CHAPTER 5
ANALYSIS OF RAW ACTIONS ADDRESSING RFS CONTAMINATION

This chapter discusses the environmental setting, impacts, and mitigation measures for the 14 fully evaluated environmental resource areas for the proposed RAW actions associated with RFS contamination described in Section 3.9.

The analysis of impacts presented in this chapter adheres to the approach and processes described in detail in Chapter 4. Chapter 4 defines the methodology, analytical approach, key assumptions and data used in the analysis. Chapter 4 presents the scope of the EIR, the levels of significance, thorough resource settings, regulatory considerations, impacts and mitigation measures, references, cumulative impact analysis, and cumulative plans and projects. While Chapter 4 addresses all activities presented in the project description for the proposed RBC (Chapter 3) including proposed RAW prescriptive and specific cleanup actions, this chapter more specifically evaluates impacts directly relevant to RFS contamination and the proposed RAW actions described in Section 3.9 Section 3.9 includes two categories of RAW actions. One category is site-wide prescriptive actions; the other category is specific cleanup actions. This chapter provides information to support DTSC's responsible agency CEQA determination on the proposed RAW for the developable areas and groundwater of the RFS portions of the RBC site, as identified in Section 1.5, Intended Uses of the EIR. The RAW activity proposed to DTSC for approval will not result in any potentially significant impacts if identified LRDP policies and mitigation measures are adopted as proposed. LRDP policies and mitigation measures will be applied to all projects and activities under the LRDP. Regulatory considerations and references specific to each of the 14 environmental resource areas presented in Chapter 4 are not repeated in this chapter.

5.1 AESTHETICS AND VISUAL QUALITY

RAW Impact AES-1: Implementing the RAW would not have a substantial adverse effect on aesthetics and visual resources. (*Less than Significant*)

Views of the RBC site from public viewing points to the north are limited due to the presence of on- and off-site trees and the visual buffer of I-580. The most readily available public viewpoints are from the San Francisco Bay Trail and South 46th Street. Prescriptive and specific cleanup actions relevant to aesthetics and visual quality would consist of soil excavation and offsite disposal activities discussed in Section 3.9. Excavation and offsite disposal activities would be short-term and would be achieved using conventional excavation equipment such as backhoes and front-end loaders. Site preparation activities, such as clearing utilities, and clearing and grubbing, would also be conducted. Excavation depths would not exceed the depth of groundwater. Decontamination facilities for equipment and personnel would be located at a centralized decontamination area. Excavation and decontamination supplies and equipment would be stored such that -- to the extent practicable -- they would not be visually intrusive from off-site viewpoints. The proposed activities would not result in a substantial adverse effect on the scenic vista, create new sources of light or glare affecting day or nighttime views, damage scenic resources, or degrade the existing visual character. The aesthetic effects would be less than significant.

5.2 AIR QUALITY

RAW Impact AIR-1: Implementation of the RAW would generate emissions of criteria and toxic air contaminants that would not violate an air quality standard or contribute to an existing violation. (*Less than Significant*)

The CAA and the California Clean Air Act require that SIPs be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard), as discussed in Section 4.2. On September 15, 2010, BAAQMD adopted the 2010 Clean Air Plan. The 2010 Clean Air Plan updates the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, TACs, and GHGs in a single, integrated plan; and establish emission control measures. As discussed under LRDP Impact AIR-1, construction associated with RBC development under the 2014 LRDP would result in emissions that do not exceed BAAQMD CEQA thresholds. Therefore the emissions would not hinder the attainment of air quality standards.

Construction Criteria Pollutant Emissions

As discussed under LRDP Impact AIR-1, construction and demolition associated with campus development under 2014 LRDP would generate air pollutant emissions including airborne dust known as fugitive dust, emission from the operation of on- and off-road diesel construction equipment and vehicles, worker trips, architectural coatings such as paint, and paving off-gasses. Construction would typically begin with any necessary demolition, followed by site clearing and excavation. Soil-disturbing activities, such as site excavation, elevation, and grading and placement of infrastructure and structural foundations, would generate fugitive dust emissions that would contribute particulate matter to the local atmosphere.

Preliminary construction would include determining any special site or building conditions due to historic site contamination. If excavation is involved, soil that is suitable for commercial use may be shipped off site unless the project is a balanced cut-fill excavation that would reuse the soil on site. Contaminated soil would be excavated and removed by truck. Foundation work, building frame erection, and building finishing are the three major phases to follow.

