UNIVERSITY OF CALIFORNIA SANTA CRUZ,
COASTAL (MARINE[1]) SCIENCE CAMPUS
COASTAL LONG RANGE DEVELOPMENT PLAN
2016 ANNUAL REPORT
JULY 2017

1 Introduction

Pursuant to Section 8.8 of the Coastal Long Range Development Plan (CLRDP), this annual CLRDP report includes a cumulative and calendar-year summary of the compliance of development projects authorized under the CLRDP with the terms and conditions of their authorizations; a description of development excluded from the development review procedures in Sections 8.1.4, 8.2 and 8.4 of the CLRDP by virtue of Section 8.3; authorizations for emergency development pursuant to Section 8.10; enforcement of the provisions of the CLRDP pursuant to Section 8.9; annual monitoring reports required under the CLRDP; the status of CLRDP-required improvements and other University commitments; and any comments received on CLRDP implementation.

A record of the CLRDP annual report is maintained in the offices of UCSC Physical Planning & Construction and is available for public review by appointment. A copy of the annual report will be submitted to the Executive Director of the California Coastal Commission.

2 Project Compliance

This section summarizes the compliance of development projects that were authorized under the CLRDP in 2016 with the terms and conditions of their authorization, and of continuing obligations from authorizations in previous years.

No development projects were authorized in 2016.

In 2016, the Campus continued to comply with continuing obligations from four projects that were authorized in previous years:

NOID 2 (10-1), Public Access to and within the Younger Lagoon Reserve. Authorized on March 12, 2010. The Coastal Commission determined that the proposed development project is consistent with the CLRDP, with no conditions. The project is being implemented on an ongoing basis. NOID 10-1 requires that the public have access to Younger Lagoon Reserve beach through controlled visits, and that a monitoring program be created and implemented to document effect on native flora and fauna within Younger Lagoon and its beach. A report of activities carried out under NOID 10-1 in 2016, including results of the monitoring program, is included in Appendix B.

[1] The Coastal Science Campus was formerly known as the Marine Science Campus.

NOID 3 (10-2), Younger Lagoon Reserve Terrace Lands Phase 1A Restoration. Authorized on September 15, 2010. The Coastal Commission determined that the proposed development project is consistent with the CLRDP, with no conditions. The project is being implemented over a seven-year period. Activities carried out in 2016 under NOID 10-2 are described in Section 7.2, below.

NOID 5 (12-2), Public Coastal Access Overlooks. Authorized on August 10, 2012. The Coastal Commission determined that the proposed development is consistent with the CLRDP, with no conditions. Project construction began in October 2012 and was completed in March 2013, with the exception of interpretive panels to be placed at the overlooks, whose installation was completed in 2016. The project includes a mitigation monitoring and reporting program that was adopted by the University in conjunction with project approval in January 2011. A copy of the mitigation monitoring checklist is included in Appendix C.

NOID 6 (13-1), Coastal Biology Building and Associated Development, Sign Program, and Parking Program. Authorized on October 10, 2013. The Coastal Commission determined that the proposed development is consistent with the CLRDP, with the following conditions: 1) modifications to the design of fencing proposed for the utility and storage yards, for McAllister Way, and for Overlook E; 2) limitation of parking fees to no more than $1.50 per hour on non-State holiday weekdays between 8:00 AM and 5:00 PM; and 3) revisions to the proposed design of parking signs. During 2013, the Campus completed the design of the proposed development and began the bidding process. The Campus submitted revised fencing plans to the Commission on July 10, 2014. Commission staff approved the revised fencing design on August 28, 2014. Construction began in May 2015. The project includes a mitigation monitoring and reporting program that was adopted by the University in conjunction with project approval in January 2012. A copy of the mitigation monitoring checklist is included in Appendix C.

NOID 7 (14-1), Mammal Pool Expansion and Renovation. Authorized on May 14, 2014. The Coastal Commission determined that the proposed development project is consistent with the CLRDP, with no conditions. The first of two phases of this project, consisting of alterations and repairs of the temporary tanks at California Department of Fish and Wildlife (DFW) facility, was completed in September 2015. Construction of the second phase, which consists of renovation and expansion of the mammal pools at the Long Marine Lab marine mammal pool facility, began in June 2016. The project includes a mitigation monitoring and reporting program that was adopted by the University in conjunction with project approval in March 2014. A copy of the mitigation monitoring checklist is included in Appendix C.

3 Development Excluded from Development Review Procedures

This section describes development undertaken in 2016 that is excluded from the development review procedures in CLRDP sections 8.1.4, 8.2., and 8.4 by virtue of Section 8.3.

In 2016, the University carried out a variety of small repair and maintenance activities. These projects did not result in an addition to, or enlargement or expansion of the facilities.

4 Emergency Authorizations

This section describes development undertaken in 2016 pursuant to emergency authorizations by the UCSC Chancellor or the California Coastal Commission pursuant to CLRDP Section 8.10. No emergency authorizations were approved in 2016.

5 Enforcement

This section describes actions taken to enforce the provisions of the CLRDP and the Coastal Act which are enforceable pursuant to Chapter 9 of California Public Resources Code Division 20. No enforcement actions were taken in 2016.

6 CLRDP-Required Annual Monitoring Reports

The CLRDP requires the following annual monitoring reports:

- **Water Quality Report.** The annual water quality report is to be prepared following each storm season (typically post-April 15th) and the report completed by mid-summer. The annual water quality report for the 2015-16 storm season is presented in Appendix A of this document.
- **Resource Management Plan Reporting.** The Resource Management Plan (CLRDP Appendix A) requires the submission of annual reports of the results of monitoring activities provided for in the Specific Resource Plan (SRP) that will be prepared for each phase of habitat restoration. The third annual report, which covers monitoring activities carried out in FY2015-16, is presented in Appendix B of this document.

7 Status of University Commitments

This section summarizes the status of the capital improvements identified in CLRDP Chapter 9 and in other sections of the CLRDP, including measures to protect and enhance habitat, public access policies and procedures, and transportation demand management.

7.1 Capital Improvement Program

As a result of the unanticipated and unprecedented decline in revenue, and associated reductions in funding and staff time, the Campus was not able to meet all of the schedule requirements of the CLRDP Capital Improvement Program. In March 2012, to comply with CLRDP Policy 1.2, which contains a provision that allows for relief of CLRDP requirements, the Campus notified Commission staff of the manner in which the University proposes to remedy the defaults and proposed a schedule for monitoring and reporting progress on correcting the deficiency. That schedule was discussed and agreed to with Commission staff. Table 1 summarizes the status of the capital improvements identified in CLRDP Chapter 9, including the revised schedule proposed by the Campus.

Table 1

Status of Capital Improvements Required by the CLRDP

Category	Improvement	Status
Public access improvements	Trails	
	Group 1	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Group 2	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Group 3	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Overlooks	
	Overlook A	Construction completed in 2013, under NOID 5 (12-2).
	Overlook B	Completed in 2010, under NOID 09-1.
	Overlook C	Construction completed in 2013, under NOID 5 (12-2).
	Overlook D	Construction completed in

Category	Improvement	Status
		2013, under NOID 5 (12-2).
	Overlook E	Construction completed in 2013, under NOID 5 (12-2).
	Overlook F	Construction completed in 2013, under NOID 5 (12-2).
	Parking	
	Lower terrace public coastal access	Campus submitted a NOID to the Commission in March 2012. Based on subsequent discussions with Commission staff, this project is now included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Lower terrace dual use	Campus submitted a NOID to the Commission in March 2012. Based on subsequent discussions with Commission staff, this project is now included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Middle terrace public coastal access	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.

Category	Improvement	Status
	Campus Entrance	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Updated signs and information-public access parking	New signs were installed in 2011 as part of the Outdoor Research Yard Expansion and Public Access Improvements Project (NOID-09-1). Additional signs will be installed in conjunction with the designation of lower terrace public coastal access parking spaces as part of the Parking Program included as part of NOID 6 (13-1), which was approved in October 2013. The signs will be installed upon completion of the parking lots currently under construction.
	Parking program	Campus submitted a NOID to the Commission in March 2012. Based on subsequent discussions with Commission staff, this project is now included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.

	Identification of Access Facilities	(CLRDP section 9.1.4) Informational signs are scattered throughout the site at public visitor destinations, showing public access trail map. Brochures about research activities, educational opportunities, planned events, and participation opportunities are available at the Seymour Center entry area, the Seymour Center administrative office, and at the Long Marine Lab main administrative office.
Habitat enhancements	Natural areas restoration	See Section 7.2, below.
	Remove/restore parking area west of McAllister Way	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
Circulation Improvements	Shaffer Rd. Improvements	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Realigned Main Campus Street	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015. The new Campus street was completed in 2016 and is in use while construction of other development included in NOID 6 continues.

	Shaffer/Delaware Intersection	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
Drainage System Improvements	De Anza Mobile Home Park drainage pipe	The Campus has determined that the drainage pipe from wetland W4 functions adequately with appropriate maintenance and that this pipe does not need to be replaced.
	Outfall west of NOAA	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.
	Middle terrace percolation trench and berm	Included in NOID 6 (13-1), which was approved in October 2013. Construction began in May 2015 and will be completed in 2017.

7.2 Habitat Enhancement and Protection

On July 24, 2008 the University of California Natural Reserve System (UCNRS) and UCSC Campus Administration signed an agreement incorporating the approximately 47 ac (19 ha) of natural areas outside of the development zones on the Coastal Science Campus into the University of California Natural Reserve System (UCNRS) as part of the Younger Lagoon Reserve (YLR). The agreement outlines the commitment by the NRS and campus to comply with restoration, management, and research on all YLR lands.

The Chancellor of UCSC appointed a Scientific Advisory Committee (SAC) to guide the creation of a Specific Resource Plan (SRP) on January 30, 2009. During 2009, Reserve staff drafted an SRP for Phase 1 of the restoration and management of the Terrace Lands, in consultation with the SAC and other technical professionals. The Campus submitted a NOID for the SRP Phase 1A,

which was authorized by the Coastal Commission in September 2010.

