

CAMPUS MASTER PLAN

FOR

SAN DIEGUITO UNION
HIGH SCHOOL DISTRICT

LA COSTA VALLEY

Revised
January 31, 2014

Project Vision Statement

The vision for the La Costa Valley site is to create a new comprehensive middle school campus that also serves the community's recreation needs. Project site is a vacant property along Calle Barcelona in the City of Carlsbad located among a dense residential neighborhood. As with the other school sites, La Costa Valley will also need to meet the District's Long Range Facilities Action Plan. A Master Plan has been created to illustrate how those goals can be achieved on the site.

In keeping with the Long Range facilities Action Plan the Master Plan will focus on creating

- Flexible, adaptable and technology rich facilities
- Sustainable high performance environments for learning
- Community focused campuses

Exact enrollment for this school site is yet to be determined but the District envisioned this campus to be developed in two phases.

The Master Plan proposes buildings of permanent construction and does not utilize any modular classroom buildings. The intent of the Master Plan is to create a campus that focuses on a central open space to foster a sense of community while providing easy supervision. Parking is divided into three separate lots with one designated for Staff, one for Visitors, and one adjacent to the fields for the public. The new state-of-the-art classrooms will be designed to feature wireless, multi-media technology to better face the educational challenges of the 21st century. A food service facility will be planned to service the dining needs of the students and potential community use while lockers room facilities will be added to support physical education.

Environmental responsiveness and responsibility are at the heart of the long-range planning goals for the campus. All new construction will follow sustainable construction guidelines using energy efficient environmental systems, components composed of recycled materials and installation practices that feature low VOC emissions. Solar heating collection panels will be considered for all new construction and as shading elements for parking areas.

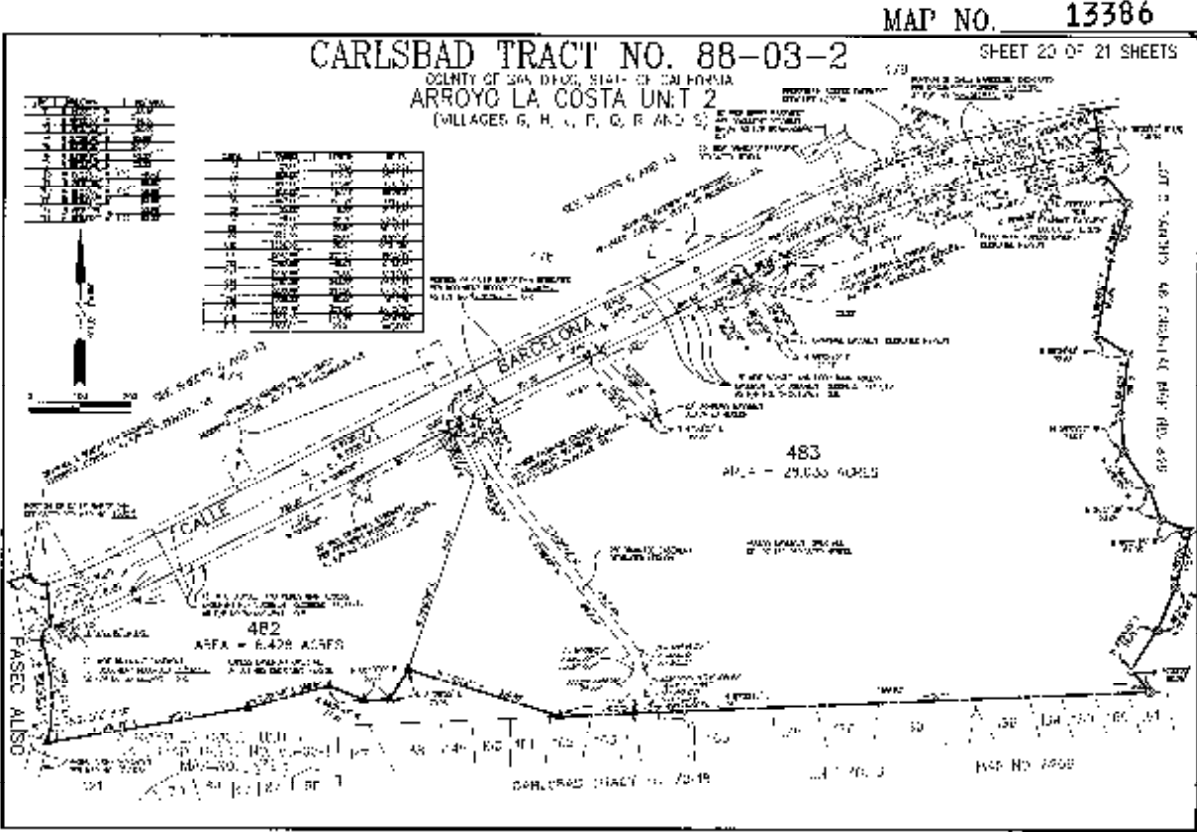
Adopting the Master Plan is the first step toward creating a cohesive campus that fosters a greater sense of community within a safe and supervised environment.

