DOCKETED	
Docket Number:	21-SPPE-01
Project Title:	CA3 (Vantage) Backup Generating Facility
TN #:	237380
Document Title:	VDC CA3BGF SPPE Application Part I
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	4/5/2021 3:51:46 PM
Docketed Date:	4/5/2021

APPLICATION FOR SMALL POWER PLANT EXEMPTION

CA3 Backup Generating Facility (17-SPPE-1)

SUBMITTED TO: CALIFORNIA ENERGY COMMISSION

SUBMITTED BY: **VANTAGE DATA CENTERS, LLC**

April 2021

DAYZEN LLC

Contents

SECTION 1.0 INTRODUCTION AND PURPOSE

Vantage Data Centers (Vantage) files this Application for a Small Power Plant Exemption (SPPE Application) pursuant to Public Resources Code Section 25541 and Section 1934 et seq. of the California Energy Commission (Commission) regulations for the 96 MW[1] CA3 Backup Generating Facility (CA3BGF). The CA3BGF will consist of a total of forty-four (44) 2.75-MW diesel fired generators that will be used exclusively to provide up to 96 MW of backup emergency generation to support the CA3 Data Center (CA3DC), to be located at 2590 Walsh Avenue in Santa Clara, California. 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. Figure 1-1 depicts the location of the CA3DC and the CA3BGF. Figure 2-1 shows the General Arrangement and Site Layout.

Unlike the typical electrical generating facility reviewed by the Commission, the CA3BGF is designed to operate only when electricity from Silicon Valley Power (SVP) is unavailable to the CA3DC. The CA3BGF will not be electrically interconnected to the electrical transmission grid. Rather, it will consist of one generation yard electrically interconnected solely to the CA3DC.

Section 2.0 of the SPPE Application provides a detailed description of the construction and proposed operation of the CA3BGF. To describe the context of the CA3BGF and its role in serving the CA3DC, Section 2.0 also includes a general description of the CA3DC.

Section 3.0 of the SPPE Application provides project information such as the project title, lead agency contact, project applicant, project location, assessor's parcel number, and general plan and zoning designations.

Section 4.0 of the SPPE Application includes environmental information and analyses in sufficient detail to allow the Commission to conduct an Initial Study and Mitigated Negative Declaration consistent with Section 16063(d) of the California Environmental Quality Act (CEQA) Guidelines.

Section 5.0 of the SPPE Application includes a discussion of Alternative backup generation configurations, technology, and alternative fuels considered by Vantage.

Section 6.0 of the SPPE Application contains a list of applicable agencies and contact information that have jurisdiction over laws, ordinances, regulations, and standards

[1] Maximum electrical demand of the CA3 Data Center.

(LORS) that may be applicable to the CA3BGF as required by Subsection (i) of Appendix F of the CEC SPPE Regulations.

Section 7.0 of the SPPE Application contains a list of addresses of properties and addresses of property owners (where not the same as the site address) within 1,000 feet of the site and 300 feet of offsite linear facilities for CEC noticing purposes.

Section 8.0 provides a list of those who assisted in the preparation of this SPPE Application.

Section 9.0 provides a list of acronyms used in this SPPE Application.

1.1 NEED FOR BACKUP GENERATION

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.

1.2 COMMISSION SPPE JURISDICTION

Vantage acknowledges that the Commission's authorizing statute grants exclusive authority for the Commission to issue licenses for the construction and operation of thermal power plants with generating capacities in excess of 50 MW.[2] For thermal power plants with generating capacities greater than 50 MW but less than 100 MW, the Commission can grant an exemption from its licensing authority[3]. The CA3BGF is not a typical power generating facility in that it consists of generators that can operate independently. In addition, the generators are arranged to support individual portions of the building within the data center. None of the generators will be interconnected to the electrical transmission system and therefore no electricity can be delivered off site.[4]

1.2.1 Data Center Facilities Not Within Scope of SPPE

The CA3DC is not within the scope of the Commission's jurisdiction because it is not a thermal power plant. The CA3DC is the sole consumer of the electricity produced by the LGBF. Vantage is submitting an application for a Master Plan to construct and operate

[2] Public Resources Code (PRC) Section 25500.
[3] PRC Section 25541 and Title 20 California Code of Regulations (CCR) Section 1934.
[4] The Commission Staff has determined that notwithstanding these facts, the Commission has jurisdiction over the CA3BGF. Vantage reserves all its rights regarding whether or not the Commission has jurisdiction over the CA3BGF and the filing of this SPPE Application is not an admission by Vantage that the Commission has exclusive jurisdiction over the CA3BGF or the CA3DC.

the CA3DC to the City of Santa Clara (City) for review. The City is anticipated to begin its Project Clearance Committee (PCC) review in May 2021.

Vantage believes that although the CEC is the lead agency for making a determination of whether the CA3BGF is a thermal power plant that can qualify for a SPPE, the ultimate decision does not extend to the CA3DC facilities. Vantage does acknowledge that the CEC should include the potential effects of the CA3DC in its CEQA analysis, but the ultimate determination of whether the CA3DC should be approved, denied, or subject to mitigation measures is solely within the City's jurisdiction. To assist the CEC in preparing its (IS/MND) Vantage provides a description of the CA3DC in Section 2.0. The potential effects of the CA3DC are considered in environmental analyses of Section 4.0 in a manner to assist the Commission in evaluating combined impacts from the co-location of the CA3BGF and the CA3DC.

To enable the City to timely conduct its review of the modified CA3DC, Vantage requests the Commission complete its review of the CA3BGF by September, 2021 within the Commission's statutory 135-day obligation.

1.3 PROJECT BENEFITS

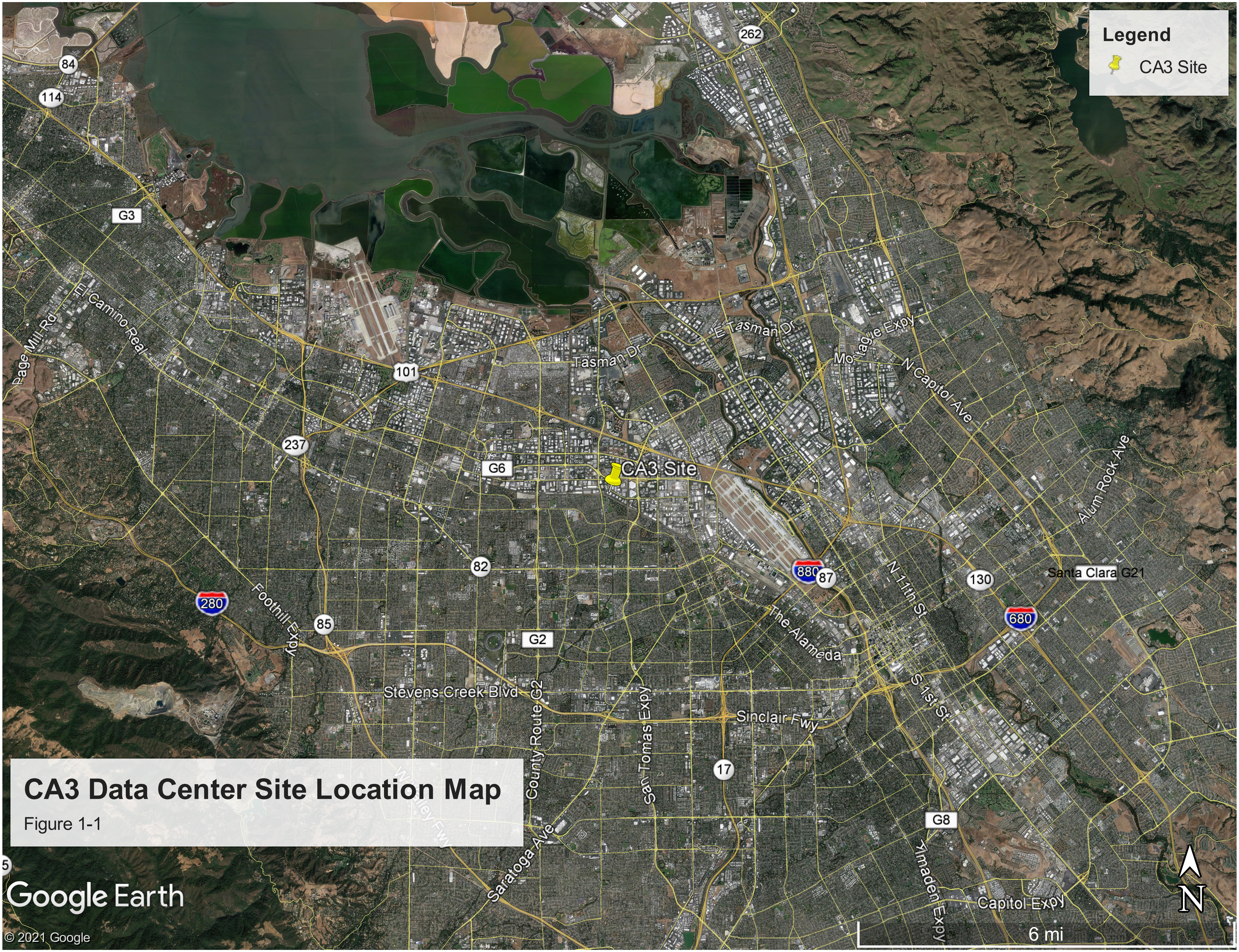
The CA3DC provides much needed data center infrastructure for an increasingly more internet and data driven society in the heart of Silicon Valley. The CA3DC has been designed to:

