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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. Specification sheets for each manufacturer 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 G.

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 468,170 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 104 feet from the side yard to the north (Walsh Avenue), a minimum of 54 feet from the side yard to the west (adjacent to a non-residential zone), a minimum of 43 feet from the side yard to the east (adjacent to a non-residential zone), and a minimum of 56 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 30 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 30 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 66 (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 66 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.

2.3.6.1 *Site Water Supply and Use*

<u>Site Grading and Construction</u>. 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. Historical use at the site is approximately 3.2 AFY.

2.3.6.2 *Utility Interconnections*

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.

2.3.7 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.