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November 4, 2014

VIA E-MAIL AND U.S. MAIL

Dr. Don Tsai, Groundwater Permitting Unit
California Regional Water Quality Control Board, Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013
E-Mail: don.tsai@waterboards.ca.gov

Re: **Proposed Revisions of The Memorandum of Understanding Regarding Phased Implementation of The Basin Plan Amendment Prohibiting On-Site Wastewater Disposal Systems in The Malibu Civic Center Area (the "MOU")**

RWQCB Hearing Date: December 4, 2014

Dear Dr. Tsai:

Our office represents the Serra Canyon Property Owners Association ("SCPOA"), an association of approximately 115 property owners in the Serra Canyon area of the City of Malibu (the "City"). While SCPOA is committed to protecting and enhancing environmental quality in the Malibu Creek Watershed (the "Watershed"), our client remains deeply concerned that, as applied to the SCPOA properties, the proposed MOU, currently scheduled for consideration by the Los Angeles Regional Water Quality Control Board ("RWQCB") on December 4, imposes unsupported, arbitrary, and capricious obligations on "Phase Two" SCPOA property owners,[1] fails to acknowledge a technically-based path to become exempt from mandatory connection to the proposed Civic Center wastewater treatment plant, and imposes unnecessary regulatory burdens that are grossly disproportionate to any environmental benefit gained.

We request that the RWQCB:

1. Amend the MOU to give Phase Two Serra Canyon property owners the same ability as Phase Three properties to opt out of the wastewater treatment plant connection requirement subject to the successful completion of a similar water sampling program with similar requirements.

[1] As noted in our November 3, 2014 meeting, most of SCPOA's property owners are in Phase Two and approximately 18 are in Phase Three.

2. Specify in writing the exact process by which Phase Two Serra Canyon property owners can "test out" of the wastewater treatment plant connection requirement if they show that the subject homes have no contribution to bacteria or nutrient impacts to Malibu Creek and Malibu Lagoon.

3. Specify in writing the exact times or milestones in the MOU process by which the RWQCB will fairly consider the proposition that Phase Two Serra Canyon property owners can be excluded from the wastewater treatment plant connection requirement.

The MOU provides for phased implementation of mandatory sewer connections to a future Malibu wastewater treatment facility for commercial and certain residential parcels in the Malibu Civic Center area. The MOU specifies that most SCPOA properties are included in Phase Two, which means that they will be required to connect to the central treatment facility by November 5, 2022. However, despite the RWQCB staff contentions to the contrary, RWQCB has no specific evidence showing that existing on-site wastewater disposal systems ("OWDS") within Serra Canyon contribute bacteria or nutrient impacts (including nitrates and phosphorous) to receiving waters. To the contrary, the evidence reviewed to date suggests that the City and the RWQCB entered into an expedient agreement to include Serra Canyon parcels in Phase Two due to some of the Serra Canyon parcels' proximity to Malibu Creek–a decision made without the benefit of specific scientific evidence or site-specific testing.

In fact, as discussed below, SCPOA has worked closely with RWQCB staff for more than a year to provide and refine various technical analyses showing that OWDS on SCPOA properties are not contributing to diminished Watershed water quality. Despite SCPOA's completion of preliminary water quality testing and its proposed Work Plan (defined below) for an extended groundwater monitoring regimen and hydrologic modeling, the proposed MOU does not allow for any possible exclusion of SCPOA properties from Phase Two's mandatory sewer connections.

We have confirmed that no legal requirement prevents the parties from revising the MOU to provide for such an exclusion. Therefore, we propose the following revisions (as underlined) to the proposed MOU language concerning Phase Two:

B. **Phase Two:** Prior to the start of Phase Two, the City shall complete a water quality sampling program for Serra Canyon properties to determine the level of bacteria and nitrogen that these properties contribute to the Malibu Creek and Malibu Lagoon. By November 5, 2022, within the coral-colored area shown on the attached Boundary Map, the City shall require all those developed properties to be connected to a central Wastewater Treatment Facility, except for any properties in Serra Canyon that the Los Angeles Water Board concludes and the City has demonstrated to have no contribution to bacteria or nutrient impacts to the Malibu Creek and Malibu Lagoon. The Facility shall be the same Facility as

described in Phase One or an alternatively located central Wastewater Treatment Facility designed to the same standards as Phase One and subject to waste discharge requirements issued by the Los Angeles Water Board. In order to fund the construction of the wastewater treatment facility improvements and connections thereto, it is necessary that an assessment district be approved and formed in accordance with all applicable laws, including but not limited to Prop 218, which includes the property owners served by Phase Two, except for those deemed to have no contribution to bacteria or nutrient impacts to the Malibu Creek and Malibu Lagoon. Once formed, all property owners within the approved assessment district are required to connect to the Wastewater Treatment Facility.

The City shall comply with following deadlines to complete Phase Two of the Plan:

1. By **June 30, 2018**, inform the Los Angeles Water Board whether the City intends to connect properties within the Phase Two boundaries (except for those with no bacteria or nutrient impacts) to the City's Phase One Wastewater Treatment Facility or construct an alternative facility. The City shall also submit a report summarizing the change of groundwater quality and surface water quality.

2. By **December 31, 2018**, complete and submit to the Los Angeles Water Board a conceptual groundwater injection plan for Phase Two, if applicable, that is based on field testing and modeling.

3. By **March 31, 2019**, complete and certify a subsequent or supplement Environmental Impact Report, if required, pursuant to CEQA.

4. By **June 30, 2019**, complete and submit to the Los Angeles Water Board a Design for Phase Two, including any alternative facility, which shall consist of facility layout, electrical and pumping requirements, sewer line plans and profiles, disposal well design. Also submit to the Los Angeles Water Board a complete report of waste discharge, if necessary, pursuant to the California Water Code.

5. By **November 5, 2019**, complete the formation of an assessment district for all properties within the Malibu Civic Center Area Phase Two (except for those with no bacteria or nutrient impacts) and provide that information to the Water Board.

6. By **June 30, 2020**, complete and release a Bid Package for construction of the Phase Two Wastewater Treatment Facility.

7. By **November 5, 2020**, complete contractor selection and initiate construction of the Phase Two facility, if necessary.

8. By **November 5, 2022**, complete Phase Two project, including successful startup of the Phase Two Wastewater Treatment Facility and the connection of all properties within the Phase Two boundaries (except for those with no bacteria or

nutrient impacts) to the Wastewater Treatment Facility. The City is required to operate the Facility in compliance with the WDRs.

The RWQCB's unwillingness to consider the possible exclusion of Serra Canyon properties from Phase Two is particularly frustrating in light of the MOU's specific provision allowing Phase Three property owners to opt out of connecting to a central treatment plant, subject to a City conducted and monitored water sampling program. Specifically, the MOU provides that under Phase Three, if testing determines that "implementation of Phase One and Two have resulted in a meaningful decrease in Bacteria and Nitrogen in Malibu Lagoon" then "any properties that the [RWQCB] concludes and the City has demonstrated to have no contribution to bacteria or nutrient impacts to the Malibu Creek and Malibu Lagoon" shall be excluded from the requirement to connect to the wastewater treatment facility.

The language proposed for Phase Two above merely ensures that Serra Canyon properties in Phase Two will be treated in an equal manner as similarly-situated properties in Phase Three. See *Walgreen Co. v. City and County of San Francisco* (2010) 185 Cal.App.4th 424, 434. Furthermore, if SCPOA demonstrates to the RWQCB's satisfaction that its members' OWDS are not contributing to the degradation of the Watershed, then the mandatory transition to sewer facilities will provide no environmental benefit—and constitute a substantial and undue burden to the properties.

The administrative record in this matter contains significant data generated by the United States Geological Survey, Stone Environmental, and, more recently, Citadel Environmental Services, Inc. ("Citadel") showing that Serra Canyon properties do not degrade or adversely affect Malibu Creek or Malibu Lagoon. These technical studies definitively show that upstream dischargers, such as the Tapia Creek treatment facility, adversely impact the Watershed. We request that the RWQCB seriously reconsider these studies and data.

Without additional data supporting its position, no nexus exists between the MOU's mandatory sewer connection for SCPOA Phase Two properties and the environmental benefit purportedly derived from such a requirement. Therefore, such requirement is not reasonably related to the public welfare and imposes an undue burden. See *Associated Homebuilders v. City of Livermore* (1976) 18 Cal. 3d 582, 604. In other words, under the proposed MOU, the mandatory connection to, and payment for, sewer facilities by SCPOA property owners is wholly divorced from whether such requirement will actually eliminate discharges and protect public health. Accordingly, contrary to Section 12 of the proposed resolution authorizing its execution, the proposed MOU is neither fair nor reasonable.

SCPOA has attempted to resolve these issues with RWQCB for over a year, and based on in-person meetings, telephone calls and written correspondence, SCPOA reasonably believed that the RWQCB would consider empirical evidence when determining whether sewer connections would be mandatory for Serra Canyon. Specifically, in September 2013, representatives of SCPOA met with Sam Unger, RWQCB Executive Officer, as well as three

members of RWQCB's technical staff. At that time, it was indicated that if SCPOA could show, based on methodologically sound sampling and testing, that the residential septic systems in Serra Canyon do not contribute to excessive nutrient loads in Malibu Creek and Malibu Lagoon, then the RWQCB would consider excluding Serra Canyon from the Phase Two mandatory sewer connection implementation area through a revision to the MOU. Specifically, SCPOA understood that a change might be considered in conjunction with the revision of the MOU expected to occur in December 2014.

Subsequently, with at least the tacit support of the RWQCB staff, SCPOA retained Citadel to assess the water quality impacts on Malibu Creek, if any, caused by OWDS within Serra Canyon. Based on extensive water sampling at private wells and various locations in Malibu Creek, Citadel determined that OWDS in Serra Canyon were "not contributing to the degradation of waters within Malibu Creek with regard to the tested constituents, Nitrates, Nitrites and Ammonia." This conclusion was included in a report submitted to RWQCB in May 2014 (the "Citadel Report"), attached as Exhibit A.

In July 2014, RWQCB staff responded to the Citadel Report with technical comments and stated that the Citadel Report was "not sufficient to determine that the Serra Canyon properties did not cause any impacts to Malibu Creek, Malibu Lagoon and the groundwater beneath Serra Canyon properties." See RWQCB's July 18, 2014 letter to Citadel (the "RWQCB Letter") , attached as Exhibit B. In addition, RWQCB staff indicated that additional studies were necessary for SCPOA to properly identify what, if any, groundwater impacts result from existing Serra Canyon OWDS. Notwithstanding any alleged technical deficiencies in the Citadel Report, the RWQCB staff's response indicated its intent to consider whether Serra Canyon OWDS were actually causing bacterial and nutrient loads in the Watershed before mandating a sewer connection requirement without any possibility of exclusion.

Over two months ago (in August 2014), in direct response to the RWQCB Letter, SCPOA submitted a detailed Water Quality Study Work Plan prepared by Citadel (the "Work Plan"), attached as Exhibit C, proposing a comprehensive, year-long water quality sampling program that would include the installation of seven new groundwater monitoring wells, the use of existing City of Malibu monitoring wells along Malibu Creek, and sampling from Malibu Creek surface waters. Among other things, the Work Plan provides for the creation of a detailed topographic survey and the development of a comprehensive characterization of groundwater flows. RWQCB virtually ignored the SCPOA Work Plan for months before RWQCB staff contacted SCPOA officials on Wednesday, October 29, 2014, less than a week before the end of the written comment period on the MOU. This shows a lack of good faith on the part of RWQCB staff, particularly in light of SCPOA's reasonable reliance on direction from such RWQCB staff in expending substantial sums on technical consultants and other professionals.

SCPOA is deeply concerned that the proposed MOU does not include any regulatory flexibility to allow for the possible removal of its Phase Two property owners from the connection requirement, even if, based on an agreed-upon, scientifically objective methodology,

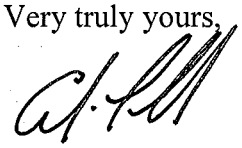
SCPOA shows that Serra Canyon properties do not contribute to bacteria or nutrient impacts to the Watershed. In fact, at our November 3, 2014 meeting with Mr. Unger and other staff members, RWQCB staff expressly denied ever representing to SCPOA officials that the MOU could be revised to include any water quality sampling requirement or independent testing provision for Phase Two property owners based on an objective showing that the subject homes have no contribution to bacteria or nutrient impacts to Malibu Creek and Malibu Lagoon. Instead, Mr. Unger and RWQCB staff stated on November 3, 2014 that an amendment to the RWQCB Region 4 Basin Plan would be required for Phase Two Serra Canyon property owners to achieve a similar sampling and confirmation opportunity and to opt-out of the connection requirement according to the existing Phase Three MOU language.

The unfair nature of the RWQCB's position is evidenced by the fact that the SCPOA's preferred approach mirrors that which the MOU already provides for Phase Three property owners. Phase Three property owners may complete a "water quality sampling program" that would be relied upon to exclude "any properties that the Water Board concludes and the City has demonstrated to have no contribution to bacteria or nutrient impacts to the Malibu Creek and Malibu Lagoon." The RWQCB does not, and cannot, offer any reasonable basis for excluding such properties in Phase Three, while forcing non-contributing Phase Two properties to connect to a central treatment plant and incur substantial infrastructure costs without any commensurate increase in environmental or public health protection.

SCPOA simply seeks a fair and reasonable basis for mandating sewer connections for properties in Serra Canyon, based on scientific evidence showing that such requirement will materially reduce waste discharge into the Watershed. Moreover, our client wants to avoid the arbitrary and capricious application of ever-changing positions by RWQCB on this critical issue.

We appreciate your serious consideration of these comments. Please contact us if you have any additional questions concerning this matter or if we can further assist with the proposed MOU revisions.

Very truly yours,



KENNETH A. EHRLICH
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KAE:lld

cc: Sam Unger, Executive Officer of RWQCB (via email)
Ronji Moffett, Executive Assistant to RWQCB (via email)

Charles Stringer, Chair of RWQCB (via US Mail)
Irma Muñoz, Vice-Chair of RWQCB (via US Mail)
Maria Mehranian, Member of RWQCB (via US Mail)
Francine Diamond, Member of RWQCB (via email)
Madelyn Glickfeld, Member of RWQCB (via email)
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Skylar Peak, City of Malibu Mayor (via email)
John Sibert, City of Malibu Mayor Pro Tem (via email)
Joan House, City of Malibu Councilmember (via email)
Lou La Monte, City of Malibu Councilmember (via email)
Laura Rosenthal, City of Malibu Councilmember (via email)
Jim Thorsen, City of Malibu, City Manager (via email)
Christi Hogin, Esq., City of Malibu, City Attorney (via email)

EXHIBIT A

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

PRIVILEGED AND CONFIDENTIAL

April 4, 2014

Jeff Follert, President
Serra Canyon Property Owners Association
23247 Palm Canyon Lane
Malibu, California 90265

Re: CITADEL Project No. 0551.1001.0
Water Quality Report
Malibu Creek Watershed
Serra Canyon
Malibu, California

Dear Mr. Follert:

Citadel Environmental Services, Inc. is pleased to provide you with this Water Quality Report for the above-referenced location.

If, after your review, you have any questions or require additional information, please do not hesitate to telephone me at (818) 246-2707.

Sincerely,
CITADEL ENVIRONMENTAL SERVICES, INC.

Joshua Cwikla, P.G.
Project Geologist

Enclosure

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

Serra Canyon Property Owners Association
23247 Palm Canyon Lane
Malibu, California 90265

Water Quality Report

April 4, 2014

Citadel Project Number 0551.1001.0

Malibu Creek Watershed
Serra Canyon
Malibu, California

www.citadelenvironmental.com

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FIGURES

APPENDICES

1.0 INTRODUCTION

Citadel Environmental Services, Inc (Citadel) is pleased to present this report summarizing the scope of services and water quality results from surface waters in Malibu Creek and groundwater at individual home sites within the Serra Canyon Property Owners Association (SCPOA), Malibu, Los Angeles County, California (Study Area) (Figure 1).

