4.13 UTILITIES AND SERVICE SYSTEMS

4.13.1 INTRODUCTION

This section of the Revised Draft EIR describes the utilities and service systems that serve the UC Santa Cruz campus, including water, wastewater, storm water, and solid waste disposal and evaluates the potential for significant impacts to utilities and services systems from the implementation of the proposed Student Housing West project.

It also presents potential utility impacts from the anticipated construction and operation of the separate, but related, Porter and Rachel Carson Colleges dining facilities expansion project, which would serve residents of the SHW project and the existing colleges (see **Section 4.13.5** below).

The analysis in this section is tiered from the utilities and service system impacts analysis contained in the 2005 LRDP EIR, supplemented by project-specific analysis. This section is based on information obtained from previous environmental documentation prepared for the UC Santa Cruz campus and project-specific information and data.

This section is revised from the section presented in the Draft EIR to account for some project description changes and to address the comments received on the Draft EIR. Overall, the revised project would increase the number of beds to be built by 72 beds, compared to the previous estimate. While the small increase in the number of beds would have the effect of increasing the project's potable water and other utility demand, the potential increase in the project's potable water demand is offset by the inclusion of a MBR wastewater treatment plant at the Hagar site which would treat the wastewater on-site and generate recycled water that would be used for toilet flushing and landscape irrigation. Documentation demonstrating that the project's water demand would not increase and in fact would be slightly lower than the previous estimate is presented in **Appendix 7.1**. The section is revised to reflect these project description changes. In addition, comments received on the Draft EIR related to utilities were reviewed and the key issues raised in the comments are summarized below:

- The data regarding solid waste in Table 4.13-1 does not add up. Also the data reported in the text does not relate to the table. The waste diversion goal per University policy is 75 percent. The campus is not meeting the goal. The addition of student beds would further set the campus back from meeting the goal and should be considered a significant impact.
- The Draft EIR evaluates the impacts of the proposed wastewater treatment plant but does not provide the location and potential impacts of the dry wells. How will the wastewater treatment facilities be operated and by whom?

These comments are addressed in the revised analysis presented in this section. Comments related to the project's consistency with the State Recycled Water Policy or the Statewide Reclamation Requirements for Recycled Water and the water quality impacts of using recycled water for irrigation (wastewater plants fail to remove estrogens and other contaminants from the effluent) are addressed and analyzed in **Section 4.7, Hydrology and Water Quality** of this Revised Draft EIR. Comments regarding the sustainability of the Heller site development in drought years and whether the proposed project would require additional water resources from the City are addressed and analyzed in **Section 7.1, LRDP Water Supply Impact Assessment**.

4.13.2 ENVIRONMENTAL SETTING

4.13.2.1 Potable Water

Campus Water Demand and System

UC Santa Cruz receives potable water for use on the main campus from the City of Santa Cruz Water Department (SCWD). Water demand at the main campus varies from year to year. While historically it has been as high as 206 million gallons a year, the Campus has completed several high priority projects in order to reduce its water consumption and has also curtailed water use during the drought years. In 2016, about 161 million gallons of water was used on the main campus. (More information about the Campus's historical, current, and projected water demand is provided in **Section 7.2**.)

The UC Santa Cruz main campus water system receives water through four connections to the City's water distribution system. Water is pumped from the City's Bay Street Reservoir to three consecutive in-line reservoirs at different elevations. SCWD Reservoir No. 2 is at elevation 426 feet and supplies UC Santa Cruz's 1-inch Barn Theater connection. SCWD Reservoir No. 4 is at elevation 748 feet and supplies UC Santa Cruz's 6-inch Arboretum and 14-inch Heller Drive connections. SCWD Reservoir No. 5 is at elevation 982 feet and supplies UC Santa Cruz's 14-inch Cave Gulch connection. The Campus also has the ability to pump from SCWD Reservoir No. 5 to the UC Santa Cruz Emergency Water Storage Reservoir at elevation 1,113 feet through the 12-inch Pump Station connection. The campus water system has eight separate pressure zones isolated through 13 pressure-reducing valves (UCSC 2006).

The UC Santa Cruz Emergency Water Storage Reservoir provides the campus with an emergency water supply in the event the City system is incapable of supplying water. The reservoir is also necessary to provide adequate fire flow to the Crown/Merrill Apartments. The Campus has an existing on-campus well that could potentially supply water for non-potable purposes (UCSC 2006).

Although there are water mains on the Heller site, they would not be adequate to serve the proposed project and as discussed below, an off-site water main is proposed as part of the project to convey water to the site. Regarding the Hagar site, there is an existing water main that runs to the west of Hagar Drive near the project site.

City Water Demand and Supply

The SCWD provides water to approximately 95,000 customers in its water service area that includes the city of Santa Cruz, the UC Santa Cruz main campus, UC Santa Cruz Marine Science Campus and 2300 Delaware property, a portion of the unincorporated area of Santa Cruz County, a small portion of the City of Capitola, and coastal agricultural lands north of the City (West Yost 2017).

Historically, the general trend in the City's water demand was one in which water use rose roughly in parallel with account and population growth over time, except during two major drought periods in the late 1970s and the early 1990s. Around 2000, this pattern changed and system demand began a long period of decline, accelerated by pricing changes, drought, economic downturn, and other factors. In 2015, after two years of water rationing, annual water use fell to a level of about 2.45 billion gallons, similar to the level experienced during the 1970s drought (West Yost 2017).

The Santa Cruz water system relies predominantly on local surface water supplies, which include the following: diversions from three North Coast streams (Reggiardo Creek, Laguna Creek, and Majors Creek) and one natural spring (Liddell Spring); the San Lorenzo River; and Loch Lomond Reservoir. Together, these surface water sources represent approximately 95 percent of the City's total annual water production. The balance of the City's supply comes from groundwater, all of which is extracted from wells in the Purisima Formation in the mid-County area (Live Oak Well system).

Water from the North Coast sources, the San Lorenzo River and Loch Lomond Reservoir is pumped to the Graham Hill Water Treatment Plant where it is treated to remove impurities and disinfected with chlorine. The capacity of the Graham Hill water treatment plant is 16 million gallons per day (mgd) and it currently treats about 10 mgd (City of Santa Cruz 2016).

More information on the City's water demand and supply sources is presented in **Section 7.2**.

4.13.2.2 Wastewater

Wastewater produced on the campus is collected via the campus sewer system, which includes collector lines located in campus roadways and two major trunk lines. There is an existing sewer line located in

Heller Drive to the southeast of the Heller site, and an existing 12-inch sewer line about 900 feet to the west of Hagar site.