Restoration activities that were initiated on the Younger Lagoon Reserve Terrace Lands in 2009 continued in 2016. The work was performed largely by undergraduate students and community volunteers. Reserve staff conducted weed patrols of the entire terrace, continued removing ice plant from the coastal bluffs, removed all Jubata grass and French Broom re-sprouts from the terrace, and removed all Cape Ivy re-sprouts from the west arm of the lagoon. Reserve staff collected seeds for to propagate plants for restoration in the summer and fall of 2015. These seeds were propagated at the UCSC Teaching Greenhouse in the fall and winter of 2016. With the assistance of hundreds of volunteers and student interns, Reserve staff continued to plant native seedlings in upland scrub and grassland habitats. Vegetation surveys for restoration compliance monitoring of planted areas on the Terrace Lands were conducted in the spring of 2016. The YLR annual report for FY2015-16 is included in this report as Appendix G.

7.3 Public Access Policies and Procedures

Consistent with the provisions of the CLRDP, the Coastal Science Campus is open to the public during daylight hours. Access to the Coastal Science Campus is free except that a fee is charged for admission to the Seymour Marine Discovery Center. The Center holds several community free days each year. Organized tours offer controlled access to some research areas, research buildings, and parts of the lagoon portion of the Younger Lagoon Reserve; these areas are otherwise not open to the public. All parking on the campus during 2016 was free and on a first-come-first-serve basis. The Seymour Center is open seven days a week during July and August and six days a week during the rest of the year.

Supervised site tours of parts of Long Marine Lab, as well as the Seymour Center exhibit halls and outdoor areas are offered four times a day when the Seymour Center is open. Tours of marine mammal research areas are generally offered twice a month but have been suspended during construction of the Mammal Pool Expansion and Renovation Project. The Seymour Center also offers a variety of field trips for K-12 school classes and community college groups, including hands-on lab activities.

Since 2010, the Reserve has offered 90-minute tours of the original Younger Lagoon Reserve twice a month. Access to other parts of the Younger Lagoon Reserve, on the terrace lands, is not controlled at this time.

7.4 Transportation Demand Management

Santa Cruz Metropolitan Transit District (SCMTD) route 3 serves the CSC with service to the west end of Delaware Avenue, adjacent to the campus entrance every two hours from 8:10 a.m. to 6:10 p.m. on weekdays and from 10:10 a.m. to 6:10 p.m. on weekends. Since November 2016, two of the weekday trips provide service within the CSC, terminating at the Seymour Marine Discovery Center parking lot. SCMTD UC Westside Route 20 bus provides hourly service to Delaware Avenue and Natural Bridges Drive weekdays from 11:30 a.m. until 3:30 p.m., and weekends from 8:30 a.m. until 8:30 p.m.. Supplemental bus service is provided on weekdays during the UCSC school term to handle overload on this route. SMTD

Through an agreement between the University and the SCMTD, students who display a valid

UCSC ID card do not have to pay a fare to ride SCMTD buses. SCMTD service for students is funded through the Student Transit Fee. Faculty and staff may obtain a SCMTD bus pass for $12 per month, or $144 annually, which provides UCSC's Transportation and Parking Services(TAPS) with funding for payments to the SCMTD to accommodate faculty and staff transit ridership.

The Campus' Long Marine Lab Shuttle was discontinued in Fall 2009, as ridership levels continued to decline for the third year in a row. With a total ridership for 2008-09 of only 741 passengers, the cost of the shuttle was more than $56 per ride, and the shuttle was determined not to be a cost effective means of reducing trips to the campus.

TAPS coordinates a vanpool program that is open to faculty, staff and students. Zimride, a Facebook-based application, provides ride matching (on a regular or occasional basis) to members of the UCSC community. TAPS also has several programs to support the use of bicycles as a means of transportation: classes on bicycle safety, free bicycle licensing, a no-interest bike loan program, an emergency-ride-home program, and bicycle maintenance and repair clinics on the main campus.

TAPS' website provides detailed information about all of the Campus' alternative transportation programs and links to the SCMTD website.

7.5 Removal of Existing Non-Conforming Facilities

The temporary small-scale desalinization research facility in Subarea #13 was converted into a fenced outdoor research yard under NOID 09-1, in 2010. The non-conforming greenhouses and a ground-level storage area in Subareas #6 and #7 were removed in 2015 under NOID 6 (13-1), which was approved in October 2013.

7.6 CLRDP EIR Mitigation Monitoring Program

The CLRDP EIR Annual Mitigation Monitoring Report is presented in Appendix C.

8 Comments Received on CLRDP Implementation

One comment letter on implementation of the CLRDP in 2015 was received in April 2016 and was included in the 2015 Annual Report. Several comments regarding construction noise and dust associated with development under NOID 6 were received in 2016.

9 Appendices

Appendix A: Annual Water Quality Report

Appendix B: Younger Lagoon Reserve Annual Report

Appendix C: Annual Mitigation Monitoring Report

Appendix D: Comments on CLRDP Implementation

Appendix A

Annual Water Quality Report

UC SANTA CRUZ, COASTAL LONG RANGE DEVELOPMENT PLAN

2016 ANNUAL WATER QUALITY REPORT

December 2016

1 Introduction

As specified in Section B.6.3 of the UC Santa Cruz Coastal Long Range Development Plan (CLRDP), this annual water quality report includes: 1) the results of the Drainage Monitoring and Maintenance Program described in Fig. B.22 of the CLRDP; 2) the results of any water quality monitoring requirements emanating from individual development projects; 3) any monitoring or other related information applicable to other Campus discharges (such as NPDES requirements associated with seawater discharges); 4) recommendations for any modifications to Campus drainage system components that are necessary to achieve CLRDP water quality performance standards.

The annual water quality report is prepared following each storm season (typically post-April 15th) and the report completed by mid-summer to allow any necessary changes to be implemented prior to the next storm season (i.e., by October 15th). Annual water quality reports are maintained in the offices of UC Santa Cruz Physical Planning and Construction, and are available for public review and shall be made readily available to researchers investigating the performance of water quality "best management practices" (BMPs).

2 Drainage Monitoring and Maintenance Program

This section summarizes the results of the Drainage Monitoring and Maintenance Program, including the assessment of source control BMP efficacy and the required monitoring and maintenance for treatment BMPs. The Drainage Monitoring and Maintenance Program includes monitoring and maintenance requirements for source control BMPs and treatment BMPs.

2.1.1 Source Control BMPs

Table 1 summarizes the results of the Campus' annual assessment of source control BMPs, as specified in Section B.6.1 of the CLRDP.

Table 1

Annual Assessment of Source Control BMPs

Minimum Performance Standard	Status
That the Campus is providing adequate and convenient means for the recycling/disposal of commercial and household hazardous wastes. The performance standard to be achieved is that all commercial and household hazardous wastes that can be recycled are being recycled, and that all such wastes that cannot be recycled are being properly disposed of.	Currently, the caretaker's residence is the only residence on the Coastal Science Campus. All campus employees who handle hazardous waste are required to receive hazardous waste training and to follow the hazardous waste handling procedures established by UCSC Environmental Health and Safety (EH&S). EH&S collects all hazardous wastes generated on the campus for proper disposal. EH&S maintains online recycling and disposal guidelines that help members of the campus community identify which materials can be

Minimum Performance Standard	Status
	recycled and which must be disposed of as hazardous waste. A recycling bin for used batteries is kept in the Center for Ocean Health mail room.
That less toxic alternatives to commercial and household hazardous chemicals (such as lubricants, pesticides, solvents, acids, alkalis and paints) are being used where possible, and that all such chemicals are appropriately stored and sparingly used. The performance standard to be achieved is that all commercial and household hazardous chemicals are stored in a manner designed to contain all spills, that information on less-toxic alternatives has been provided to potential Campus users, and that chemicals are used sparingly, per their intended application, and in a manner designed to minimize the potential for such chemicals to be applied outside target application areas.	The Campus' in-person hazardous waste training has been converted to a web based training accessed through the campus Learning Management System. Training topics include the UCSC Waste Management website, where training participants learn how to navigate the site, find and use the fact sheets and the waste minimization webpage, hazardous waste determination and classification guidelines, the online hazardous waste tracking system, a new recycling and disposal guide, and a link to the Green Alternatives Wizard, a database that provides information on alternatives to hazardous chemicals or processes.
That all roads, parking lots, and other paved surfaces are being vacuum swept with a regenerative-air sweeper designed to control litter, dust, dirt, and other potential pollutants to the maximum extent feasible. The performance standard to be achieved is that all paved surfaces are vacuum swept at least one time per month and that all regenerative-air sweepers used are maintained in good working order per the manufacture's recommendations.	The Campus began using a regenerative air sweeper in February 2014. Since that time, the roads and parking lots at the Coastal Science Campus have been swept once a month, with the exception of May 2014, September 2015 and November 2016. Before February 2014, a broom sweeper was used.
That all landscaping uses native plants with low nutrient, water, and pesticide/rodenticide requirements. The performance standard to be achieved is that all Campus landscaping meets this criterion.	Landscaping consistent with this requirement was installed in conjunction with the improvements to Overlook B, which were implemented in 2010 under NOID 09-1. Areas disturbed for construction of the improvements to overlooks A, C, D, and E (NOID 5 [12-2]) were planted with native, low-water-use plants. The landscaping plans included in NOID 6 (13-3) are consistent with this requirement.
That the University is providing Marine Science Campus users with convenient recycling and yard waste programs, and that Campus users are fully utilizing the University's recycling and yard waste programs. The performance standard to be achieved is that 100 percent of	Mixed recycling containers are staged at the Center for Ocean Health, Seymour Marine Discovery Center, the Boat Yard, the green house area and at the California Fish & Game Facility. All of these facilities also have centralized indoor office-paper recycling centers, generally in the copy rooms. Two

Minimum Performance Standard	Status
recyclable materials are recycled and that 100 percent of yard wastes are mulched/reused.	cardboard dumpsters service the same group of facilities. Additionally, yard waste is put into cubic yard carts that are emptied into a large debris box that is green-wasted at the City Recycle Center. Finally, Physical Plant provides a separate debris box for all Natural Reserve and Site Stewardship 'yard waste'.

2.1.2 Treatment BMPs

No treatment BMPs have been installed since the CLRDP was approved.

3 Project Water Quality Monitoring

This section describes the results of any individual water quality monitoring requirements emanating from individual development projects. There were no water quality monitoring requirements emanating from individual development projects in 2016.