Citadel understands that residential sanitary systems in Serra Canyon consist of individual on-Site wastewater treatment disposal systems (OWDS). At this time, the Los Angeles Regional Water Quality Control Board (LARWQCB) is proposing the prohibition of subsurface disposal of wastewater, requiring that property owners within the SCPOA connect to a planned city sewer and wastewater treatment facility. The LARWQCB has alleged that OWDS discharges relating to Nitrates may be contributing to water quality deterioration of the Malibu Creek Watershed. This investigation was intended to provide preliminary screening and independent water quality data within the SCPOA boundaries using existing non-potable groundwater supply wells to determine if OWDS are contributing to deterioration of the Malibu Creek Watershed. Laboratory results of groundwater obtained from sampled wells were compared to regulatory levels established by LARWQCB. Malibu Creek water samples were also compared to the established levels and used to help characterize the water flowing through the area from natural sources and discharge of treated effluent into the creek from the Tapia Water Reclamation Facility (WRF).

2.0 BACKGROUND

The Study Area lies within the Malibu Valley Groundwater Basin (Basin). According to the LARWQCB, groundwater from the Basin was a source of drinking water for the Study Area until the 1960s. Potable groundwater production in the area gradually ceased when the Los Angeles County Waterworks District No. 29, Malibu was formed to deliver imported water to the Malibu area in the early 1960s. In the event of a disruption of imported water, groundwater in the Basin is still considered an important local resource for potable water.

According to the US Environmental Protection Agency (EPA) Region 9 the Total Maximum Daily Loads (TMDL) for Nutrients of the Malibu Creek Watershed, Malibu Creek and three of its tributaries (Las Virgenes Creek, Medea Creek, and Lindero Creek) exceed the water quality objectives (WQOs) for nuisance effects such as algae, odors, and scum. The TMDLs identify the amounts of nitrogen and phosphorous that can be discharged to the water bodies in the Malibu Creek Watershed without causing violations of applicable water quality standards, and allocate allowable nutrient loads among different discharge sources.

Section 303(d) of the Clean Water Act (CWA) requires that each State "shall identify those waters within its boundaries for which the effluent limitations are not stringent enough to implement any water quality standard applicable to such waters." The CWA also requires states to establish a priority ranking for waters on the 303(d) list of impaired waters and establish TMDLs for such waters. The State of California identified over 700 water body-pollutant combinations in the Los Angeles Region where TMDLs would be required. These TMDLs address Malibu Lagoon, segments of the Malibu Creek and tributaries, and urban lakes impaired by nutrient compounds and effects that appear to be caused by those compounds. The nutrient impairments include ammonia and nutrients (nitrogen and phosphorus) and nuisance effects (dissolved oxygen, algae, scum, and odor). The TMDLs are expressed differently for summer and winter conditions because flows, nutrient loads, and nutrient effects vary substantially in different seasons. (RWQCBLA, 2009).

Three existing groundwater monitoring wells owned by the City of Malibu were observed throughout the study area. According to a report by Stone Environmental (Stone, 2004), 14 groundwater-level observation and monitoring wells were installed throughout Malibu Creek and lagoon area between December 26, 2002 and March 25, 2003. The wells were observed in the study area and are described in this report. Groundwater analysis from these three wells was extracted from reports prepared by others to use as additional data (Izbicki et al., 2012 and Stone, 2004).

In the Stone Report, wells were sampled on a monthly basis between April 2003 and March 2004. Sampling included analysis for bacteriological (total coliform, fecal coliform and Enterococcus) and nitrogen (NH3, NO2, NO3, and total Kjeldahl nitrogen or TKN) constituents, along with chloride. The average concentrations reported at the three monitoring wells are shown in Table 1. Stone interpreted the result of their study to show that shallow groundwater in the area is significantly influenced by bacteria from sources other than OWDS. Stone noted that storm water infiltration and direct percolation from the land surface in sandy soil areas are likely to be significant potential sources of contamination.

It should be noted that drinking water standards were not addressed in this report.

4.0 GEOLOGY AND HYDROLOGY OF THE STUDY AREA

4.1 GEOLOGY

The SCPOA residential boundaries, as well as the sampling locations for this study, are located on the Malibu Beach Quadrangle 7.5 Minute Topographic Map produced by the United States Geological Survey (USGS, 2012) (Figure 2). The Malibu Beach Quadrangle is dominated by steep and rugged terrain of the central Santa Monica Mountains. The main crest of the mountain range trends generally east-west across the center of the quadrangle, although the actual drainage divide is located north of the quadrangle boundary in the Simi Hills. Numerous south-trending broad-crested ridges and canyons with narrow channels extend from the range crest to Santa Monica Bay. According to the Seismic Hazard Zone Report by the California Department of Conservation, Division of Mines and Geology dated 2001 (DMG, 2001) the east-west-trending Malibu Coast Fault Zone forms the southern boundary of the mainland portion of the mountain range. The Malibu Coast Fault Zone is an east-west zone of transpressive faulting along the southern front of the western Santa Monica Mountains in the western Transverse Ranges geomorphic province.

The Study Area is described on the Geologic Map of the Malibu Beach Quadrangle, is made up of a sequence of laterally gradational and interfingering nonmarine, transitional, and marine clastic sedimentary rocks assigned to the Sespe, Vaqueros, and Topanga Canyon formations (Dibblee, 1993) (Figures 3 and 4). East of Malibu Canyon, the Sespe Formation and Piuma Member are overlain by three intertonguing marine and nonmarine members of the lower to middle Miocene Topanga Canyon Formation, which represents the lowest division of the Topanga Group. West of Malibu Canyon, the Vaqueros Formation is conformably overlain by the undivided Topanga Canyon Formation (Tt), which is composed of alternating thick and thin sequences of medium to coarse-grained silty biotitic sandstone, sandy siltstone, and pebbly sandstone. Overlying the Miocene strata are the middle Miocene Conejo Volcanics and Calabasas Formation, which constitute the middle and upper parts of the Topanga Group. The Monterey Formation (Tm) intertongues with and overlies the Trancas Formation and Zuma Volcanics and is composed of marine clay shale, laminated to platy siltstone, and interbedded altered vitric tuffs and fine to medium grained sandstone. The Monterey Formation and older bedrock units are unconformably overlain by upper Pleistocene marine and nonmarine coastal

terrace deposits (Qtm and Qt) in the southern part of the quadrangle. Quaternary alluvial deposits made up of gravel, sand and clay of flood plains unconformably overlie bedrock in the canyons and valleys, with mapped recent and ancient landslides within steep to gradual hill sides (DMG, 2001).

4.2 HYDROLOGY

The Malibu Creek Watershed is the second largest watershed draining into Santa Monica Bay. The 110 square miles of watershed includes the cities of Agoura Hills, Westlake Village, Calabasas, Thousand Oaks, Hidden Hills and portions of Malibu and Simi Valley. The most important drainage system in the Malibu Beach Quadrangle includes Malibu Creek and its tributaries. Major tributaries of Malibu Creek include, Cold Creek, Las Virgenes Creek, Medea Creek, Stokes Canyon, and Liberty Canyon, which drain a large area south of the Simi Hills and flow via Triunfo Canyon - Malibu Canyon through the entire mountain range to Santa Monica Bay. The larger canyons in this drainage area are wide and flat-bottomed and form gently sloping to flat-lying terrain near their confluence with Malibu Creek. Malibu Creek flows southeast and then south in Triunfo Canyon-Malibu Canyon through a deeply incised channel near the center of the quadrangle. The Malibu Creek floodplain and delta form a gently sloping to flat-lying surface underlying the Malibu Civic Center near the coast (DMG, 2001).

The Serra Retreat is situated on a topographic knoll, formed at the bend of an incised cut-off meander of Malibu Creek. The meander originally directed flows south of the knoll in a westerly direction, and it is undoubtedly responsible for embaying the western side of the Malibu Creek floodplain. The extreme eastern set of the meander at Serra Retreat suggests that left-lateral offset in the Malibu Coast fault Zone also may have contributed to the configuration (Keene and Slosson, 1986).

The SCPOA properties make up a very small portion of the Malibu Creek watershed. It is assumed by interpreting the regional topography and geologic subsurface, that groundwater generally flows from north to south and southwest toward Malibu Creek (Figure 5). Due to the cut-off meander of surface flow as described above, groundwater flow, potentially can flow east and then to the southwest around the Serra Retreat topographic feature.

Malibu Creek is known to transfer from overland flow to subsurface flow from approximately 1,500 feet north of the Cross Creek Bridge and back to overland flow approximately 1,500 feet south of the bridge in summertime or lower flow conditions.

4.3 GROUNDWATER

Groundwater in the study area is part of the Basin as determined by Department of Water Resources (DWR Bulletin 118, 2004). The Basin is bounded by the Pacific Ocean on the south and by non-water-bearing Tertiary age rocks on all remaining sides. The valley is drained by Malibu Creek to the Pacific Ocean. Average annual precipitation ranges from 14 to 16 inches. Groundwater is found principally in Holocene alluvium which consists of clays, silts, sands, and gravels. Thickness of the alluvium ranges from 90 feet at the upper end of the basin to more than 140 feet at the lower end. Recharge of the basin is from percolation of precipitation, surface runoff, and effluent from domestic septic systems.

4.4 GROUNDWATER QUALITY CRITERIA

The following water quality constituents were analyzed as part of this investigation based on the Regional Water Quality Control Board Final Technical Staff Report findings (RWQCB, 2009):

Total Nitrogen:

While nitrogen is an essential nutrient for plants, excessive levels in surface waters can have detrimental ecological effects, such as large algae blooms and proliferation of nuisance rooted aquatic plants.

The US EPA TMDL for total nitrogen, that includes nitrates (NO^3) and nitrite (NO^2), has different waste load allocations for the summer, defined as April 15 through November 15, and winter, November 16 through April 14. The summer season regulatory limit for total nitrogen is 1.0 milligrams per liter (mg/L) and 8.0 mg/L for the winter season. These two seasonal periods are distinguished in order to account for:

- The winter period in which the Tapia WRF is authorized to discharge most of its treated effluent, which results in substantial differences in flows and nutrient loads between summer and winter, and
- Rainfall and runoff patterns (most rainfall and precipitation-related nutrient loading occurs during the winter period).

Nitrate is naturally found in many types of food. However, high levels of nitrate in drinking water can make people sick. Nitrate in well water can come from animal waste, private septic systems, wastewater, flooded sewers, polluted storm water runoff, fertilizers, agricultural runoff, and decaying plants. Although high nitrate levels are usually due to human activities, nitrates can also occur naturally in ground water.

Ammonia:

Ammonia (NH^3) is a nutrient that contains nitrogen and hydrogen. Ammonia is one of the most important pollutants because it is relatively common but can be toxic, causing lower reproduction and growth, or death. Ammonia is highly toxic to fish and other aquatic life. The Basin Plan establishes numeric objectives for NH^3 which are protective of fish and wildlife.

Malibu Creek has an EPA target level for NH^3 at 1.75 mg/L for chronic effects and 2.59 mg/L for an acute exposure. These levels are also dependent on pH and temperature.

It should be noted that pH and temperature were not obtained for this sampling report.

5.0 WATER QUALITY SAMPLING

On January 20, January 23, and February 24, 2014 available non-potable water wells were sampled to test for the previously described criteria pollutants. The privately held water wells are used for irrigation purposes. Wells were sampled in accordance by standard industry practices. The location of wells used in this study along with analytical results is shown on Figure 6.

5.1 WELL LOCATIONS AND DESCRIPTIONS

The following are descriptions and locations of the irrigation pumping wells and groundwater monitoring wells, with brief descriptions of each identified well. It should be noted that not all wells identified in the field and on Figure 6 were sampled. Where accessible, the well casing and water depths were measured with an electronic water level meter with an accuracy of 0.01

feet. Measured groundwater depths are shown in Table 1 in Section 5.5. All groundwater samples were collected in disposable bailers and placed in preserved 120 milliliter (mL) plastic containers and 250 ml non-preserved plastic containers.

Serra Canyon – 1 (SC-1)

SC-1 is located at 23301 Palm Canyon Lane. The homeowner was interviewed as to the history of the well. To the best of the owners' knowledge, the well had not been used in approximately 15 years. The well is located approximately 100 feet south and up gradient of the septic leachfield. The well was not operational and not sampled due to a sealed cover on the conductor casing. Specific well details are included in Appendix B.

SC-2

SC-2 is located at 23447 Palm Canyon Lane. The well is north of the residence on a terraced slope approximately thirty feet higher in elevation above the residence. The location of the septic leachfield is located on the south side of the residence, approximately 200 feet down gradient of the well. However the adjacent property to the north has a leachfield approximately 70 northwest and upgradient of the well. At the time of the site visit, SC-2 was not in use. The well cover was removed to allow access. The water elevation was measured to be at 65.15 feet below the ground surface (bgs) and the well total depth was measured to be at 140 feet bgs. Approximately 10 gallons of water was manually purged using a decontaminated PVC Bailer. Samples were then collected using a disposable polyethylene bailer and placed into the sample containers.

SC-3

SC-3 is located at 23344 Palm Canyon Lane. The well is used for irrigation and drinking water for the animals. The nearest septic leachfield is several hundred feet away. Pumped groundwater is filtered prior to discharging to the on-site storage tank. Water samples were taken from a spigot between the well head and water pressure chambers. Well purging was not necessary as irrigation was taking place at the time of arrival and the well pump was operating.

SC-4

SC-4 is located 3611 Serra Road. The well is active and used for irrigation purposes. The well head cover was not accessible for measurements. The homeowner was interviewed as to the history of the well. To the best of the owners' knowledge, the total well depth was 35 feet bgs and the groundwater elevation at that time was encountered at approximately 20 feet bgs when constructed 35 years ago. The well is located approximately 100 feet south and down gradient of the septic system leachfield. Prior to sampling from a spigot directly attached to the well head, the pump was allowed to run for approximately 10 minutes.

SC-5, SC-6, and SC-7 (SMBRP-6)

SC-5, 6 and 7 are located at 3515 Cross Creek Road. SC-5 is used as a backup well to well SC-6. Both wells are used for irrigation purposes. SC-5 was not able to be sampled due a non-functioning pump and the well head was not accessible.

The wellhead for SC-6 was not accessible for water depth measurement, however, the well had recently been replaced and the former well casing was stored adjacent to the area. The pvc casing segments were measured at 69 feet. The well is located approximately 100 feet south

and slightly down gradient of the septic system leachfield. At the time of sampling, the well was in use, so purging was not necessary. A sample was taken from a bleed valve directly above the well head.

SC-7 is a monitoring well installed by the City of Malibu identified as SMBRP-6. Previous testing data was used in this report, as described in the background section of this report.

SC-8

SC-8 is located at 3434 Serra Road. The well is active and used for irrigation purposes. The wellhead had an opening available to be used for measuring. The total well depth was measured at 71.75 feet bgs, with groundwater being encountered at 37.39 feet bgs. The well is located approximately 100 feet west and down gradient of the septic system leachfield for the residence. The well is actively used for irrigation purposes. The well was allowed to run for approximately 10 minutes and allowed to re-charge prior to sampling. Samples were collected using a disposable polyethylene bailer and then placed in containers.

SC-9 and SC-10

SC-9 and 10 are located at 3314/3328 Serra Road.

Well SC-9 is active and used for irrigation purposes. The SC-9 well is located approximately 270 feet southeast and down gradient of the septic system for the residence and 250 feet south and down gradient of the septic system leachfield for the residence at the adjacent property to the north. The well head was not removed for measuring. Water samples were taken from a valve directly connected to the well head. Purging was not necessary as irrigation was taking place at the time of arrival and the pump was observed to be on. The property, historically, was used as a commercial nursery, wherein succulents and cactus were raised from 1970 to 2007. At the time of our Site visit, the plants were in the process of being placed in pots and removed from the Site.

SC-10 is situated on a gently sloping valley floor east of the Serra Retreat knoll feature in the northwestern portion of the property. The well head was removed to allow measurements to be taken. The well was found to be dry at the time of sampling. The total depth of the well was measured at 59.32 feet bgs.

