APPENDIX M:

M-1: **Letter from Stefan Cajina, P.E., District Engineer, Central District, California Department of Public Health Re: System No. 1990020- MALIBU LA PAZ DEVELOPMENT WASTEWATER MANAGEMENT SYSTEM MASTER PLAN, May 30, 2008.**

M-2: **Letter from Tracy J. Egoscue, Executive Officer, California Regional Water Quality Control Board, Los Angeles Region Re: STATUS OF REPORT OF WASTE DISCHARGE, MALIBU LA PAZ, 3700 LA PAZ LANE, MALIBU, CALIFORNIA (FILE NO.08-0101), June 11, 2008.**

M-3 **City of Malibu Hydrogeology Review Sheet for 3700 La Paz Lane, June 26, 2008.**

M-4 **City of Malibu Biology Review Referral Sheet, La Paz Commercial Development NO City Hall, June 21, 2008.**

M-5 **City of Malibu Biology Review Referral Sheet, La Paz Commercial - City Hall, June 21, 2008.**

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M-1: **Letter from Stefan Cajina, P.E., District Engineer, Central District, California Department of Public Health Re: System No. 1990020- MALIBU LA PAZ DEVELOPMENT WASTEWATER MANAGEMENT SYSTEM MASTER PLAN, May 30, 2008.**

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State of California—Health and Human Services Agency
California Department of Public Health

MARK B HORTON, MD, MSPH
Director

ARNOLD SCHWARZENEGGER
Governor

May 30, 2008

Ms. Tracy Egoscue, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

SYSTEM NO. 1990020 – MALIBU LA PAZ DEVELOPMENT WASTEWATER MANAGEMENT SYSTEM MASTER PLAN

Dear Ms. Egoscue:

We have reviewed the Malibu La Paz Development Wastewater Management System Master Plan (Plan), dated April 1, 2008, describing the wastewater management system for the La Paz development in the City of Malibu. The Plan gives a general idea of the wastewater treatment system and the type of wastewater reuse that will be proposed at the site. The Department finds that the Plan is a good first step in the development of the Title 22 Engineering Report. The treatment system proposed in the Plan is appropriate. In addition, the proposed reuse is appropriate for the level of treatment provided by the treatment system. However, more detail is needed to make a final determination on the treatment system and reuse at this site. In particular, the proponents should produce a thorough Title 22 Engineering Report following the Department's 2001 guidelines (attached).

The Department is available to work with stakeholders on the development of the Title 22 Engineering Report. If you have questions regarding this letter, please contact Mr. Chi Diep at (213) 580-5727 or myself at (213) 580-3127.

Sincerely,

Stefan Cajina, P.E.
District Engineer
Central District

Enclosure(1)

cc: Elizabeth Erickson
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013 CA Regional

Chris Deleau
La Paz Ranch, LLC
c/o Schmitz & Associates, Inc.
5234 Chesebro Rd, Suite 200
Agoura Hills, CA 91301

Andrew Sheldon
Environmental Health Administrator
City of Malibu
23815 Stuart Ranch Road
Malibu, California 90265

Pio Lombardo
Lombardo Associates, Inc.
49 Edge Hill Road
Newton, MA 02467

Paul Wong
Cross-Connections & Water Pollution Control Program
5050 Commerce Drive, Rm. 116
Baldwin Park, CA 91706-1423

DEPARTMENT OF HEALTH SERVICES
DIVISION OF DRINKING WATER AND ENVIRONMENTAL MANAGEMENT
DRINKING WATER PROGRAM
RECYCLED WATER UNIT

GUIDELINES FOR THE PREPARATION OF AN ENGINEERING REPORT FOR THE PRODUCTION, DISTRIBUTION AND USE OF RECYCLED WATER

March 2001
(Replaces September 1997 Version)

1.0 INTRODUCTION

The current State of California Water Recycling Criteria (adopted in December 2000) require the submission of an engineering report to the California Regional Water Quality Control Board (RWQCB) and the Department of Health Services (DHS) before recycled water projects are implemented. These reports must also be amended prior to any modification to existing projects. The purpose of an engineering report is to describe the manner by which a project will comply with the Water Recycling Criteria. The Water Recycling Criteria are contained in Sections 60301 through 60355, inclusive, of the California Code of Regulations, Title 22. The Criteria prescribe:

* Recycled water quality and wastewater treatment requirements for the various types of allowed uses,

* Use area requirements pertaining to the actual location of use of the recycled water (including dual plumbed facilities), and

* Reliability features required in the treatment facilities to ensure safe performance.

Section 60323 of the Water Recycling Criteria specifies that the engineering report be prepared by a properly qualified engineer, registered in California and experienced in the field of wastewater treatment.

Recycled water projects vary in complexity. Therefore, reports will vary in content, and the detail presented will depend on the scope of the proposed project and the number and nature of the agencies involved in the production, distribution, and use of the recycled water. The report should contain sufficient information

to assure the regulatory agencies that the degree and reliability of treatment is commensurate with the requirements for the proposed use, and that the distribution and use of the recycled water will not create a health hazard or nuisance.