Acknowledgement

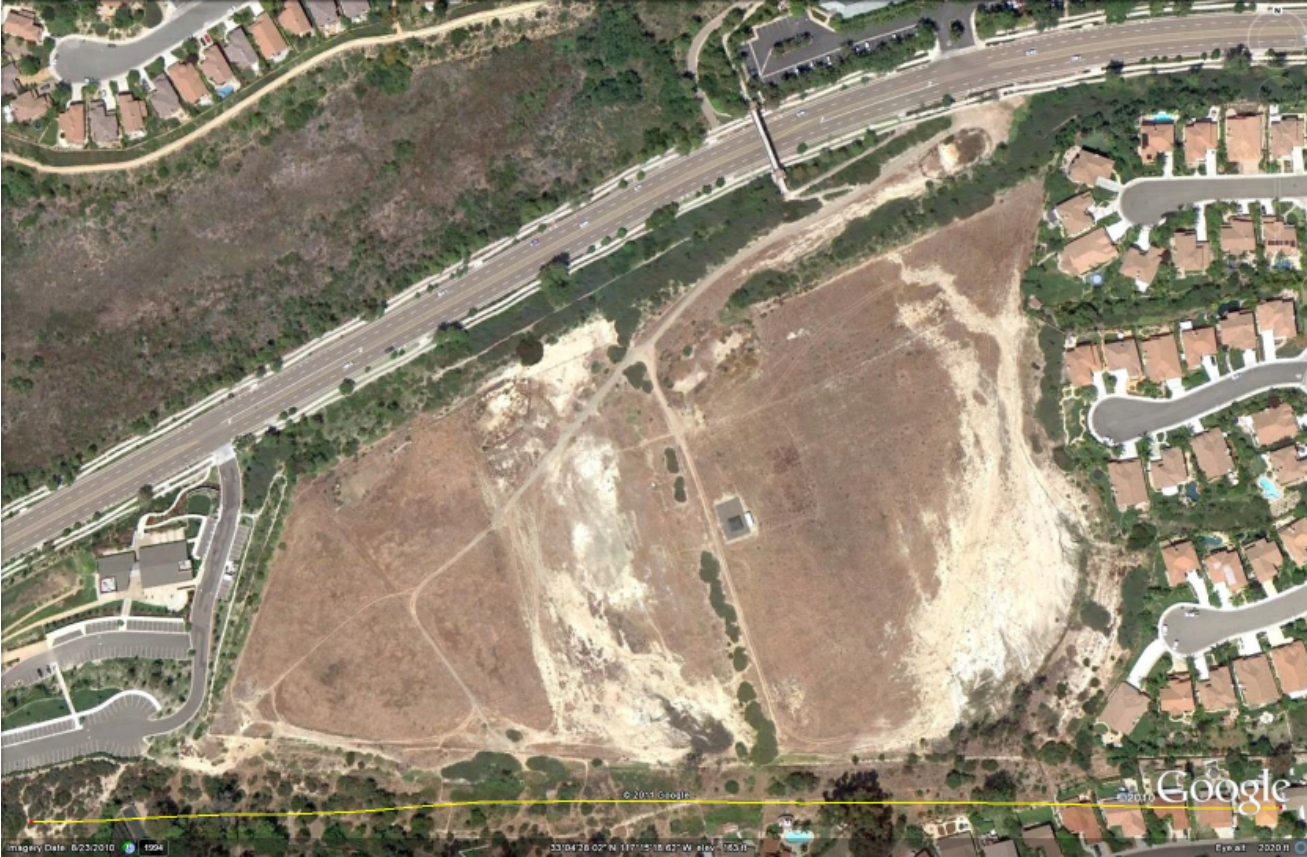
Our team would like to acknowledge the contribution and involvement of the San Dieguito Union High School District's Board of Trustees: Ms. Beth Hergesheimer, Ms. Joyce Dalessandro, Ms. Barbara Groth, Ms. Amy Herman, and Mr. John Salazar. We would also like to extend our gratitude to the District Administration including Mr. Ken Noah, Mr. Rick Schmitt, Mr. Eric Dill. Each person's input and feedback throughout the master planning process were invaluable to the final development.