SC-11 (SMBRP-3C) and SC-12

SC-11 and 12 are located at 3415 Cross Creek Road. SC-11 is a monitoring well installed by the City of Malibu identified as SMBRP-3C. The monitoring well is located approximately 70 feet east of Malibu Creek and approximately 150 feet south and slightly down gradient of the septic system leachfield. Previous testing data was used in this report, as described in the background section of this report.

SC-12 is actively used for irrigation purposes and is located approximately 230 feet northeast of Malibu Creek and approximately 150 feet southeast and cross gradient of the septic system leachfield. Purging was not necessary as the well pump was in use at the time of sampling. Prior to water storage within tanks at the Site, water is filtered. Water samples were taken from a spigot between the well head and water pressure chambers.

SC-13

SC-13 is located at 3811 Serra Road. The well is used for irrigation purposes at the time of sampling was not active due to maintenance requirements. The wellhead did not have an opening available to be used for measuring the ground water elevation. The well is located approximately 200 feet west and approximately cross gradient of the septic system leachfield for the residence located in the driveway area. The pump was not operational at the time of the Site visit.

SC-14 (SMBRP-2)

SC-14 is a monitoring well installed by the City of Malibu identified as SMBRP-2, located within the floodplain area, approximately 300 feet east of Malibu Creek. The area is also known as the "Picnic Grounds". Previous testing data was used in this report, as described in the background section of this report.

5.2 MALIBU CREEK SAMPLING

Malibu Creek was sampled at four locations on October 28, 2013 and February 26, 2014 (Figure 7). Sampling for the October 28, 2013 event was collected prior to the Tapia WRF discharge of treated effluent into the creek. The February 26, 2014 sampling event was conducted during discharging of treated effluent into the creek from the Tapia WRF. The following are locations and brief descriptions of Malibu Creek sampling locations and conditions.

Malibu Creek-1

This location is located 0.15 mile upstream of the nearest home in the SCPOA area and is considered representative of the water that is discharged from the Tapia Facility mixed with base flow from springs or seeps. There is no contribution from sources in the SCPOA area either in volume or water characteristics. At the time of sampling on October 28, 2013, water was flowing at an estimated rate of 20 gallons per minute. The water samples were taken using a bailer and placed in a refrigerated container. At the time of the February 26, 2014 sampling event, water flow at all locations was estimated to be on the order of 100 gallons per minute.

Malibu Creek-2

Samples were taken approximately 150 feet upstream of the Cross Creek Bridge. This location is down gradient of some of the homes in the SCPOA. During the October 28 sampling event, the creek bottom was dry approximately 50 feet north of the sampling location and again beyond the bridge. The presence of flowing water suggested the water is subsurface flow in the creek alluvium that breached the ground surface. At the time of the February 26, 2014 sampling event, water flow at all locations was estimated to be on the order of 100 gallons per minute and continuously flowing through the area.

Malibu Creek-3

Located approximately 400 feet south of the Cross Creek Bridge, this location is down gradient of several homes located on the east bank of Malibu Creek. The sampling location is not affected by the waters of the Malibu lagoon. This location contained stagnant water at the time of the October 28, sampling event. At the time of the February 26, 2014 sampling event, water flow at all location was estimated to be on the order of 100 gallons per minute.

Malibu Creek-4

This location is at the upstream end of the Malibu Lagoon and represents a mix of the incoming water from Malibu Creek and the Malibu Lagoon. At the time of the October 28, 2013 sampling event, no water was observed flowing from the creek at this location. During the February 26, 2014 event, water was observed in the lagoon and flowing from the creek at a rate of approximately 100 gallons per minute.

5.3 CROSS CREEK PLAZA SHOPPING CENTER

A commercial grade OWDS was observed directly west of Malibu Creek in the lagoon area within the Cross Creek Plaza Shopping Center parking lot. The effluent from this system likely percolates as subsurface flow into the lagoon water. Construction details of that system were not provided to Citadel.

5.4 GROUNDWATER QUALITY

The collected water samples were delivered to American Environmental Testing Laboratory, Inc. (AETL) located in Burbank, California in an iced cooler using proper chain of custody documentation and within all required holding times. All samples were analyzed for nitrates and nitrites by EPA Method 300.0, and total ammonia as N by EPA Method 350.3.

The laboratory data including chain of custody, respective method detection limits and laboratory quality control and assurance programs are presented in Appendix A.

Table 1 Laboratory results from sampled wells. Bold where analytes detected in excess of Water Body Regulatory Levels.

Sample ID	Approx Groundwater Depth (feet)	Approx Distance and Orientation From Nearest Septic Leachfield (feet)	Nitrate (mg/L)	Nitrite (mg/L)	Ammonia (mg/L)
MalibuCreek-1 10/28/2013	-	-	**0.698**	ND[1]	ND
MalibuCreek-1 2/26/2014	-	-	**2.39**	ND	ND
MalibuCreek-2 10/28/2013	-	-	ND	ND	ND
MalibuCreek-2 2/26/2014	-	-	**2.33**	ND	ND
MalibuCreek-3 10/28/2013	-	-	ND	ND	**0.088**
MalibuCreek-3 2/26/2014	-	-	**2.27**	ND	ND
MalibuCreek-4 10/28/2013	-	-	**0.334**	ND	**0.133**
MalibuCreek-4 2/26/2014	-	-	**1.24**	ND	ND
SC-2	65'	70' down gradient	**5.33**	ND	ND
SC-3	unknown	unknown	ND	ND	ND
SC-4	20'	100' down gradient	ND	ND	ND
SC-6	15'	100' down gradient	ND	ND	ND
SC-7	15'	150' down gradient	**2.84**	ND	ND
SC-8	37'	100' down gradient	**7.93**	ND	ND
SC-9	unknown	250' down gradient	**23.5**	ND	ND
SC-11	19'	200' down gradient	**1.66**	ND	ND
SC-12	unknown	100' down gradient	**0.673**	ND	ND
SC-14	9'	unknown	ND	ND	**0.146**
SMBRP-3C	18'[2]	200' down gradient	**1.79**[2]	**0.020**[1]	**0.16**[1]
SMBRP-6	15'[3]	150' down gradient	**1.79**[1]	**0.030**[1]	**0.15**[1]
SMBRP-2	9'[4]	unknown	**0.10**[1]	**0.020**[1]	**0.74**[1]

[1] ND=Non-Detect laboratory Result
[2] Extracted from Stone (2004), monitoring well sampling, average result from 12 separate events (4/03-3/04)

Table 2 Water Body Regulatory Levels established by the LARWQCB and Drinking Water Maximum Contaminant Levels (MCL) established by the EPA

Water Body Regulatory Levels (LARWQCB) Nitrate + Nitrite – 1.0 mg/L (summer), 8.0 mg/L (winter) Ammonia – 1.75 mg/L **EPA National Primary Drinking Water Maximum Contaminant Level** Nitrate - 10 mg/L Nitrite – 1 mg/L Ammonia – NA

6.0 FINDINGS

6.1 MONITORING WELL DEPTHS

Depth to groundwater encountered in the analyzed wells ranged from nine (9) feet (SMBRP-2)[1] at the most southern point and nearest to the ocean to as much as 65 feet (SC-2) in the most northern well, the furthest location from the ocean. The average depth to groundwater excluding the most shallow and deepest wells was 19.8 feet.

6.2 GROUNDWATER QUALITY

Groundwater quality analysis results are summarized in Table 1 as well as on Figures 6 and 7.

All analytes detected in sampled wells were below Water Body Regulatory Levels (WBRLs) established by the LARWCB with the exception of well SC-9, which had Nitrate (NO^3) concentrations detected at 23.5 mg/L, which are above the total nitrogen concentrations of 8.0 mg/L for winter sampling events.

Nitrates were detected in wells SC-2, SC-7, SC-8, SC-11, and SC-12 all below WBRLs for the winter sampling times, however elevated concentrations of Nitrates were slightly higher in Wells SC-2 and SC-8.

All Malibu Creek samples obtained during the summer and winter sampling events showed analyte concentrations below the selected WBRLs for single samples.

Nitrates were detected in Malibu Creek samples 1 and 4 during the summer sampling event and all samples during the winter sampling event.

Nitrites were not detected in any well or Malibu Creek samples.

Ammonia was detected in Malibu Creek sample locations 3 and 4 during the summer sampling event below WBRLs, but not detected in the winter sampling event samples.

7.0 CONCLUSIONS & RECOMMENDATIONS

The following conclusions have been reached based on the results of this sampling study:

1. Well SC-9 shows Nitrate concentrations of 23.5 mg/L, which are above WBRS. While water from this well is used strictly for irrigation purposes, it should be closely monitored. High nitrate concentrations may be influenced by the historical use of the Site as a commercial nursery, which typically involves the use of nitrogen concentrated fertilizers. Nitrate can pass through the soil and potentially contaminate ground water. Nitrate comes from nitrogen, a plant nutrient supplied by inorganic fertilizer and animal manure. Assumed sand and gravel based soils potentially provided an easy pathway to contribute high nitrate concentrations to groundwater. The subsurface groundwater flow (Figure 5) through the area is directed to the southwest. Well SC-8 and SC-4 are good monitoring locations down gradient as to the affect nitrate concentrations may be affecting Malibu Creek. Well SC-8 is located approximately 580 south of SC-9. At his location, Nitrates were detected at elevated concentrations (7.93 mg/L), however approximately 1/3 less than detected in SC-9. Well SC-4, located approximately 1,200 feet southwest of SC-8, and within the subsurface groundwater flow before reaching Malibu Creek, did not detect any concentrations of Nitrates. From this limited data, the non-detect results of this well indicate that high Nitrate concentrations up gradient have not affected the Malibu Creek water quality deterioration.

2. Elevated Nitrate concentrations detected in Well SC-2 (5.33 mg/L) could be a result of the close proximity (approximately 70 northwest and upgradient) of the adjoining property leachfield. The subsurface groundwater flow through the area is directed to the south. Well SC-3 and SC-12 are good monitoring locations down gradient as to the affect nitrate concentrations may be affecting Malibu Creek. Well SC-3, located approximately 850 feet south and down gradient, did not detect the presence of Nitrates in the sample obtained. Well SC-12, located approximately 800 feet southwest and down gradient detected Nitrates at a concentration of 0.673 mg/L, assumed to be natural levels.

3. SCPOA is not contributing to the degradation of waters within Malibu Creek with regard to the tested constituents, Nitrates, Nitrites and Ammonia.

4. Water flowing in Malibu Creek through the boundaries of the SCPOA meets Water Body Regulatory Standards (WBRS) established by the LARWQCB for total nitrogen (Nitrates + Nitrites), and ammonia as nitrogen, which are typical nutrients associated with wastewater treatment systems.

5. The Tapia WRF discharge of treated effluent into the creek during winter months potentially has an influence on Malibu Creek water quality as shown in the overall increase of Nitrates and Ammonia as N from summer and winter sampling events. Additional creek testing directly above and below the Tapia confluence with Malibu Creek is recommended.

6. The very close proximity of the Cross Creek Plaza Shopping Center OWDS to Malibu Creek could potentially influence water quality. Additional research on the facility and Creek testing in this area is recommended.

8.0 REFERENCES CITED

DMG, 2001, Seismic Hazard Zone Report for the Malibu Beach 7.5 Minute Quadrangle, Los Angeles County, California, Department of Conservation, Division of Mines and Geology. http://gmw.consrv.ca.gov/shmp/download/quad/MALIBU_BEACH/reports/malib_eval.pdf

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Dibblee, T.W., Ehrenspeck, H.E ed. and Bartlett, Wendy, ed., 1993, Geologic map of the Malibu Beach quadrangle, Los Angeles County, California, Dibblee Geological Foundation Map DF-47, Scale 1:24,000 http://ngmdb.usgs.gov/Prodesc/proddesc_231.htm

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US EPA, 1986. Ambient Water Quality for Bacteria. Available at: http://water.epa.gov/scitech/swguidance/standards/upload/2001_10_12_criteria_ambientwqc_bacteria1986.pdf

9.0 LIMITATIONS

This groundwater monitoring report was performed in accordance with generally and currently accepted engineering practices and principles. Although the data in this report is indicative of groundwater conditions in areas investigated, no further conclusions regarding the absence or presence of subsurface contamination at the site should be construed or inferred other than those expressly stated in this report. The conclusions made are based on information obtained from field observations, independent laboratory analytical results, and from relevant Federal, State, regional, and local agencies.

10.0 SIGNATURES

Report Prepared by:

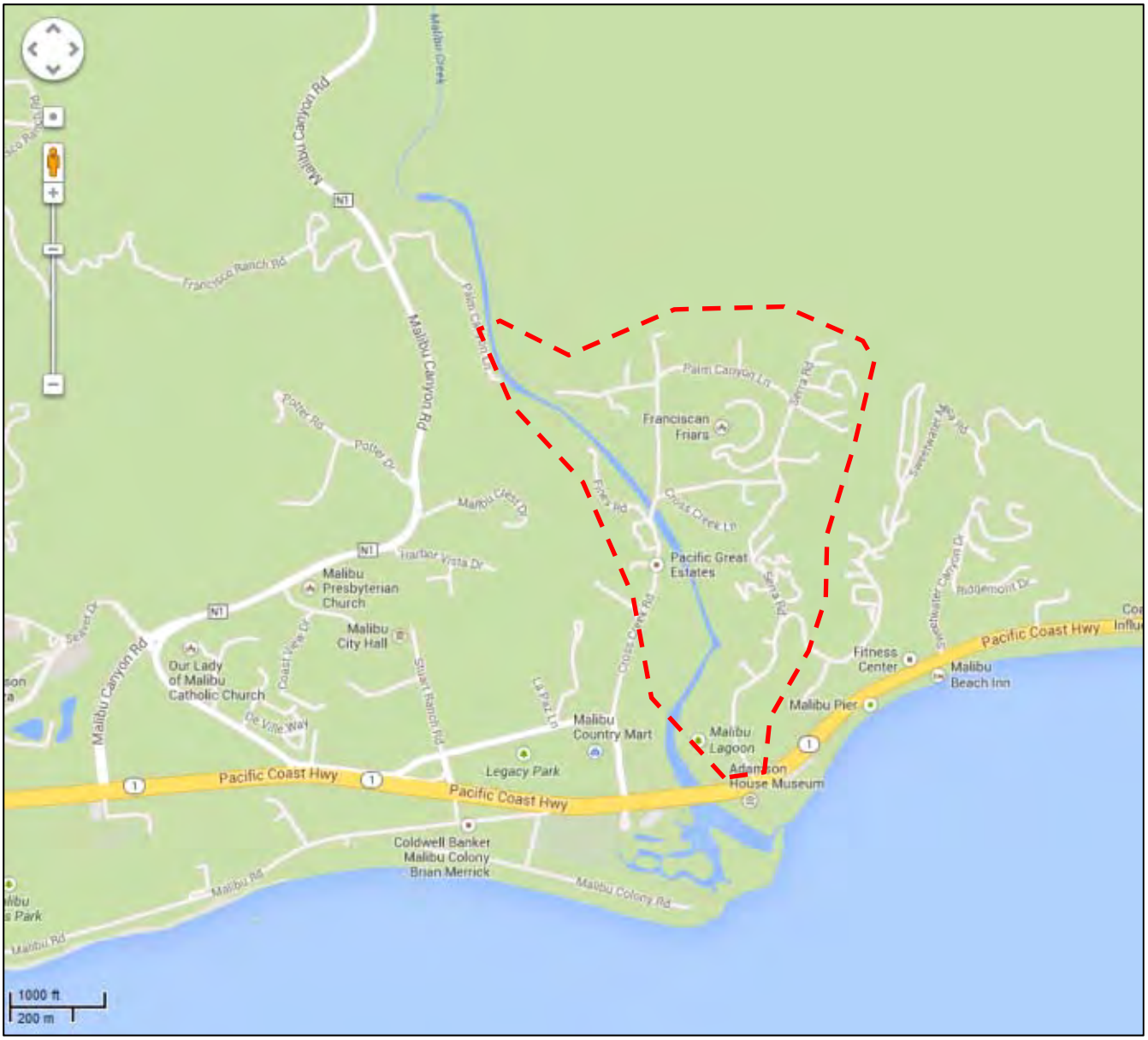
Joshua Cwikla, PG #8590
Project Geologist

Report Reviewed By:

Mark Drollinger, M.Eng, CSP, CHMM, EiT
Director Environmental Geology and Engineering

CITADEL
ENVIRONMENTAL SERVICES, INC.