- Use minimal water use for cooling;
- Repurpose a brownfield site
- Minimize extension of overhead electrical lines;
- Incorporate Noise minimization measures; and
- Incorporate Energy and Water Efficiency Measures

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
- LED lighting fixtures and occupancy sensors
- 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

EXECUTIVE SUMMARY FIGURES



CA3 Data Center Site Location Map

Figure 1-1

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 designed for one generator to be taken out of service at any moment in time (called “5 to make 4”). During and emergency all 5 generators will start and carry load up to approximately 80% of their nameplate rating supporting the two lineups they serve. If one of the generators fails or needs to be taken out of service during the emergency, the 5 to make 4 design allows the failing generator to be removed from operation automatically with the remaining 4 generators to continue to serve the lineups up to the maximum design load of the two data center suites.

Each redundant backup generation system is made up of 5 “capacity groups” with each electrical capacity group sized at 2.75 MW (2750 kW) of total power. An electrical capacity group consists of one 2.75 kW generator, one 3,000kVA 34.5kV-480V medium voltage transformer, one 4,000 ampere 480 volt service switchboard and a 2,000 kW uninterruptible power supply (UPS) system.

The IT equipment will have dual cords that will take power from two different capacity groups. The dual cords are designed to evenly draw power from both cords when power is available on both cords, and automatically draw all of its power from a single cord when power becomes un-available on the other cord.

Each of the 5-to-make-4 electrical systems will be designed to continue supporting all of the IT equipment load in the two data center suites it serves any time one of the five capacity groups is either scheduled to be out-of-service for maintenance or becomes un-available due to equipment failure. Therefore, the 13.750 MW of total power equipment capacity installed for each 5-to-make-4 system effectively provides only 11 MW of total power.

The dual corded IT equipment load gets power from two independent capacity groups. Ten different cord configurations exist and are used to evenly balance the loads between these pairs of capacity groups: A-B, A-C, A-D, A-E, B-C, B-D, B-E, C-D, C-E, and D-E.

As an example of the electrical system design, when electrical capacity group A becomes un-available, the IT equipment connected to the A and B electrical capacity group will automatically shift its entire load to the B electrical capacity group. IT equipment connected between the A-C, A-D, and A-E electrical capacity groups also performs a similar power transfer in the event of an A capacity group failure.

The electrical load on each electrical capacity group is monitored by the building automation system. When the any of the electrical capacity groups reach 72 percent loaded (based on 90 percent of the 80 percent maximum loading under normal operation), an alarm is activated in the engineering office. The operations staff will work with the tenants to ensure that the leased power levels are not exceeded.

The consequence of electrical capacity groups exceeding 80 percent loaded could lead to dropping IT equipment when coupled with a capacity group failure event. If all the capacity groups serving a data center suite (five capacity groups) are loaded over 80 percent and an electrical capacity group fails, the resulting load transferring to the four available capacity group would exceed the rating of the capacity groups and would lead to over-current protection devices tripping open due to the overload condition. Therefore, it is vital to the reliability of the data center to make sure that all capacity groups remain below the 80 percent threshold.

2.2.4.2 Utility-to-Generator Transfer Control Components and Logic

In an outdoor rated switchboard located next to the Generator Alternator, there will be a Load Disconnect Breaker that is Normally Closed while the generator is both in and out of operation. From that load disconnect, 480V rated power cable bus, rated for the full ampacity output rating of the generator, will traverse from the generator to a Generator Switchboard, and then into the data center facility terminating on a dedicated Main Generator Input Breaker.

The generator switchboard includes a load bank breaker, allowing each generator to be individually connected to a load bank for periodic maintenance and testing. This breaker is an electrically operated breaker that is normally open when the generator is not in operation, and the Main Switchboard has not requested generator power.

This Generator Main Breaker is electrically interlocked with an adjacent Utility Transformer Main Breaker to allow only one of the Breakers to closed at any time. Upon the loss of utility power, the PLC transfer controller will send a start signal to the generator, followed by the Utility Breaker opening, followed by a confirmation that the generator has started leading to the Generator Main Breaker being closed.

Once the Generator Main Breaker is closed, the power created from the individual generator is then transmitted to the IT equipment (via a 2.0 MW (2,000 kW) uninterruptable power supply (UPS) system) and mechanical equipment designed to cool the IT equipment load served by the UPS. This load is the same load that the dedicated Utility Transformer was supplying power to prior to the utility interruption. Power from this individual generator cannot be transferred to any other load or system, or anywhere outside the facility.

The uninterruptible power supply (UPS) system includes back-up batteries sized for five minutes of battery back-up time. During the time between a transfer between utility and generator power, the UPS system continues to support the IT equipment load without interruption. During a utility-to-generator transfer, the duration of the power outage between the sources will typically be around 15 seconds; it takes around ten seconds to get the generator started and up to voltage. During a generator-to-utility transfer, the duration of the power outage between the sources will typically be around five seconds.

2.2.4.3 Uninterruptible Power Supply (UPS) System Description

The UPS System and Batteries are part of the CA3DC and are not part of the CA3BGF. However, the following description is provided to describe how the UPS system is intended to operate. The UPS will protect the load against surges, sags, under voltage, and voltage fluctuation. The UPS will have built-in protection against permanent damage to itself and the connected load for all predictable types of malfunctions. The load will be automatically transferred to the bypass line without interruption in the event of an internal UPS malfunction. The status of protective devices will be indicated on a LCD graphic display screen on the front of the UPS. The UPS will operate in the following modes:

- Normal - IGBT Rectifier converts AC input power to DC power for the inverter and for charging the batteries. The IGBT inverter supplies clean and stable AC power continuously to the critical load. The UPS Inverter output shall be synchronized with the bypass AC source when the bypass source is within the AC input voltage and frequency specifications.
- Loss of Main Power - When Main Power is lost, the battery option shall automatically back up the inverter so there is no interruption of AC power to the critical load.
- Return of Main Power or Generator Power - The system shall recover to the Normal Operating Mode and shall cause no disturbance to the critical load while simultaneously recharging the backup battery.
- Transfer to Bypass AC source - If the UPS becomes overloaded, or an internal fault is detected, the UPS controls shall automatically transfer the critical load from the inverter output to the bypass AC source without interruption. When the overload or internal warning condition is removed, after a preset “hold” period the UPS will automatically re-transfer the critical load from the bypass to the inverter output without interruption of power to the critical load.
- Maintenance Bypass - An optional manual make-before-break maintenance bypass panel may be provided to electrically isolate the UPS for maintenance or test without affecting load operation.

The UPS system batteries will have tab washers mounted on front terminal posts capable of accepting the wiring components of a battery monitoring system. Batteries will have an expected life of ten years. Each battery bank will provide a minimum of five minutes of backup at 100 percent rated inverter load of 1000kW, @ 77°F (25°C), 1.67 end volts per cell, beginning of life.

2.2.5 Generator System Description

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 maximum peak generating capacity of each generator is 2.75 MW for standby applications (short duration operation). Under normal operation with all when all five generators are active, the maximum load on each generator is designed to be 80 percent of the peak capacity. Manufacturer specification sheets for the proposed generators and evidence of the steady state continuous ratings are provided in Appendix A-1.

Each individual generator will be provided with its own package system. Within that package, the prime mover and alternator will be automatically turned on and off by a utility-generator PLC transfer controller located in the 480-volt main switchboard located within the CA3DC. Each generator will be controlled by a separate, independent transfer controller. The generator will be turned on if the electrical utility power becomes unavailable and will be turned off after utility power has been restored and the transfer controller has returned the utility to the active source of power serving the computer and mechanical loads within the CA3DC.

The generator package will integrate a dedicated fuel tank urea tank within the generator enclosure. The generators will be placed on a concrete slab. The generators enclosures are approximately 10 feet wide, 30 feet long and 29 feet high. Each generator will have a stack height of approximately 33 feet. When placed on slab, they will be spaced approximately five feet apart horizontally. The generator yard will be enclosed with 25 feet high perforated metal screen walls on the north, east, and west ends.

