



AQUATIC PARK

MASTER PLAN

MASTER USE PERMIT SUBMITTAL

NOVEMBER 12, 2015

PROPERTY OWNERS:

JONES FAMILY, AQUATIC PARK SCIENCE CENTER II, LLC

LOCATION:

BANCROFT WAY TO ADDISON STREET BETWEEN AQUATIC
PARK AND THE UNION PACIFIC RAIL LINE, BERKELEY, CA

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SECTION 1 - MASTER USE PERMIT SUBMITTAL

1.1 OVERVIEW AND GOALS

The West Berkeley site that is the subject of this Master Use Permit submittal is situated between Bancroft Way and Addison Street, and is contiguous to Aquatic Park and Bolivar Drive, and the Union Pacific Rail Line. The concept of entitling the 8.67 acre property as an innovation campus with local services along Aquatic Park is the vision of the Jones family, who have owned and provided stewardship of the property since 1979. The project proposed in this submittal offers the opportunity to create a project that addresses a variety of local needs including:

- Generating a wide range of local jobs for existing Berkeley residents and in close proximity to the evolving and expanding West Berkeley residential community.
- The ability to create clean and sustainable large and small scale flexible space for innovation companies that require the ability to move quickly between office, R&D and manufacturing.
- Opportunities to generate infrastructure improvements, environmental improvements, public access improvements, and pedestrian and bicycle safety improvements at Aquatic Park.
- The creation of small, local serving public commercial and retail amenities near the Bancroft Way and Bolivar Drive corner, further enhancing the Aquatic Park experience.
- Adding a significant number of diverse jobs in close proximity to the burgeoning housing stock of West Berkeley.
- Upgrading Bolivar Drive both in terms of its physical disrepair and its configuration as it relates to the existing and proposed uses.

In addition, the Property combines great physical attributes and unparalleled urban amenities necessary to build a truly outstanding urban campus. These attributes include:

- Direct, easy access to Downtown Berkeley, the UC and LBNL Campuses, and the branding and recruiting advantages of a “Berkeley address” in a location that will be extremely attractive for a work force.
- The opportunity to build a state of the art facility in a waterfront, park-like setting, with tremendous views of San Francisco and San Francisco Bay.
- Close, walk-able proximity to the many restaurants, shops and other amenities of Berkeley’s famous “Fourth Street” retail corridor.
- The opportunity to co-locate and collaborate in one of the Bay Area’s premier emerging life science clusters. Bayer Pharmaceuticals, XOMA, Dyanavex and a number of innovative start-ups like Polyplus, Acuity, and SEEO, are already in West Berkeley. In addition, forthcoming amendments to the City of Berkeley’s West Berkeley Plan are specifically designed to encourage the completion of the build out of this area as a world-class cluster for research and development and technological innovation, and to encourage the translation of basic research into new products and companies.

1.2 HISTORY

The West Berkeley Aquatic Park site evolved over the years as this area was part of the original community of Ocean View. Initially home to the Standard Soap Company the site was 3 separate blocks fronting the bay. During those early years it was at the nexus of the industrial waterfront punctuated by the wharf at the base of University Avenue. Following the 1906 earthquake, the entire West Berkeley waterfront was built out as an industrial community with increased expansion pressure.

The 1930s saw an established industrial manufacturing community of more than 170 national and local companies struggle for survival as the Great Depression swept across America. Aquatic Park and the Bay shore freeway remain lasting results of the WPA and served to define both West Berkeley’s physical boundary and link it to the port cities of Oakland and Richmond. The building of these two projects effectively moved the shoreline to the bayside of the freeway and redefined the waterfront edge of the Aquatic Park site.

As it continued to grow over the decades, West Berkeley has remained a vital community of industry, homes, and amenities, evolving in response to industrial innovation, modernization, and its proximity to UC Berkeley and LBNL. Along with it, the Aquatic Park site has also continued to evolve both in terms of its uses, and its ownership.

The Jones family purchase the subject property in 1979 from Dymo Corporation. Charles Jones leased out the main lab building at 91 Bolivar Dr. to LBNL in 1980. They were tenants of that building until 1999. During that time, the original building, which had been built in 1969, was expanded, with wings and additions added to it in 1979, and 1987. After LBNL vacated the building in 1999, it was leased for two years to a company named Consilient. They vacated in 2001, and Plexxikon Inc. has rented the lab building from 2001 to today. Plexxikon is a successful drug discovery company. Elsewhere on the site, a 20,000 square foot warehouse was constructed at 600 Addison in 1981, and occupied by Audubon Cellars Winery until 2005. In 2006, Berkeley Research Company leased half of the warehouse, and are still there. In 2007, Takara Sake leased the other half of the building, until they moved out in 2011. After that, Fathom Engineering took over approximately 7,000 sq. ft. of space, and the remaining 3,000 sq. ft. has been retained by the Jones family for their own use.

At 2222 3rd St., in the middle of the property, adjacent to the railroad tracks, Triangle Paints occupied a collection of structures until 1979. After they vacated, there were a number of small commercial tenants in the buildings, until they were torn down to conduct environmental soil remediation in 2012. There is one structure left at that location, a 3,000 square foot warehouse that has been rented by a company called OpenROV since 2014. Lastly, the southern end of the site has no structures on it. It has been leased by American Soils since the early 1990s.

This property is very important to the Jones Family. They have owned it for almost 40 years, and have always managed the property, the buildings, and their leases themselves. They have excellent relationships with their tenants, which is evidenced by the long terms that their tenants have occupied spaces on the site, almost always under short leases that reverted to month-to-month. The Jones family has always treated the site with respect. They took it upon themselves to immediately undergo an environmental soil remediation after a site assessment in 2007 brought to light a petroleum hydrocarbon contamination on the site. They managed the entire process themselves, from the original site assessment, through the clean-up to site closure. It was an 8 year process, and they are proud to have successfully produced a clean property. They now realize that the site is much underutilized, and that now is the time to change that. They want to create a project that is healthy and respectful to the site, as well as to the surrounding community, and the City of Berkeley at large, by creating a development that will provide employment to Berkeley residents, economic activity to the region, and improvements to the adjacent Aquatic Park.

1.3 PROPOSED PROJECT OVERVIEW

The proposed project site is entirely within the Mixed Use Light Industrial (MULI) District and is subject to the development constraints outlined in the Municipal Code and the West Berkeley Plan. Under the West Berkeley Plan, the MULI district is the largest one (outside of the purely residential areas), covering roughly 300 acres. According to the plan, “This district in many ways represents the linchpin of the West Berkeley Plan. It contains the most employment of any district; 4,552 jobs or 44% of the total reported jobs (on Business Licenses) for the Plan area. The area’s broad importance is indicated by the fact that it is home to 51% of the manufacturing and wholesaling employment, and 57% of office-based services. Manufacturing and wholesaling make up over half--54%--of the jobs in the district (2,437 jobs). There are 77 manufacturers in the district, virtually as many as in the Manufacturing, Mixed Manufacturing, and Mixed Use/Residential districts combined, which have a total of 79 manufacturers. 6 of the 10 largest manufacturers in West Berkeley are located in this district.” Although the district has seen numerous development and redevelopment projects since the 1990 adoption of the Plan, the Aquatic Park Site remains one of the significant underutilized opportunity sites in West Berkeley.

Currently, the site is occupied by the following uses and tenants:

- Bancroft St., approximately 4 acres of raw land: Soil and mulch storage and transfer for American Soils Products
- 2222 3rd St., 3000 sq. ft: warehouse space for OpenROV
- 91 Bolivar Dr., 30,000 sq. ft: laboratory and office space for Plexxikon Inc.
- 600 Addison St., 20,000 sq.ft: warehouse space subdivided as follows
 - 10,000 sq. ft.: Berkeley Research Company:
 - 7,000 sq. ft.: Fathom Engineering
 - 3,000 sq. ft.: Owner occupied

PROPOSED LAND USE AREAS

The proposed project will build up to 475,000 Square Feet of new space, including about 12,000 Square Feet of ancillary retail space along Bolivar Drive near Addison Street, and the replacement of about 8,000 Square Feet of protected warehouse space that was removed as part of the environmental clean up action. In addition, the proposal incorporates one or more parking structures on the site.

The proposal will be for a blend of office and lab space specifically tailored to R&D type uses. The proposed ration of office to laboratory space is 75% office and 25% laboratory.

CIRCULATION

Circulation into the site is proposed from at two access points. The first will be off Addison Street and align directly with Second Street. The second will access off of Bolivar Drive near the existing gate entry. As part of the project, Bolivar Drive will be widened and rebuilt to incorporate sidewalks, a bike lane, street parking and two lanes of traffic.

1.4 EXISTING CONDITIONS

A. Legal description

- Name of the site: This area of West Berkeley is commonly referred to as Aquatic Park and for the purposes of this Proposal it will be referred to as the Aquatic Park Campus. The property that makes up the site: the Aquatic Park Science Center LLC II site.
- Size of the site: The site is comprised of one contiguous property totaling approximately 8.67 gross acres.
- Zoning: Under the current Mixed Use Light Industrial (MULI) zoning in Berkeley, the development potential of the site with a 2 FAR is approximately 755,000 square feet. There is the potential to incorporate a significant amount of the parking demand on the site as Berkeley does not count parking against FAR. Sites within the MULI zoning districts do not have setbacks nor open space requirements meaning no reduction of the gross acreage to the developable acreage. Given a maximum building height of 45' under the MULI zoning, development with 11-15 foot floor to floor heights could allow 3 and 4 story buildings on the site.
- Location and legal description: The Aquatic Park Science Campus site has property addresses of: 91 Bolivar, 2222 Third Street, and 600 Addison Street, Berkeley, CA 94710.

B. Site constraints

- Soil contamination: See the environmental report in Section 7.3.
- Groundwater contamination: The proposed property is located within a portion of the City of Berkeley’s Environmental Management Area (EMA). No sources of groundwater contamination are located on the property. Petroleum hydrocarbons were in groundwater at Area 3 at the 2222 Third Street location are associated with concentrations of petroleum hydrocarbons in soil (see Section 7.3 for the remediation area location).
- Special purpose land use restrictions: On the Aquatic Park sites, public access is required along the Bolivar Drive right-of-way
- Utilities Rights-of-Ways: There are no known utility easements or utility right-of-ways on the site that would inhibit development as easements that exist are along the edges of the sites. The Bayer site to the South of the Aquatic Park sites has a power substation and there are overhead power transmission lines North/South on the Eastern edge of the sites.
- Endangered species and protected habitats: There are no protected habitats, wildlife habitats or movement corridors on the sites.
- Surface conditions: Nearly the entire City of Berkeley West of San Pablo Avenue is identified as a CGS Seismic Hazard Zone (SHZ) Liquefaction. However, geotechnical investigations of the site determined the liquefaction potential to be low.
- Historic designation: There are no historic designated structures or site features on the sites that would inhibit development. There is no view corridor restriction, nor any circulation frameworks, streetscapes or landscaping requirements. Recently, the West Berkeley Redevelopment Area funded streetscape improvements along Addison Street as part of an Aquatic Park improvement program and these improvements are now complete. Archeological assessment: There are no archeological study areas on the proposed sites.
- 100-Year flood hazards: Based on the California Geological Survey Hazard Study Zone Map only the Western most few feet of the Aquatic Park site is within the 100-Year Flood Zone.
- Topographical: The Aquatic Park site ranges from approximately 5 feet to 25 feet above sea level with the with gentle slopes over most of the site and a moderate slope at the corner of Bancroft Way and Bolivar Drive. According to San Francisco Bay Conservation and Development Commission (BCDC) maps, the site is not vulnerable at either a 16 or 55 in rise in sea level.

xiii Areas of severe fire danger: The State of California Department of forestry and Fire Protection's Fire Resource and Protection map indicates that the site is not in an area of severe fire hazard. The prevailing winds are from the West and there is no severe fire hazard area West of the sites.

xiv Fault zones: There are no active landslides or active fault traces that would restrict development.

xv Open space designation and land conservation: There are no open space reservations or requirements that would restrict development of the site.

xvi Neighborhood interface: The rail line running along the Eastern edge of the Aquatic Park site is restricted from public access. A barrier may need to be built along the corridor to prohibit access across the tracks.