The two major trunk sewers on the UC Santa Cruz campus include one on Empire Grade Road and the second one along Jordan Gulch. Both combine into a single sewer at the Cook House, which discharges into the city's sewer system at Bay and High Streets. The wastewater is then transported through the sewer system to the City of Santa Cruz Wastewater Treatment Plant (WWTP), located near Neary Lagoon and Bay Street, where it is treated before being discharged to Monterey Bay (UCSC 2006).

The current average dry-weather and peak wet-weather flow capacities at the WWTP are 17 million gallons per day (mgd) and up to 81 mgd, respectively (Santa Cruz PWD 2018). The average daily flow at the WWTP is 10 mgd. Thus, the plant currently operates at approximately 59 percent of capacity. Under the terms of a 1962 agreement between the City of Santa Cruz and the University, the City agreed to provide sanitary sewer lines sufficient to meet the needs of the University (UCSC 2006). The City regulates what the Campus can discharge to make sure it can properly treat it before discharging it to Monterey Bay. Additionally, campus wastewater is routinely monitored by UC Santa Cruz and the City to ensure that the Campus complies with wastewater discharge limitations (UCSC 2006).

4.13.2.3 Storm Water Drainage

The UC Santa Cruz campus and surrounding City and County lands rely on a series of natural drainage courses and sinkholes for storm water drainage. Historically, development near the campus has occurred without a major network of storm drainage pipes leading to the ocean. There is no existing City or County piped storm water drainage system for the campus to tie into. The 1962 agreement between the City of Santa Cruz and the University requires that the City provide, at no expense to the University, any and all storm drainage lines up to the boundaries of the campus (UCSC 2006).

The campus storm water conveyance system comprises engineered detention basins, bioretention areas, and detention tanks serving localized building clusters; conveyance features that include both pipes and vegetated swales to redirect storm water from developed areas to dissipation and infiltration structures in natural areas. Runoff from most parking lots on the campus is filtered to remove typical urban contaminants. Most of the flow in the natural drainages is captured by sinkholes and enters the karst aquifer so that a relatively small amount of storm water leaves the campus as surface flow. Water in surface drainages fed by the karst aquifer, as well as water flowing off the campus in surface drainage, drains to the Monterey Bay (UCSC 2006).

While the existing storm drainage system meets current overall capacity requirements, there are localized areas of concern. The Campus has identified several problems with the existing system; in particular,

surface flooding, concentrated flows, and the associated erosion and potential habitat degradation. Capacity problems at some sinkholes and the impact of sediment on sinkholes have also been identified as issues of concern. Furthermore, in some areas the detention systems and drainage/erosion control measures installed with the original development were not effective in preventing channel incision or spilling over of sinkholes. The Campus has been implementing a phased project to address these issues, through redirection of flow, construction of structures designed to promote infiltration of runoff into the subsurface, and in-stream restoration.

4.13.2.4 Solid Waste

The City of Santa Cruz Resource Recovery Facility (RRF) is approximately 2.5 miles southwest of the UC Santa Cruz campus at 605 Dimeo Lane in Santa Cruz. The RRF is regulated at the federal, State, and local levels and includes the City of Santa Cruz landfill, recycling center, green waste drop-off area, and a Hazardous Waste Drop-off Facility. As of 2012, the landfill had a remaining capacity of 5,222,718 cubic yards (cy) and is not expected to reach capacity until 2066 (Pearson 2017).

Campus Generated Solid Waste

UC Santa Cruz Grounds Services Department is responsible for overseeing the sorting and disposal of over 90 percent of waste generated on the campus. Trash is collected from mixed container bins, segregated recycling bins for mixed paper and white office paper, and cardboard located throughout the campus. Containers pass through a sorting line on the lower campus, and are then hauled by Grounds Services to commercial recycling facilities and the City of Santa Cruz Resource Recovery Facility. Paper is transferred to large box bins and stored on the lower campus, where it is picked up by an outside vendor. Grounds Services collects cardboard and, when the truck is full, hauls it to various off-campus vendors. Trash is sent to the City of Santa Cruz Resource Recovery Facility. Compost from campus dining facilities is transported to Monterey Regional Waste Management District (MRWMD). Hazardous waste from the campus is managed by the Office of EH&S and properly processed off-campus at various facilities. Campus surplus collects electronic waste (E-waste) to be sold at the surplus store or to be disposed of at ECS Refining (UCSC 2017).

In 2011, a Landfill and Solid Waste Diversion Task Force was directed to identify initiatives to help the Santa Cruz campus reach the UC-wide goals of 75 percent waste diversion by 2012 and Zero Waste (100 percent diversion) by 2020 (UCSC 2012). In Fiscal Year 2010-2011, UC Santa Cruz hauled 1,722 tons of trash to the landfill, a significant decrease from 2,740-ton annual average of landfill waste from 2005-2009. By FY 2015-2016, UC Santa Cruz was sending 160 pounds of solid waste per capita per year to the landfill and diverting about 66 percent of solid waste generated. As illustrated by **Table 4.13-1, UC Santa Cruz**

Solid Waste Generation and Recycling, UC Santa Cruz has not as yet attained its 75 percent waste diversion goal (University of California 2015). The Campus continues to examine additional opportunities and ways to achieve this goal and eventually its 2020 zero waste goal.

Table 4.13-1
UC Santa Cruz Solid Waste Generation and Recycling
May 2017

Type of Waste	Tons	Percentage of Total Solid Waste
Hauled to Landfill		
Refuse	120	41.6%
Recycled, Reused, or Diverted		
Organics	99	34.4%
Container Recycling	27	9.4%
Paper Recycling	2	0.7%
Cardboard	32	11.0%
Other Recycling	8	2.9%
Subtotal	*168*	*58.4%*
Total	**288**	**100%**

Source: UCSC Zero Waste Monthly Updates: May 2017

4.13.3 REGULATORY CONSIDERATIONS

4.13.3.1 Federal Laws and Regulations

Clean Water Act

The Clean Water Act (CWA) assists in the development and implementation of waste treatment management plans and practices by requiring provisions for treatment of waste using the best practicable technology before there is any discharge of pollutants into receiving waters, as well as the confined disposal of pollutants so that they would not migrate to result in water or other environmental pollution.

Section 402 of the CWA authorizes the US Environmental Protection Agency to establish a nationwide surface water discharge permit program for municipal and industrial point sources known as the National Pollutant Discharge Elimination System (NPDES) program.

4.13.3.2 State Laws and Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act provides the basis for water quality regulation in California, and establishes the authority of the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards. The Act also authorizes waste discharge requirements for municipal wastewater treatment facilities through the NPDES program. The State Water Board grants and administers NPDES permits under a provision of the Act, which established effluent limitations and water quality requirements for wastewater plant discharges.