Additionally, an 8-foot high wall will be constructed along a portion of the northern property boundary, extending from the driveway entrance approximately 200 feet to the southwest, to ensure the noise from generator testing and maintenance meets the City noise limits. The location of the wall is shown on Figure 2 of the Noise and Vibration Technical Report contained in Appendix F.

2.2.6 Fuel System

The backup generators will use ultra-low sulfur diesel as fuel (<15 parts per million sulfur by weight). Each of the 44 generator units serving the data center area will have an approximately 5400-gallon diesel fuel storage tank with high fuel level of approximately 5100 gallons. Approximately 4700 gallons are required for 24-hour operation. The generators would have a combined diesel fuel storage capacity of approximately 237,600 gallons, which is sufficient to provide more than 24 hours of emergency generation at full electrical worst case demand of the CA3DC.

2.2.7 Cooling System

Each generator will be air cooled independently as part of its integrated package and therefore there is no common cooling system for the CA3BGF.

2.2.8 Water Supply and Use

The CA3BGF will not require any consumption of water.

2.2.9 Waste Management

The CA3BGF will not create any waste materials other than minor amounts of solid waste created during construction and maintenance activities.

2.2.10 Hazardous Materials Management

The CA3BGF will prepare a Spill Prevention, Control and Countermeasure Plan (SPCC) to address the storage, use and delivery of diesel fuel for the generators.

Each generator unit and its integrated fuel tanks have been designed with double walls. The interstitial space between the walls of each tank is continuously monitored electronically for the existence of liquids. This monitoring system is electronically linked to an alarm system in the engineering office that alerts personnel if a leak is detected. Additionally, the standby generator units are housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel will be delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of 8,500 gallons. The tanker truck parks on the access road to the south of the generator yard and extends the fuel fill hose through one of multiple hinged openings in the precast screen wall surrounding the generator equipment yard.

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

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

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

Urea or Diesel Exhaust Fluid (DEF) is used as part of the diesel engine combustion process to meet the emissions requirements. Urea is stored in 2, 55 gallon drums located within the generator enclosure. These drums can be filled in place from other drums, totes, or bulk tanker truck at the tank top or swapped out for new using quick connection fittings at the tank top.

2.2.11 CA3BGF Project Construction

Construction activities for the CA3DC are expected to begin in January 2022 and are discussed in more detail in Section 2.3.4. Since the site preparation activities for the

CA3DC will include the ground preparation and grading of the entire CA3DC site, the only construction activities for the CA3BGF would involve construction of the generation yard. This will include construction of concrete slabs, fencing, installation of underground and above ground conduit and electrical cabling to interconnect to the CA3DC Building switchgear, and placement and securing the generators.

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

Construction of the generation yard and placement of the generators is expected to take six months and is included in the overall construction schedule for the CA3DC described in section 2.3.4. Construction personnel for the CA3BGF are estimated to range from 10 to 15 workers including one crane operator.

2.2.12 CA3BGF Facility Operation

The backup generators will be run for short periods for testing and maintenance purposes and otherwise will not operate unless there is a disturbance or interruption of the utility supply. BAAQMD's Authority to Construct and the California Air Resources Board's Airborne Toxic Control Measures (ATCM) limits each engine to no more than 50 hours annually for reliability purposes (i.e., testing and maintenance). Please see Section 4.3 for a description of the testing and maintenance frequencies and loading proposed for the CA3BGF.

2.3 CA3 DATA CENTER FACILITIES DESCRIPTION

2.3.1 Overview

As described in Section 1.2, the Commission SPPE's determination is limited to solely to the CA3BGF. However, in order for the Commission to inform the decision-makers of the potential environmental effects of the CA3BGF, in combination with the CA3DC, Vantage has included a complete description of the CA3DC.

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 existing single-story building and improvements 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.

The CA3DC project will consists of construction of a four-story 469,482 square foot data center building, utility substation, generator equipment yard (the CA3BGF), surface parking and landscaping and a recycled water pipeline. The data center building will house computer servers for private clients in a secure and environmentally controlled structure and would be designed to provide 64 megawatts (MW) of power to information technology (Critical IT) equipment. A General Arrangement and Site Layout of the proposed development is shown on Figure 2-1. Figures 2-2, 2-3, and 2-4 show the Building Elevations.

The data center building will consist of two main components; the data center suites that will house client servers, and the administrative facilities including support facilities such as the building lobby, restrooms, conference rooms, landlord office space, customer office space, loading dock and storage.

The data center suite components will consist of four levels of data center space. Each level will contain four data center suites and corresponding electrical/UPS rooms. The data center is being designed with an average rack power rating of 8.3 kW.

The four-story data hall building is composed of admin, data hall, and loading dock masses. The admin portion, located on the west side of the building, is clad with curtain wall and metal panel systems. The data hall portion is clad primarily with EIFS. Additionally, the north data hall façade includes a screen extending from 30 feet above grade to 76 feet above grade to shield the view of cable trays running up the façade. The top of the parapet at the admin and data hall is at 88.75 feet. The loading dock portion is a single-story mass, also clad in EIFS to match the data hall. Three exterior stairs located on the SW, SE, and NE corners of the building are semi enclosed on two sides with a glass rain screen. A rooftop dunnage platform is provided at 96.3 feet for mechanical equipment. A sound attenuating screen topping off at 104.83 feet fully encloses the platform. Access to the platform is provided by a freight elevator on the NE corner of the building. The top of the elevator parapet is at 117 feet. Floor plans of each level of the data center building are shown on Figures 2-5, 2-6, 2-7, and 2-8. The roof level plan is shown on Figure 2-9. Area calculations for each level are shown of Figure 2-10.

The project would construct a new 100 MVA (mega volt-ampere) electrical substation adjacent to the existing SVP Uranium substation along the western boundary of the site. The two-bay substation (two 100 MVA 60 kV-34.5kV step-down transformers and primary distribution switchgear) will be designed to allow one of the two transformers to be taken out of service, effectively providing 100 MVA of total power (a 2-to-make-1 design).

The substation will have an all-weather asphalt surface underlain by an aggregate base. A concrete masonry unit screen wall, 13 feet in height, would surround portions of the substation with the remainder of the substation protected with an 8-foot height chain link fence. An oil containment pit surrounding each transformer will capture unintended oil leaks. Access to the substation will be from through the project site off Walsh Ave.

The substation will be capable of delivering electricity to the CA3DC from Silicon Valley Power (SVPs) new adjacent switching station but will not allow any electricity generated from the CA3BGF to be delivered to the transmission grid. Availability of substation control systems will be ensured through a redundant DC battery backup system.

2.3.2 Building Heights and Setbacks

The data center building will be approximately 88.75 feet in height to the top of parapet. The mechanical equipment screen on the roof the building will extend to a height of 104.83 feet in height from the top of the slab.

The building will be located in the center of the site and will be set back at a minimum of 109 feet from the side yard to the north (Walsh Avenue), a minimum of 59 feet from the side yard to the west (adjacent to a non-residential zone), a minimum of 40 feet from the side yard to the east (adjacent to a non-residential zone), and a minimum of 45 feet from the rear yard to the east (medium density residential zone; railroad tracks).

2.3.3 Site Access and Parking

The overall project site will include one primary entrance from Walsh Avenue located in the southeastern corner of the site and one secondary entrance also from Walsh Avenue located at the northeastern corner of the site. The site currently has two entrances from Walsh Avenue in the same general areas as the proposed entrances.

The project would provide a total of 36 parking spaces on site including 1 accessible and 1 van accessible parking space as shown on Figure 2-1. Additionally up to 96 parking places will be provided for the CA3DC across Walsh Avenue on Vantage's CA1 existing campus. The additional parking is provided to meet City requirements but Vantage's experience has demonstrated that the 36 on-site parking spaces will be sufficient on their own to support CA3DC operations.

2.3.4 Demolition, Site Grading, Excavation, and Construction

Demolition, grading, excavation and construction will take place in two phases. Phase I will include demolition of the existing building and infrastructure that cannot be reused; grading of the entire site; installation of utility services including interim power and construction of the on-site substation; and construction of one-half of the building. Phase II will include construction of the remainder of the building.

Phase I activities are anticipated to begin in January 2022 and take approximately 14 months to complete. Phase I will include construction workforce with a peak number of workers of approximately 150 per month and an average of approximately 100 per month. Phase II construction would begin as soon as commercially feasible, likely in late 2023 and take approximately 11 months to complete for commercial operation at the beginning of 2025. Phase II construction workforce is estimated to have a peak number of workers of approximately 200 per month with an average of approximately 80 per month.

It is possible that up to 10,000 cubic yards of soil and undocumented fill would be removed from the site. Grading of the site is not expected to require the import of fill material.

2.3.5 Landscaping

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. 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 all 65 trees through a combination of 24-inch box size and 36-inch box size.

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.

