

**ENVIRONMENTAL CHECKLIST FORM
CITY OF HUNTINGTON BEACH
PLANNING & BUILDING DEPARTMENT
ENVIRONMENTAL ASSESSMENT NO. 2010-006**

1. PROJECT TITLE: Huntington Beach Municipal Solar Project

Concurrent Entitlements:

- Site 1: Design Review Board (DRB)
- Site 2: Conditional Use Permit (CUP) by ZA and DRB
- Site 3: CUP by ZA and DRB
- Site 4: DRB
- Site 5: Site Plan Review and DRB
- Site 6: DRB
- Site 7: DRB
- Site 8: CUP by ZA and DRB

2. LEAD AGENCY: City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Contact: Hayden Beckman, Planning Aide
Phone: (714) 374-5317

3. PROJECT LOCATION: The project is located at eight municipal facilities within the City of Huntington Beach. Figure 1 shows the regional location, while Figure 2 shows the locations of individual facilities. The project site locations are also described in Table 1.

**Table 1
Project Type and Location**

| Site Number | Site Name | Installation Type | Address |
|-------------|--|----------------------------------|---|
| Site 1 | City Hall and Police Building / Corporate Yard | Rooftop & Parking Lot (Carports) | 2000 Main Street Huntington Beach, CA 92647 |
| Site 2 | Central Library | Parking Lot (Carports) | 7111 Talbert Avenue Huntington Beach, CA 92648 |
| Site 3 | Sports Complex | Parking Lot (Carports) | 18120 Goldenwest Street, Huntington Beach, CA 92647 |

**Table 1
Project Type and Location**

| Site Number | Site Name | Installation Type | Address |
|-------------|------------------------|----------------------------------|---|
| Site 4 | City Yard | Rooftop & Parking Lot (Carports) | 17371 Gothard Street, Huntington Beach, CA 92647 |
| Site 5 | City Reservoir | Rooftop | 14627 Springdale, Huntington Beach, CA 92647 |
| Site 6 | City Reservoir | Rooftop | 6401 Overlook, Huntington Beach, CA 92648 |
| Site 7 | City Water Yard | Rooftop & Parking Lot (Carports) | 19001 Huntington Street, Huntington Beach, CA 92648 |
| Site 8 | Murdy Community Center | Parking Lot (Carports) | 7000 Norma Drive, Huntington Beach, CA 92647 |

4. PROJECT PROPONENT:

Contact Person: Aaron Klemm, Energy Project Manager
Phone: 714-536-5537

5. GENERAL PLAN DESIGNATION: See Table 2 below

6. ZONING: See Table 2 below

**Table 2
Project Site General Plan and Zoning Designations**

| Site Number | Site Name | General Plan Designation | Zoning |
|-------------|--|-----------------------------|---|
| Site 1 | City Hall and Police Building / Corporate Yard | P Public | PS Public – Semipublic |
| Site 2 | Central Library | OS-P Open Space Parks | OS – PR Open Space Parks Recreation |
| Site 3 | Sports Complex | OS-P Open Space Parks | OS – PR Open Space Parks Recreation |
| Site 4 | City Yard | P Public | PS-FP2 Public-Semipublic Flood Zone A |

Table 2
Project Site General Plan and Zoning Designations

| Site Number | Site Name | General Plan Designation | Zoning |
|-------------|---------------------------|--|---|
| Site 5 | City Reservoir | I-F2A-d Industrial Max FAR 0.75 Special Design Standards | IL and SP11 Industrial Light McDonnell Centre Specific Plan |
| Site 6 | City Reservoir | RL Residential Low Density | SP9 Holly Seacliff Specific Plan Planning Area 1 Planning Unit 1-2 Residential Low Density 1 |
| Site 7 | City Water Yard | P(I-F2) Public (Industrial Max FAR 0.5) | PS Public–Semipublic |
| Site 8 | Murdy Community Center | OS-P Open Space Parks | OS – PR Open Space Parks Recreation |

7. PROJECT DESCRIPTION (Describe the whole action involved, including, but not limited to, later phases of the project, and secondary support, or off-site features necessary for implementation):

The project involves the installation of photovoltaic panels on new carports and existing rooftops and associated accessory equipment at eight municipal facilities within the City of Huntington Beach. Table 3 shows the types of installations and size of the photovoltaic systems at each site. Figure 3 shows typical views of the proposed carports and inverters.

The photovoltaic panels would be sawtooth type (north-south orientation), flat type (east-west orientation), or solar laminate. Flat panels and sawtooth panels would be tilted by 5 feet. The size of the panels varies by site. The panels at Site 1, the parking lot of Site 2, Site 3, Site 4, Site 6, Site 7, and Site 8 would be 65.94”L by 39.41”W with a ½” gap between panels. The photovoltaic panels on the rooftop at Site 2 and at Site 5 are 216”L by 15.5”W with a 1 ½” gap between panels.

**Table 3
Project Characteristics**

| Site | Rooftop | Parking Lot | Inverters | Figure |
|----------------------------------|---|---|---|--|
| Site 1 City Hall | None at City Hall | 2,296 Flat and Sawtooth Type Panels on Carports 609 kW (rooftop plus carport) at City Hall | Two type one and one type two at Site 1 | 4 shows City Hall parking lot and Police Building Rooftop layout 5 shows City Hall parking lot landscape plan 6 shows City Hall parking lot photovoltaic canopy column plan 7 shows parking lot photovoltaic canopy lighting plan 8 shows City Hall Inverter Types 9 shows Police Building roof and parking lot photovoltaic plan 10 shows Police Building parking lot photovoltaic canopy column plan 11 shows Police Building parking lot photovoltaic canopy lighting plan |
| Police Building / Corporate Yard | 798 Sawtooth Type Panels at the Police Yard | 852 Sawtooth Type Panels on Carports 299 kW (rooftop plus carport) at the Police Yard | | |
| Site 2 Central Library | 348 Solar Laminate Panels 50 kW | 3,388 Flat and Sawtooth Type Panels on Carports 779 kW | Two type one and one type two | 12 shows parking lot layout 13 shows rooftop layout 14 shows landscape plan 15 shows parking lot photovoltaic canopy column plan 16 shows parking lot photovoltaic canopy lighting plan 17 shows Inverter Types |
| Site 3 Sports Complex | None | 4,074 Flat and Sawtooth Type Panels on Carports 937 kW | Three type two | 18 shows parking lot layout 19 shows landscape plan 20 shows parking lot canopy column plan |

Table 3
Project Characteristics

| Site | Rooftop | Parking Lot | Inverters | Figure |
|--|---|---|-------------------------------|--|
| Site 4 City Yard | Building B (Mechanical Maintenance Shop) 396 Solar Laminate Panels 57 kW Building C (Shops) 196 Sawtooth Type Panels 45 kW Building D (Garages) 144 Solar Laminate Panels 20.7 kW | 686 Flat and Sawtooth Type Panels on carports 157.8 kW | One type one and two type two | 21 shows parking lot layout 22 shows rooftop layout 23 shows parking lot landscape plan 24 shows parking lot photovoltaic canopy column plan 25 shows parking lot photovoltaic canopy lighting plan 26 shows Inverter Types |
| Site 5 City Reservoir | 1,080 Solar Laminate Panels 156 kW | None | One type one | 27 shows rooftop layout |
| Site 6 City Reservoir | 938 Sawtooth Type Panels 216 kW | None | One type one | 28 shows rooftop layout |
| Site 7 City Water Yard | 260 Solar Laminate Panels 17.7 kW | 364 Flat Panels on Carports 84 kW | One type one and one type two | 29 shows parking lot layout 30 shows rooftop layout |
| Site 8 Murdy Community Center | None | 546 Flat and Sawtooth Type Panels on Carports 125 kW | One type one | 31 shows parking lot layout |
| <i>Notes:</i> Solar Laminate Panels are Uni-Solar PVL-144 with dimensions of 216" length x 15.5" width. An 1 1/2" gap is proposed between the panels. Sawtooth Type Panels are tilted 5° facing south. These panels are Solarworld SW230 with dimensions of 65.94" length x 39.41" width. A 1/2" gap will be between the panels. | | | | |

The photovoltaic systems would be composed of solar cells, which are semiconductor devices that convert sunlight into electricity. Typically, a number of individual cells are connected together to form modules, or solar panels. In order to provide electrical insulation and protect against environmental corrosion, the solar cells are encased in a transparent material referred to as an encapsulant. To provide structural integrity the solar cells are mounted on top of a rigid flat surface or substrate. A transparent cover film, commonly glass, further protects these components from the elements. Several types of semiconductor materials are used to manufacture solar cells but the most common material is crystalline silicon, typically from quartz or sand. The outer glass cover constitutes the largest share of the total mass of a finished crystalline photovoltaic module (approximately 65%), followed by the aluminum frame (~20%), the ethylene vinyl acetate encapsulant (~7.5%), the polyvinyl fluoride substrate (~2.5%), and the junction box (1%). The solar cells themselves only represent about four percent (4%) of the mass of a

finished module. The proposed photovoltaic panels would not create a new source of light or glare, as these panels absorb light rather than reflect it. Maintenance on the panels would occur once a year during the summer.

Parking lot carport canopy installations would include the following components.

- **Support Posts** – The canopies would be attached to steel posts imbedded in reinforced concrete, with the post-hole approximately two feet in diameter and six to 13 feet deep. The support posts would have a minimum 13 foot clearance for vehicles and would be primarily composed of steel, concrete, and brick materials. Post holes would be drilled and the depth and diameter of post-holes would be determined by soil engineering characteristics. The colors and materials of the support posts would be subject to approval by the City of Huntington Beach Design Review Board.
- **Trenches** - The trenches that would convey conduit between the system components would be approximately 18 to 24 inches deep and 12 to 36 inches wide. Asphalt removal, backfilling of the trenches and asphalt repair would be necessary.
- **Re-Striping** – The parking lots would require re-striping in the area of construction after asphalt removal and repair.
- **Inverters** – Inverters would be located on a concrete pad and would be enclosed in brick or fencing. Typical inverter types are shown in Figure 3. Inverter enclosures would be one of two types, either fenced (Type 2) or enclosed in a concrete or brick structure (Type 1). Inverter enclosures would be a minimum of approximately 1,400 square feet to a maximum of approximately 4,600 square feet. Type 1 inverter enclosures would be composed of natural brick with glass windows and metal doors. Type 2 inverter enclosures would be composed of green fencing with intermittent metal posts surrounding the metal and concrete structures within the enclosure. Colors and materials for each site would be determined by the City of Huntington Beach Design Review Board. Inverters would be customized for individual locations. The intent is to design inverters to be compatible with the existing architectural and aesthetic setting. Site specific enclosure types for Site 1 are shown in Figure 8. There would be one inverter enclosure design in the parking lot that would be composed of concrete or brick and two inverter enclosure designs in grass areas that would be composed of chain link fencing. Inverter types for Site 2, Central Library, are shown in Figure 17. This site would contain two type one inverters and one type two inverter. The specific enclosure types for Site 4, City Yard, are shown in Figure 26. At this site, there would be one type one inverter enclosed in concrete or brick, and two type two inverters enclosed in fencing. The type two inverters would match existing fencing at Site 4, as shown on Figure 26. Final design, colors & materials for all enclosure types are subject to the Design Review Board and/or Zoning Administrator.
- **Landscaping/Trees**—Select trees and landscaping would be removed and/or relocated as part of the carport canopy installations and inverter installations. In total, at all eight sites there are 93 trees proposed for removal or relocation and 146 trees proposed for trimming. Construction of the project would be subject to standard City requirements for the replacement of existing mature healthy trees to be removed at a minimum of 2:1 ratio. In addition, the project has been designed to avoid affecting large trees such as the eucalyptus and pines within the City Hall parking lot. For those trees that are affected, replacement is proposed in accordance with City requirements. Landscape plans, which show the location of trees to be

trimmed, removed, and replaced are shown on Figure 5 (Site 1, City Hall Parking Lot), Figure 14 (Site 2, Central Library Parking Lot), Figure 19 (Sports Center Parking Lot), and Figure 23 (Site 4, City Yard Parking Lot).

- Lighting—Parking lot lighting would be removed when the existing lighting stanchions are in conflict with a proposed carport canopy. Proposed canopy installations would include lighting components under canopies. At the Murdy Community Center, carport canopy installations will not conflict with occupancy sensor controlled LED lighting. Site specific canopy lighting plans are shown in Figure 11 (Site 1, Police Building/Corporate Yard Parking Lot), Figure 16 (Site 2, Central Library Parking Lot), and Figure 25 (Site 4, City Yard Parking Lot).
- Parking – Parking would be temporarily unavailable in portions of the parking lots of some sites during construction of carport canopies. Larger sites such as City Hall, the Sports Complex and the Central Library would be phased to minimize temporary parking losses. Construction of the larger sites would likely occur in three phases. Therefore, approximately 67% of the parking spaces at these sites would be available for parking at all times during construction. After installation of the carport canopies, the amount of parking spaces would be similar to existing conditions and it is estimated that only four total existing parking spaces will be lost between all eight sites. The amount of existing parking at each site, amount of parking lost due to the proposed project, and supply of parking after the project is completed is shown in Table 7 below.

Rooftop installations would involve the placement of mounting hardware on existing rooftops, with conduit connecting the system to an inverter that would be constructed on the ground nearby as indicated for each site on the applicable plan set (see Figures 4 through 31).

The project would be constructed in two phases. Phase I would include construction of Site 1 (City Hall and Police Building/Corporate Yard), Site 2 (Central Library), Site 4 (City Yard), Site 5 (City Reservoir), Site 6 (City Reservoir), and Site 7 (City Water Yard). Phase II would include construction of Site 3 (Sports Complex) and Site 8 (Murdy Center). Construction of up to three sites could occur simultaneously on a given day. In addition, as discussed above, construction would be completed in three phases for larger sites such as Site 1, City Hall and Police Building (Figures 4-11), Site 2, the Central Library (Figures 12-17), and Site 3, the Sports Complex (Figures 18-20). Project construction is estimated to range from about 3 to 18 months per site depending on the site and the size of the installation.

Construction trenching activities would be limited to the upper two feet of soil. Drilling activities could extend to a depth of 13 feet, but would be relatively narrow in area of impact as they would be only two feet wide. Parking lot installations, particularly City Hall (Site 1) and Central Library (Site 2), shall be designed to avoid oil conveyance infrastructure such that all pipelines and associated infrastructure are mapped on the site plans and any such infrastructure shall be avoided. Plans are subject to review and approval by the Fire Department.

Truck trips to transport materials and remove excavated materials at each site would range from 5 trips to 15 trips (one way) based on a range of about 400 kW to 1.2 MW of development (see Table 3). In addition, it is estimated that 6-10 one way worker trips would be associated with daily construction activities at each site. The construction staging and worker parking areas will be designed to maximize available on-site parking during construction activity at each site. The construction contractor will be responsible for complying with a construction activity phasing plan subject to approval by the City.

The proposed project would be required to comply with applicable City of Huntington Beach Best Management Practices (BMPs) as well as National Pollutant Discharge Elimination System (NPDES) requirements. The NPDES program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. The project would be required to implement BMPs in order to comply with NPDES requirements during operation of the proposed project, including maintenance of the project during the summer every year.

8. SURROUNDING LAND USES AND SETTING:

**Table 4
Surrounding Land Uses and Setting**

| Site | North | East | South | West |
|--|--|--|--|--|
| Site 1 City Hall and Police Building / Corporate Yard | commercial retail | multi family residential | multi family residential | institutional Huntington Beach High School |
| Site 2 Central Library | open space /park | open space /park | open space / recreation Sports Complex | open Space / park Huntington Central Park |
| Site 3 Sports Complex | open space /park Central Library | open space /park | open space /park | open Space / park Huntington Central Park |
| Site 4 City Yard | residential mobile homes | surface parking, commercial retail | single family residential | single family residential |
| Site 5 City Reservoir | railroad, single family residential | single family residential | industrial | industrial |
| Site 6 City Reservoir | single family residential | single family residential | single family residential | undeveloped, unincorporated County |
| Site 7 City Water Yard | single family residential | residential mobile homes | Industrial | multi family residential |
| Site 8 Murdy Community Center | multi family residential | recreational fields, single family residential | recreational fields, commercial Retail | recreational fields, single family residential |

9. OTHER PREVIOUS RELATED ENVIRONMENTAL DOCUMENTATION:

A National Environmental Policy Act (NEPA) Categorical Exclusion is being completed concurrently. No other environmental documentation has been prepared for this proposed project.

10. OTHER AGENCIES WHOSE APPROVAL IS REQUIRED (AND PERMITS NEEDED) (i.e. permits, financing approval, or participating agreement):

- A Measure C Vote by Huntington Beach citizens may be necessary for improvements at Murdy Community Center and the Huntington Beach Sports Complex.
- The federal Department of Energy will be the agency approving the NEPA Categorical Exclusion pursuant to American Reinvestment and Recovery Act funding.

- Recovery zone facility bonds will need to be approved by the City of Huntington Beach Bond Counsel for the project.
- City Council approval of solar power purchase agreements
- Santa Ana Regional Water Quality Control Board and Orange County Health Department approval for the Sports Complex (Site 3), which is a former landfill.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” or is “Potentially Significant Unless Mitigated,” as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Transportation / Traffic | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Population / Housing | <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Utilities / Service Systems |
| <input type="checkbox"/> Geology / Soils | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Aesthetics |
| <input type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Cultural Resources |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Noise | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION** will be prepared.

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

I find that the proposed project **MAY** have a “potentially significant impact” or a “potentially significant unless mitigated impact” on the environment, but at least one impact (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, **nothing further is required**.

Signature

Date

Printed Name

Title

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to the project. A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards.
2. All answers must take account of the whole action involved. Answers should address off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. “Potentially Significant Impact” is appropriate, if an effect is significant or potentially significant, or if the lead agency lacks information to make a finding of insignificance. If there are one or more “Potentially Significant Impact” entries when the determination is made, preparation of an Environmental Impact Report is warranted.
4. Potentially Significant Impact Unless Mitigated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVIII, “Earlier Analyses,” may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). Earlier analyses are discussed in Section XVIII at the end of the checklist.
6. References to information sources for potential impacts (e.g., general plans, zoning ordinances) have been incorporated into the checklist. A source list has been provided in Section XVIII. Other sources used or individuals contacted have been cited in the respective discussions.
7. The following checklist has been formatted after Appendix G of Chapter 3, Title 14, California Code of Regulations, but has been augmented to reflect the City of Huntington Beach’s requirements.

(Note: Standard Conditions of Approval - The City imposes standard conditions of approval on projects which are considered to be components of or modifications to the project, some of these standard conditions also result in reducing or minimizing environmental impacts to a level of insignificance. However, because they are considered part of the project, they have not been identified as mitigation measures.

SAMPLE QUESTION:

| <i>ISSUES (and Supporting Information Sources):</i> | <i>Potentially Significant Impact</i> | <i>Potentially Significant Unless Mitigation Incorporated</i> | <i>Less Than Significant Impact</i> | <i>No Impact</i> |
|--|---------------------------------------|---|-------------------------------------|-------------------------------------|
| <p><i>Would the proposal result in or expose people to potential impacts involving:</i></p> <p><i>Landslides? (Sources: 1, 6)</i></p> <p><i>Discussion: The attached source list explains that 1 is the Huntington Beach General Plan and 6 is a topographical map of the area which show that the area is located in a flat area. (Note: This response probably would not require further explanation).</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant | No Impact |
|--|--------------------------------------|--|------------------------------------|----------------------------|-----------|
|--|--------------------------------------|--|------------------------------------|----------------------------|-----------|

I. LAND USE AND PLANNING. Would the project:

- a) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? (Sources: 1, 2)
-

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports and associated accessory equipment at eight existing municipal facilities. Table 2 shows the General Plan and zoning designations for each of the eight sites. All eight of the sites will require Design Review by the Design Review Board, while sites 2, 3, and 8 will also require a Conditional Use Permit (CUP) by the Zoning Administrator. Site 5 would require a site plan review.

The proposed project would be consistent with the following goals and policies of the Land Use, Economic Development, and Environmental Resources/Conservation Elements of the General Plan:

Policy LU 2.1.1—Plan and construct public infrastructure and service improvements as demand necessitates to support the land uses specified in the Land Use Plan.

LU 4.1.4—Encourage developers to incorporate mature and specimen trees and other significant vegetation, as defined by the City, that may exist on a site into the design of a development project for that site.

Policy ERC 5.2.3—Require that the use of energy saving designs and materials be incorporated into the construction of all public buildings, while encouraging their use City-wide.

The project would be consistent with the goals and policies listed above because the project would include installation of photovoltaic panels, which would save energy at eight facilities in the City, and would support City functions. In addition, the project has been designed to avoid affecting large trees such as the eucalyptus and pines within the City Hall parking lot. Moreover, for those trees that are affected, replacement is proposed in accordance with City requirements. The proposed project would not introduce new uses that would conflict with the identified policies and objectives contained in the General Plan. It should be noted that none of the sites are within the Coastal Zone.

With Design Review approval for each of the eight sites, approval of a site plan review for Site 5, and approval of CUPs for sites 2, 3, and 8, the project would not conflict with applicable planning documents and policies. In addition, all proposed carport structures would comply with the development standards of the zones of each site. The impact would be less than significant.

- b) Conflict with any applicable habitat conservation plan or natural community conservation plan? (Sources: 1, 2, 4)
-

Discussion: Each of the eight project sites is located at an already developed municipal facility and would be undertaken on a rooftop or within an already paved parking lot (see Figures 4 through 31). The project would not affect any undeveloped lands or native habitats. The City of Huntington Beach does not have any adopted

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

habitat conservation plans or natural community conservation plans. Therefore, the project would have no impact.

- c) Physically divide an established community?
 (Sources: __4__)

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The projects would be localized and would be confined to existing rooftops and parking lots (see Figures 4 through 31). The project would have no impact with respect to division of an established community.

II. POPULATION AND HOUSING. Would the project:

- a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extensions of roads or other infrastructure)? (Sources: __4__)
-

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would not contribute to development of additional housing and would not generate population either directly or indirectly. The project would have no impact on population and housing.

- b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (Sources: __4__)
-

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would not displace any housing and would not require any replacement housing. There would be no impact.

- c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (Sources: __4__)
-

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would not displace any people and would not require any replacement housing. There would be no impact.

III. GEOLOGY AND SOILS. Would the project:

- a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a
-

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

known fault ? (Sources: 1)

Discussion: The proposed project involves the installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The City Hall and Police Yard facility (Site 1) on 2000 Main Street is located in the Newport-Inglewood Fault zone. The portion of the Fault that passes through the project site is identified as Category B. Category B faults require special studies for critical and important land uses and special evaluation of faults for all habitable structures. Since the proposed project does not include critical and important land uses or habitable structures, special studies and evaluations would not be required. The carport structures and associated equipment would be constructed in compliance with the UBC and CBC requirements for construction in a seismic area. None of the other seven facilities are located within a fault zone. Therefore, impacts would be less than significant.

ii) Strong seismic ground shaking? (Sources: 6)

Discussion: Earthquakes in and around the City may cause ground shaking on the project sites. The proposed project would involve the installation and operation of photovoltaic panels on rooftops and on top of proposed carports. Design and construction of the photovoltaic panels and associated supports, and the inverter buildings would be required to be engineered to withstand the probabilistic peak ground acceleration (10% probability over 50 years) that may occur at the site, pursuant to local building regulations and applicable provisions of the Uniform Building Code (UBC) and the California Building Code (CBC). In addition, pursuant to HBMC Section 17.05.150, a soil engineering and engineering geology report is required for grading projects. Recommendations included in the reports, subject to review and approval by the Department of Public Works, are required to be incorporated in the grading plans or specifications. Therefore, impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction? (Sources: 1)

Discussion: Liquefaction describes the phenomenon in which groundshaking works less cohesive soil particles into a tighter packing, which induces excess pore pressure. Such soils may acquire a high degree of mobility, leading to structurally damaging deformations. Liquefaction begins below the water table, but after liquefaction has developed, the groundwater table rises and causes the overlying soil to mobilize. Liquefaction typically occurs in areas where the groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated fine to medium sand.

The proposed project would include design and construction of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Four of these facilities have low potential for liquefaction (Sites 1, 3, 6 and 7) and four of these facilities have high or very high potential for liquefaction (Sites 2, 4, 5, and 8) according to the City of Huntington Beach General Plan Environmental Hazards Element, 1996. The proposed project would be required to comply with UBC and CBC standards and applicable California Department of Mines and Geology (CDMG) publications. In addition, pursuant to HBMC Section 17.05.150, a soil engineering and engineering geology report is required for grading projects. Recommendations included in the reports, subject to review and approval by the Department of Public Works, are required to be incorporated in the grading plans or specifications. With adherence to applicable standards and recommendations included in the soil engineering and engineering geology report, impacts would be less than significant.

iv) Landslides? (Sources: 1)

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

Discussion: The proposed project would involve construction and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project sites are generally flat with elevations ranging from about 20 feet to 60 feet above mean sea level. The sites are developed with paved parking lots and municipal facilities. In addition, the sites contain vegetation and landscaping, including trees. None of the municipal facilities are listed as potentially unstable slope areas according to the City of Huntington Beach General Plan Environmental Hazards Element, 1996. Therefore, the potential for landslides at the facilities is low. Impacts are less than significant.

- b) Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill? (Sources: 1)

Discussion: The proposed project would include excavation at eight municipal facilities where the foundation supports are dug for the solar panels and the inverter buildings. Most of this will occur where the soil surface is already overcovered by asphalt parking lots. Nonetheless, the excavated soils could be subject to erosion, and so carried from the site through the City’s storm drain system to offsite drainages, wetlands, and the Pacific Ocean. Wind erosion of excavation piles could also cause local nuisance dust. Implementation of standard erosion control techniques as required in Section 17.05.310 of the City of Huntington Beach Municipal Code (e.g., the use of Best Management Practices such as sandbags, covering of fill material, filter socks, etc.) would reduce the potential for soil erosion. Impacts would be less than significant.

- c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Sources: 1, 6)

Discussion: As discussed above, four of the project sites have high potential for liquefaction. As discussed above, none of the sites are listed as potentially unstable slope areas. The proposed project would be required to comply with UBC and CBC standards and applicable California Department of Mines and Geology (CDMG) publications. In addition, pursuant to HBMC Section 17.05.150, a soil engineering and engineering geology report is required for grading projects. Recommendations included in the reports, subject to review and approval by the Department of Public Works, are required to be incorporated in the grading plans or specifications. With adherence to applicable standards and recommendations included in the soil engineering and engineering geology report, impacts would be less than significant.

- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (Sources: 1, 13)

Discussion: The project involves the installation of photovoltaic panels on rooftops and proposed carports with associated conduit and above ground inverters. Loamy soils that are subject to expansive (shrink-swell) problems are present at these sites (namely Bolsa sandy and silt loams, Myford sandy loams, Xeralfic arents loams, etc.) according to Ca Soil Resource Lab, 2008. These facilities, because of their limited size and structural characteristics, are not sensitive to expansive soil problems. Adherence to UBC and CBC standards for these soil types and structural needs would be sufficient to make impacts related to expansive soils less than significant.

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------------|--|------------------------------------|-------------------------------------|
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion: The proposed project would not involve the use of septic tanks or alternative waste water disposal systems. No impacts would occur.