Figures



=Approximate Study Area

Source: Google Maps

CITADEL ENVIRONMENTAL SERVICES, INC.

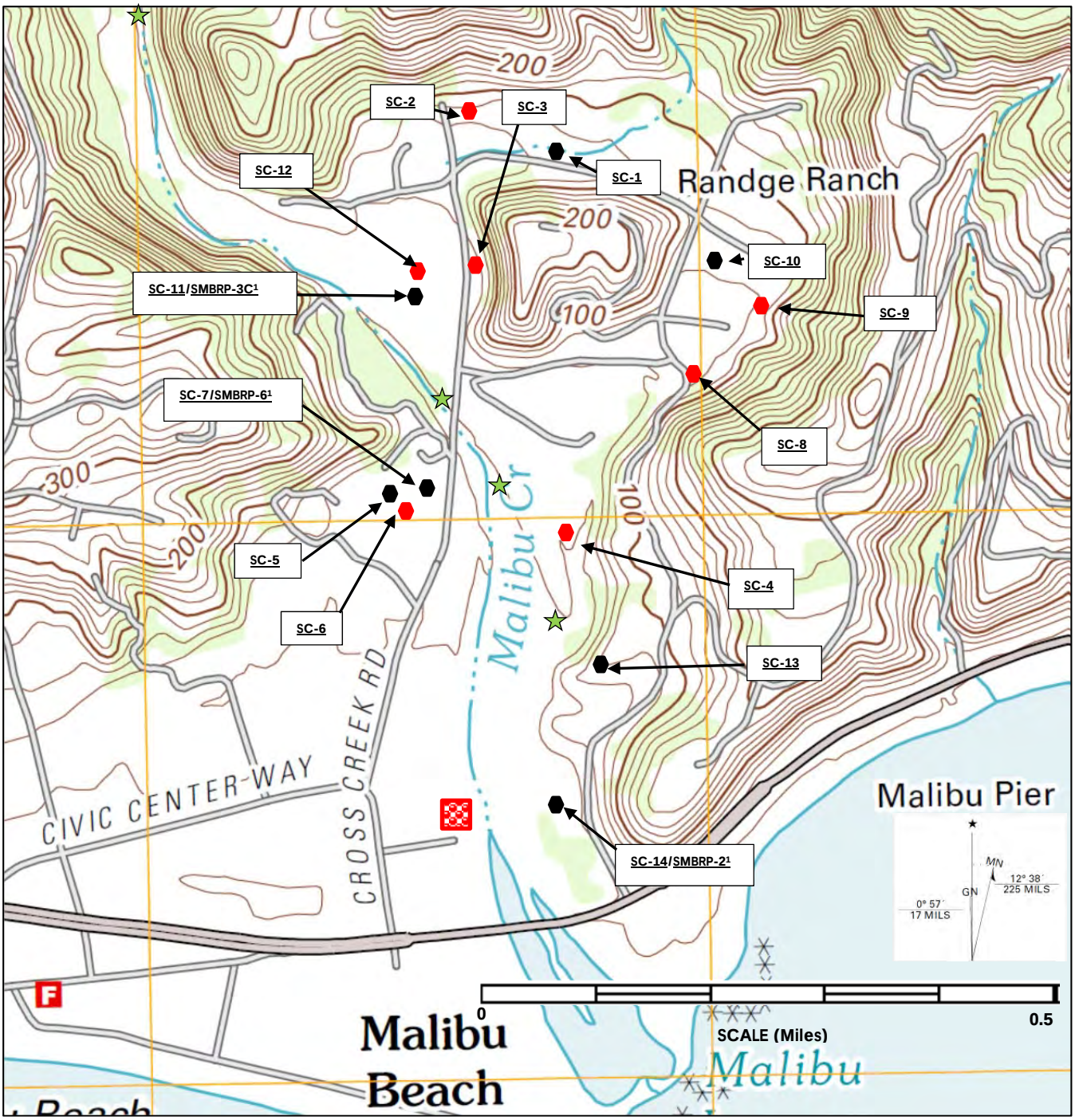
Serra Canyon Property Owners Association
Serra Canyon
Malibu, California

Figure 1

PROJECT NO.: 0551.1001.0

DATE: April 2014

Map of Study Area



= Sampled Well Location

= Well Location (Not Sampled)

= Creek Sample Location

= Cross Creek Plaza OWDS

[1]Extracted from Stone (2004), monitoring well sampling, average result from 12 separate events (4/03-3/04)

Source: USGS 7.5 Minute Malibu Beach Quadrangle Topographic Map (2012)

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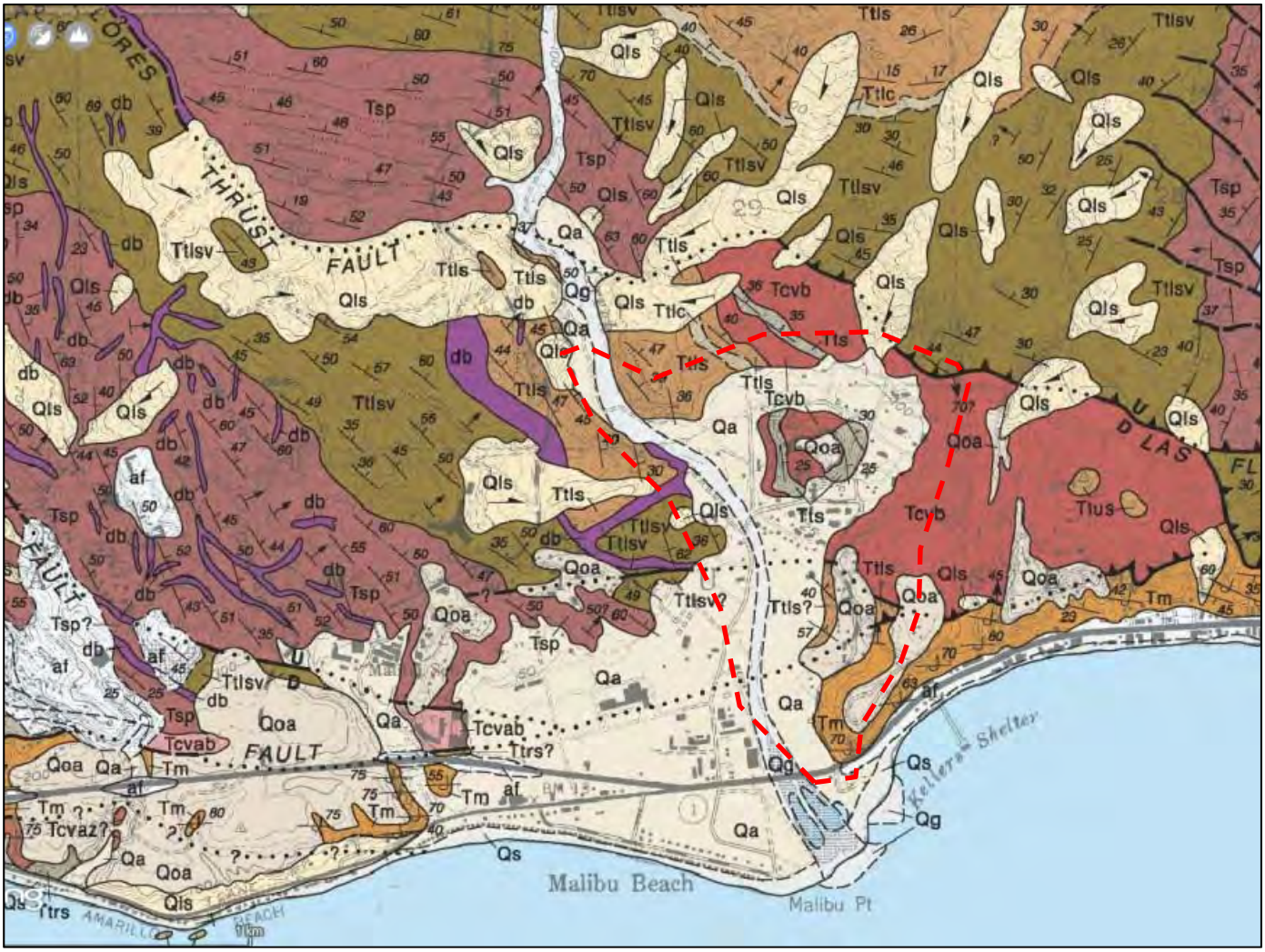
Serra Canyon Property Owners Association
Serra Canyon
Malibu, California

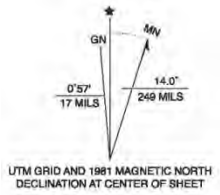
Figure 2

PROJECT NO.: 0551.1001.0

DATE: April 2014

Well and Creek Sample Location Map





UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

MALIBU BEACH QUADRANGLE
CONTOUR INTERVAL 25 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

=Approximate Study Area

GEOLOGIC MAP OF THE MALIBU BEACH QUADRANGLE

LOS ANGELES COUNTY, CALIFORNIA

BY THOMAS W. DIBBLEE, JR., 1993
EDITED BY HELMUT E. EHRENSPECK AND WENDY L. BARTLETT, 1993
EDITED BY JOHN A. MINCH, 2009

For Complete Legend See Figure 5

CITADEL ENVIRONMENTAL SERVICES, INC.

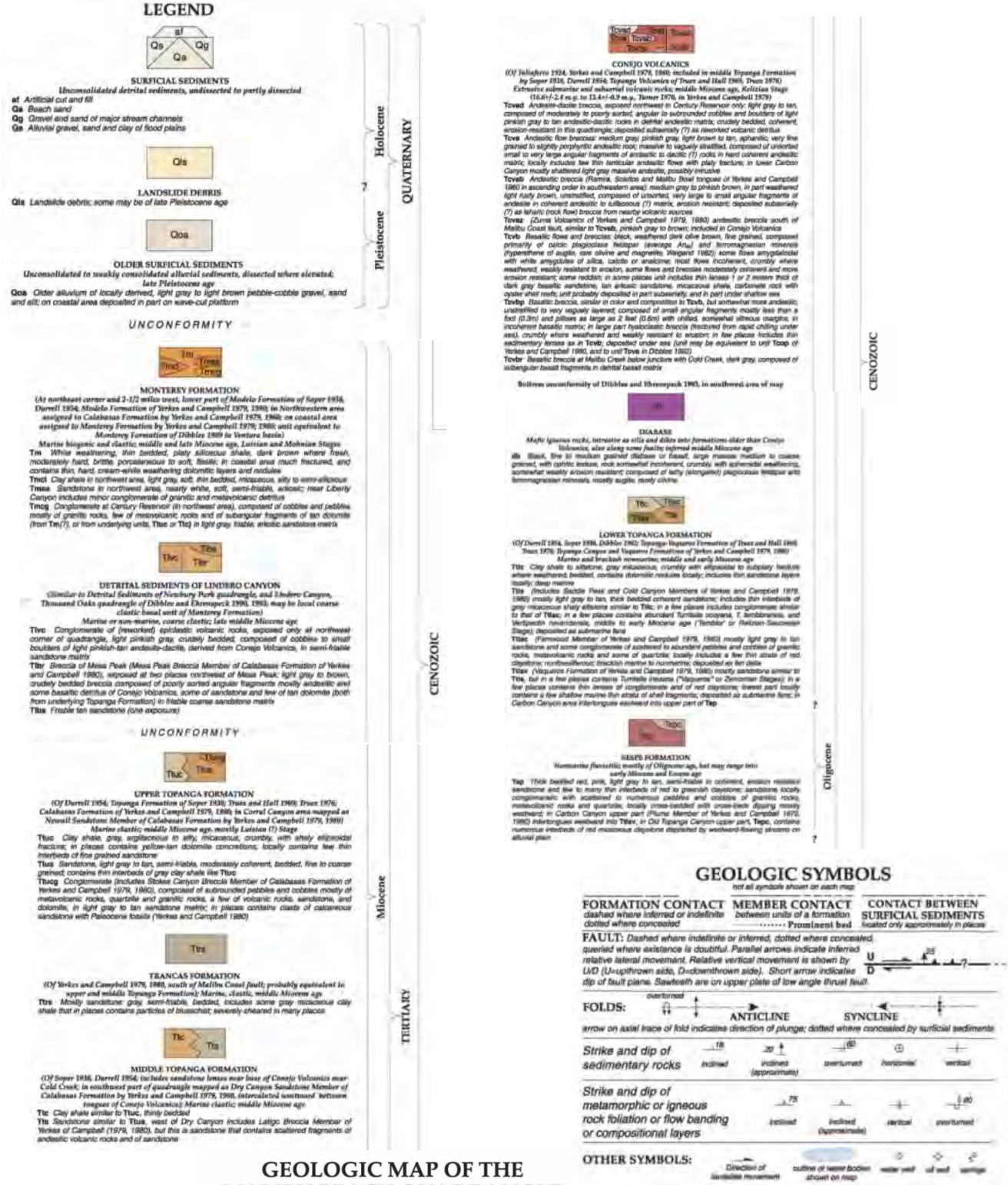
Serra Canyon Property Owners Association
Serra Canyon
Malibu, California

Figure 3

PROJECT NO.: 0551.1001.0

DATE: April 2014

Geologic Vicinity Map



GEOLOGIC MAP OF THE MALIBU BEACH QUADRANGLE

LOS ANGELES COUNTY, CALIFORNIA

BY THOMAS W. DIBBLEE, JR., 1993

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EDITED BY JOHN A. MINCH, 2009

CITADEL ENVIRONMENTAL SERVICES, INC.

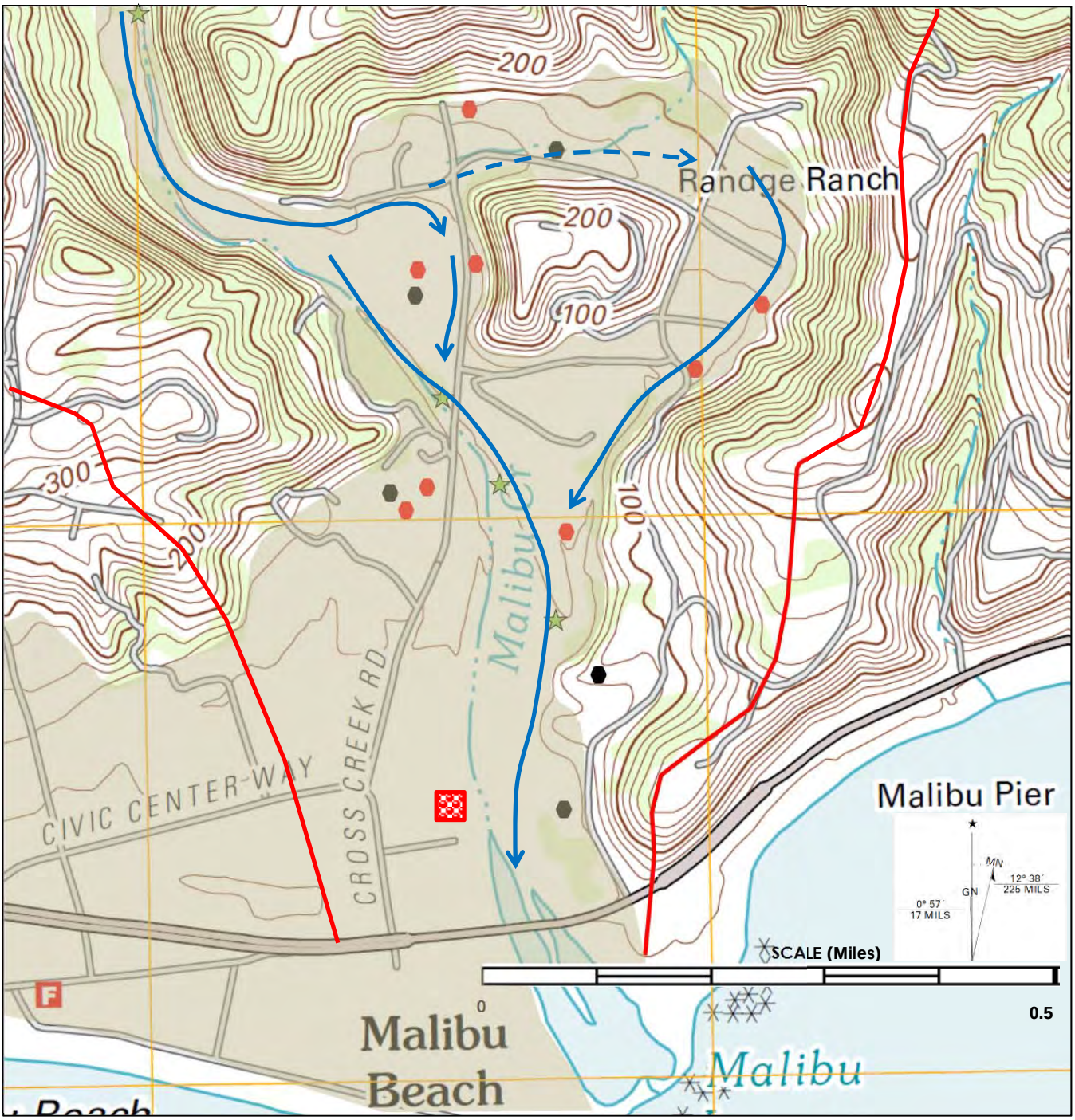
Serra Canyon Property Owners Association
Serra Canyon
Malibu, California

Figure 4

PROJECT NO.: 0551.1001.0

DATE: April 2014

Geologic Vicinity Map Legend



= Sampled Well Location

= Well Location (Not Sampled)

= Creek Sample Location

= Cross Creek Plaza OWDS

= Quaternary and Recent Alluvium (Dibblee 1993)

= Approximate Malibu Creek Watershed Boundaries

= Inferred Groundwater Flow Direction, dashed for potential flow direction

Source: USGS 7.5 Minute Malibu Beach Quadrangle Topographic Map (2012)

CITADEL ENVIRONMENTAL SERVICES, INC.