2.3.6 Stormwater Controls

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has issued the Municipal Regional Stormwater NPDES Permit (MRP) to regulate stormwater discharges from municipalities and local agencies. 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). Examples of C.3 LID measures include bioretention areas, flow-through planters, and subsurface infiltration systems.

The CA3DC proposes to construct stormwater treatment areas consisting of LID (Low-Impact Development) bioretention areas and at-grade flow-through planter boxes totaling approximately 10,000 square feet, based on preliminary impervious calculations, sized according to the requirements of the MRP. The stormwater treatment areas would be located around the perimeter of the site, and adjacent to paved parking areas and building.

In the existing condition, stormwater discharges the site into the public system at three locations; the northwest corner of the 2590 Walsh Avenue property, the northeast corner of the 2590 Walsh Avenue property and the southeast corner of the 2590 Walsh Ave. property. The proposed project will connect to these three existing outfall points and is not proposing any new connections to the public storm drain system. The project will attempt to utilize these existing stormwater laterals, but this will be determined during final design.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has issued a Municipal Regional Stormwater NPDES Permit (MRP) to regulate stormwater discharges from municipalities and local agencies. 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). Examples of C.3 LID measures include bioretention areas, flow-through planters, and subsurface infiltration systems.

Downspouts for the roof drainage will discharge directly into bioretention areas or flow-through planters located adjacent to the building. In some cases, roof drainage will be piped under sidewalks and discharged to the pavement surface where stormwater will then surface flow to at-grade bioretention planters located along the perimeter of the site.

Flow-through planters and bioretention planters will include perforated underdrains and overflow structures that connect to the on-site storm drains system which eventually discharges to the public storm system in Walsh Avenue described previously.

According to Appendix E-2, HMP Applicability Map, of the "C.3 Stormwater Handbook" published by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) the project site is located in a "purple area", defined as catchments draining to a hardened channel and/or tidal area. According to the MRP, hydromodification controls (HMC) are not required for projects located in purple areas of the HMP Applicability Map. Therefore, CA3DC will not incorporate HMC into the project's development.

2.3.7 Site Water Supply and Use

2.3.7.1 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.

2.3.7.2 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. Historical use at the site is approximately 3.2 AFY.

2.3.8 Utility Interconnections

2.3.8.1 General

As part of the construction of the new building, domestic water, fire water, sanitary sewer, fiber, and natural gas connections will be made from the City infrastructure systems located along Walsh Avenue. There is a 12-inch diameter domestic water line operated by the City of Santa Clara in Walsh Avenue along the frontage of the property. This domestic water line will serve as the primary source for water and fire supply to the project. There is also a recycled water pipeline located at the intersection of Walsh Avenue and Northwestern Parkway, approximately 500 feet to the southeast of the subject property. The project intends to extend the recycled water line as a secondary source of water as shown on Figure 2-11.

2.3.8.2 SVP Electrical Distribution Facilities

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 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. See Figures 2-12 and 2-13 for preliminary design and layout of the switching station and substation.

The new conductor that interconnects the new substation to the Bulk Electric System (BES) will be an ACCR type, size 715 double bundle with a carrying capacity of 310 MVA. SVP's general practice is to use tubular steel transmission poles for the two dead end structures. The new SVP switchyard is adjacent to the existing 60 kV transmission line. Tie in will occur by intercepting and routing the line through the switching station. There may be up to three new transmission poles anticipated to be performed as tie-in. All three would be located on the project site.

Due to the adjacencies between the existing SVP Uranium substation and new SVP switching station, normal access to the switching station will be through Uranium substation.

2.4 MITIGATION INCORPORATED INTO PROJECT DESIGN

2.4.1 Air Quality

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

2.4.2 Biological Resources

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.

2.4.3 Cultural Resources

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).

2.4.4 Geology and Soils

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 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 notify the Director of Planning and Inspection and 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.

2.4.5 Hazards

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 Director of Planning and Inspection 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.

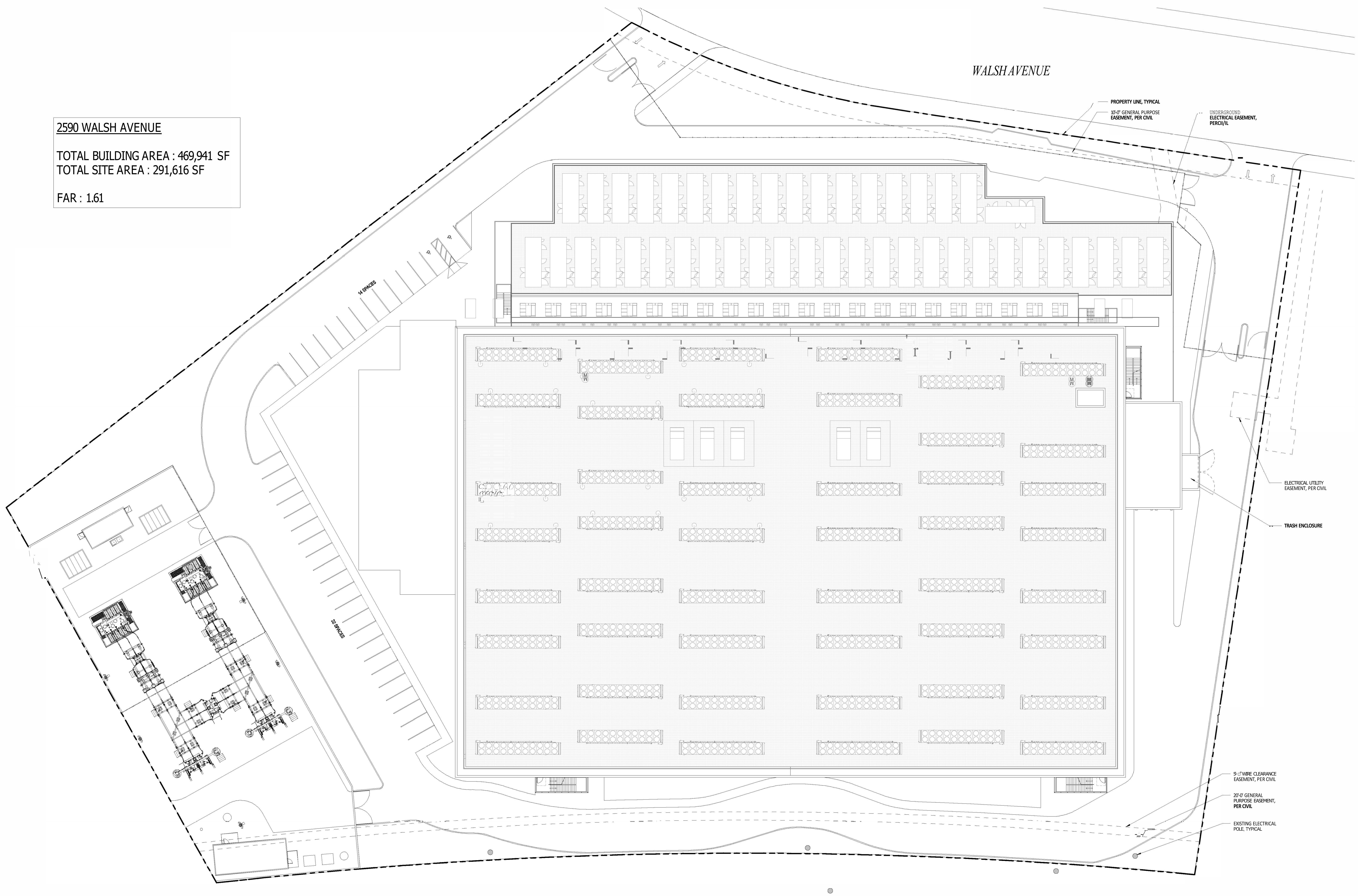
- A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include: 1) a detailed discussion of the site background; 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.

2.4.6 Hydrology and Water Quality

PD HYD-1: The project 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.