IV. HYDROLOGY AND WATER QUALITY. Would the project:

| | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Violate any water quality standards or waste discharge requirements? (Sources: <u>6</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Construction of the proposed project would include some excavation and trenching on the project sites to install the carports and conduit to carry the high voltage direct current (DC) from the panels to the inverters for conversion to alternating current (AC) for connection to transmission lines. The City of Huntington Beach requires an erosion control plan for construction. Erosion control plans must be prepared by the engineer of record and in accordance with provisions of the City's Grading Manual. During construction, where necessary, temporary or permanent erosion control devices such as desilting basins, check dams, riprap, or other devices or methods as approved by the Director, shall be employed to control erosion and provide safety during the rain season. In addition, paved streets, sidewalks, and other improvements are required to be maintained in a neat and clean condition free of loose soil, construction debris, and trash. Street sweeping or other equally effective means is required to be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. Winter rains would clean the panel during the winter months; however, one additional washing may be required during the summer to ensure optimal efficiency. Cleaning and care of photovoltaic panels involves removing dirt and debris from the surface with a soft brush or cloth and spraying with water. A mild detergent such as dish soap or biodegradable detergent may also be used for persistent dirt. Washing the photovoltaic panels on rooftops and on top of carports would be subject to Municipal Code requirements. Pursuant to Section 14.25.030 of the Municipal Code, no person shall cause any prohibited discharges, which includes any pollutants, to the stormwater system; however, discharge permits may be obtained pursuant to Municipal Code Section 14.25.070. Compliance with City of Huntington Beach Municipal Code requirements would ensure that impacts would be less than significant.

| | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The proposed project does not include housing or commercial development or expanded areas that require irrigation. Therefore, the project would not utilize substantial groundwater supplies. In addition, the photovoltaic panels would be installed in areas that are mostly impervious, such as parking lots and rooftops. The project would include removal of select landscaped areas, including trees that would shade

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|------------------------------------|-----------|
|--|--------------------------------------|--|------------------------------------|-----------|

parking lot canopies or physically conflict with the placement of the proposed canopies. Figures 5, 14, 19, and 23 show site specific landscape plans for the proposed project. The project may reduce slightly some pervious area occupied by planters within the parking lots and the majority of trees and planters would remain. Moreover, the existing setting for these sites is mostly impervious. Thus, the project would not interfere substantially with groundwater recharge. The photovoltaic panels are recommended for washing once during the summer months. The impact with respect to depletion of groundwater supplies and interference with groundwater recharge would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site? (Sources: <u>4, 6</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project sites are currently mostly impervious. The proposed project involves trenching for the installation of conduit and would not alter the existing drainage patterns. Erosion and siltation could occur during construction; however, as discussed above, the City of Huntington Beach requires an erosion control plan for construction. Therefore, with implementation of an erosion control plan during construction, impacts with respect to erosion and siltation would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project sites are currently mostly impervious. The proposed project would involve an incremental decrease of pervious surfacing on the project sites due to the removal and relocation of trees and landscaping. However, this would not substantially change the amount of impervious surfacing on the project sites and would therefore not substantially increase the rate or amount of surface runoff. The proposed project would not result in an increased chance of flooding on or off-site. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: Construction of the proposed project would include excavation and limited grading, which could produce polluted runoff on the project sites. The City of Huntington Beach requires an erosion control plan for construction and such erosion control plans must be prepared by the engineer of record and in accordance with provisions of the City's Grading Manual. During construction, where necessary, temporary or permanent erosion control devices such as desilting basins, check dams, riprap, or other devices or methods as would be employed to control erosion and provide safety during the rain season. In addition, paved streets, sidewalks, and other improvements are required to be maintained in a neat and clean condition free of loose soil, construction debris, and trash. Street sweeping or other equally effective means are required to be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. The

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

photovoltaic panels would be washed once during the summer. As discussed under item IV.a, washing would be required to comply with the Huntington Beach Municipal Code, which requires that any runoff from washing the photovoltaic panels cannot be discharged to the stormwater system unless a permit is obtained. Compliance with City of Huntington Beach Municipal Code requirements would ensure that impacts would be less than significant.

- f) Otherwise substantially degrade water quality?
 (Sources: 4)

Discussion: The proposed project does not produce or use materials during operation that could degrade water quality. The photovoltaic panels are recommended for washing to ensure optimal performance about once every six months; however, winter rains serve to clean the panels during the winter and the panels need only be cleaned once during the summer. As discussed above in the discussion under section IV.a, washing would be required to comply with Municipal Code requirements and would not have water quality impacts. Impacts would be less than significant.

- g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Sources: 4)

Discussion: The proposed project involves installation and operation of photovoltaic panels at eight municipal facilities. The project does not include housing. Therefore, no impact would occur.

- h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (Sources: 1, 2, 4)

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and proposed canopy carports at eight municipal facilities in the City. Site 4 is within Flood Zone A. The City’s zoning ordinance defines Flood Zone A as “the land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year.” The project would involve the installation of rooftop photovoltaic units, carport canopy systems and a total of three inverters (see Table 3) at Site 4. The support posts and inverters would extend upwards from the ground, but would be separated by open areas. Therefore, the development would not be anticipated to impede or redirect flows and the impact is less than significant.

- i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (Sources: 4)

Discussion: The project does not include housing and the inversion structures are not subject to potential significant loss during flooding conditions. Therefore, impacts would be less than significant.

- j) Inundation by seiche, tsunami, or mudflow? (Sources: 4)

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--|-----------|
|--|--------------------------------------|--|--|-----------|

Discussion: Site 4, the City Yard, is located in a moderate tsunami run-up area. The other seven facilities are not located in a tsunami run-up area. The proposed project would involve installation and operation of photovoltaic panels and would not involve construction of any housing or occupied structures. Therefore, the project would not present a danger to individuals involving inundation by seiche, tsunami, or mudflow. Impacts would be less than significant.

- k) Potentially impact stormwater runoff from construction activities? (Sources: 6)

Discussion: Construction of the proposed project would include excavation and grading, which could expose earth materials to erosion and subsequently produce sediment-laden stormwater runoff from the project sites during construction. However, the City of Huntington Beach requires an erosion control plan for construction. Erosion control plans must be prepared by the engineer of record and in accordance with provisions of the Grading Manual. During construction, where necessary, temporary or permanent erosion control devices such as desilting basins, check dams, riprap, or other devices or methods as approved by the Director, shall be employed to control erosion and provide safety during the rain season. In addition, paved streets, sidewalks, and other improvements are required to be maintained in a neat and clean condition free of loose soil, construction debris, and trash. Street sweeping or other equally effective means is required to be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. Compliance with City of Huntington Beach Municipal Code requirements would ensure that impacts would be less than significant.

- l) Potentially impact stormwater runoff from post-construction activities? (Sources: 4)

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project sites consist of rooftops and paved parking lots. Upon completion of construction the photovoltaic systems will be a part of the infrastructure and will not change the use of the sites. The projects would not substantially increase the amount of impervious surface and would not contribute substantially to increased runoff. Areas disturbed during trenching and drilling activities within the parking lots will be repaved such that no long term erosion would occur. The project would have a less than significant impact with respect to stormwater runoff from post-construction activities.

- m) Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas? (Sources: 6)

Discussion: The proposed project includes installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would not involve stormwater discharge from areas of material storage, vehicle or equipment fueling, vehicle maintenance, waste handling, hazardous materials, delivery areas, loading docks, or other outdoor work areas. Moreover, in accordance with the Huntington Beach Municipal Code, paved streets, sidewalks, and other improvements are required to be maintained in a neat and clean condition free of loose soil, construction debris, and trash. The photovoltaic panels would be washed once during the summer. As discussed under item IV.a, washing would be required to

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

comply with the Huntington Beach Municipal Code, which requires that any runoff from washing the photovoltaic panels cannot be discharged to the stormwater system unless a permit is obtained. Therefore, impacts would be less than significant.

- n) Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters? (Sources: 4)
-

Discussion: As discussed above, the proposed project would not substantially increase the amount of impervious surface on the project sites, as the proposed photovoltaic panels would be installed on existing rooftops and within existing paved parking lots. The amount of trees and landscaping that would be removed or relocated as part of the project would be minimal. Moreover, implementation of an erosion control plan during construction would ensure that loose soil is not carried off-site in runoff. Therefore, the proposed project would not affect the beneficial uses of receiving waters. Impacts would be less than significant.

- o) Create or contribute significant increases in the flow velocity or volume of stormwater runoff to cause environmental harm? (Sources: 4)
-

Discussion: As discussed above, the proposed project would not substantially increase the amount of impervious surface on the project sites, as the proposed photovoltaic panels would be installed on existing rooftops and within existing paved parking lots. The amount of trees and landscaping that would be removed or relocated as part of the project would be minimal and the proposed project would not increase the flow velocity or volume of stormwater runoff. Impacts would be less than significant.

- p) Create or contribute significant increases in erosion of the project site or surrounding areas? (Sources: 6)
-

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Construction of the proposed project would involve excavation, trenching and stockpiling of soil on the project sites. Loose soil is subject to entrainment by wind and water. However, the City of Huntington Beach requires an erosion control plan for construction. Erosion control plans must be prepared by the engineer of record and in accordance with provisions of the Grading Manual. During construction, where necessary, temporary or permanent erosion control devices such as desilting basins, check dams, riprap, or other devices or methods as approved by the Director, shall be employed to control erosion and provide safety during the rain season. In addition, paved streets, sidewalks, and other improvements are required to be maintained in a neat and clean condition free of loose soil, construction debris, and trash. Street sweeping or other equally effective means is required to be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. Compliance with City of Huntington Beach Municipal Code requirements would ensure that impacts would be less than significant.

V. AIR QUALITY. The city has identified the significance criteria established by the applicable air quality management district as appropriate to make the following determinations. Would the project:

- a) Violate any air quality standard or contribute substantially to an existing or projected air quality
-

| | | | | |
|--|--------------------------------|--|------------------------------|-----------|
| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
| | | Potentially Significant | | |

violation? (Sources: 8)

Discussion: The project sites are within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The local air quality management agency is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the air basin is classified as being in “attainment” or “nonattainment.” The South Coast Air Basin is in nonattainment for both the federal and state standards for ozone and nitrogen dioxide as well as the state standard for PM₁₀. Thus, the basin currently exceeds several state and federal ambient air quality standards and is required to implement strategies that would reduce the pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local air shed to eliminate pollutants from the air, and the number, type, and density of emission sources within the South Coast Air Basin. The SCAQMD adopted the 2007 Air Quality Management Plan (AQMP) that provides a strategy for the attainment of state and federal air quality standards. The SCAQMD also has established the following significance thresholds for construction within the South Coast Air Basin:

- 75 pounds per day of ROG
- 100 pounds per day of NO_x
- 550 pounds per day of CO
- 150 pounds per day of PM₁₀
- 55 pounds per day of PM_{2.5}

The South Coast Air Basin is classified as being in “attainment” for federal and state carbon monoxide standards. According to the AQMP, all areas within the South Coast Air Basin have been in attainment of federal carbon monoxide standards since 2003 and no area exceeded state standards in 2005. The highest levels of carbon monoxide concentrations listed in the AQMP were 5.9 ppm, substantially lower than the California 8-hour standard of 9.0 ppm.

The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities in the City. Construction of the proposed project could involve excavation, grading, construction of the photovoltaic panels, and paving in addition to worker trips to the municipal facilities. Air quality impacts were quantified using the URBEMIS 2007 version 9.2.4 modeling program. Equipment types were derived based on communication with Digital Energy. Table 5 shows the construction emissions associated with the proposed project.

**Table 5
Maximum Daily Construction Emissions¹
(pounds per day)**

| Site | ROG | CO | NO _x | PM ₁₀ ² | PM _{2.5} ² |
|-------------------------------------|-----|-----|-----------------|-------------------------------|--------------------------------|
| Site 1 City Hall (5-acre threshold) | 2.1 | 9.0 | 17.6 | 5.1 | 5.2 |

ISSUES (and Supporting Information Sources):

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|-------------------------|------------------------------|-----------|
|--|--------------------------------|--|-------------------------|------------------------------|-----------|

| | | | | | |
|---|------------|--------------|------------|------------|-----------|
| Police Yard (2-acre threshold) | 2.1 | 9.0 | 17.6 | 2.6 | 2.4 |
| Site 2 Central Library (5-acre threshold) | 2.2 | 9.1 | 17.5 | 2.6 | 2.4 |
| Site 3 Sports Complex (5-acre threshold) | 2.1 | 8.8 | 17.3 | 2.6 | 2.4 |
| Site 4 City Yard (1-acre threshold) | 2.1 | 8.9 | 17.1 | 2.6 | 2.4 |
| Site 5 City Reservoir (1-acre threshold) | 1.9 | 8.2 | 15.6 | 2.6 | 2.4 |
| Site 6 City Reservoir (1-acre threshold) | 1.9 | 8.2 | 15.6 | 2.6 | 2.4 |
| Site 7 City Water Yard (1-acre threshold) | 2.1 | 8.9 | 17.4 | 2.6 | 2.4 |
| Site 8 Murdy Community Center (1 acre threshold) | 2.1 | 8.9 | 17.4 | 2.6 | 2.4 |
| SCAQMD Thresholds | 75 | 550 | 100 | 150 | 55 |
| Exceed SCAQMD Thresholds? | NO | NO | NO | NO | NO |
| <i>Localized Significance Thresholds for 1-acre sites</i> | <i>N/A</i> | <i>647</i> | <i>92</i> | <i>4</i> | <i>3</i> |
| <i>Localized Significance Thresholds for 2-acre sites</i> | <i>N/A</i> | <i>962</i> | <i>131</i> | <i>7</i> | <i>5</i> |
| <i>Localized Significance Thresholds for 5-acre sites</i> | <i>N/A</i> | <i>1,711</i> | <i>197</i> | <i>14</i> | <i>9</i> |
| Exceed LST Thresholds? | NO | NO | NO | NO | NO |

Note: ¹Includes worker trips and architectural coatings.

As shown in Table 5, emissions would not exceed the SCAQMD thresholds or LST thresholds. It should be noted that construction of all sites would not occur simultaneously. Phase I of construction would include construction of Site 1 (City Hall and the Police Yard), Site 2 (Central Library), Site 4 (City Yard), Site 5 (City Reservoir), Site 6 (City Reservoir) and Site 7 (City Water Yard). Phase II of construction would include construction of Site 3 (Sports Complex) and Site 8 (Murdy Center). During construction, up to three sites would be under construction simultaneously (Kunal Chitre, Digital Energy, Personal Communication, June 30, 2010). Therefore, if three sites were construction simultaneously, combined emissions could be up to 6.4 pounds per day of ROG, 27.1 pounds per day of CO, 52.7 pounds per day of NOx, 10.3 pounds per day of PM10, and 10 pounds per day of PM2.5. These combined emissions would not exceed SCAQMD thresholds. In addition, Best Available Control measures to limit fugitive dust would be required pursuant to SCAQMD Rule 403. Therefore, impacts would be less than significant without mitigation.

- b) Expose sensitive receptors to substantial pollutant concentrations? (Sources: 4)

Discussion: The proposed project would include installation and operation of photovoltaic panels at eight municipal facilities. Sensitive receptors near the sites include children at the Sports Complex (site 3), students

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

at Huntington Beach High School (west of Site 1), and residents near all sites (see Table 4). Temporary dust, carbon monoxide and diesel particulate emissions would be generated during construction activities (see discussion V.a) above); however, with Rule 403 compliance and ozone precursor controls, emission would be below localized significance thresholds (LSTs). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. Therefore, because project emissions would not exceed LSTs, the project would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

- c) Create objectionable odors affecting a substantial number of people? (Sources: 4)

Discussion: The proposed project would include installation and operation of photovoltaic panels at eight municipal facilities. Operation of the panels will not generate odors. The emissions of significant odors would not be anticipated during construction. Impacts would be less than significant.

- d) Conflict with or obstruct implementation of the applicable air quality plan? (Sources: 4)

Discussion: Generally, a project would conflict with or potentially obstruct implementation of an air quality plan if it would contribute to population growth in excess of that forecasted in the air quality management plan, which is based on General Plan forecasted growth. The proposed project would involve installation and operation of photovoltaic panels at municipal facilities. The proposed project would not contribute to population growth and would not conflict with the 2007 AQMP. Therefore, no impacts would occur.

- e) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? (Sources: 4)

Discussion: As discussed above, the South Coast Air Basin is in nonattainment for both the federal and state standards for ozone and nitrogen dioxide as well as the state standard for PM₁₀. Operation of the proposed project would not result in a substantial increase of any of these pollutants. Therefore, impacts would be less than significant.

VI. TRANSPORTATION/TRAFFIC. Would the project:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--|-----------|
|--|--------------------------------------|--|--|-----------|

(Sources: 4)

Discussion: Construction of the proposed project would include installation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities in the City. Construction of the project would cause a temporary increase in traffic due to the transport of construction materials to the project site, in addition to worker trips to and from the site. It is estimated that one truck trip is required per 75 kW of development (Digital Energy, Inc.). Therefore, truck trips to transport materials and remove excavated materials at each site would range from 5 trips to 15 trips (one way) based on a range of about 400 kW to 1.2 MW of development (see Table 3). In addition, it is estimated that 6-10 one way worker trips would be associated with daily construction activities at each site. A Haul Route Permit and Traffic Control Plan would be required, subject to approval of the Department of Public Works Transportation Division. Therefore, construction impacts would be less than significant.

Operation of the proposed project would not increase the amount of traffic to and from the eight municipal facilities other than maintenance on the facilities once a year during the summer. The one maintenance trip per year would not alter the existing level of service at any project site. Therefore, operational traffic impacts would be less than significant.

- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- (Sources: 4)

Discussion: During construction, the project would generate some additional traffic for construction worker trips and material transport; however, these trips would be temporary and localized. Construction would be phased for larger projects such as the City Hall parking lot (Site 1, Figure 4), the Central Library parking lot (Site 2, Figure 12), and the Sports Complex (Site 3, Figure 18). Project construction is estimated to range from about 3 to 18 months per site depending on the site and the size of the installation. The project would be constructed in two phases. Phase I would include construction of Site 1 (City Hall and Police Building/Corporate Yard), Site 2 (Central Library), Site 4 (City Yard), Site 5 (City Reservoir), Site 6 (City Reservoir), and Site 7 (City Water Yard). Phase II would include construction of Site 3 (Sports Complex) and Site 8 (Murphy Center). Construction of up to three sites could occur simultaneously on a given day.

It is estimated that one truck trip is required per 75 kW of development (Digital Energy, Inc.). Therefore, truck trips to transport materials and remove excavated materials at each site would range from 5 trips to 15 trips (one way) based on a range of about 400 kW to 1.2 MW of development (see Table 3). In addition, it is estimated that 6-10 one way worker trips would be associated with daily construction activities at each site. During operation, the project would not result in an increase in vehicle trips other than maintenance of the facilities once a year. Therefore, the project is not likely to conflict with a congestion management program or exceed an established level of service standard established by Orange County for designated roads or highways. Impacts would be less than significant.

- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- (Sources: 4)

Discussion: The project would involve installation and operation of photovoltaic panels on rooftops and on

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

top of proposed carports at eight municipal facilities. The project does not propose any structures of substantial height to interfere with existing airspace or flight patterns. No impact would occur.

- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses? (Sources: 4)

Discussion: The proposed project includes installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Although the project would result in modifications to the existing parking lots, the photovoltaic panels would not increase hazards on the project sites and would not result in incompatible uses. No impacts would occur.

- e) Result in inadequate emergency access? (Sources: 4)

Discussion: The proposed project includes installation and operation of photovoltaic panels on rooftops and on top of carports at eight municipal facilities. The project is required to comply with City codes pertaining to Fire Department requirements, such as turning radius in parking lots and building access. During construction, a traffic control plan for construction would be required to ensure that emergency access to the sites is available during construction. Less than significant impacts would occur.

- f) Result in inadequate parking capacity? (Sources: 4)

Discussion: Short-term: The proposed project may result in a temporary reduction in parking during construction of the proposed project, particularly at City Hall and Police Yard (Site 1), the Central Library (Site 2), the Sports Complex (Site 3), the City yard (Site 4), and the Murdy Community Center (Site 8), since photovoltaic panels at these sites would be installed on top of proposed carports and carport construction would require temporary construction within the parking lots. Larger installations such as the Central Library, Sports Complex and City Hall would require phased development to ensure an adequate supply of parking during construction. As discussed above under item VI.a) construction impacts related to parking capacity would be addressed through the Haul Route Permit and Traffic Control Plan, subject to Department of Public Works Transportation Division approval. Temporary construction impacts would be less than significant with implementation of applicable permits and required plans.

Long-term: Operation of the proposed project would include parking lot canopy posts, which would marginally reduce the area of each parking lot that is available for parking on sites 1, 2, 3, 4, and 8. Digital Energy estimates that the installation of carports and inverter enclosures would result in the loss of four total parking spaces throughout the entire project. The Central Library is currently deficient in required parking but the loss of two spaces produces a less than significant impact on-site. Existing parking supply, the amount of parking required by code, the amount of parking spaces lost due to the project, and the parking supply after the proposed project are shown in Table 6.

ISSUES (and Supporting Information Sources):

| | | | |
|--------------------------------|--|--|-----------|
| Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant Less Than Significant Impact | No Impact |
|--------------------------------|--|--|-----------|

**Table 6
Parking**

| Site | Existing Parking Count | Required by Code | Parking Spaces Lost | Parking Count After Project |
|--|--|--|--|--|
| Site 1 City Hall and Police Building / Corporate Yard | 486 spaces at City Hall 163 spaces at Police Building | 159 spaces at City Hall* 155 spaces at Police Building* | 0 spaces at City Hall 0 spaces at Police Building | 486 at City Hall 163 at Police Building |
| Site 2 Central Library | Approximately 692 spaces | Conditional Use Permit No. 90-49 identified a total of 705 spaces required. | 2 spaces | 690 spaces |
| Site 3 Sports Complex | Approximately 858 spaces | EIR 99-1 identified peak demand at 782 spaces, which as a parking requirement, was supported by staff analysis of CUP 2000-60/VAR 200-24 | 0 spaces | 858 spaces |
| Site 4 City Yard | Approximately 183 spaces | 165 spaces | 2 spaces | 181 spaces |
| Site 5 City Reservoir** | | | | |
| Site 6 City Reservoir** | | | | |
| Site 7 City Water Yard** | | | | |
| Site 8 Murdy Community Center | Approximately 228 | Per City approvals | 0 spaces | 228 spaces |

Source: Hayden Beckman, City of Huntington Beach and Tony Giron, Digital Energy, June 2010.

*Based on GIS derived square foot estimates (38,750 sf for Police Building and 39,769 sf for City Hall).

**Rooftop installations only. No parking impacts are anticipated.

As shown in Table 6 above, the proposed project would result in a decrease of two parking spaces at sites 2 and 4. However, as shown in Table 6, the parking count after the proposed project would meet code requirements at all sites except the Central Library, which has a negligible existing parking deficiency. There would be adequate parking at each facility (see Figures 4-31 for parking supply and distribution at each of the affected sites). In addition, the proposed carports at the Sports Complex and Murdy Community Center have been designed to facilitate bus parking. The long term impact to parking capacity would be less than significant.

- g) Conflict with adopted policies, plans, or programs

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------------|--|------------------------------------|-------------------------------------|
| regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion: The proposed project would include installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. This project would not conflict with existing bus turnouts or bicycle racks because the photovoltaic panels would be installed on existing structures or within parking lots at municipal facilities. There would be no impact relating to alternative transportation.

VII. BIOLOGICAL RESOURCES. Would the project:

| | | | | |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Sources: <u>4</u>) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|

Discussion: The proposed project would include installation and operation of photovoltaic panels on rooftops and on top of carports at eight municipal facilities. The photovoltaic panels would be installed within existing developed portions of these sites that generally lack native vegetation that would provide a habitat for any unique, rare, or endangered plant or animal species. Site 6 (City Reservoir) is located near the Bolsa Chica wetlands, but this rooftop solar installation is located more than 1,300 feet from the known important biological resources and designated critical habitat for the western snowy plover. Site 6 is also located near a naturally revegetated area associated with Harriett Wieder Regional Park. Impacts to birds and other wildlife would occur if the height of structures extended to a substantially higher elevation than existing structures, if the system involved components that revolved at high speeds (such as wind turbines), or if fences and transmission lines would physically disrupt habitat connectivity (Volume 89 of the Journal of the Institute of Engineers, 2008; Dr. David Hoare, 2010; Panoche Valley Solar Farm Project EIR, 2010; Energy Policy, 2005; Union of Concerned Scientists, and American Solar Energy Society, 2006). The rooftop and parking lot installations would not affect sensitive wildlife or associated habitats because the photovoltaic panels are being added to existing developed areas, the panels would not substantially increase the height of existing structures (maximum of four feet above an existing rooftop, or a maximum height of 15 feet above ground for parking lot installations), would not include revolving components, and would not include components that would physically disrupt habitat connectivity, since the photovoltaic panels would be confined to existing developed locations.

Construction of the proposed project would include equipment that creates noise on the project sites. However, because the project sites include existing parking lots and are located adjacent to transportation corridors, noise associated with construction activities would not increase noise substantially. Therefore, construction noise is not anticipated to affect any unique, rare, or endangered plant or animal species.

Due to the abundance of mature trees on the sites, migratory species may use portions of the sites for nesting during breeding season, which are protected under the *Migratory Bird Treaty Act* (MBTA). Project implementation and construction-related activities may result in the disturbance of nesting species protected by the MBTA. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many relatively common species. The loss of nesting efforts of sensitive species protected by the MBTA, as a result of the removal of mature trees on sites, would be a potentially significant impact. Therefore, Mitigation Measure BIO-1 would be required to lessen the impact on migratory wildlife species.

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant | Less Than Significant | No Impact |
|--|--------------------------------|--------------------------------|-----------------------|-----------|
| | | Unless Mitigation Incorporated | Impact | |

BIO-1 MBTA Species. Prior to the onset of ground disturbance activities, the City shall implement the following mitigation measure which entails nesting surveys and avoidance measures for sensitive nesting and MBTA species, and appropriate agency consultation.

Nesting habitat for protected or sensitive species:

- *Vegetation removal and construction shall occur between September 1 and January 31 whenever feasible.*
- *Prior to any construction or vegetation removal between February 15 and August 31, a nesting survey shall be conducted by a qualified biologist of all habitats within 500 feet of the construction area. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities and surveys will be conducted in accordance with California Department of Fish and Game (CDFG) protocol as applicable. If no active nests are identified on or within 500 feet of the construction site, no further mitigation is necessary. A copy of the pre-construction survey shall be submitted to the City of Huntington Beach. If an active nest of a MBTA protected species is identified onsite (per established thresholds), a 250-foot no-work buffer shall be maintained between the nest and construction activity. This buffer can be reduced in consultation with CDFG and/or U.S. Fish and Wildlife Service.*
- *Completion of the nesting cycle shall be determined by a qualified ornithologist or biologist.*

Substantial loss of these species would not occur and impacts would be less than significant with implementation of the above mitigation measure.

The project has a less than significant potential for adverse effects to plant and wildlife resources or their habitat either directly or indirectly with implementation of Mitigation Measure BIO-1.

- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service? (Sources: __4__)
- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: Riparian and wetland habitat near the project sites is limited to off-site parklands at Site 2 and the Bolsa Chica wetlands located more than 1,300 feet west of Site 6, neither of which would be affected by the proposed project. No other riparian or other sensitive natural community is present at the other six sites. Impacts regarding adverse effects to wildlife resources or their habitat either directly or indirectly would be less than significant.

- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Sources: __4__)
- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: Wetland habitat near the project sites is limited to off-site parklands at Site 2 and the Bolsa Chica

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

wetlands located more than 1,300 feet west of Site 6, neither of which would be affected by the proposed project. The project would not involve any activities involving federally protected wetlands. No impact would occur.

- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites? (Sources: 4)
-

Discussion: The photovoltaic panels would be installed within existing developed locations that have been previously disturbed. The sites lack native vegetation that would provide a habitat for any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors. In addition, the project would not interfere with the use of native wildlife nursery sites. There is a less than significant potential for adverse effects to wildlife resources or their habitat either directly or indirectly.

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Sources: 1, 4, 12)
-

Discussion: Installation of photovoltaic panels at sites 1, 2, 3, 4, and 8 would involve the removal/relocation and/or trimming of landscape trees. Table 7 shows the number of trees that will need to be trimmed and removed/relocated. Figures 5, 14, 19, and 23 show site specific landscape plans for sites 1, 2, 3, and 4 respectively.