Tract Map and Aerial Map

La Costa Valley
 San Dieguito Union High School District
 Calle Barcelona, Carlsbad, CA 92009



Site Aerial Map



Pedestrian Bridge crossing Calle Barcelona, LCV Site on Right



Calle Barcelona, LCV Site on Left

Program / Space Allocation

La Costa Valley Middle School

Preliminary Program

Administration / Media Center	# of Space	SF	Total SF	Comments
Principal's Office	1	247	247	
Principal's Secretary	1	289	289	
Attendance	1	193	193	
Assistant Principal's Office	1	223	223	
Counselor	1	120	120	
Speech	1	120	120	
Psychologist	1	117	117	
Counselor Secretary / Lobby	1	356	356	
Health Office / Restroom	1	420	420	
Work Room	1	350	350	
Storage	1	147	147	
Conference Room	1	627	627	
Teachers' Lounge	1	847	847	
Student Support	2	72	144	
Media Center	1	2,250	2,250	
Office	1	105	105	
Study	2	82	164	
SUBTOTAL			6,719	
Gym / Multi-Purpose	# of Space	SF	Total SF	Comments
Lobby	1	464	464	
Gym / Multi-Purpose Space	1	9,189	9,189	Locker rooms and full kitchen can be added.
Kitchenette	1	190	190	
Stage	1	1,571	1,571	Outdoor stage can be incorporated.
Storage	1	120	120	
Vestibule	1	145	145	
Control Room	1	104	104	
Office	1	307	307	
Office	1	121	121	
SUBTOTAL			12,211	
Support	# of Space	SF	Total SF	Comments
Admin/Media Center - Restrooms	2	237	474	
Admin/Media Center - Data	1	61	61	
Admin/Media Center - Electrical	1	68	68	
Gym/Multipurpose - Restrooms	2	270	540	
Gym/Multipurpose - Data/Electrical	1	298	298	
SUBTOTAL			1,441	
Building Net Area			20,371	
Est. Building Circulation	15%		3,056	
TOTAL - BUILDING SPACE			23,427	

Remaining Campus

Remaining campus with classrooms, etc., will be developed at a later time.

Sustainable Design Approach

Sustainability refers to the concept of designing, constructing and operating the campus, in such a way that reconciles environmental, social, and economic demands.

Sustainable design and construction reduces energy and natural resource consumption and promotes design of healthy environments to enhance teaching and learning. Sustainable design also incorporates design concepts such as:

- Minimizing storm water impacts by reducing impervious surfaces.
- Building siting and orientation that maximizes ambient lighting and energy efficiency.
- Responsible lighting design strategies that reduce light pollution.
- Alternative energy strategies to reduce demands and impacts on existing municipal energy infrastructures.
- Reducing water consumption in the landscape by utilizing drought tolerant species and appropriate massing.
- Reducing domestic water consumption by incorporation of high-efficiency water fixtures.
- Waste reduction and recycling strategies to reduce construction and operational impacts on landfills.