Construction equipment would typically include large vehicles, stationary equipment, and hand-held equipment used on the building site and at nearby staging areas. They would be powered by diesel or gasoline engines or electricity. Such equipment would include cranes, scrapers, dozers, spreaders, compactors, loaders, drill rigs, haul trucks, cement trucks, bore drillers, rough terrain forklifts, pavers, rollers, and other rigs. The air quality analysis considered emissions from construction equipment during each phase of construction based on the number of pieces of equipment and the duration of their use. It also considered the number of truck trips to deliver supplies and equipment, to transport soil for site grading, and to remove contaminated soil. Vehicle trips by construction workers were also considered. Construction and demolition emissions were estimated using CalEEMod, version CalEEMod.2011.1.1.

The anticipated construction emissions are presented in Table 4.2-4 under LRDP Impact AIR-1. The estimates show that the maximum daily construction emissions from all overlapping phases of construction, including excavation and removal of contaminated soil under the RAW, would be well below the BAAQMD CEQA thresholds.

Fugitive dust would be generated by construction activities such as excavation, site elevation, and grading. While BAAQMD has quantitative thresholds for PM2.5 and PM10 from vehicle exhaust,

it has not established a threshold for fugitive dust emissions from construction activities, but rather states that BMPs should be employed to control such fugitive dust emissions. Since there is no quantitative threshold for construction fugitive dust, these emissions were calculated (see Appendix B), but are not presented in this section.

As stated in the LRDP Policy S3, fugitive dust from construction activities would be controlled by implementing the construction BMPs recommended in the BAAQMD CEQA Air Quality Guidelines. The BMPs relevant to controlling fugitive dust include:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

All excavated soils would be managed to prevent dust, spills to the ground or water, disposal into drains, and exposure risk to people or the environment. Excavation, transportation, and handling of all soil would be required to result in no visible dust at the fence line of the excavation. Any soil material proposed to be placed as fill, whether from an off-site source or on-site source, would be kept covered or moist to facilitate eventual compaction and to control dust during earthwork operations. A water truck, water tank, or hydrant would be available to supply water in sufficient quantity on the job site while earthwork operations are underway. Sufficient water would be applied to suppress dust while exercising care to avoid generating runoff to any area outside the project boundary. Dust control measures would be implemented, as appropriate and necessary, beginning with site mobilization and continuing during all phases of the construction activities. Water would not be applied if there was a possibility of spreading contaminated soil or leaching contaminants from the soil, or if it resulted in hazardous working conditions.

Construction emissions associated with the RAW would not exceed the BAAQMD CEQA thresholds and BMPs would be implemented to control fugitive dust, resulting in a less than significant impact.

Construction TAC Emissions

Human health effects from TAC emissions that would occur in association with construction and demolition activities under the 2014 LRDP were analyzed in a human health risk assessment (HRA). The TAC emissions from excavation and off-haul of soil under the RAW are included the construction HRA. The assessment calculated the estimated cancer risk, chronic and acute health hazards, and $PM_{2.5}$ concentrations that would be experienced at the maximally exposed individual on the project site as well as off-site in the nearby residential and non-residential areas. As shown in Table 4.2-6 under LRDP Impact AIR-3, construction and demolition TAC emissions under the 2014 LRDP would not result in human health risks or $PM_{2.5}$ concentrations for the maximally exposed individual that would exceed the BAAQMD CEQA thresholds and the impact would be less than significant. Therefore the TAC emissions associated with the excavation and off-haul of soil under the RAW would result in a less than significant impact.

Operational Criteria Pollutant and TAC Emissions

There would be no operational criteria pollutant or TAC emissions from the implementation of the RAW that would result in a cumulatively considerable net increase of criteria pollutants under the 2010 Clean Air Plan. Therefore, there would be no impact.

CO Hotspot

Under 40 CFR 93.123(c)(5) and the BAAQMD CEQA Guidelines, a CO hotspot analysis is not required for construction emissions as construction activities are short term and are considered unlikely to result in a CO hotspot.

Construction Emissions

Construction activities could generate temporary odors from fuel combustion and paving. These odors would be temporary and limited to the immediate project area and would be unlikely to affect a substantial number of people in the surrounding area. Therefore, the impact on air quality from construction-phase odors would be less than significant.