4 Monitoring Applicable to Other Campus Discharges

This section describes monitoring or other related information applicable to other Campus discharges (such as NPDES requirements associated with seawater discharges). Discharges of seawater from the Campus are subject to the monitoring requirements of the General Permit for Discharges from Aquaculture and Aquariums (NPDES Permit No. CAG993003). A copy of the 2016 Annual Report and Fourth Quarter Monitoring Report is attached. For all four monitoring periods of 2016 the Long Marine Lab discharge was in full compliance in all aspects of the permit.

5 Recommendations

This section presents recommendations for any modifications to Campus drainage system components that are necessary to achieve CLRDP water quality performance standards. No new development projects were completed in 2016 and no drainage system components have been constructed under the CLRDP.

Attachment: Long Marine Laboratory Annual Report 2016, NPDES General Permit No.CAG993003, and Monitoring and Reporting Program No. R3-2013-041.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

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DIVISION OF PHYSICAL & BIOLOGICAL SCIENCES
OFFICE OF THE DEAN

SANTA CRUZ, CALIFORNIA 95064

January 24, 2017

Sheila M. Soderberg, P.G
DoD/N PDES Program Manager
Central Coast Water Board
895 Areovista Place, Suite 101
San Luis Obispo, CA 93401

Re: Long Marine Laboratory Annual Report 2016
National Pollutant Discharge Elimination System (NPDES) Permit
General Permit No. CAG993003
Order No. R3-2013-0041

Dear Ms. Soderberg,

Please accept this letter and attachment in satisfaction of our Annual Report requirement for 2016, in accordance with the requirements of the above referenced General Permit and Order. In addition to this letter is a summary of our quarterly observations and sample analysis results performed by Soil Control, actual quarterly chemical analysis reports and Chain of Custody sample sheets.

The following statements are intended to satisfy specific requirements of our permit for annual reporting:

Chemical Analysis
For 2016, the chemical analyses of the sampled ocean discharge from Long Marine Lab indicated full compliance with the permit, and no corrective actions are indicated.

Discharge Flow
Discharge flow from Long Marine Laboratory have been consistent for several years, and remained so in 2016. An insignificant increase (50 gallons/minute) in discharge flow will occur launching of the new Coastal Science building, located on the Coastal Science campus, which shall be supported by the seawater system at the Long Marine Laboratory. With the opening of the new development in the summer of 2017, we do not foresee any significant increase in discharge flows, and project we will be well within the capacity of our system.

The name of the laboratory that we used to analyze discharge samples is: Soil Control Lab, a division of Control Laboratories Inc., 42 Hangar Way, Watsonville, California 95076, an analytical laboratory approved by the State of California.

Chemical Usage
In 2016, hypochlorite solution in the form of household bleach was used for routine pool and tank cleaning on a weekly basis. In addition, at our marine mammal holding pools hypochlorite solution generated by electrolysis from seawater is added to re-circulating seawater to maintain a maximum residual of 0.5 ppm on a continuous basis. In both cases, as this chlorinated water is added to the discharge stream it is diluted significantly with non-chlorinated seawater effluent, and de-chlorinated with liquid sodium bisulfite solution when necessary to meet limits at the point of discharge to the ocean.

As of August 2016, the Long Marine Laboratory's marine mammal pools were temporary closed for a renovation project which cause many of LML's captive animals to be relocated to the CDFW facility on the Coastal Science campus. Hypochlorite solution use for cleaning purposes was slightly reduced in the latter part of 2016 as a result of the largest mammal pool at LML becoming temporarily inoperable during construction.

We certify that we have not added substances to the waste stream that are listed in Table 1 of the California Ocean Plan or 40 CFR Section 131.38 with the exception of residual chlorine as noted above.

Exotic Species
The NOAA Fisheries Laboratory, one of the partner agencies on the General Permit for the Long Marine Lab discharge, is holding sheepshead minnows (Cyprinodon variegates), an Atlantic Ocean species, derived from eggs that were imported under a California Department of Fish and Wildlife Standard Importation Permit, issued 12/13/2011, Permit No. 1920. These fish are held in a closed seawater system in the lab. The seawater from this system is discharged into a quarantine sump, treated with chlorine, chlorine neutralized, then passed through a UV sterilizer before entering the general seawater discharge. The facility was inspected by CDFW before and after construction of the closed holding and discharge system, and the discharge protocol was approved. This species is expected to remain at the NOAA facility until June 2017. At the conclusion of work with this species the remaining fish will be disposed of at a landfill.

Best Management Practices Plan
Each of the three agencies that oversee seawater operations related to this discharge permit (UCSC Long Marine Lab, NOAA Fisheries Laboratory, and CDFW Marine Wildlife Center) have reviewed and/or updated their individual Best Management Practices Plans for 2017. These BMPs include operational protocols with regard to any substance that may enter the discharge stream.

In accordance with the Standard Provisions and Reporting Requirements, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person(s) who manage the system, or those directly

responsible for data gathering, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

This report is being transmitted via email. If you should have any questions regarding this report or about the Long Marine Laboratory seawater system/ocean discharge operations, please contact Ashley Vizurraga, Managing Director of LML, at (831) 459-2886 or ashviz@ucsc.edu.

Respectfully submitted,

Paul Koch, Dean
UCSC Physical and Biological Sciences

Cc: Ashley Vizurraga, Managing Director
UCSC Long Marine Laboratory

Steve Lindley, Director
NOAA Southwest Fisheries Science Center

Laird Henkel, Director
Calif. Dept. Fish and Wildlife, Marine Wildlife Center

Deirdre Whalen, Government and Community Relations Coordinator
NOAA Monterey Bay National Marine Sanctuary

Karen Grimmer, Resource Protection Coordinator
NOAA Monterey Bay National Marine Sanctuary

Sophie De Beukelaer, Permit Coordinator
NOAA Monterey Bay National Marine Sanctuary

LONG MARINE LABORATORY
POLLUTANT DISCHARGE REPORT
REPORT YEAR - 2016
General Permit No. CAG993003
Order No. R3-2013-0041

	Lowest	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
Sample Observation Dates	**Discharge Limits**	30-Mar-2016	27-Jul-2016	6-Oct-2016	20-Dec-2016
Influent Analysis					
Temperature (degrees C)	**N/A**	13.00	15.00	14.50	**12.40**
pH Value (units)	**6.0 - 9.0**	7.90	7.80	7.90	7.90
Turbidity (NTU)	**75.0**	2.70	0.82	1.80	3.20
Total Suspended Solids (mg/L)	**60.0**	4.70	2.50	2.90	8.60
Estimated Flow (MGD)	**2.1**	0.95	0.86	0.84	0.73
Effluent Analysis					
Temperature (degrees C)	**N/A**	14.10	15.50	14.10	12.10
pH Value (units)	**6.0 - 9.0**	7.90	8.00	7.80	7.80
Turbidity (NTU)	**75.0**	0.70	1.40	0.55	0.75
Total Suspended Solids (mg/L)	**60.0**	ND	1.20	ND	1.40
Settleable Solids (mg/L)	**1.0**	ND	ND	ND	ND
Grease & Oil (mg/L)	**25.0**	ND	ND	ND	ND
Estimated Flow (MGD)	**2.1**	0.95	0.86	0.84	0.73
Receiving Water Observations (for the area 100' upcoast and downcoast of the discharge point)					
Floating or suspended matter	**absent**	absent	absent	absent	absent
Discolortion	**absent**	absent	absent	absent	absent
Visible films, sheens, coatings	**absent**	absent	absent	absent	absent
Objectionable growths	**absent**	absent	absent	absent	absent
Potential nuisance conditions	**absent**	absent	absent	absent	absent
ND= Not Detected					
DNQ = Detected but Not Quantified					

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

42 HANGAR WAY
WATSONVILLE
CALIFORNIA
95076
USA

TEL: 831-724-5422
FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6070803
Reporting Date: August 3, 2016

Date Received:	July 27, 2016
Project # / Name:	None / LML Ocean Discharge Monitoring
Sample Identification:	Influent / Grab, sampled 7/27/2016 11:25:00AM
Sampler Name / Co.:	Randolph Skrovan / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6070803-01

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.8	pH Units	0.1	SM4500-H+ B	07/27/16	
Turbidity	0.82	NTU	0.10	SM 2130B	07/27/16	
Total Suspended Solids	2.5	mg/L	1.0	SM 2540D	07/27/16	

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CALIFORNIA
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TEL: 831-724-5422
FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6070803
Reporting Date: August 3, 2016

Date Received: July 27, 2016
Project # / Name: None / LML Ocean Discharge Monitoring
Sample Identification: Effluent / Grab, sampled 7/27/2016 11:30:00AM
Sampler Name / Co.: Randolph Skrovan / UCSC Long Marine Lab
Matrix: Water
Laboratory #: 6070803-02

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	8.0	pH Units	0.1	SM4500-H+ B	07/27/16	
Oil & Grease (total)	ND	mg/L	4.7	EPA 1664	08/01/16	
Turbidity	1.4	NTU	0.10	SM 2130B	07/27/16	
Total Settleable Solids	ND	mL/L	0.10	SM2540F	07/27/16	
Total Suspended Solids	1.2	mg/L	1.0	SM 2540D	07/27/16	

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WATSONVILLE
CALIFORNIA
95076
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FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
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Attn: Randolph Skrovan

Work Order #: 6070803
Reporting Date: August 3, 2016

*** DEFAULT GENERAL METHOD *** - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PH60005 - Default Prep GenChem											
Blank (PH60005-BLK1)					Prepared & Analyzed: 01-Aug-16						
Oil & Grease (total)	ND		5.0	mg/L							
Reference (PH60005-SRM1)					Prepared & Analyzed: 01-Aug-16						
Oil & Grease (total)	36.20		5.0	mg/L	41.0		88.4	80-120			

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WATSONVILLE
CALIFORNIA
95076
USA

TEL: 831-724-5422
FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6070803
Reporting Date: August 3, 2016