C. Utilities

i Electricity service level: There is currently transmission level service available to the proposed campus. In addition, current electrical service is available underground along Addison Street and there are three transformers on the Bancroft Way LLC site extending from lines in the Bancroft Way Right-of-Way.

ii Natural gas capacity: All of the site is served by natural gas lines. According to PG&E representatives infrastructure suitable for a campus of buildings is at the adjacent Bayer site and can be brought to the site.

iii Water: The site is served by multiple 2" water lines and 12" fire suppression lines.

iv Telecommunications: Fiber optic lines are currently available within the railroad corridor and lines are available on the site.

v Storm and sanitary sewer: The site is served by sanitary sewer lines ranging in size from 8" to 15" and the storm sewer lines run under Bolivar Drive and empty into the Aquatic Park Lagoon.

1.5 PROPOSED PROJECT

The approximate total build out not including parking is approximately 475,000 Square Feet with parking either both under ground and above grade integrated into the buildings as shown in Alternatives A and B, or all above grade in a separate structure as shown in Alternative C. The total building area including parking is proposed to be approximately 775,000 Square Feet.

Each of the building floor plates is approximately 125 feet wide and the building masses are separated such that the open space between the buildings is at least as wide as it is tall. Portions of the site at the level of Aquatic Park near the corner of Addison Street and Bolivar Drive are intended for public serving amenities including ancillary retail space, a public plaza, and landscaped extensions of Aquatic Park as visual finger extensions of the park.

All of the buildings will stay under the 45 foot height limit and the buildings will terrace back with the topography.

The overall Floor Area Ratio (FAR) will be approximately 1.27.

All buildings will be designed using adopted bird safe design guidelines.

Bolivar Drive will be widened and improved to allow for pedestrian, bicycle, and vehicle access, and to provide on-street parking.

1.6 PROJECT STATISTICS

A. Daytime site population estimate is 1,000-1,500

B. Lot lines will be adjusted and or created by building and phase.

C. Retail potential is 12,000SF - 47,500SF.

D. Protected manufacturing space is 8,100SF

E. Lab potential is 113,725SF - 229,400SF .

D. Office potential is 237,500SF - 466,900

1.7 APPROXIMATE PROJECT OCCUPANCY PROFILE

1. Retail/Commercial/Service uses

Assumption: 12,000SF @ 4 persons per 1,000SF = 480 population

2. Protected manufacturing use

Assumption: 8,100SF @ 2 persons per 1,000SF = 162 population

3. Laboratory use

Assumption: 113,725SF @ 2 persons per 1,000SF = 228 population

4. Office use

Assumption: 341,175SF @3 persons per 1,000SF = 1,024 population

Maximum population for an all office scenario less the retail/commercial/service and protected manufacturing space is 2,258. For the purposes of this application and the traffic study, we have used an average daytime population of 1894

1.8 EXECUTIVE SUMMARY OF ENTITLEMENT PROCESS

This executive summary is an introduction to the various land use entitlements necessary for development of the Aquatic Park Campus site. The Aquatic Park Campus site is located in West Berkeley and is bounded by Bancroft Way to the south, Addison Street to the north, Bolivar Drive and Aquatic Park to the west, and the Union Pacific Railroad line to the east. The project site covers 8.67 acres and varies between 5 feet and 25 feet above the Aquatic Park Lagoon.

A. Current zoning

The property proposed for The Project is within the West Berkeley Plan's Mixed Use Light Industrial (MULI) zone. Within the text of the West Berkeley Plan, the site is specifically identified for laboratory uses. The site also qualifies for the Master Use Permit program under the current Municipal Code.

B. Development capacity

Under the MULI zoning, a Floor Area Ratio (FAR) of 2 is allowed with an overall building height of 45 feet. Under this formula, the development capacity for the site is approximately 755,000 square feet. Parking in Berkeley is not counted toward FAR and thus parking would be in addition to the development capacity.

C. Preceding policy decisions

1) WEST BERKELEY PLAN - The subject site is within The West Berkeley Plan area adopted in 1993, which aims at reinforcing the dynamic mix of industrial, office, arts and crafts, retail and institutional activities in West Berkeley. The Plan is divided into 6 Elements: Land Use, Economic Development, Environmental Quality, Transportation, Physical Form, and Housing and Social Services, and numerous goals and policies are set forth under each element.

2) WEST BERKELEY PROJECT - In 2007, the City Council requested that the Planning Commission update the zoning requirements for the West Berkeley area and as a result, the West Berkeley Project was prepared. The West Berkeley Project proposed incremental changes to the zoning ordinance; these changes are intended to encourage the development of underutilized properties in the affected zoning districts in an effort to better implement the vision of the West Berkeley Plan while also protecting the industrially-zoned neighborhoods. Changes include amending the zoning requirements in the MULI and other districts in order to remove obstacles to economically viable reuse of existing buildings consistent with the primary goals and objectives of the West Berkeley Plan and facilitate development of large land holdings through a revised Master Plan Permit process.

3) WEST BERKELEY PROJECT ENVIRONMENTAL IMPACT REPORT - A Draft Environmental Impact Report was prepared for the West Berkeley Project, as required by the California Environmental Quality Act (CEQA), and circulated for public comment. Response to comments on the Draft EIR, as well as revisions to the Draft EIR, were then prepared and circulated in the Response to Comments Document. On March 22, 2011, the City Council certified the Final EIR (which consists of the Draft EIR and the Response to Comments Document) and adopted CEQA Findings and the Mitigation Measures Program. At this time, the City Council also adopted amendments to the West Berkeley Plan, and by reference the General Plan. In the proceeding City Council meetings, the City Council adopted additional amendments to the West Berkeley Project. Among the additional adopted amendments were amending BMC Chapters 23E.80 (Mixed Use-Light Industrial District) to allow "Arts and Crafts, Non-Store-Based Retail, Contractors, and Research and Development into 'protected spaces.'"

4) WEST BERKELEY SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT - In July of 2011, the City Council asked staff to evaluate additional amendments to the Master Use Permit process, which were not evaluated in the previously certified EIR for the West Berkeley Project. Therefore, the City prepared a Draft Supplemental EIR to evaluate the potential environmental

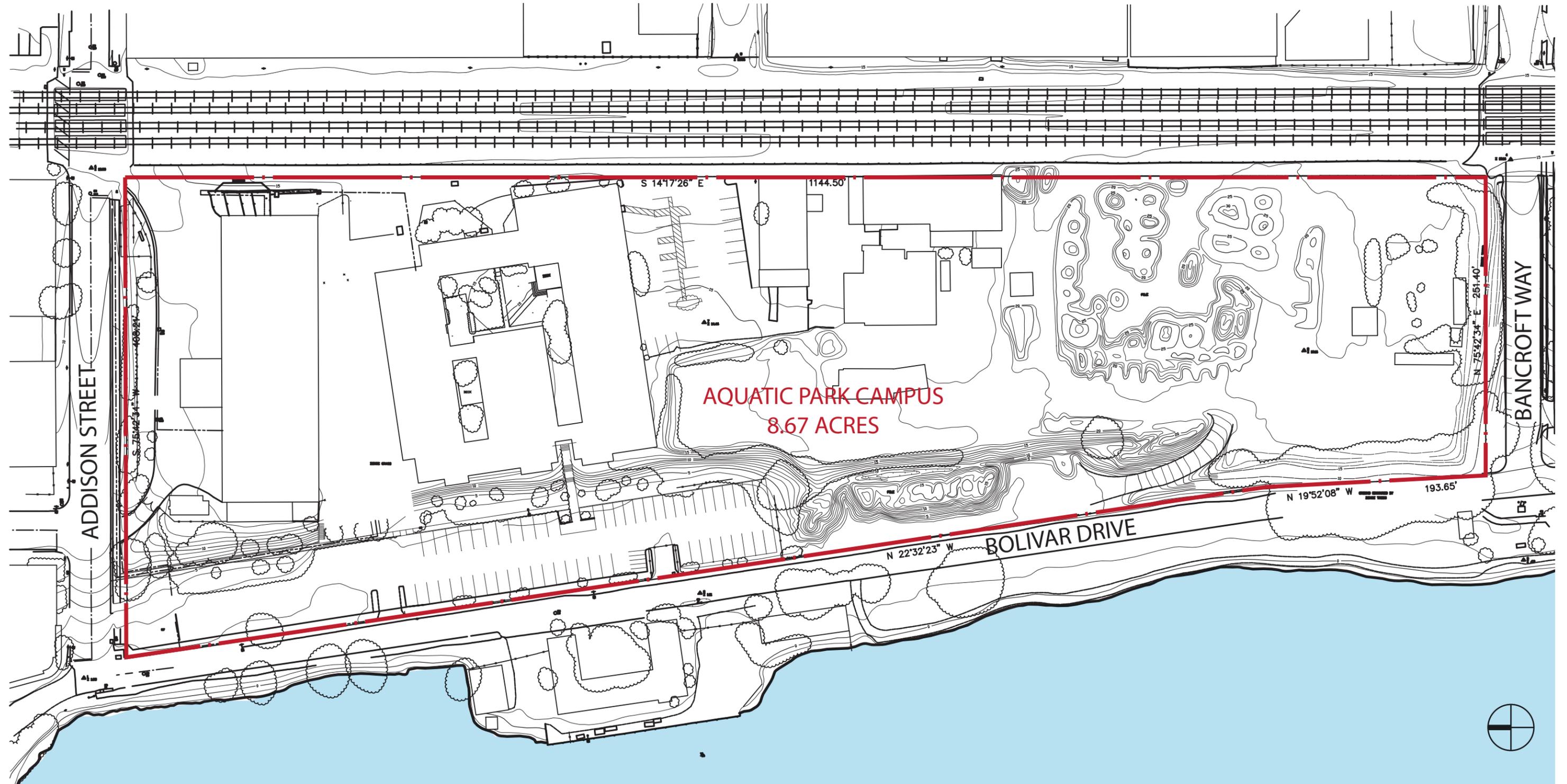
impacts of the additional Master Use Permit amendments. The Draft Supplemental EIR was circulated for public review. Response to comments on the Draft Supplemental EIR, as well as revisions to the Draft Supplemental EIR, were then prepared and circulated in the Response to Comments Document. On July 10, 2012, the City Council certified the Final Supplemental EIR. On July 10, 2012, the City of Berkeley's City Council also requested staff to develop a ballot measure to be placed on the November 2012 ballot asking the voters to approve the Master Use Permit amendments and related West Berkeley Plan and General Plan amendments. On July 17, 2012, the City Council approved the developed ballot measure language for adopting the Master Use Permit amendments and approved the ballot on the November 6, 2012 General Municipal Election. The ballot measure, "Measure T," was not adopted at the November 6, 2012 General Municipal Election. Thus, on March 19, 2013, the City Council rescinded the West Berkeley Project EIR to the extent it was certified for the purpose of approving the West Berkeley Plan amendment concerning the MUP process, and rescinded the MUP-related amendments to the West Berkeley Plan.

5) AQUATIC PARK IMPROVEMENT PLAN ENVIRONMENTAL IMPACT REPORT

In 2008, the Aquatic Park Improvement Program (APIP) was drafted, which consists of a series of capital improvements to Aquatic Park that will improve the hydrology and water quality of the lagoons, wetland and upland habitat, and user amenities, such as improved pathways, seating, overlooks, interpretive signage, etc. In November of 2012, a Draft EIR was circulated for the APIP by the City of Berkeley's Parks, Recreation, and Waterfront Department. I contacted the City of Berkeley's Parks, Recreation, and Waterfront Department on your behalf regarding the status of the Aquatic Park Improvement Plan's Final EIR, and a representative of the Department informed me that the Aquatic Park Improvement Plan and its respective EIR have been placed on hold indefinitely and that the City's Watershed Master Plan will address most of the water quality issues that the APIP was intended to address.