Naturally Occurring Asbestos

The RBC site is not in an area where naturally-occurring asbestos is likely to be present (California Department of Conservation 2000).

5.3 BIOLOGICAL RESOURCES

RAW Impact BIO-1: Implementing the RAW could have a substantial adverse effect on biological resources. (*Less than Significant*)

As described throughout Section 4.3.4, sensitive biological resources occur at the RBC site, including future areas impacted by implementation of the RAW. The RBC site includes natural areas such as the Western Stege Marsh and coastal grasslands (Figure 4-8). As shown in Figure 4-8, the proposed 2014 LRDP designates approximately 25 acres of the RBC site as Natural Open Space. This designation encompasses those areas the University plans to protect from development. Disturbance of these natural areas would be limited under the LRDP, and activities associated with implementing the RAW would be limited to disturbing discrete areas within the Natural Open Space for the installation and sampling of monitoring wells required to monitor carbon tetrachloride contamination in groundwater.

With implementation of all 2014 RBC LRDP Mitigation Measures described in Section 4.3.4, adverse impacts would be less than significant. Long-term effects would be primarily beneficial as activities would reduce contaminants on the RBC site and thus reduce exposure of wildlife and vegetation to these potentially toxic substances. Specific discussions of biological resources are presented below.

Special Plant Species

Because no special-status plant species have been documented on the site during extensive botanical surveys (Amme 1993, Lidicker et al. 2003, URS 2007, Wildlife Research Associates and Jane Valerius Environmental Consulting 2011a) or by the CNDDB, it is unlikely that protected species are present. Because the areas with the most suitable habitat for special-status plant species would be protected from development and no special-status species have been documented, impacts on special-status plant species are not likely to occur from RAW implementation.

Special-Status Bird Species

The RBC site includes natural areas such as the Western Stege Marsh and coastal grasslands and numerous older, wooden buildings that could be nesting or roosting sites for various bird species (Figure 4-8). These areas provide potential nesting habitat for special-status bird species (Table 4.3-1). There is a high potential for nesting passerines, protected by the MBTA, to occur in multiple RBC site habitats. These include saltmarsh common yellowthroat and Alameda song sparrow in Western Stege Marsh; black phoebe on man-made structures; and western meadowlark in grasslands. California clapper rail, listed as endangered under the ESA and CESA, has been documented in Western Stege Marsh. Burrowing owl and California black rail, state threatened species, have not been documented on-site, but the site does contain potential owl (grasslands) and clapper rail (marsh) habitat. Raptors, protected by the MBTA and California Code Sections 3503 and 3503.5, are likely present as described in Section 4.3.2.

Because the RBC site provides suitable nesting habitat for MBTA, ESA, and/or CESA-protected birds, loud noise within 100 feet of nests during the nesting period (approximately February 1 through August 31) could result in nest abandonment and "take" of young. Such noise could be from building demolition and construction, site preparation, utilities rerouting, and tree removal during construction.

The proposed excavation activities would be outside of clapper rail habitat and thus minimize potential noise impacts. Nevertheless, noise and other human disturbance—especially related to construction and demolition activities—near the marsh could affect avian use and result in flushing, avoidance, or nest abandonment. Because RAW activities would not be located within the Natural Open Space areas, there are not likely to be direct effects on Western Stege Marsh. With implementation of LRDP MM BIO-2 as presented in Section 4.3.4 as part of the project, potential impacts on special-status birds from construction and operations would be less than significant.

Bat Species

Several bat species may occur at the RBC site (Table 4.3-1). Brazilian free-tailed bat is the most likely to occur. No bat species federally or state-listed as threatened or endangered are likely to occur. One species, pallid bat, is a California species of concern. Bats may inhabit abandoned RBC buildings or exfoliating tree bark crevices or hollow tree cavities. This would most likely occur in the site's perimeter areas. Tree and building removal could result in direct bat mortality; however there are no tree or building removals anticipated as a result of RAW activities. Construction noise and human disturbance could cause maternity roost abandonment and subsequent death of young. With implementation of LRDP MM BIO-3 presented in Section 4.3.4 as part of the project, the proposed project would not result in a substantial adverse effect on bats, and the effect would be less than significant. This measure would apply to all areas containing trees and buildings suitable for bat roosts.