The goal of sustainable design is to meet the needs of the present without compromising the ability of future generations to meet their own needs. Meeting this goal requires an approach to design and construction that reduces further depletion of natural resources, minimizes air pollution impacts, helps slow global warming, and creates healthier learning environments. This approach decreases dependency on non-renewable resources while improving opportunities for more efficient and economical alternatives that are self-sustaining. Selecting proper materials in conjunction with appropriate environmental systems creates healthier living environments for residents and workers.

New construction and major renovation projects should be designed to incorporate sustainable design elements that minimize environmental impact, reduce demand on infrastructure, reduce long-term operations maintenance and utility expenses and provide a healthier indoor environment for occupants.

The following guidelines shall apply to new construction and major renovation projects:

1. Utilize an "integrated approach" during design and construction that brings all of the appropriate project stakeholders together throughout the design and construction process to set and evaluate sustainable project strategies and performance goals.
2. Design all new construction and major renovation projects to a level capable of certification under the Collaborative for High Performance Schools (CHPS) Rating System. Projects that pursue the CHPS Verified certification path should also be examined to determine if they are eligible for funding under the High Performance Incentive program (HPI) administered by the Division of the State Architect and the Office of Public School Construction

3. Site Development:

- a. Utilize drought tolerant native and adaptive plant species that are complimentary to existing surrounding landscape materials. Incorporate shade trees in new landscape designs to reduce heat island impacts (when shading paved / developed surfaces.)
- b. Incorporate high-efficiency / low-water consumption irrigation systems that reduce anticipated irrigation water demand by 50% from a baseline irrigation budget that complies with the "California Green Building Standards Code" (CALGreen) requirements.
- c. Reduce impact on existing storm water infrastructure by retaining and infiltrating and/or reusing runoff on campus when possible. Where infiltration or reuse (for irrigation or sewage conveyance) is not feasible due to natural conditions (i.e. poor geotechnical conditions, etc.) storm water should be treated to remove a minimum of 80% of total suspended solids prior to release in existing storm drain systems. Treatment systems to be considered include, but are not limited to: bio-swales; bio-retention cells; rain gardens; native mixed grasses; pervious paving systems; packaged storm treatment units; storm water infiltration systems; etc.
- d. New irrigation control systems shall incorporate weather- or soil moisture-based monitoring to adjust irrigation time and volume based on actual conditions.
- e. To reduce the risk of moisture intrusion, design site grading and irrigation systems to channel water away from building perimeters and walkways.
- f. Site and exterior building lighting fixtures shall be full-cutoff luminaires. Non-essential exterior lighting shall be turned off by automatic controllers from 11:00 p.m. to the following evening at dusk. Where feasible, essential lighting shall be equipped with occupancy sensing controls to reduce power to provide lighting at minimum safety thresholds when areas are unoccupied. Lighting shall be ramped up to full power (based on zones) when motion is detected in the vicinity.

4. Domestic Water Efficiency

- a. Interior plumbing fixtures shall be selected to reduce domestic water usage by a minimum of 20 percent from calculated baseline standards (a 30 percent reduction is desirable.) Fixtures to consider include, but are not limited to: 1.28 gpf single water closets or dual-flush water closets; 0.128 gpf or water-free urinals; 0.4 gpm lavatory faucets (auto-controls are desirable); 1.8 gpm general purpose / kitchen faucets.
- b. Where feasible incorporate waste heat recovery systems to capture heat from drainage water to pre-heat domestic water supplies.

5. Energy Efficiency

- a. All new projects shall be designed to perform, at a minimum, 15 percent better than the Title 24 Energy Code base case.
- b. All new projects shall be enrolled in the Savings By Design incentive program, administered by San Diego Gas and Electric (SDG&E).
- c. On-site renewable energy systems shall be investigated to reduce demand on existing energy grid infrastructure and to support the SDG&E renewable energy production goals.
- d. Incorporate high efficiency mechanical systems for new projects. In addition to conventional systems, investigate potential for incorporation of highly efficient geothermal heat exchange systems, heat recovery systems, and passive or mixed mode (mechanical and natural ventilation) systems.