Urban Water Management Planning Act

California State Assembly Bill 797 (California Water Code Section 10610, et seq.), adopted in 1983, requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or more than 3,000 acre-feet of water on an annual basis to prepare an Urban Water Management Plan (UWMP). The intent of the UWMP is to assist water supply agencies in water resource planning over at least a 20-year planning period given their existing and anticipated future demands. UWMPs must be updated every five years in years ending in zero and five. The City updated and adopted its current 2015 UWMP in August 2016. The 2015 UWMP projects and analyzes the City's future demand and water supplies through 2035.

Senate Bills 610 and 221; CEQA

In 2001, the California Legislature passed Senate Bill 610 (Water Code Section 10910 et seq.) and Senate Bill 221 (Water Code Section 66473.7) to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures, which sought to promote more collaborative planning between local water suppliers and cities and counties.

SB 610 requires the preparation of a water supply assessment (WSA) for large developments (i.e., more than 500 dwelling units or business establishments employing 1,000 persons or 500,000 feet of floor space). SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s) and only applies to residential projects. SB 610 requires cities and counties to prepare a WSA for large developments. SB 221 requires a verification of an adequate water supply for large residential subdivisions before a final subdivision map may be recorded. Additionally, when a city or county determines that a "project" as defined by SB 610 (Water Code Section 10912) is subject to CEQA, the city

or county must comply with the provisions of SB 610; this information must be included in environmental review under CEQA.

SB 610 and SB 221 apply only to cities and counties, and not to the University of California, a constitutionally established public entity. Nevertheless, although preparation of a Water Supply Assessment is not required for University projects, in order to evaluate the LRDP's impact on water supply, UC Santa Cruz voluntarily prepared a Water Supply Evaluation (WSE) that conforms with the required elements of a Water Supply Assessment prepared pursuant to SB 610. The WSE is included in **Appendix 7.2** and was used in the preparation of this section.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA) became law on January 1, 2015, and applies to all groundwater basins in the state (Wat. Code, § 10720.3). Pursuant to SGMA, any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" for that basin (Wat. Code, § 10723). Local agencies were given until January 1, 2017 to elect to become or form a groundwater sustainability agency. In the event a basin is not within the management area of a groundwater sustainability agency, the county within which the basin is located will be presumed to be the groundwater sustainability agency for the basin. However, the county may decline to serve in this capacity (Wat. Code, § 19724).

Any established groundwater sustainability agency would have additional powers under the SGMA to manage groundwater within the basin, including, for example, the powers to conduct investigations of the basin, to require registration of groundwater extraction facilities and metering of groundwater extractions; to regulate groundwater extractions from individual groundwater wells or wells generally; and to assess fees on groundwater extractions (see generally Wat. Code, § 10725 et seq.). In exercising its authority under the SGMA, a groundwater sustainability agency must consider the interests of holders of overlying groundwater rights, among others, and may not make a binding determination of the water rights of any person or entity (Wat. Code, §§ 10723.2, 10726.8). The SGMA also provides local agencies with additional tools and resources designed to ensure that the state's groundwater basins are sustainably managed.

The SGMA also requires the California Department of Water Resources (DWR) to categorize each groundwater basin in the state as high-, medium-, low-, or very low priority (Wat. Code, §§ 10720.7, 10722.4). All basins designated as high- or medium-priority basins must be managed by a groundwater sustainability agency under a groundwater sustainability plan that complies with Water Code Section 10727 et seq. In lieu of preparation of a groundwater sustainability plan, a local agency may submit an

alternative that complies with the SGMA no later than January 1, 2017 (Wat. Code, § 10733.6). On December 15, 2014, DWR announced its official "initial prioritization" of the state's groundwater basins for purposes of complying with the SGMA, and this priority list became effective on January 1, 2015 (DWR 2014). The Soquel-Valley Groundwater Basin (Basin Number 3-01) was identified by DWR as one of 21 groundwater basins to be reclassified as critically overdrafted (City of Santa Cruz 2016).

In September 2015, the Soquel-Aptos Groundwater Management Committee (SAGMC) was formed which includes representatives from the County of Santa Cruz, Central Water District, Soquel Creek Water District, the City of Santa Cruz, and private well owners. This group is a joint exercise of powers entity with interest in management of the Soquel-Aptos groundwater basin (City of Santa Cruz 2016).

Assembly Bill 939 and Senate Bill 1016

The California Integrated Waste Management Act of 1989, or Assembly Bill 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures to assist in reducing these impacts to less-than-significant levels. With the passage of Senate Bill 1016 (the Per Capita Disposal Measurement System) in 2006, only per capita disposal rates are measured to determine if a jurisdiction's efforts are meeting the intent of Assembly Bill 939.

4.13.3.3 Local Plans and Policies

UC Sustainable Practices Policy

As with all UC campuses, UC Santa Cruz is required to implement the UC Sustainable Practices Policy (Policy). The following are specific policies designed to address water conservation and solid waste.

Sustainable Water Systems

With the overall intent of achieving sustainable water systems and demonstrating leadership in the area of sustainable water systems, the University has set the following goals applicable to all locations:

1. In line with the Federal Government's Executive Order, locations will reduce growth-adjusted potable water consumption 20 percent by 2020 and 36 percent by 2025, when compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. Locations that achieve this target early are encouraged to set more stringent goals to further reduce potable water consumption. Medical Centers shall also strive to reduce potable water use and will identify a separate reduction target by June 2016. Each Campus shall

strive to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought tolerant planting selections, and/or by removing turf.

2. Each location will develop and maintain a Water Action Plan that identifies long term strategies for achieving sustainable water systems. The next update of the plan shall be completed in December 2016.

A. Campuses will include in this update quantification of total square feet of used turf and under-used turf areas on campus as well as a plan for phasing out un-used turf irrigated with potable water.

3. Each Campus shall identify existing single pass cooling systems and constant flow sterilizers and autoclaves in laboratories and develop a plan for replacement.

4. New equipment requiring liquid cooling shall be connected to an existing recirculated building cooling water system, new local chiller vented to building exhaust or outdoors, or to the campus chilled water system through an intervening heat exchange system if available.

A. Once through or single pass cooling systems shall not be allowed for soft plumbed systems using flexible tubing and quick connect fittings for short term research settings.