Monarch Butterflies

The monarch butterfly is not listed as threatened or endangered under either the ESA or CESA, but it is considered by the state of California to be either restricted in its distribution, declining throughout its range, or associated with declining habitats in California. This butterfly has been documented at the RBC site and occupies the eucalyptus stands and the developed, horticultural landscaped areas (Figure 4-8). This species uses the eucalyptus trees during the winter months for cover and thermal regulation. Eucalyptus tree removal would reduce the available habitat for monarch butterflies. As described earlier (Section 4.3.3, Eucalyptus Stands subsection), eucalyptus creates habitat that attracts monarchs, but that habitat may act as a "sink" - attracting monarchs to a habitat that can be harmful to the species. Therefore, eucalyptus removal would have a mixed effect that is neither exclusively adverse nor beneficial. The RAW activity impacts

on the monarch butterfly would not be considered substantial adverse effects on the monarch butterfly because it is not a special-status species and there are no anticipated eucalyptus tree removals.

Sensitive Natural Communities

There are 22 acres of high quality grassland habitat, considered a sensitive natural community, at the RBC site. These are within the Big Meadow, Northwest Meadow, West Meadow, and EPA Meadow North (Wildlife Research Associates and Jane Valerius Environmental Consulting 2013a). In 15 of the 22 high quality grassland acres, comprising the majority of the area within the Big, West, and EPA North Meadows, anticipated direct impacts from the RAW activities would be limited to disturbing discrete areas for the installation and sampling of monitoring wells required to monitor carbon tetrachloride contamination in groundwater, as these acres would be part of the 25-acre Natural Open Space area. In the seven acres of high quality grassland in the Research, Education, and Support area, prescriptive RAW activities would potentially cause direct impacts associated with soil disturbance including excavation or compaction from people and vehicles.

In addition, RAW activities would potentially cause indirect impacts on high quality grasslands including increased potential weed intrusion and unintentional seed distribution from soil disturbance.

With implementation of LRDP Mitigation Measure BIO-5 presented in Section 4.3.4 as part of the project, impacts from RAW activities on sensitive natural communities would be less than significant.

Federally-Protected Wetlands

Wetlands and potential wetlands are described in Section 4.3.2. While Campus development under the 2014 LRDP could result in adverse impacts on potentially jurisdictional RBC site waters, including drainages and wetlands (Figure 4-8), the proposed RAW activities would have low potential to impact jurisdictional waters. No jurisdictional wetlands have been identified in the proposed excavation areas identified in Section 3.9.2. Some specific development could fill in or create a potential for accidental discharges to jurisdictional waters. Any RAW activity resulting in permanent or temporary fill of jurisdictional waters would most likely be subject to provisions of Sections 401 and 404 of the Clean Water Act, Sections 1600 through 1616 of the California Fish and Game Code, and the Porter Cologne Act. Such projects may qualify for a nationwide permit (NWP) issued by the USACE. The most likely applicable NWP for RBC projects would be NWP 39, Residential, Commercial, and Institutional Developments. Although nationwide permit specifications vary, NWP 39 typically applies where jurisdictional waters are less than 0.5 acre in area and no more than 300 linear feet of intermittent or perennial stream are to be filled. Even if these limitations are met, the USACE has discretion under certain circumstances to require a more stringent individual permit.

Any project requiring USACE authorization also must obtain a Section 401 RWQCB certification or waiver of certification. These must be obtained prior to project implementation and would stipulate approval conditions designed to minimize adverse effects on wetland resources. Acquisition of these permits is a regulatory requirement and is not considered mitigation for loss of waters of the US. However, the processes for obtaining any state or federal wetlands permits involve the development of compensatory actions similar to CEQA-derived mitigation in scope and intent. In addition to the acquisition of necessary permits, with implementation of the mitigation measure LRDP MM BIO-6 presented in Section 4.3.4 as part of the project potential impacts on jurisdictional waters would be less than significant.

5.4 CULTURAL RESOURCES

RAW Impact CR-1: Implementing the RAW could have a substantial adverse effect on cultural resources. (*Less than Significant*)

The University of California, Berkeley Museum of Paleontology conducted a record search for paleontological resources in the area and determined that there have been no prior fossil finds in the RBC, as presented in Section 4.4. As part of the consultation process with Native American organizations and individuals, the Native American Heritage Commission was contacted on January 24, 2013, with a request for information about any sacred lands related to the project site and for a list of interested Native American groups and individuals in Contra Costa County. The Native American Heritage Commission has not responded to date. There are no historic structures or resources in areas identified for cleanup under the RAW.

