63	14.33	9.10
R2GE12B	Exhaust Plenum	590824.21	4136524.73	14.33	8.81
R2GE12C	Exhaust Plenum	590824.46	4136528.53	14.33	8.81
R2GE12D	Accessory Structure	590826.58	4136523.90	14.33	10.09
R2GE12X	Generator Enclosure	590824.01	4136527.25	14.33	5.77
R2GE13A	SCR/DPF	590829.86	4136530.11	14.33	9.10
R2GE13B	Exhaust Plenum	590828.51	4136523.21	14.33	8.81
R2GE13C	Exhaust Plenum	590828.76	4136527.01	14.33	8.81
R2GE13D	Accessory Structure	590830.88	4136522.38	14.33	10.09
R2GE13X	Generator Enclosure	590828.31	4136525.73	14.33	5.77
R2GE14A	SCR/DPF	590834.16	4136528.59	14.33	9.10
R2GE14B	Exhaust Plenum	590832.81	4136521.69	14.33	8.81
R2GE14C	Exhaust Plenum	590833.06	4136525.49	14.33	8.81
R2GE14D	Accessory Structure	590835.18	4136520.86	14.33	10.09
R2GE14X	Generator Enclosure	590832.61	4136524.21	14.33	5.77
R2GE15A	SCR/DPF	590838.46	4136527.07	14.33	9.10
R2GE15B	Exhaust Plenum	590837.11	4136520.17	14.33	8.81
R2GE15C	Exhaust Plenum	590837.36	4136523.97	14.33	8.81
R2GE15D	Accessory Structure	590839.48	4136519.34	14.33	10.09
R2GE15X	Generator Enclosure	590836.91	4136522.69	14.33	5.77
R2GE16A	SCR/DPF	590842.76	4136525.55	14.33	9.10
R2GE16B	Exhaust Plenum	590841.41	4136518.65	14.33	8.81

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R2GE16C	Exhaust Plenum	590841.66	4136522.45	14.33	8.81
R2GE16D	Accessory Structure	590843.78	4136517.82	14.33	10.09
R2GE16X	Generator Enclosure	590841.21	4136521.17	14.33	5.77
R2GE17A	SCR/DPF	590847.06	4136524.03	14.33	9.10
R2GE17B	Exhaust Plenum	590845.71	4136517.14	14.33	8.81
R2GE17C	Exhaust Plenum	590845.96	4136520.93	14.33	8.81
R2GE17D	Accessory Structure	590848.08	4136516.30	14.33	10.09
R2GE17X	Generator Enclosure	590845.51	4136519.65	14.33	5.77
R2GE18A	SCR/DPF	590851.36	4136522.51	14.33	9.10
R2GE18B	Exhaust Plenum	590850.01	4136515.62	14.33	8.81
R2GE18C	Exhaust Plenum	590850.26	4136519.41	14.33	8.81
R2GE18D	Accessory Structure	590852.38	4136514.78	14.33	10.09
R2GE18X	Generator Enclosure	590849.81	4136518.13	14.33	5.77
R2GE19A	SCR/DPF	590855.66	4136520.99	14.33	9.10
R2GE19B	Exhaust Plenum	590854.30	4136514.10	14.33	8.81
R2GE19C	Exhaust Plenum	590854.56	4136517.89	14.33	8.81
R2GE19D	Accessory Structure	590856.68	4136513.26	14.33	10.09
R2GE19X	Generator Enclosure	590854.11	4136516.61	14.33	5.77
R2GE20A	SCR/DPF	590858.60	4136512.58	14.33	9.10
R2GE20B	Exhaust Plenum	590858.86	4136516.37	14.33	8.81
R2GE20C	Exhaust Plenum	590860.98	4136511.74	14.33	8.81
R2GE20D	Accessory Structure	590858.41	4136515.09	14.33	10.09
R2GE20X	Generator Enclosure	590864.26	4136517.95	14.33	5.77
R2GE21A	SCR/DPF	590862.90	4136511.06	14.33	9.10
R2GE21B	Exhaust Plenum	590863.16	4136514.85	14.33	8.81
R2GE21C	Exhaust Plenum	590865.28	4136510.22	14.33	8.81
R2GE21D	Accessory Structure	590862.71	4136513.57	14.33	10.09
R2GE21X	Generator Enclosure	590868.56	4136516.43	14.33	5.77
R2GE22A	SCR/DPF	590867.20	4136509.54	14.33	9.10