6. Materials and Resources

- a. Develop and implement a construction waste management plan for each construction project that diverts a minimum of 75% of construction generated debris (excluding green waste and organic land clearing debris) from landfill through recycling, reuse, or donation to charitable organizations. The plan must also incorporate provisions to divert 100% of green waste and organic land clearing debris from landfill.
- b. Provide clearly marked, and easily accessible, areas for the collection and temporary storage of recyclable materials including, but not limited to, paper, plastic, glass, cardboard and metals. Tenant collection areas shall be provided inside buildings on each level (at a minimum) and central collection enclosure areas shall be provided adjacent to (or within) exterior trash collection enclosures.

7. Environmental Quality

- a. New construction projects shall be designed to maximize daylight access for interior occupied spaces. Top lighting and side lighting strategies shall be combined to optimize daylight access for building occupants. Daylighting strategies to be investigated for feasibility include, but are not limited to: exterior / interior light shelves; skylights and monitors; clerestory windows; tubular skylights; light wells.
- b. New construction projects shall include permanent entryway systems (grilles / grates) at all major building entry points. The systems shall be metal / aluminum recessed type with carpet or rubber inserts and shall be a minimum of ten feet long in the direction of travel.
- c. All HVAC filtration for new equipment shall have a minimum efficiency reporting value (MERV) of 8 (MERV 13 is preferred) to improve indoor air quality for occupants.
- d. All janitor closets and areas where chemicals are stored and/or mixed shall be constructed with full height (deck to deck) partitions and shall have dedicated exhaust-only systems to prevent potential room to room transfer of fumes and/or odors.

8. Third-party certification of sustainable performance is not required for campus projects. Project teams may, at their discretion, elect to pursue formal certification for projects utilizing available rating system programs such as: Collaborative for High Performance Schools (CHPS) or the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Rating System for Schools.

Preliminary Mechanical Basis of Design

MECHANICAL SYSTEMS

ASSUMPTIONS AND REFERENCES

Some of the key references applicable to this project are:

- ASHRAE Standards and Handbooks
- ASHRAE Standard 62, (for indoor air quality)
- ASHRAE Standard 55-2004 (for comfort)
- ASHRAE Standard 52.1-1992 (for filtration)
- 2005 California Energy Commission Building Energy Efficiency Standards (Title 24)
- California Mechanical Code (latest version)
- California Plumbing Code (latest version)
- Applicable NFPA Handbooks

The indoor and outdoor design conditions are based on the RFP Design Criteria.

<u>General Area</u>	<u>Indoor Design Conditions</u>	<u>Outdoor Design Conditions</u>
Summer	78°F / 75 °F	81°F DB and 67° F WB
Winter	75°F / 68°F	47°F

Ventilation

Minimum ventilation rates shall be established in accordance with:

- ASHRAE 62 or Title 24, based on room function, whichever is more stringent.
- 12 air changes per hour for restrooms and janitor’s closets per RFP requirements.

The heating, ventilation and air conditioning (HVAC) systems shall be provided as follows:

HVAC SYSTEMS

Rooftop package HVAC unit will include constant variable volume centrifugal supply and return/exhaust air fans, DX cooling coil, indirect gas fired heating, and 30% efficient air filter.

Air side economizers will be provided to benefit from “free cooling” opportunities and reduce energy consumption. The Building Management System will be designed with the capability to reduce heating and cooling during unoccupied hours within agreed upon setback limits.

Insulated, galvanized steel supply and return air ductwork, aluminum grilles, registers, and diffusers and filter grilles for return air will be provided.

Toilet rooms will be exhausted directly to the outdoors.

Electrical, TelCom, and IT rooms shall be conditioned using a ductless split DX type system with rooftop condensing unit.

TEMPORARY VENTILATION AND FILTRATION PRACTICES

Such practices shall be implemented when interior finishing products are to be applied or installed at the end of construction or during renovations. This may require increased ventilation rates and schedules and the use of items such as temporary operations and pre-filters, unitary conditioning filtering units, and removing doors and windows.

ENERGY MANAGEMENT CONTROL SYSTEMS

The control system will be a direct digital control system compatible with the campus energy management system.

ENERGY CONSERVATION / LEED

To conserve energy the following are minimum design and control methods will be applied.