D. Entitlements for this Application

City Staff has reviewed BMC 23B.36 and the Master Use Permit is the appropriate tool for re-development of this site, an 8.6 acre site in the MULI district, that will be occupied by three or

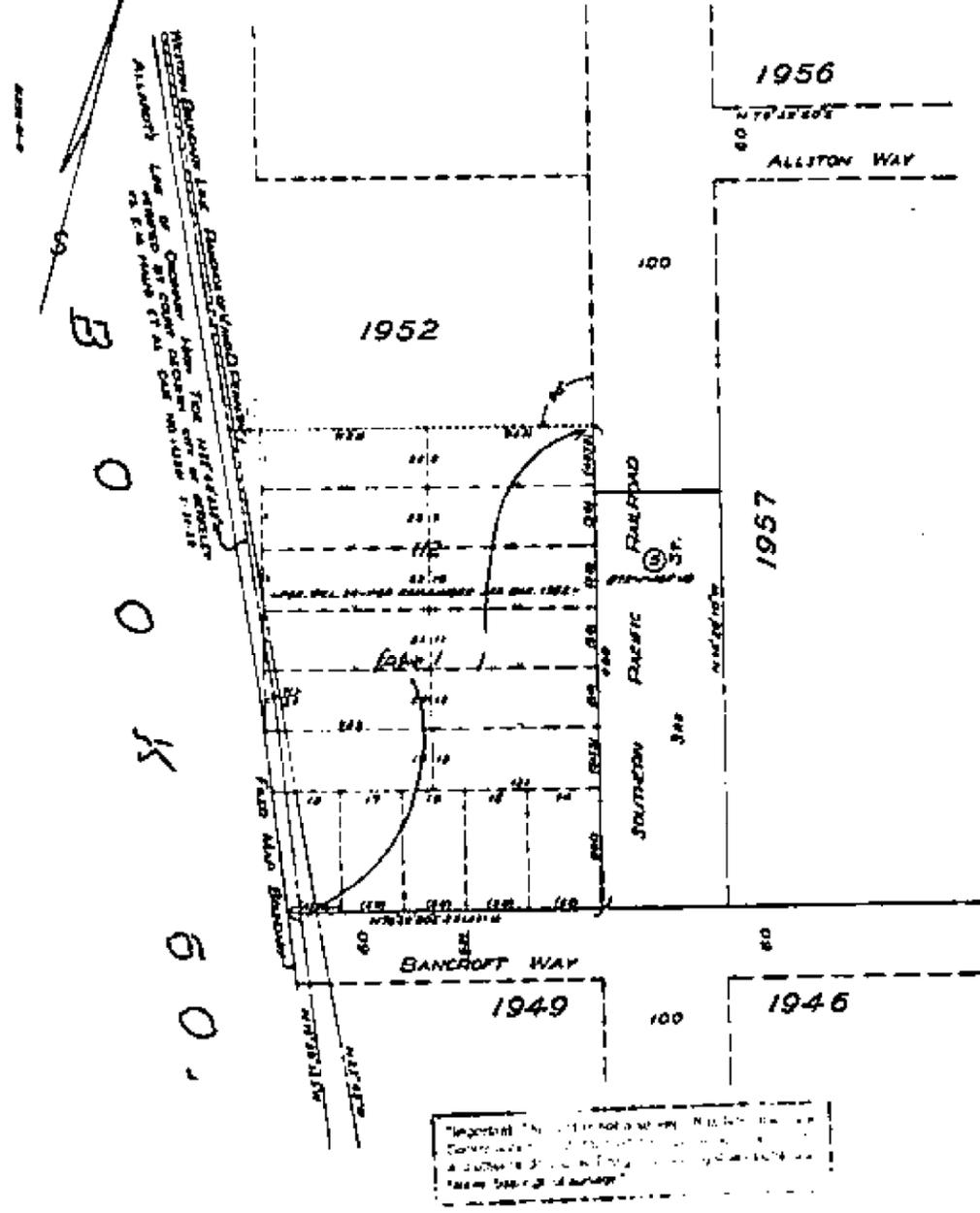


2.1 SITE PLAN AND VICINITY MAP

ASSESSOR'S MAP 56
 MAP OF TRACT B OF THE BERKELEY L.T.I. ASSOCIATION (DA 11 73 71)

1950

SCALE 1 INCH = 60 FEET



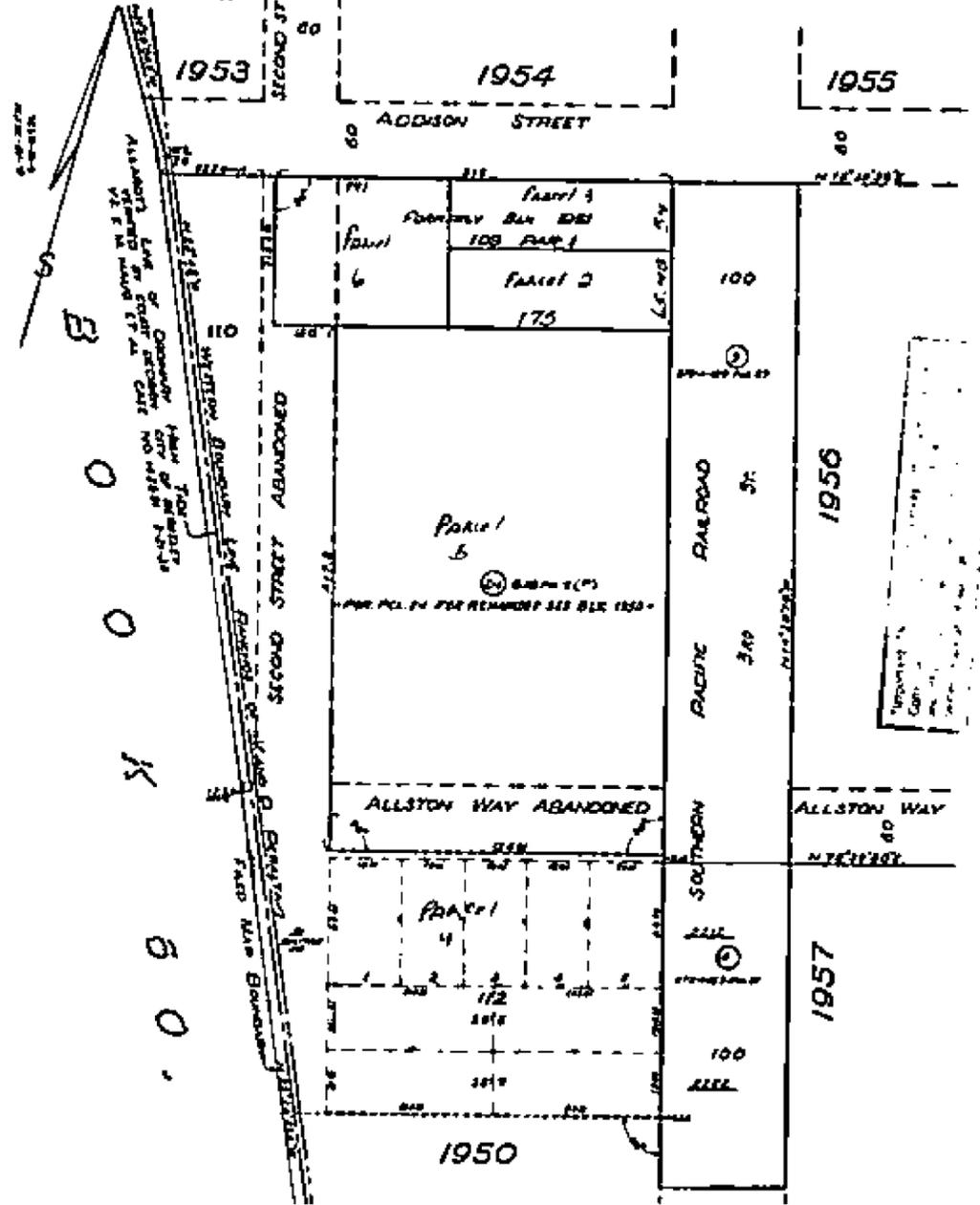
Important Note: This map is not a warranty. It is a representation of the information provided to the Assessor. The Assessor is not responsible for errors or omissions. The Assessor is not a surveyor and does not guarantee the accuracy of the boundaries shown on this map.

Description: Alameda, CA Assessor Map - Book Page 56, 1950 Page: 1 of 1
 Order: sdc Comment:

ASSESSOR'S MAP 56
 MAP OF TRACT B OF THE BERKELEY L.T.I. ASSOCIATION (DA 11 73 71)