Classical Chemistry Parameters - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PG60256 - Default Prep GenChem											
Blank (PG60256-BLK1)					Prepared & Analyzed: 27-Jul-16						
Total Suspended Solids	ND		2.0	mg/L							
Duplicate (PG60256-Dup1)		**Source: 6070630-02**			Prepared & Analyzed: 27-Jul-16						
Total Suspended Solids	70.93		5.8	mg/L		72.14			1.70	20	
Batch PG60261 - Default Prep GenChem											
Duplicate (PG60261-Dup1)		**Source: 6070803-02**			Prepared & Analyzed: 27-Jul-16						
pH	7.97		0.1	pH Units		7.98			0.125	20	
Reference (PG60261-SRM1)					Prepared & Analyzed: 27-Jul-16						
pH	6.04		0.1	pH Units	6.03		100	80-120			
Batch PG60267 - Default Prep GenChem											
Blank (PG60267-BLK1)					Prepared & Analyzed: 27-Jul-16						
Turbidity	ND		0.10	NTU							
Duplicate (PG60267-Dup1)		**Source: 6070810-05**			Prepared & Analyzed: 27-Jul-16						
Turbidity	0.5200		0.10	NTU		0.4400			16.7	20	

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CALIFORNIA
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USA

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FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Steve Davenport

Work Order #: 6030932
Reporting Date: April 6, 2016

Date Received:	March 30, 2016
Project # / Name:	None / LML Ocean Discharge Monitoring
Sample Identification:	Influent / Grab, sampled 3/30/2016 12:50:00PM
Sampler Name / Co.:	Randolph Skrovon / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6030932-01

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.9	pH Units	0.1	SM4500-H+ B	03/30/16	
Turbidity	2.7	NTU	0.10	SM 2130B	03/30/16	
Total Suspended Solids	4.7	mg/L	1.1	SM 2540D	03/31/16	

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CALIFORNIA
95076
USA

TEL: 831-724-5422
FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Steve Davenport

Work Order #: 6030932
Reporting Date: April 6, 2016

Date Received: March 30, 2016
Project # / Name: None / LML Ocean Discharge Monitoring
Sample Identification: Effluent / Grab, sampled 3/30/2016 12:55:00PM
Sampler Name / Co.: Randolph Skrovon / UCSC Long Marine Lab
Matrix: Water
Laboratory #: 6030932-02

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.9	pH Units	0.1	SM4500-H+ B	03/30/16	
Oil & Grease (total)	ND	mg/L	5.0	EPA 1664	04/01/16	
Turbidity	0.70	NTU	0.10	SM 2130B	03/30/16	
Total Settleable Solids	ND	mL/L	0.10	SM2540F	03/31/16	
Total Suspended Solids	ND	mg/L	1.1	SM 2540D	03/31/16	

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100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Steve Davenport

Work Order #: 6030932
Reporting Date: April 6, 2016

*** DEFAULT GENERAL METHOD *** - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PC60331 - Default Prep GenChem											
Blank (PC60331-BLK1)					Prepared & Analyzed: 01-Apr-16						
Oil & Grease (total)	ND		5.0	mg/L							
Reference (PC60331-SRM1)					Prepared & Analyzed: 01-Apr-16						
Oil & Grease (total)	37.30		5.0	mg/L	41.0		91.1	80-120			

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Attn: Steve Davenport

Work Order #: 6030932
Reporting Date: April 6, 2016

Classical Chemistry Parameters - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PC60320 - Default Prep GenChem											
Duplicate (PC60320-Dup1)		**Source: 6030920-01**			Prepared & Analyzed: 30-Mar-16						
pH	5.98		0.1	pH Units		5.86			2.03	20	
Reference (PC60320-SRM1)					Prepared & Analyzed: 30-Mar-16						
pH	6.97		0.1	pH Units	6.94		100	80-120			
Batch PC60326 - Default Prep GenChem											
Blank (PC60326-BLK1)					Prepared & Analyzed: 30-Mar-16						
Turbidity	ND		0.10	NTU							
Duplicate (PC60326-Dup1)		**Source: 6030922-05**			Prepared & Analyzed: 30-Mar-16						
Turbidity	0.2400		0.10	NTU		0.1900			23.3	20	
Batch PC60330 - Default Prep GenChem											
Blank (PC60330-BLK1)					Prepared & Analyzed: 31-Mar-16						
Total Suspended Solids	ND		2.0	mg/L							
Blank (PC60330-BLK2)					Prepared & Analyzed: 31-Mar-16						
Total Suspended Solids	ND		2.0	mg/L							
Duplicate (PC60330-Dup1)		**Source: 6030798-01**			Prepared & Analyzed: 31-Mar-16						
Total Suspended Solids	14.38		2.1	mg/L		13.16			8.81	20	

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FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6100241
Reporting Date: November 4, 2016

Date Received:	October 6, 2016
Project # / Name:	None / LML Ocean Discharge Monitoring
Sample Identification:	Influent / Grab, sampled 10/6/2016 3:00:00PM
Sampler Name / Co.:	Randolph Skrovan / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6100241-01

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.9	pH Units	0.1	SM4500-H+ B	10/06/16	
Turbidity	1.8	NTU	0.10	SM 2130B	10/06/16	
Total Suspended Solids	2.9	mg/L	1.0	SM 2540D	10/07/16	

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WATSONVILLE
CALIFORNIA
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USA

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FAX: 831-724-3188

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100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6100241
Reporting Date: November 4, 2016

Date Received:	October 6, 2016
Project # / Name:	None / LML Ocean Discharge Monitoring
Sample Identification:	Effluent / Grab, sampled 10/6/2016 3:05:00PM
Sampler Name / Co.:	Randolph Skrovan / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6100241-02

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.8	pH Units	0.1	SM4500-H+ B	10/06/16	
Oil & Grease (total)	ND	mg/L	4.7	EPA 1664	10/17/16	
Turbidity	0.55	NTU	0.10	SM 2130B	10/06/16	
Total Settleable Solids	ND	mL/L	0.10	SM2540F	10/07/16	
Total Suspended Solids	ND	mg/L	1.0	SM 2540D	10/07/16	

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CALIFORNIA
95076
USA

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FAX: 831-724-3188

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100 Shaffer Rd
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Attn: Randolph Skrovan

Work Order #: 6100241
Reporting Date: November 4, 2016

*** DEFAULT GENERAL METHOD *** - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PJ60152 - Default Prep GenChem											
Blank (PJ60152-BLK1)					Prepared & Analyzed: 17-Oct-16						
Oil & Grease (total)	ND		5.0	mg/L							
Reference (PJ60152-SRM1)					Prepared & Analyzed: 17-Oct-16						
Oil & Grease (total)	37.70		5.0	mg/L	41.0		92.1	80-120			

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100 Shaffer Rd
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Attn: Randolph Skrovan

Work Order #: 6100241
Reporting Date: November 4, 2016

Classical Chemistry Parameters - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PJ60046 - Default Prep GenChem											
Duplicate (PJ60046-Dup1)			**Source: 6100230-06**		Prepared & Analyzed: 06-Oct-16						
pH	7.67		0.1	pH Units		7.62			0.654	20	
Reference (PJ60046-SRM1)					Prepared & Analyzed: 06-Oct-16						
pH	6.02		0.1	pH Units	6.03		99.8	80-120			
Batch PJ60052 - Default Prep GenChem											
Blank (PJ60052-BLK1)					Prepared & Analyzed: 06-Oct-16						
Turbidity	ND		0.10	NTU							
Duplicate (PJ60052-Dup1)			**Source: 6100225-01**		Prepared & Analyzed: 06-Oct-16						
Turbidity	0.4200		0.10	NTU		0.3400			21.1	20	
Batch PJ60059 - Default Prep GenChem											
Blank (PJ60059-BLK1)					Prepared & Analyzed: 07-Oct-16						
Total Suspended Solids	ND		2.0	mg/L							
Blank (PJ60059-BLK2)					Prepared & Analyzed: 07-Oct-16						
Total Suspended Solids	ND		2.0	mg/L							
Duplicate (PJ60059-Dup1)			**Source: 6100203-01**		Prepared & Analyzed: 07-Oct-16						
Total Suspended Solids	9.536		2.6	mg/L		10.14			6.19	20	
Duplicate (PJ60059-Dup2)			**Source: 6100228-01**		Prepared & Analyzed: 07-Oct-16						
Total Suspended Solids	14.41		2.2	mg/L		16.07			10.9	20	

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USA

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FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6120682
Reporting Date: December 30, 2016

Date Received:	December 20, 2016
Project # / Name:	Quarterly / LML Ocean Discharge Monitoring
Sample Identification:	Influent / Grab, sampled 12/20/2016 2:50:00PM
Sampler Name / Co.:	Randolph Skrovan / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6120682-01

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.9	pH Units	0.1	SM4500-H+ B	12/21/16	
Turbidity	3.2	NTU	0.10	SM 2130B	12/21/16	
Total Suspended Solids	8.6	mg/L	1.3	SM 2540D	12/21/16	

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WATSONVILLE
CALIFORNIA
95076
USA

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FAX: 831-724-3188

UCSC Long Marine Lab
100 Shaffer Rd
Santa Cruz, CA 95060
Attn: Randolph Skrovan

Work Order #: 6120682
Reporting Date: December 30, 2016

Date Received:	December 20, 2016
Project # / Name:	Quarterly / LML Ocean Discharge Monitoring
Sample Identification:	Effluent / Grab, sampled 12/20/2016 2:55:00PM
Sampler Name / Co.:	Randolph Skrovan / UCSC Long Marine Lab
Matrix:	Water
Laboratory #:	6120682-02

	Results	Units	RL	Analysis Method	Date Analyzed	Flags
pH	7.8	pH Units	0.1	SM4500-H+ B	12/21/16	
Oil & Grease (total)	ND	mg/L	4.8	EPA 1664	12/29/16	
Turbidity	0.75	NTU	0.10	SM 2130B	12/21/16	
Total Settleable Solids	ND	mL/L	0.10	SM2540F	12/21/16	
Total Suspended Solids	1.4	mg/L	1.1	SM 2540D	12/21/16	

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CALIFORNIA
95076
USA

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FAX: 831-724-3188

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Attn: Randolph Skrovan

Work Order #: 6120682
Reporting Date: December 30, 2016

*** DEFAULT GENERAL METHOD *** - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PL60264 - Default Prep GenChem											
Blank (PL60264-BLK1)					Prepared & Analyzed: 29-Dec-16						
Oil & Grease (total)	ND		5.0	mg/L							
Reference (PL60264-SRM1)					Prepared & Analyzed: 29-Dec-16						
Oil & Grease (total)	37.80		5.0	mg/L	41.0		92.3	0-200			