PROJECT DESCRIPTION FIGURES



ARCHITECTURAL SITE PLAN

GENERAL NOTES

Figure 2-1

OWNER:

VANTAGE DATA CENTERS

ARCHITECT:

LANDSCAPE ARCHITECT:

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

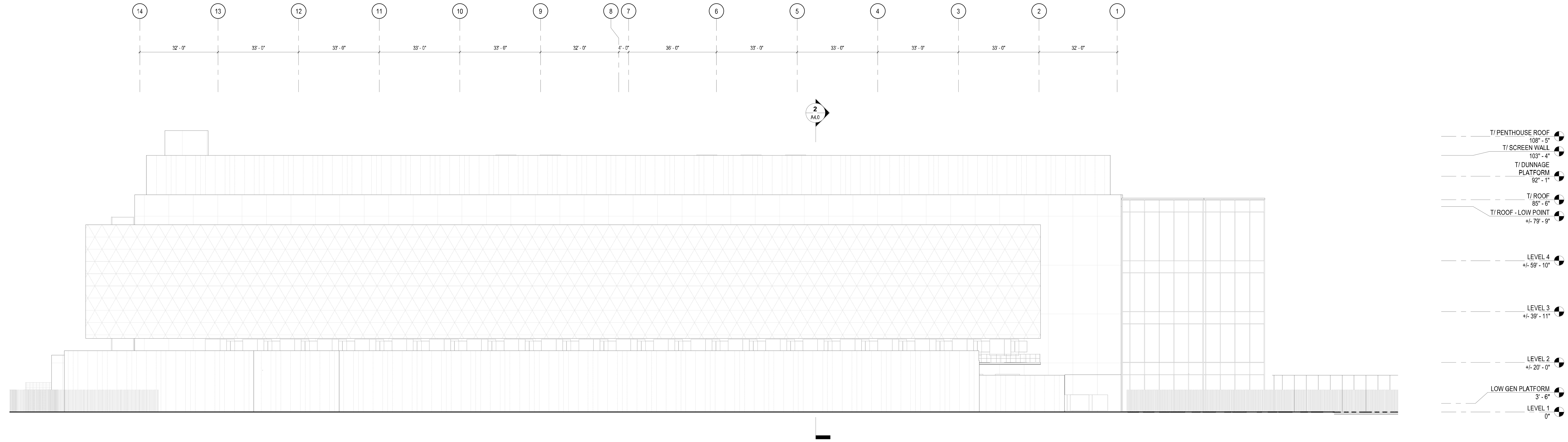
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

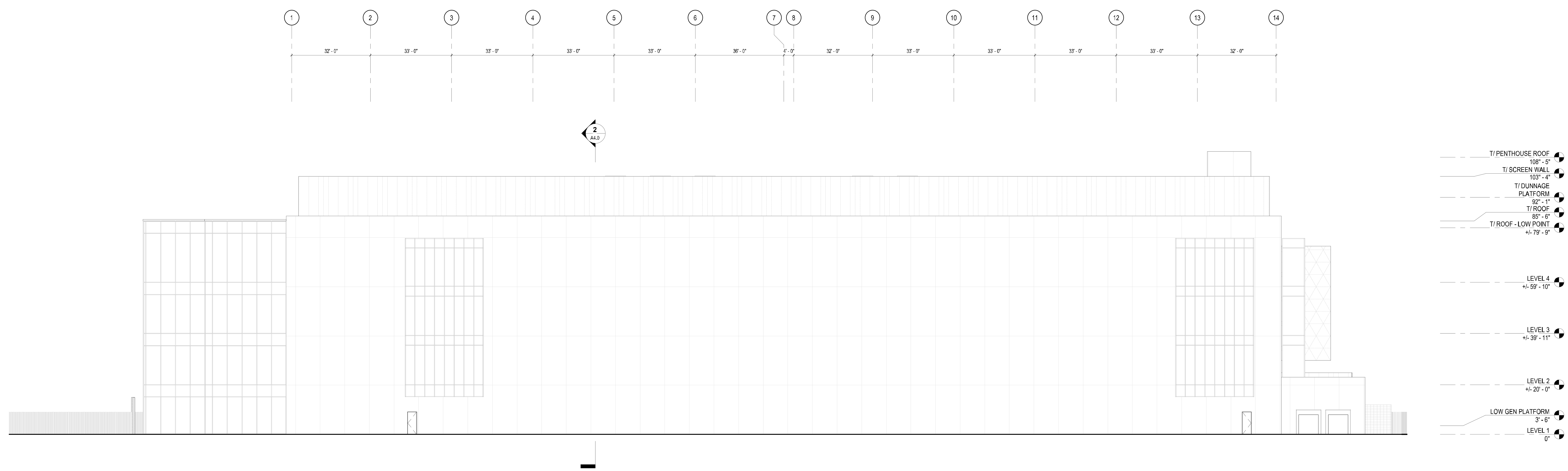
ARCHITECTURAL SITE PLAN

A0.0

SCALE: AS NOTED



1 ELEVATION DIAGRAM - NORTH
1/16" = 1'-0"



2 ELEVATION DIAGRAM - SOUTH
1/16" = 1'-0"

GENERAL NOTES

Figure 2-2

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
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. 177637

STRUCTURAL ENGINEER

CIVIL ENGINEER

R+G RUTH AND GOING, INC.
Civil Engineering Land Surveying Planning
2216 THE ALAMEDA SANTA CLARA, CA 95050
(408) 236-2400 FAX (408) 236-2410

LANDSCAPE ARCHITECT

REED ASSOCIATES
LANDSCAPE ARCHITECTURE
477 SOUTH TAAFFE STREET

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

FULL BUILDING EXTERIOR ELEVATIONS

A3.0

SCALE: AS NOTED

E

D

C

B

A

OWNER

ARCHITECT

SHEEHAN NAGLE HARTRAY ARCHITECTS
130 East Randolph, Suite 3100
Chicago, IL 60601
o: 312.633.2900
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MEP ENGINEER

kW mission critical engineering
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Mission Critical Engineering
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STRUCTURAL ENGINEER

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LANDSCAPE ARCHITECT

REED ASSOCIATES
LANDSCAPE ARCHITECTURE
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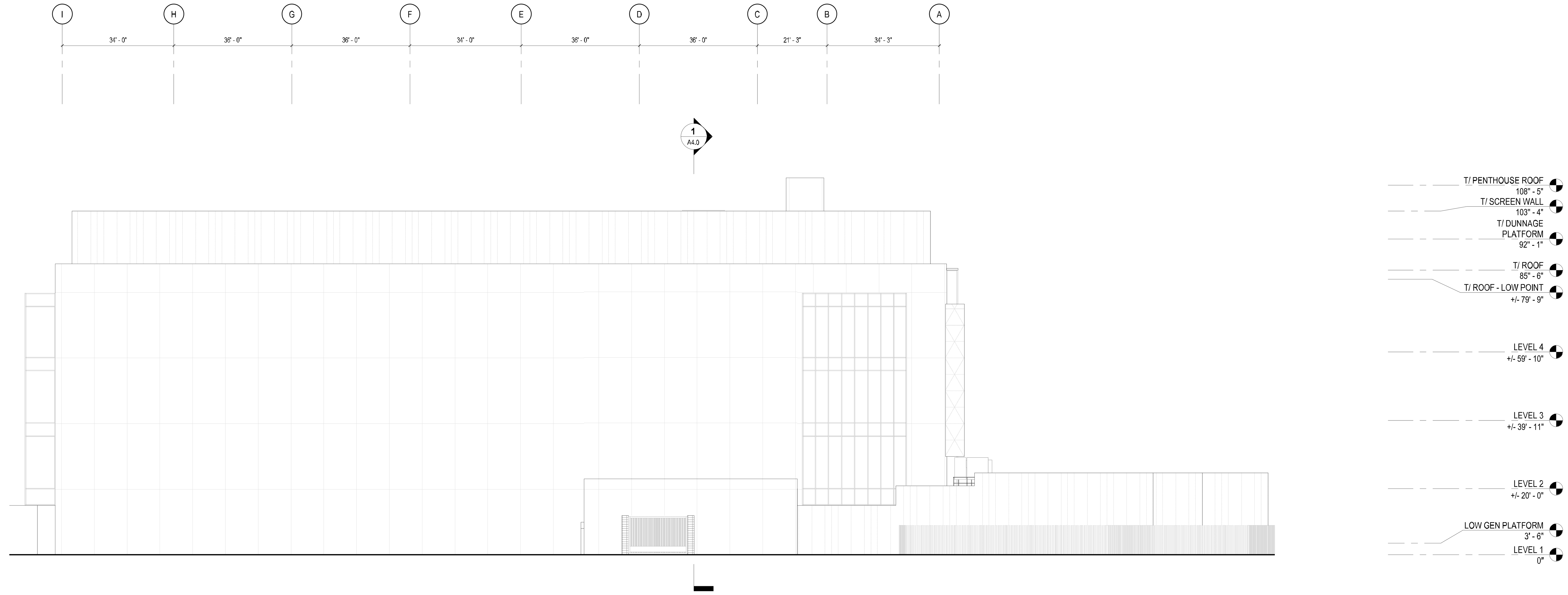
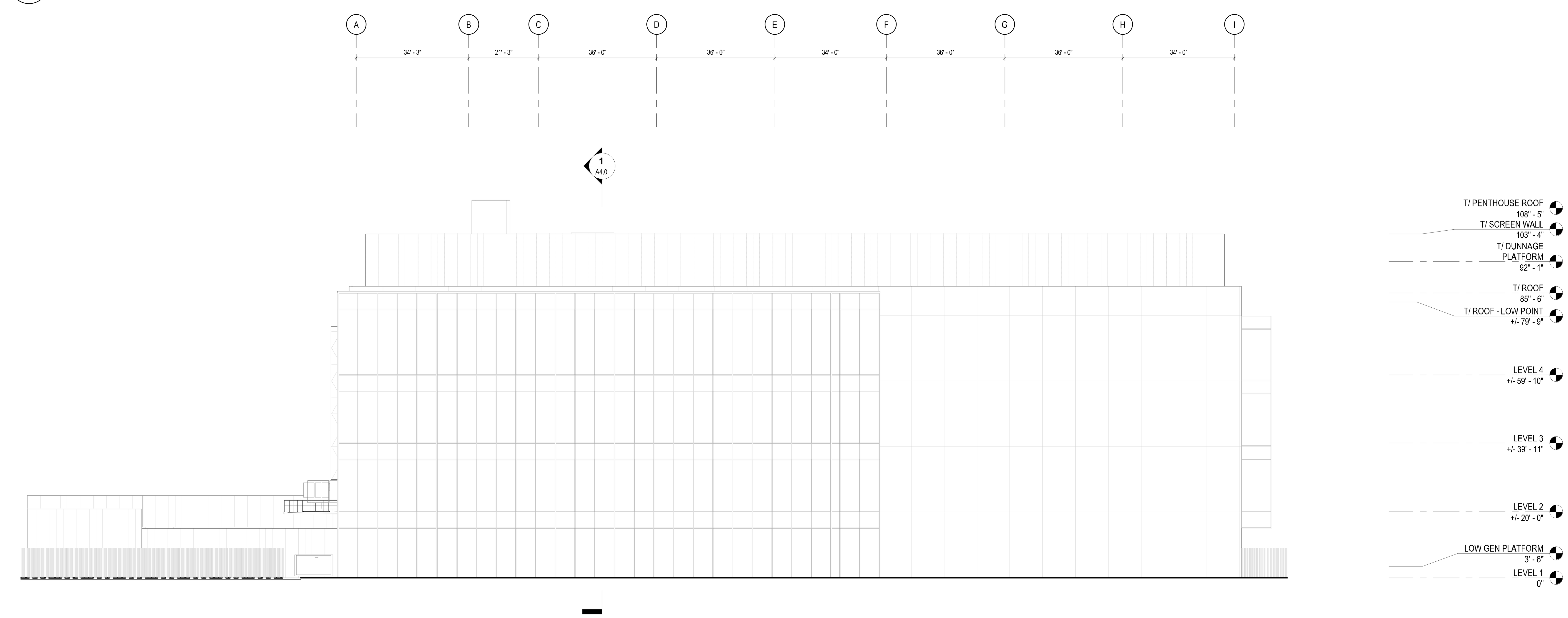
PHONE: 408-481-9020