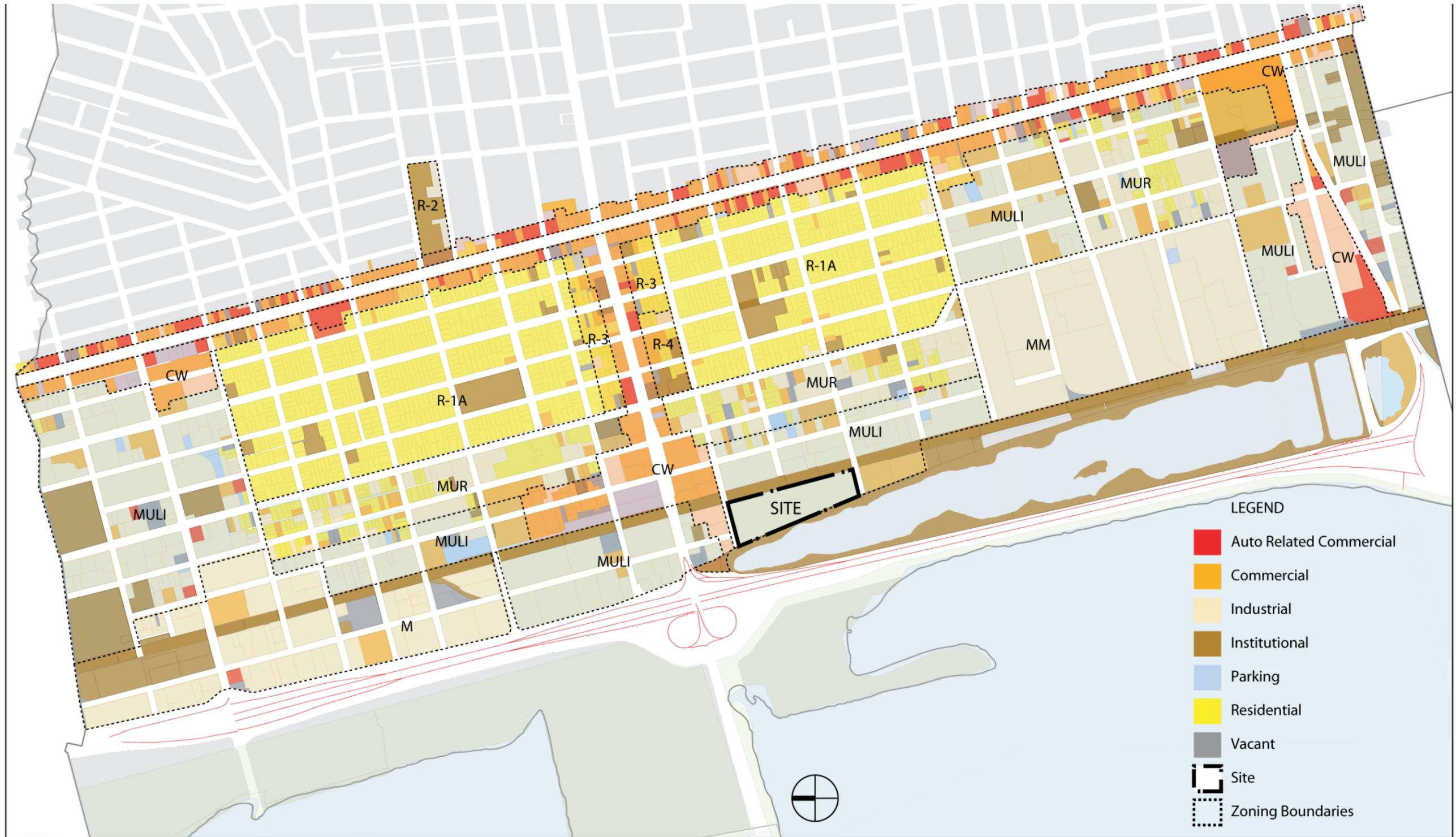
1952

SCALE 1 INCH = 60 FEET

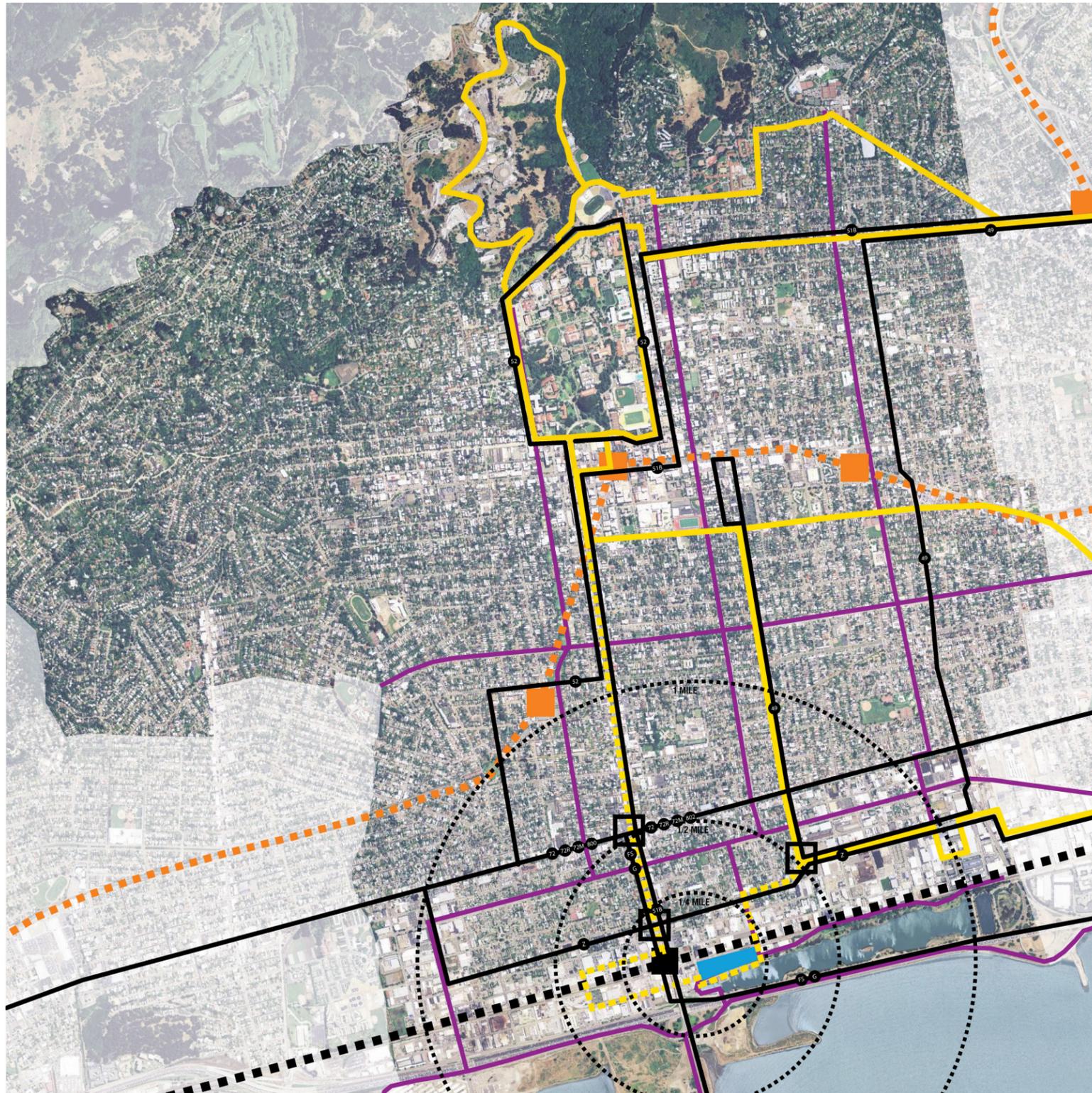


Description: Alameda, CA Assessor Map - Book Page 56, 1952 Page: 1 of 1
 Order: sdc Comment:

2.2 EXISTING PARCEL MAP



2.4 SITE AND ADJACENT ZONING



TRANSPORTATION DIAGRAM

WITHIN 1/4 MILE OF THE SITE IS THE AMTRAK TRAIN STATION.

WITHIN 1/2 MILE OF THE SITE ARE THREE PRIMARY BUS STOPS SERVING ROCKRIDGE AND BERKELEY BART STATIONS, SAN FRANCISCO AND OTHER EAST BAY CITIES.

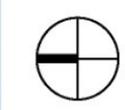
- AQUATIC PARK CAMPUS SITE
- AMTRAK/BUS STATION
- BART STATION
- PRIMARY BUS/SHUTTLE STOP
- EXISTING SHUTTLE ROUTE
- PROPOSED SHUTTLE ROUTE EXTENSION
- BUS ROUTE
- TRAIN ROUTE
- BIKE ROUTE
- BART ROUTE