**Table 7
Affected Trees**

| Site | No. trees to be removed, replaced, or relocated | No. of trees to be trimmed |
|--|---|----------------------------|
| 1. City Hall Police Building and Police Corporate Yard | 12 | 27 |
| 2. Central Library | 29 | 7 |
| 3. Sports Complex | 37 | 88 |
| 4. City Yard | 15 | 5 |
| 5. City Facility | 0 | 0 |
| 6. City Facility | 0 | 0 |
| 7. City Facility | 0 | 0 |
| 8. Murdy Community Center | 0 | 19 |
| Total | 93 | 146 |

Source: Digital Energy, 2010

The City of Huntington Beach Tree Ordinance (Chapter 13.50 of the HBMC) requires the applicant to submit an application for a permit from the Public Works Department for any activity that may disturb trees. Construction of the project would be subject to standard City requirements for the submittal of landscape plans

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant | Less Than Significant | No Impact |
|--|--------------------------------|--------------------------------|-----------------------|-----------|
| | | Unless Mitigation Incorporated | Impact | |

demonstrating compliance with current code requirements and the replacement of existing mature healthy trees to be removed at a minimum of 2:1 ratio. Approval of trimming, removing, or replacing trees by the Director of Public Works in association with replacement requirements would ensure that the proposed project would not conflict with any local policies or ordinances protecting biological resources. Nevertheless, the following Mitigation Measure is recommended to assist the City in monitoring compliance.

BIO-2 Tree Replacement. The trees shall be transplanted by a qualified tree service to be approved by the City of Huntington Beach Public Works Department. The relocated trees shall be maintained and guaranteed to be alive and thriving after four years by a qualified tree service or arborist to be approved by the City of Huntington Beach Public Works Department. The trees shall be surveyed every six months for a period of four years as to their viability. The survey shall be submitted to the City for review and approval. In the event that any tree is determined not to be surviving, it shall be replaced with the same type and size of tree. A letter shall be submitted from the applicant stating that the recommendations of the Consulting Arborist will be followed.

Impacts would be less than significant with implementation of Mitigation Measure BIO-2.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project sites are located at existing developed areas that have been previously disturbed. There are no habitat conservation plans or natural community conservation plans in the City of Huntington Beach. The specific installation sites lack native vegetation that would provide habitat for any unique, rare, or endangered plant or animal species. No impact would occur.

VIII. MINERAL RESOURCES. Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (Sources: <u>1, 3</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The only mineral resources that are currently being extracted in the City are oil and gas. The City Hall Parking Lot (Site 1) contains an oil well in the parking lot, adjacent to which an inverter building is proposed. The Central Library (Site 2) contains a petroleum line under the parking lot which would be avoided during construction. The proposed project would not interfere with the extraction or restrict the availability of these mineral resources. Improvements at the City Hall site will be located so as to not interfere with routine maintenance of existing oil wells. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (Sources: <u>1, 3</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

Discussion: As noted above, the City Hall Parking Lot (Site 1) contains an oil well in the parking lot and the Central Library (Site 2) contains a petroleum line under the parking lot. The proposed project would not interfere with the extraction or restrict the availability of these mineral resources. Impacts would be less than significant.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Sources: 4)
-

Discussion: Operation of photovoltaic panels does not require the routine transport, use, or disposal of hazardous materials. No impacts would occur.

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Sources: 4, 8)
-

Discussion: The proposed project involves the installation and operation of photovoltaic panels, which would not require hazardous materials storage on the site. The project sites are currently developed and are used for municipal purposes. The project would require trenching beneath already paved parking lots. Compliance with Federal and State Occupational Safety and Health (OSHA) regulatory requirements would reduce the potential for construction related risks from the transport and use of hazardous materials. In addition, although construction activities would include the use of hazardous materials such as gasoline, diesel fuel, herbicides, and solvents, the use of these materials would be typical of commercial construction and landscaping and would pose a low risk of hazard. In addition, the Huntington Beach Fire Department has reviewed project plans (Personal Communication, Aaron Klemm, CEM, LEED AP, Energy Project Manager, City of Huntington Beach, May 18, 2010).

Because solar panels are encased in heavy-duty glass or plastic, there is little risk that the small amounts of semiconductor material present can be released into the environment. In the event of a fire, it is theoretically possible for hazardous fumes to be released and inhalation of these fumes could pose a risk to human health. However, researchers do not generally believe these risks to be substantial given the short-duration of fires and the relatively high melting point of the materials present in the solar modules (Electric Power Research Institute, Potential Health and Environmental Impacts Associated with the Manufacture and Use of Photovoltaic Cells, Report to the California Energy Commission, 2003). Moreover, the risk of fire at ground-mounted solar installations is remote because of the precautions taken during site preparation including the removal of fuels and the lack of burnable materials – mostly glass and aluminum – contained in a solar panel.

The systems will be installed with remote disconnects. In the event of a fire, a single button at the inverter will disable all the circuits. The button itself will be energized through a separate source of power so that it remains operative in a fire situation. Moreover, the systems will be equipped with fire extinguishers at regularly spaced intervals at the end of each carport aisle, such that in the event of a vehicle fire, an extinguisher is located nearby, similar to the availability of fire extinguishers in public buildings.

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

To the extent possible, on-site soils will be used for grading, however, all fill soils (on-site and imported) are required to meet City Specification #431-92. Soil Cleanup Standards and would be submitted to the Fire Department for review and joint approval with the Public Works Department prior to issuance of a grading permit. Discovery of additional soil contamination during ground disturbing activities is required to be reported to the Fire Department immediately and the approved work plan modified accordingly in compliance with City Specification #431-92.

The project sites do not contain any underground storage tanks (Geotracker, 2010); however, there are oil drilling activities within the City Hall parking lot (Site 1) and a pipeline is located beneath the Central Library parking lot (Site 2). Rupture of oil conveyance infrastructure could pose a risk of upset. Project construction, including trenching for conduit and drilling for installation of parking lot canopy support posts, has the potential to disturb existing pipes and infrastructure. Parking lot installations at Sites 1 and 2 shall be designed to avoid oil conveyance infrastructure such that all pipelines and associated infrastructure are mapped on the site plans and any such infrastructure shall be avoided. Plans are subject to review and approval by the Fire Department. The impact with respect to risk of upset is less than significant.

Site 1 (City Hall and Police Yard), Site 2 (Central Library), Site 3 (Sports Complex), Site 6 (City Reservoir), and Site 7 (City Water Yard) are all within the Methane Overlay District as shown on Figure EH-10 of the Environmental Hazards Element of the General Plan. Inverter buildings have the potential to trap methane gas below them and stray electrical sparks could cause fire or explosion. However, the project will be required to comply with all provisions of Huntington Beach Municipal Code Title 17.04.085 and City Specification No. 429 for new construction within the methane gas overlay districts. Therefore, the impact with respect to methane is less than significant.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school? (Sources: 4, 8)

Discussion: The proposed project involves installation and operation of photovoltaic panels at eight municipal facilities. Several of the sites are within one-quarter mile of an existing school. See item IVa above. Impacts would be less than significant.

- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (Sources: 8, 9, 10, 11)

Discussion: The following databases were checked (April 28, 2010) for known hazardous materials contamination at the project site:

- *Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database;*
- *Geotracker search for leaking underground fuel tanks;*
- *Investigations- Cleanups (SLIC) and Landfill sites, Cortese list of Hazardous Waste and Substances Sites; and*
- *The Department of Toxic Substances Control’s Site Mitigation and Brownfields Database.*

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

The City Hall and Police Yard site (Site 1) is listed on the Department of Toxic Substances Control's (DTSC) Mitigation and Brownsfield Database. The site is listed as a voluntary cleanup, active as of 9/17/08. According to the DTSC website, the City of Huntington Beach entered a Reimbursement Agreement with DTSC for a review of documentation related to the seismic retrofitting of several structures within the City of Huntington Beach City Hall located at 2000 Main Street. Coal tar creosote/creosote oil was used as waterproofing for the existing structures, and analytical results indicate the presence of poly aromatic hydrocarbon concentration in the underlying soil.

None of the other sites (2, 3, 4, 5, 6, 7, and 8) are listed on the databases above. As previously mentioned, any discovery of soil contamination during ground disturbing activities is required to be reported to the Fire Department immediately and the approved work plan modified accordingly in compliance with City Specification #431-92. Therefore, the impact is less than significant.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? (Sources: 3)
-

Discussion: Although the City is located within the Planning Area for the Joint Forces Training Center, Los Alamitos, the project sites are not located within the height restricted boundaries identified in the Airport Environs Land Use Plan or within two miles of any known public airport. No impacts would occur.

- f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (Sources: 3)
-

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities in the City of Huntington Beach. Site 1 is near the Police heliport. However, the proposed project does not propose any structures with heights that would interfere with airspace or flight patterns for the Police heliport. None of the other municipal facilities are located within the vicinity of a private airstrip. Impacts would be less than significant.

- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Sources: 4)
-

| | | | | | |
|--|--------------------------------|---|--|------------------------------|-----------|
| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Mitigation Incorporated | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
| | | | | | |

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports. During construction, parking lots or portions of parking lots at the municipal facilities would temporarily be closed. This could interfere with an adopted emergency response plan or emergency evacuation plan. However, construction impacts would be temporary and would be less than significant.

A guideline document was prepared by the California Department of Forestry and Fire Protection, Office of the State Fire Marshal, dated April 22, 2008. This guideline is intended to increase public safety for all structures equipped with solar photovoltaic systems, including photovoltaic systems on carports and rooftops. This document is intended to aid in designing, building, and installation of solar photovoltaic systems to meet the objectives of both the solar photovoltaic industry and the Fire Service. The guideline document includes design requirements for installing photovoltaic systems, including the following provisions relevant to the proposed project:

- *PV systems must be marked. Marking is needed to provide emergency responders with appropriate warning and guidance with respect to working around and isolating the solar electric system. This can facilitate identifying energized electrical lines that connect the solar modules to the inverter, as these should not be cut when venting for smoke removal.*
- *The inverter is a device used to convert DC electricity from the solar system to AC electricity for use in the building's electrical system or the grid.*
- *There should be a minimum six foot (6') wide clear perimeter around the edges of the roof.*
- *Pathways should be established in the design of the solar installation. Pathways should meet the following requirements:*
 - *Should be over structural members*
 - *Centerline axis pathways should be provided in both axis of the roof. Centerline axis pathways should run on structural members or over the next closest structural member nearest to the center lines of the roof*
 - *Should be straight line not less than 4 feet (4') clear to skylights and/or ventilation hatches*
 - *Should be straight line not less than 4 feet (4') clear to roof standpipes*
 - *Should provide not less than 4 feet (4') clear around roof access hatch with at least one not less than 4 feet (4') clear pathway to parapet or roof edge*
- *Arrays should be no greater than 150 by 150 feet in distance in either axis*
- *Conduit, wiring systems, and raceways for photovoltaic circuits should be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities.*
- *Conduit runs between sub arrays and to DC combiner boxes should use design guidelines that minimize total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes are to be located such that conduit runs are minimized in the pathways between arrays.*
- *To limit the hazard of cutting live conduit in venting operations, DC wiring should be run in metallic conduit or raceways when located within enclosed specs in a building and should be run, to the maximum extent possible, along the bottom of load-bearing members.*

The proposed project would comply with these guidelines during operation of the proposed project (Personal Communication, Kunal Chitre, Project Engineer, Digital Energy, Inc., May 18, 2010). Compliance with these guidelines would ensure that the proposed project would not conflict with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

| | | | | |
|--|--------------------------------------|--|------------------------------------|---|
| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|

- h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (Sources: 3, 14, 15)
-

Discussion: Solar panels contain materials that may be flammable. Site 6, City Reservoir, is adjacent to the Harriet Wieder Regional Park. However, the portion of the Park adjacent to the City Reservoir contains low lying vegetation that would not pose a significant wildland fire risk. Sites 1, 2, 3, 4, 5, 7, and 8 are not located adjacent to areas that pose a significant wildland fire risk. The proposed project would not expose persons or structures to wildfire hazard risks. No impact would occur.

X. NOISE. Would the project result in:

- a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Sources: 1)
-

Discussion: Temporary noise impacts due to proposed construction activities could create noise in excess of established noise standards. Table 8 shows typical noise levels at construction sites.

As shown in Table 8, typical noise levels at construction sites can reach 88 dBA 50 feet from the project sites. Therefore, construction-generated noise could periodically exceed noise standards established by 08.40.060 of the Huntington Beach Municipal Code (HBMC).

**Table 8
Typical Noise Levels at Construction Sites**

| Construction Phase | Average Noise Level at 50 Feet | |
|-------------------------|------------------------------------|---------------------------------|
| | Minimum Required Equipment On-Site | All Pertinent Equipment On-Site |
| Clearing | 84 dBA | 84 dBA |
| Excavation | 78 dBA | 88 dBA |
| Foundation/Conditioning | 88 dBA | 88 dBA |
| Laying Subbase, Paving | 78 dBA | 79 dBA |
| Finishing and Cleanup | 84 dBA | 84 dBA |

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the U.S. Environmental Protection Agency, 1971.

However, Section 8.40.090 (d) states that construction noise is exempt provided it does not occur between 8

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | Potentially Significant No Impact |
|--|--------------------------------------|--|------------------------------------|---|
|--|--------------------------------------|--|------------------------------------|---|

PM and 7AM Monday through Saturday, or at any time on Sunday or on a Federal Holiday. Therefore impacts related to construction noise are less than significant. For a discussion of operational noise impacts, see item Xc below.

- b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Sources: 4)

Discussion: Operation of the project would not increase groundborne vibration or groundborne noise on the project sites above existing conditions. Construction of the proposed project could potentially increase groundborne vibration or noise on the project site, but construction effects would be temporary and phased. Therefore, impacts would be less than significant.

- c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (Sources: 4)

Discussion: Operation of the proposed project would involve photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities in the City. While the inverters emit a hum that may be audible, such would not substantially increase the noise level above existing conditions. No impact would occur.

- d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (Sources: 1, 4)

Discussion: As discussed above, construction of the proposed project could result in a substantial temporary increase in ambient noise levels in the project vicinity. Construction is estimated to range from about 3 to 18 months per site depending on the site and the size of the installation. Construction noise is temporary, intermittent, and is exempt from the noise ordinance provided it is not conducted between 8 PM and 7 AM Monday through Saturday, or at any time on Sunday or on a Federal Holiday. Therefore impacts related to construction noise are less than significant.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (Sources: 3)

Discussion: The City of Huntington Beach is included in the Planning Area for the Joint Forces Training Center in Los Alamitos. However, the sites are located a considerable distance from the Training Center, such that the project would not be impacted by flight activity and noise generation from the Center. No impacts are anticipated.

- f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (Sources: 3)

Discussion: The proposed project involves installation and operation of photovoltaic panels at municipal

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant | Less Than Significant | No Impact |
|--|--------------------------------|--------------------------------|-----------------------|-----------|
| | | Unless Mitigation Incorporated | Impact | |

facilities in Huntington Beach. Site 1 includes a Police heliport. However, the proposed project does not include residential units and would not involve people working at the sites, other than for maintenance once a year during the summer. None of the other municipal facilities are located within the vicinity of a private airstrip. Impacts would be less than significant.

XI. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- a) Fire protection? (Sources: 3, 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The municipal facilities are currently urbanized and are served by the Huntington Beach Fire Department. The Huntington Beach Fire Department maintains eight fire stations throughout the City. They are located at 18311 Gothard Street, 16221 Gothard Street, 19711 Bushard Street, 21441 Magnolia Street, 530 Lake Street, 18591 Edwards Street, 3831 Warner Avenue, and 5891 Heil Avenue. The municipal facilities are currently served by these fire stations. The proposed photovoltaic panels would not involve the addition of people to the project sites and would not necessitate the construction of new or physically altered fire protection facilities, the provision of which would have significant environmental effects. In addition, the Huntington Beach Fire Department has reviewed project plans and has indicated that the project will not impact service ratios and response times (Personal Communication, Aaron Klemm, CEM, LEED AP, Energy Project Manager, City of Huntington Beach, May 18, 2010). A less than significant impact would occur.

See item IX.h) for additional discussion regarding fire hazards associated with the panels.

- b) Police Protection? (Sources: 3, 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The municipal facilities are currently urbanized and are served by the Huntington Beach Police Department. The proposed photovoltaic panels would not involve the addition of people to the project sites and would not necessitate the construction of new or physically altered police facilities, the provision of which would have significant environmental effects. In addition, the Huntington Beach Police Department has reviewed project plans (Personal Communication, Aaron Klemm, CEM, LEED AP, Energy Project Manager, City of Huntington Beach, May 18, 2010) and the project engineers are working with the department to address any potential logistical design concerns, including phasing of construction in three phases and TV security camera positioning. The impact is less than significant.

- c) Schools? (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The proposed photovoltaic panels would not involve the addition of people to the project sites. Therefore, the project would not affect schools in Huntington Beach. No impact would occur.

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|
|--|--------------------------------|--|------------------------------|-----------|

- d) Parks? (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The proposed photovoltaic panels would not involve the addition of people to the project sites. In addition, the panels would be constructed on the rooftops of existing buildings and within existing parking lots on top of proposed carports and would not be constructed in the recreational use area of existing parks. The Community Services Department has reviewed project plans (David Dominguez, Facilities, Development and Concessions Manager, City of Huntington Beach Community Services Department). The site designs at Site 3, Sports Complex and Site 8, Murdy Community Center ensure adequate bus and RV parking and ensure that the panels do not affect the recreational functionality of these sites. Therefore, the project would have a less than significant impact with respect to parks in Huntington Beach.

- e) Other public facilities or governmental services? (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities on rooftops of existing buildings and on proposed carports within existing parking areas. The project was designed to not affect the structural integrity of existing City facilities. The project would not affect any other public facilities or governmental services in the City. In addition, operation of the project would not interfere with library access. Impacts would be less than significant.

XII. UTILITIES AND SERVICE SYSTEMS.

Would the project:

- a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would not affect wastewater in the City. No impact would occur.

- b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would not require an increased demand for water, other than the use of water once a year for maintenance. The project would not create increased demand for wastewater. Therefore, the project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. There would be no impact.

- c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 4)

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Mitigation Incorporated | Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--------------------------------------|------------------------------------|-----------|
|--|--------------------------------------|--|--------------------------------------|------------------------------------|-----------|

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would include the removal of landscaping, including trees. As discussed previously under item IV.b), the removal of the specified trees (see Table 7) and landscaping would not substantially increase the amount of impervious surfacing on the project sites. The amount of drainage from the site would incrementally increase compared to existing conditions. However, the project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities. Impacts would be less than significant.

- d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (Sources: 4)
- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would not involve the addition of people to the project site. The photovoltaic panels are recommended for washing once a year to ensure optimal performance. The impact with respect to increased water demand would be less than significant.

- e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Sources: 4)
- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would not involve the addition of people to the project site. Therefore, the project would not create demand for additional wastewater disposal. No impact would occur.

- f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Sources: 3, 4)
- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Solid waste collection service for the City of Huntington Beach is provided by Rainbow Disposal. Collected solid waste is transported to a transfer station where the solid waste is sorted and processed through a Materials Recovery Facility where recyclable materials are removed. The remaining solid waste is transported to the Frank R. Bowerman Landfill located in the City of Irvine. The landfill has a remaining capacity in excess of 30 years based on present solid waste generation rates.

Construction of the proposed project could result in a temporary increase in solid waste if there are packaging materials associated with the panels and associated materials and from removal of existing asphalt. However, this increase would be temporary and would not result in insufficient capacity at landfills that would serve the project site. It should be noted that the City's total waste diversion rate was 71% in 2006. Rainbow Disposal has a construction and demolition waste diversion rate that is higher than the City's total diversion rate (Personal Communication, Aaron Klemm, CEM, LEED AP, Energy Project Manager, City of Huntington Beach, June 23, 2010) . Therefore, waste diverted from the site during construction of the project would be

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--|-----------|
|--|--------------------------------------|--|--|-----------|

above 71%. Operation of the proposed project would not increase solid waste generated in the City because the proposed project would not involve the addition of residents or employees to the City. Impacts would be less than significant.

- g) Comply with federal, state, and local statutes and regulations related to solid waste? (Sources: 4)

Discussion: As discussed above, construction of the project would likely generate waste. The project would comply with regulations pertaining to solid waste. Impacts would be less than significant.

- h) Include a new or retrofitted storm water treatment control Best Management Practice (BMP), (e.g. water quality treatment basin, constructed treatment wetlands?) (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would incrementally increase the amount of impervious surfacing on the project sites due to the removal of landscaping, including trees (see associated discussions under Section IV, Hydrology and Water Quality). The proposed project will require one additional washing of the solar panels on an annual basis, as well as compliance with BMPs during construction, and comply with NPDES requirements during construction and operation. Therefore, the project would not include structural or storm water treatment control BMPs. No impacts would occur.

XIII. AESTHETICS. Would the project:

- a) Have a substantial adverse effect on a scenic vista? (Sources: 3, 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would include construction of two types of photovoltaic bays, which would be installed on top of carports at sites 1, 2, 3, 4, and 8. In addition, the project would include two types of inverter enclosures. The enclosures would be enclosed in brick or fencing. Sites 1, 2, 4, 5, 6, and 7 would include installation of photovoltaic panels on rooftops of existing buildings.

The photovoltaic panels would be installed at municipal facilities that are currently developed and are located in urbanized areas. There are scenic vistas from/near Site 6 (City Reservoir); however rooftop panels would not interfere with views at this site. The installation and operation of photovoltaic panels at the eight municipal facilities would not substantially affect scenic vistas. No impacts to scenic vistas would occur.

- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (Sources: 3, 4)

Discussion: Installation of photovoltaic panels at sites 1, 2, 3, 4, and 8 would involve the removal and relocation of trees. Table 7 in Section VII e) shows the amount of trees that would be removed, relocated and replaced at each site. Sites 5, 6, and 7 would not involve the removal or relocation of trees. The City of Huntington Beach Tree Ordinance (Chapter 13.50 of the HBMC) requires the applicant to submit an application for any activity that may disturb trees. In addition, the applicant must obtain written permission

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Potentially Significant Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--|-----------|
|--|--------------------------------------|--|--|-----------|

from the Director of Public Works in order to trim, relocate, or remove trees. Approval of trimming, removing, or replacing trees by the Director of Public Works would ensure that the proposed project would not substantially damage scenic resources. In addition, measure BIO-1 is recommended to ensure compliance with City policy and ordinance requirements. Lastly, the proposed project would not damage any historic buildings or other scenic resources within a state designated scenic highway. Impacts would be less than significant.

- c) Substantially degrade the existing visual character or quality of the site and its surroundings? (Sources: 3, 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed project would include construction of two types of photovoltaic bays, which would be installed on top of carports at sites 1, 2, 3, 4, and 8. In addition, the project would include two types of inverter enclosures. The enclosures would be enclosed in brick or fencing. Sites 1, 2, 4, 5, 6, and 7 would include installation of photovoltaic panels on rooftops of existing buildings.

Figure 3 shows typical photovoltaic bay designs and inverter enclosures and figures 8, 17, and 26 show site specific inverter designs. The project would be compatible with the general profile of development near the project sites, which is highly urban. The inverter enclosures would be designed to integrate with the surrounding environment, and photovoltaic panels would be installed on top of proposed carports and on rooftops. The final designs would be reviewed by the Design Review Board, which has the authority to further refine the designs as necessary to enhance compatibility by incorporating existing building colors, materials and design. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be less than significant.

- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Sources: 3, 4)

Discussion: The proposed project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The proposed photovoltaic panels would not create a new source of light or glare, as these panels absorb light rather than reflect it. In addition, the municipal facilities are located in urbanized areas that are currently exposed to light and glare from the municipal facilities during the day and from parking lot lighting sources at night. The project would require relocation and replacement of some parking lot lighting when the lighting stanchions conflict with the carport placement. However, new lighting would be either consistent with old lighting or would be lower in profile and directed downward as it would be located on the underside of the carport canopy systems. Impacts would be less than significant.

XIV. CULTURAL RESOURCES. Would the project:

- a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? (Sources: 4)

| | | | | |
|--|--------------------------------|--|------------------------------|-----------|
| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
| | | Potentially Significant | | |

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. Two of the sites are listed as local landmarks in Table HCR-2 of the City’s Historic and Cultural Resources Element of the General Plan. These sites are City Hall at 2000 Main Street (Site 1), constructed in 1974, and the Central Library at 7111 Talbert Avenue (Site 2), constructed in 1975. At City Hall, photovoltaic units are proposed only within the parking lot and would not be attached to the building; therefore, the project would not affect the City Hall structure, which is the landmark element of the site. Impacts to City Hall would thus be less than significant. At the Central Library (Site 2), photovoltaic panels are proposed within the parking lot and also on the roof of the Central Library structure. Solar laminate panels would be situated along the perimeter of the building along the west, north and east sides, while sawtooth type panels are proposed tilted five degrees facing south along the southern edge of the building rooftop. In addition, sawtooth type panels are also proposed on the children’s wing, which is not a part of the designated landmark structure. The panels could be visible from the ground when an observer looks at the Central Library building, and the panels could affect the integrity of the landmark resource. This impact is potentially significant unless mitigated.

CR-1 Central Library Design. The proposed design and placement of panels upon the rooftop of the Central Library (Site 2), shall be undertaken in a manner that would prevent the panels from being visible to observers on the ground such that the installation would not change the appearance of the building for the majority of viewers (excluding rooftop views). The installation shall be designed and installed in a manner that does not prove injurious to the landmark structure both during construction and in the long term during operation. A historic preservation professional shall be consulted during preparation of the final design and shall provide a letter documenting that the design meets the intent of this mitigation measure. The letter shall be submitted to the Director of the Planning and Building Department for review and approval prior to issuance of a grading permit.

With implementation of mitigation measure CR-1, impacts to historical resources would be less than significant.

- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
- (Sources: __4, 14__)

Discussion: The municipal facilities sites are highly disturbed due to existing development on and around the sites. Project development would involve installation of carport canopies within existing paved parking lots and would involve the addition of photovoltaic arrays to rooftops of existing buildings. Inverters would also be constructed adjacent to the photovoltaic systems to convert the DC current to AC current. The City of Huntington Beach, and subsequently the project site, lies within the area considered to have been occupied by the Gabrieliño culture group. Archaeological resources are frequently associated with riverine areas, such as those that historically occurred in the vicinity. In addition, there are numerous recorded archaeological sites in the vicinity of the Central Park area near the Central Library (Site 2) and the Sports Complex (Site 3). Other potentially sensitive locations could include the City Yard (Site 4) and the Murdy Community Center (Site 8). Due to the existing developed nature of the sites and the relatively limited nature of the construction activity, trenching for conduit and drilling for support posts, the likelihood of encountering significant intact cultural resources is relatively low. Nevertheless, there is potential to discover archaeological resources. The impact is potentially significant unless mitigated. The following Mitigation Measure is required.

CR-2 Archaeological or Paleontological Resources. If archaeological or paleontological resources

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant | Less Than Significant | No Impact |
|--|--------------------------------|--------------------------------|-----------------------|-----------|
| | | Unless Mitigation Incorporated | Impact | |

are discovered during ground-disturbing activities, all construction activities within 50 feet of the find shall cease until a qualified archaeologist/paleontologist evaluates the significance of the resource. In the absence of a determination, all archaeological and paleontological resources shall be considered significant. If the resource is determined to be significant, the archaeologist or paleontologist, as appropriate, shall prepare a research design for recovery of the resources in consultation with the State Office of Historic Preservation that satisfies the requirements of Section 21083.2 of CEQA. The archaeologist or paleontologist shall complete a report of the excavations and findings, and shall submit the report for peer review by three County-certified archaeologists or paleontologists, as appropriate. Upon approval of the report, the City shall submit the report to the South Central Coastal Information Center at California State University, Fullerton, and keep the report on file at the City of Huntington Beach.

With implementation of Mitigation Measure CR-2, impacts would be less than significant.

- c) Directly or indirectly destroy a unique paleontological resource or site unique geologic feature?
 (Sources: 4)

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The municipal facilities are highly disturbed due to existing development on and around the sites and trenching activities would be limited to the upper two feet of soil. Drilling activities could extend to a depth of 13 feet, but would be relatively narrow in area of impact as they would be only two feet wide. However, significant paleontological resources have been discovered within a mile of the Central Library (Site 2), the Sports Complex (Site 3), the City Yard (Site 4), and the Murdy Community Center (Site 8). The closest vertebrate fossil locality is LACM 4018, situated near the intersection of Warner Avenue and Goldenwest Street. This locale produced specimens of invertebrates, reptiles, birds, rodents, horses and deer in peat between 4 and 8 feet below the surface, but was later determined to be of very late Holocene age. Quaternary terraces have yielded vertebrate fossils such as those found at LACM 65113, situated along Warner Avenue close to Bolsa Chica Street. This locality produced Pleistocene age specimens of mammoth at depths between 6 to 8 feet, and bison between 14 and 20 feet. Therefore there is a probability that significant paleontological resources or unique geologic features could be encountered. The impact is potentially significant unless mitigated. Mitigation Measure CR-2 above would be required and would reduce the impact to less than significant.