PROGRESS SET
NOT FOR CONSTRUCTION



1 ELEVATION DIAGRAM - EAST
1/16" = 1'-0"



2 ELEVATION DIAGRAM - WEST
1/16" = 1'-0"

No.	Description	Date

GENERAL NOTES

Figure 2-3

VANTAGE CA31

2590 WALSH AVENUE
SANTA CLARA, CA 95051

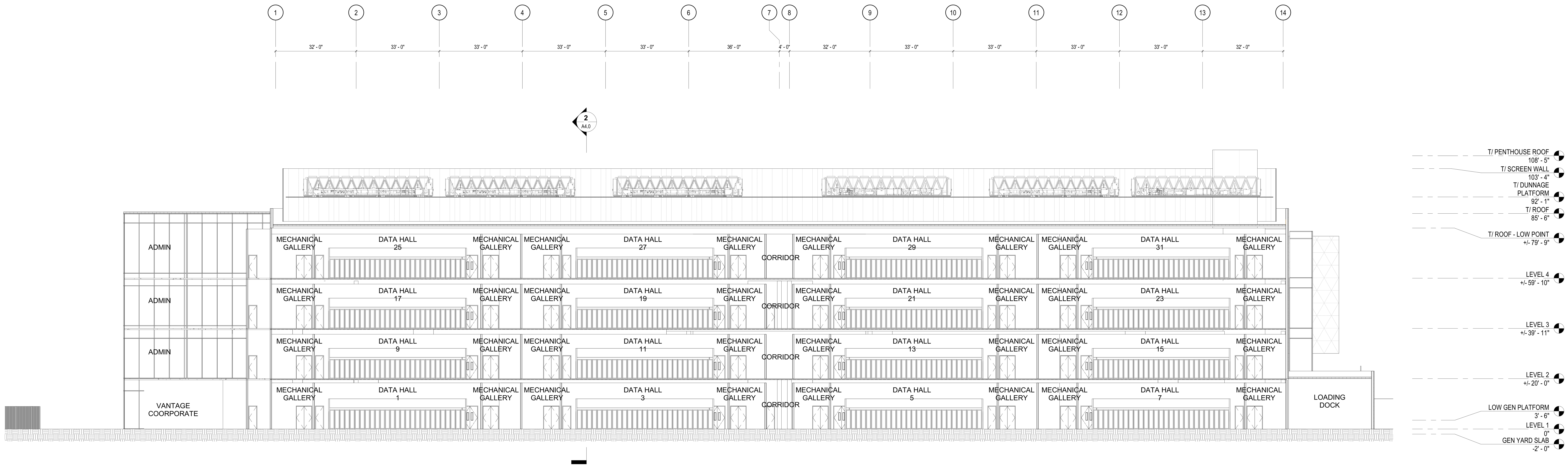
MASTERPLAN

FULL BUILDING EXTERIOR ELEVATIONS

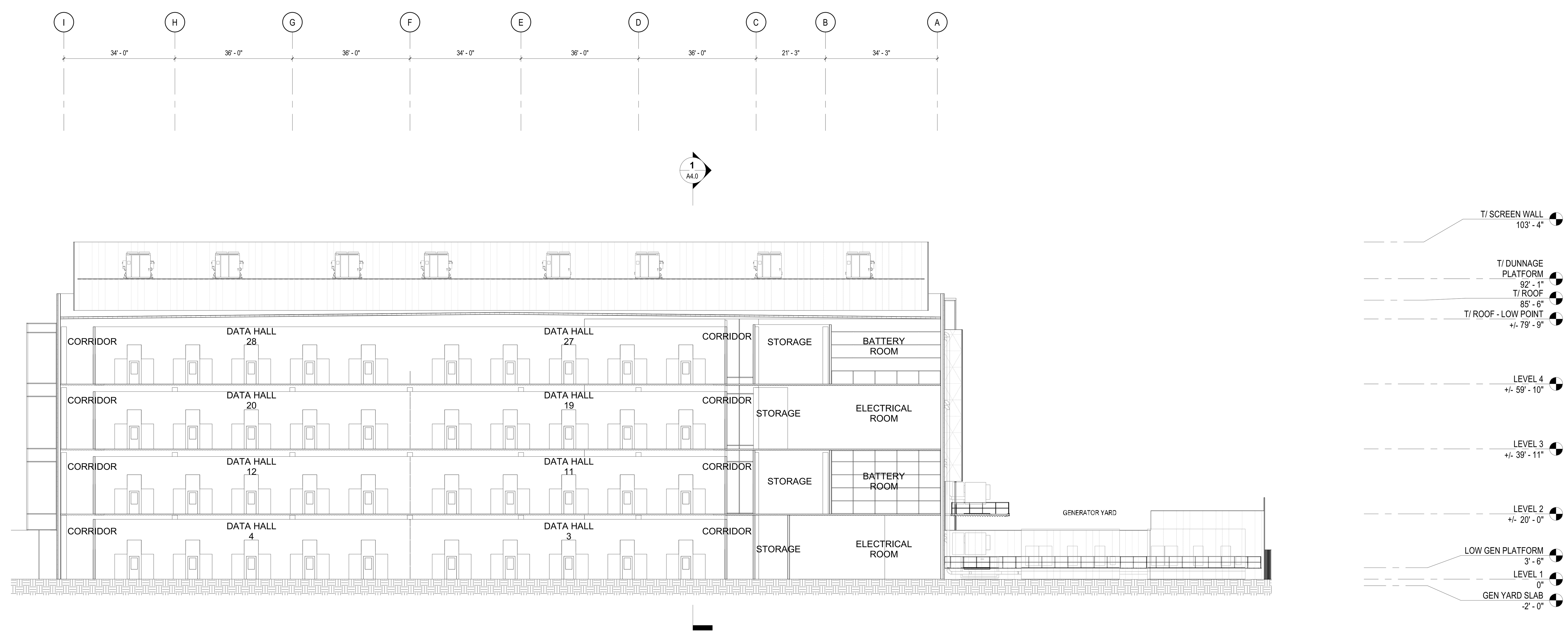
A3.1

SCALE: AS NOTED

6 5 4 3 2 1



1 FULL BUILDING SECTION - N/S
1/16" = 1'-0"



2 FULL BUILDING SECTION E/W
1/16" = 1'-0"

GENERAL NOTES

Figure 2-4

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

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

STRUCTURAL ENGINEER

CIVIL ENGINEER

RUTH AND GOING, INC.
Civil Engineering · Land Surveying · Planning
2216 THE ALAMEDA SANTA CLARA, CA 95050
(408) 236-2400 FAX (408) 236-2410