The intent of these guidelines is to provide a framework to assist in developing a comprehensive report which addresses all necessary elements of a proposed or modified project. Such a report is necessary to allow for the required regulatory review and approval of a recycled water project.

References which may assist in addressing various project elements include:

- State of California Water Recycling Criteria (December 2000)
- State of California Regulations Relating to Cross-Connections
- California Waterworks Standards
- California Water Code
- Guidelines for the Distribution of Non-potable Water, (California-Nevada Section-AWWA, 1992)
- Guidelines For The On-Site Retrofit of Facilities Using Disinfected Tertiary Recycled Water (California-Nevada Section-AWWA, 1997)
- Manual of Cross-Connection Control/Procedures and Practices (DOHS)
- Ultraviolet Disinfection – Guidelines for Drinking Water and Water Reuse (NWRI/AWWARF, December 2000)

2.0 RECYCLED WATER PROJECT

The following sections discuss the type of information that should be presented and described in the engineering report. Some sections may be applicable only to certain types of uses.

2.1 General

The report shall identify all agencies or entities that will be involved in the design, treatment, distribution, construction, operation and maintenance of the recycled facilities, including a description of any legal arrangements outlining authorities and responsibilities between the

agencies with respect to treatment, distribution and use of recycled water. In areas where more than one agency/entity is involved in the reuse project, a description of arrangements for coordinating all reuse-related activities (e.g. line construction/repairs) shall be provided. An organizational chart may be useful.

2.2 Rules and Regulations

The procedures, restrictions, and other requirements that will be imposed by the distributor and/or user should be described. In multiple projects covered under a Master Permit issued by the Regional Boards where the reuse oversight responsibility is delegated to the distributor and/or user, the requirements and restrictions should be codified into a set of enforceable rules and regulations. The rules and regulations should include a compliance program to be used to protect the public health and prevent cross connections. Describe in the report the adoption of enforceable rules and regulations that cover all of the design and construction, operation and maintenance of the distribution systems and use areas, as well as use area control measures. Provide a description of the organization of the agency or agencies who has the authority to implement and enforce the rules and regulations, and the responsibilities of pertinent personnel involved in the reuse program. Reference to any ordinances, rules of service, contractual arrangements, etc. should be provided.

2.3 Producer – Distributor - User

The producer is the public or private entity that will treat and/or distribute the recycled water used in the project. Where more than one entity is involved in the treatment or distribution of the recycled water, the roles and responsibilities of each entity (i.e. producer, distributor, user) should be described.

2.4 Raw Wastewater

Describe the chemical quality, including ranges with median and 95th percentile values;

Describe the source of the wastewater to be used and the proportion and types of industrial waste, and

Describe all source control programs.

2.5 Treatment Processes

Provide a schematic of the treatment train;

Describe the treatment processes including loading rates and contact times;

All filtration design criteria should be provided (filtration and backwash rates, filter depth and media specifications, etc.). The expected turbidities of the filter influent (prior to the addition of chemicals) and the filter effluent should be stated;

State the chemicals that will be used, the method of mixing, the degree of mixing, the point of application, and the dosages. Also describe the chemical storage and handling facilities, and

Describe the operation and maintenance manuals available.

2.6 Plant Reliability Features

The plant reliability features proposed to comply with Sections 60333 - 60355 of the Water Recycling Criteria should be described in detail. The discussion of each reliability feature should state under what conditions it will be actuated. When alarms are used to indicate system failure, the report should state where the alarm will be received, how the location is staffed, and who will be notified. The report should also state the hours that the plant will be staffed.

2.7 Supplemental Water Supply

The report should describe all supplemental water supplies. The description should include:

* Purpose

* Source

* Quality

* Quantity available

* Cross-connection control and backflow prevention measures

2.8 Monitoring and Reporting

The report should describe the planned monitoring and reporting program, including all monitoring required by the Water Recycling Criteria, and include the frequency and location of sampling. Where continuous analysis and recording equipment is used, the method and frequency of calibration

should be stated. All analyses shall be performed by a laboratory approved by the State Department of Health Services.

2.9 Contingency Plan

Section 60323 (c) of the Water Recycling Criteria requires that the engineering report contain a contingency plan designed to prevent inadequately treated wastewater from being delivered to the user. The contingency plan should include:

* A list of conditions which would require an immediate diversion to take place;

* A description of the diversion procedures;

* A description of the diversion area including capacity, holding time and return capabilities;

* A description of plans for activation of supplemental supplies (if applicable);

* A plan for the disposal or treatment of any inadequately treated effluent;

* A description of fail safe features in the event of a power failure, and

  A plan (including methods) for notifying the recycled water user(s), the regional board, the state and local health departments, and other agencies as appropriate, of any treatment failures that could result in the delivery of inadequately treated recycled water to the use area.

3.0 TRANSMISSION AND DISTRIBUTION SYSTEMS

Maps and/or plans showing the location of the transmission facilities and the distribution system layout should be provided. The plans should include the ownership and location of all potable water lines, recycled water lines and sewer lines within the recycled water service area and use area(s).