- d) Disturb any human remains, including those interred outside of formal cemeteries?
 (Sources: 4)

Discussion: No evidence is present to suggest the presence of human remains on the project sites given that the municipal facilities are highly disturbed and the ground disrupted during the prior site development activities. Therefore the likelihood of finding human remains is near negligible. Nonetheless, human remains might be encountered during excavation activities for the project that may exceed previous ground disturbance depths. Mitigation Measure CR-3 would be required.

CR-3 Human Remains. In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately, the area of the find shall be protected, and the Applicant shall immediately notify the City and the Orange County Coroner of the find and comply with the provisions of P.R.C. Section 5097. If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Mitigation Incorporated | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|--|------------------------------------|-----------|
|--|--------------------------------------|--|--|------------------------------------|-----------|

Descendent (MLD). The MLD shall complete the inspection of the site within 24 hours of notification, and may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials.

Implementation of mitigation measure CR-3 would ensure that impacts related to human remains would be less than significant with mitigation incorporated.

XV. RECREATION. Would the project:

- a) Would the project increase the use of existing neighborhood, community and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Sources: 4)
-

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The proposed project would not add population to the City and therefore would not cause increased usage of parks. No impact would occur.

- b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Sources: 4)
-

Discussion: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The projects do occur at some recreational facilities, including the Murdy Community Center, Central Library, and the Sports Complex. The project will affect the parking lots that serve these facilities. The physical effects associated with reconstruction of the parking lots are evaluated in Sections I, III, IV, VI, VII, VIII, IX, XI, XIII, and XIV. Mitigation measures are included as necessary and reduce all impacts to a level that is less than significant.

- c) Affect existing recreational opportunities? (Sources: 4)
-

Discussion: As discussed under Section VI. *Transportation/Traffic*, the project would temporarily reduce the amount of parking available at recreational facilities during the construction period, and so would thereby potentially affect recreational opportunities during that time, particularly at Site 2 (Central Library), Site 3 (Sports Complex), and Site 8 (Murdy Center). The project would likely be constructed in three phases at Site 2 and Site 3, which would allow users of the recreational facility to continue utilizing the Sports Complex during construction and installation of the Photovoltaic panels would not occupy the entire Murdy parking lot. In addition, construction impacts would be temporary. Therefore, temporary construction impacts would be less than significant.

The project would permanently remove four total available parking spaces. Removing two existing spaces on Site 2 (Central Library) and two existing spaces Site 4 (City Yard) where the carports and inverter enclosures are constructed, would not be considered a significant reduction in available parking (see Table 6 for a parking assessment). Moreover, as discussed under item VI.f) and XI.d), changes have been made with respect to the designs at Site 3 Sports Complex and Site 8 Murdy Community Center to ensure adequate bus and RV parking and to ensure that the panels do not affect the recreational functionality of these sites.

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|------------------------------------|-----------|
|--|--------------------------------------|--|------------------------------------|-----------|

Construction of carport facilities at the Sports Complex, Central Library, and the Murdy Community Center would result in shaded parking rather than parking that is marginally shaded as occurs under the current condition. This would not affect recreational opportunities, since shading would occur in the parking lots and would not shade recreational facilities more than under existing conditions. Operational impacts of the project would be less than significant.

XVI. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion a-c: The proposed project would involve installation and operation of photovoltaic panels at eight municipal facilities. The project would have no effect on Prime Farmland, Unique Farmland, or Farmland of Statewide importance. In addition, the project sites are not zoned for agricultural development, nor are they under a Williamson Act contract. The project would not directly or indirectly result in the conversion of farmland to non-agricultural use. No impact to agricultural resources would occur.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: See discussion a).

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? (Sources: <u>4</u>) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: See discussion a).

XVII. GREENHOUSE GAS EMISSIONS. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Common GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O_x), fluorinated gases, and ozone. GHG are emitted by both

| | | | | | |
|--|--------------------------------|---|--|------------------------------|-----------|
| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Mitigation Incorporated | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
| | | | | | |

natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. CO₂ emissions are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆) (Cal EPA, 2006b).

Total U.S. GHG emissions were 7,054 million metric tons of CDE in 2006 (USEPA, April 2008), or about 14% of total worldwide GHG emissions. U.S. emissions rose by 14.7% from 1990 to 2006, while emissions fell by 1.1% from 2005 to 2006 (75.7 MMT CDE). The following factors were primary contributors to this decrease: (1) warmer winter conditions in 2006 than in 2005, which reduced the consumption of heating fuels, as well as cooler summer conditions, which reduced demand for electricity; (2) restraint on fuel consumption caused by rising fuel prices, primarily in the transportation sector; and (3) increased use of natural gas and renewables in the electric power sector.

The primary GHG emitted by human activities in the United States is CO₂, representing an estimated 84.8% of total GHG emissions (USEPA, April 2008). The largest source of CO₂, and of overall greenhouse gas emissions, was fossil fuel combustion. CH₄ emissions, which have declined from 1990 levels, resulted primarily from enteric fermentation associated with domestic livestock, decomposition of wastes in landfills, and natural gas systems. Agricultural soil management and mobile source fossil fuel combustion were the major sources of N₂O emissions. The emissions of substitutes for ozone depleting substances and emissions of HFC-23 during the production of HCFC-22 are the primary contributors to aggregate HFC emissions. Electrical transmission and distribution systems account for most SF₆ emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production.

Scientific modeling predicts that continued GHG emissions, at or above current rates, would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC, 2007). According to the California Air Resources Board (ARB), potential impacts of global warming in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (ARB 2006c, 2007c).

How a proposed project might contribute to GCC and the overall effect of an individual project based on that contribution are still being debated. No statewide thresholds or methodologies for determining the significance of a project’s potential cumulative contribution to GCC have been adopted to date, though some individual jurisdictions have adopted locally applicable thresholds. An individual project (unless it is a massive construction project, such as a dam, new freeway project, or a large fossil-fuel fired power plant) does not generate sufficient GHG emissions to directly influence GCC; therefore, the issue of global climate change typically involves an analysis of whether a project’s contribution towards a cumulative impact is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Estimate of GHG Emissions.

Construction Emissions. Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Emissions associated with construction were estimated using the California Air Resources Board’s URBEMIS 2007 (Version 9.2.4) computer model and the California Climate Action Registry General Reporting Protocol (March 2007).

Project construction is estimated to range from about 3 to 18 months per site depending on the site and the size of

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant | Less Than Significant | No Impact |
|--|--------------------------------|--------------------------------|-----------------------|-----------|
| | | Unless Mitigation Incorporated | Impact | |

the installation. For a conservative estimate, it was assumed that construction would occur for 18 months (approximately 360 work days) at each site. The worst-case day of construction is estimated to generate approximately 1,739 pounds of CO₂. Assuming this worst-case day of construction occurred for the entire construction period (360 days), the construction activity would generate an estimated 288 metric tons of carbon dioxide equivalent (CDE) units over a period of 18 months at each site. Therefore, the proposed project (including all eight sites) emissions would total approximately 2,304 metric tons in CO₂ equivalency units (as shown in Table 9).

Indirect Emissions. Operation of the proposed project would not result in indirect emissions of CO₂, N₂O and CH₄ because the proposed project would not require the use of electricity, other than electricity used to manufacture the proposed project components.

Direct Emissions. Emissions of CO₂ from transportation sources associated with the proposed project would include one trip per year per site for maintenance activities (eight trips per year for all sites). Emissions were quantified using the ARB’s URBEMIS 2007 (version 9.2.4) computer model, the California Climate Action Registry General Reporting Protocol (March 2007) direct emissions factors for mobile combustion, and emission calculations from CoolCalifornia.org (California Air Resources Board, Lawrence Berkeley National Laboratory, Berkeley Institute of the Environment, California Energy Commission, 2010). As shown in Table 9, eight trips associated with maintenance of the proposed project would result in one metric ton CDE per year, or 25 tons CDE over the lifetime of the project (approximately 25 years).

Project Benefit. The project would reduce GHG emissions through use of renewable energy as opposed to the conventional fossil fuel based energy that is currently consumed by the City. The project would result in a benefit of 358 metric tons of CO₂e per year, or 46,850 metric tons of CO₂e over the lifetime of the project (estimated to be 25 years), as shown in Table 9. This emissions savings is enough to offset CDE from 108,000 barrels of oil, or 625 tanker trucks of gasoline, or 358 cars/year for 25 years, energy use of 159 homes/year for 25 years, carbon sequestered annually by 399 acres of pine forest for 25 years.

**Table 9
Estimated Emissions of Greenhouse Gases**

| Source | Emissions |
|------------------------------------|----------------|
| Total Construction Emissions | 2,304 tons CDE |
| Total Operational Direct Emissions | 25 tons CDE |
| Total Project Emissions over the | 2,329 tons CDE |

ISSUES (and Supporting Information Sources):

| | | | | |
|--|--------------------------------|--|------------------------------|-----------|
| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-----------|

| | |
|------------------------------------|------------------------|
| lifetime of the project (25 years) | |
| Project Benefit | 46,850 tons CDE |
| Net Benefit | 44,521 tons CDE |

As shown in Table 9, emissions generated by eight trips for maintenance activities per year and construction activities would be significantly offset by the generation of renewable energy. Therefore, there would be no adverse impact and project impacts would be beneficial.

- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Discussion: See discussion a).

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

- a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Sources: __3, 4__)
-

Discussion: The project involves installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. As discussed in Section VII, *Biological Resources*, the project does not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal with implementation of mitigation. Additionally, as discussed in Section XIV, *Cultural Resources*, with mitigation, the project would not eliminate important examples of major periods of California history or prehistory. Therefore, impacts are less than significant with incorporation of mitigation.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) (Sources: __3, 4, 5__)
-

Discussion: The proposed project would involve installation and operation of photovoltaic panels on rooftops and on top of proposed carports at eight municipal facilities. The project would have hazards and cultural resource impacts that require mitigation. With mitigation, impacts related to air quality, hazards, and cultural resources would be less than significant. Planned and pending development in the City would increase air quality, water quality, noise, and traffic impacts in the City. However, project specific impacts are either site specific (i.e. cultural resources and hazards) or are temporary (construction traffic) such that they would be cumulatively

| ISSUES (and Supporting Information Sources): | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------------|--|------------------------------------|-----------|
|--|--------------------------------------|--|------------------------------------|-----------|

considerable.

In addition, the proposed project would not result in significant impacts related to increased emissions of greenhouse gas (GHGs) emissions. Rather the project would contribute to clean renewable energy production, reducing the City's consumption of conventional fossil fuel produced energy. This is a beneficial impact of the project and the project's contribution to cumulative impacts related to global climate change would not be cumulatively considerable.

Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable.

- c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Sources: __3, 4, 12-15__)
-

Discussion: The proposed project has impacts that are potentially significant unless mitigated for hazards. Mitigation Measure HAZ-1 reduces these impacts to a level that is less than significant. The project would generate temporary additional traffic for construction worker trips and materials transport during construction, and is not likely to exceed an established level of service standard recognized by Orange County for designated roads or highways. Construction noises created by the project could periodically exceed noise standards established by the Huntington Beach Municipal Code. However, construction noise is temporary, intermittent, and is exempt from the noise ordinance provided it is not conducted between 8PM and 7 AM Monday through Saturday, or at any time on Sunday or on a Federal Holiday. Impacts related to construction noise are less than significant. As discussed further in the analysis in the sections above, the project does not have potential for adverse effects to human beings. Therefore, the potential for adverse effects to human beings would be less than significant.

XVIII. EARLIER ANALYSIS.

Earlier analyses may be used where, pursuant to tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D).

Earlier Documents Prepared and Utilized in this Analysis:

| <u>Reference #</u> | <u>Document</u> | <u>Available for Review at:</u> |
|---------------------------|---|--|
| 1 | City of Huntington Beach General Plan | City of Huntington Beach Planning Dept., Planning/Zoning Information Counter, 3rd Floor 2000 Main St. Huntington Beach |
| 2 | City of Huntington Beach Zoning and Subdivision Ordinance | “ |
| 3 | Regional and Project Vicinity Maps | See Figures 1 and 2 |
| 4 | Site Plans | See Figures 4 through 31 |
| 5 | Typical Carport and Inverter Designs | Figure 3 |
| 6 | City of Huntington Beach Municipal Code | City of Huntington Beach 2000 Main St. Huntington Beach |
| 7 | Urbemis 2007 v. 9.4.2 SCAQMD Construction lookup tables in SRA 18 | |
| 8 | Geotracker search for leaking underground fuel tanks, 2010 | http://geotracker.waterboards.ca.gov/ |
| 9 | Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database, 2010 | http://www.epa.gov/superfund/sites/cursite s/ |
| 10 | Investigations- Cleanups (SLIC) and Landfill sites, Cortese list of Hazardous Waste and Substances Site | www.calepa.gov/sitecleanup/cortese |
| 11 | The Department of Toxic Substances Control's Site Mitigation and Brownfields Database, 2010 | http://www.envirostor.dtsc.ca.gov/public/ |
| 12 | City of Huntington Beach Tree Replacement for CEQA Compliance Memorandum | City of Huntington Beach 2000 Main Street Huntington Beach |
| 13 | Ca Soil Resource Lab, 2008, <i>Soilweb</i> . Streaming, seamless interface to USDA-NCSS SSURGO and STATSGO Soil Survey Products | http://casoilresource.lawr.ucdavis.edu/ and Google™ Earth; |

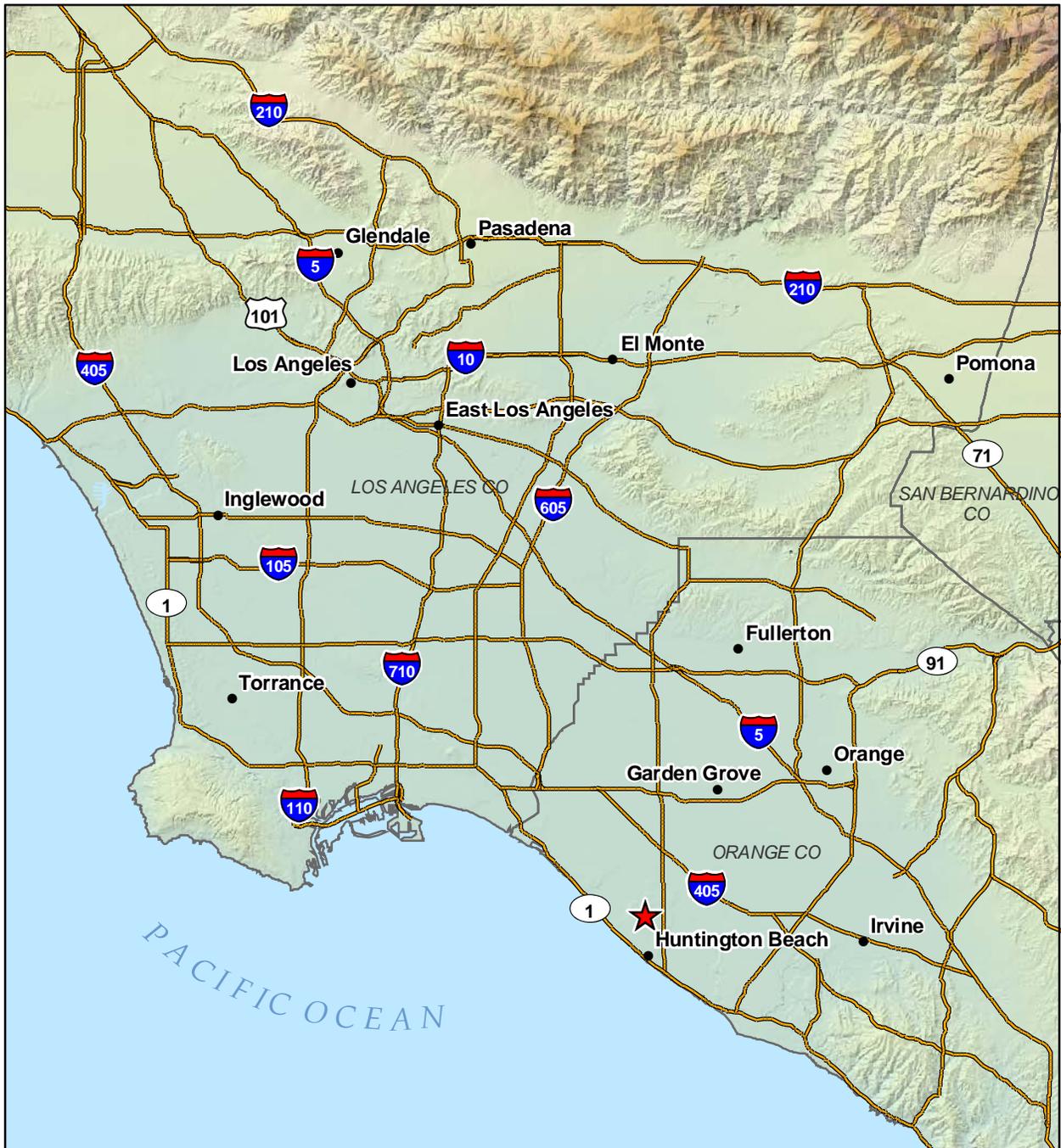
| <u>Reference #</u> | <u>Document</u> | <u>Available for Review at:</u> |
|--------------------|---|---|
| 14 | Union of Concerned Scientists, Environmental Impacts of Renewable Energy Technologies | http://www.ucsusa.org/clean_energy/technology_and_impacts/impacts/environmental-impacts-of.html . |
| 15 | Electric Power Research Institute (2003). "Potential Health and Environmental Impacts Associated with the Manufacture and Use of Photovoltaic Cells." Report to the California Energy Commission, Palo Alto, CA | at http://mydocs.epri.com/docs/public/00000000001000095.pdf . |
| 16 | American Solar Energy Society (2006) "Increasing the Productivity of Solar Photovoltaic Systems." | http://www.terrawattpower.com/downloads/SCE2006-99096.pdf |
| 17 | Union of Concerned Scientists (Accessed July 2010). "Renewable Energy Technology." | http://www.ucsusa.org/assets/documents/clean_energy/psa.pdf |
| 18 | Energy Policy (2005). "Environmental Impacts from Solar Energy Technologies." | |
| 19 | City of San Benito (2010). "Panoche Valley Solar Farm Project Environmental Impact Report." | http://www.panochesolar.info/deir.htm |
| 20 | Dr. David Hoare (2010). "Proposed Waterberg Photovoltaic Plant." | http://www.savannahsa.com/documents/886/7.%20Appendix%20F%20Ecology.pdf?HPSESSID=694c2a5c034ceaff0c2bbaea756a9d4f |
| 21 | Jha, AK; Dr. Thakur, AN; Dr. Seksena, SBL (2008). Journal of the Institute of Engineers, Volume 89. | |

Attachment No. 3

Summary of Mitigation Measures

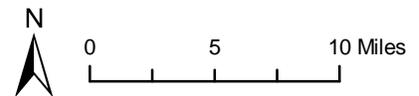
| <u>Description of Impact</u> | <u>Mitigation Measure</u> |
|--------------------------------------|---|
| Migratory Bird Treaty Act compliance | <p>BIO-1 MBTA Species. Prior to the onset of ground disturbance activities, the City shall implement the following mitigation measure which entails nesting surveys and avoidance measures for sensitive nesting and MBTA species, and appropriate agency consultation.</p> <p>Nesting habitat for protected or sensitive species:</p> <ul style="list-style-type: none"> • <i>Vegetation removal and construction shall occur between September 1 and January 31 whenever feasible.</i> • <i>Prior to any construction or vegetation removal between February 15 and August 31, a nesting survey shall be conducted by a qualified biologist of all habitats within 500 feet of the construction area. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities and surveys will be conducted in accordance with California Department of Fish and Game (CDFG) protocol as applicable. If no active nests are identified on or within 500 feet of the construction site, no further mitigation is necessary. A copy of the pre-construction survey shall be submitted to the City of Huntington Beach. If an active nest of a MBTA protected species is identified onsite (per established thresholds), a 250-foot no-work buffer shall be maintained between the nest and construction activity. This buffer can be reduced in consultation with CDFG and/or U.S. Fish and Wildlife Service.</i> • <i>Completion of the nesting cycle shall be determined by a qualified ornithologist or biologist.</i> |
| Tree removals | <p>BIO-2 Tree Replacement. The trees shall be transplanted by a qualified tree service to be approved by the City of Huntington Beach Public Works Department. The relocated trees shall be maintained and guaranteed to be alive and thriving after four years by a qualified tree service or arborist to be approved by the City of Huntington Beach Public Works Department. The trees shall be surveyed every six months for a period of four years as to their viability. The survey shall be submitted to the City for review. In the event that any tree is determined not to be surviving, it shall be replaced with the same type and size of tree. A letter shall be submitted from the applicant stating that the recommendations of the Consulting Arborist will be followed.</p> |
| Historic Resources | <p>CR-1 Central Library Design. The proposed design and placement of panels upon the rooftop of the Central Library (Site 2), shall be undertaken in a manner that would prevent the panels from being visible to observers on the ground such that the installation would not change the appearance of the building for the majority of viewers (excluding rooftop views). The installation shall be designed and installed in a manner that does</p> |

| | |
|---|--|
| | <p>not prove injurious to the landmark structure both during construction and in the long term during operation. A historic preservation professional shall be consulted during preparation of the final design and shall provide a letter documenting that the design meets the intent of this mitigation measure. The letter shall be submitted to the Director of the Planning and Building Department for review and approval prior to issuance of a grading permit.</p> |
| <p>Archaeological / paleontological resources</p> | <p>CR-2 Archaeological or Paleontological Resources. If archaeological or paleontological resources are discovered during ground-disturbing activities, all construction activities within 50 feet of the find shall cease until a qualified archaeologist/paleontologist evaluates the significance of the resource. In the absence of a determination, all archaeological and paleontological resources shall be considered significant. If the resource is determined to be significant, the archaeologist or paleontologist, as appropriate, shall prepare a research design for recovery of the resources in consultation with the State Office of Historic Preservation that satisfies the requirements of Section 21083.2 of CEQA. The archaeologist or paleontologist shall complete a report of the excavations and findings, and shall submit the report for peer review by three County-certified archaeologists or paleontologists, as appropriate. Upon approval of the report, the City shall submit the report to the South Central Coastal Information Center at California State University, Fullerton, and keep the report on file at the City of Huntington Beach.</p> |
| <p>Archaeological resources</p> | <p>CR-3 Human Remains. In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately, the area of the find shall be protected, and the Applicant shall immediately notify the City and the Orange County Coroner of the find and comply with the provisions of P.R.C. Section 5097. If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendent (MLD). The MLD shall complete the inspection of the site within 24 hours of notification, and may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials.</p> |



Basemap Sources: ESRI data, 2004 and USGS, 2002.

★ Project Location



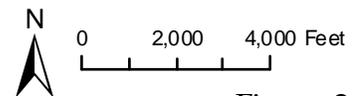
Regional Location

Figure 1





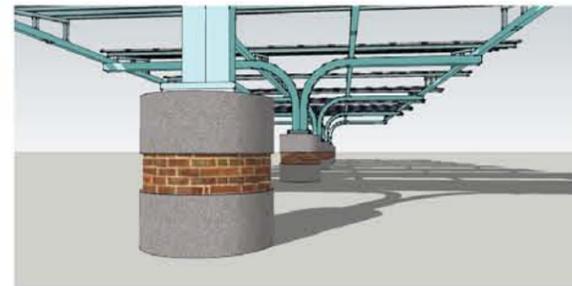
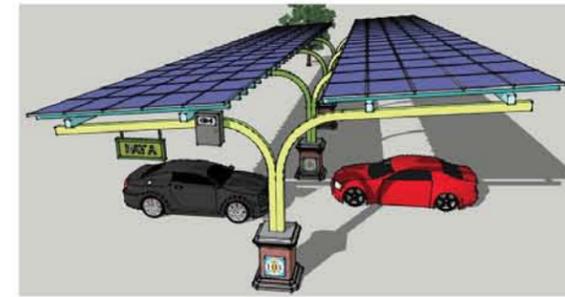
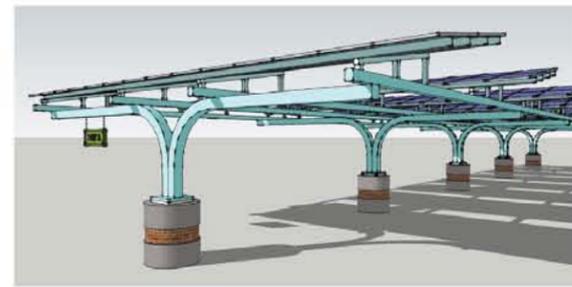
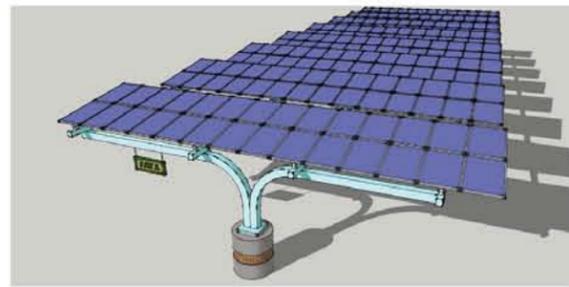
Map images copyright © 2010 ESRI and its licensors.
All rights reserved. Used by permission.



Project Locations

Figure 2





SAWTOOTH TYPE (NORTH-SOUTH ORIENTATION)

FLAT TYPE (EAST-WEST ORIENTATION)

PHOTOVOLTAIC BAY DESIGNS



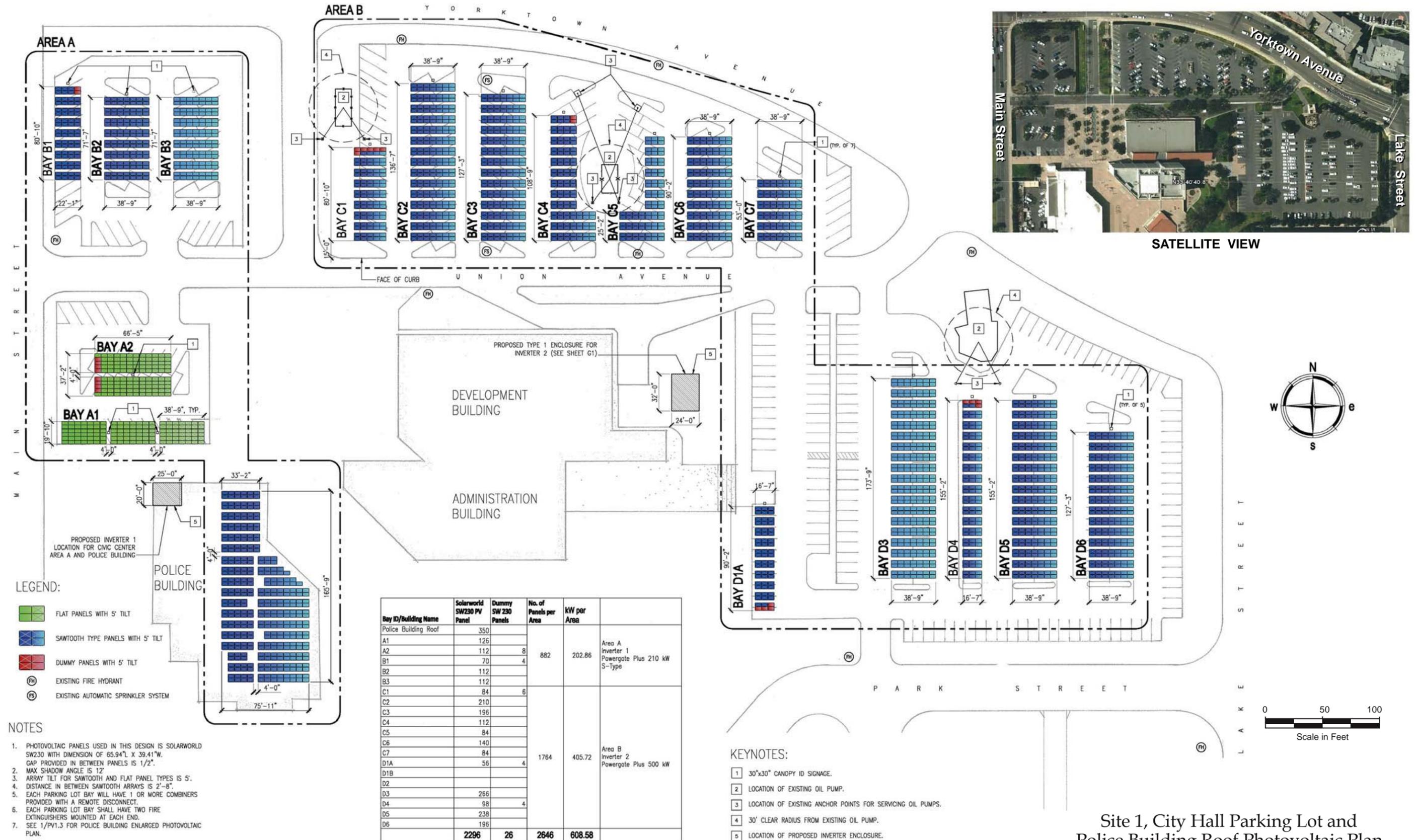
"TYPE 1" INVERTER BUILDING

"TYPE 2" INVERTER ENCLOSURE

INVERTER ENCLOSURES

Note:
Final design, colors and materials of carports and inverter enclosures are subject to review and approval by the Design Review Board and/or the Zoning Administrator.