B. If no alternative to single pass cooling exists, water flow must be automated and controlled to avoid water waste.

Recycling and Waste Management

1. The University prioritizes waste reduction in the following order: reduce, reuse, and then recycle.

2. The University's goal for diverting municipal solid waste from landfills is as follows:

- 50 percent as of June 30, 2008
- 75 percent as of June 30, 2012
- Ultimate goal of zero waste by 2020

UC Santa Cruz Campus Sustainability Plan 2017-2022

UC Santa Cruz drafted its first Campus Sustainability Plan (CSP) in 2010 to direct cohesive, campus-wide action to improve sustainability at UC Santa Cruz. The plan was updated in 2013, and most recently, in 2017 to assess progress under the previous plans and establish news goals and objectives for the future. The CSP 2017-2022 provides a detailed road map to sustainability that builds on the Campus's successes

and presents opportunities to develop new initiatives. Recommendations made in the CSP are designed to facilitate the achievement of goals set forth in the UC Sustainability Policy. The CSP provides direction to development within four broad categories: Materials Management and Food Systems, Natural Environment and Infrastructure, Learning and Culture, and Climate and Energy. Goals and strategies specifically addressing water usage, solid waste recycling and waste management on the campus are detailed below.

Natural Environment and Infrastructure

Goal 2: Meet the UC Office of the President Sustainable Practices Policy goal to reduce potable water usage by 36 percent by weighted campus user by 2025 from a 2005-2008 baseline.

Strategy 2.1 Increase the use of non-potable water on campus.

Strategy 2.2 Reduce potable water use through technological innovations and physical improvements.

Strategy 2.3 Improve communication about water management, use, and conservation to the campus and local community.

Strategy 2.3 Identify new sources of funding for both potable water reduction and non-potable sourced development projects.

Materials Management and Food Systems

Goal 2: Achieve and maintain the UC Office of the President Sustainable Practices Policy goal of Zero Waste.

Strategy 2.1 Improve operational infrastructure to increase waste diversion.

Strategy 2.2 Complete the Resource Recovery Yard, including on-site composting program rollout.

Strategy 2.3 Increase the percentage of equipment and items sold or repurposed from Surplus, rather than discarded.

Strategy 2.4 Develop effective waste reduction and Zero Waste education and training for students, staff and faculty.

Strategy 1.5/2.5 Advance the single-use bottled water ban.

UC Santa Cruz Storm Water Management Program

As required by the Clean Water Act, UC Santa Cruz operates its storm drain system under a general permit for Non-Traditional Small Municipal Separate Storm Sewer Systems (MS4), issued by the State Water Resources Control Board. The Campus implements a Storm Water Management Program (SWMP), under a Guidance Document prepared in 2014 to comply with the requirements of this permit. The SWMP covers all facilities in urbanized areas owned and operated by UC Santa Cruz (which includes the main campus, the Marine Science Campus, the 2300 Delaware Facility and the UC Monterey Bay Education, Science and Technology (MBEST) Center). The SWMP includes education, outreach, and public participation programs; policies and procedures to ensure detection of illicit discharges; construction site runoff control policies and procedures; pollution prevention/good housekeeping procedures for Campus operations; and post-construction storm water management program that includes site and building design requirements.

UC Santa Cruz Campus Standards Handbook

The Campus Standards Handbook includes site requirements that address drainage issues. Among the requirement, most relevant to stormwater flows are the following, in Part III, Site Requirements, Section C. Drainage:

1. Protect all major springs, seep zones, drainage channels, year-round streams, and natural superficial drainage patterns from alteration. For new development and redevelopment a 30-foot buffer from water bodies will be included in the project. Where a 30-foot buffer is not feasible and for buffers less than 30 feet, written documentation from a qualified professional must be provided prior to design approval to show that the proposed buffer is adequate to prevent adverse effects on the watershed.

2. Design for high levels of absorption in all identifiable ground water recharge areas (flatter slopes encouraged to maximize absorption rates); verify specific requirements with the Project Manager.

3. Ensure that runoff passes through an appropriate filter before entering a sinkhole.

4. Where new development drains to existing outfalls, existing outfalls shall be upgraded as necessary to extend to toe of slope and provide energy dissipation.

5. Provide for detention of storm water runoff to ensure that peak post-development runoff flow rates do not exceed pre-development runoff rates. Post-development flow rates must not cause erosion. Ensure that storm water does not saturate the ground at building foundations

6. Ponding of water on the site ground surfaces is not allowable; all surfaces must have a positive drainage. Drain all water away from building foundations.

7. Refer to specific Soils Investigations of sites (when available) to determine any potential natural channels / sinkholes that may affect underground drainage, foundations, etc.

8. Where environmental conditions and engineering design shows adequate use sort armoring to minimize erosion in drainages.

9. To encourage storm water infiltration in small parking lots eliminate curbs or provide curb openings and slope parking lots to encourage storm water infiltration into vegetation islands and strips where the potential for erosion or a hazardous material spill is not expected.

10. Utilize all feasible opportunities to encourage on-site absorption, including porous pavers, vegetative strips, grassy swales, detention ponds and infiltration strips. Feasibility may be limited by constraints such as vegetative detritus, accessibility compliance under ADA, provisions for emergency vehicle access, soil permeability as well as sufficient sunlight to permit plant growth.

11. Refer to Stormwater and Drainage Master Plan, LRDP-EIR Mitigation Measures and Storm Water Management Plan for additional drainage guidelines.

12. The State Water Resources Control Board requires a storm water pollution prevention plan (SWPPP) for all projects disturbing one (1) acre or more. Verify requirements with Project Manager. See SWPPP example in Reference Documents and refer to Division 1 Section 1560.

4.13.4 IMPACTS AND MITIGATION MEASURES

4.13.4.1 Significance Criteria

The impact of the proposed project related to utilities and service systems would be considered significant if it would exceed the following standards of significance, in accordance with Appendix G of the State CEQA Guidelines and the 2005 LRDP EIR:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;

- Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Comply with applicable federal, state, and local statutes and regulations related to solid waste.

4.13.4.2 CEQA Checklist Items Adequately Analyzed in the 2005 LRDP EIR or Not Applicable to the Project

Although redevelopment of the FSH complex on the Heller site was evaluated in the 2005 LRDP EIR, the currently proposed Heller site housing is substantially different from the previous proposal. With regard to the Hagar site, that site was not envisioned for any development under the 2005 LRDP. Therefore, although the analysis below uses the prior LRDP level analysis to the extent appropriate, none of the CEQA checklist items listed above under Significance Criteria are scoped out; all of the items are addressed in the project-level analysis below.

4.13.4.3 Methodology

The analysis of impacts to utilities and service systems is based on a comparison of the projected demand of the proposed project to available supplies, and the resulting need, if any, for new, expanded, or modified facilities to meet the increased demand. Under CEQA, a project's impacts would be considered significant if the project would require new or expanded utility service facilities, the construction of which would result in significant environmental impacts.