2.5 CIRCULATION AND TRANSIT INFRASTRUCTURE

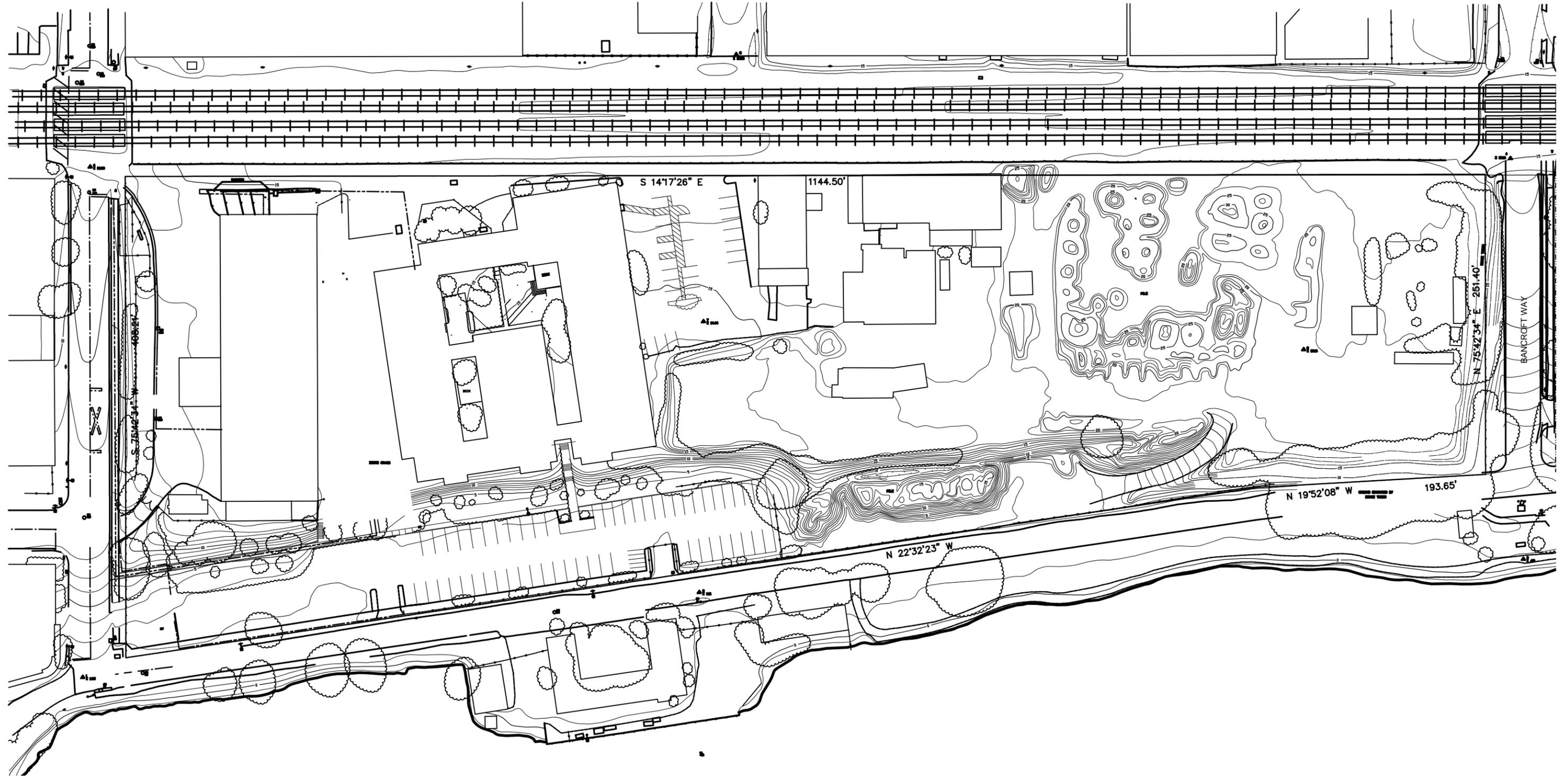


LEGEND

- Site Area
- School/ Community
- Public Transit
- Park
- Food Stores
- Banks



2.6 SURROUNDING CONTEXT



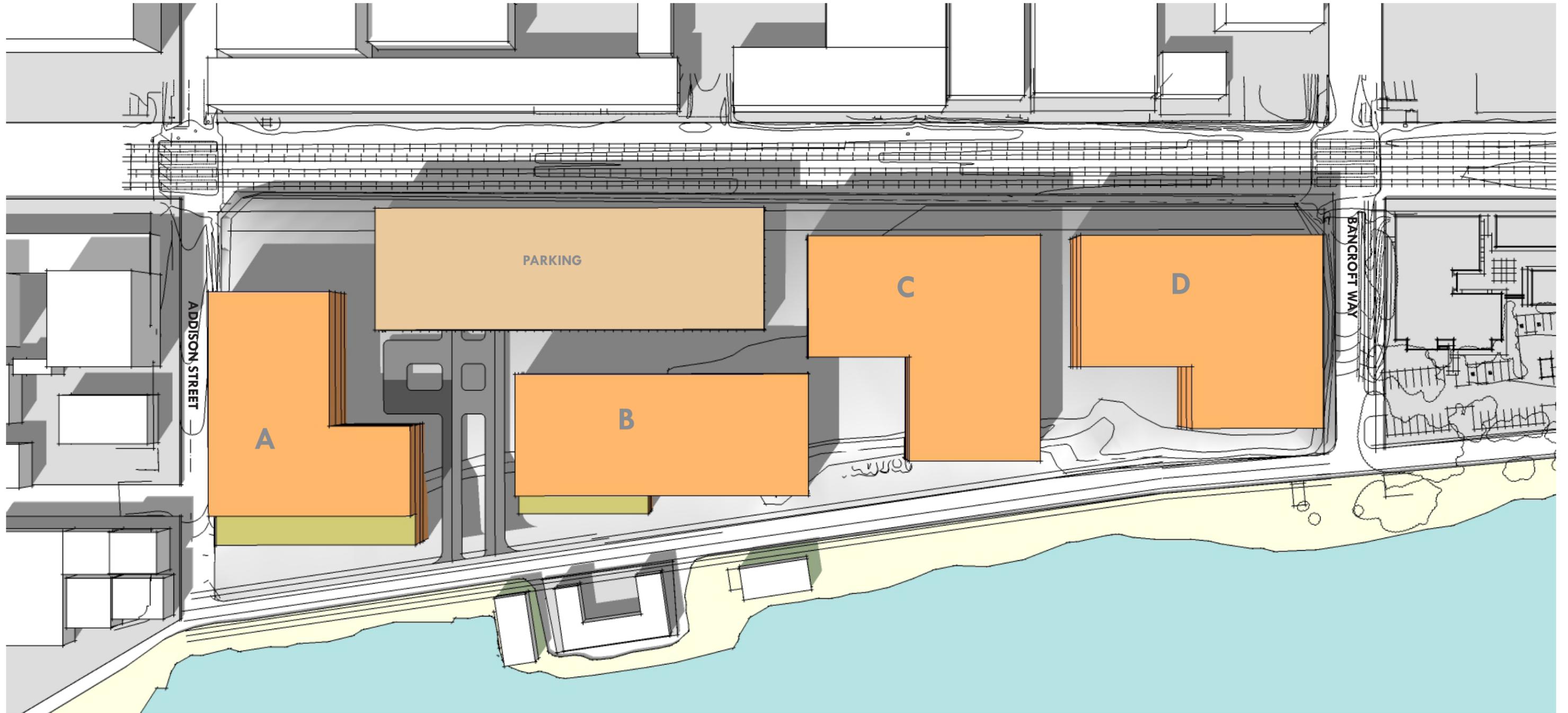
3.1 SITE SURVEY



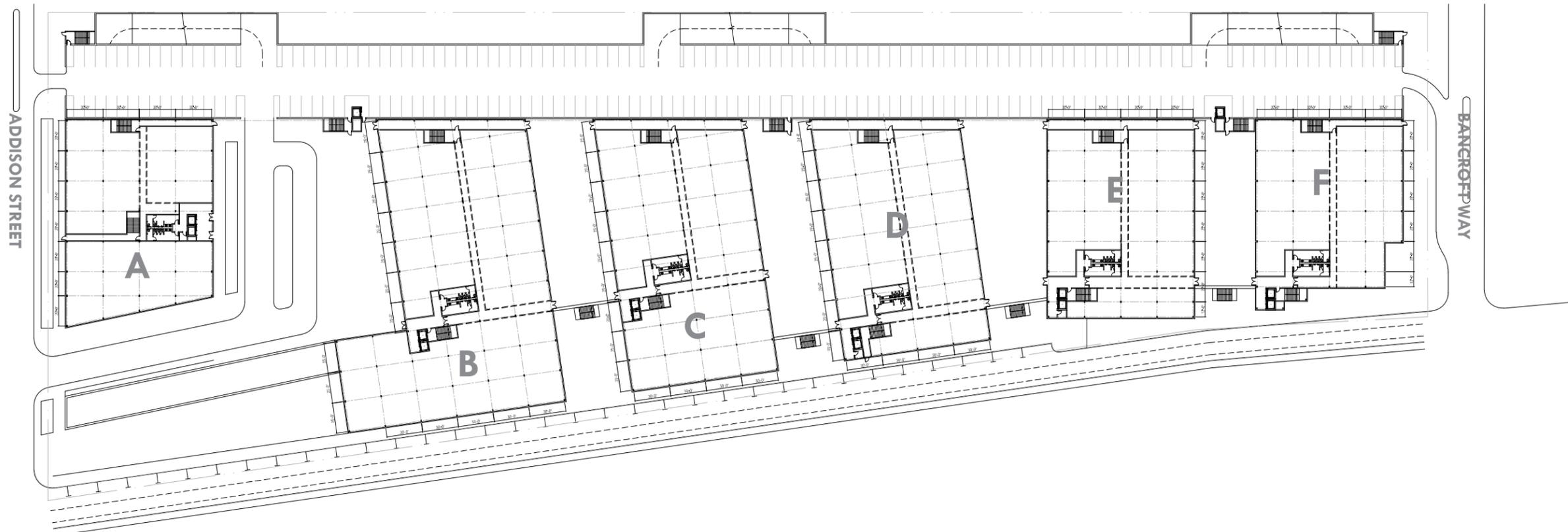
4.1 AERIAL IMAGES



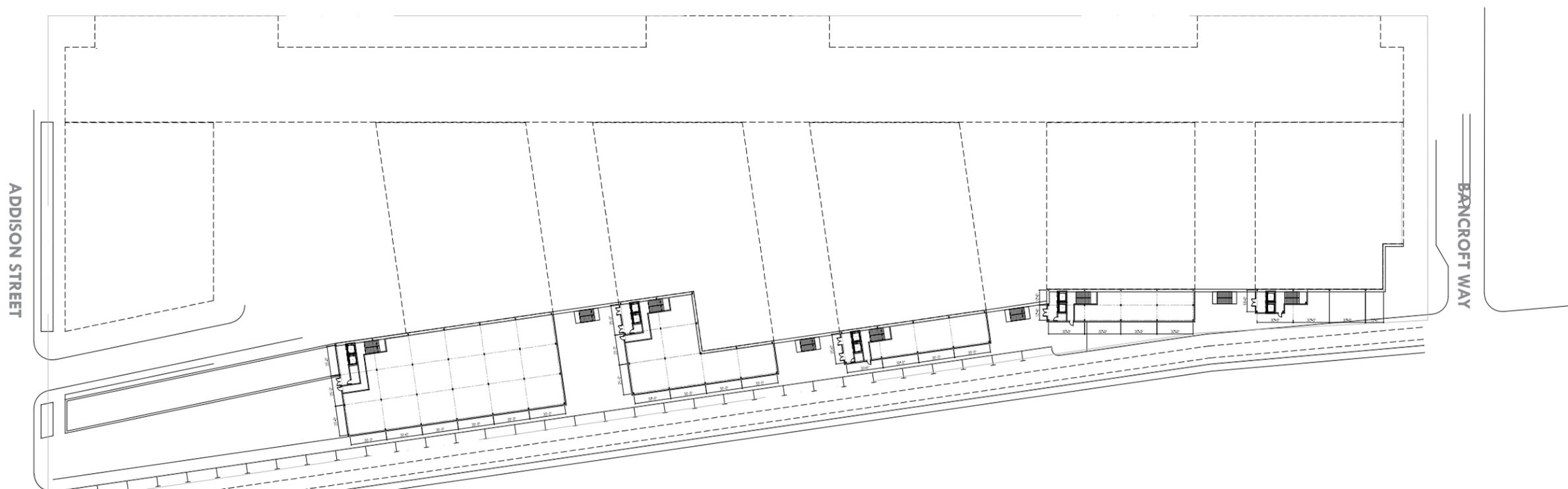
4.2 PARKING/CIRCULATION ALTERNATIVE 1



4.3 PARKING/CIRCULATION ALTERNATIVE 2



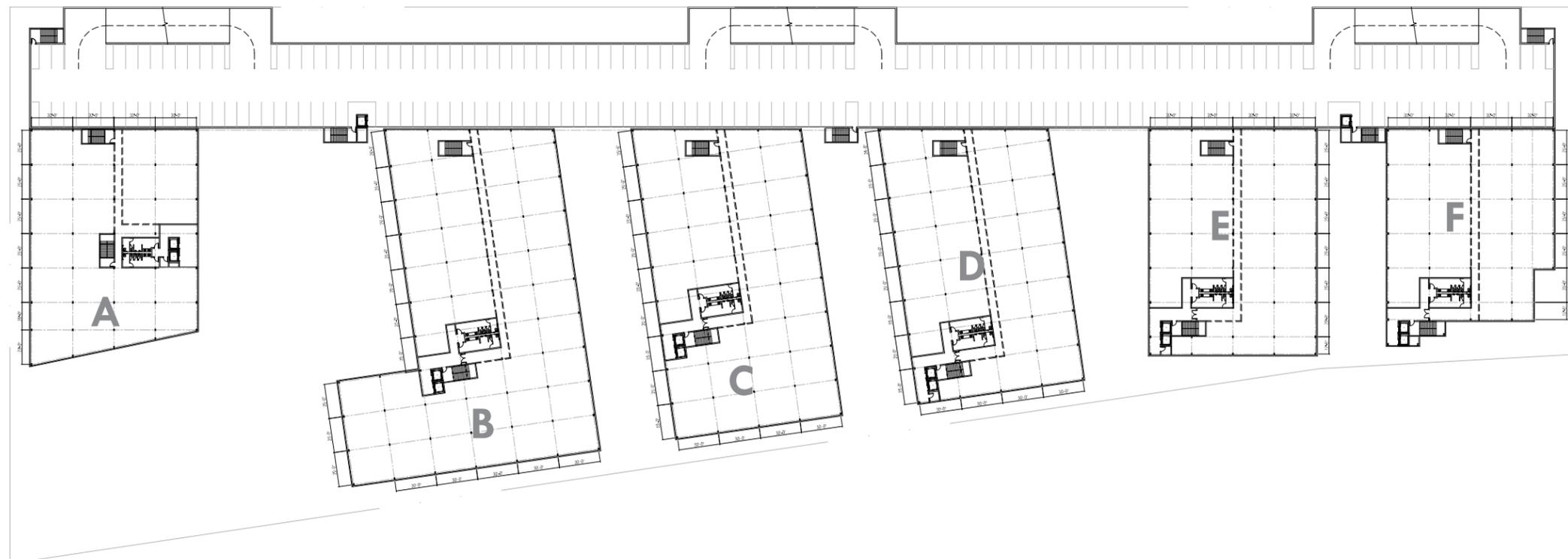
BUILDING PLANS LEVEL 2_R&D 1:1200



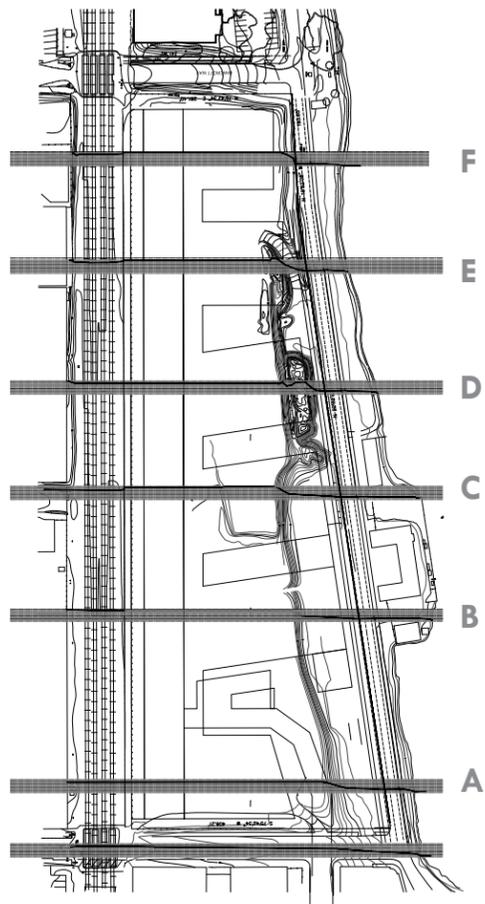
4.4 BUILDING PLANS LEVEL 1_COMMERCIAL 1:1200