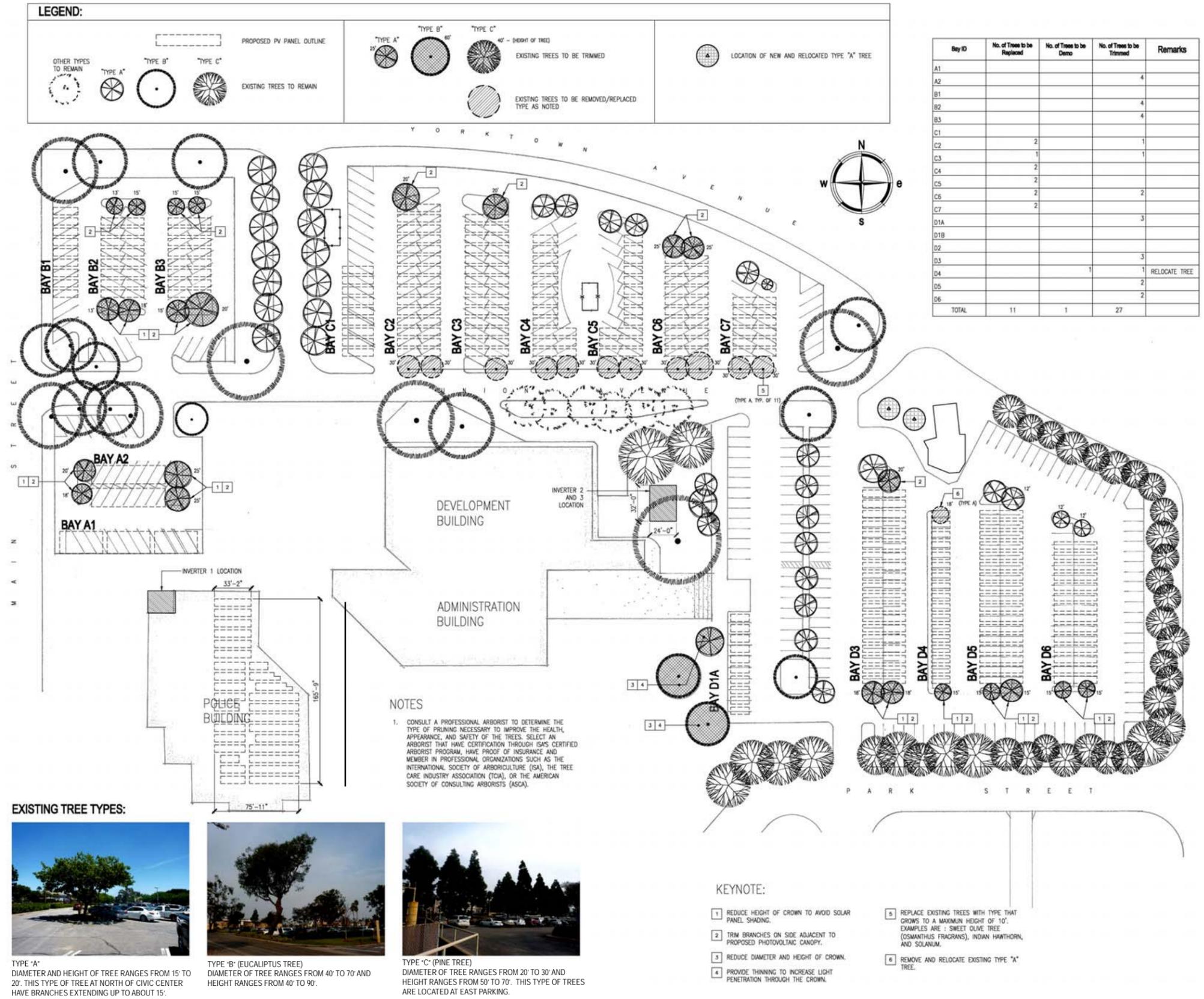
Typical Carport and
Inverter Designs



Site 1, City Hall Parking Lot and Police Building Roof Photovoltaic Plan

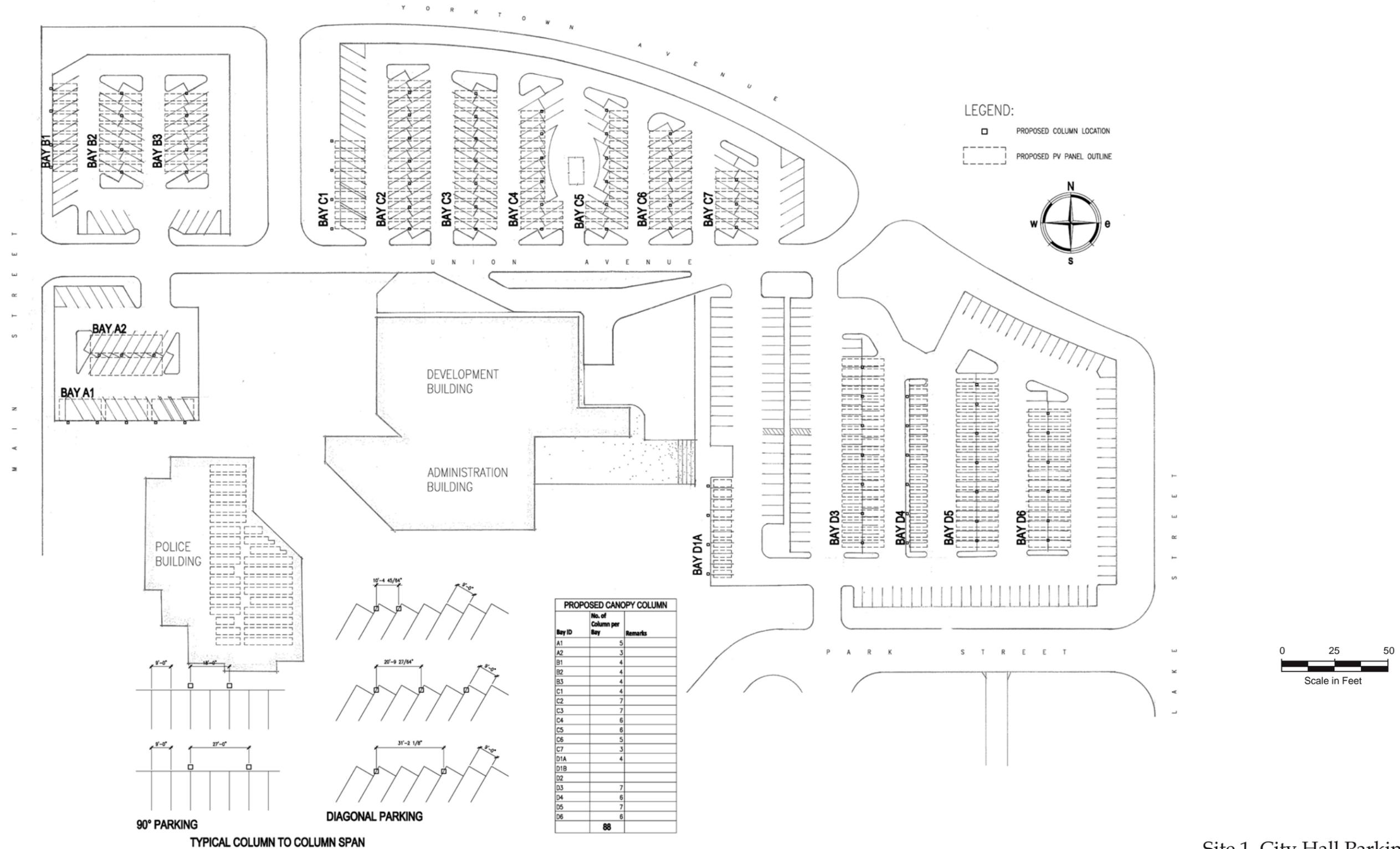
Figure 4
City of Huntington Beach

Source: Digital Energy, Inc., June 7, 2010.

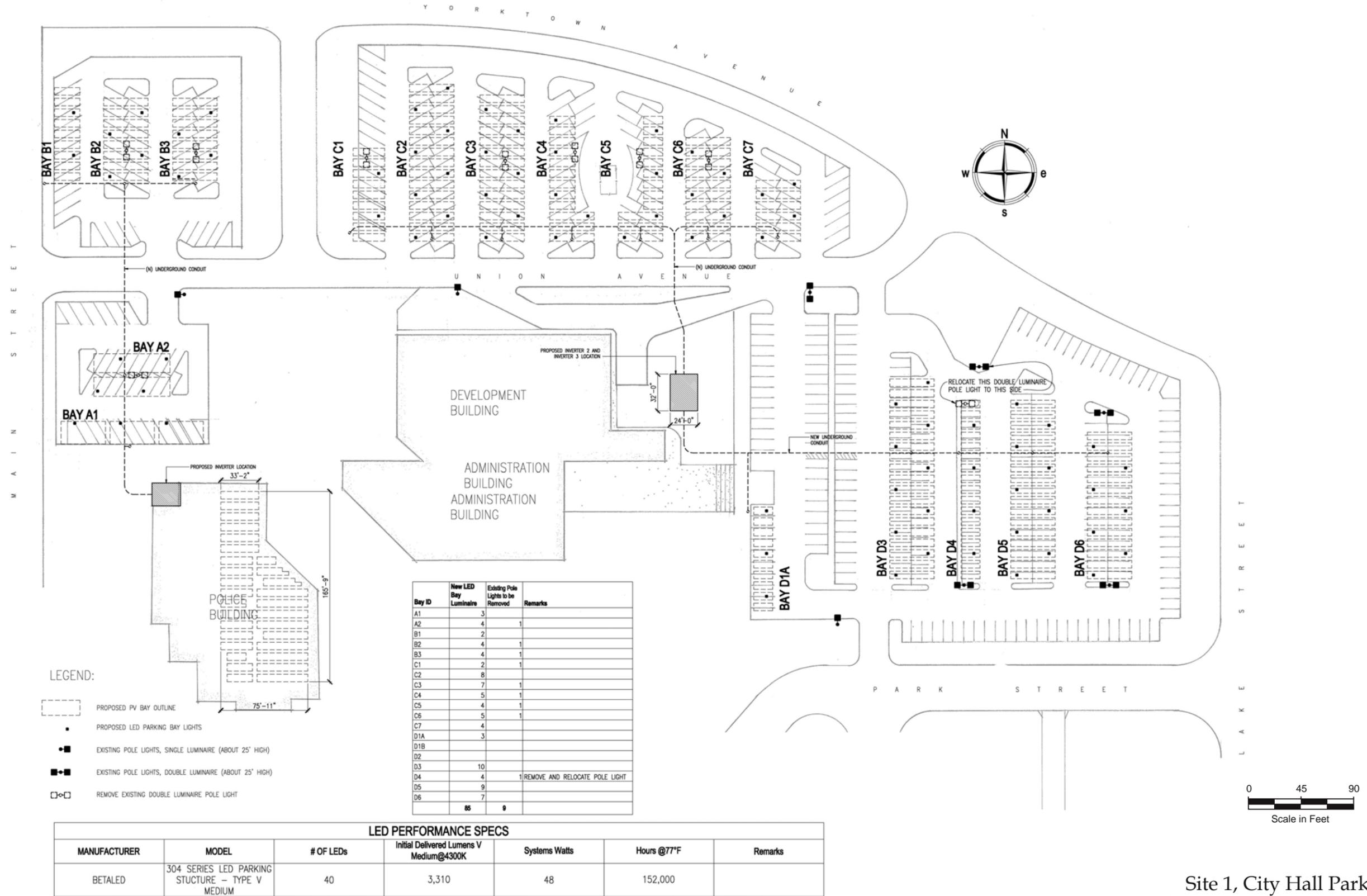


Site 1, City Hall Parking Lot
Landscape Plan

Source: Digital Energy, Inc., June 7, 2010.



Site 1, City Hall Parking Lot
Photovoltaic Canopy Column Plan



Site 1, City Hall Parking Lot
Photovoltaic Canopy Lighting Plan



CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 1



CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 2



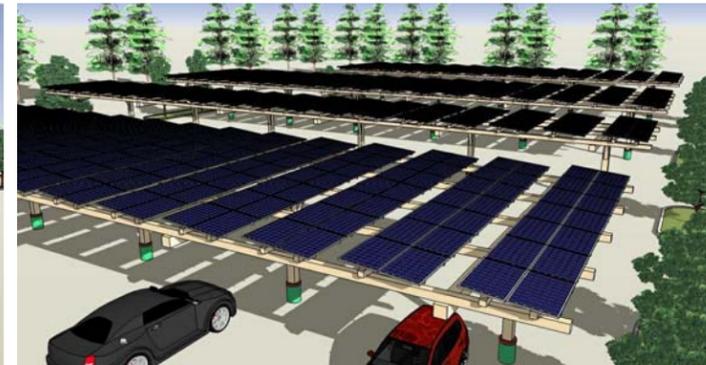
CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 3



CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 4



CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 5



CIVIC CENTER PARKING D - SAWTOOTH BAYS VIEW 6

IEWS OF PHOTOVOLTAIC PROPOSED CANOPIES AT CIVIC CENTER PARKING LOT D



CIVIC CENTER PARKING C & D
INVERTER ENCLOSURE DESIGN - VIEW 1



CIVIC CENTER PARKING C & D
INVERTER ENCLOSURE DESIGN - VIEW 2



CIVIC CENTER PARKING C & D
INVERTER ENCLOSURE DESIGN - VIEW 3



INVERTER CHAINLINK FENCE ENCLOSURE - VIEW 1



INVERTER CHAINLINK FENCE ENCLOSURE - VIEW 2

CIVIC CENTER INVERTER ENCLOSURE DESIGNS

Note:
Final design, colors and materials of carports and inverter enclosures are subject to review and approval by the Design Review Board and/or the Zoning Administrator.

Site 1, Civic Center Inverter Types



LEGEND:

 SAWTOOTH TYPE PANELS WITH 5° TILT FACING SOUTH

 DUMMY PANELS WITH 5° TILT FACING SOUTH

NOTES

1. PHOTOVOLTAIC PANELS USED IN THIS DESIGN IS SOLARWORLD SW230 WITH DIMENSION OF 65.94" L X 39.41" W. GAP PROVIDED IN BETWEEN PANELS IS 1/2".
2. MAX SHADOW ANGLE IS 12°
3. ARRAY TILT FOR SAWTOOTH AND FLAT PANEL TYPES IS 5°.
4. DISTANCE IN BETWEEN SAWTOOTH ARRAYS IS 2'-8".
5. EACH PARKING LOT BAY WILL HAVE 1 OR MORE COMBINERS PROVIDED WITH A REMOTE DISCONNECTS.
6. EACH PARKING LOT BAY SHALL HAVE TWO FIRE EXTINGUISHERS MOUNTED AT EACH END.

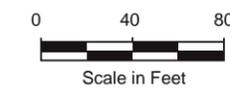
KEYNOTES:

- 1 30"x30" CANOPY ID SIGNAGE (TYPICAL AT NORTH END OF BAY).

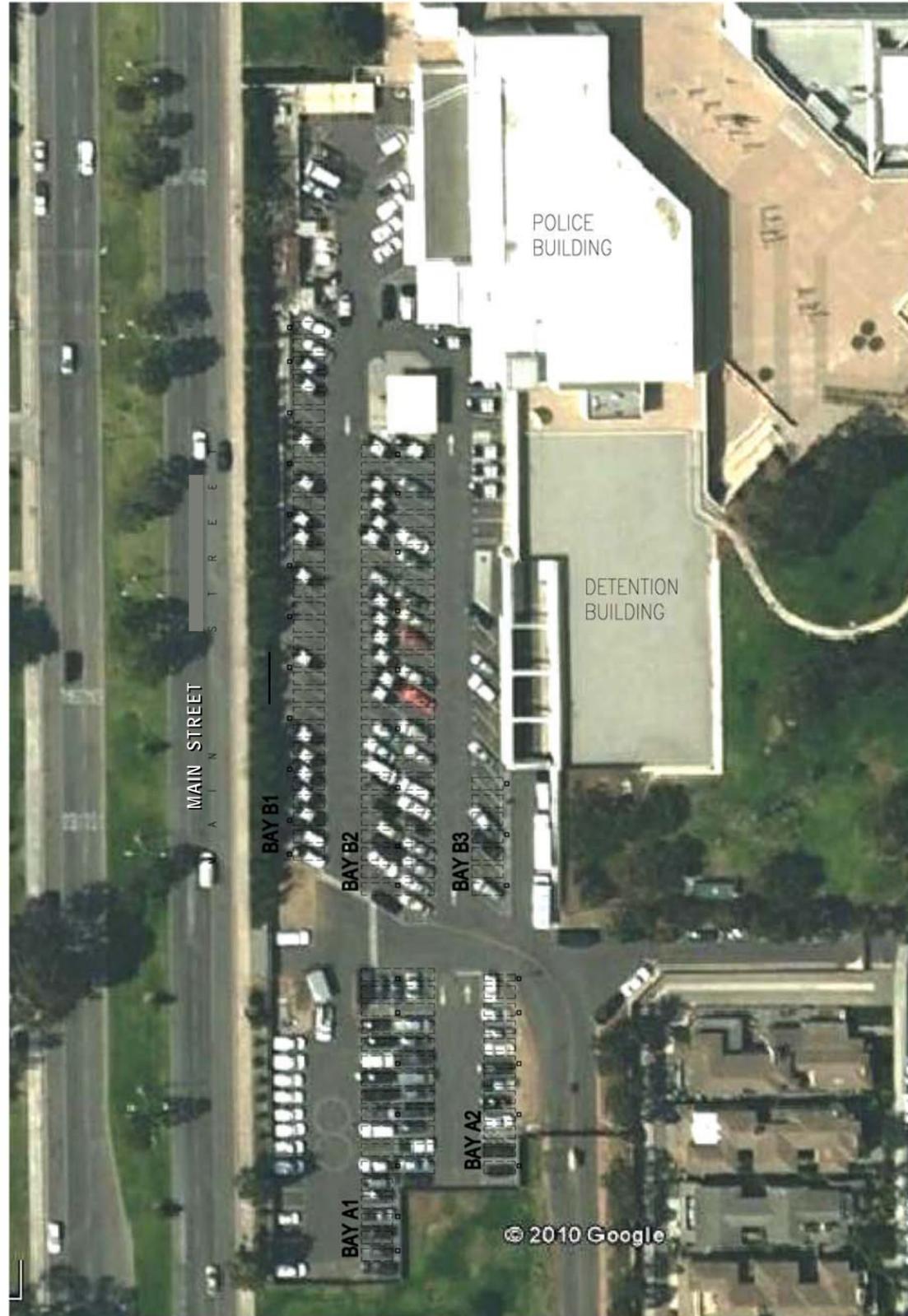


| Bay ID | No. of Panels per Area | kW per Area |
|-------------------------|------------------------|-------------|
| A1 | 196 | 2 |
| A2 | 68 | 1 |
| B1 | 182 | 4 |
| B2 | 364 | |
| B3 | 42 | |
| Detention facility Roof | 448 | |
| | 1300 | 7 |

Area C
Inverter 3
Powergate Plus 375 kW



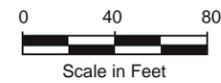
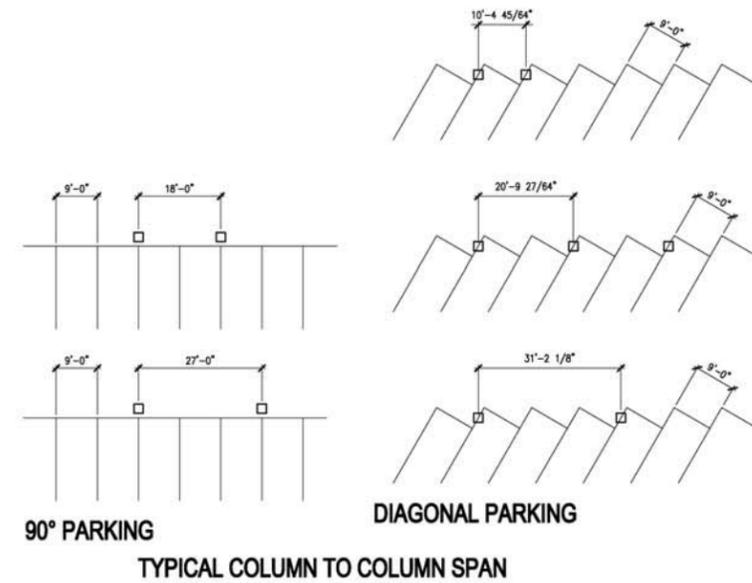
Site 1, Police Building Roof and Parking Lot Photovoltaic Plan



LEGEND:

- PROPOSED COLUMN LOCATION
- PROPOSED PV PANEL OUTLINE

| PROPOSED CANOPY COLUMN | | |
|------------------------|-----------------------|---------|
| Bay ID | No. of Column per Bay | Remarks |
| A1 | 7 | |
| A2 | 5 | |
| B1 | 12 | |
| B2 | 9 | |
| B3 | 3 | |
| | 36 | |



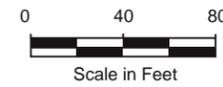
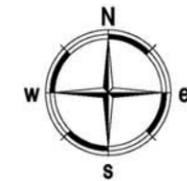
Site 1, Police Building Parking Lot
Photovoltaic Canopy Column Plan



LEGEND:

- PROPOSED PV BAY OUTLINE
- PROPOSED LED PARKING BAY LIGHTS
- REMOVE EXISTING DOUBLE LUMINAIRE POLE LIGHT

| Bay ID | New LED Bay Luminaire | Existing Pole Lights to be Removed | Remarks |
|--------|-----------------------|------------------------------------|---------|
| A1 | 7 | | |
| A2 | 3 | | |
| B1 | 8 | | |
| B2 | 13 | 2 | |
| B3 | 2 | | |
| | 33 | 2 | |



| LED PERFORMANCE SPECS | | | | | | |
|-----------------------|--|-----------|---|---------------|-------------|---------|
| MANUFACTURER | MODEL | # OF LEDs | Initial Delivered Lumens V Medium@4300K | Systems Watts | Hours @77°F | Remarks |
| BETALED | 304 SERIES LED PARKING STRUCTURE - TYPE V MEDIUM | 40 | 3,310 | 48 | 152,000 | |

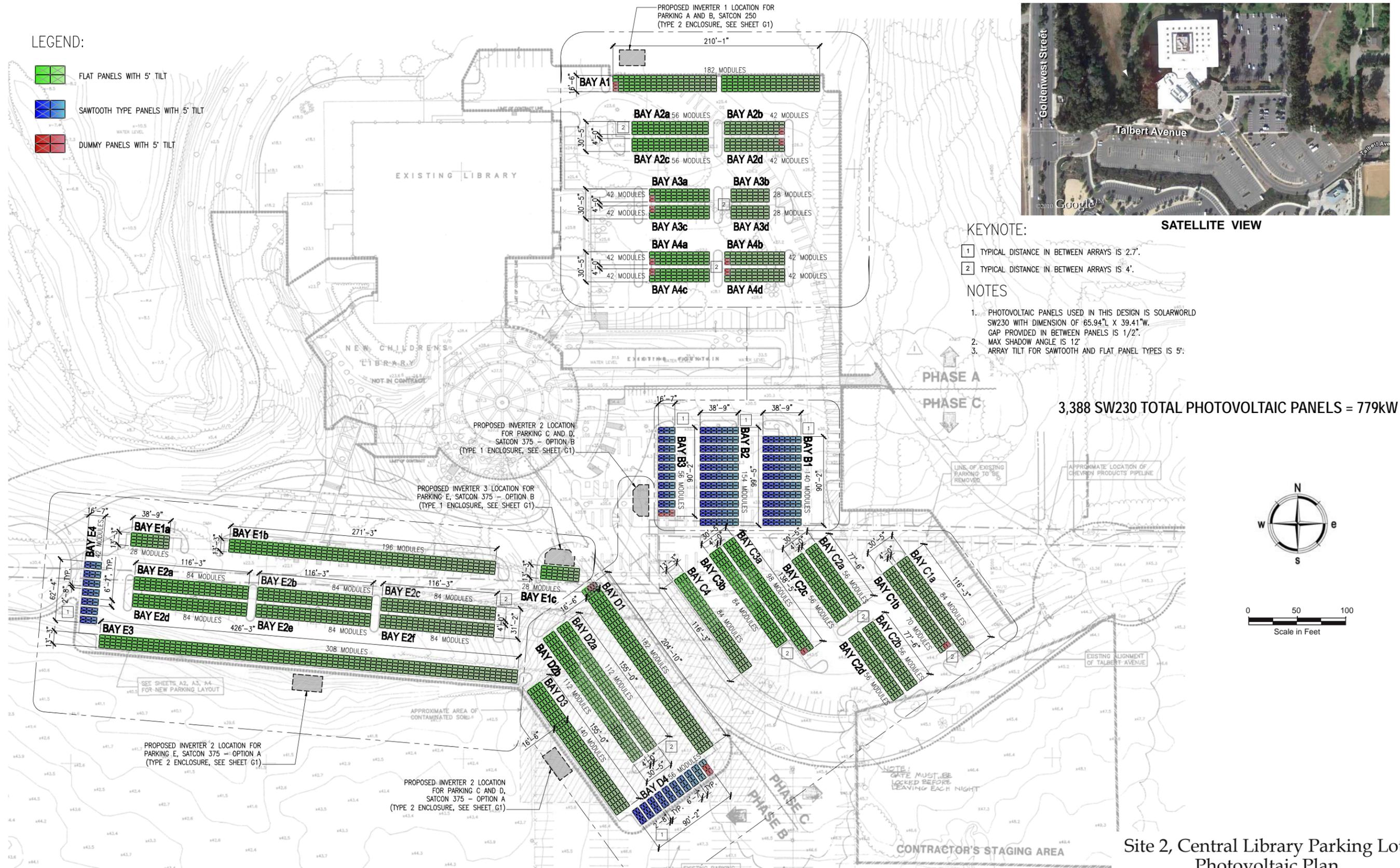
Site 1, Police Building Parking Lot
Photovoltaic Canopy Lighting Plan



SATELLITE VIEW

LEGEND:

-  FLAT PANELS WITH 5° TILT
-  SAWTOOTH TYPE PANELS WITH 5° TILT
-  DUMMY PANELS WITH 5° TILT



KEYNOTE:

- 1 TYPICAL DISTANCE IN BETWEEN ARRAYS IS 2.7'.
- 2 TYPICAL DISTANCE IN BETWEEN ARRAYS IS 4'.