4.13.4.4 2005 LRDP EIR Mitigation Measures Included in the Proposed Project

Table 4.13-2, 2005 LRDP EIR Mitigation Measures, presents the mitigation measure related to solid waste in the 2005 LRDP EIR that is applicable to the proposed project. Since this previously adopted mitigation measure is already being carried out as part of implementation of the 2005 LRDP, it is included in and is a part of the proposed project and will not be readopted. Implementation of this mitigation measure is assumed as part of the project impact analysis.

With respect to LRDP mitigation measures related to water supply, even though the 2005 LRDP EIR's water supply impact analysis was found to be deficient and therefore, the Campus is not required to implement these measures, the Campus has been voluntarily implementing these measures, and these measures have also been incorporated into the campus requirements for new development. Therefore the measures are listed in the table below.

Table 4.13-2
2005 LRDP EIR Mitigation Measures

Mitigation Measure	Description
UTIL-4	The Campus will continue to improve its recycling and waste reduction programs and identify additional means of reducing waste.
UTIL 9A	The Campus shall continue to implement and improve all current water conservation strategies to reduce demand for water, including the following: • Continue the leak detection and repair program. • Install an individual water meter in each new employee housing unit to encourage residential water conservation. • Install waterless urinals in all new buildings. • Require that new contracts for washing machines in student residences be certified by the Consortium on Energy Efficiency 6 to have a water factor of 5.5 or less or meet an equivalent standard. New washing machines purchased for use in athletic facilities shall meet applicable standards for water-efficiency for institutional machines. • Incorporate water-efficient landscaping practices in all new landscape installations. Water-conservative landscaping practices shall include, but will not be limited to the following: use of water-efficient plants, temporary irrigation systems for plant establishment areas where mature plants will be able to survive without regular irrigation, grouping of plants according to their water requirements, design of planting areas to maximize irrigation pattern efficiency, and mulch covering in planting areas. To facilitate monitoring of water usage in all new development, the Campus shall: (1) install separate meters on water lines for individual buildings and (2) install meters on irrigation lines where one point of connection irrigates 1 acre or more.
UTIL-9B	As new technologies become available, the Campus shall continue to conduct pilot programs for high-efficiency plumbing fixtures including, but not limited to, dual-flush toilets. If a piloted technology proves to be successful (i.e., the high-efficiency fixtures are effective in water savings and do not require more frequent or expensive maintenance than the existing standard), the Campus shall revise its standards to require use of the fixtures in all new buildings.
UTIL-9C	Within one year following approval of the 2005 LRDP, the Campus shall implement a water conservation education program for campus residents. This will include but would not be limited to: • Distribution to residents of employee housing of educational materials covering the following topics: basic home water conservation practices, plumbing retrofits and replacements, and strategies to conserve landscape irrigation. Designation of a staff member who will be responsible for developing and implementing a water conservation education and awareness program to reduce water consumption in student residences, dining halls, and student affairs facilities.
UTIL-9D	Within one year following approval of the 2005 LRDP, the Campus shall consult with the City of Santa Cruz regarding the appropriate scope of and initiate, an engineering audit of campus water use. The audit will assess existing campus water uses, identify options for reducing water consumption, prioritize feasible improvements based on the amount of potential water savings and cost effectiveness, and recommend top priority measures for implementation within the succeeding five years, and lower priority measures for potential subsequent implementation. The audit will include, but will not be limited to the following: • An inventory of plumbing fixtures in non-housing facilities on campus, which will identify the number and locations of fixtures and identify those that do not meet current campus standards for water efficiency. (Regarding retrofit of plumbing fixtures in student housing, see LRDP Mitigation UTIL-9H.) • An inventory of irrigation systems on the campus, including identification of systems that are not metered, the methods used to control the irrigation schedule, and potential for improvement. • An inventory of locations on campus where buildings and irrigation are on the same

Mitigation Measure	Description
	meter. • An analysis of potential water conservation measures for the campus cooling water system. Identification of landscaped areas on campus that have plants that are high water-use.
UTIL-9E	The Campus shall begin implementation of the top priority recommendations of the water audit conducted under UTIL-9D within one year of completion of the audit and complete implementation of the top priority recommendations within five years after completing the audit.
UTIL-9F	The Campus shall, at five-year intervals during the term of the 2005 LRDP, revisit the results of the water audit conducted under UTIL-9D, consult with the City of Santa Cruz Water Department, conduct round table discussions with representatives of relevant campus departments, and conduct additional study of new technologies as needed to identify additional feasible and effective water conservation measures for implementation on the campus during the subsequent five year period. The following are among the measures that shall be considered: • Adding existing irrigation systems to the campus's central control system. • Retrofitting existing water meters such that building use and irrigation are separately metered. • Replacing natural turf on athletic fields with artificial turf. • Installing timers on showers in student residences.
UTIL-9G	Within two years following approval of the 2005 LRDP, the Campus shall initiate a study on feasible measures for utilization of reclaimed water (including rainwater, grey water, cooling tower blow down water and/or recycled water) in new development. Potential uses of reclaimed water include cooling, irrigation, and toilet flushing. The study shall contain a plan to utilize reclaimed water in new development as feasible and effective in water conservation, and shall include an implementation schedule.
UTIL-9H	Within five years following approval of the 2005 LRDP, the Campus shall complete the retrofit of all plumbing fixtures in student housing not meeting the efficiency standards current in 2005 (1.6 gallons per flush for toilets). The new fixtures installed under the retrofit program shall conform to the campus standard for new buildings current at the time of the retrofit.
UTIL-9I	If and when the City implements drought emergency management measures, the University will implement the following measures for the duration of the drought emergency: • Reduce use of potable water for irrigation on the campus landscape, the CASFS and the Arboretum in accordance with reductions required by the City for similar users. • Utilize water from the existing supply well in Jordan Gulch for non-potable uses. The Campus shall implement a program of monitoring flow at downgradient springs during the time when the well is being used. • Require that residential water use on campus be reduced consistent with the City's target for multifamily residential facilities.