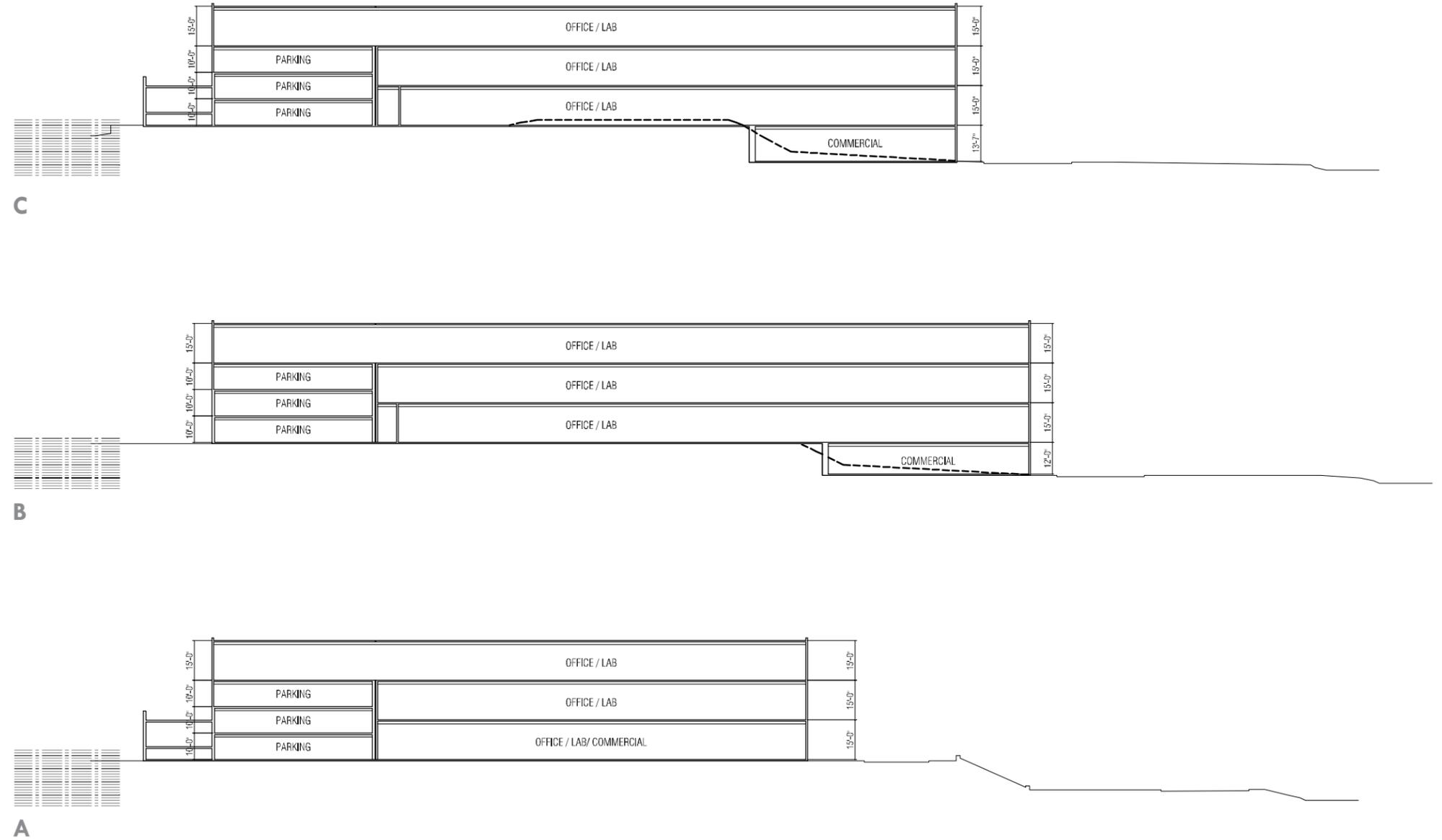
BUILDING PLANS LEVEL 4_R&D 1:1200



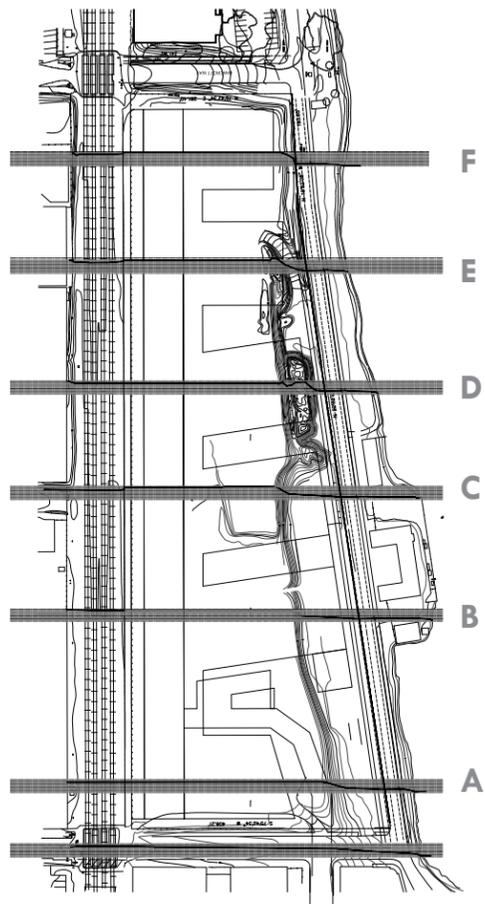
4.5 BUILDING PLANS LEVEL 3_R&D 1:1200



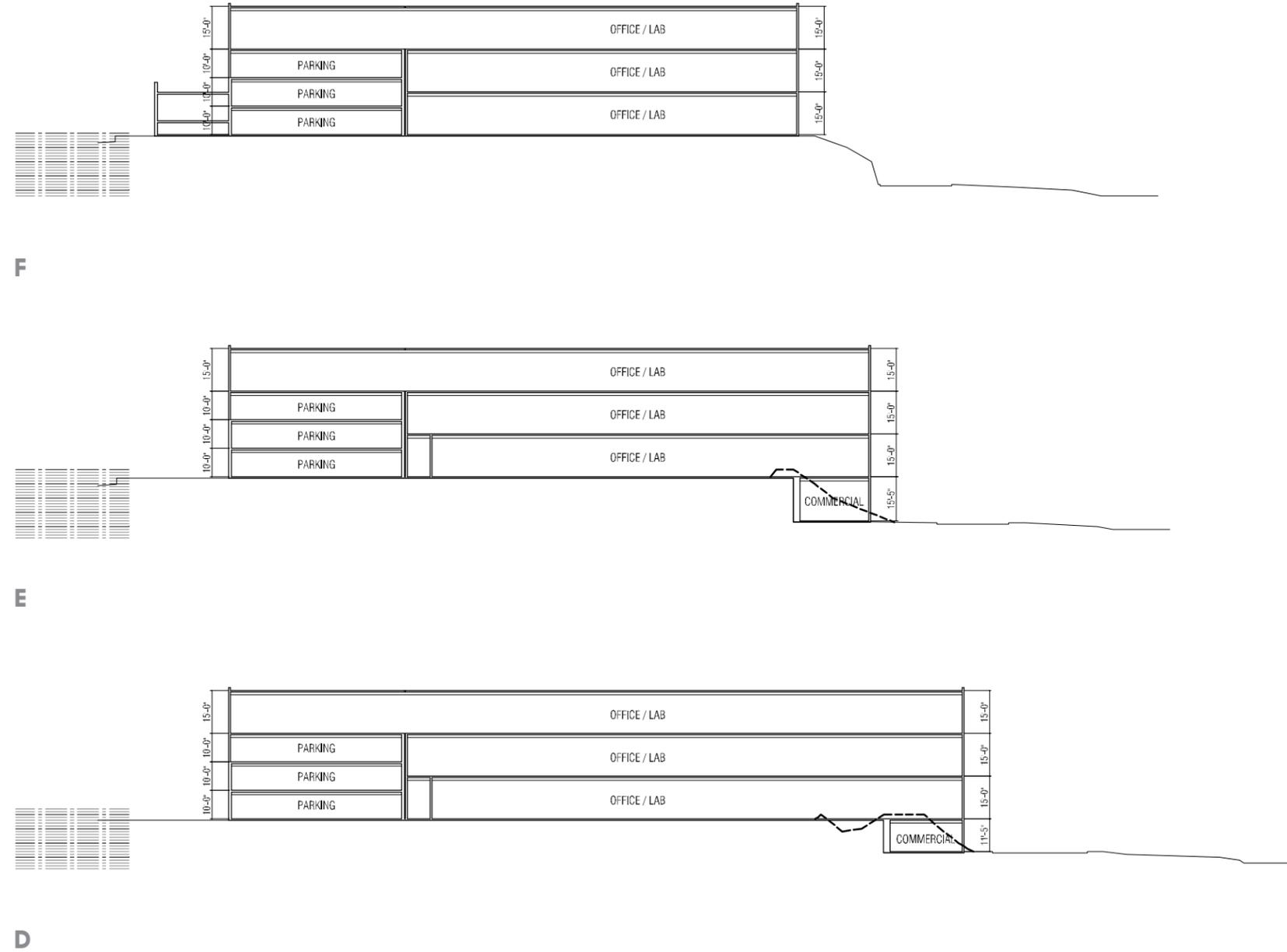
KEYPLAN_NTS



4.6 BUILDING SECTIONS 1:50'



KEYPLAN_NTS



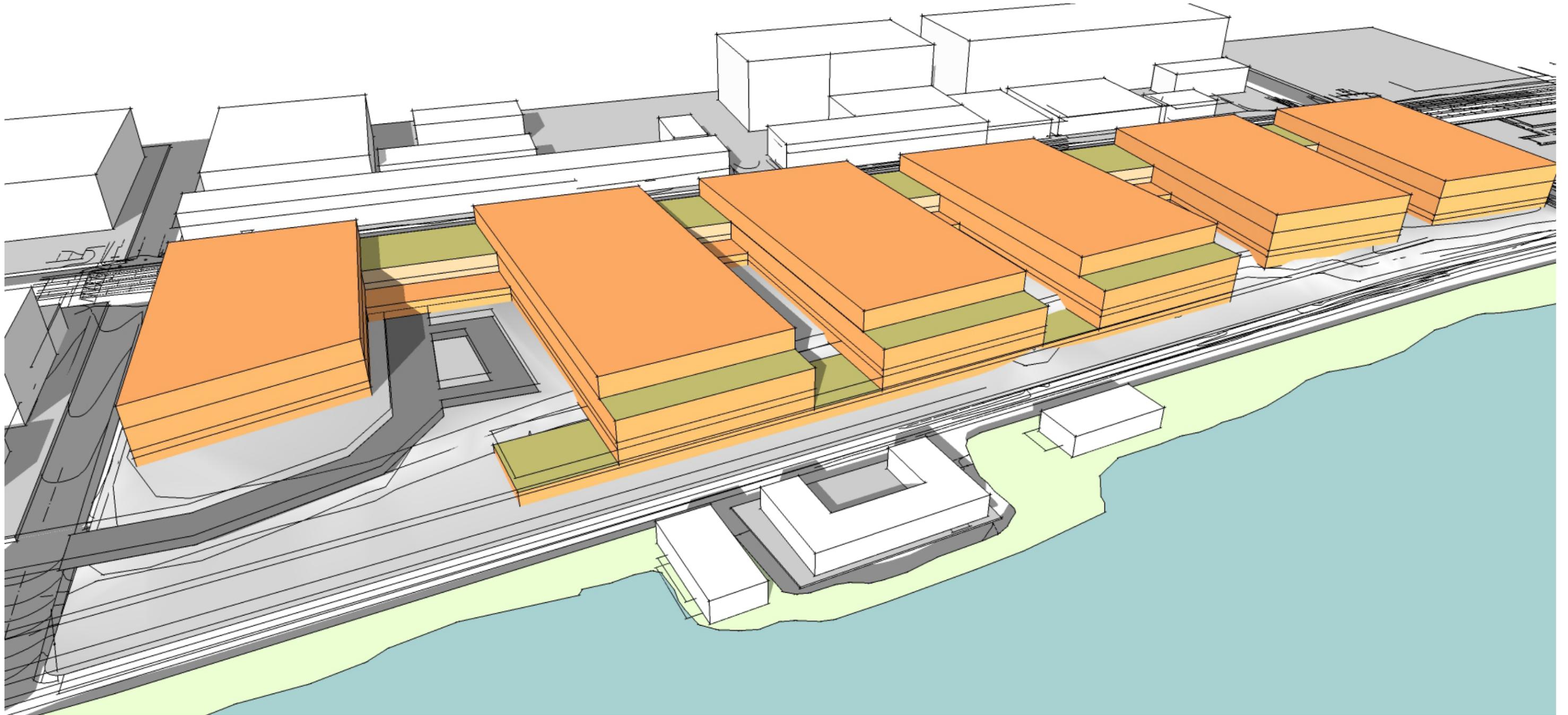
4.7 BUILDING SECTIONS 1:50'