NOTES

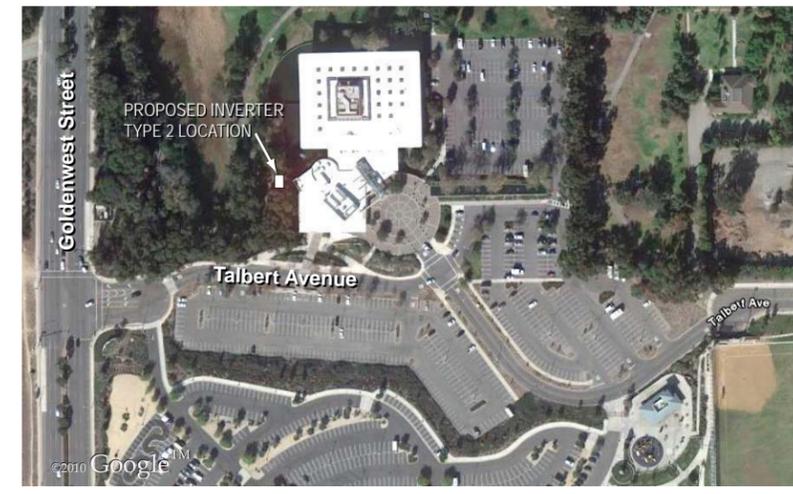
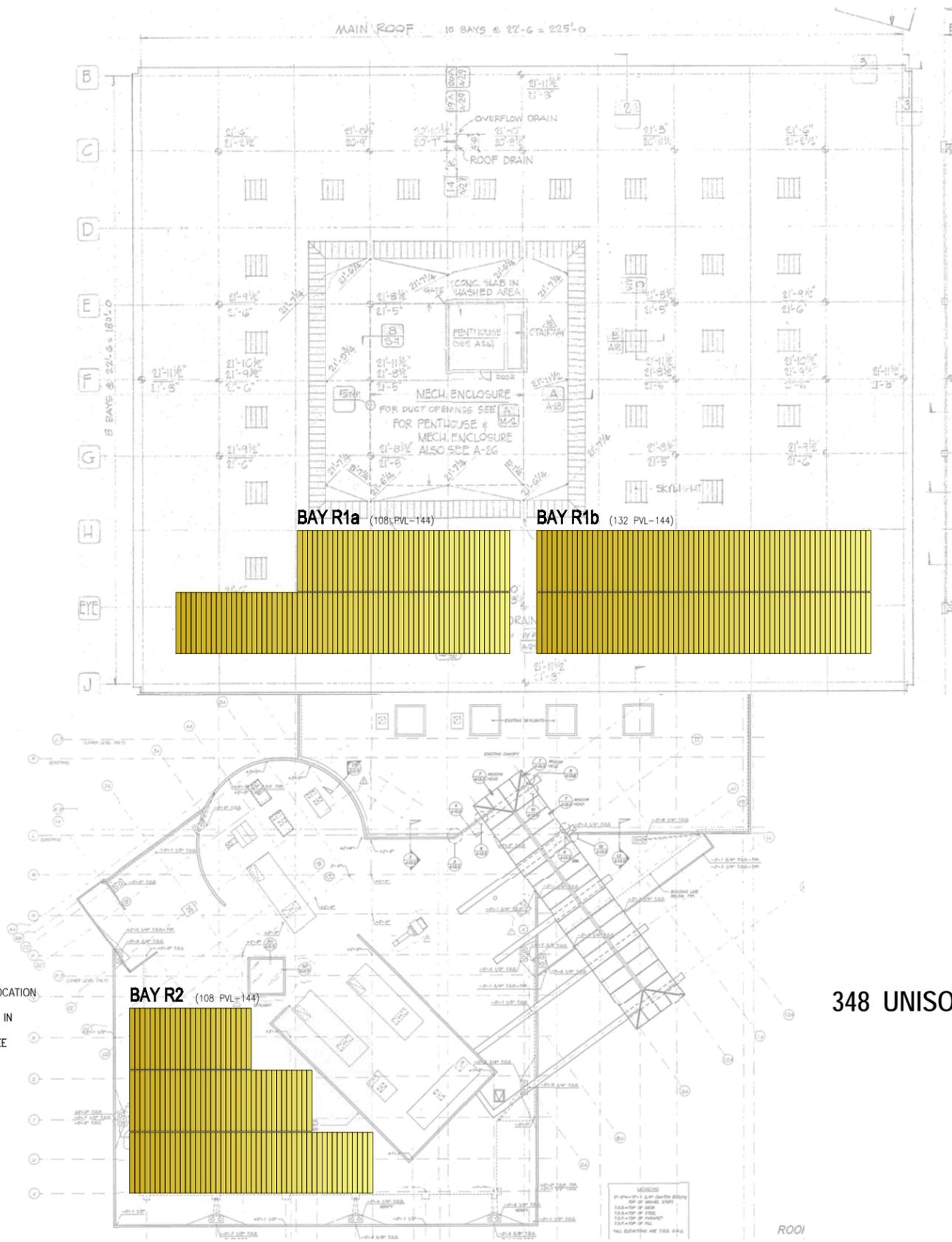
1. PHOTOVOLTAIC PANELS USED IN THIS DESIGN IS SOLARWORLD SW230 WITH DIMENSION OF 65.94" L X 39.41" W. GAP PROVIDED IN BETWEEN PANELS IS 1/2".
2. MAX SHADOW ANGLE IS 12°
3. ARRAY TILT FOR SAWTOOTH AND FLAT PANEL TYPES IS 5°.

3,388 SW230 TOTAL PHOTOVOLTAIC PANELS = 779KW

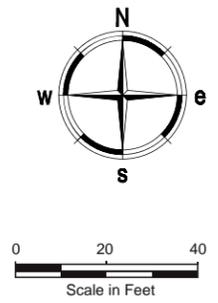


0 50 100
Scale in Feet

Site 2, Central Library Parking Lot
Photovoltaic Plan



SATELLITE VIEW



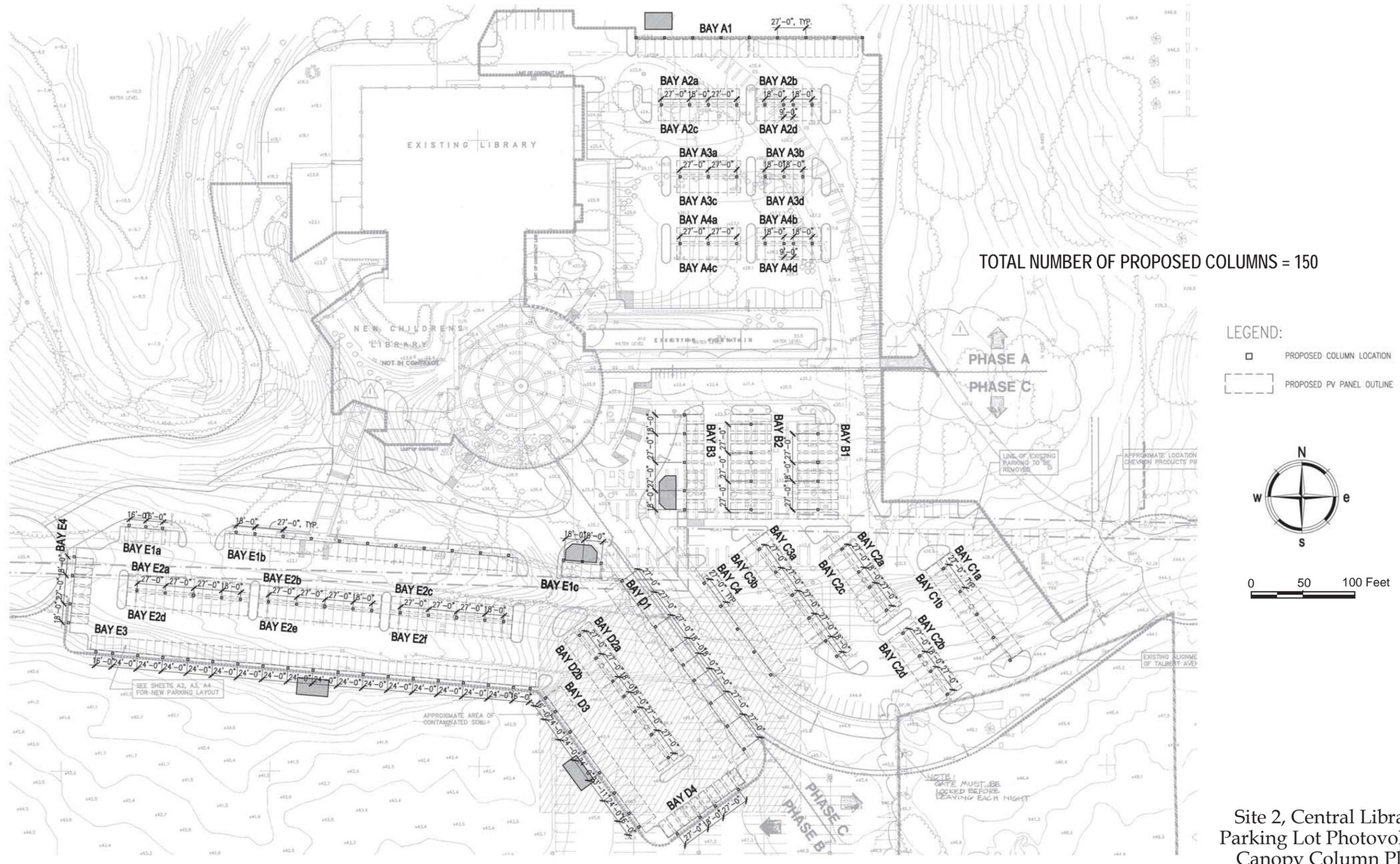
LEGEND:
 SOLAR LAMINATE

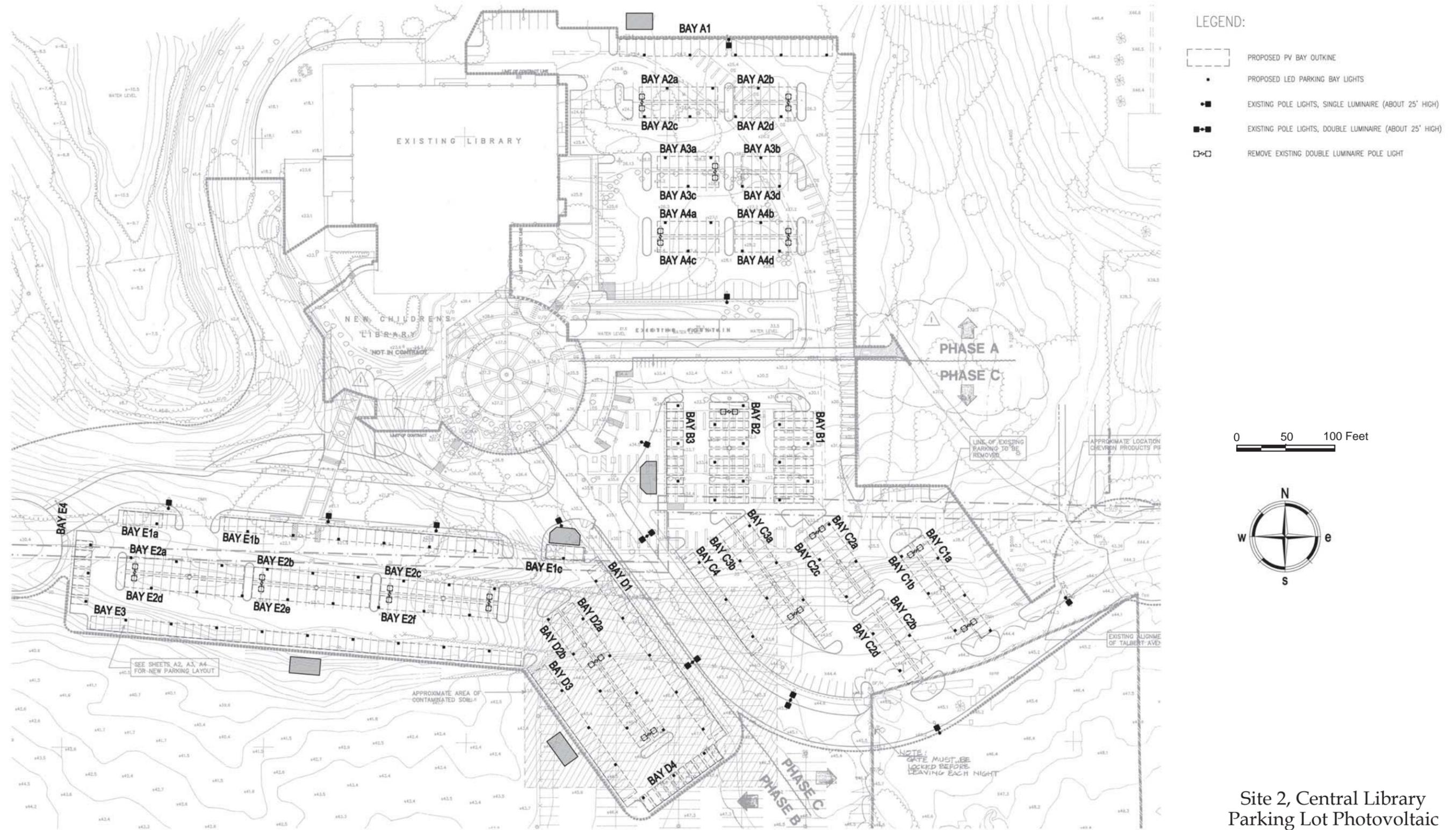
NOTES
 1. SOLAR LAMINATES USED IN THIS DESIGN IS UNI-SOLAR PVL-144 WITH DIMENSIONS OF 216" L X 15.5" W. GAP PROVIDED IN BETWEEN PANELS IS 1-1/2".

348 UNISOLAR PVL-144 SOLAR LAMINATE = 50.1kW

16'-0"
 24'-0"
 PROPOSED INVERTER LOCATION ADJACENT TO EXISTING ELECTRICAL EQUIPMENTS IN THIS AREA, SATCON 375 (TYPE 2 ENCLOSURE, SEE Figure 3)

Site 2, Central Library Rooftop Photovoltaic Plan







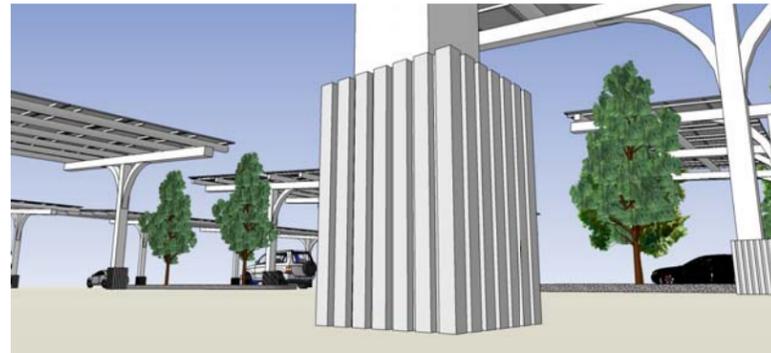
CENTRAL LIBRARY - FLAT BAYS VIEW 1



CENTRAL LIBRARY - FLAT BAYS VIEW 2



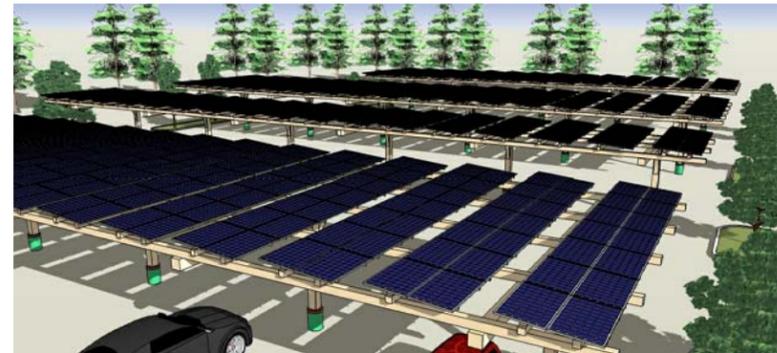
CENTRAL LIBRARY - FLAT BAYS VIEW 3



CENTRAL LIBRARY - PEDESTAL DESIGN



CENTRAL LIBRARY - SAWTOOTH BAYS VIEW 1

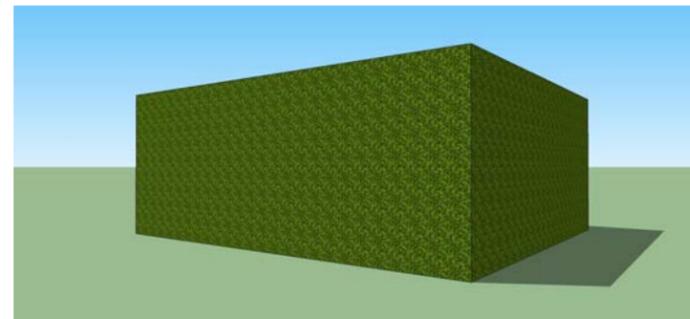


CENTRAL LIBRARY - SAWTOOTH BAYS VIEW 2

IEWS OF PHOTOVOLTAIC PROPOSED CANOPIES AT CENTRAL LIBRARY PARKING LOTS



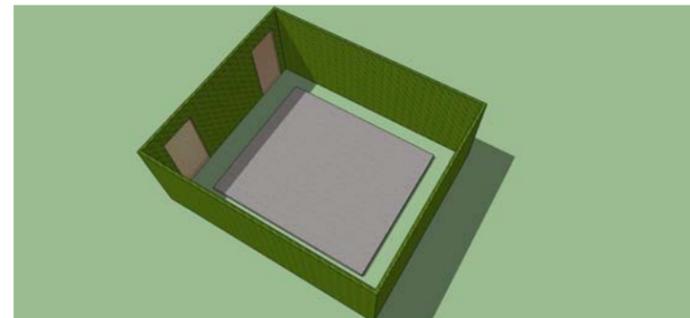
INVERTER BUILDING - VIEW 1



INVERTER ENCLOSURE - VIEW 1



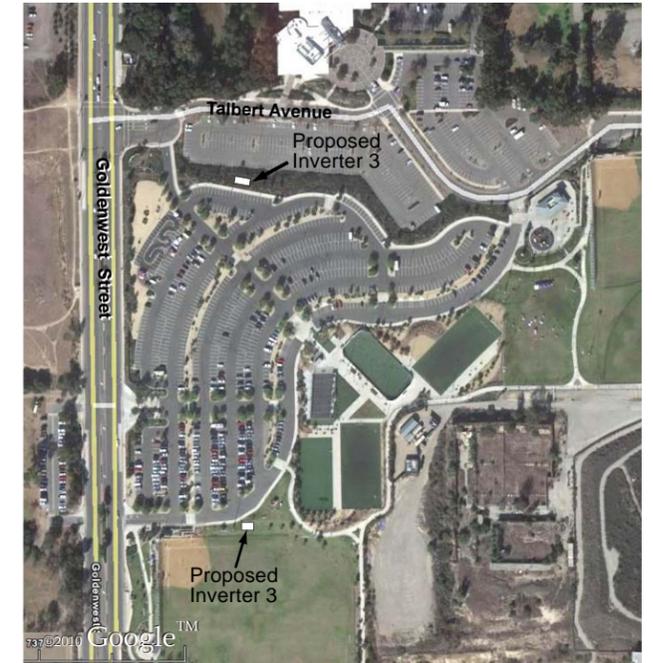
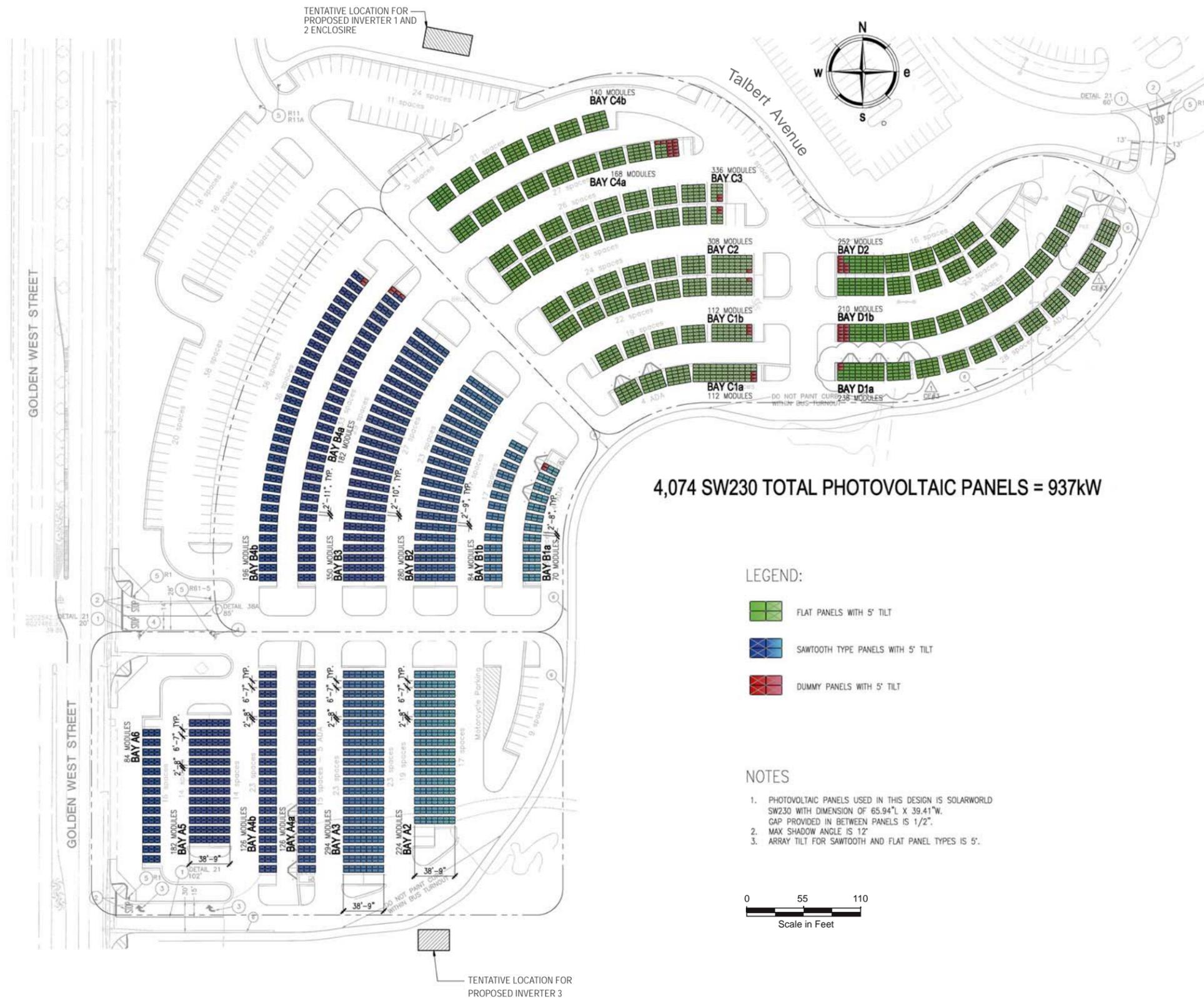
INVERTER BUILDING - VIEW 2



INVERTER ENCLOSURE - VIEW 2

CENTRAL LIBRARY INVERTER BUILDING/ENCLOSURE DESIGNS

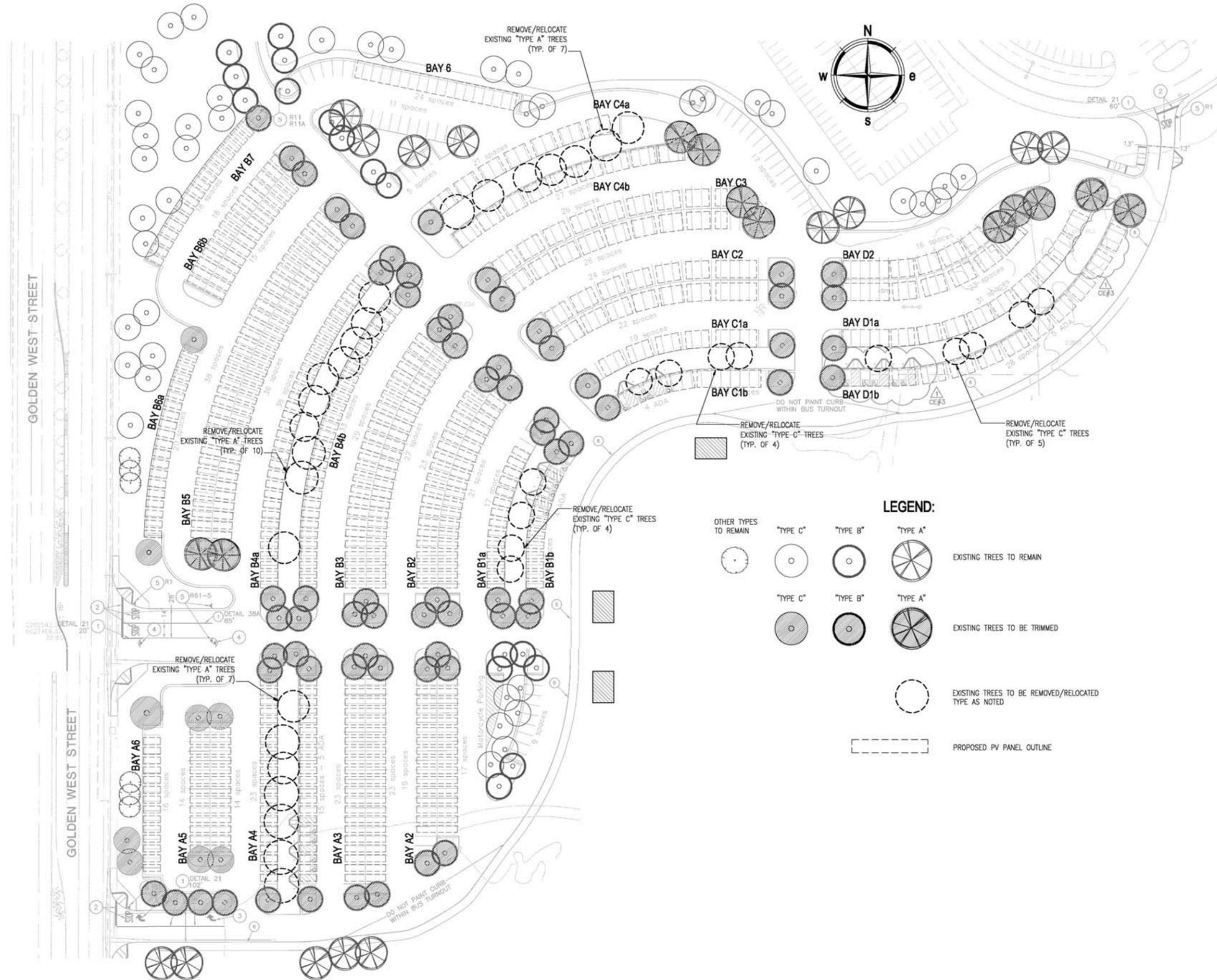
Site 2, Central Library Inverter Types



SATELLITE VIEW

Note:
final design, colors, and materials of the carports and inverter enclosures are subject to review and approval by the Design Review Board and/or the Zoning Administrator.

Site 3, Goldenwest Sports Complex
Parking Lot Photovoltaic Plan



EXISTING TREE TYPES:



TYPE 'A'
DIAMETER AND HEIGHT OF TREE RANGES FROM 15' TO 25'.