Although most, if not the entire RBC site, has been disturbed in conjunction with previous site uses, previously unknown archaeological resources or human remains may be encountered during soil-disturbing activities related to implementing the RAW. With implementation of LRDP MM CR-1 as part of the project, the impact would be less than significant.

5.5 GEOLOGY AND SOILS

RAW Impact GEO-1: Implementing the RAW would not have a substantial adverse effect on geology and soils. (*Less than Significant)*

Under the RAW, soil would be excavated or evaluated for contamination prior to on-site reuse or off-site disposal. Hazardous soil would be categorized for transport to appropriately permitted and licensed off-site facilities. Soil acceptable for commercial use would be placed and compacted in the excavation. All excavation fill materials would meet a minimum of 90 percent compaction using industry standard techniques and compliant with the University Seismic Safety Policy discussed in Section 4.5. RAW activities will not result in the construction of buildings or structures and therefore will not expose people or structures to adverse effects from the ruptures of known earthquake faults, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides.

Erosion control measures, monitoring, and reporting would be conducted in accordance with applicable State Water Resources Control Board General Construction Permit requirements for RAW actions. The limited amount of excavation specific to RAW activities would result in a minor increase in the potential for soil erosion during those activities; however, final site finishing would meet current site cover material requirements and thereby limit future soil erosion.

5.6 GREENHOUSE GAS EMISSIONS

RAW Impact GHG-1: Implementation of the RAW would generate GHG emissions that would not result in a significant impact on the environment or conflict with applicable GHG plan. (*Less than Significant*)

Construction GHG Emissions

Excavation of the contaminated soil and subsequent placement of clean soil would require construction vehicles such as backhoes and front-end loaders, trucks to transport the soil to and from the RBC site, and construction worker vehicle trips. During construction, the proposed project would generate GHGs from the exhaust of construction equipment and truck traffic. The

excavation of the soil would occur on a project by project basis and would be spread out over many years.

As explained under LRDP Impact GHG-1, construction-phase GHG emissions were estimated based on the maximum amount of construction activity that is expected to occur at the RBC site, as presented in Section 4.6. Carbon dioxide emissions associated with the maximum annual construction activities under the 2014 LRDP are approximately 450 metric tons. This annual amount is too small to have a measureable effect on global climate and is well below the threshold of 1,100 MTCO2e developed by BAAQMD for evaluating the significance of a project's operational GHG emissions. The impact from LRDP-level construction emissions would be less than significant. As the scale of construction activities under the RAW would be substantially smaller than the estimated annual construction activities for LRDP development, the RAW would result in very low annual emissions of GHGs, and the impact from RAW construction emissions would be less than significant.

AB 32 and Executive Order S-3-05 are the basis for GHG emissions reductions in California. Local agencies such as BAAQMD base their planning and regulations on the AB 32 requirements, including a reduction of GHG emissions to 1990 rates by 2020. BAAQMD adopted its GHG significance thresholds specifically to meet AB 32 requirements in its jurisdiction, and so projects meeting those thresholds can be assumed to meet the requirements of AB 32. As the estimated construction GHG emissions from the RAW would be well below BAAQMD threshold, the project would not conflict with AB 32, and the impact would be less than significant.

Operational GHG Emissions

There would be no operational emissions from implementation of the RAW. Therefore, emissions would not exceed significance thresholds and would not conflict with AB 32. There would be no impact.

Mitigation Measure: No mitigation measure is required.

5.7 HAZARDS AND HAZARDOUS MATERIALS

RAW Impact HAZ-1: **Implementing the RAW would not have a substantial adverse effect related to hazards and hazardous materials (*Less than Significant)***

As discussed in Section 4.7.2, the RFS portion of the proposed RBC site includes some areas of contaminated soil and groundwater. The University has done substantial work in characterizing site contamination. Arsenic, copper, lead, mercury, PCBs, and polyaromatic hydrocarbons have been detected in the soil at levels exceeding commercial use standards. The RFS portion of the proposed RBC site is listed on the current California EPA Hazardous Waste and Substances Sites List, also known as the "Cortese list" (California Government Code Section 65962.5). This listing is due to prior site activities that resulted in soil contamination at specific site locations. The DTSC has been directing efforts to address the effects of this past contamination on the RFS portion of the RBC site If Under the proposed RAW, if approved by DTSC under Chapter 6.8 of the Health and Safety Code, soil would be excavated or evaluated for contamination prior to on-site reuse or off-site disposal. Hazardous soil would be categorized for transport to appropriately permitted and licensed off-site facilities. Contaminated groundwater would be treated to remove contamination. The impacts of such activities would not be expected to create a significant hazard to workers, the public, or the environment.