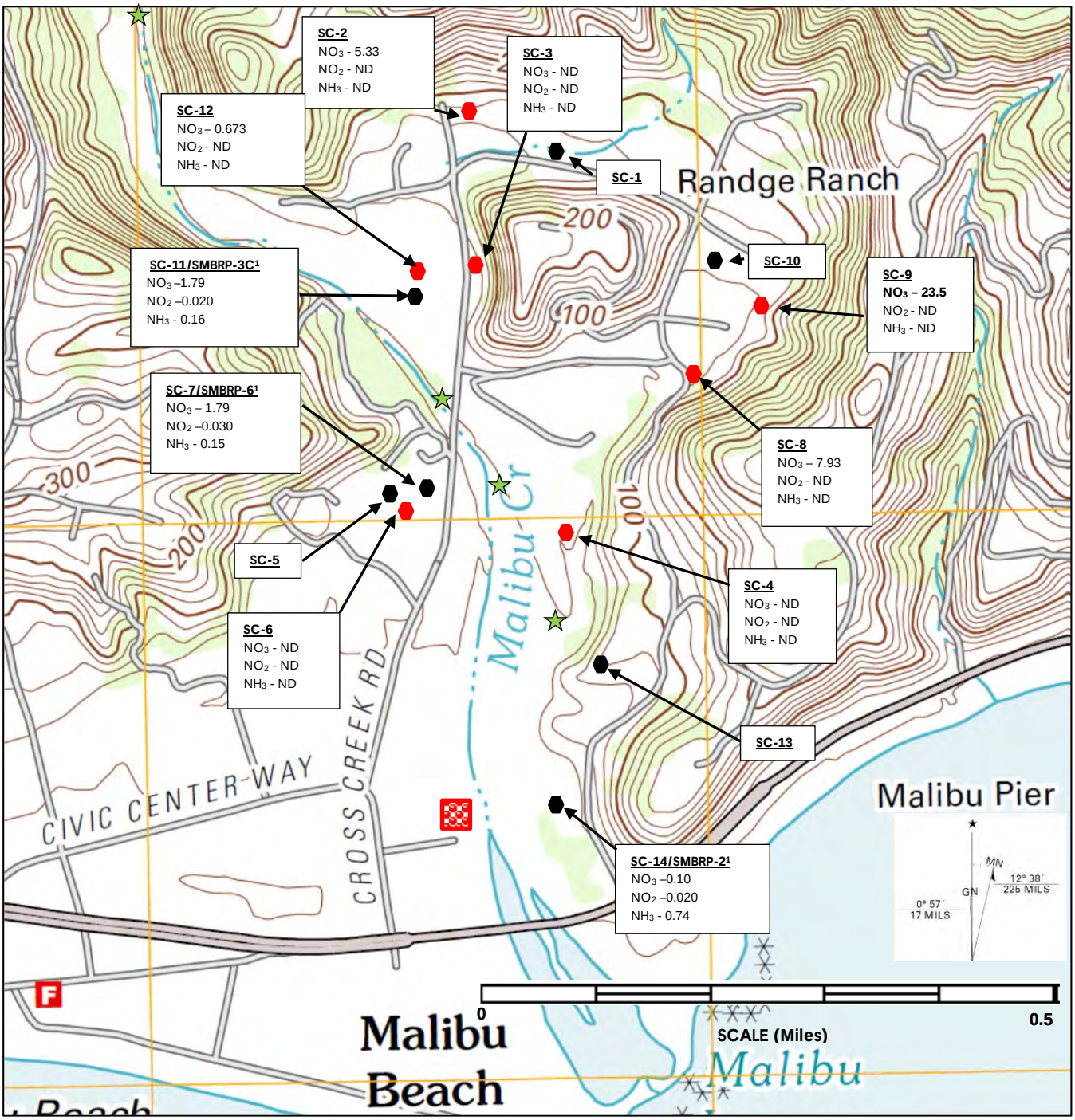
Serra Canyon Property Owners Association
Serra Canyon
Malibu, California

Figure 5

PROJECT NO.: 0551.1001.0

DATE: April 2014

Malibu Creek Watershed Boundaries and Groundwater Flow Direction



= Sampled Well Location

= Well Location (Not Sampled)

= Creek Sample Location

= Cross Creek Plaza OWDS

Well ID - SC-2
NO_3 – Nitrate - mg/L
NO_2 – Nitrite – mg/L
NH_3- Ammonia – mg/L
ND = Non Detect
[1]Extracted from Stone (2004), monitoring well sampling, average result from 12 separate events (4/03-3/04)

Water Body Regulatory Levels (LARWQCB)
Nitrate + Nitrite – 1.0 mg/L (summer), 8.0 mg/L (winter)
Ammonia – 1.75 mg/L

Source: USGS 7.5 Minute Malibu Beach Quadrangle Topographic Map (2012)

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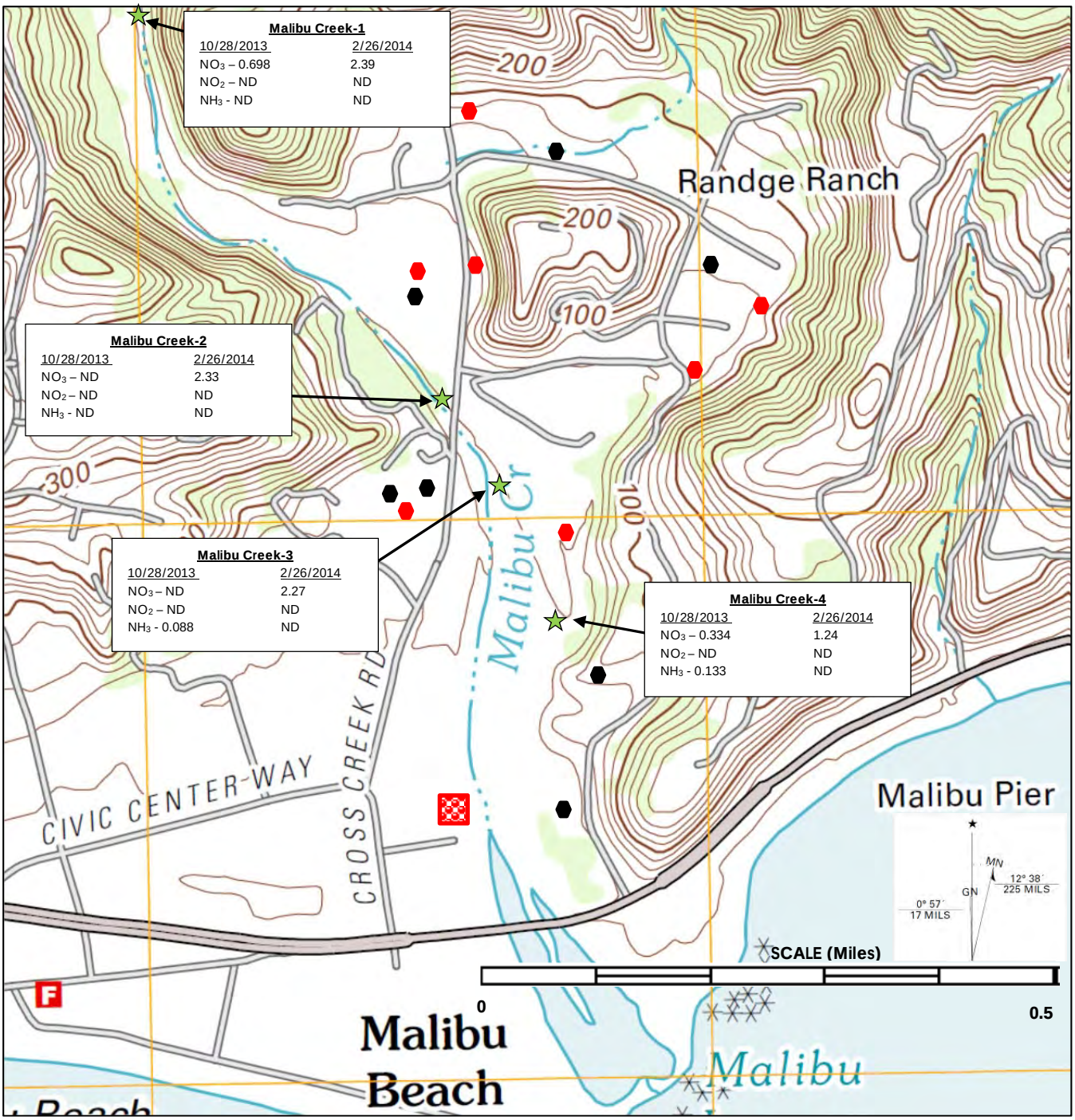
Serra Canyon
Malibu, California

Figure 6

PROJECT NO.: 0551.1001.0

DATE: April 2014

Well Location Map



= Sampled Well Location

= Well Location (Not Sampled)

= Creek Sample Location

= Cross Creek Plaza OWDS

Creek Sample ID - Malibu Creek-1
NO_3 – Nitrate - mg/L
NO_2 – Nitrite – mg/L
NH_3- Ammonia – mg/L
ND = Non Detect

Water Body Regulatory Levels (LARWQCB)
Nitrate + Nitrite – 1.0 mg/L (summer), 8.0 mg/L (winter)
Ammonia – mg/L

Source: USGS 7.5 Minute Malibu Beach Quadrangle Topographic Map (2012)

CITADEL ENVIRONMENTAL SERVICES, INC.

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Serra Canyon
Malibu, California

Figure 7

PROJECT NO.: 0551.1001.0

DATE: April 2014

Creek Sampling Location Map

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ENVIRONMENTAL SERVICES, INC.

Appendix A Chain-of-Custody and Laboratory Documentation

American Environmental Testing Laboratory Inc.
2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attention: Mark Drollinger

Number of Pages	**5**
Date Received	**01/20/2014**
Date Reported	**01/27/2014**

Job Number	Order Date	Client
71989	01/20/2014	CES

Project ID: 0551.1001.0
Project Name: SCHOA
Site: Malibu, CA

Enclosed please find results of analyses of 3 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street, Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

SM9221

CHAIN OF CUSTODY RECORD

№ 86776

AETL JOB No. 71989

COMPANY: Citadel Environmental	PROJECT MANAGER: Mark Doellinger
COMPANY ADDRESS: 1725 Victory Blvd Glendale	PHONE / FAX: (818) 246 2707
PROJECT NAME: SCHOA	PROJECT #: 055/.100/.0
SITE NAME AND ADDRESS: Malibu CA	PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.
1	SC-3	71989.01	1/20/14	1035	water	120mL 250mL	
2	SC-4	71989.02		1140			
3	SC-6	71989.03		1335			
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

ANALYSIS REQUESTED

	Total Hard Cal.	Nitrates - 300.0	Nitrites 300.0	Ammonia 350.3
1	X	X	X	X
2	X	X	X	X
3	X	X	X	X

TEST INSTRUCTIONS & COMMENTS

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	6	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY ☐ PDF ☐ GEOTRACKER (GLOBAL ID) _____ ☐ OTHER (PLEASE SPECIFY) _____

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature:	Signature:
Printed Name: Josh Cwikla	Printed Name: Kenard Knue	Printed Name:
Date: 1/20/14 Time: 1400	Date: 1/20/14 Time: 15:23	Date: Time:
RECEIVED BY: 1.	**RECEIVED BY: AETL 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name: Kenard Knue	Printed Name: Steph Mancia	Printed Name:
Date: 1/20/14 Time: 14:00	Date: 01/20/14 Time: 1523	Date: Time:

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.
2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attention: Mark Drollinger

Project ID: 0551.1001.0
Date Received 01/20/2014
Date Reported 01/27/2014

Job Number	Order Date	Client
71989	01/20/2014	CES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 3 samples with the following specification on 01/20/2014.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
71989.01	SC-3	01/20/2014	Aqueous	2
71989.02	SC-4	01/20/2014	Aqueous	2
71989.03	SC-6	01/20/2014	Aqueous	2

Method ^ Submethod	Req Date	Priority	TAT	Units
300.0 ^ NO3-NO2-N	01/27/2014	2	Normal	mg/L
350.3	01/27/2014	2	Normal	mg/L
SM-9221A-D	01/27/2014	2	Normal	MPN/100 mL
SM-9221A-E	01/27/2014	2	Normal	MPN/100 mL

The samples were analyzed as specified on the enclosed chain of custody.
Analytical non-conformances have been noted on the report.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.
2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

ANALYTICAL RESULTS

Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attn: Mark Drollinger
Page: **2**

Site

Malibu, CA

Project ID: 0551.1001.0
Project Name: SCHOA

AETL Job Number	Submitted	Client
71989	01/20/2014	CES

Method: 300.0, Nitrate & Nitrite as N in water by IC

QC Batch No: 012114-1

Our Lab I.D.			Method Blank	71989.01	71989.02	71989.03	
Client Sample I.D.				SC-3	SC-4	SC-6	
Date Sampled				01/20/2014	01/20/2014	01/20/2014	
Date Prepared			01/21/2014	01/21/2014	01/21/2014	01/21/2014	
Preparation Method			300.0	300.0	300.0	300.0	
Date Analyzed			01/21/2014	01/21/2014	01/21/2014	01/21/2014	
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	
Units			mg/L	mg/L	mg/L	mg/L	
Dilution Factor			1	1	1	1	
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	
Nitrate as Nitrogen	0.01	0.05	ND	ND	ND	ND	
Nitrite as Nitrogen	0.01	0.05	ND	ND	ND	ND	

QC Batch No: 012114-1; Dup or Spiked Sample: B012114; LCS: Clean Water; QC Prepared: 01/21/2014; QC Analyzed: 01/21/2014; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Nitrate as Nitrogen	0.00	1.00	1.16 X	116	1.00	1.18 X	118	1.7	80-120	<15
Nitrite as Nitrogen	0.00	1.00	1.03 X	103	1.00	1.00 X	100	3.0	80-120	<15