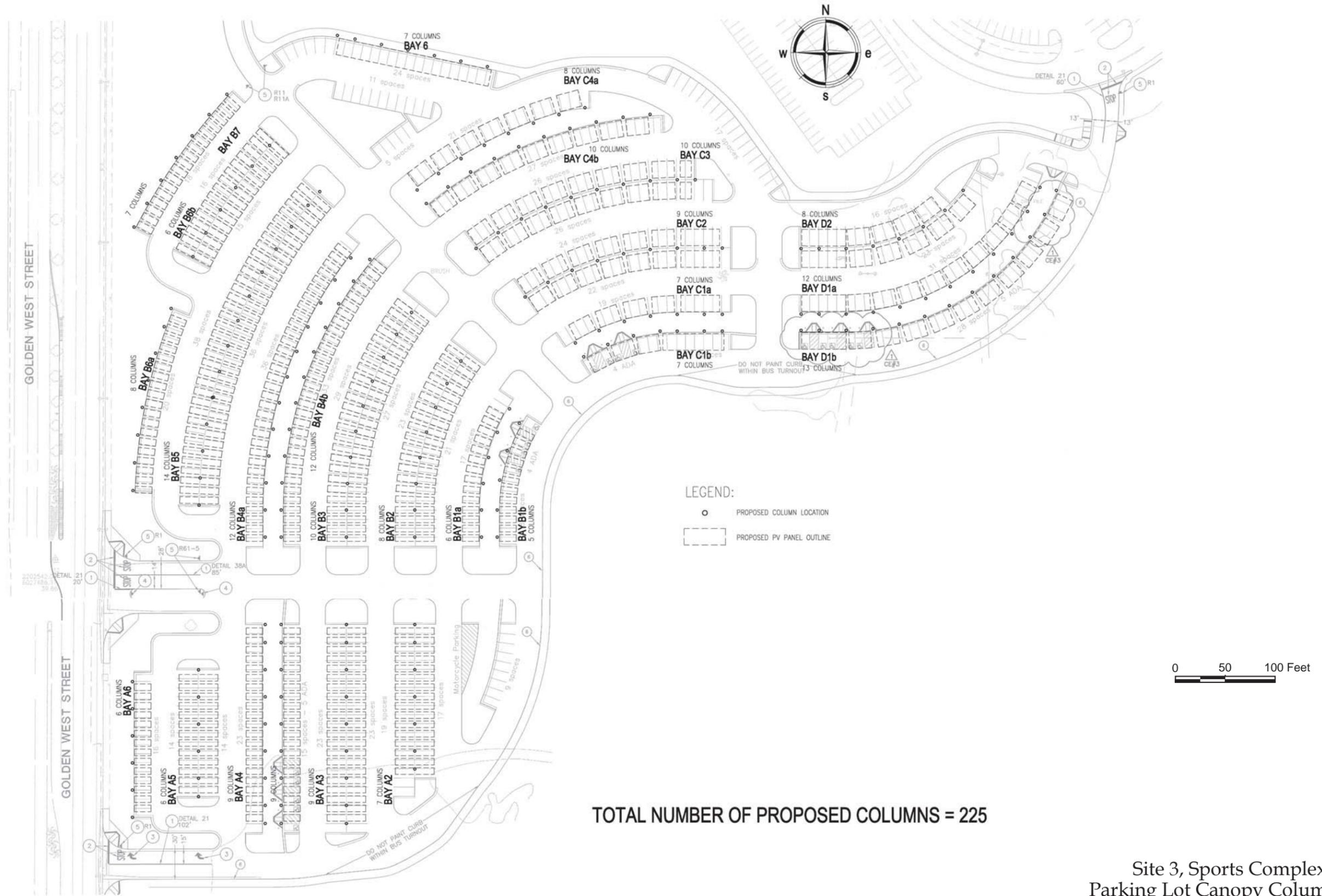


TYPE 'B'
DIAMETER AND HEIGHT OF TREE RANGES FROM 15' TO 25'.

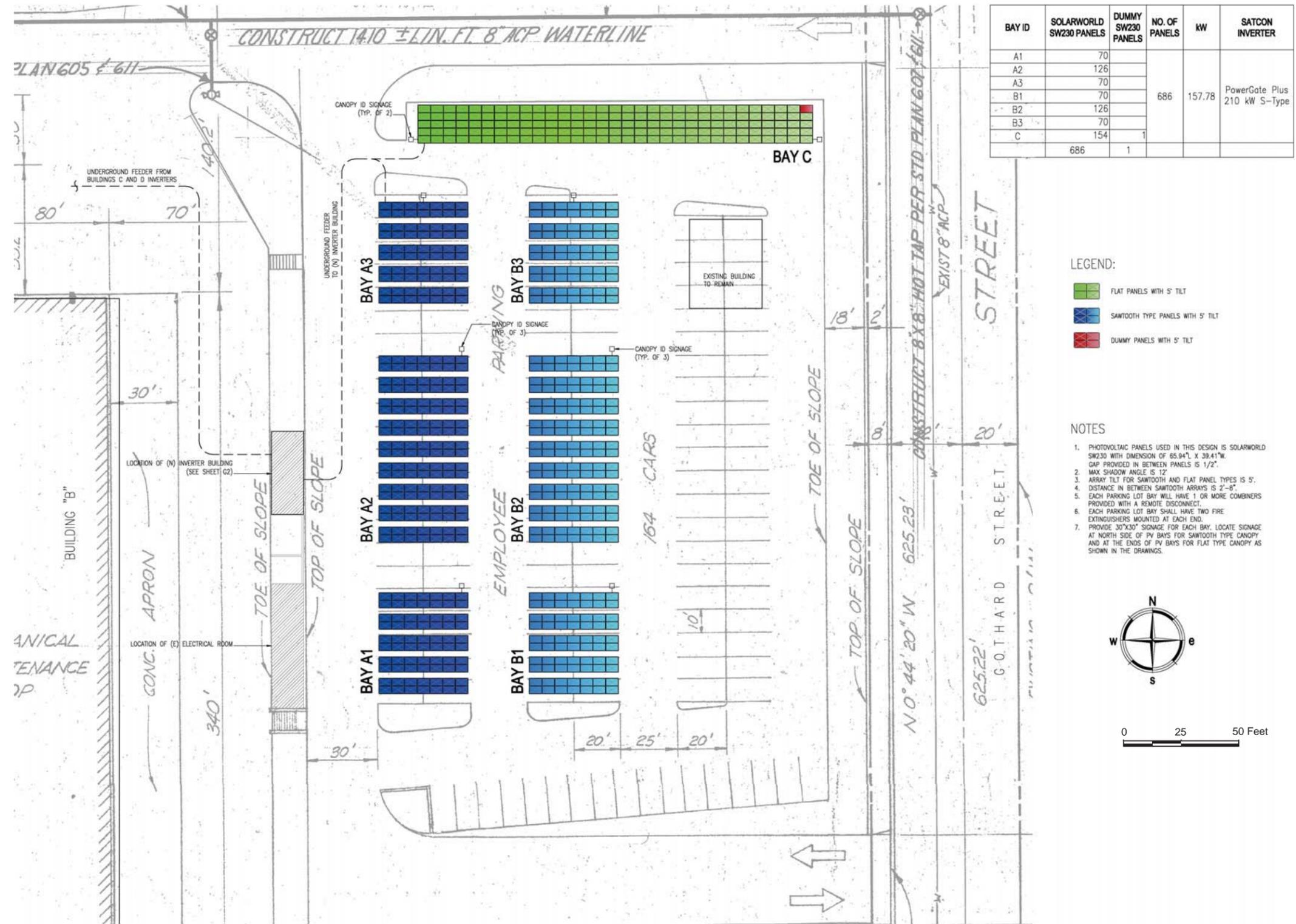


TYPE 'C'
DIAMETER AND HEIGHT OF TREE RANGES FROM 15' TO 25'.

Site 3, Sports Complex
Parking Lot Landscape Plan

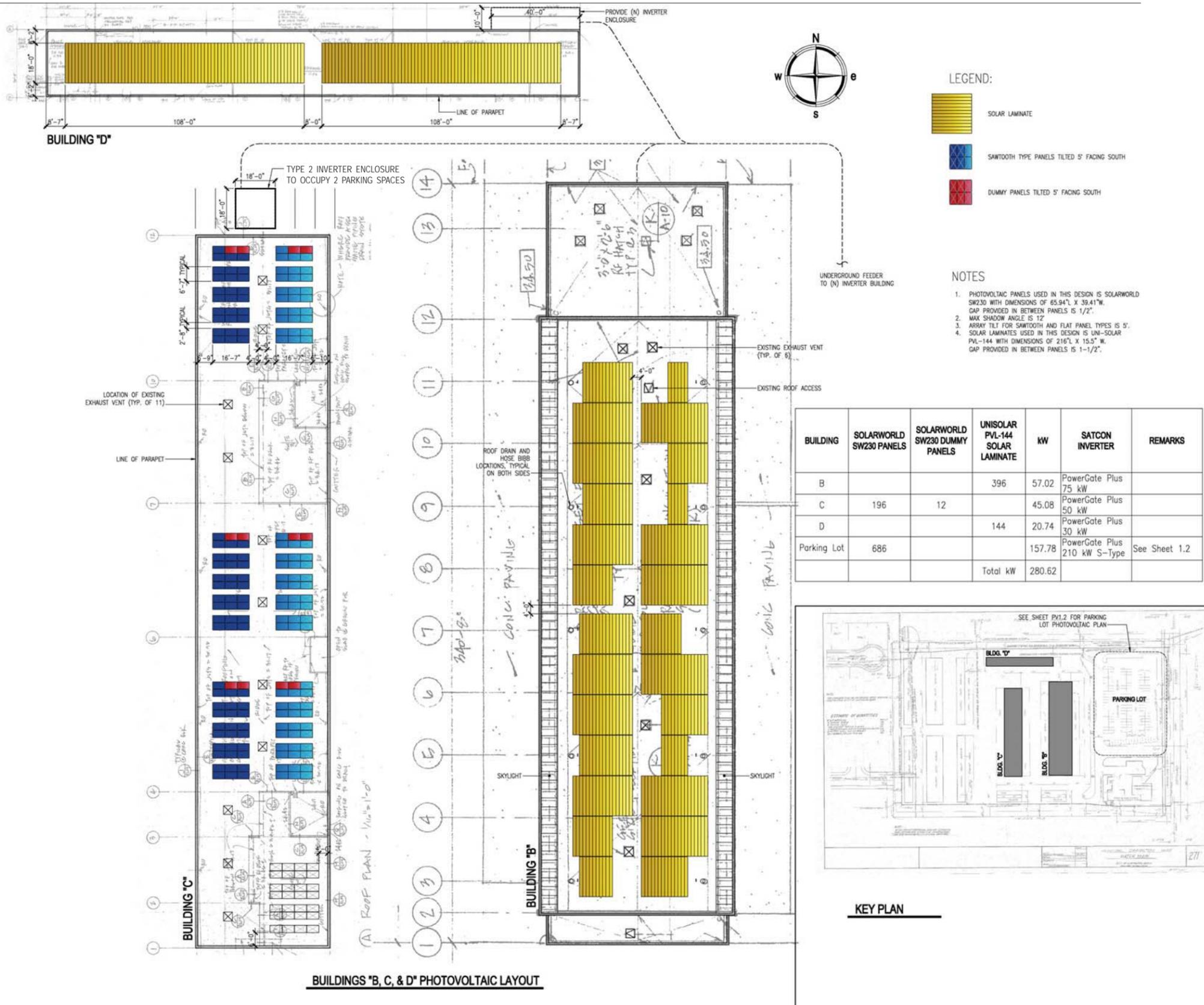


Site 3, Sports Complex
Parking Lot Canopy Column Plan



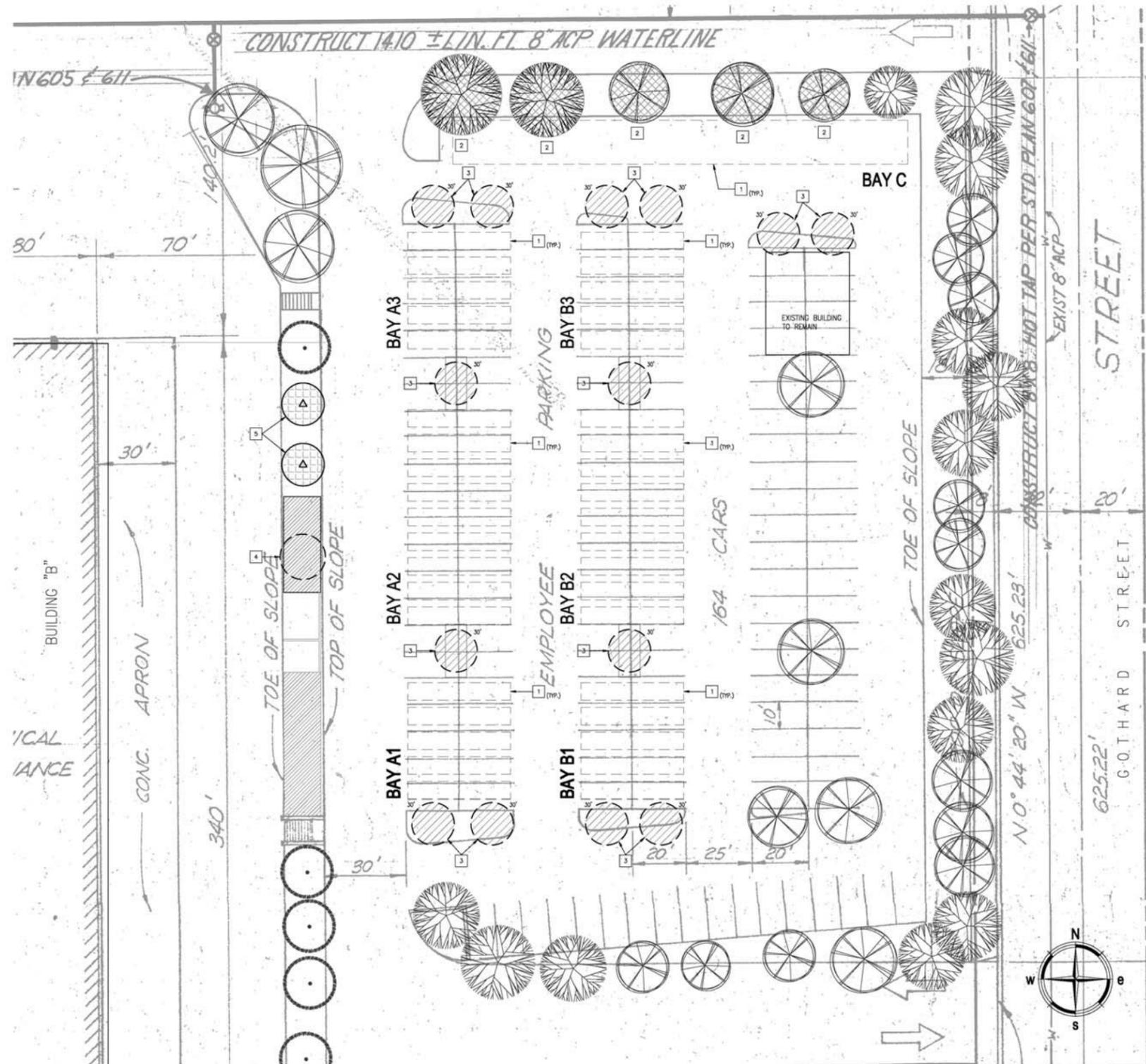
Site 4, City Yard Parking Lot
Photovoltaic Plan

Figure 21



Site 4, City Yard Roof Mounting Photovoltaic Plan

| Bay/Location | No. of Trees to be Replaced | No. of Trees to be Demo | No. of Trees to be Trimmed | No. of Trees to be Added | Remarks |
|------------------|-----------------------------|-------------------------|----------------------------|--------------------------|---------|
| A | 6 | | | | |
| B | 6 | | | | |
| C | 2 | | 5 | | |
| Fronting Bldg. B | | 1 | | 2 | |
| TOTAL | 14 | 1 | 5 | 2 | |



TREE LEGEND:

EXISTING TREES TO REMAIN

"TYPE A" "TYPE B" "TYPE C"

* HEIGHT OF EXISTING TREE

EXISTING TREES TO BE TRIMMED

"TYPE A" "TYPE C"

NEW AND EXISTING TREES TO BE REPLACED/DEMO

▲ NEW TREE LOCATION (SEE KEYNOTE #10 AND NOTE #2)

● EXISTING TREES TO BE REPLACED TYPE AS NOTED

○ EXISTING TREES TO BE REMOVED TYPE AS NOTED

KEYNOTE:

1. OUTLINE OF PROPOSED PHOTOVOLTAIC CANOPY.
2. TRIM BRANCHES ON SIDE ADJACENT TO PROPOSED PHOTOVOLTAIC CANOPY.
3. REPLACE EXISTING TYPE "A" TREE WITH TYPE THAT GROWS TO A MAXIMUM HEIGHT OF 10'.
4. REMOVE EXISTING TYPE "B" TREE TO ACCOMMODATE (N) INVERTER BUILDING.
5. LOCATION OF (N) TREE TO MATCH EXISTING TYPE "B" TREE.

NOTES:

1. CONSULT A PROFESSIONAL ARBORIST TO DETERMINE THE TYPE OF PRUNING NECESSARY TO IMPROVE THE HEALTH, APPEARANCE, AND SAFETY OF THE TREES. SELECT AN ARBORIST THAT HAVE CERTIFICATION THROUGH ISA'S CERTIFIED ARBORIST PROGRAM, HAVE PROOF OF INSURANCE AND MEMBER IN PROFESSIONAL ORGANIZATIONS SUCH AS THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA), THE TREE CARE INDUSTRY ASSOCIATION (TICA), OR THE AMERICAN SOCIETY OF CONSULTING ARBORISTS (ASCA).
2. PROVIDE NEW TREE WITH TYPE THAT GROWS TO A MAXIMUM HEIGHT OF 10'. EXAMPLES ARE: SWEET OLIVE TREE (OSMANTHUS FRAGRANS), INDIAN HAWTHORN, AND SOLANUM.

EXISTING TREE TYPES:



EXISTING TYPE "A" TREES

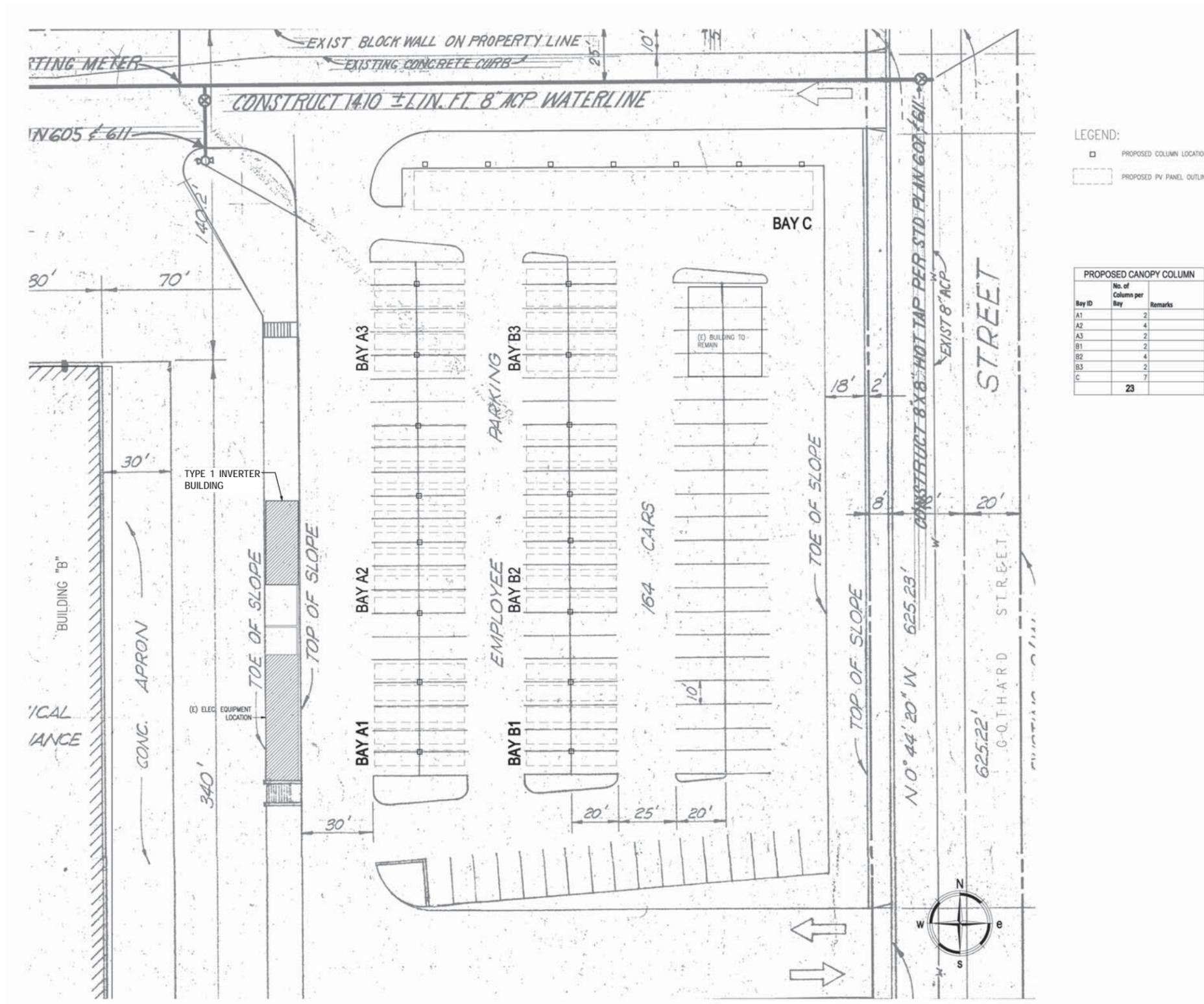


EXISTING TYPE "B" TREE



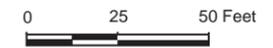
EXISTING TYPE "C" (PINE TREES) TREES

Site 4, City Yard Parking Lot
Landscape Plan

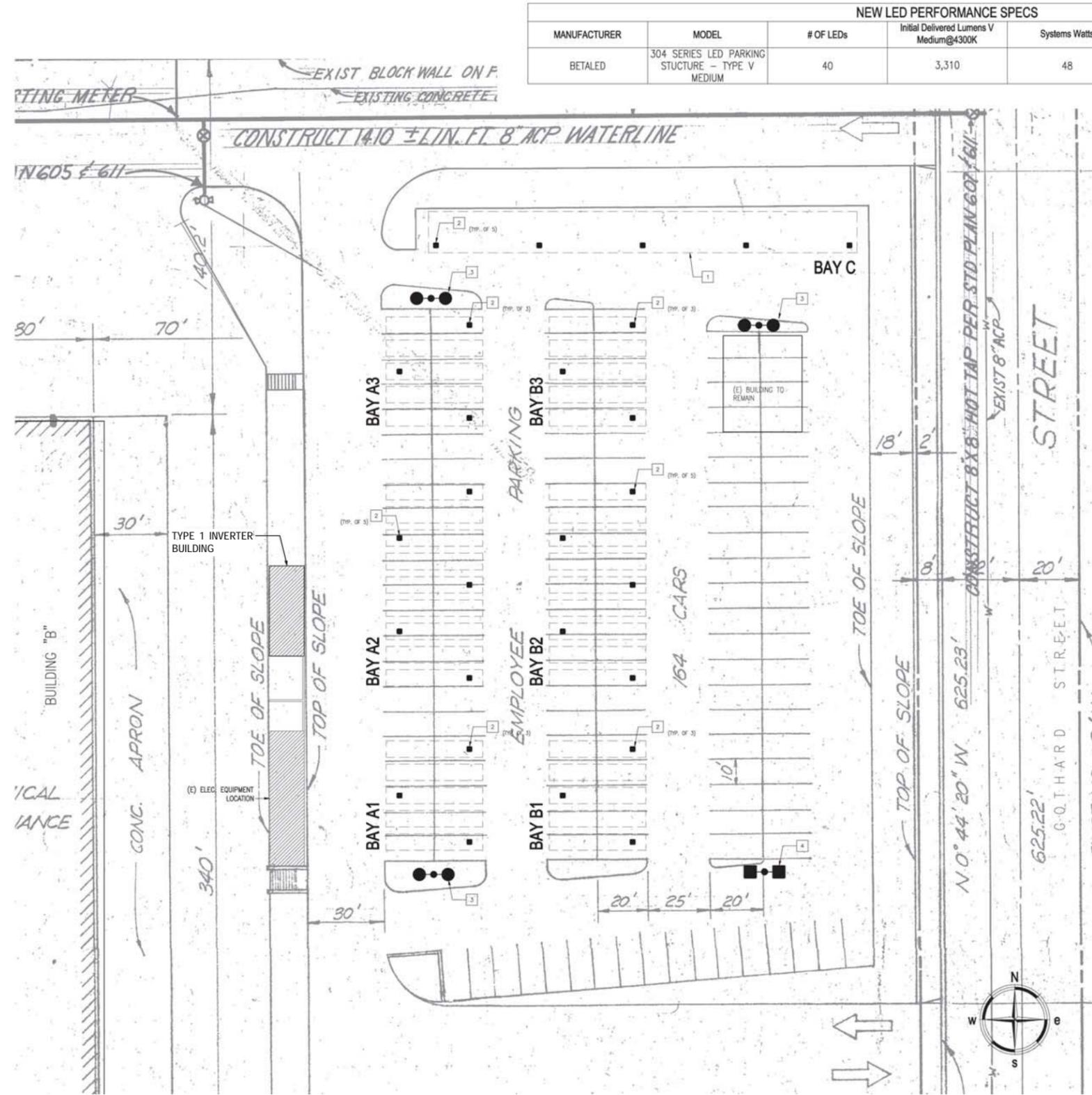


LEGEND:
 □ PROPOSED COLUMN LOCATION
 ▭ PROPOSED PV PANEL OUTLINE

| PROPOSED CANOPY COLUMN | | |
|------------------------|-----------------------|---------|
| Bay ID | No. of Column per Bay | Remarks |
| A1 | 2 | |
| A2 | 4 | |
| A3 | 2 | |
| B1 | 2 | |
| B2 | 4 | |
| B3 | 2 | |
| C | 7 | |
| | 23 | |



Site 4, City Yard Parking Lot
Photovoltaic Canopy Column Plan



| NEW LED PERFORMANCE SPECS | | | | | | |
|---------------------------|--|-----------|---|---------------|-------------|---------|
| MANUFACTURER | MODEL | # OF LEDs | Initial Delivered Lumens V Medium@4300K | Systems Watts | Hours @77°F | Remarks |
| BETALED | 304 SERIES LED PARKING STRUCTURE - TYPE V MEDIUM | 40 | 3,310 | 48 | 152,000 | |

| Bay ID | New LED Bay Luminaire | Existing Light Poles to be Removed | Remarks |
|--------|-----------------------|------------------------------------|--|
| A1 | 3 | 1 | |
| A2 | 5 | | |
| A3 | 3 | 1 | |
| B1 | 3 | | |
| B2 | 5 | | |
| B3 | 3 | | |
| C | 5 | 1 | POLE LOCATED ADJACENT TO (E) MAINTENANCE BLDG. |
| | 27 | 3 | |

LEGEND:

- PROPOSED PV BAY OUTLINE
- PROPOSED LED PARKING BAY LIGHTS
- (E) 30' HIGH DOUBLE LUMINAIRE POLE LIGHT TO REMAIN
- (N) LED DOUBLE LUMINAIRE POLE LIGHT. LUMINAIRE MOUNTED AT 13'-6" ABOVE FINISHED PAVEMENT

KEYNOTE:

- 1 OUTLINE OF PROPOSED PHOTOVOLTAIC CANOPY.
- 2 (N) LED CANOPY LIGHT FIXTURE MOUNTED 13'-6" ABOVE PARKING LOT PAVEMENT.
- 3 REMOVE (E) 30' HIGH DOUBLE LUMINAIRE POLE LIGHT AND REPLACE (N) LED DOUBLE LUMINAIRE POLE LIGHT. LUMINAIRE MOUNTED AT 13'-6" ABOVE FINISHED PAVEMENT.
- 4 (E) DOUBLE LUMINAIRE POLE LIGHT TO REMAIN.



Site 4, City Yard Parking Lot
Photovoltaic Canopy Lighting Plan

Source: Digital Energy, Inc., June 22, 2010.