- High efficiency building envelope, insulation, glass material, etc.
- Premium efficiency motors for all equipment.
- Variable volume air systems will be used wherever possible.
- Variable speed drives for all motors over 2 HP.
- No CFCs will be used in this project.
- Energy performance will exceed the 2005 Title 24 CEC requirements

PLUMBING SYSTEMS

GENERAL

The Plumbing design shall meet the requirements of the 2010 California Plumbing Code as a minimum. Low flow water closets, urinals, and lavatories will be specified for the project.

DOMESTIC WATER SYSTEMS

Domestic water service shall be brought to within five feet from the building as detailed under the Site Work and Utilities section. The domestic water service shall be separate from the fire water service for supply to the building.

The domestic water service shall be provided with a pressure reducing station valves (PRV) assembly, and reduced pressure backflow prevention device assembly.

PRV shall limit water pressure inside the building to 80 psi.

A gas fired hot water heater shall produce the domestic hot water. The distribution piping system shall be provided with a circulating pump return system, designed to insure hot water at point of use. The nominal water temperature shall be 120° F.

Provide point of use electric water heaters for service to toilet area lavatories.

Water velocity will not exceed 6 ft/sec for cold water and 5 ft/second for hot water.

NATURAL GAS SUPPLY

Available natural gas at the site will be used for space heating and domestic hot water.

ROOF AND STORM DRAINAGE SYSTEM

The roof drainage system shall be designed with connections to the underground on-site storm drainage system and extended to five feet outside the building. The overflow drains will terminate at 12-inch maximum above grade outside building on a concrete splash block. Do not terminate overflow drains in an area that would affect occupants or lead to water entering the building.

DRAINS AND WASTES

Provide floor drains in each toilet and mechanical room as required by plumbing code. Heel proof grates will be provided.

The sanitary waste system shall extend to five feet outside the building and connect to an on-site lateral provided by the site utilities.

FIXTURES

Toilets. Wall mounted with standard low flow flush valves. ADA compliant fixtures will be provided

Urinals. Wall mounted with standard low flow flush valves. ADA compliant fixtures will be provided.

Lavatories. Counter top with standard low flow faucet. Fixtures shall be ADA compliant vitrious china with standard low flow faucets.

Drinking fountains. Fixtures shall be stainless steel cabinet with refrigerated chilled water and cuspidors.

Sinks. Countertop mounted stainless steel. Fixtures shall be ADA compliant standard low flow faucets.

Service sinks. Service sinks will be floor mounted corner type with wall mount faucet.

Recessed hose bibs with lockable cover will be provided around the building perimeter for wash down and cleaning.

FIRE SUPPRESSION SYSTEM

Provide a complete hydraulically designed fire sprinkler system. The system shall be designed in conformance with the 2010 California Building Codes, NFPA-13, 24.

The system components shall include the following:

- An alarm check valve with electric bell shall be inside the building.
- Valve and water-flow switch monitoring.
- Audible sprinkler flow alarms on the exterior and interior of the building.

Preliminary Electrical Basis of Design

1. GENERAL PROJECT SCOPE

1.1 Description of Work

The scope of work shall generally include all power, lighting, lighting controls, and signal systems associated with the construction of the new Sunset high School. Approximately five (5) new building shall be constructed.

1.2 Codes Standards and Regulations

The project shall comply with the latest approved versions of the California Building Code (CBC), California Electrical Code (CEC), California State Administrative Code (Title 24), Local Fire Department Regulations and all other jurisdictions having authority.

1.3 Electrical Design Standards

The design, products, and installation shall comply with the following electrical industry standards:

1. Electronic Industries Association (EIA) Standard 569
2. Illumination Engineering Society of North America (IESNA) Lighting Standards
3. Institute of Electrical and Electronics Engineers (IEEE) Standards
4. National Electrical Manufacturers Association (NEMA)
5. Insulated Power Cable Engineers Association (IPCEA)
6. Certified Ballast Manufacturers Association (CBMA)
7. Underwriters Laboratories, Inc. (UL)
8. National Fire Protection Association (NFPA)
9. California Electrical Code (CEC)
10. CA Title 24 Energy Standards
11. Fire Department Regulations
12. American National Standards Institute (ANSI)
13. All other Authorities Having Jurisdiction