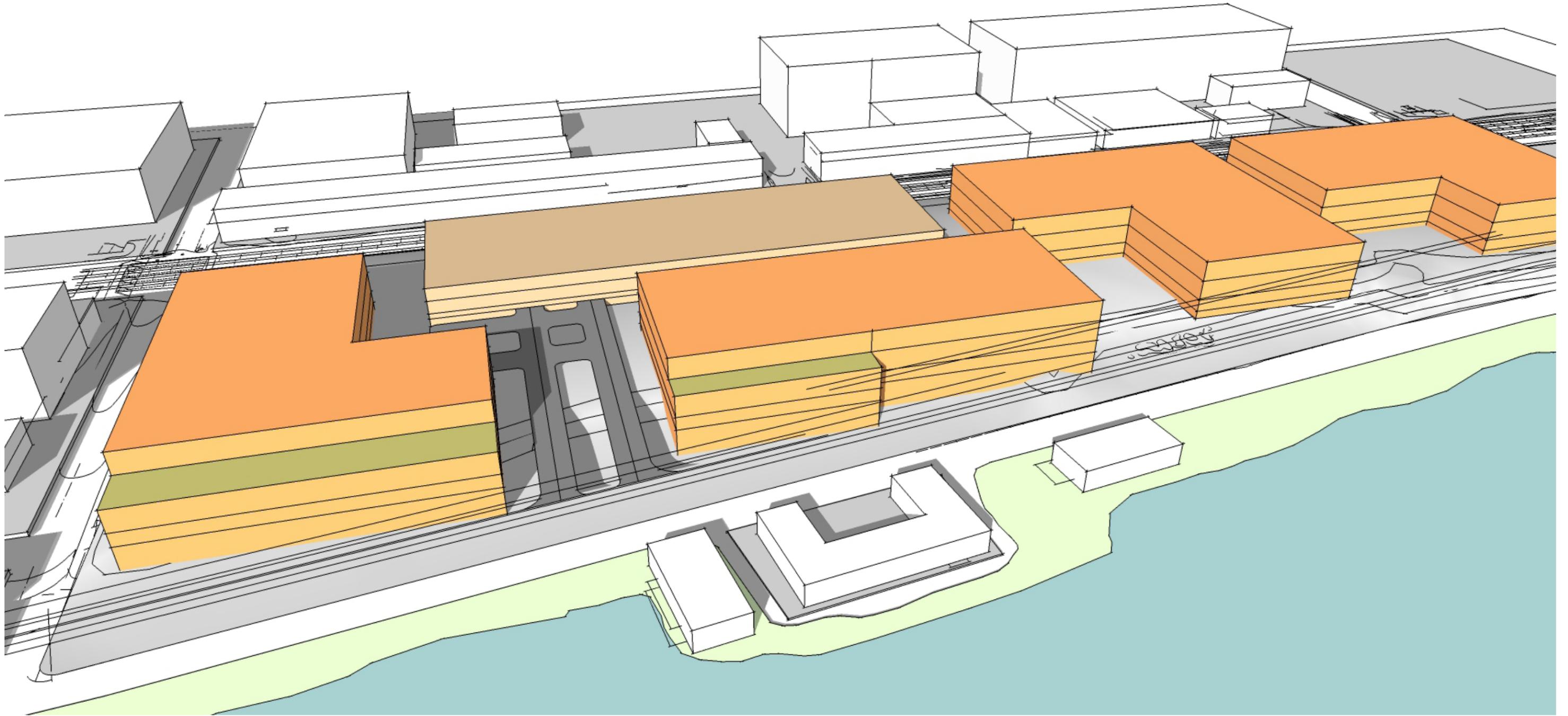
5.1 VIEW LOOKING SOUTHEAST



5.2 VIEW LOOKING NORTHWEST



6.1 ADDISON AT BOLIVAR ALT. 1



6.2 ADDISON AT BOLIVAR ALT. 2

7.2 GEOTECHNICAL SUMMARY

i Groundwater level:

The Aquatic Park Campus site is situated in West Berkeley along the historic shoreline of San Francisco Bay. West Berkeley is underlain by layered alluvial soils that may be several hundred feet or more in thickness. Groundwater levels in this area slope down gently from east to west towards San Francisco Bay roughly paralleling the ground surface. Near the Bay and the Aquatic Park Lagoon, the groundwater surface is near sea level. At the Aquatic Park Campus site, sea level is between about 4 and 15 feet below the ground surface. Relatively minor cyclical rises in groundwater levels should be expected, particularly during and following periods of heavy or sustained rainfall.

The soils encountered in geotechnical borings at the site consist mostly of fine-grained silts and clays inter-bedded with layers of sand and/or gravel. In general, silts and clays have low permeability, whereas sands and gravels can serve as aquifers where they are laterally continuous. Groundwater depth measurements made during drilling, however, suggest that the sands and gravels encountered do not serve as efficient conduits for groundwater flow. Of the nine borings drilled at the site, only four had groundwater inflow rates high enough to allow a groundwater depth measurement to be made. Of these four, all of the depth measurements corresponded to elevations that were below sea level, which generally indicates that water flowed into the borehole slowly and had not yet reached equilibrium at the time that the groundwater depth measurements were made. These borings extend to a maximum depth of 51.5 feet. The overall potential for high groundwater inflow rates, tidal effects and saltwater intrusion over this depth interval may therefore be low.

To our knowledge, there are no active water supply wells in the vicinity of the site, so groundwater depletion and/or subsidence related to groundwater extraction are not concerns. In the late 1800's there were water supply wells farther to the east (in the vicinity of San Pablo Avenue), indicating that deeper aquifers are present in some areas of West Berkeley. Cone penetration test (CPT) data from the Aquatic Park Campus shows predominantly low permeability silts and clays between depths of 50 and 75 feet.

In summary, the available onsite data did not identify any special or unusual geotechnical concerns relating to groundwater. Groundwater levels beneath the site are generally near sea level; marginally higher groundwater levels occur on a seasonal basis, however these cyclical variations are not expected to be large. Along the eastern site margin, groundwater is likely to be about 15 feet below grade. On Bolivar Drive, groundwater may be less than 5 feet deep; these investigations extended to a maximum depth of about 75 feet.

ii Geotechnical reports:

A geotechnical and geologic assessment report was prepared by A3GEO in 2011. This preliminary report addresses both site- and project-specific issues and includes data from previous geotechnical investigations performed in the vicinity of the site. The key findings of the report are: 1) geotechnical and geologic conditions within the site are generally favorable; and 2) there are no geotechnical or geologic constraints that would preclude development at this location.

Portions of the local terrain have been modified by grading, most notably by the filling performed along the original coastline to create the western edge of the site and Interstate 80. The location of the former shoreline is reasonably well established by historical data; within the site, the coastline was near the 10 to 15-foot-high break in slope that exists along the east side of Bolivar Drive.

Published geologic maps of this area generally show areas west of the former shoreline as artificial fill and areas east of the former shoreline as alluvium. The United States Geological Survey's (USGS's) Geologic Map and Map Database for this area show the area east of the historic shoreline as alluvial fan and fluvial deposits of Holocene age (younger than about 11,000 years).

The existing site is currently occupied by office, lab, and warehouse buildings and a landscaping supply business. There is an approximate 13-foot rise in elevation across the width of the site from west to east. The elevation along the western side of the site is approximately +2 feet Mean Sea Level (MSL) and the elevation along the eastern side of the site is approximately +15 feet MSL. The higher areas along the eastern side of the site (with the exception of the mounds of landscaping material) are at or near the elevation of the pre-existing natural ground surface.

Earthquake induced ground shaking is a hazard shared throughout the region. The closest known active fault is the Hayward fault, which is located near the base of the Berkeley Hills about 2.5 miles east of the Aquatic Park Campus site. The overall risk of fault rupture occurring at the site is negligible. The site is not within a State-designated "zone of required investigation" for earthquake induced landslides and there are no known landslides of significance in the vicinity of the site.

Liquefaction is a phenomenon whereby certain types of soils can lose strength, compress and sometimes flow in response to earthquake shaking. The soils generally considered susceptible to liquefaction include saturated gravels and sands that are in a loose to medium dense condition, although saturated silts and clays can in some cases exhibit similar behavior. Liquefaction occurs where susceptible soils are below groundwater and the intensity and duration of earthquake shaking is sufficient to trigger it. The State of California publishes maps showing "zones of required investigation" for liquefaction based on geologic maps and assumptions relating to groundwater depth. The Aquatic Park Campus site is within such a zone because regional maps show it to be underlain by surficial soils that are geologically young and not because a liquefaction hazard is actually known to exist.

The borings drilled at the site and in close proximity to the site generally show that the soils below groundwater are sufficiently dense (sands and gravels) or sufficiently plastic (silts and clays) to preclude liquefaction. It is possible that a potentially liquefiable layer exists at or near sea level, but any such materials present at this depth could be readily mitigated as part of the future project. On this basis, it appears that the overall potential for significant liquefaction to occur at the site is low.

In the Bay Area, most sink holes occur where erodible soils overlie a streambed or damaged culvert; none of these conditions exist at the site. To our knowledge, there are no reported incidents of ground fracturing having occurred at the site.

Two geotechnical reports exist for previous projects at the site. The reports were completed in 2001 and 2002. Key findings from these reports are summarized below:

Nine borings and four cone penetrometer tests (CPTs) were drilled. The soils encountered consisted of artificial fill (7-19 feet thick) over alluvium. Borings extended to a maximum depth of 51.5 feet; CPTs extended to a maximum depth of 75 feet. The primary geotechnical consideration was found to be the presence of undocumented fill.

Recommendations included supporting proposed buildings on shallow foundations and a layer of engineered fill. Two potential vibration sources within the vicinity of the proposed site are heavy vehicles and the existing railroad (freight and passenger). The railroad runs along the eastern site boundary. The closest main thoroughfares for heavy vehicles are University Avenue (approximately 500 feet north of the site) and Interstate 80 (350-575 feet west of the site).

The site lies along the rail line parallel to 4th Street, which carries both passenger and rail traffic, and the I-80/I-580 freeway, which carries car and truck traffic. Both the rail and freeway are sources of vibration, and the metal mass of the rail vehicles can perturb the earth's DC magnetic field. Both of these effects are attenuated by distance. There are no electric rail or mass transit lines in the immediate vicinity, so this will not be a source of either vibration or EMI.

Other research facilities lie nearby at similar distances from the same vibration sources. Experience at those sites suggest that the ambient surface vibration environment—most likely dominated by the freeway—is on the order of 6 micrometers/sec (VC-D) in greenfield conditions (without the influence of a building). The vibration from the rail line varies with type, loading and speed, but has been observed to be between 10 and 20 micrometers/sec in a surface greenfield setting. Both ambient and rail-generated vibration can be mitigated significantly by a number of factors:

- Maximizing distance from the source(s)
- Use of a stiff building structure and foundation
- Placement of a building at depth, such as a basement, sub-basement, or tunnel
- Judicious orientation of the building axis in order to suppress certain frequencies

All of these factors have recently been used to place vibration-sensitive facilities in relatively “hostile” vibration environments. One of these facilities, Belknap Center at the University of Louisville, which was near an active rail line with a vibration environment similar to this one, employed an ingenious combination of building orientation and very stiff 3-D foundation system to stiffen both the site and the building, dramatically reducing the vibrations at surface elevation. It was not necessary to place the building at a great depth. On the other hand, the Advanced Measurement Laboratory at NIST has two of its five wings placed entirely below grade, in part to suppress vibrations from a nearby freeway (I-270) and a rail line.

In order to document the vibration and electromagnetic environments with enough refinement to master plan the site, it would be appropriate to carry out site evaluations, a routine exercise for modern research facilities. Given the potential desirability of an underground structure, it would be useful to supplement the traditional site vibration evaluation with measurements at depth, since attenuation with depth is dependent upon site-specific conditions such as soil type, water content, and density.

iii Constructability:

The depth to bedrock at the site has not been established but published information suggests that it may be 200 to 400 feet deep. For the bay front environment, this is neither unusual nor does it preclude the construction of large and/or heavy structures at the Aquatic Park Campus. Notably, the same published information shows bedrock deeper than 400 feet below the high rises that exist on both sides of Interstate 80 in nearby Emeryville. Foundations supporting new structures at the Aquatic Park Campus do not need to extend to rock.

The soils encountered in borings drilled at the Aquatic Park Campus site include materials that are capable of providing good to excellent foundation support. Heavy or particularly settlement-sensitive structures that are “at grade” may need to be supported on improved ground or on deep foundations (such as piles). Lightly-loaded buildings may be able to be constructed on shallow footings or a mat. Heavy or particularly settlement-sensitive structures may also be able to be supported on footings or a mat if founded at greater depths (i.e. with one or more levels of basement). Constructability considerations associated with basements would include shoring (temporary or permanent), excavation below groundwater, and soil off haul. For large quantities of soil, off haul by rail could be cheaper and have a lesser environmental impact than off haul by truck.