CITY YARD PHOTOVOLTAIC SYSTEM



CITY YARD PHOTOVOLTAIC SYSTEM



CITY YARD SINGLE BAY AND DOUBLE BAY VIEW



CANOPY PEDESTAL

IEWS OF PHOTOVOLTAIC PROPOSED CANOPIES AT CITY YEAR PARKING LOT



INVERTER BUILDING FOR PARKING LOT AND BUILDING "B" INVERTERS



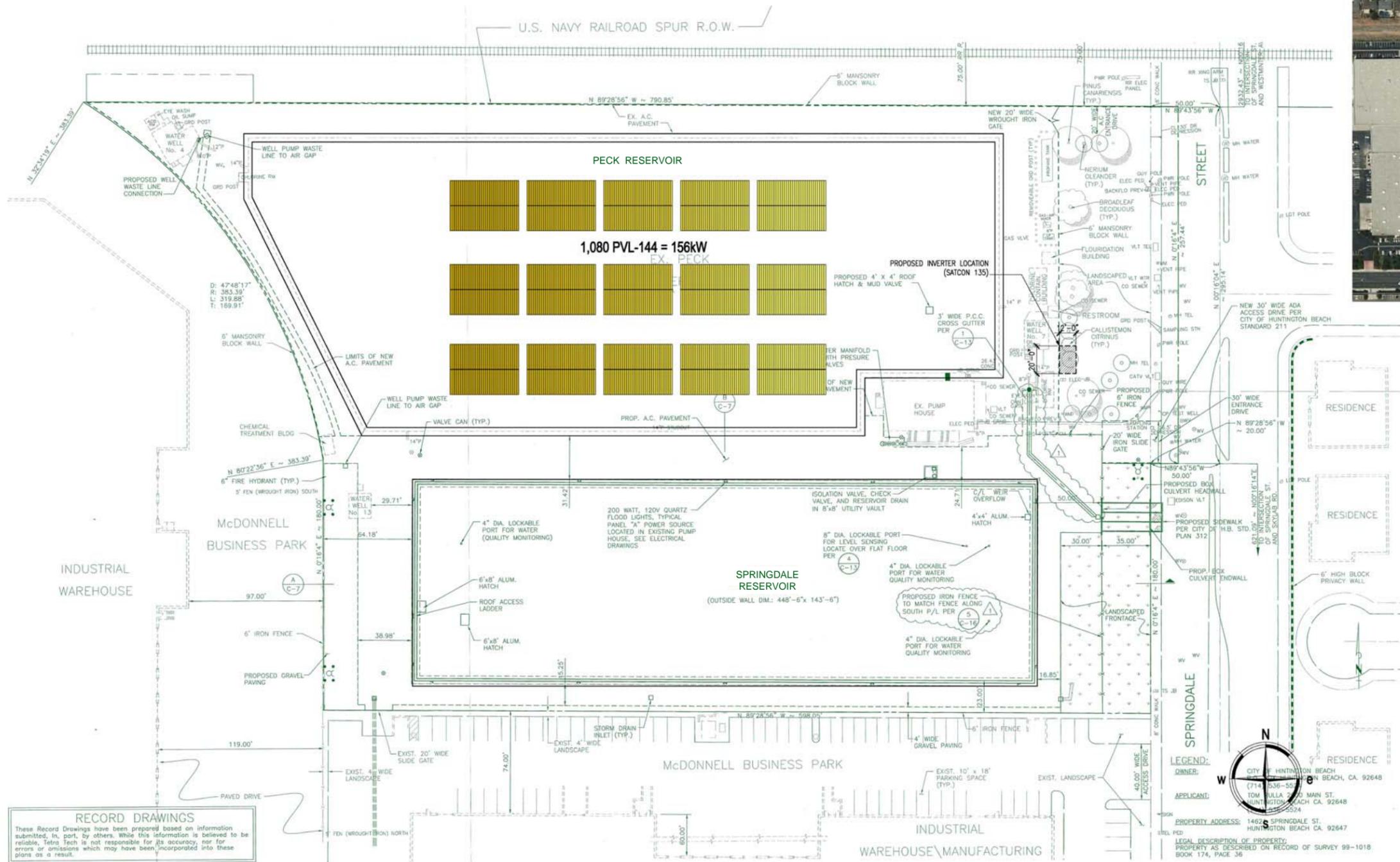
INVERTER ENCLOSURES TO MATCH MATCH (E) FENCE



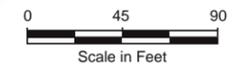
(E) STORAGE AT BUILDING "C"

CITY YARD INVERTER BUILDING/ENCLOSURE DESIGNS

Site 4, City Yard Inverter Types

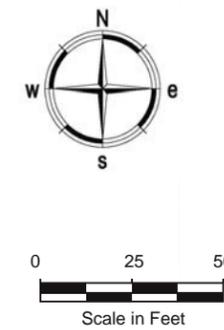
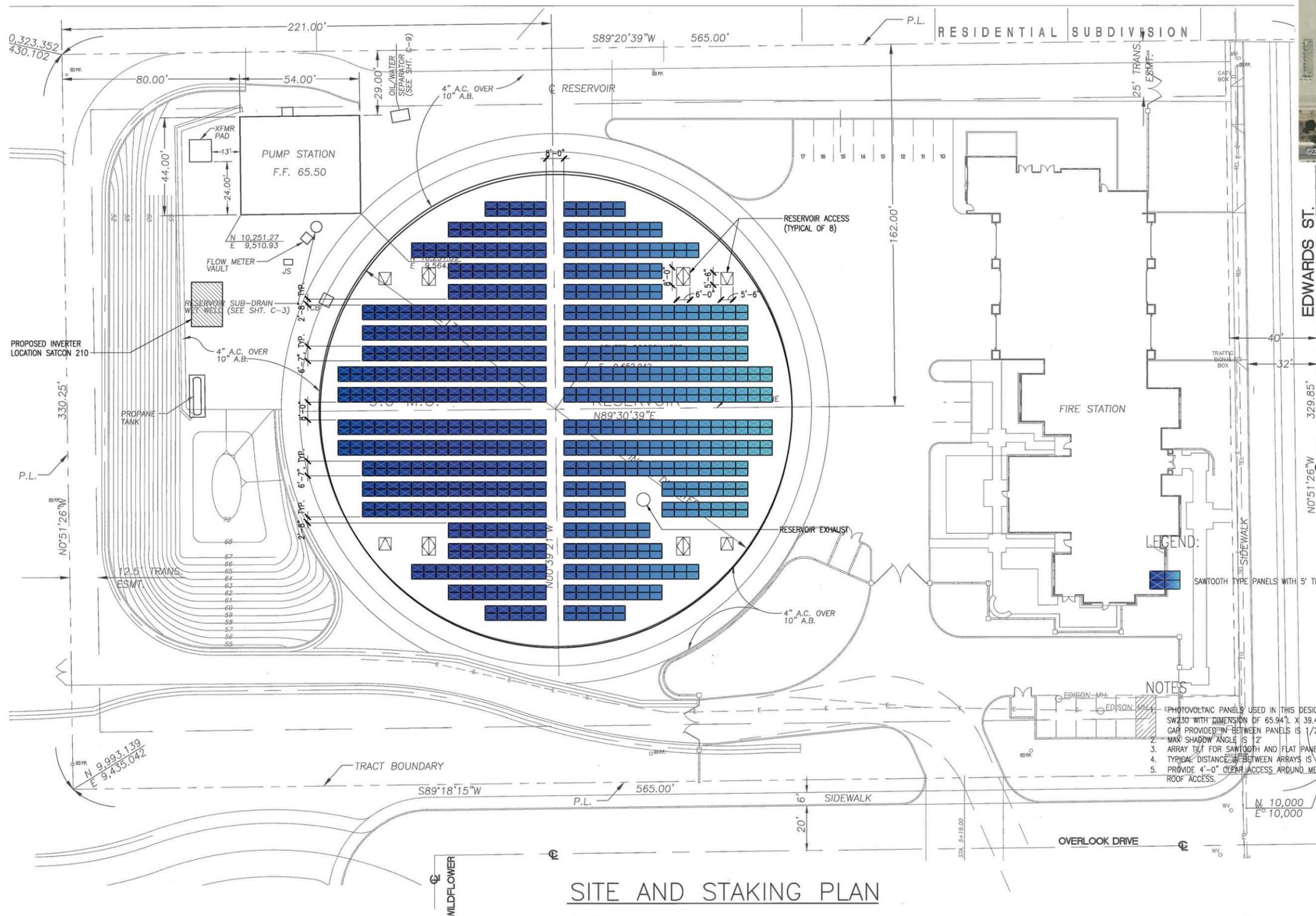


SATELLITE VIEW

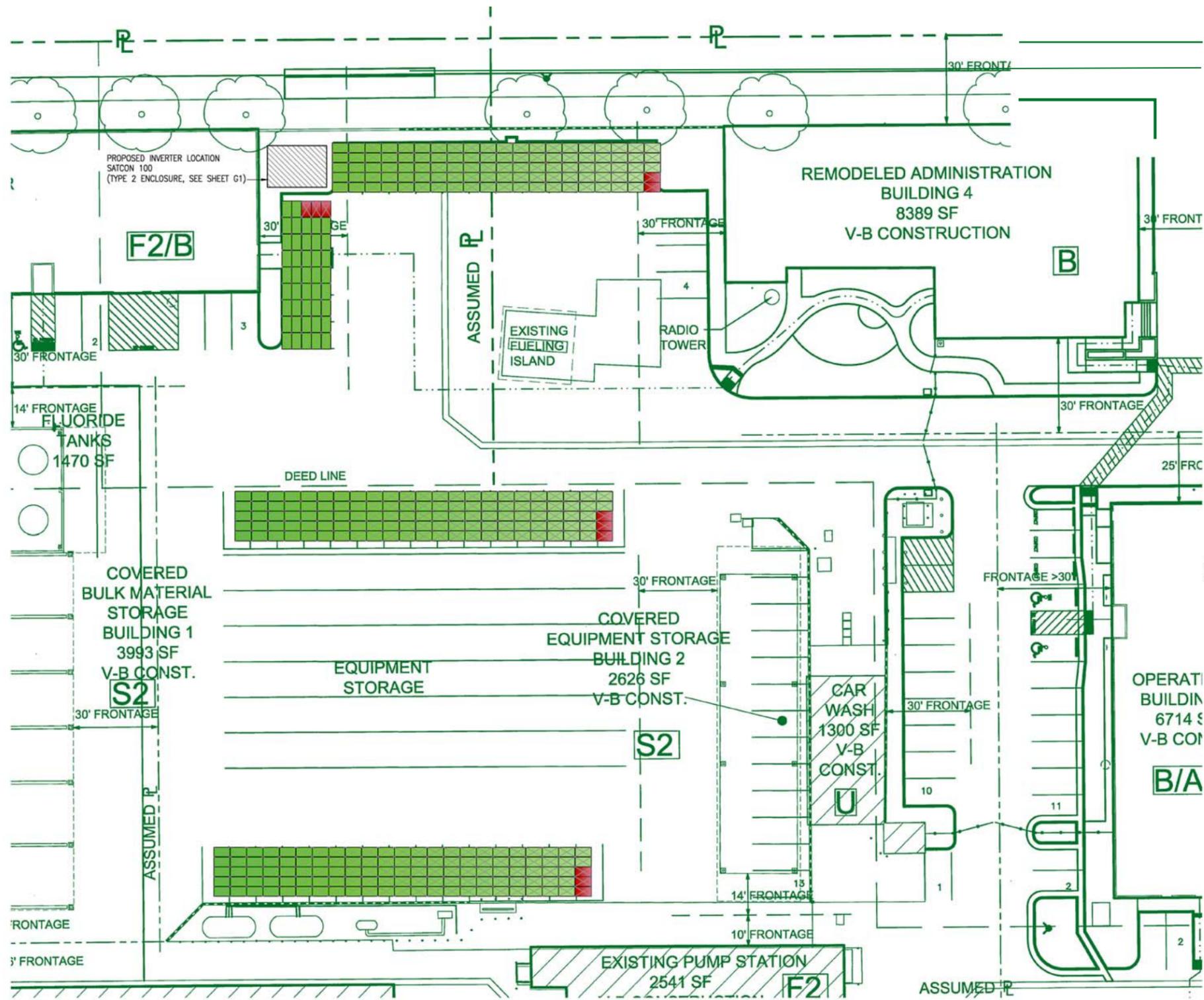


Site 5, City Facility Rooftop Photovoltaic Plan

938 SW230 TOTAL PHOTOVOLTAIC PANELS = 216KW



Site 6, City Facility Rooftop
Photovoltaic Plan



SATELLITE VIEW (EXISTING CONDITION)

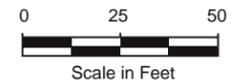
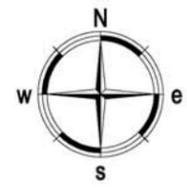
364 SW230 TOTAL PHOTOVOLTAIC PANELS = 84KW

LEGEND:

FLAT TYPE PANELS WITH 5° TILT

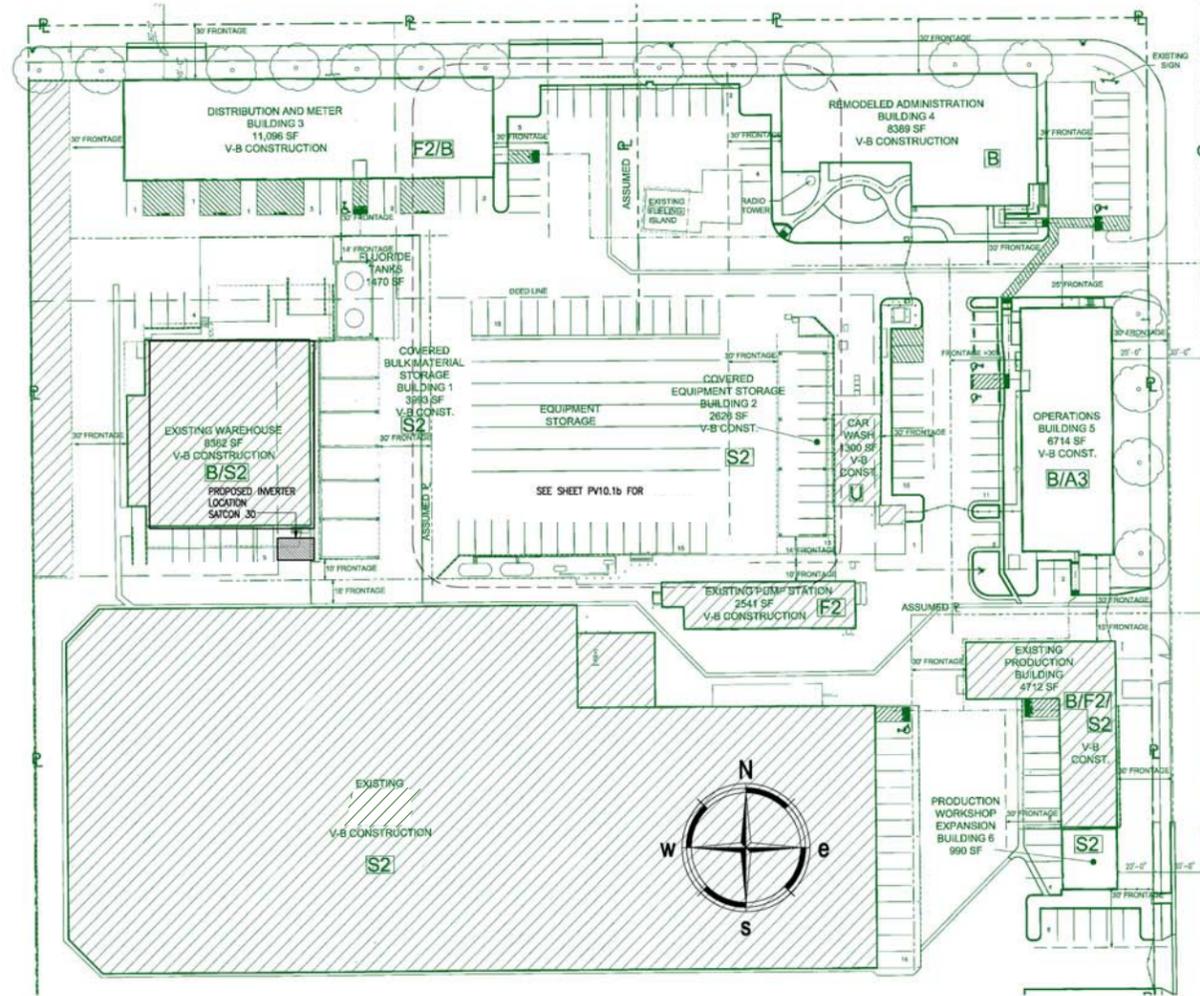
NOTES

1. PHOTOVOLTAIC PANELS USED IN THIS DESIGN IS SOLARWORLD SW230 WITH DIMENSION OF 65.94" L X 39.41" W. GAP PROVIDED IN BETWEEN PANELS IS 1/2".
2. MAX SHADOW ANGLE IS 12°
3. ARRAY TILT FOR SAWTOOTH AND FLAT PANEL TYPES IS 5°.

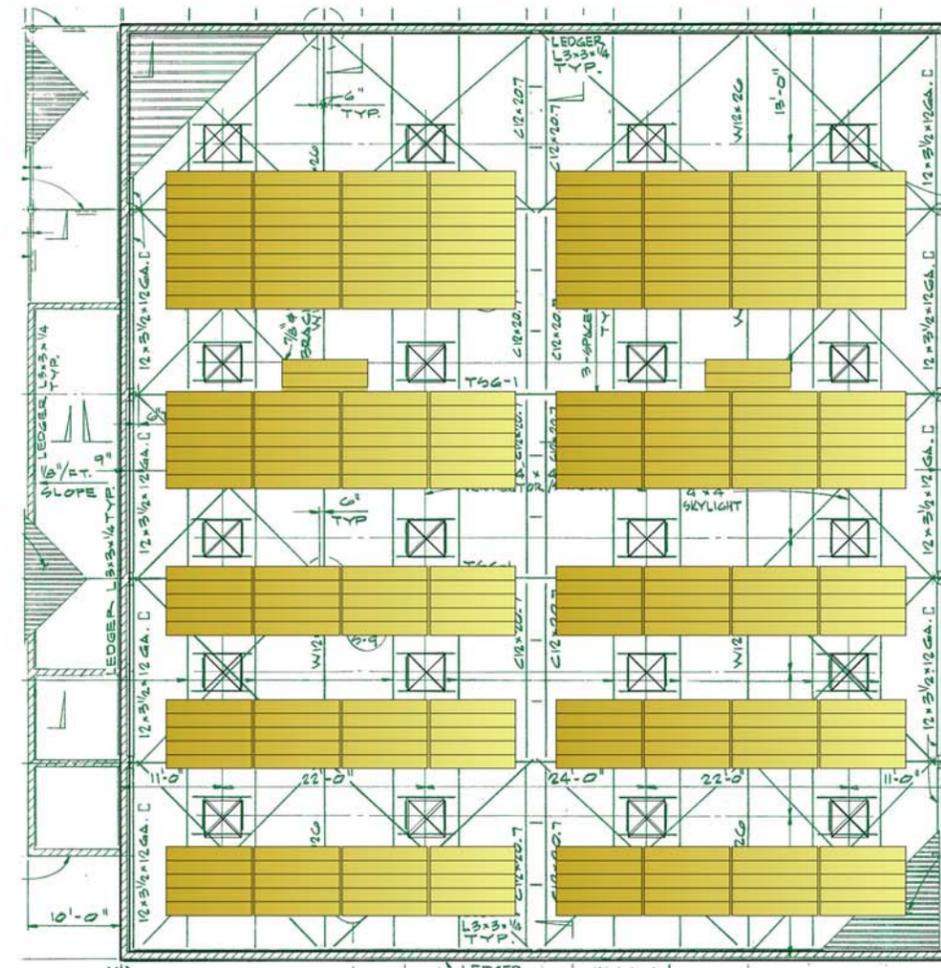


Site 7, City Facility Parking Lot
Photovoltaic Plan

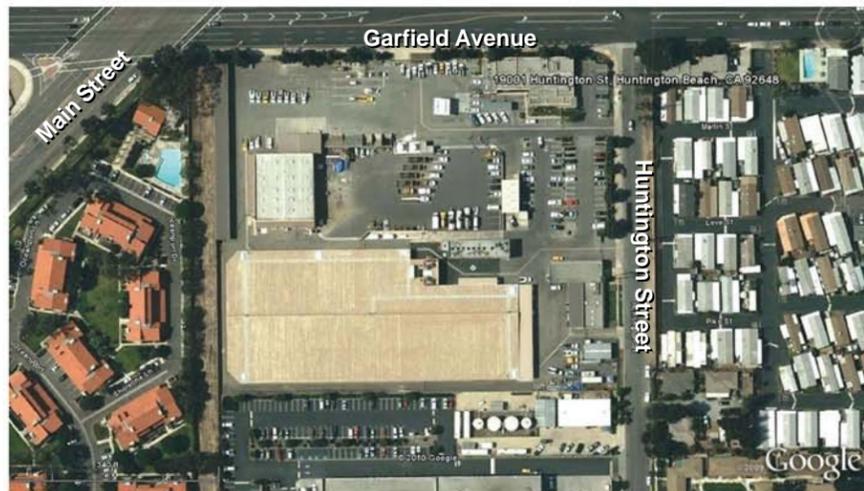
Source: Digital Energy, Inc., April 14, 2010.



1 **SITE PLAN**
Scale: 1" = 100'



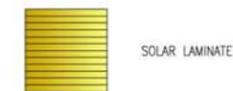
2 **PROPOSED PHOTOVOLTAIC LAYOUT ON ROOF OF EXISTING WAREHOUSE**
Scale: 1" = 20'



SATELLITE VIEW (EXISTING CONDITION)

260 PVL-68 TOTAL PHOTOVOLTAIC PANELS = 17.7kW

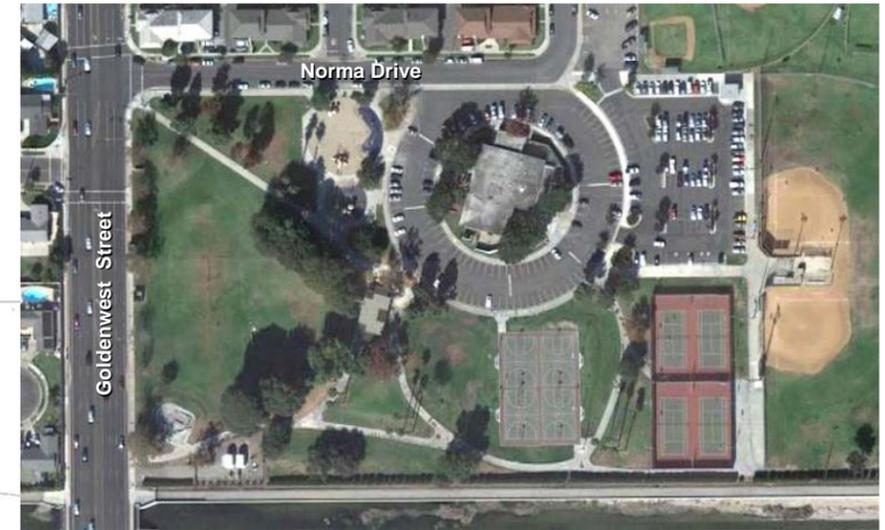
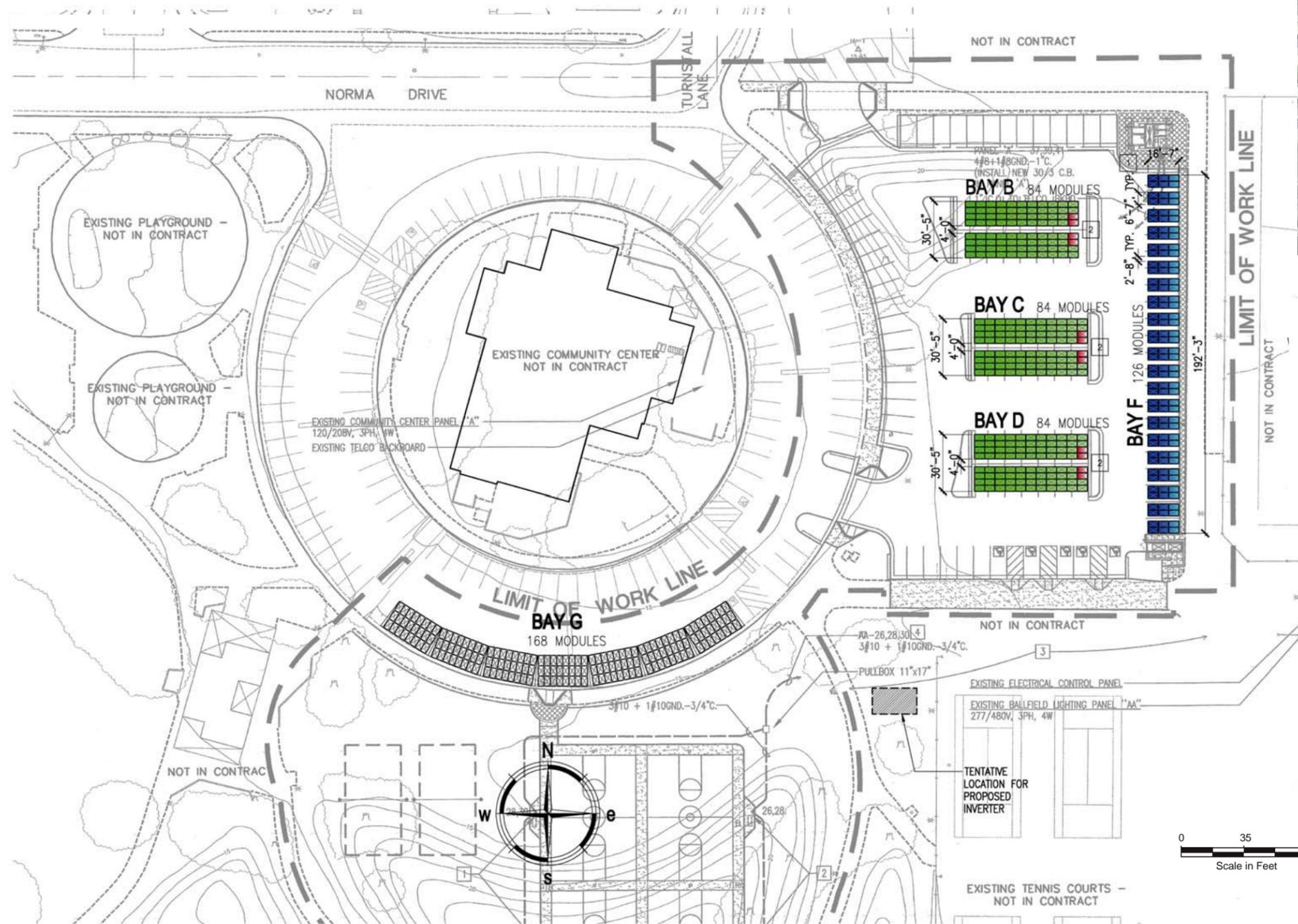
LEGEND:



NOTES

1. PHOTOVOLTAIC PANELS USED IN THIS DESIGN IS SOLARWORLD SW230 WITH DIMENSIONS OF 65.94" L X 39.41" W. GAP PROVIDED IN BETWEEN PANELS IS 1/2".
2. MAX SHADOW ANGLE IS 12°
3. ARRAY TILT FOR SAWTOOTH AND FLAT PANEL TYPES IS 5°.
4. SOLAR LAMINATES USED IN THIS DESIGN IS UNI-SOLAR PVL-144 WITH DIMENSIONS OF 216" L X 15.5" W. GAP PROVIDED IN BETWEEN PANELS IS 1-1/2".

Site 7, City Facility Rooftop
Photovoltaic Plan



SATELLITE VIEW

LEGEND:

-  FLAT PANELS WITH 5° TILT
-  SAWTOOTH TYPE PANELS WITH 5° TILT
-  DUMMY PANELS WITH 5° TILT

KEYNOTE:

- 1 TYPICAL DISTANCE IN BETWEEN ARRAYS IS 2.7'.
- 2 TYPICAL DISTANCE IN BETWEEN ARRAYS IS 4'.

NOTES

1. PHOTOVOLTAIC PANELS USED IN THIS DESIGN IS SOLARWORLD SW230 WITH DIMENSION OF 65.94"L X 39.41"W. GAP PROVIDED IN BETWEEN PANELS IS 1/2".
2. MAX SHADOW ANGLE IS 12°
3. ARRAY TILT FOR SAWTOOTH AND FLAT PANEL TYPES IS 5°.

546 SW230 TOTAL PHOTOVOLTAIC PANELS = 125kW

Site 8, Murdy Community Center
Parking Lot - Photovoltaic Plan