Source: UC Santa Cruz 2006

4.13.4.5 Project Impacts and Mitigation Measures

SHW Impact UTIL-1: The proposed project would not cause an exceedance of applicable wastewater treatment requirements but would entail the construction of new wastewater treatment facilities, the construction of which could result in significant environmental effects. (*Potentially Significant; Less than Significant with Mitigation*)

Heller Site

It is estimated that the Heller site would generate about 98,907 gallons/day of wastewater. All wastewater generated on the Heller site would be collected via an underground sewer line system constructed as part of the proposed project and would be conveyed to an on-site wastewater treatment facility that would be located in the southwestern portion of the Heller site. The proposed treatment facility is a membrane bioreactor (MBR) plant. The P3 developer of the proposed project would operate and maintain the MBR plant. The MBR plant constitutes a complete system for the treatment of municipal wastewater. The MBR plant is a fully enclosed modular facility that would consist of the following components:

- Headworks – where incoming wastewater would be received and where inorganic solids would be separated from the wastewater using screens
- Primary tank – an equalization tank where freshly screened wastewater would be held prior to introduction into the MBR process
- MBR – a system consisting of an anoxic tank, pre-aeration tank, and membrane tanks. The anoxic tank is a bioreactor in which aerobic bacteria digest organic material in the presence of dissolved oxygen. The membrane tanks contain a series of membrane cartridges. As effluent permeates through the membrane cartridges, suspended organic matter and bacteria are separated from the water.
- Disinfection system – where effluent from MBR would be treated to eliminate bacteria and provide clean non-potable water
- Clean water holding tank – where treated effluent would be held prior to distribution
- Dry wells – excess treated effluent would be discharged into dry wells
- Sanitary sewer connection – for emergency sewer overflow, the plant would have a metered connection to the existing sanitary sewer line located along Heller Drive.

An MBR plant is capable of removing suspended solids to levels of below 5 ppm and BOD to below 10 ppm and producing an effluent with less than 2.0 NTU turbidity levels (and much better in some cases), which meet the current California Title 22 standards for unrestricted irrigation use and toilet flushing.

Recycled water (treated effluent) generated at the MBR plant would be pumped into a recycled water main and distribution system ("purple" pipes) and conveyed throughout the Heller site development to provide water for toilet flushing and landscape irrigation. Recycled water would also be conveyed north via a recycled water main that would be located in the utility corridor extending between the Kresge parking lot and the Heller site. The main would convey recycled water to Porter College where the residence halls are already fitted with dedicated purple pipes to convey recycled water for toilet flushing and landscape irrigation. Any excess recycled water that is not utilized elsewhere on campus would be

disposed of in dry wells located in the southeastern portion of the project site, in an area underlain by schist. For details, see **Section 4.7, Hydrology and Water Quality**.

Since all wastewater from the Heller site would be treated at the proposed MBR plant, wastewater from the Heller site would not be discharged into the campus sewer system or the city's sewer system and would, therefore, not contribute to an exceedance of the wastewater treatment requirements of the City of Santa Cruz Wastewater Treatment Plant. The environmental impacts from the construction and operation of the proposed MBR facility and recycled water lines are evaluated as part of the proposed project in this Revised Draft EIR. Potential air, noise, or water quality impacts from the construction and operation of the MBR facility and recycled water lines would be less than significant. However, as discussed in **Sections 4.3** and **4.4** of this Revised Draft EIR, the construction of the proposed facilities would result in potentially significant impacts on cultural and biological resources.

Hagar Site

It is estimated that the Hagar site would generate about 15,138 gallons/day of wastewater. Similar to the MBR plant at the Heller site that would treat wastewater on-site and generate recycled water for toilet flushing and irrigation, a MBR plant would also be constructed at the Hagar site to treat wastewater. The P3 developer would operate and maintain the MBR plant. The plant would be the same as described above for the Heller site in terms of its components and processes, but would be substantially smaller in size due to the smaller population it would serve, compared to the population at the Heller site. The plant would be located in a concrete masonry unit building in the southern portion of the site and screened from sight by an enclosure. The MBR plant would contain distribution pumps for the recycled water to deliver recycled water to the buildings and site irrigation, and a back-up generator to ensure water delivery in the event of power loss. As with the Heller site MBR plant, for emergency sewer overflow, a sewer line would be constructed from the plant across Hagar Drive along the utility corridor to the existing sewer main in Jordan Gulch. The excess recycled water would be conveyed off site via a pipeline and discharged into Jordan Gulch south of Hagar Drive. An estimated 1 million gallons of recycled water would be disposed each year until use for the excess recycled water can be found on the campus near the site.

Since all wastewater from the Hagar site would be treated at the proposed MBR plant, wastewater from the Hagar site would not be discharged into the campus sewer system or the city's sewer system and would, therefore, not contribute to an exceedance of the wastewater treatment requirements of the City of Santa Cruz Wastewater Treatment Plant. The environmental impacts from the construction and operation of the proposed Hagar site MBR facility and recycled water lines are evaluated as part of the proposed project in this Revised Draft EIR. Potential air, noise, or water quality impacts from the construction and

operation of the MBR facility and recycled water lines would be less than significant. However, as discussed in **Sections 4.3** and **4.4** of this Revised Draft EIR, the construction of the proposed facilities would result in potentially significant impacts on cultural and biological resources.

Mitigation Measures:

SHW Mitigation UTIL-1: Implement **SHW Mitigations BIO-1B, BIO-2,** and **CULT-2B**.

Significance after Mitigation: The impacts on biological and cultural resources from the construction of the MBR and wastewater collection system would be reduced to a less than significant level.

SHW Impact UTIL-2: The proposed project would not require the construction of off-site wastewater conveyance infrastructure, the construction of which could cause significant environmental effects. (*Less than Significant)*

Heller Site

As mentioned above, all of the wastewater generated on the Heller site would be routed to the proposed MBR facility and would not be conveyed off site. Therefore, the Heller site development would not require an expansion or construction of any off-campus wastewater conveyance infrastructure. There would be no impact.

Hagar Site

Similar to the Heller site, all of the wastewater generated on the Hagar site would be routed to the proposed MBR facility and would not be conveyed off site. Therefore, the Hagar site development would not require an expansion or construction of any off-campus wastewater conveyance infrastructure. There would be no impact.

Mitigation Measures: No mitigation is required.

SHW Impact UTIL-3: The proposed project would require the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (*Potentially Significant; Less than Significant with Mitigation)*

Heller Site

The proposed project would increase the total area of impervious surfaces on the 13-acre Heller site by about 3 acres. As a result, additional storm water runoff would be generated that would require collection, treatment, disposal in compliance with NPDES requirements. The project is required to comply with water quality (treatment) and volume requirements as defined by the UC Santa Cruz Post-Construction Storm Water Management Requirements. Storm water runoff would be collected in storm drains that would be directed to six bio-filtration basins distributed throughout the site where the runoff would be treated to remove urban pollutants. Treated runoff from the northern half of the site would be conveyed to the northwest for discharge via a level spreader on a hillslope in the Cave Gulch watershed while the treated runoff from the southern half of the site would drain via a culvert under Heller Drive to discharge into the Rachel Carson College detention basin. The proposed design of the storm water drainage system on the Heller site would ensure that post-development peak flows do not exceed pre-development peak flows from 2 to 10-year storms in compliance with LRDP Mitigation HYD-3C and the Campus's Post Construction Stormwater Management Requirements. Thus, the proposed project at the Heller site would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities other than those described above, the construction of which could cause a significant environmental effect. The impacts of constructing the proposed storm water management system, including the storm drain and the level spreader in the Cave Gulch watershed, are evaluated in this Revised Draft EIR and are noted to be potentially significant with respect to impacts on biological and cultural resources. Project-specific mitigation measures are set forth to mitigate the impacts from the construction of the proposed storm drain and level spreader.