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Work Order #: 6120682
Reporting Date: December 30, 2016

Classical Chemistry Parameters - Quality Control

Soil Control Lab

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch PL60222 - Default Prep GenChem											
Blank (PL60222-BLK1)					Prepared & Analyzed: 21-Dec-16						
Total Suspended Solids	ND		2.0	mg/L							
Blank (PL60222-BLK2)					Prepared & Analyzed: 21-Dec-16						
Total Suspended Solids	ND		2.0	mg/L							
Duplicate (PL60222-Dup1)		**Source: 6120467-01**			Prepared & Analyzed: 21-Dec-16						
Total Suspended Solids	30.88		3.5	mg/L		28.93			6.51	20	
Duplicate (PL60222-Dup2)		**Source: 6120486-02**			Prepared & Analyzed: 21-Dec-16						
Total Suspended Solids	5.641		2.6	mg/L		6.000			6.17	20	
Batch PL60227 - Default Prep GenChem											
Duplicate (PL60227-Dup1)		**Source: 6120692-01**			Prepared & Analyzed: 21-Dec-16						
pH	7.47		0.1	pH Units		7.46			0.134	20	
Reference (PL60227-SRM1)					Prepared & Analyzed: 21-Dec-16						
pH	6.05		0.1	pH Units	6.03		100	80-120			
Batch PL60233 - Default Prep GenChem											
Blank (PL60233-BLK1)					Prepared & Analyzed: 21-Dec-16						
Turbidity	ND		0.10	NTU							
Duplicate (PL60233-Dup1)		**Source: 6120699-01**			Prepared & Analyzed: 21-Dec-16						
Turbidity	0.3200		0.10	NTU		0.3400			6.06	20	

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Soil Control Lab

42 Hangar Way : Watsonville, CA 95076
Phone: (831) 724-5422
Fax: (831) 724-3188

CHAIN-OF-CUSTODY

LML Quarterly Samples

6030932 Page 1 of 1

Client/Company Name: UCSC Long Marine Lab	Comments/Special Instructions: Seawater
Attn: Steve Davenport	
Address: 100 Shaffer Road Santa Cruz CA 95060	
Phone: (831) 459-4771	
Fax: (831) 459-3383	
E-mail: sldaven@ucsc.edu	
Project Name: LML Ocean Discharge Monitoring	Send Invoice To: LML-Maria Choy
Project Number:	P.O. / Contract No:

Lab Use Only ID Number	Client Sample Identification	Sample Information: Sampling Date	Sampling Time	Matrix	Bottle or Container Information: Sample Preservative	Bottle Type	Bottle Size	No. of Bottles	Analyses Requested: TSS / Turbidity	pH	Settleable Solids	Oil and Grease				Lab Use Only: Storage Location / Freezer # / Refrigerator # / Shelf # / Sample Condition
-01	influent/grab	3/30/16	12:50	Seawater	none	HDPE	250ml	1		X						
↓	influent/grab	|	12:50	|	none	HDPE	1 L	1	X							
-02	effluent/grab		12:55		none	HDPE	1 L	1			X					
|	effluent/grab	|	|	|	none	HDPE	1 L	1	X							
|	effluent/grab	|	|	|	none	HDPE	250ml	1		X					
↓	effluent/grab	↓	↓	↓	H_2SO_4	AG	1 L	1				X				

Sampler's Signature and Printed Name:

Relinquished By (Signature and Printed Name):	Date	Time	Transported By:	Received By (Signature and Printed Name):	Date:	Time:
[signature]	3/30/16	16:40	[signature]	[signature] LYNNE NAKATA	3/30/16	1640

Soil Control Lab

42 Hangar Way : Watsonville, CA 95076
Phone: (831) 724-5422
Fax: (831) 724-3188

CHAIN-OF-CUSTODY

LML Quarterly Samples

6070803

Client/Company Name: UCSC Long Marine Lab	Comments/Special Instructions: Seawater.
Attn: Steve Davenport	
Address: 100 Shaffer Road	
Santa Cruz CA 95060	
Phone: (831) 459-4771	
Fax: (831) 459-3383	
E-mail: sldaven@ucsc.edu	
Project Name: LML Ocean Discharge Monitoring	Send Invoice To: Marin Choy
Project Number:	P.O. / Contract No:

Lab Use Only:	
Storage Location:	
Freezer #:	
Refrigerator #:	
Shelf #:	

Lab Use Only: ID Number	Client Sample Identification	Sample Information: Sampling Date	Sampling Time	Matrix	Bottle or Container Information: Sample Preservative	Bottle Type	Bottle Size	No. of Bottles	Analyses Requested: TSS/Turbidity	pH	Settleable Solids	Oil and Grease				Sample Condition
-01	influent/grab	7/27/16	11:25	Seawater	none	HDPE	250ml	1		X						
↓	influent/grab	↓	"	↓	none	HDPE	1 L	1	X							
-02	effluent/grab		11:30		none	HDPE	1 L	1			X					
↓	effluent/grab		↓		none	HDPE	1 L	1	X							
	effluent/grab				none	HDPE	250ml	1		X						
↓	effluent/grab	↓	↓	↓	H_2SO_4	AG	1 L	1				X				

Sampler's Signature and Printed Name:

Relinquished By (Signature and Printed Name):	Date	Time	Transported By:	Received By (Signature and Printed Name):	Date:	Time:
Randolph Strauss	7/27/16	12:16		LYNNE NAGATA	7/27/16	1216

Soil Control Lab

42 Hangar Way : Watsonville, CA 95076
Phone: (831) 724-5422
Fax: (831) 724-3188

CHAIN-OF-CUSTODY

LML Quarterly Samples

Client/Company Name: UCSC Long Marine Lab	Comments/Special Instructions: Seawater.
Attn: Steve Davenport	
Address: 100 Shaffer Road	
Santa Cruz CA 95060	
Phone: (831) 459-4771	
Fax: (831) 459-3383	
E-mail: sldaven@ucsc.edu	
Project Name: LML Ocean Discharge Monitoring	Send Invoice To: Maria Choy
Project Number:	P.O. / Contract No:

Lab Use Only: ID Number	Client Sample Identification	Sample Information: Sampling Date	Sampling Time	Matrix	Bottle or Container Information: Sample Preservative	Bottle Type	Bottle Size	No. of Bottles	Analyses Requested: TSS / Turbidity	pH	Settleable Solids	Oil and Grease				Lab Use Only: Sample Condition
	influent/grab	10/6/16	15:00	Seawater	none	HDPE	250ml	1		X						
	influent/grab		"		none	HDPE	1 L	1	X							
	effluent/grab		15:05		none	HDPE	1 L	1			X					
	effluent/grab				none	HDPE	1 L	1	X							
	effluent/grab				none	HDPE	250ml	1		X						
	effluent/grab	↓	↓		H_2SO_4	AG	1 L	1				X				

Lab Use Only: Storage Location: / Freezer #: / Refrigerator #: / Shelf #:

Sampler's Signature and Printed Name:

Relinquished By (Signature and Printed Name):	Date	Time	Transported By:	Received By (Signature and Printed Name):	Date:	Time:
[signature]	10/6/16	16:14	[signature]	[signature] LYNNE NAGATA	10/6/16	1614

Soil Control Lab

2 Hangar Way : Watsonville, CA 95076
Phone: (831) 724-5422
Fax: (831) 724-3188

CHAIN-OF-CUSTODY

LML Quarterly Samples

1120682

Page 1 of 1

Client/Company Name: UCSC Long Marine Lab	Comments/Special Instructions: Seawater.
Attn: Steve Davenport	
Address: 100 Shaffer Road Santa Cruz CA 95060	
Phone: (831) 459-4771	
Fax: (831) 459-3383	
E-mail: sldaven@ucsc.edu	
Project Name: LML Ocean Discharge Monitoring	Send Invoice To: Maria Choy
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Lab Use Only: ID Number	Client Sample Identification	Sample Information: Sampling Date	Sampling Time	Matrix	Bottle or Container Information: Sample Preservative	Bottle Type	Bottle Size	No. of Bottles	Analyses Requested: TSS/Turbidity	pH	Settleable Solids	Oil and Grease				Lab Use Only: Storage Location: / Freezer #: / Refrigerator #: / Shelf #: / Sample Condition
-01	influent/grab	12/20/16	14:50	Seawater	none	HDPE	250ml	1		X						
↓	influent/grab	↓	14:50		none	HDPE	1 L	1	X							
-02	effluent/grab		14:55		none	HDPE	1 L	1			X					
	effluent/grab		↓		none	HDPE	1 L	1	X							
	effluent/grab				none	HDPE	250ml	1		X						
↓	effluent/grab	↓	↓		H_2SO_4	AG	1 L	1				X				

Sampler's Signature and Printed Name:

Randolph Strauss

Relinquished By (Signature and Printed Name):	Date	Time	Transported By:	Received By (Signature and Printed Name):	Date:	Time:
Randolph Strauss	12/20/16	16:45		LYNISE NAKATA	12/20/16	1645

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
Fisheries Ecology Division
110 Shaffer Road
Santa Cruz, California 95060

January 30, 2017

Fisheries Ecology Division Quarantine Room Walk-Through Report for 2016

On June 1 and December 1, 2016 Erick Sturm and Steven Munch performed walk – through inspections of the quarantine area in the Fisheries Ecology Divisions (FED) aquarium room. This room houses non-native sheepshead minnows. This species is native to the Atlantic Coast of the United States. This species is being used as a model research animal at the FED lab because of its fast generation time, about four months. This allows multiple generations of minnows to be born in a year. Allowing genetic mutations and the results of specific genetic crosses to be seen and analyzed in real time.

During the walk-through events animal husbandry, staff training and safety, and best practice procedures were discussed to ensure this area remained isolated from the rest of the aquarium room laboratory at the FED. During the June walk-through it was noted that some electrical boxes needed to be hung farther off of the tank frame so they would stay dry in the event of a catastrophic tank failure. During the December walk-through it was noted that the foot bath outside the quarantine room needed to be kept filled and that staff working in the quarantine room needed to remain in the foot bath for a minimum of 30 seconds when leaving the quarantine room.