Table B-4
Modeled Buildings for the Vantage CA3 Facility
Vantage CA3 Project

R2GE22B	Exhaust Plenum	590867.46	4136513.33	14.33	8.81
R2GE22C	Exhaust Plenum	590869.58	4136508.70	14.33	8.81
R2GE22D	Accessory Structure	590867.01	4136512.05	14.33	10.09
R2GE22X	Generator Enclosure	590872.86	4136514.91	14.33	5.77
R2GE23A	SCR/DPF	590871.50	4136508.02	14.33	9.10
R2GE23B	Exhaust Plenum	590871.76	4136511.81	14.33	8.81
R2GE23C	Exhaust Plenum	590873.88	4136507.18	14.33	8.81
R2GE23D	Accessory Structure	590871.31	4136510.53	14.33	10.09
R2GE23X	Generator Enclosure	590803.81	4136479.61	14.33	5.77
R2GE24A	SCR/DPF	590877.16	4136513.39	14.33	9.10
R2GE24B	Exhaust Plenum	590875.80	4136506.50	14.33	8.81
R2GE24C	Exhaust Plenum	590876.06	4136510.29	14.33	8.81
R2GE24D	Accessory Structure	590878.18	4136505.66	14.33	10.09
R2GE24X	Generator Enclosure	590875.61	4136509.01	14.33	5.77
R2GE25A	SCR/DPF	590881.46	4136511.87	14.33	9.10
R2GE25B	Exhaust Plenum	590880.10	4136504.98	14.33	8.81
R2GE25C	Exhaust Plenum	590880.36	4136508.77	14.33	8.81
R2GE25D	Accessory Structure	590882.48	4136504.14	14.33	10.09
R2GE25X	Generator Enclosure	590879.91	4136507.49	14.33	5.77
R2GE26A	SCR/DPF	590872.38	4136473.95	14.33	9.10
R2GE26B	Exhaust Plenum	590885.76	4136510.35	14.33	8.81
R2GE26C	Exhaust Plenum	590884.40	4136503.46	14.33	8.81
R2GE26D	Accessory Structure	590884.66	4136507.25	14.33	10.09
R2GE26X	Generator Enclosure	590884.21	4136505.97	14.33	5.77

Abbreviations:

m - meters UTM - Universal Transverse Mercator coordinate system

Table B-5
1-hour NO2 NAAQS Results
Vantage CA3 Project

Averaging Period	Source Group	Source ID's	UTM Zone 10 Coordinates (m)		5Y Average H8H Modeled Conc. plus Background ($\mu g/m^3$)[1]	NAAQS ($\mu g/m^3$)	Above NAAQS?
			X	Y			
1-Hour	GROUP1AX	R1EG01-R1EG08	590858.74	4136544.48	165.75	188	No
	GROUP1BX	R1EG09-R1EG16	590908.33	4136501.30	140.08		No
	GROUP2AX	R2EG01-R2EG08	590889.80	4136466.50	168.96		No
	GROUP2BX	R2EG09-R2EG16	590746.09	4136560.07	119.27		No
	GROUP2CX	R2EG17-R2EG24	590833.17	4136559.29	128.86		No
	GROUPLSG	R1EG17, R1EG18, R2EG25, R2EG26	590899.07	4136483.90	186.35		No
	Maximum NAAQS		**590899.07**	**4136483.90**	**186.35**		No

Notes:

1. This represents the 5-year average 8th highest high modeled concentration and includes the season-by-hour background concentration.

Abbreviations:

$\mu g/m^3$ - micrograms per cubic meter
NAAQS - National Ambient Air Quality Standards
NOx - oxides of nitrogen
UTM - Universal Transverse Mercator coordinate system

Table B-6
1-hour NO2 CAAQS Results
Vantage CA3 Project

Averaging Period	Source Group	Source ID's	UTM Zone 10 Coordinates (m)		5Y Single Maximum H1H Modeled Conc. ($\mu g/m^3$)[1]	Maximum Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)	Above CAAQS?
			X	Y					
1-Hour	GROUP1AX	R1EG01-R1EG08	590858.74	4136544.48	156.97	161.87	318.84	339	No
	GROUP1BX	R1EG09-R1EG16	590902.23	4136521.30	118.69		280.55		No
	GROUP2AX	R2EG01-R2EG08	590884.83	4136530.57	159.44		321.31		No
	GROUP2BX	R2EG09-R2EG16	590908.33	4136501.30	92.08		253.95		No
	GROUP2CX	R2EG17-R2EG24	590720.00	4136560.00	92.01		253.88		No
	GROUPLSG	R1EG17, R1EG18, R2EG25, R2EG26	590900.00	4136480.00	175.84		337.71		No
	Maximum CAAQS		**590900.00**	**4136480.00**	**175.84**		**337.71**		**No**

Notes:

1. This represents the highest first high modeled concentration over the 5 years of meteorological data.

Abbreviations:

$\mu g/m^3$ - micrograms per cubic meter
CAAQS - California Ambient Air Quality Standards
NOx - oxides of nitrogen
UTM - Universal Transverse Mercator coordinate system

ATTACHMENT C
MANUFACTUER PERFORMANCE DATA SHEETS