Hagar Site

The proposed project would install impervious surfaces, including the townhouses, childcare facility, pathways, roadways, and parking areas on the Hagar site, which would result in the generation of storm water runoff that would require collection, treatment, and disposal. The project is required to comply with water quality (treatment) and volume requirements as defined by the UC Santa Cruz Post-Construction Storm Water Management Requirements. These require that new runoff be minimized, all storm water be treated before discharge into receiving waters, and that the post-development peak flows discharged from the site shall not exceed pre-project peak flows for the 2- through 10-year 24 hour storm events. The proposed storm water management system for the Hagar site has been developed to address these requirements. As on-site infiltration is not feasible due to the presence of karst under the site, the storm water drainage system for the Hagar site has been designed to direct all new runoff into storm drains located in the proposed roadways. The collection system would convey the runoff from the upper two thirds of the development area into two bio-filtration basins along Glenn Coolidge Drive, where the

runoff would be detained and treated, and then metered into the on-site sinkhole. Runoff from the lower one-third of the development area would be discharged into a third bio-filtration basin from where it would be metered into a storm drain that would convey it to Jordan Gulch. The Hagar site development would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities other than those described above, the construction of which could cause a significant environmental effect. The impacts of constructing the proposed storm water management system, including the off-site storm drain, are evaluated in this Revised Draft EIR and are noted to be potentially significant with respect to impacts on biological and cultural resources. Project-specific mitigation measures are set forth to mitigate the impacts from the construction of the proposed storm drain.

Mitigation Measures:

SHW Mitigation UTIL-3: Implement **SHW Mitigations BIO-1B, BIO-2,** and **CULT-2B**.

Significance after Mitigation: The impacts on biological and cultural resources from storm drain construction would be reduced to a less than significant level.

SHW Impact UTIL-4: The proposed project would increase the amount of water used on the project site, and would be adequately served by existing entitlements and water resources under normal water years but not under multiple dry year conditions. (*Significant; Significant and Unavoidable*)

The project would be constructed in phases with the Hagar site available for occupancy by Spring 2020 and the Heller site fully occupied by Fall 2023.

Heller Site

There are currently 572 students and dependents at the existing FSH facility on the Heller site.[1] Water demand at the existing FSH site is approximately 7.2 million gallons per year. The students with families would be moved from the Heller site and 2,712 undergraduate students, 220 graduate students and about 92 dependents would occupy the Heller site.[2] It is estimated that the proposed Heller site would demand approximately 21 million gallons of water per year (mgy). This estimate accounts for a 25 percent water efficiency reduction attributed to efficiency measures necessary to achieve the Campus' net-zero water

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1 *Includes 15 employees at the childcare center and 10 employees to manage FSH.*

2 *There would also be a number of employees working on the Heller site.*

goal. Additionally, all wastewater generated at the Heller site would be collected and treated at the proposed on-site MBR facility. Recycled water from the proposed MBR facility would then be utilized for non-potable water uses at the Heller site including toilet flushing and irrigation.

Hagar Site

The Hagar site is currently undeveloped and there is no existing water use at the site. The proposed Hagar site development would house 140 students and 280 dependents, and additional employees would work at the Hagar site and childcare center. The Hagar site development is estimated to demand approximately 4 mgy.

Therefore, the total potable water demand associated with the proposed SHW project is estimated to be approximately 25 mgy (Note that the revised project's water demand is about 3.6 mgy less than the water demand of 28.6 mgy estimated for the previously proposed project). **Section 7.1, LRDP Water Supply Impact Assessment**, presents an evaluation of the impact on water supply that would result from campus growth under the 2005 LRDP, including the potable water demand associated with the proposed SHW project. As detailed in **Section 7.1,** the Campus's water demand at buildout under the 2005 LRDP, including the demand associated with the proposed project, is accounted for in the City's water projections used in the City's 2015 Urban Water Management Plan (UWMP). The UWMP notes that there would be adequate water supply from the City's existing water sources in normal water years to serve the total projected water demand and the City would not need to secure a new water source to serve the increase in demand. However, during multiple dry water year conditions, there would be a substantial gap between demand and available supplies, which would require the City to secure a new water source. The Campus's incremental water demand, including the water demand of the proposed SHW project, would contribute to the need for the City to secure a new water supply source to address the shortfall under multiple dry water year conditions. As discussed in **Section 7.1**, the impact of the 2005 LRDP on water supply during multiple dry water year conditions would be a significant impact, which would not be mitigated to a less than significant level with available mitigation.

As the water demand associated with the proposed SHW project would make a substantial portion of the additional water demand of the Campus analyzed in **Section 7.1**, the project-level impact of the SHW project is also considered significant. This is a highly conservative conclusion for a number of reasons. First, the project's water demand is within the amount of water identified for the Campus by the City in its water planning efforts. Second, the project incorporates recycled water and minimizes the use of potable water to the maximum extent feasible. Third, similar to other campus facilities, in the event of a prolonged drought, the SHW occupants would curtail water use as would the rest of the campus. Lastly, in a recent CEQA document prepared by the City of Santa Cruz which involved a projected water

demand comparable to that of the proposed SHW project, the City concluded that the project's water supply impact would be less than significant (e.g., see City of Santa Cruz Downtown Plan Amendments EIR dated October 2017). Nonetheless, the University has determined that the SHW project's water supply impact would be significant.

Mitigation Measures: No mitigation is feasible. The Campus has designed the proposed SHW project as a highly water efficient project that includes the use of recycled water and water efficient fixtures. No other design features or fixtures are available to further reduce the project's potable water demand.

Significance after Mitigation: The impact would be significant and unavoidable.

SHW Impact UTIL-5: The proposed project would increase the amount of solid waste generated on the project site, but would be adequately served by the regional landfill and would also comply with federal, state, and local statutes and regulations related to solid waste. (*Less than Significant*)

Heller Site

The proposed student housing at the Heller site would result in the generation of solid waste, recyclables, and compostable waste materials. The estimated increase in solid waste that would be generated at the Heller site is approximately 392 tons/year. The existing FSH facility generates solid waste at about 197 tons/year. The net increase at the Heller site would be 195 tons/year. To help further the UC-wide Zero Waste (100 percent diversion) by 2020 goal, the proposed project would include adequate facilities to encourage recycling and composting, and minimization of solid waste that would need landfill disposal.