Erick Sturm Steve Miller

Appendix B

Younger Lagoon Reserve Annual Report

(bound separately)

Appendix C

Annual Mitigation Monitoring Report

UC Santa Cruz Marine Science Campus
CLRDP EIR
2016 Annual Mitigation Monitoring Report

Introduction

The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor or report on mitigation measures adopted as part of the environmental review process to avoid or reduce the severity and magnitude of potentially significant environmental impacts associated with project implementation. CEQA (Public Resources Code Section 21081.6 (a) (1)) requires that a mitigation monitoring or reporting program be adopted at the time that the agency determines to carry out a project for which an EIR has been prepared to ensure that mitigation measures identified in the EIR are implemented.

The Regents of the University of California (The Regents) approved the Coastal Long Range Development Plan (CLRDP) for the UC Santa Cruz Coastal Science Campus and certified the Environmental Impact Report (EIR) in September 2004; a Mitigation Monitoring Program (MMP) for the CLRDP EIR was adopted at the same time. The CLRDP MMP, which is presented in Table 5-1 of the Final EIR, describes monitoring and reporting procedures, monitoring responsibilities, and monitoring schedules for mitigation measures identified in the EIR analysis of the environmental effects of the CLRDP, as well as the measures included in the CLRDP to avoid or minimize environmental effects. Table 5-1 is divided into two sections: Part A describes procedures for the EIR mitigation measures; Part B covers the CLRDP measures.

The MMP includes the following components:

Mitigation Measures: The mitigation measures in the MMP are taken verbatim from the Final EIR, and the numbers assigned the mitigation measures are the same as those presented in the Final EIR.

CLRDP Measures: Individual CLRDP policies and implementation measures in the MMP are taken verbatim from the CLRDP, and the numbers assigned the mitigation measures are the same as those presented in the CLRDP. Other CLRDP measures in the MMP, such as the Drainage Concept Plan, Resource Management Plan, and the Design Guidelines, are summarized.[1]

[1] After The Regents certified the CLRDP EIR, approved the September 2004 draft of the CLRDP and adopted the MMP, minor changes were made to the text and numbering of some of the CLRDP measures included in the MMP. The title of Appendix B to the CLRDP, "Stormwater Concept Plan," was also changed to "Drainage Concept Plan." The Regents approved the final CLRDP, including these changes, in December 2008. Additional revisions to the CLRDP were made as part of CLRDP Amendment #1, which was approved by The Regents in January 2012 and by the Coastal Commission in October 2013. In this Annual Report, the text and numbering of the CLRDP measures are consistent with the December 2008 final CLRDP as revised by Amendment #1 and therefore may differ from the MMP as presented in the Final EIR. The Amendment #1 revisions are shown in strikeout/underline format in Table 1.

General versus Project-Specific Measures: The MMP specifies whether the mitigation measure or CLRDP element is a general Campus measure, which is implemented by the Campus on an ongoing basis, or a Project-Specific measure, which is triggered by and implemented in conjunction with the development of individual projects.

Mitigation Timing: Identifies the timing for implementation of each action.

Monitoring and Reporting Responsibility: Identifies the UCSC office responsible for undertaking the required action and monitoring the measure.

As indicated above, the measures included in the MMP are divided into two categories: *general campus measures*, which are implemented by the campus on an ongoing basis, and *project-specific measures*, which are implemented in conjunction with the development of individual campus construction projects. Examples of general campus mitigation measures are: 1) public access policies, and 2) the Campus' transportation demand management (TDM) program, which is designed to reduce the number of vehicle trips to the campus. Examples of project-specific mitigation measures are: 1) the protection of specific biotic resources or cultural resources during construction of a building, and 2) siting and design parameters for new development. In addition to project-specific measures identified in the CLRDP EIR, the mitigation monitoring program for a development project may also include mitigation measures identified in the project-level CEQA document, which apply only to that project.

Monitoring and Reporting Procedures

The responsibilities of mitigation implementation, monitoring and reporting extend to numerous UC Santa Cruz departments and offices. The unit director or department lead officer of the identified unit or department is directly responsible for ensuring that the responsible party complies with the mitigation. Physical Planning and Construction is responsible for the overall administration of the program and for assisting other campus staff with their responsibilities, to ensure that they understand their charge and implement the required measures accurately, completely, and on schedule.

In addition to overseeing the specific procedures identified in the following table for implementation of each mitigation measure, Physical Planning and Construction is responsible for preparing this Annual Mitigation Monitoring Report. The purpose of the Annual Mitigation Monitoring Report is to report on progress of implementation of general campus mitigation measures (that is, those measures that are not tied to specific development projects) and, for each project under development during the preceding period, to identify applicable mitigation measures and document the status of compliance for each project. The Annual Mitigation Monitoring Report is available for review by appointment at the office of Physical Planning and Construction on campus, is posted on the Campus' LRDP website (http://lrdp.ucsc.edu/), and is submitted to the Executive Director of the California Coastal Commission as part of the CLRDP Annual Report.

For each general campus measure, a representative of the responsible campus unit provides an annual status report to Physical Planning and Construction staff. For each project, a checklist is prepared for all CLRDP EIR and project-level mitigations applicable to the project. Reporting on the status of project-specific mitigations is the responsibility of each project manager, who updates the checklist on a quarterly basis.

The annual report also provides a description of activity undertaken by each responsible department relative to each mitigation measure and, if applicable, links to detailed reports or other supporting documentation of mitigation activity.

Summary of 2016 Mitigation Activities

General Campus Mitigation Measures

Table 1, *Status of General Campus Measures,* lists all of the general campus measures and describes their status in 2016.

Project Mitigation Monitoring

In 2016, the Campus implemented the mitigation monitoring programs for NOID 10-2, Specific Resource Plan Phase 1A; NOID 13-1, Marine Science Campus Projects and Public Access Improvements; and NOID 14-1, Mammal Pool Expansion and Renovation Project. The annual mitigation monitoring reports for these three projects are attached.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
CLRDP Policy 3.2	**Protection and Restoration of Habitat Areas:** The biological productivity and the quality of coastal waters, streams, and wetlands, appropriate to maintain the optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through among other means minimizing adverse effects of wastewater discharges, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural watercourses. Campus natural areas (i.e., areas outside of defined development zones) shall be protected, restored, enhanced, and managed as high-quality open space and natural habitat areas.	Implemented through development of this SRP and, for SRP, through implementation of MM 4.4-1, 4.4-2 and 4.5-1, below; reporting as described in specific mitigation measures, below.	PP&C	Prior to and during construction	NOID 10-2, The SRP, was approved by the CCC in September 2010. Protection and restoration activities on the Terrace Lands in 2010 include baseline monitoring, Priority 1 weed removal, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2011 under the SRP include baseline monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2012 under the SRP include compliance monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2013 under the SRP include compliance monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2014 under the SRP include compliance monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2015 under the SRP include compliance monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.	Protection and restoration activities on the Terrace Lands in 2016 under the SRP Phase 1A include compliance monitoring, Priority 1, 2 and 3 weed removal/control, seed collection, and native plantings.
CLRDP MM 4.4-1	**CA Red-legged Frog:** For all projects proposed in the upper terrace under the CLRDP, the University will implement the following: A preconstruction survey for CRLF will be conducted of all areas proposed for grading and construction by a qualified biologist, approved by the USFWS. If CRLF are observed, grading activities shall be postponed and USFWS shall be consulted to determine appropriate actions to avoid impact. Consultation with the USFWS will result in either a determination of the need to obtain a permit or in the identification of measures to avoid take of the individual(s). The biological monitor shall also conduct meetings with the contractor(s) and other key construction personnel to describe the importance of the species, the need to restrict work to designated areas, and to discuss procedures for avoiding harm or harassment of wildlife encountered during construction.	Conduct survey. Document results. If CRLF are observed, consult with USFWS. Conduct meetings with contractor(s) and construction personnel. Include mitigation specifications in construction contract.	PP&C	Prior to construction, of projects in upper terrace Prior to construction, if CRLF are observed Before beginning construction	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace two times in 2010. USFWS was consulted prior to the mow and supported the campus approach to mowing, which required a staff member to walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog is a CRLF. No frogs of any kind were observed prior to	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace two times in 2011. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires a staff member to walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace two times in 2012. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires that a staff member walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace two times in 2013. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires that a staff member walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog is a CRLF. No frogs of any kind were observed prior to mowing.	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace two times in 2014. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires that a staff member walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog is a CRLF. No frogs of any kind were observed prior to mowing. The same protocol was followed for mowing elsewhere on the reserve.	The campus conducted annual fire break mowing along the southern and eastern perimeter of the upper terrace once in 2015. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires that a staff member walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another	Summer mowing of restoration areas in the middle and lower terrace lower terrace was conducted in 2016. Staff followed the mowing protocol developed with USFWS in 2010. This protocol requires that a staff member walk the area prior to mowing in order to check for wildlife. If a frog (any kind) was seen the staff member was to contact Gage Dayton, or another permitted biologist, to determine whether the frog is a CRLF.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
					mowing. The same protocol was followed for mowing elsewhere on the reserve and for soil scraping of five experimental restoration plots on the lower terrace. (20'x20' plots, scraped 2-3" with tractor mounted blade).	is a CRLF. No frogs of any kind were observed prior to mowing. The same protocol was followed for mowing elsewhere on the reserve.	is a CRLF. No frogs of any kind were observed prior to mowing. The same protocol was followed for mowing elsewhere on the reserve.	The same protocol was followed for mowing elsewhere on the reserve.		permitted biologist, to determine whether the frog is a CRLF. No frogs of any kind were observed prior to mowing. The same protocol was followed for mowing elsewhere on the reserve.	
CLRDP MM 4.4-2	**Nesting Birds:** UCSC shall ensure that construction activities avoid disturbing nests of raptors (and other special-status birds). If ground-disturbing activities are scheduled to occur during the breeding season (February 1 through August 31), the following measures are required to avoid potential adverse effects on nesting special-status raptors and other birds: A qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat. For burrowing owls, such surveys will follow the most recent CDFG Burrowing Owl Survey Protocol and Mitigation Guidelines.[1] If active raptor nests are found during preconstruction surveys, a no-disturbance buffer acceptable in size to CDFG will be created around active raptor nests and nests of any other special-status birds during the breeding season, and maintained until it is determined that all young have fledged. Raptor or other bird nests initiated during construction are presumed to be unaffected, and no buffer is necessary. However, the "take" of any individuals will be prohibited. If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction/restoration period, no further mitigation is required. Trees and shrubs that have been determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests may be	Conduct survey. Document results. Create no-disturbance buffer in consultation with qualified biologist. Include mitigation specifications in construction contract.	PP&C	Before beginning construction on each project Before beginning construction, if active raptor nests are found	Scraping of the experimental restoration plots was performed outside the breeding season. No other construction was performed during 2010.	Summer mowing of a restoration area on the south east side of the lower terrace was conducted in June 2011. A survey of the area for nesting birds was preformed by Gage Dayton and Elizabeth Howard immediately prior to mowing. No nests (active or inactive) were found prior to mowing. Mechanical trenching (using a Ditch Witch walk behind trencher) of a fence line in order to facilitate	Summer mowing of a restoration area on the south east side of the lower terrace was conducted in May 2012. A survey of the area for nesting birds was preformed by Younger Lagoon Reserve staff members Tim Brown and Ori Chafe immediately prior to mowing. No nests (active or inactive) were found prior to mowing. No ground-disturbing activities occurred during the breeding	Summer mowing of restoration areas in the middle and lower terrace lower terrace was conducted in 2013. A survey of the area for nesting birds was preformed by Younger Lagoon Reserve staff member Tim Brown immediately prior to mowing. No nests (active or inactive) were found prior to mowing. No ground-disturbing activities occurred during the breeding season.	Summer mowing of restoration areas in the middle and lower terrace lower terrace was conducted in 2014. A survey of the area for nesting birds was preformed by Younger Lagoon Reserve staff member Tim Brown immediately prior to mowing. No nests (active or inactive) were found prior to mowing. No ground-disturbing activities occurred during the breeding season.	Spring and summer mowing of restoration areas in the middle and lower terrace lower terrace was conducted in 2015. A survey of the area for nesting birds was preformed by Younger Lagoon Reserve staff member Tim Brown immediately prior to mowing. No nests (active or inactive) were found prior to mowing. Mechanical trenching (using	A survey of the area for nesting birds was performed by Younger Lagoon Reserve staff member Tim Brown immediately prior to mowing. No nests (active or inactive) were found prior to mowing. No ground-disturbing activities occurred during the breeding season as part of the Younger Lagoon Natural Reserve Restoration effort in 2016.