Dust and air monitoring activities during RAW actions would also be conducted to ensure protection of public health and safety. The proposed RAW identifies specific air monitoring activities, including sampling equipment, locations, and action levels. There are no existing or proposed schools within one quarter mile of the proposed RBC.

Compliance with all applicable federal, state, and local laws and regulations related to the remediation and transportation of hazardous materials would minimize the potential for a release and provide for prompt and effective cleanup if an accidental release occurred. Therefore, the impacts related to accidental release associated with any remediation and transportation pursuant to the proposed RAW would be less than significant. Safety plans, programs, practices, and procedures implementation, as defined in LRDP Impact HAZ-1 discussion presented in Section 4.7, would ensure these impacts remain less than significant.

As discussed in Section 4.7.3, emergency response plans are maintained at the Federal, State, and local level for all types of disasters, including human-made and natural. UC Berkeley and LBNL would coordinate with state and local authorities to develop a site-specific emergency response plan for the proposed new RBC facilities. The UC Berkeley EH&S Emergency Response Team and LBNL responders would be capable of responding to most RBC incidents and, if necessary, may arrange for appropriate assistance from the City of Richmond Fire Department, the LBNL Fire Department, and outside emergency response contractors. Because on-site activities that could trigger emergency response would generally be similar in nature to current types of LBNL and UC Berkeley activities, and because existing emergency control and avoidance programs would continue, implementation of RAW activities would not exceed emergency response capabilities and impacts would be less than significant.

5.8 HYDROLOGY AND WATER QUALITY

RAW Impact HYD-1: Implementing the RAW would not have a substantial adverse effect on hydrology and water quality. (*Less than Significant)*

The RAW activities primarily consist of excavating soil and the implementation of ongoing groundwater monitoring and stormwater pollution prevention control best management practices, which would not result in impacts to hydrology, water quality, or discharge requirements. The proposed installation of monitoring wells and continued groundwater monitoring would allow for increased evaluation of hydrology and water quality.

There are no anticipated groundwater extraction activities which would substantially deplete groundwater supplies or interfere with groundwater recharge. Excavation and fill activities will not alter the existing drainage pattern of the site and there are no streams or rivers at the site.

The RAW activities would not result in the permanent placement of any structures within a 100-flood hazard area. The RAW activities would not expose people or structures to significant risk of loss, injury, or death involving flooding or inundation by seiche, tsunami, or mudflow.

5.9 LAND USE AND PLANNING

RAW Impact LU-1: Implementation of the RAW would not have a substantial adverse effect related to land use and planning. *(Less than Significant)*

The RAW activities would be consistent with the land use plan managed at the University-owned land parcels comprising the RBC site, would not divide an established community and would not interfere with existing or future land uses on or adjacent to the RBC site.

RAW actions would be conducted in conjunction with future development under the 2014 RBC LRDP. RAW actions would not construct any facilities or involve any new land uses that may conflict with the 2014 LRDP, the City of Richmond General Plan, or the Eastshore State Park General Plan. The impact from RAW activities would be less than significant.

5.10 NOISE

RAW Impact NOISE-1: Implementing the RAW could have a substantial adverse effect on noise. (*Less than Significant*)

The activities conducted under the RAW would result in short-term noise and groundborne vibration at the levels described for construction under LRDP Impact NOISE-1 and presented in Tables 4.10-5 and 4.10-6. The distance from RAW sites to sensitive receptors would vary and would be no less than 150 feet. Noise levels at the nearest sensitive receptor and in other surrounding areas could exceed the Richmond Noise Ordinance noise limits for stationary construction equipment (i.e., equipment that is operated for more than 15 days).

Equipment and vehicles used for activities conducted under the RAW, such as backhoes, front-end loaders, and trucks, would not result in groundborne vibration. Therefore, groundborne vibrations would not exceed damage or annoyance thresholds and thus would be less than significant.