1.4 Principal items to be included:

1. Power
 - A. Primary distribution (480V) system extension
 - B. Building service step-down transformers
 - C. Main service switchboards
 - D. Panelboards
 - E. Branch circuitry
 - a. Administration Offices
 - b. Classrooms
 - c. Math and Science Labs
 - d. Arts and Sciences Building
 - e. Adult Education Center
 - f. Gymnasium and Activity Rooms
 - g. Industrial Arts
 - h. Circulation Areas
 - i. Outdoor Recreation Areas

2. Interior Lighting
 - A. Administration Offices
 - B. Classrooms
 - C. Food Service
 - D. Resource Center
 - E. Circulation Areas

3. Exterior Lighting
 - A. Pedestrian Walkways
 - B. Assembly Areas
 - C. Building Exits
 - D. Basketball Court
 - E. Parking Lot

2. SELECTED SYSTEM DESCRIPTION:

2.1 Electric Service

The site shall be provided with a new SDG&E electrical service. The service and main switchgear shall be rated 2000A 208Y/120V 3PH 4W NEMA 3R. The new service shall be derived from a new SDG&E pad-mounted transformer located at the street. The new service shall distribute 208Y/120V power underground around the campus to the individual buildings. The existing services and distribution systems shall be removed.

2.2 Power Distribution

The new buildings shall be provided with new feeders from the main switchgear. All feeders shall be copper conductors in underground conduits. All new building switchgear shall be located indoors and shall feature fully-rated copper bussing.

Lighting for each building shall be served from 208Y/120V panelboards with operating voltage at 120V.

All HVAC equipment shall be served by the lighting panelboards with operating voltage at 208V 3PH.

Indoor 208Y/120V 3PH 4W branch circuit distribution shall be provided by panelboards located in the electrical rooms. All panelboard bussing shall be copper.

All wiring shall be copper, type THHN, 600V rated. All branch wiring shall be insulated conductors in conduit.

2.3 Interior Lighting Systems

Interior lighting shall utilize energy efficient electronic ballasts and energy efficient T8 lamps. Recessed 2x4 direct/indirect luminaires shall be used in the office and classroom areas. The color temperature of the lamps shall be 4100K. Daylight responsive lighting controls shall be provided in all areas. Appropriate LED lighting sources shall be considered.

Lighting systems for staff offices shall be controlled by occupancy sensors with a by-pass switch for bi-level lighting. Lighting for common areas and circulation spaces shall be controlled by the lighting

control system. Lighting in the classrooms shall be controlled by toggle switches and occupancy sensors. All lighting shall comply with California Title 24 energy code requirements. The lighting control system shall be a microprocessor-based addressable relay system.

Illumination levels, task lighting, and multi-level controls shall be provided per the program requirements.

2.4 Exterior Lighting Systems

Exterior lighting shall comply with local code requirements. Light fixtures for exterior doors shall be building-mounted HID or LED luminaires. Lighting for student courtyard areas and circulation paths shall feature pedestrian-scale poles. Photocell controls shall be used in conjunction with the lighting control system for all exterior lighting. New exterior recreation area lighting shall feature steel poles with HID luminaires at the basketball court.

2.5 Emergency Lighting

Emergency lighting shall consist of unswitched general lighting fixtures for egress illumination and exit sign lighting provided with emergency backup by a central battery inverter located at each building. Egress lighting shall include an adequate number of fixtures to provide 1FC average illumination on the exit path.

2.6 Fire Alarm System

The site shall be served by a central fire alarm system with the FACP located in the MDF room in the Administration Building. The FACP shall support devices in the buildings around the campus via an underground conduit system. The FACP shall be connect to transponder panels in each building.

2.7 Telephone System

The site shall be served by a central telephone/intercom VoIP system located in the MDF room in the Administration Building. The switch shall support the telephone instruments in all of the buildings around the campus via an underground conduit system.

2.8 Data System

The site shall be served by a new, robust data/media distribution system with the servers and switches located in the MDF room in the Administration Building. The network shall support the computing equipment in all of the buildings around the campus via an underground conduit system.