[1] California Department of Fish and Game, *Staff Report on Burrowing Owl Mitigation*, The Resources Agency, October 17, 1995.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
	removed.					the installation of low-key chicken wire fencing to protect restoration plantings and experimental plots from herbivory and trampling was performed on August 17, 2011. No other construction was performed during 2011. A survey of the area for nesting birds was preformed by Gage Dayton and Elizabeth Howard immediately prior to trenching. No nests (active or inactive) were found prior to mechanical trenching.	season.			a Ditch Witch walk-behind trencher) of the perimeter of 25 research plots in order to prevent the flow of ground water into the plots was performed on July 21, 22, and 23, 2015. A survey of the area for nesting birds was performed by Tim Brown immediately prior to trenching. No nests (active or inactive) were found prior to mechanical trenching. No other ground-disturbing activities were performed by reserve staff during the breeding season	
CLRDP MM 4.5-1	**Human Remains:** If human remains are discovered during the construction of a development project under the CLRDP, the University and/or its employees shall notify the Santa Cruz County Coroner's Office immediately. Upon determination by the County Coroner that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and the County Coordinator of Indian Affairs and appropriate Native American consultation shall be conducted, as outlined by PRC 5097.98. Implementation Measure 3.9.1, Construction Monitoring, as identified in the CLRDP,	Include in construction contract the requirement that the University be notified if suspected human bone is discovered. Contact archaeologist and County	PP&C	Before beginning construction During construction	The mechanical scraping of the experimental restoration plots was carried out by UCSC Ground Services. No human remains were discovered during 2010.	The mechanical trenching was carried out by UCSC Ground Services. No human remains were discovered during 2011.	No human remains were discovered during 2012.	No human remains were discovered during 2013.	No human remains were discovered during 2014	The mechanical trenching was carried out by UCSC Ground Services. No human remains were discovered during 2015.	No human remains were discovered during 2016.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010 PM – Elizabeth Howard, Field Manager, YLR**	**2011 PM – Elizabeth Howard, Field Manager, YLR**	**2012 PM – Elizabeth Howard, Manager, YLR**	**2013 PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
	shall also apply. UCSC will be responsible for implementing this mitigation measure.	Coroner in the event of discovery of suspected human bone. Contact California Native American Heritage Commission and conduct Native American consultation if Coroner determines the remains are Native American.									
CLRDP IM 3.9.1	**Cultural Resources Construction Monitoring**: Should archaeological and/or paleontological resources be encountered during any construction on the Marine Science Campus, all activity that could damage or destroy these resources shall be temporarily suspended until qualified archaeologist/paleontologists and Native American representatives have examined the site and mitigation measures have been developed that address and proportionately offset the impacts of the project on archaeological and/or paleontological resources. Development shall incorporate measures to address issues and impacts identified through any archaeologist/ paleontologist and/ or Native American consultation.	Include in construction contract the requirement that work be suspended if archaeological resources are disclosed. Contract with qualified archaeologist to develop appropriate mitigation measures.	PP&C	Before beginning construction If archaeological resources are disclosed	The mechanical scraping of the experimental restoration plots was carried out by UCSC Ground Services. No archaeological or paleontological resources were discovered during 2010.	The mechanical trenching was carried out by UCSC Ground Services. No archaeological or paleontological resources were discovered during 2011.	No archaeological or paleontological resources were discovered during 2012.	No archaeological or paleontological resources were discovered during 2013.	No archaeological or paleontological resources were discovered during 2014.	The mechanical trenching was carried out by UCSC Ground Services. No archaeological resources or human remains were discovered during 2015.	No archaeological or paleontological resources were discovered during 2016.
CLRDP IM 3.10.1	**Use, Containment and Cleanup of Hazardous Materials.** The University, through the Office of Environmental Health and Safety, will manage the use, and in the event of spillage, the containment and cleanup of, hazardous materials and petroleum on the UCSC Marine Science Campus in compliance with federal and state regulations related to the storage, disposal, and transportation of hazardous substances.	For UC entities, continue to implement UCSC Environmental Health and Safety programs involving oversight of individual units'	UCSC EH&S	Ongoing, frequency varies with the type and quantity of hazardous materials; document annually	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Round Up Pro) was applied to five 20' x 20' experimental plots in 2010. The application was done by a Grounds	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2011.	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2012.	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower and middle terrace in 2013. The	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower and middle terrace in 2014. The applications were done by Grounds Services	As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration	No herbicide was applied as part of the Younger Lagoon Natural Reserve Restoration effort in 2016.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
		compliance efforts and advising on improvements in procedures related to storage, disposal, and transportation of hazardous substances.; document activity of relevant EH&S programs			Department Employee trained in herbicide use working under the campus' IPC Applicator's License. Younger Lagoon Natural Reserve staff conducted a joint clean-up of the upper terrace with Grounds Services and EH&S in July 2010. All persons participating in the clean-up were trained in the basics of hazardous waste disposal. 6020 lbs of refuse/debris were removed from the site, including a small amount of hazardous waste (batteries, used needles, spent fuel containers, etc), which were disposed of through the campus hazardous waste stream.	The applications were done by Grounds Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	The applications were done by Grounds Services Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	applications were done by Grounds Services Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License	areas on the lower and middle terrace in 2015. The applications were done by Grounds Services Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License	
CLRDP Policy 7.1	**Productivity and Quality of Coastal Waters.** The Marine Science Campus shall be developed and used in a manner that shall sustain and, where feasible, enhance and restore, the biological productivity and quality of coastal waters on and adjacent to the Campus through controlling, filtering, and treating runoff and other non-point sources of pollution, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging wastewater reclamation, and maintaining natural vegetation buffer areas that	Implement Resource Management Plan as described in this SRP Construction practices consistent with Stormwater	PP&C	Throughout construction	No new development occurred on the MSC in 2010; however, natural vegetation buffer areas that protect riparian habitats were maintained by Younger Lagoon	No new development occurred on the MSC in 2011; however, natural vegetation buffer areas that protect riparian habitats were maintained by Younger	During construction of the Coastal Access Overlooks Project (NOID 12-2), runoff was controlled, filtered and treated according	Natural vegetation buffer areas that protect riparian habitats were maintained by Younger Lagoon Natural Reserve staff.	Natural vegetation buffer areas that protect riparian habitats were maintained by Younger Lagoon Natural Reserve staff.	Natural vegetation buffer areas that protect riparian habitats were maintained by Younger Lagoon Natural Reserve staff.	During construction of the Coastal Biology Building and associated projects (NOID 6-1), runoff was controlled, filtered and treated according to the contractor's Water Pollution Control Plan. Natural vegetation

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
	protect riparian habitats.	Concept Plan			Natural Reserve staff.	Lagoon Natural Reserve staff.	to the contractor's Water Pollution Control Plan. Natural vegetation buffer areas that protect riparian habitats were maintained by Younger Lagoon Natural Reserve staff.				buffer areas that protect riparian habitats were maintained by Younger Lagoon Natural Reserve staff.
CLRDP IM 7.1.8	**Irrigation and Use of Chemicals for Landscaping.** Any water used for landscape irrigation on the Marine Science Campus shall not be applied in a manner that would cause significant erosion. Any use of chemicals for fertilizer and/or weed and pest control shall be minimized to the degree feasible, including as required by the Drainage Concept Plan, and any chemicals unavoidably used shall not enter habitat areas or the ocean in concentrations sufficient to harm wildlife and/or to degrade habitat.	Establish polices for irrigation and use of chemicals in landscaping to minimize erosion potential and runoff into habitat areas or the ocean.	Physical Plant	Before occupancy of first project developed under the CLRDP	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When needed, supplemental water was applied by hand. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. Herbicide (Round Up Pro) was applied to five 20' x 20' experimental restoration plots in 2010. The application was done by a Grounds Department Employee trained in herbicide use working under the campus IPC Applicator's	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When needed, supplemental water was applied by hand. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. Herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2011. The applications were done by Grounds	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When needed, supplemental water was applied by hand. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2012.	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2013. The applications were done by Grounds Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2014. The applications were done by Grounds Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. As part of the Younger Lagoon Natural Reserve Restoration effort, herbicide (Glyphosate Pro) was applied to several restoration areas on the lower terrace in 2015. The	Whenever possible, restoration efforts conducted by Younger Lagoon Natural Reserve were not irrigated. When supplemental water was needed, application was minimal and targeted to restoration plantings to minimize erosion. No herbicide was applied as part of the Younger Lagoon Natural Reserve Restoration effort in 2016.