As described under LRDP Impacts NOISE-1 and NOISE-2, construction and demolition activities associated with the 2014 LRDP would not expose people to noise levels in excess of standards established in Richmond's Noise Ordinance or result in significant temporary or periodic increases in noise or vibration with the incorporation of mitigation measures LRDP MM NOISE-1a through 1c (Chapter 4.10) as part of the project.

Project construction noise and vibration would cumulatively overlap with construction noise from only one cumulative project in the area: the proposed redevelopment at Bio-Rad Laboratories west of the RBC site. The Bio-Rad Laboratories project is required to comply with the Richmond Noise Ordinance for construction noise limits. The City of Richmond prepared CEQA documentation for the proposed Bio-Rad project that includes imposition of noise mitigation measures. These measures limit noisy Bio-Rad project construction activities, including on-road truck trips near the project, to 7:00 a.m. to 7:00 p.m. on weekdays and 8:30 a.m. to 6:00 p.m. on Saturdays and legal holidays. No construction is permitted on Sundays. There is no indication that the proposed construction would include any unusual vibration-generating activities or equipment that would exceed vibration damage thresholds (City of Richmond 2010). Therefore, temporary noise and vibration impacts from the proposed Bio-Rad Laboratories project in combination with RAW activities would be less than significant. Accordingly, with implementation of LRDP MM NOISE-1 as part of the project, there would not be a cumulatively considerable temporary increase in ambient noise levels and groundborne vibration in the project vicinity.

Long-term, permanent, temporary, or periodic ambient noise impacts would not occur from RAW activities.

With implementation of Mitigation measures LRDP MM NOISE-1a through -1c, noise associated with RAW activities would be reduced in accordance with the Richmond Community Noise Ordinance. With implementation of these mitigation measures as part of the project, RAW noise impacts would be less than significant.

5.11 POPULATION AND HOUSING

RAW Impact POP-1: Implementing the RAW would not have a substantial adverse effect on population and housing. (*Less than Significant*)

Cleanup actions under the RAW consist of soil excavation and groundwater monitoring, as presented in Section 3.9. These actions do not impact any existing buildings or structures and therefore, would not affect the RBC population, as discussed in Section 4.11. There would be no increase in permanent employees adding to the residential population of the City of Richmond, other nearby communities, or the region. Since no buildings are affected, there would be no displacement of housing or people. Impacts to population and housing would be less than significant.

5.12 PUBLIC SERVICES AND RECREATION

RAW Impact PS-1: Implementation of the RAW would not result in a substantial adverse effect on public services and recreational facilities. (*Less than Significant*)

The excavation and placement of soil associated with RAW activities would not increase demand for fire protection, police services, schools, public facilities, parks or other recreational facilities, as discussed cumulatively in Section 4.12. RAW construction-related activities would be short term, and construction crews would not relocate to Richmond or other nearby communities to work on the RAW activities. Therefore, the impact to public services and recreational facilities from the implementation of the RAW would be less than significant.

5.13 TRANSPORTATION AND TRAFFIC

RAW Impact TRA-1: Implementing the RAW would not have a substantial adverse effect on transportation and traffic. (*Less than Significant*)

The activities conducted under the RAW would result in short-term and temporary increases to traffic in the vicinity of the RBC site. These increases would result from temporary and intermittent impacts from truck movements and worker vehicles. The construction-related traffic may temporarily reduce area roadway capacities because of the slower movements and larger turning radii of construction trucks compared with passenger vehicles. Traffic from RAW activities would occur during daytime working hours and would not be concentrated during either the AM or PM peak hours; therefore, any impacts to study intersections would be less than significant. A complete detailed analysis of transportation and traffic for the proposed RBC activities is presented in Section 4.13.

Implementing the RAW would not involve the size or frequency of vehicles requiring temporary closure of nearby streets and paths that would impact vehicular, pedestrian or bicycle traffic, nor would traffic conditions result that would increase traffic hazards or impede emergency access.