QC Batch No: 012114-1; Dup or Spiked Sample: B012114; LCS: Clean Water; QC Prepared: 01/21/2014; QC Analyzed: 01/21/2014; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Nitrate as Nitrogen	ND	ND	<1	<15						
Nitrite as Nitrogen	ND	ND	<1	<15						

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ANALYTICAL RESULTS

Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attn: Mark Drollinger
Page: **3**

Site

Malibu, CA

Project ID: 0551.1001.0
Project Name: SCHOA

AETL Job Number	Submitted	Client
71989	01/20/2014	CES

Method: 350.3, Ammonia as N, Potentiometric, ISE (EPA/600/4-79-020)

QC Batch No: 012114-1

Our Lab I.D.			Method Blank	71989.01	71989.02	71989.03	
Client Sample I.D.				SC-3	SC-4	SC-6	
Date Sampled				01/20/2014	01/20/2014	01/20/2014	
Date Prepared			01/21/2014	01/21/2014	01/21/2014	01/21/2014	
Preparation Method			350.3	350.3	350.3	350.3	
Date Analyzed			01/21/2014	01/21/2014	01/21/2014	01/21/2014	
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	
Units			mg/L	mg/L	mg/L	mg/L	
Dilution Factor			1	1	1	1	
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	
Ammonia as Nitrogen	0.05	0.10	ND	ND	ND	ND	

QC Batch No: 012114-1; Dup or Spiked Sample: 71989.01; LCS: Clean Water; QC Prepared: 01/21/2014; QC Analyzed: 01/21/2014; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Ammonia as Nitrogen	0.00	0.500	0.488	97.6	0.500	0.480	96.0	1.7	80-120	<15

QC Batch No: 012114-1; Dup or Spiked Sample: 71989.01; LCS: Clean Water; QC Prepared: 01/21/2014; QC Analyzed: 01/21/2014; Units: mg/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Ammonia as Nitrogen	0.500	0.495	99.0	80-120						

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

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Ordered By

Geotechnologies, Inc. **439 Western Avenue** **Glendale, CA 91201-2837**

Number of Pages	**5**
Date Received	**10/28/2013**
Date Reported	**11/07/2013**

Telephone: (818)240-9600
Attention: Reinard Knur

Job Number	Order Date	Client
71120	10/28/2013	GEOINC

Project ID: 20651
Project Name: SCPOA
Site: Malibu Creek Surface Water

Enclosed please find results of analyses of 4 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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CHAIN OF CUSTODY RECORD

№ 84787

AETL JOB No. 71120 Page 1 of 1

COMPANY	Geotechnologies Inc
PROJECT MANAGER	Reinard Knox
COMPANY ADDRESS	439 Western Avenue
PHONE / FAX	FAX 818 968-2675
PROJECT NAME	SCPOA
PROJECT #	20651
SITE NAME AND ADDRESS	Malibu Creek Surface Water
PO #	

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	Nitrate	Nitrite	Ammonia	Fecal Coliform	TEST INSTRUCTIONS & COMMENTS
1	1	Surface	10/28/13		W	various	Ice/yes	✓	✓	✓	✓	71120.01
2	2	Surface		8:00A								71120.02
3	3	Surface		8:15A								71120.03
4	4	Surface		9:00AM								71120.04
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

ANALYSIS REQUESTED

TEST INSTRUCTIONS & COMMENTS: 1 x 500 mL PL; 2 x 120 mL PL

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	12	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☒ HARD COPY ☒ PDF ☐ GEOTRACKER (GLOBAL ID) _____ ☐ OTHER (PLEASE SPECIFY) _____

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature:	Signature:
Printed Name: Reinard Knox	Printed Name:	Printed Name:
Date: 10/28/13 Time: 1158	Date: Time:	Date: Time:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: AETL 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name: Sean Maude
Date: Time:	Date: Time:	Date: 10/28/13 Time: 408

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.
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Ordered By

Geotechnologies, Inc. **439 Western Avenue** **Glendale, CA 91201-2837**	**Project ID: 20651** **Date Received 10/28/2013** **Date Reported 11/07/2013**
Telephone: (818)240-9600 **Attention: Reinard Knur**	

Job Number	Order Date	Client
71120	10/28/2013	GEOINC

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 4 samples with the following specification on 10/28/2013.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
71120.01	1	10/28/2013	Aqueous	3
71120.02	2	10/28/2013	Aqueous	3
71120.03	3	10/28/2013	Aqueous	3
71120.04	4	10/28/2013	Aqueous	3

Method ^ Submethod	*Req Date*	*Priority*	*TAT*	*Units*
300.0 ^ NO3-NO2-N	11/04/2013	2	Normal	mg/L
350.3	11/04/2013	2	Normal	mg/L
SM-9221A-D	11/04/2013	2	Normal	MPN/100 mL
SM-9221A-E	11/04/2013	2	Normal	MPN/100 mL

The samples were analyzed as specified on the enclosed chain of custody.
Analytical non-conformances have been noted on the report.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

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ANALYTICAL RESULTS

Ordered By

Geotechnologies, Inc.
439 Western Avenue
Glendale, CA 91201-2837

Telephone: (818)240-9600
Attn: Reinard Knur
Page: **2**

Project ID: 20651
Project Name: SCPOA

Site

Malibu Creek Surface Water

AETL Job Number	Submitted	Client
71120	10/28/2013	GEOINC

Method: 300.0, Phosphorus, Dissolved, Colorimetric, Ascorbic Acid

QC Batch No: 102813-1

Our Lab I.D.			Method Blank	71120.01	71120.02	71120.03	71120.04
Client Sample I.D.				1	2	3	4
Date Sampled				10/28/2013	10/28/2013	10/28/2013	10/28/2013
Date Prepared			10/28/2013	10/28/2013	10/28/2013	10/28/2013	10/28/2013
Preparation Method			300.0	300.0	300.0	300.0	300.0
Date Analyzed			10/28/2013	10/28/2013	10/28/2013	10/28/2013	10/28/2013
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Nitrate as Nitrogen	0.01	0.05	ND	0.698	ND	ND	0.334
Nitrite as Nitrogen	0.01	0.05	ND	ND	ND	ND	ND

QC Batch No: 102813-1; Dup or Spiked Sample: B102813; LCS: Clean Water; QC Prepared: 10/28/2013; QC Analyzed: 10/28/2013; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Nitrate as Nitrogen	0.00	2.00	2.08 X	104	2.00	2.10 X	105	<1	80-120	<15
Nitrite as Nitrogen	0.00	2.00	2.00 X	100	2.00	2.00 X	100	<1	80-120	<15

QC Batch No: 102813-1; Dup or Spiked Sample: B102813; LCS: Clean Water; QC Prepared: 10/28/2013; QC Analyzed: 10/28/2013; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %							
Nitrate as Nitrogen	0.698	0.680	2.6							
Nitrite as Nitrogen	ND	ND	<1							

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ANALYTICAL RESULTS

Ordered By

Geotechnologies, Inc.
439 Western Avenue
Glendale, CA 91201-2837

Telephone: (818)240-9600
Attn: Reinard Knur
Page: **3**

Project ID: 20651
Project Name: SCPOA

Site

Malibu Creek Surface Water

AETL Job Number	Submitted	Client
71120	10/28/2013	GEOINC

Method: 350.3, Ammonia as N, Potentiometric, ISE (EPA/600/4-79-020)

QC Batch No: 102813-1

Our Lab I.D.			Method Blank	71120.01	71120.02	71120.03	71120.04
Client Sample I.D.				1	2	3	4
Date Sampled				10/28/2013	10/28/2013	10/28/2013	10/28/2013
Date Prepared			10/28/2013	10/28/2013	10/28/2013	10/28/2013	10/28/2013
Preparation Method			350.3	350.3	350.3	350.3	350.3
Date Analyzed			10/28/2013	10/28/2013	10/28/2013	10/28/2013	10/28/2013
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Ammonia as Nitrogen	0.05	0.10	ND	ND	ND	0.088J	0.133

QC Batch No: 102813-1; Dup or Spiked Sample: 71120.01; LCS: Clean Water; QC Prepared: 10/28/2013; QC Analyzed: 10/28/2013; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Ammonia as Nitrogen	0.00	0.500	0.458	91.6	0.500	0.471	94.2	2.8	80-120	<15

QC Batch No: 102813-1; Dup or Spiked Sample: 71120.01; LCS: Clean Water; QC Prepared: 10/28/2013; QC Analyzed: 10/28/2013; Units: mg/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Ammonia as Nitrogen	0.500	0.481	96.2	80-120						

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

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Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attention: Mark Drollinger

Number of Pages 5
Date Received 01/23/2014
Date Reported 02/03/2014

Job Number	Order Date	Client
72024	01/23/2014	CES

Project ID: 0551.1001.0
Project Name: SCHOA
Site: Malibu, CA

Enclosed please find results of analyses of 4 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.
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CHAIN OF CUSTODY RECORD

№ 86775

AETL JOB No. 72024

Page 1 of 1

COMPANY: Citadel Environmental
PROJECT MANAGER: Mark Drollinger

COMPANY ADDRESS: 1725 Victory Blvd Glendale
PHONE: 818 246 2707
FAX:

PROJECT NAME: SCHOA
PROJECT #: 0551.1001.0

SITE NAME AND ADDRESS: Malibu CA
PO #:

#	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	SM9221 Total + Fecal Coliform	300.0 Nitrates	300.0 Nitrites	350.3 Ammonia						TEST INSTRUCTIONS & COMMENTS
1	SC-2	72024.01	1/23/14	0835	Water	120mL 250mL	ICE	X	X	X	X						
2	SC-8	72024.02	↓	0935	↓	↓	↓	↓	↓	↓	↓						
3	SC-9	72024.03	↓	1030	↓	↓	↓	↓	↓	↓	↓						
4	SC-7	72024.04	↓	1150	↓	↓	↓	↓	↓	↓	↓						
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	8	PROPERLY COOLED (Y) / N / NA	
CUSTODY SEALS Y / (N) / NA		SAMPLES INTACT (Y) / N / NA	
RECEIVED IN GOOD COND. (Y) / N		SAMPLES ACCEPTED (Y) / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) ____
☐ OTHER (PLEASE SPECIFY) ____

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature]	Signature:	Signature: [signature]
Printed Name: Josh Cuikle	Printed Name:	Printed Name: Sargsof
Date: 1/23/14 Time: 1200	Date: Time:	Date: 1.23.14 Time: 1410

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY LABORATORY: AETL 3.
Signature: [signature]	Signature:	Signature: [signature]
Printed Name: Sargsof	Printed Name:	Printed Name: Jean Claude
Date: 1.23.14 Time: 1200	Date: Time:	Date: 01/23/14 Time: 1410

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.
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Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

Citadel Environmental Services, Inc **1725 Victory Boulevard** **Glendale, CA 91201-**	**Project ID: 0551.1001.0** **Date Received 01/23/2014** **Date Reported 02/03/2014**

Telephone: (818)246-2707
Attention: Mark Drollinger

Job Number	Order Date	Client
72024	01/23/2014	CES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 4 samples with the following specification on 01/23/2014.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
72024.01	SC-2	01/23/2014	Aqueous	2
72024.02	SC-8	01/23/2014	Aqueous	2
72024.03	SC-9	01/23/2014	Aqueous	2
72024.04	SC-7	01/23/2014	Aqueous	2

Method ^ Submethod	*Req Date*	*Priority*	*TAT*	*Units*
300.0 ^ NO3-NO2-N	01/30/2014	2	Normal	mg/L
350.3	01/30/2014	2	Normal	mg/L
SM-9221A-D	01/30/2014	2	Normal	MPN/100 mL
SM-9221A-E	01/30/2014	2	Normal	MPN/100 mL

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

ANALYTICAL RESULTS

Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attn: Mark Drollinger
Page: **2**

Site

Malibu, CA

Project ID: 0551.1001.0
Project Name: SCHOA

AETL Job Number	Submitted	Client
72024	01/23/2014	CES

Method: 300.0, Nitrate & Nitrite as N in water by IC

QC Batch No: 012414-1

Our Lab I.D.			Method Blank	72024.01	72024.02	72024.03	72024.04
Client Sample I.D.				SC-2	SC-8	SC-9	SC-7
Date Sampled				01/23/2014	01/23/2014	01/23/2014	01/23/2014
Date Prepared			01/24/2014	01/24/2014	01/24/2014	01/24/2014	01/24/2014
Preparation Method			300.0	300.0	300.0	300.0	300.0
Date Analyzed			01/24/2014	01/24/2014	01/24/2014	01/24/2014	01/24/2014
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Nitrate as Nitrogen	0.01	0.05	ND	5.33	7.93	23.5	2.84
Nitrite as Nitrogen	0.01	0.05	ND	ND	ND	ND	ND

QC Batch No: 012414-1; Dup or Spiked Sample: B012414; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Nitrate as Nitrogen	0.00	1.00	1.09 X	109	1.00	1.16 X	116	6.2	80-120	<15
Nitrite as Nitrogen	0.00	1.00	0.935X	93.5	1.00	0.869X	86.9	7.3	80-120	<15

QC Batch No: 012414-1; Dup or Spiked Sample: B012414; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Nitrate as Nitrogen	5.33	5.60	4.9	<15						
Nitrite as Nitrogen	ND	ND	<1	<15						

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ANALYTICAL RESULTS

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Telephone: (818)246-2707
Attn: Mark Drollinger
Page: **3**

Site

Malibu, CA

Project ID: 0551.1001.0
Project Name: SCHOA

AETL Job Number	Submitted	Client
72024	01/23/2014	CES

Method: 350.3, Ammonia as N, Potentiometric, ISE (EPA/600/4-79-020)

QC Batch No: 012414-1

Our Lab I.D.			Method Blank	72024.01	72024.02	72024.03	72024.04
Client Sample I.D.				SC-2	SC-8	SC-9	SC-7
Date Sampled				01/23/2014	01/23/2014	01/23/2014	01/23/2014
Date Prepared			01/24/2014	01/24/2014	01/24/2014	01/24/2014	01/24/2014
Preparation Method			350.3	350.3	350.3	350.3	350.3
Date Analyzed			01/24/2014	01/24/2014	01/24/2014	01/24/2014	01/24/2014
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
Units			mg/L	mg/L	mg/L	mg/L	mg/L
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Ammonia as Nitrogen	0.05	0.10	ND	ND	ND	ND	ND

QC Batch No: 012414-1; Dup or Spiked Sample: 72024.01; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Ammonia as Nitrogen	0.00	0.500	0.472	94.4	0.500	0.478	95.6	1.3	80-120	<15

QC Batch No: 012414-1; Dup or Spiked Sample: 72024.01; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Ammonia as Nitrogen	0.500	0.483	96.6	80-120						

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

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Ordered By

Citadel Environmental Services, Inc
1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attention: Mark Drollinger

Number of Pages	**5**
Date Received	**01/23/2014**
Date Reported	**02/03/2014**

Job Number	Order Date	Client
72027	01/23/2014	CES

Project ID: 0551.1001.0
Project Name: SCHOA
Site: Malibu, CA

Enclosed please find results of analyses of 2 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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Fed Gridley

CHAIN OF CUSTODY RECORD

№ 86778

AETL JOB No. 72027

Page 6 of 7

COMPANY	Citadel Environmental
PROJECT MANAGER	Mark Drollinger
COMPANY ADDRESS	1725 Victory Blvd Glendale
PHONE	8182462707
FAX	
PROJECT NAME	SCHOA
PROJECT #	0551.1001
SITE NAME AND ADDRESS	Malibu CA
PO #	

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED: SM9221 Total Coliform	300.0 Nitrate	300.0 Nitrite	350.3 Ammonia	TEST INSTRUCTIONS & COMMENTS
1	SC-11	72027.01	1/23/14	1400	Water	120mL 250mL	ICE	X	X	X	X	
2	SC-12	72027.02	"	1406	"	"	"	X	X	X	X	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	4	PROPERLY COOLED (Y) / N / NA	
CUSTODY SEALS Y / (N) / NA		SAMPLES INTACT (Y) / N / NA	
RECEIVED IN GOOD COND. (Y) / N		SAMPLES ACCEPTED (Y) / N	