SRP Phase 1A Mitigation Monitoring Program					Monitoring and Reporting Checklist						
Measure #	**Measure Text**	**Monitoring and Reporting Procedure**	**Monitoring and Reporting Responsibility**	**Timing**	**2010** **PM – Elizabeth Howard, Field Manager, YLR**	**2011** **PM – Elizabeth Howard, Field Manager, YLR**	**2012** **PM – Elizabeth Howard, Manager, YLR**	**2013** **PM – Elizabeth Howard, Manager, YLR**	**2014** PM – Eliz**abeth Howard, Manager, YLR**	**2015** PM – Eliz**abeth Howard, Manager, YLR**	**2016** PM – Eliz**abeth Howard, Manager, YLR**
					License.	Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	The applications were done by Grounds Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.			applications were done by Grounds Department Employees and UCSC Natural Reserves Staff trained in herbicide use working under the campus' IPC Applicator's License.	

Coastal Biology Building/MSC Infrastructure Project
Annual Mitigation Monitoring Report, 2016: Mitigation Status Summary

Mitigation/CLRDP Implementation Measure ID	Brief Description	2016 Status
CLRDP EIR General Mitigation Measure 4.2-1	Fence at Younger Ranch Boundary	Completed
CLRDP Mitigation 4.11-4	Construction noise mitigation	Active
CLRDP Mitigation 4.15-1	Fair share, Bay/Mission Intersection	Completed
CLRDP Mitigation 4.15-2	Fair share contribution, Delaware Av. pedestrian path.	Not yet required
CLRDP Mitigation 4.15-6	Fair share, various intersections	Completed
CLRDP Mitigation 4.16-1a	Water-efficient fixtures.	Completed
CLRDP Mitigation 4.2-2	Nesting bird surveys and avoidance	Not applicable to project as approved/designed
CLRDP Mitigation 4.3-1	Standard construction dust control measures	Not applicable to project as approved/designed
CLRDP Mitigation 4.4-1	CRLF monitoring and avoidance	Not applicable to project as approved/designed
CLRDP Mitigation 4.5-1	Discovery of human remains	Active
IM 3.10.1	Hazardous Materials Management	Completed
IM 3.2.12	USFWS Consultation Required	Completed
IM 3.2.14	Non-Invasive Native Plant Species Required	Completed
IM 3.8.2	Agreement to Indemnify and Hold Harmless	Active
IM 3.9.1	Construction Monitoring—Archaeological/Paleontological I	Active
IM 4.3.3	All lighting	Active
IM 7.1.17	Designation of Treatment Train	Active
IM 7.2.1	Drainage System Monitoring and Maintenance	Not yet required
IM 7.2.3	Drainage system sampling	Not yet required
IM 7.2.4	Long-Term Maintenance of Stormwater System	Not yet required
IM 7.3.1	Discharge to YLR	Active
IM 7.3.2	Discharge Siting and Design	Active
MSC Mitigation Measure TRA-2	Fair share payment, Western Dr./High St. intersection	Completed
MSC Mitigation Measures LU-1, LU-2A, LU-2B	CLRDP Amendment #1	Completed
MSC Project Mitigation Measure BIO-1	Botanical survey, special-status plant avoidance	Completed
MSC Project Mitigation Measure BIO-2c	Staging area, invasive plant assessment	Not yet required
MSC Project Mitigation Measure CULT-2B:	Interpretive sign for Ocean Shore Railroad	Active
MSC Projects Mitigation BIO-9B	Woodrat nest relocation	Completed
MSC Projects Mitigation HYD-2	Hydrologic monitoring W4 and W5	Active
MSC Projects Mitigation Measure AIR-1	Project-specific dust control requirements.	Active
MSC Projects Mitigation Measure BIO-10A	Fencing design and inspection	Active
MSC Projects Mitigation Measure BIO-10B	Construction-phase parking limitations	Active
MSC Projects Mitigation Measure BIO-10C	Night-time restrictions on construction activity	Active
MSC Projects Mitigation Measure BIO-11	Shades on greenhouses	Active

Mitigation/CLRDP Implementation Measure ID	Brief Description	2016 Status
MSC Projects Mitigation Measure BIO-12A	Inspection for erosion in W1 outflow channel	Not yet required
MSC Projects Mitigation Measure BIO-12B	Silt fence at Delaware Ave. Extension	Active
MSC Projects Mitigation Measure BIO-12C	Scope of NOAA outfall improvements	Completed
MSC Projects Mitigation Measure BIO-12D	Design of DeAnza trail crossing at W4 culvert	Active
MSC Projects Mitigation Measure BIO-15	Biological Mitigation Coordinator required	Active
MSC Projects Mitigation Measure BIO-2a	Staging area restoration	Active
MSC Projects Mitigation Measure BIO-2b	Staging area weed management	Not yet required
MSC Projects Mitigation Measure BIO-3A	Biological resources training, construction crew	Active
MSC Projects Mitigation Measure BIO-3B	CRLF and western pond turtle exclusion	Active
MSC Projects Mitigation Measure BIO-3C	CRLF surveys	Completed
MSC Projects Mitigation Measure BIO-3D	Daily CRLF surveys during construction	Active
MSC Projects Mitigation Measure BIO-3E	Additional CRLF avoidance measures	Active
MSC Projects Mitigation Measure BIO-4	Burrowing owls surveys and avoidance	Completed
MSC Projects Mitigation Measure BIO-5	Pre-construction surveys, badger dens	Completed
MSC Projects Mitigation Measure BIO-6	Exclusion fencing, western pond turtle	Completed
MSC Projects Mitigation Measure BIO-7A	Nesting bird survey and buffer	Completed
MSC Projects Mitigation Measure BIO-7B	Scheduling in Subareas 6 and 7 to protect nesting birds	Completed
MSC Projects Mitigation Measure BIO-7C	Timing of berm construction, subarea 7	Active
MSC Projects Mitigation Measure BIO-7D	Staging in subarea 6	Completed
MSC Projects Mitigation Measure BIO-8	Bat survey, greenhouses	Completed
MSC Projects Mitigation Measure BIO-9A	Pre-construction survey, woodrats	Active
MSC Projects Mitigation Measure CULT-2A	Archaeological monitoring at Delaware Ave. Extension	Active
MSC Projects Mitigation Measure HYD-3	Trench plugs required for sewer line	Completed
MSC Projects Mitigation Measure TRA-1B	Parking utilization surveys	Active
MSC Projects Mitigation Measure TRA-1C	Parking demand management	Not yet required
MSC Projects Mitigation Measure TRA-5A	Timing of closure of Delaware Ave. Extension	Completed
MSC Projects Mitigation Measure TRA-5B	Contract requirements to minimize traffic blockage	Active
MSC Projects Mitigation Measure TRA-5C	Construction lane closure notifications	Active
MSC Projects Mitigation Measure TRA-5D	Contract schedule coordination	Active
MSC Projects Mitigation Measure TRA-5E	Construction coordination/communication with off-campu	Active
MSC Projects Mitigation Measure TRA-5F	Construction impact complaint procedures.	Active
MSC Projects Mitigation Measure UTIL-9	Water efficiency study of existing MSC facilities	Active
MSC Projects Mitigation Measures TRA-4C	Railroad caution signs on pedestrian routes	Not yet required
MSC Projects Mitigation NOIS-4	Mitigate cumulative construction noise	Not yet required

Mitigation/CLRDP Implementation Measure ID	Brief Description	2016 Status
MSC Projects Mitigation TRA-1A	Transportation dissemination information	Not yet required
MSC Projects Mitigation TRA-4A	Stop signs at parking lot entrances	Completed
MSC Projects Mitigation TRA-4B	Stop sign and traffic-calming measures at campus exits.	Completed
Policy 5.9	Impacts offset	Completed
Policy 8.4	Impacts to City Water and Sewer Systems Offset	Completed

Mammal Pool Expansion and Renovation Project
Annual Mitigation Monitoring Report, 2016: Mitigation Status Summary

Mitigation/CLRDP Implementation Measure ID	Brief Description	2016 Status
CLRDP Mitigation 4.11-4	Construction noise mitigation	Active
CLRDP Mitigation 4.3-1	Standard construction dust control measures	Completed
CLRDP Mitigation 4.4-2	Nesting bird surveys and avoidance	Active
CLRDP Mitigation 4.5-1	Discovery of human remains	Completed
IM 3.2.12	USFWS Consultation Required	Completed
IM 3.2.14	Non-Invasive Native Plant Species Required	Active
IM 3.9.1	Construction Monitoring—archaeological/paleontological resources	Completed
IM 4.3.3	All lighting	Active
IM 7.1.15	Drainage system interpretive signs	Not applicable to project as approved/designed
IM 7.1.2	Management of storm water and other runoff	Active
Mammal Pool Mitigation Measure BIO-1	California red-legged frog avoidance measures	Active
Mammal Pool Mitigation Measure BIO-2	San Francisco dusky-footed woodrat avoidance	Active
Mammal Pool Mitigation Measure TRA-1A	Contract requirements to minimize traffic blockage	Active
Mammal Pool Mitigation Measure TRA-1B	Construction lane closure notifications	Active
Mammal Pool Mitigation Measure TRA-1C	Contract schedule coordination	Active
Mammal Pool Mitigation Measure TRA-1D	Construction impact complaint procedures.	Active