5.14 UTILITIES, SERVICE SYSTEMS, AND ENERGY

RAW Impact UTL-1: Implementation of the RAW would not result in a substantial adverse effect on utilities, service systems, and energy. (*Less than Significant*)

Soil excavation and placement pursuant to the RAW would require minimal water for dust and particulate controls during construction. The cleanup efforts would not require any utilities or construction of utility infrastructure. No wastewater treatment plant services or storm water drainage facilities would be required for the RAW activities; therefore no wastewater treatment is necessary for these activities. Minimal water for decontamination would be required during RAW activities. Decontamination facilities for equipment and personnel would be located at a centralized decontamination area. All decontamination water would be containerized, sampled and disposed of off-site at a suitable disposal facility and therefore would have no impact on local utilities.

Under the proposed RAW, if approved by DTSC under Chapter 6.8 of the Health and Safety Code, soil excavated as part of RAW activities would be sampled and characterized for proper off-site disposal, or reused on site The estimated soil volume requiring off-site disposal in connection with future prescriptive RAW activities is between 1,000 and 5,500 cubic yards. For the specific RAW cleanup actions, the soil volume requiring off-site disposal at a Class 1 solid waste facility is estimated at between 1,200 and 2,000 cubic yards of mercury contaminated soil and 500 cubic yards of soil contaminated with PCBs and other compounds for a total of between 1,700 and 2,500 cubic yards of soil. Future RAW activities in conjunction with future redevelopment or construction activities occurring over many years as specific facilities are constructed might result in small amounts of soil requiring disposal in any one year. The impact to solid waste facilities would be less than significant. All soil sampling, characterization, and disposal actions would comply with federal, state, and local statutes and regulations related to solid waste.

Therefore, the impact to utilities, service systems, and energy from the RAW would be less than significant.

5.15 OTHER CEQA CONSIDERATIONS REGARDING RAW ACTIONS

This section presents the CEQA findings regarding significant and unavoidable effects, significant irreversible environmental changes, growth inducing impacts, and effects found not to be significant related to the RAW.

Significant and Unavoidable Effects

As identified and described above, RAW activities would not result in any significant and unavoidable impacts.

Significant Irreversible Environmental Changes

This section evaluates whether the proposed project would result in the irretrievable commitment of resources or cause irreversible changes in the environment. An example of an irreversible environmental change occurs when a general plan changes a land use by proposing the development of farmland or when a project extends utility and transportation infrastructure to an area without those services. Because of the developed nature of the project site, the proposed RAW actions do not introduce significant irreversible changes.

Growth Inducing Impacts

As described in Section 5.11, Population and Housing, the project would not increase the employee population at the RBC site or induce substantial population growth in Richmond or elsewhere in the region, either directly or indirectly.

Effects Found to be Insignificant without Further Analysis

Project impacts to Agriculture and Forest Resources and Mineral Resources were determined to require no additional analysis. Impacts related to the following topic areas were determined to require no additional analysis and are discussed in the Initial Study in Appendix A:

- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings in a state scenic highway corridor (Aesthetics and Visual Quality)
- Conversion of 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 (Agriculture and Forest Resources)
- Conflicts with existing zoning for agricultural use, or a Williamson Act contract (Agriculture and Forest Resources)
- Changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use (Agriculture and Forest Resources)
- Conflicts with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g) or timberland (as defined by Public Resources Code Section 4526) (Agriculture and Forest Resources)
- Loss of forest land or conversion of forest land to non-forest uses (Agriculture and Forest Resources)
- Conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan (Biological Resources)
- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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 known fault. Refer to Division of Mines and Geology Special Publication 42. (Geology and Soils)
- Exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides (Geology and Soils)
- 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 waste water (Geology and Soils)
- For a project in 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, safety hazards for people residing or working in the project area (Hazards and Hazardous Materials)
- For a project near a private airstrip, safety hazards for people residing or working in the project area (Hazards and Hazardous Materials)

- Exposure of 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 (Hazards and Hazardous Materials)
- Housing in 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 (Hydrology and Water Quality)
- Conflicts with any applicable habitat conservation plan or natural community conservation plan (Land Use and Planning)
- Loss of availability of a known mineral resource that would be of value to the region and the residents of the state (Mineral Resources)
- Loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan (Mineral Resources)
- For a project in 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, exposure of people residing or working in the project area to excessive noise levels (Noise)
- For a project near a private airstrip, exposure of people residing or working in the project area to excessive noise levels (Noise)
- Displacement of substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere (Population and Housing)
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere (Population and Housing)
- Change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks (Transportation and Traffic)