LANDSCAPE ARCHITECT

REED ASSOCIATES
LANDSCAPE ARCHITECTURE

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

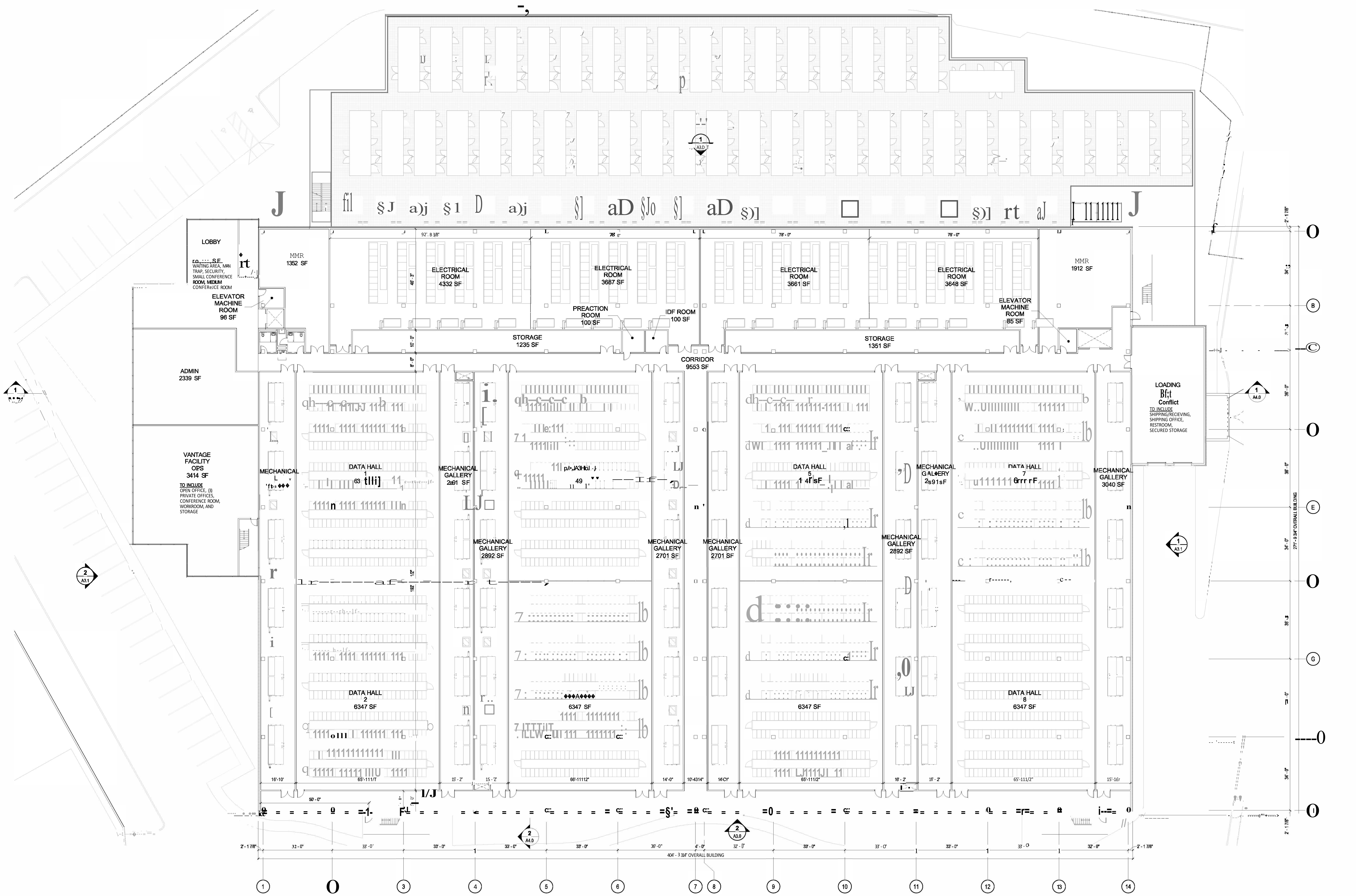
2590 WALSH AVENUE
SANTA CLARA, CA 95051

ISSUE FOR PCC REVIEW

FULL BUILDING SECTIONS

A4.0

SCALE: AS NOTED



LEVEL 01 - OVERALL FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES

Figure 2-5

OWNER

VANTAGE DATA CENTERS

ARCHITECT

mission critical engineering

LANDSCAPE ARCHITECT

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

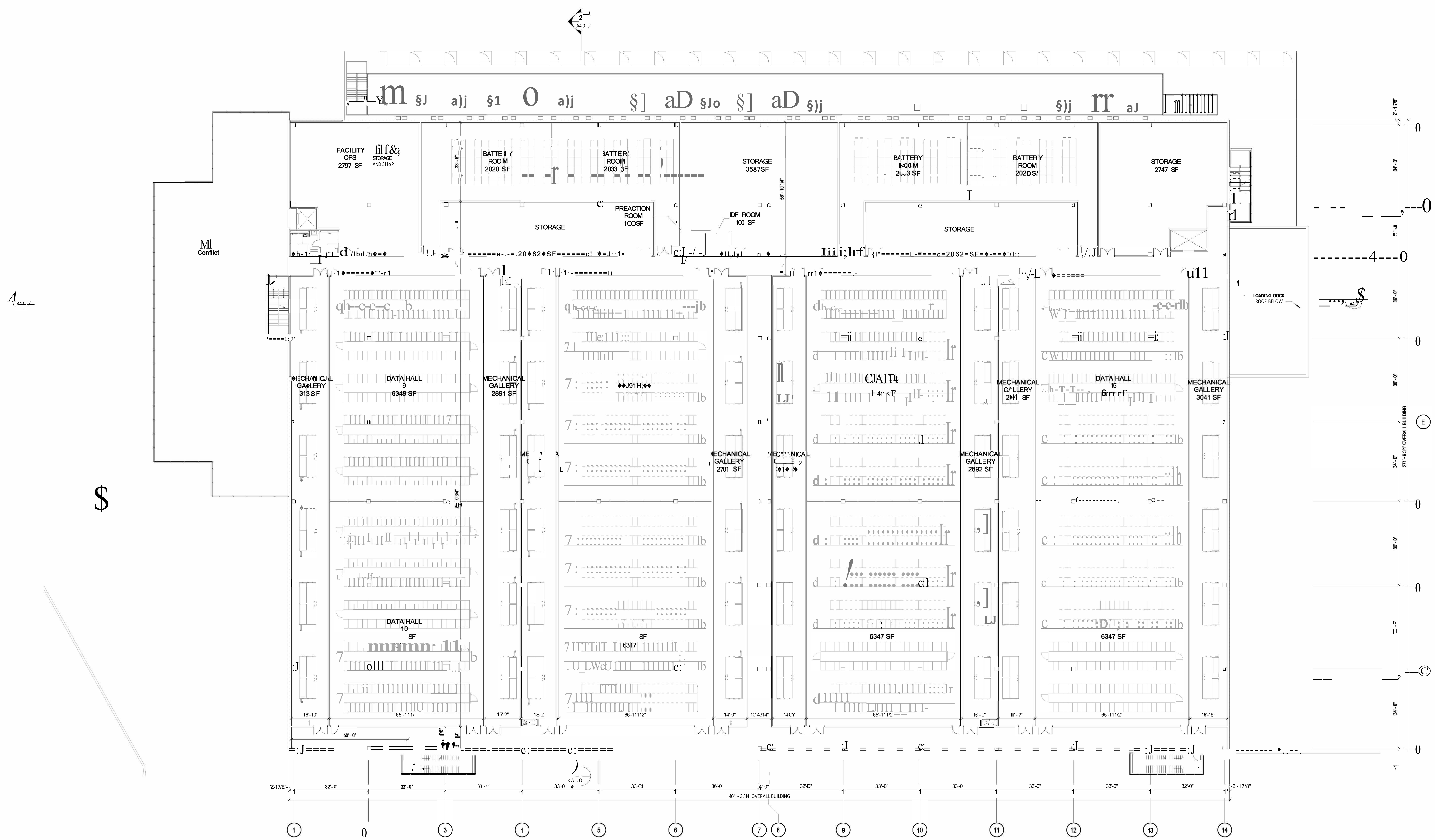
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