TURN AROUND TIME

- [X] NORMAL
- [ ] RUSH
  - [ ] SAME DAY
  - [ ] NEXT DAY
  - [ ] 2 DAYS
  - [ ] 3 DAYS

DATA DELIVERABLE REQUIRED

- [ ] HARD COPY
- [ ] PDF
- [ ] GEOTRACKER (GLOBAL ID) _____
- [ ] OTHER (PLEASE SPECIFY) _____

	1.	2.	3.
RELINQUISHED BY SAMPLER:			
Signature:		Reinaldo Rivera	
Printed Name:	Jose Castillo		
Date:	1/23/14	1/23/14	
Time:	1410	15:24	
RECEIVED BY:			AETL
Signature:			
Printed Name:	Reinaldo Rivera		Martin
Date:	1/23/14		01/23/14
Time:	14:10		1524

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.
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Ordered By

Citadel Environmental Services, Inc **1725 Victory Boulevard** **Glendale, CA 91201-**	**Project ID: 0551.1001.0** **Date Received 01/23/2014** **Date Reported 02/03/2014**
Telephone: (818)246-2707 **Attention: Mark Drollinger**	

Job Number	Order Date	Client
72027	01/23/2014	CES

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 2 samples with the following specification on 01/23/2014.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
72027.01	SC-11	01/23/2014	Aqueous	2
72027.02	SC-12	01/23/2014	Aqueous	2

Method ^ Submethod	*Req Date*	*Priority*	*TAT*	*Units*
300.0 ^ NO3-NO2-N	01/30/2014	2	Normal	mg/L
350.3	01/30/2014	2	Normal	mg/L
SM-9221A-D	01/30/2014	2	Normal	MPN/100 mL
SM-9221A-E	01/30/2014	2	Normal	MPN/100 mL

The samples were analyzed as specified on the enclosed chain of custody.
Analytical non-conformances have been noted on the report.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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ANALYTICAL RESULTS

Ordered By

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1725 Victory Boulevard
Glendale, CA 91201-

Telephone: (818)246-2707
Attn: Mark Drollinger
Page: **2**

Site

Malibu, CA

Project ID: 0551.1001.0
Project Name: SCHOA

AETL Job Number	Submitted	Client
72027	01/23/2014	CES

Method: 300.0, Nitrate & Nitrite as N in water by IC

QC Batch No: 012414-1

Our Lab I.D.			Method Blank	72027.01	72027.02		
Client Sample I.D.				SC-11	SC-12		
Date Sampled				01/23/2014	01/23/2014		
Date Prepared			01/24/2014	01/24/2014	01/24/2014		
Preparation Method			300.0	300.0	300.0		
Date Analyzed			01/24/2014	01/24/2014	01/24/2014		
Matrix			Aqueous	Aqueous	Aqueous		
Units			mg/L	mg/L	mg/L		
Dilution Factor			1	1	1		
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**		
Nitrate as Nitrogen	0.01	0.05	ND	1.66	0.673		
Nitrite as Nitrogen	0.01	0.05	ND	ND	ND		

QC Batch No: 012414-1; Dup or Spiked Sample: 72024.01; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit	
Nitrate as Nitrogen	1.00	1.09 X	109	1.00	1.16 X	116	6.2	80-120	<15	
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QC Batch No: 012414-1; Dup or Spiked Sample: 72024.01; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Nitrate as Nitrogen	5.33	5.60	4.9	<15						
Nitrite as Nitrogen	ND	ND	<1	<15						

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Client Sample I.D.				SC-11	SC-12		
Date Sampled				01/23/2014	01/23/2014		
Date Prepared			01/24/2014	01/24/2014	01/24/2014		
Preparation Method			350.3	350.3	350.3		
Date Analyzed			01/24/2014	01/24/2014	01/24/2014		
Matrix			Aqueous	Aqueous	Aqueous		
Units			mg/L	mg/L	mg/L		
Dilution Factor			1	1	1		
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**		
Ammonia as Nitrogen	0.05	0.10	ND	ND	ND		

QC Batch No: 012414-1; Dup or Spiked Sample: 72024.01; LCS: Clean Water; QC Prepared: 01/24/2014; QC Analyzed: 01/24/2014; Units: mg/L

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Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Ammonia as Nitrogen	0.500	0.483	96.6	80-120						

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Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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MS:	Matrix Spike
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ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

CITADEL
ENVIRONMENTAL SERVICES, INC.

Appendix B Summary of Water Well Descriptions

SUMMARY OF KNOWN WATER WELLS

Well Number	Address	Well Field Notes	Latitude Longitude (DMS)	Ground surface elevation (Feet above MSL)	Water surface elevation (Feet below ground surface, before bailing	Total length of Casing (feet BGS)
SC-1	23301 Palm Canyon Lane	Pump not working, no access to well interior, no sample obtained	34 02 49.34 118 40 52.75	72	N.A.	
SC-2	23347 Palm Canyon Lane	Casing open and covered, no pump in well Sampled using bailer on 1/23/14	34 02 51.82 118 41 00.67	77	65.13 on 1/23/13	140
SC-3	23344 Palm Canyon Lane	Pump working. No access to well interior for measurements. Sampled using pump on 1/20/14	34 02 42.99 118 41 01.05	35	N.A	
SC-4	3611 Serra Road	Pump working, No access to well interior for measurements, Sampled using pump on 1/20/14	34 02 26.44 118 40 53.58	16	N.A.	
SC-5	3515 Cross Creek Road	Pump not working, no access to well interior, no sample obtained	34 02 30.75 118 41 04.83	27	N.A.	30
SC-6	3515 Cross Creek Road	Pump working, no Access to well interior for measurements, Sampled using pump 1/20/14	34 02 30.11 118 41 03.88	27	N.A.	69
SC-7	3515 Cross Creek Road	Monitoring well.	34 02 31.03 118 41 03.97	27	NA	NA
SC-8	3434 Serra Road	Pump Working, Access to well interior, Sampled using pump 1/23/14	34 02 37.29 118 40 46.67	46	37.39 on 1/23/14	71.25
SC-9	3314/3328 Serra Road	Pump working, no access to interior well for measurements , Sampled using pump on 1/23/14	34 02 46.47 118 40 41.16	61	N.A.	N.A.

SC-10	3314/3328 Serra Road	No Pump, Well Dry, No sample obtained	34 02 44.61 118 40 44.62	71	N.A.	59.32
SC-11	3415 Cross Creek Road	Monitoring Well	34 02 42.57 118 41 05.37	36	NA	NA
SC-12	3415 Cross Creek Road	Pump working, No Access to well interior for measurements , Sampled 1/23/14	34 02 43.82 118 41 05.56	38	N.A.	N.A.
SC-13	3811 Serra Road	Pump Not Working, No Sample obtained	34 02 18.47 118 40 53.99	54	N.A.	N.A.
SC-14	Serra Road/Picnic Grounds	Monitoring Well	34 02 10.83 118 40 54.71	14	N.A	N.A.

EXHIBIT B

California Water Boards

Los Angeles Regional Water Quality Control Board

July 18, 2014

Mr. Jeff Follert, President
Serra Canyon Property Owners Association
23247 Palm Canyon Lane
Malibu, CA 90265

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7010 3090 0002 1022 0908

COMMENTS ON WATER QUALITY REPORT PREPAREDFOR SERRA CANYON PROPERTY OWNERS ASSOCIATION AT SERRA CANYON, MALIBU, CALIFORNIA (FILE NO. 12-030, Global ID WDR100004947)

Dear Mr. Follert:

On May 2, 2014, the Regional Board received the Water Quality Report (Report) prepared by Citadel Environmental Service, Inc., for the Serra Canyon Property Owners Association (SCPOA). After reviewing the Report, the Regional Board staff has the following comments regarding groundwater flow directions, groundwater quality, and discussion of the potential impacts to groundwater, Malibu Creek and Malibu Lagoon from onsite wastewater treatment systems (OWTS, or septic tanks) in SCPOA:

1. The Report, in Section 3.0, cited the investigation conducted in years of 2003 and 2004 by Stone Environmental. The report suggested that the bacteria detected in the groundwater was caused by stormwater infiltrating and percolating through sandy soil, but concluded that the contamination was not caused by OWTS. However, when stormwater percolates through soil, it is likely to mobilize the nutrients and bacteria in the soil and bring these constituents to groundwater.

2. The Report lacks detailed information for Malibu Coast Fault, including its depth and width, and the relative location to Serra Canyon properties.

3. The Report assumed that groundwater near Serra Canyon properties flows southerly and/or southwesterly toward Malibu Creek. Hydrology in the Malibu Valley is relatively complicated. Based on recent studies conducted by the City of Malibu, there are layers of aquitards in subsurface. In general, groundwater flows toward to surface waters, i.e. Malibu Creek, Malibu Lagoon, or Santa Monica Bay. However, the actual groundwater flow direction at specific location must be supported by field data collected from an appropriate groundwater monitoring network. Further, the groundwater flow direction adjacent to Malibu Creek and Malibu Lagoon may be seasonal. During summer time when Malibu Lagoon is closed, the hydraulic pressure in the Lagoon area may alter groundwater flow direction.

4. In Section 4.4 under subtitle of Total Nitrogen, the report suggests that nitrate can occur naturally in groundwater. In most cases, nitrate will not occur naturally in groundwater. The elevated nitrate concentrations in groundwater are generally caused by fertilizer application, animal waste and/or human waste.

5. The water supply wells and irrigation wells are likely to obtain groundwater from deeper aquifers. The impact from OWTS will be likely on the first encountered shallow aquifer. Therefore, the groundwater samples collected from water supply wells may not be representative of impacts from discharges from OWTS.

6. The Report indicated that there are private wells that have not been used for a long time. To have a complete investigation, these wells should be redeveloped using proper protocols. The direct measurement of the groundwater depth may only represent the static water in the well, not the regional condition.

7. It is critical to understand the screen interval of groundwater monitoring wells. Most water supply wells have long screen intervals which may interact with multiple aquifers. Under such circumstances, the groundwater from deeper aquifer with better quality will mix with shallow groundwater which is likely to be impacted by OWTS. The groundwater monitoring wells should have screen intervals specifically for either shallow or deeper aquifers.

8. The Report referenced many groundwater depths from well head to determine groundwater flow direction. Each well should be surveyed by California licensed professional surveyors and should be measured relative to the mean sea level. Such information is critical and necessary to determine the groundwater elevation and flow direction.

9. Groundwater water samples collected should be analyzed for total dissolved solids, chloride, sulfate, boron, total coliform, and fecal coliform in addition to nitrate and nitrite.

10. To determine groundwater flow direction, the groundwater elevations should be collected within a reasonable time frame. Data collected from various years should not be compiled to determine the groundwater flow.

11. The groundwater water table elevation contour lines should be delineated prior to determining whether an OWTS is located either upgradient or downgradient from groundwater monitoring wells, and whether these OWTS have caused impact to groundwater quality.

12. In Section 7.0 Conclusions and Recommendations, it is premature to conclude that the SCPOA is not contributing to the degradation of water in Malibu Creek. A comprehensive groundwater monitoring network should be developed, and sufficient groundwater elevation measurements and water quality monitoring should be conducted for both wet and dry seasons for a period of time before drawing any conclusions.

13. A proper groundwater investigation work plan should include, at a minimum, detailed well construction logs, soil boring logs, soil, and groundwater and surface water sampling protocols. Besides, SCPOA should also provide locations of all on-site wastewater treatment systems and depths of the discharge points.

In summary, this study and results presented in the Report are inconclusive, and are not sufficient to determine that Serra Canyon properties did not cause any impacts to Malibu Creek,

Malibu Lagoon and the groundwater beneath Serra Canyon properties. Additional studies are necessary if SCPOA plans to properly identify its groundwater impacts from the existing OWTS.

If you have any questions, please contact the Project Manager, Dr. Don Tsai at (213) 620-2264 (don.tsai@waterboards.ca.gov), or the Chief of Groundwater Permitting Unit, Dr. Eric Wu at (213) 576-6683 (eric.wu@waterboards.ca.gov).

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Cc. Mr. Craig George, City of Malibu

EXHIBIT C

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

August 27, 2014

Dr. Don Tsai
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
320 West 4th Street, Suite 200
Los Angeles, California 90013

Re: CITADEL Project No. 0551.1001.0
Work Plan
Water Quality Study
Malibu Creek Watershed
Serra Canyon
Malibu, California

Dear Dr. Tsai:

On behalf of Serra Canyon Property Owner Association (SCPOA), Citadel Environmental Services, Inc. (Citadel) is pleased to submit this Work Plan as part of a response to comments issued by the California Regional Water Quality Control Board (RWQCB) on July 18, 2014 in regards to the Water Quality Report for the Malibu Creek Watershed, dated April 30, 2014, by Citadel Environmental Services, Inc.

The scope of Citadel's services is outlined on the following pages.

If you have any questions or require additional information, please telephone me at (818) 246-2707.

Sincerely,
CITADEL ENVIRONMENTAL SERVICES, INC.

Joshua Cwikla, P.G.
Project Geologist

Enclosures

CITADEL ENVIRONMENTAL SERVICES, INC.

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California Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, California 90013

Water Quality Study – Work Plan

August 27, 2014

Citadel Project Number 0551.1001.0

Malibu Creek Watershed
Serra Canyon
Malibu, California

www.citadelenvironmental.com

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1.0 INTRODUCTION

Citadel Environmental Services, Inc. (Citadel) has prepared this Water Quality Study Work Plan (Work Plan) for the Los Angeles Regional Water Quality Control Board (LARWQCB) to review and approve. The study would be conducted to determine the effects of individual on-Site wastewater treatment disposal systems (OWTS) on groundwater and surface water associated with the Malibu Creek watershed. This study would be conducted on behalf of the Serra Canyon Property Owners Association (SCPOA), Malibu, Los Angeles County, California (Study Area Figure 1).

Citadel understands that residential sanitary systems in Serra Canyon consist of individual OWTS composed of multiple designed and non-designed systems. At this time, the LARWQCB is proposing the prohibition of subsurface disposal of wastewater, requiring that property owners within the SCPOA connect to a planned city sewer and wastewater treatment facility. The LARWQCB has alleged that OWTS discharges relating to nutrients and select constituents may be contributing to water quality deterioration of the Malibu Creek Watershed.

The LARWQCB stated that the study and results presented in the initial screening report submitted on April 30, 2014 were inconclusive, and were not sufficient to determine that Serra Canyon properties did not cause any impacts to Malibu Creek, Malibu Lagoon and the groundwater beneath Serra Canyon properties. Additional investigation was recommended to properly identify groundwater impacts from the existing OWTS, such as characterizing the subsurface to determine a more accurate groundwater flow pattern, establishing a uniform network of groundwater monitoring wells along with developing a sampling and monitoring plan for wet and dry seasons with analysis of additional constituents of concern.

2.0 BACKGROUND

The Study Area lies within the Malibu Valley Groundwater Basin (Basin). According to the LARWQCB, groundwater from the Basin was a source of drinking water for the Study Area until the 1960s. Potable groundwater production in the area gradually ceased when the Los Angeles County Waterworks District No. 29 was formed to deliver imported water to the Malibu area. However in the event of a disruption of imported water, groundwater in the Basin is still considered an important local resource for potable water.

According to the US Environmental Protection Agency (EPA) Region 9 the Total Maximum Daily Loads (TMDL) for Nutrients of the Malibu Creek Watershed, Malibu Creek and three of its tributaries (Las Virgenes Creek, Medea Creek, and Lindero Creek) exceed the water quality objectives (WQOs) for nuisance effects such as algae, odors, and scum. The TMDLs identify the amounts of nitrogen and phosphorous that can be discharged to the water bodies in the Malibu Creek Watershed without causing violations of applicable water quality standards, and allocate allowable nutrient loads among different discharge sources.

Section 303(d) of the Clean Water Act (CWA) requires that each State "shall identify those waters within its boundaries for which the effluent limitations are not stringent enough to implement any water quality standard applicable to such waters." The CWA also requires states to establish a priority ranking for waters on the 303(d) list of impaired waters and establish TMDLs for such waters. The State of California identified over 700 water body-pollutant combinations in the Los Angeles Region where TMDLs would be required. These TMDLs address Malibu Lagoon, segments of the Malibu Creek and tributaries, and urban lakes impaired by nutrient compounds and effects that appear to be caused by those compounds. The nutrient impairments include

ammonia and nutrients (nitrogen and phosphorus) and nuisance effects (dissolved oxygen, algae, scum, and odor). The TMDLs are expressed differently for summer and winter conditions because flows, nutrient loads, and nutrient effects vary substantially in different seasons. (LARWQCB, 2009).