In addition to the waste generated in the new housing and related facilities, screened inorganic solids would be separated from the effluent in the MBR plant headworks, which would be deposited in garbage bags. The MBR plant would likely result in two large garbage bags per week to be collected for landfill disposal. Biological solids/sludge produced by the treatment process would be periodically pumped out of the plant and transported to an off-site properly regulated disposal site.

Hagar Site

The proposed family student housing at the Hagar site would result in the generation of solid waste, recyclables, and compostable waste materials. The estimated solid waste that would be generated at the Hagar site is approximately 163 tons/year. As mentioned above, the proposed project would include adequate facilities to encourage recycling and composting, and minimization of solid waste.

Both sites combined would generate about 358 tons/year of municipal solid waste. In 2016, the main refuse trucks from UC Santa Cruz hauled approximately 1,500 tons of waste to the Santa Cruz landfill, not including green waste, recycling, and construction debris. Conservatively, without accounting for diversion, wastes generated at both project sites would account for about 24 percent of the 2016 total wastes from the campus. As of 2012, the landfill had a remaining capacity of 5,222,718 cubic yards (cy) and is not expected to reach capacity until 2066 (Pearson 2017). Additionally, per UC's Zero Waste policy goal, at both sites, the project would include adequate facilities to encourage recycling and composting, and minimize solid waste that would need landfill disposal. Thus, the proposed project would not result in a landfill exceeding its permitted capacity or non-compliance with federal, state, and local statutes and regulations related to solid waste.

Mitigation Measures: No mitigation is required.

4.13.5 PORTER AND RACHEL CARSON DINING FACILITIES EXPANSION PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Setting

There are existing utilities in and adjacent to the areas where the proposed dining facility expansions would be constructed.

Impacts and Mitigation Measures

DF Impact UTIL-1: **The implementation of the proposed dining facilities project would not cause substantial adverse impacts requiring new or expanded water supply or expansion of a water delivery system; result in the construction of new wastewater treatment facilities or conveyance systems; or require construction or expansion of new storm water drainage facilities. The proposed dining facilities project would comply with all regulations related to solid waste and there would be sufficient landfill capacity to serve the proposed project. (*Less than Significant*)**

Water Supply and Delivery System

Due to the nature of the project, a small increase in the use of potable water would occur as a result of expanding the two dining areas. The increase is accounted for in the projected water demand for the campus that is estimated and analyzed in **Section 7.1** of this Revised Draft EIR. The increase associated

with the dining facilities expansion project, by itself, would be too small to result in the need for new or expanded water supply entitlements or expansion of the water delivery system No significant impacts to water supply would occur.

Wastewater Conveyance and Treatment

The proposed dining facilities project may include construction of additional restrooms. However, the amount of wastewater produced is not expected to be substantial and would not result in the need for new or expanded wastewater facilities or conveyance systems.

Storm Water

The proposed expansion of the seating area at the Porter College Dining Hall would be on an elevated patio or second floor room located on piers. Thus, the increase of impervious surfaces would be negligible. The proposed new kitchen and servery at the Rachel Carson Dining Hall would be either within the existing building and therefore there would be no increase in impervious surfaces, or to the extent the building is extended, the increase in impervious surfaces would be small. As any increase in impervious areas at both dining halls would be minimal, storm water drainage would not be affected, and new drainage facilities would not be required. Furthermore, the project would be required to comply with the Post Construction Requirements of the campus. Less than significant impacts related to storm water would occur.

Landfill Capacity

The increase of solid waste generated by the increase of students utilizing the expanded dining facilities would be minimal because of the Campus's program to minimize waste disposed in landfills as well as because of the fact that all compostable materials from dining halls on campus are collected in compactors which are then hauled to the Monterey Regional Waste Management District Landfill in Marina, where the materials are composted in an anaerobic digester and composting system. Thus, the impact from waste generated from dining facilities expansion project on landfill capacity would be less than significant.

Mitigation Measures: No mitigation is required.

4.13.6 CUMULATIVE IMPACTS AND MITIGATION MEASURES

SHW Impact C-UTIL-1: **The proposed project, in conjunction with other past, present and reasonably foreseeable future development, would result in a significant cumulative impact on utilities. (*Significant; Significant and Unavoidable)***

The cumulative impact of campus development under the 2005 LRDP along with other regional growth in the SCWD service area is analyzed in the 2005 LRDP EIR under LRDP Impact UTIL-9. The 2005 LRDP Final EIR found that growth under the 2005 LRDP would generate increased demand for water during normal and drought years, and the development of new water supplies and infrastructure to serve normal and drought year demand could result in significant environmental impacts. The 2005 Final EIR found that although implementation of LRDP Mitigation Measures UTIL-9A through UTIL-9I along with the Campus's existing water conservation measures and obligations under Government Code Section 54999, would reduce the Campus's contribution to cumulative water supply impacts, they would not eliminate the need for a new water source and that water supply source may have significant environmental impacts. As discussed in **Section 7.0**, the Santa Cruz County Superior Court found that the water supply impact assessment in the 2005 LRDP EIR was deficient and instructed the Campus to supplement that analysis. A new water supply impact assessment has been completed and is presented in detail in **Section 7.1**. That analysis shows that the Campus's demand for water under the 2005 LRDP, including the SHW project and the dining facilities expansion project, in conjunction with the demand for water due to foreseeable growth within the water service area would not exceed the City's water supply under normal water years and therefore the cumulative impact on water supply would not be significant. However under single and multiple dry water year conditions, the supplies would be lower than the demand and that the City would need to develop a new water supply source to serve the demand. Potential environmental impacts from developing a new supply source are presented in **Section 7.1,** and were determined to be significant and unavoidable**.** Although mitigation measures identified in **Section 7.1** would reduce the Campus's contribution to cumulative water supply impacts, they would not eliminate the need for a new water source. Therefore, the impact would be significant and unavoidable.

The cumulative impact of campus development under the 2005 LRDP along with other regional development on wastewater treatment facilities and landfills is analyzed under LRDP Impact UTIL-10. The 2005 LRDP EIR found that the expansion of associated utilities and service systems to meet this demand would not result in significant environmental impacts. The proposed SHW project as well as the related dining facilities expansion project would not increase enrollment at UC Santa Cruz or the regional population levels. Therefore, the cumulative impact of the proposed SHW project and related dining

facilities expansion project on wastewater treatment facilities and landfills is adequately addressed by the analysis in the 2005 LRDP EIR, and would be less than significant.

Mitigation Measures: No mitigation is feasible.

Significance after Mitigation: The cumulative impact on utilities would be significant and unavoidable.

4.13.7 REFERENCES

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