The selection of an appropriate shoring type is influenced by an array of factors. Shoring can be temporary or permanent; the contractor typically designs temporary shoring. Shoring can be highly permeable or virtually impermeable. Shoring can be designed to cantilever up from the base, or be restrained by internal braces, tiebacks, or soil nails. Shoring can be designed to cut off groundwater flows to facilitate deep excavations. In conjunction with an adjacent structure, shoring can create a gap to bring light into a structure, and/or mitigate the horizontal transmission of ground vibrations. There appear to be no unusual geotechnical conditions present at the Aquatic Park Campus site that would preclude the use of a particular shoring type.

Deep excavations for subterranean structures and excavations adjacent to existing improvements (including the railroad) will need to be shored and excavated using “top down” methods. Where groundwater inflow is a concern, cement deep soil mixed (CDSM) walls, secant piles, or slurry walls are all potentially feasible. If permeable layers underlie the bottom of the excavation, jet grouting can be used to create a low-permeability “plug”. For shallower excavations that do not extend below groundwater (e.g. utility trenches or underground storage tanks) conventional bracing, soil shields and/or sheet piles may be feasible.

7.3 ENVIRONMENTAL SUMMARY

As noted below, the Property is very well characterized. Although the property is former industrial land, there are no environmental issues on or affecting the Property that would materially impact construction.

i Soil Characteristics:

In 1999, two 5,000-gallon underground storage tanks (USTs) were removed from the Former Triangle Paint Company location at 2222 Third Street. In addition, approximately 380 cubic yards of soil surrounding the USTs were removed and disposed off-Site. The City of Berkeley Toxics Management Division (TMD) acknowledged the tank removal in a letter dated September 17, 2001.

ii Groundwater:

There has been no removal or treatment of contaminated groundwater at the property.

iii Current/Prior regulatory status:

On March 29, 2006, the Department of Toxic Substances Control (DTSC) prepared a Site Screening Form for the Former Triangle Paint Company and required that a Preliminary Endangerment Assessment (PEA) be prepared. This finding was based on review of a letter from the City of Berkeley dated June 6, 1988 and on supporting documentation obtained between 1999 and 2005 indicating that solvents and pigments were disposed on the ground and that several underground storage tanks were abandoned on the property.

On August 6, 2006, Aquatic Park Science Center, LLC received DTSC's requirement for a PEA; DTSC noted that the PEA could be performed under DTSC's Voluntary Cleanup Program. On April 25, 2007, Aquatic Park Science Center, LLC and DTSC entered into a Voluntary Cleanup Agreement (VCA) for the property. DTSC approved the PEA Work Plan on September 27, 2007 and the Final PEA report on July 18, 2008. In the PEA, the Site was divided into four distinct areas based on Site use as shown in the diagram. DTSC agreed to No Further Action for Areas 1, 2, and 4. For Area 3, DTSC formally transferred regulatory oversight to the City of Berkeley TMD to address the petroleum hydrocarbon concentrations in that area. DTSC's approval of the PEA report concluded its oversight obligations under the VCA.

In 2011, Berkeley TMD approved Remedial Action Objectives for the cleanup. A final Corrective Measures Plan was approved by Berkeley TMD on February 15th, 2012.

On February 23, 2012, Aquatic Park Science Center, LLC received a building demolition permit from the City of Berkeley to aid access to the likely source area of petroleum hydrocarbon concentrations underneath the structures on site. The demolition of those structures occurred shortly after.

As proposed In the Final Corrective Measures Plan, source area material (soil and debris) was removed from the site during July and August 2012. A total of 5898 cubic yards of contaminated soil was excavated and sent to approved disposal facilities. Clean backfill was imported to the site and compacted. In October 2012, four groundwater monitoring wells were installed, as proposed in the Final Corrective Measures Plan. On June 21, 2013, Berkeley TMD issued a letter approving the completion of the Final Corrective Measures Plan, and stated that the remediation objectives had been met.

At that point, Berkeley TMD transferred oversight of the ground water monitoring and final site closure to the California Water Boards.

As approved, Aquatic Park Science Center LLC conducted 4 quarters of ground water sampling. The results showed a continuing improvement to groundwater. On August 29th, 2013, Aquatic Park Science Center LLC submitted to California Water Boards a Groundwater Monitoring Report and Recommendation For Low-threat Underground Storage Tank Case Closure. On July 14th, 2014, California Water Boards accepted the Groundwater Monitoring Report and Recommendation For Low-threat Underground Storage Tank Case Closure, and issued a No Further Action Package, Including a Case Closure Letter for the site clean-up.

Environmental studies:

2222 Third Street

The following studies were performed for the 2222 Third Street property:

- 1988. Bay Area Environmental, Inc. Soil Borings Adjacent to Aquatic Park.
- 1999. Dugan Associates. UST Removal and Soil and Groundwater Sampling and Analyses.
- 2000. Dockter Environmental. Environmental Property Assessment.
- 2000. Dugan Associates. Soil Stockpile Sampling and Analyses Report.
- 2000. Dugan Associates. Soil and Groundwater Sampling Report.
- 2000. Erler and Kalinowski, Inc. Soil and Groundwater Investigation.
- 2007. Norcal. Geophysical Investigation in the Former Triangle Paint Building.
- 2008. Kleinfelder. Final Preliminary Endangerment Assessment

Each of these investigations was summarized in the PEA report. Results and recommendations from the PEA report for each of the four sub-areas were as follows:

Area 1

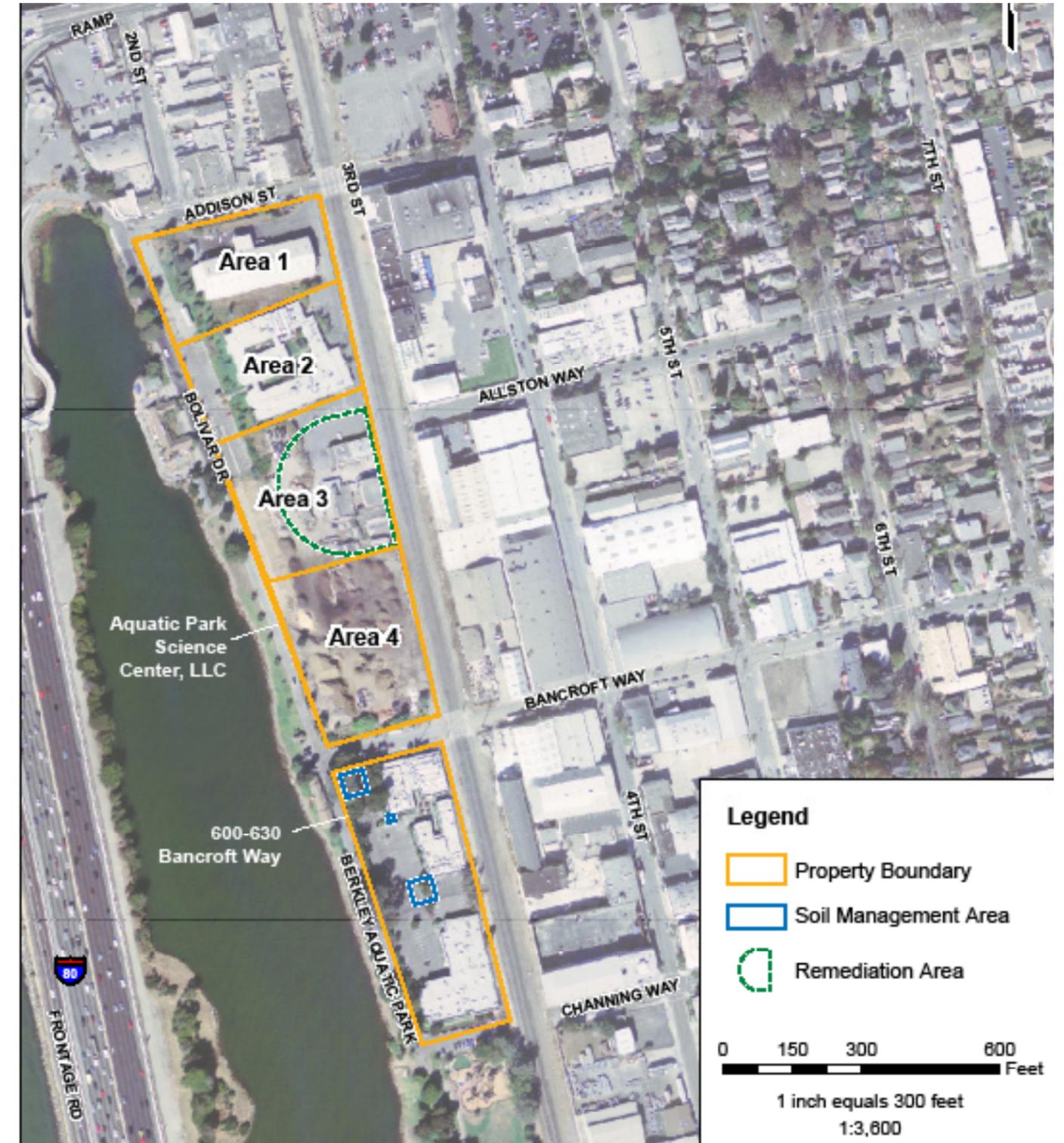
Soil and groundwater samples were collected to assess previously elevated levels of petroleum hydrocarbons and metals. In soil, concentrations of petroleum hydrocarbons were below screening values and concentrations of metals were either below screening values or within the City of Berkeley background values. In groundwater, concentrations of petroleum hydrocarbons and most metals were below screening values; concentrations of two metals slightly exceeded their respective ecological screening values. No further action was recommended for this area. DTSC agreed to no further action in their letter dated July 18, 2008.

Area 2

Groundwater samples were collected to evaluate previously elevated levels of arsenic. Concentrations of four metals exceeded their respective ecological screening values. However, concentrations of these metals at the downgradient sampling location were below screening values. No further action was recommended for this area. DTSC agreed to no further action in their letter dated July 18, 2008.

Area 3

In Area 3, soil, soil gas, groundwater, and water from two sumps were collected to evaluate: residual contamination from a previous



tank removal conducted in 2000, migration of off-Site, upgradient sources of VOCs in groundwater, and petroleum hydrocarbon contamination.

VOCs were not reported in soil samples at concentrations exceeding screening values. Concentrations of petroleum hydrocarbons in soil were above screening values in two distinct portions of Area 3: the eastern side, consisting of the former Triangle Paint Building and two adjacent buildings; and the western side, approximately five to six feet higher in elevation than the eastern side, where cars and other materials were previously stored. Concentrations of most metals in soil were reported within the established background values for the area. Soil gas concentrations exceeding screening levels were associated with elevated petroleum hydrocarbon concentrations in soil. One VOC was reported in groundwater at a concentration above the screening level; elevated levels of petroleum hydrocarbons in soil were also reported at this location. There was no evidence of VOCs in groundwater from off-Site, upgradient sources. Petroleum hydrocarbon concentrations in groundwater exceeded screening levels in both the eastern and western sides of Area 3 and were associated with the petroleum concentrations in soil. Concentrations of most metals in groundwater were below screening levels.

The PEA report concluded that there had been a release of petroleum hydrocarbons to soil and migration of hydrocarbons from soil to groundwater in the eastern portion of Area 3. In the western portion of Area 3, the petroleum hydrocarbon contamination appeared to be localized. The PEA report recommended source removal of contaminated soil in each of these areas. DTSC agreed to these recommendations in their letter dated July 18, 2008. At this time, DTSC officially transferred regulatory responsibility for additional work at Area 3 to the City of Berkeley TMD. Environmental cleanup of Area 3 was completed in 2014 and the attached closure letter was prepared.

Area 4

Soil and groundwater samples were collected to evaluate previously elevated levels of polychlorinated biphenyls (PCBs) and lead in soil and VOCs in groundwater. Concentrations of PCBs in soil were below screening values. Concentrations of metals (including lead) were either below screening values or within the City of Berkeley background values. Concentrations of VOCs were below ecological screening values. No further action was recommended for this area. DTSC agreed to no further action in their letter dated July 18, 2008.