3.0 REGIONAL GEOLOGY AND HYDROLOGY

The SCPOA residential boundaries are located on the Malibu Beach Quadrangle 7.5 Minute Topographic Map produced by the United States Geological Survey. The Malibu Beach Quadrangle is dominated by steep and rugged terrain of the central Santa Monica Mountains. The main crest of the mountain range trends generally east-west across the center of the quadrangle, although the actual drainage divide is located north of the quadrangle boundary in the Simi Hills. Numerous south-trending broad-crested ridges and canyons with narrow channels extend from the range crest to Santa Monica Bay. According to the Seismic Hazard Zone Report by the California Department of Conservation, Division of Mines and Geology dated 2001; the east-west-trending Malibu Coast Fault Zone forms the southern boundary of the mainland portion of the mountain range. The Malibu Coast Fault Zone is an east-west zone of transpressive faulting along the southern front of the western Santa Monica Mountains in the western Transverse Ranges geomorphic province.

The Malibu Creek Watershed is the second largest watershed draining into Santa Monica Bay. The 110 square miles of watershed includes the cities of Agoura Hills, Westlake Village, Calabasas, Thousand Oaks, Hidden Hills and portions of Malibu and Simi Valley. The most important drainage system in the Malibu Beach Quadrangle includes Malibu Creek and its tributaries. Major tributaries of Malibu Creek include, Cold Creek, Las Virgenes Creek, Medea Creek, Stokes Canyon, and Liberty Canyon, which drain a large area south of the Simi Hills and flow via Triunfo Canyon - Malibu Canyon through the entire mountain range to Santa Monica Bay. The larger canyons in this drainage area are wide and flat-bottomed and form gently sloping to flat-lying terrain near their confluence with Malibu Creek. Malibu Creek flows southeast and then south in Triunfo Canyon-Malibu Canyon through a deeply incised channel near the center of the quadrangle. The Malibu Creek floodplain and delta form a gently sloping to flat-lying surface underlying the Malibu Civic Center near the coast (DMG, 2001).

Groundwater in the study area is part of the Basin as determined by Department of Water Resources (DWR Bulletin 118, 2004). The Basin is bounded by the Pacific Ocean on the south and by non-water-bearing Tertiary age rocks on all remaining sides. The valley is drained by Malibu Creek to the Pacific Ocean. Average annual precipitation ranges from 14 to 16 inches. Groundwater is found principally in Holocene alluvium which consists of clays, silts, sands, and gravels. Thickness of the alluvium ranges from 90 feet at the upper end of the basin to more than 140 feet at the lower end. Recharge of the basin is from percolation of precipitation, surface runoff, and effluent from domestic septic systems.

4.0 OBJECTIVE

This proposed comprehensive study is intended to provide independent water quality data over a period of time including well-defined wet and dry seasons within the SCPOA boundaries using City of Malibu established groundwater monitoring wells and new uniform groundwater monitoring wells installed by Citadel to determine if OWTS are contributing to deterioration of the Malibu Creek Watershed.

The overall objective of groundwater characterization is to provide up-to-date groundwater data for selected groundwater monitoring wells in order to better understand the nature and extent of groundwater deterioration, evaluate the natural attenuation of chemicals of concern in groundwater within the SCPOA boundaries, and evaluate the interaction between shallow groundwater and Malibu Creek. Field tasks include installation and monitoring new and uniform groundwater monitoring wells, groundwater monitoring, surface water monitoring and sampling and groundwater sampling.

The investigation would compare actual groundwater quality sampled and monitored over a period of at least one year to water quality objectives for select constituents established by the LARWQCB. Malibu Creek waters will also be sampled within the same period of time to determine the effects SCPOA has on the water quality as it passes through the area.

5.0 TECHNICAL APPROACH

In order to determine if SCPOA property OWTS's are contributing to the deterioration of Malibu Creek, Citadel will install seven (7) new and uniformly designed groundwater monitoring wells in areas that would record accurate representations of groundwater quality and conditions. Citadel would gain agency approval to access and use three existing City of Malibu monitoring wells located along Malibu Creek to obtain samples and monitor groundwater conditions. New monitoring wells would be strategically placed to create a string of information in areas representing assumed unaffected areas upgradient of any OWTS influence, within potential influence of existing OWTS in high concentrated living areas, and adjacent to Malibu creek down gradient of high concentrated areas. Surface water within Malibu Creek will also be sampled for comparison. (Figure 2 – Sampling Locations)

Groundwater and surface water will be sampled and monitored on a weekly basis initially for one month following installation of the monitoring network and then monthly after that. Following major rain events (greater than 2 inches of rain over a 48 hour period) or any strong earth quake over 4.0 registered on the Richter scale in the near vicinity to the Site sampling will also take place. Upon compiling data, Citadel will develop a comprehensive characterization of how groundwater flows near Malibu Creek and around the Serra Retreat topographic feature. Using the hydrologic flow of groundwater information, Citadel will use the groundwater sampling data to confirm de minimis effects OWTS potentially have on groundwater quality before reaching Malibu Creek as previously reported.

Below are the Water Quality Objectives to use for analyzing specific collected data:

The scope of work will be accomplished by performing the following tasks:

- Create a detailed topographic survey of the SCPOA.
- Install and sample seven (7) new permanent groundwater monitoring wells.
- Evaluate the groundwater gradient and flow direction within the SCPOA boundaries.
- Initiate quarterly groundwater monitoring for the new wells along with the three existing City of Malibu wells.
- Evaluate the down gradient extent of OWTS impact to groundwater based on the additional groundwater analysis.
- Report findings of the groundwater assessment.

6.0 WATER QUALITY STUDY METHODS AND PROCEDURES

Citadel personnel will perform the field scope of work following specific field methods and procedures. This section outlines the field equipment that will be used, discusses well installation, outlines the groundwater sampling procedures that will be followed, presents the field documentation that will be performed, and describes sample documentation and transport.

6.1 TOPOGRAPHIC SURVEY

A topographic survey will be completed by a Professional Land Surveyor to describe the surface within the SCPOA boundary at a scale of approximately one-inch equals 200 feet (1:2400) and five foot contours with elevations relative to sea level. The survey will include significant topographic features, monitoring well locations, elevations, and the nearest OWTS to the monitoring wells. The topographic survey will aid in identifying accurate groundwater elevations, once new and existing monitoring wells are established, to help describe the subsurface hydrogeologic environment.

6.2 HEALTH AND SAFETY PLAN

A site-specific HASP will be prepared. This HASP will identify existing and potential hazards for workers at the Site during drilling and monitoring activities. Examples of hazards may include potential traffic, contaminated soil and groundwater, trip/fall hazards, animals/pests, weather and injuries related to rotating and moving equipment.

6.3 MONITORING WELL INSTALLATION

Appropriate permits will be obtained from the Los Angeles County Health Department for the installation of seven (7) groundwater monitoring wells to be installed strategically throughout the SCPOA (Figure 2, Site Plan).

Citadel will survey and mark the proposed boring locations with white marking paint and Underground Service Alert (USA) will be notified one (1) week prior to performing field activities. Citadel will wait the required two (2) working days before confirming underground utility

markings and will maintain facility markings for the duration of the job. If USA cannot access certain private properties to locate utilities, geophysical techniques may need to be employed.

Groundwater monitoring wells will be installed into the upper saturated aquifer of alluvial material following California Department of Water Resources, Water Well Standards 74-81 and 74-90. Soil borings will be advanced using a truck mounted drill rig equipped with hollow stem auger to various depths depending on encountering groundwater. The borings will extend approximately 15 feet into groundwater to accommodate for potential season fluctuations. Soil samples will be obtained from each boring at five foot intervals. The soil borings will be logged by a Professional Geologist and described based on lithology from visual inspection and grain size analysis.

The new monitoring wells will be constructed of 4-inch diameter, schedule 40 slotted (0.020") and solid PVC casing. The lower portion of the well will be constructed of slotted pipe to approximately 10 feet above the existing groundwater elevation, with solid pipe construction to the surface. The well casings will then be inserted, including installation of sand filter packs encasing the slotted pipe, bentonite grout annular seals and sanitary seals encasing the solid pipe. Figure 3 shows typical monitoring well construction. Monitoring wells will be completed at the ground surface with a 12-inch-diameter traffic-rated well vault with locking cap for the well. Monitoring wells will be drilled by a California licensed well driller and will be registered with the California Department of Water resources in accordance with California regulations.

6.4 WELL MONITORING AND SAMPLING

Upon completion of monitoring wells, groundwater depths will be measured with an electronic water level meter with an accuracy to the nearest 0.01-foot and groundwater samples will be collected from all groundwater monitoring wells. Static water level measurements will be used to provide groundwater gradient and contour information.

Prior to sampling, approximately three well volumes of groundwater from each monitoring well will be purged using a 12 volt, stainless steel Monsoon pump and connected nylon tubing, or manually purged using a decontaminated PVC Bailer. A calibrated Horiba U-22 (or similar) multi-parameter water meter will be used to monitor pH, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), turbidity and conductivity until stabilized.

Groundwater samples will then be collected following well recharge of at least 80% from pre-drawdown levels. Samples will be collected from each monitoring well using a disposable polyethylene bailer and placed into appropriate sampling bottles at each well location.

6.5 MALIBU CREEK SAMPLING

Malibu Creek will be sampled quarterly at the same four locations as completed in the Preliminary Water Quality Report. Locations are also shown on Figure 2. The following are locations and brief descriptions of Malibu Creek sampling locations and conditions. Water samples will be obtained using a bailer and placed in appropriate laboratory provided bottles, then temporarily stored in a refrigerated container. Flows will be noted at the time of sampling by the use of a digital water velocity meter.

Malibu Creek-1

This location is located 0.15 mile upstream of the nearest home in the SCPOA area and is considered representative of the water that is discharged from the Tapia Facility mixed with

base flow from springs or seeps. There is no contribution from sources in the SCPOA area either in volume or water characteristics.

Malibu Creek-2

Samples will be obtained approximately 150 feet upstream of the Cross Creek Bridge. This location is down gradient of some of the homes in the SCPOA.

Malibu Creek-3

Located approximately 400 feet south of the Cross Creek Bridge, this location is down gradient of several homes located on the east bank of Malibu Creek. The sampling location is not affected by the waters of the Malibu lagoon.

Malibu Creek-4

This location is at the upstream end of the Malibu Lagoon and represents a mix of the incoming water from Malibu Creek and the Malibu Lagoon.

6.6 LABORATORY ANALYSIS

All samples will be analyzed for total and fecal coliform by SM 9221 (A-E), nitrates, nitrites, phosphate, and chloride by EPA Method 300.0, total ammonia as Nitrogen by EPA Method 350.3, Boron by EPA Method 200.7, and Total Dissolved Solids by EPA Method 160.1.

Grain size analysis will be conducted on varying soil types encountered during drilling per ASTM D6913.

6.7 Quality Assurance and Quality Control

For quality assurance/quality control (QA/QC) a duplicate sample will be collected from one monitoring well for each day of sampling. In addition to the duplicate sample, equipment blanks will be collected in the field along with a laboratory prepared trip blank and analyzed by the laboratory.

A. Analytical Methods

The analytical laboratory selected to analyze samples for this project, American Environmental Testing Laboratory (AETL), is certified by the California DPH for all of the analytical methods required for the project. The laboratory selected for the project must be capable of providing the required turnaround times, project QC, and data deliverables required by this Work Plan.

B. Laboratory Quality Control Procedures

The analytical laboratory must have written standard operating procedures (SOPs) defining the instrumentation, instrumentation maintenance, tuning, calibration, method detection and RLs, QC requirements, blank requirements, and step-by-step procedures for each analytical method. The SOPs must be available to the analysts performing the work. The laboratory must maintain logs of all activities that have an impact on the quality of the laboratory results.

Any portion of the method that is subcontracted by the laboratory to another laboratory or sent to another facility of the same network of laboratories must have the prior approval of the contracted Project Chemist.

The laboratory must maintain the instruments in working condition required by the methods specified for the analyses. Sufficient redundancy in equipment must be available in the laboratory to handle downtime situations.

Method substitution because of instrumental failure will not be permitted without approval from the contracted Project Chemist.

C. Data Review

All data reported by the laboratory must be reviewed in accordance with the SOPs

6.8 INVESTIGATION DERIVED WASTE

Cuttings created during drilling, water and other waste will be stored on-Site in 55-gallon DOT–rated drums pending characterization and disposal.

Waste streams will be characterized in accordance with California Code of Regulations, Title 22 §66261. The waste streams resulting from the investigation will include, but will not necessarily be limited to, personal protective equipment (PPE), unused or unaltered soil sample material/soil cores generated from hollow stem auger drilling, decontamination fluids, and miscellaneous contaminated sampling equipment. Waste material generated during the investigation will be containerized, stored temporarily onsite in a secured area near the investigation site, and then will be transported offsite by a licensed waste transporter registered with the DTSC to a licensed facility located within California for proper disposal.

6.9 RESEARCH

OWTS

OWTS's in the vicinity of each monitoring well will be investigated to evaluate specific design qualities, such as the age of the system, inlet and outlet locations and depths, and leachfield length, depth and locations. Systems located upgradient and in the near vicinity of monitoring wells will be researched by reviewing available permitting documentation held by the City of Malibu. Details of the commercial grade OWTS located at the Cross Creek Plaza Shopping Center will be reviewed as well.

PREVIOUS REPORTING

Previous investigations and monitoring reports conducted by others and included on the City of Malibu website for the near vicinity will be reviewed and evaluated to develop a comprehensive working knowledge of the Malibu Sewer Project.

7.0 REPORTING

A Monitoring Well Installation Completion Report will be prepared and include the following:

- Detailed location and site maps;
- Narrative and chronology of pertinent field activities;

- Identification of contractors, geologists, engineers, and other key personnel;
- Description of drilling methods;
- Detailed monitoring well information (planned and actual locations, as-built drawings);
- Driller's logs and lithologic logs;
- Depth-to-groundwater measurements;
- Field notes
- Monitoring well construction summary table;
- Records and results of the well development and well survey
- Purging records and indicator parameter measurements.

Initially, weekly monitoring efforts will be undertaken for the first month and then monthly after that. Quarterly Groundwater Monitoring Reports will be issued upon completion of quarterly monitoring and sampling efforts. The report will include the following:

- A brief project review and updated Site conditions.
- Summary of current groundwater elevations and changes from previous reporting. Data also to be included in a table.
- Summary of current groundwater analytical results. Data also to be included in a table.
- Appropriate figures showing Site Location and Site Maps including groundwater elevations and contours.
- Descriptions of monitoring and sampling procedures.
- Copies of field monitoring and well purging records.
- Laboratory reports and chain-of-custody forms.
- Shipping papers and disposal records for investigation derived waste.

All groundwater monitoring reports including the monthly sampling and monitoring efforts will be submitted by the fifteenth day following the end of the quarter as shown in the following schedule:

Reporting Period	Report Due Date
January – March	April 15th
April – June	July 15th
July – September	October 15th
October – December	January 15th

Upon completion of four quarterly monitoring and sampling events, an Annual Water Quality Report will be completed and submitted to the LARWQCB for review. The Annual Water Quality Report will detail the summary and results of the previous sampling events and draw conclusions based on such results. Groundwater flow near Malibu Creek and around the Serra Retreat topographic feature will be characterized. Using the characterized hydrologic flow of groundwater information, along with sampling and monitoring data obtained throughout the year, groundwater quality within the SCPOA boundaries will be described.

8.0 SIGNATURES

Plan Prepared by:

Joshua Cwikla
Professional Geologist 8590

Plan Reviewed By:

Mark Drollinger, M. Eng., CSP, CHMM, EiT
Director, Environmental Geology and Engineering