LEVEL 01 FLOOR PLAN

A1.1

SCALE: AS NOTED



1 LEVEL 02 - OVERALL FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES

Figure 2-6

OWNER

VANTAGE DATA CENTERS

ARCHITECT

Mission Critical Engineering

LANDSCAPE ARCHITECT

HEIDI ASSOCIATES

PROGRESS SET
NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

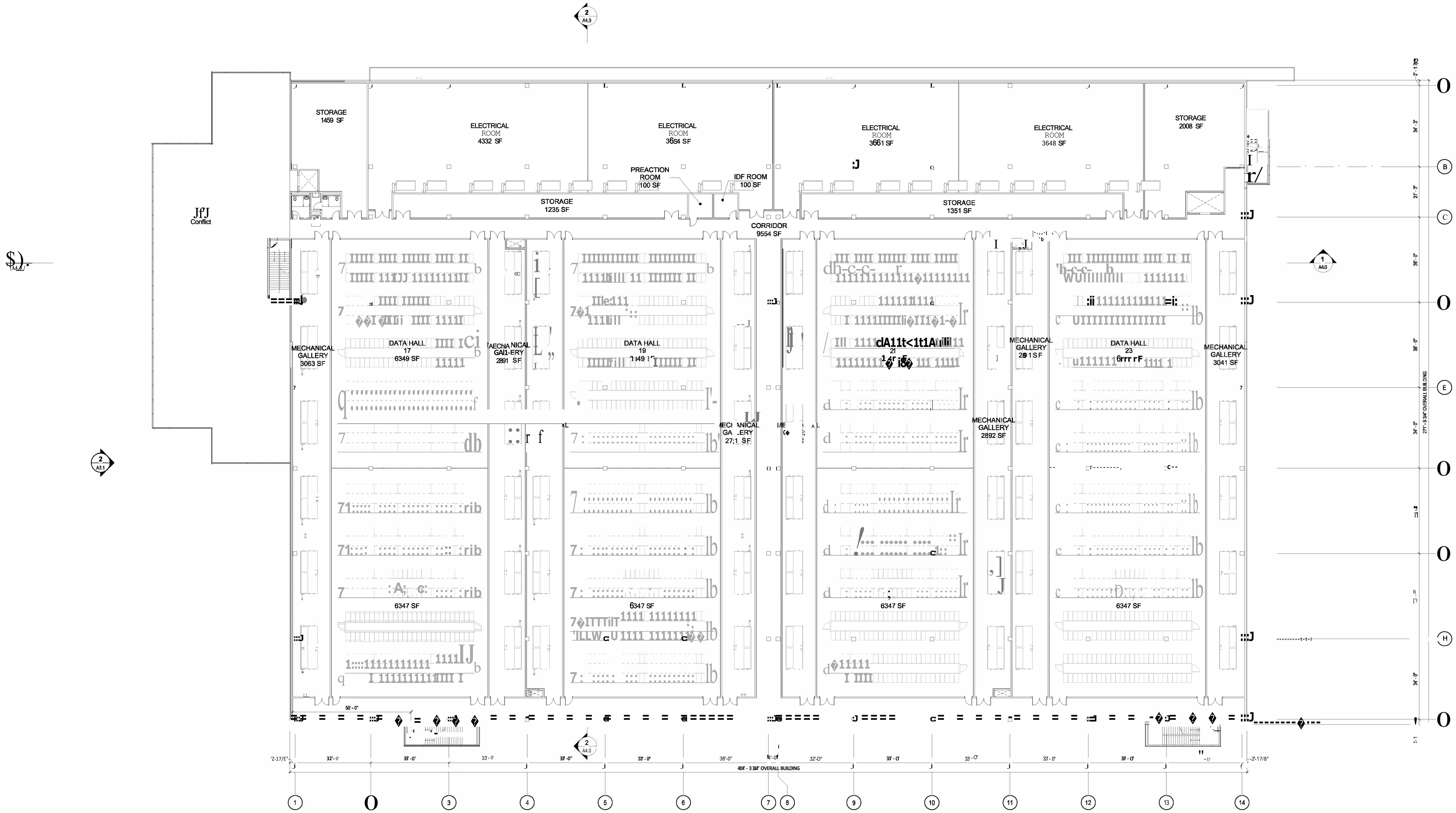
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

LEVEL 02 FLOOR PLAN

A1.2

SCALE: AS NOTED



1 LEVEL 03 - OVERALL FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES

Figure 2-7

OWNER

VANTAGE DATA CENTERS

ARCHITECT

kW mission critical engineering

LANDSCAPE ARCHITECT

PROGRESS SET
NOT FOR CONSTRUCTION

No	Description	Date

VANTAGE CA31

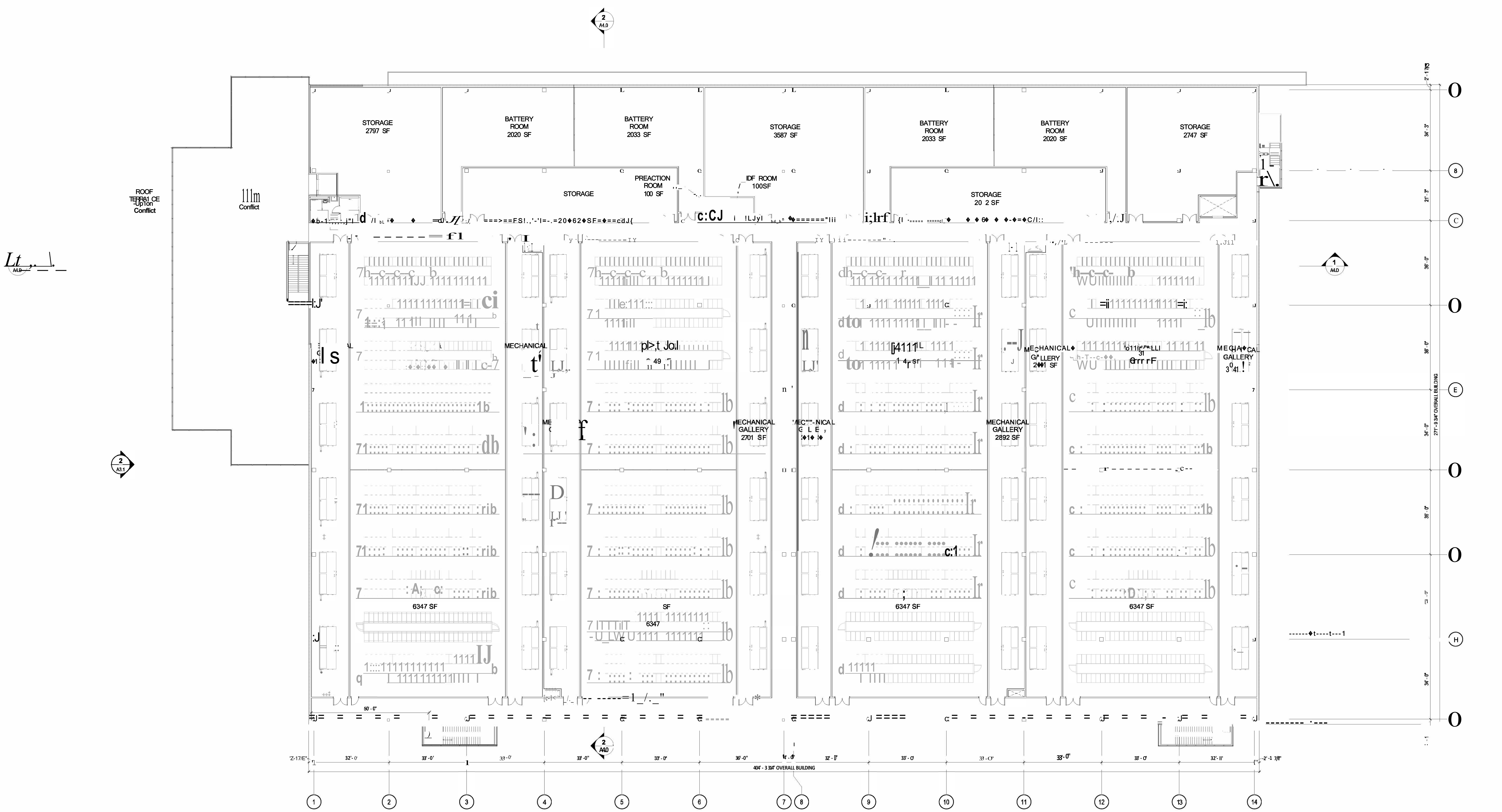
2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

LEVEL 03 FLOOR PLAN

A1.3

SCALE: AS NOTED



24 - OVERALL FLOOR PLAN

GENERAL NOTES

Figure 2-8

OWNER

VANTAGE DATA CENTERS

ARCHITECT

LANDSCAPE ARCHITECT

PROGRESS SET NOT FOR CONSTRUCTION

No.	Description	Date

VANTAGE CA31

2590 WALSH AVENUE
SANTA CLARA, CA 95051

MASTERPLAN

LEVEL 04 FLOOR PLAN

A1.4

SCALE: AS NOTED