4.0 USE AREAS

The description of each use area should include:

* The type of land uses;

* The specific type of reuse proposed;

* The party(s) responsible for the distribution and use of the recycled water at the site;

* Identification of other governmental entities which may have regulatory jurisdiction over the re-use site such as the US Department of Agriculture, State Department of Health Services, Food and Drug Branch, the State Department of Health Services, Licensing and Certification Section, etc. These agencies should also be provided with a copy of the Title 22 Engineering Report for review and comment.

* Use area containment measures;

* A map showing:

  -Specific areas of use

  -Areas of public access

  -Surrounding land uses

  -The location and construction details of wells in or within 1000 feet of the use area

  -Location and type of signage

* The degree of potential access by employees or the public;

* For use areas where both potable and recycled water lines exist, a description of the cross-connection control procedures which will be used.

In addition to the general information described above, the following should be provided for the following specific proposed uses:

4.1 Irrigation

-Detailed plans showing all piping networks within the use area including recycled, potable, sewage and others as applicable.

-Description of what will be irrigated (e.g. landscape, specific food crop, etc.);

-Method of irrigation (e.g. spray, flood, or drip);

-The location of domestic water supply facilities in or adjacent to the use area;

-Site containment measures;

-Measures to be taken to minimize ponding;

-The direction of drainage and a description of the area to which the drainage will flow;

-A map and/or description of how the setback distances of Section 60310 will be maintained;

-Protection measures of drinking water fountains and designated outdoor eating areas, if applicable;

-Location and wording of public warning signs,

-The proposed irrigation schedule (if public access is included), and

-Measures to be taken to exclude or minimize public contact.

4.2 Impoundments

-The type of use or activity to be allowed on the impoundment;

-Description of the degree of public access;

-The conditions under which the impoundment can be expected to overflow and the expected frequency, and

-The direction of drainage and a description of the area to which the drainage will flow.

4.3 Cooling

-Type of cooling system (e.g. cooling tower, spray, condenser, etc.);

-Type of biocide to be used, if applicable;

-Type of drift eliminator to be used, if applicable, and

-Potential for employee or public exposure, and mitigative measures to be employed.

4.4 Groundwater Recharge

An assessment of potential impacts the proposal will have on underlying groundwater aquifers. The appropriate information

shall be determined through consultation with the Department on a case by case basis.

4.5 Dual Plumbed Use Areas

In accordance with Sections 60313 through 60316 of the Water Recycling Criteria.

4.6 Other Industrial Uses

The appropriate information shall be determined on a case by case basis.

4.7 Use Area Design

The report should discuss how domestic water distribution system shall be protected from the recycled water in accordance with the Regulations Relating to Cross-Connections and the California Waterworks Standards, and how the facilities will be designed to minimize the chance of recycled water leaving the designated use area. Any proposed deviation from the Water Recycling Criteria and necessity therefore, should be discussed in the report.

4.8 Use Area Inspections and Monitoring

The report should describe the use area inspection program. It should identify the locations at the use area where problems are most likely to occur (e.g. ponding, runoff, overspray, cross-connections, etc.) and the personnel in charge of the monitoring and reporting of use area problems.

4.9 Employee Training

The report should describe the training which use area employees will receive to ensure compliance with the Recycled Water Criteria, and identify the entity that will provide the training and its' frequency. The report should also identify any written manuals of practice to be made available to employees.

M-2: **Letter from Tracy J. Egoscue, Executive Officer, California Regional Water Quality Control Board, Los Angeles Region Re: STATUS OF REPORT OF WASTE DISCHARGE, MALIBU LA PAZ, 3700 LA PAZ LANE, MALIBU, CALIFORNIA (FILE NO.08-0101), June 11, 2008.**

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California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

June 11, 2008

Mr. Don Schmitz
Schmitz and Associates, Inc.
29350 West Pacific Coast Highway, Suite 12
Malibu, CA 90265

Dear Mr. Schmitz:

STATUS OF REPORT OF WASTE DISCHARGE, MALIBU LA PAZ, 3700 LA PAZ LANE, MALIBU, CALIFORNIA (FILE NO. 08-0101)

The Los Angeles Regional Water Quality Control Board (Regional Board) staff acknowledges your inquiry on the status of review for your project and your request for concept approval of your technical design. The Report of Waste Discharge, received on December 22, 2006, is under review. Conceptual approval and preparation of the Waste Discharge Requirements can be considered once CEQA is approved by the City of Malibu and the Report of Waste Discharge (ROWD) is complete.

At our meeting with you on January 8, 2008, we found that your ROWD did not include a current engineering design for your construction. This information was provided during subsequent meetings on January 8, 9, and 10, 2008. After evaluating the new material, we described the information which was still missing in a letter on January 15, 2008 (attached) and detailed email comments between January 9 and March 22, 2008. On February 25, 2008, we met with the California Department of Public Health to discuss your case and your request for an early review. At our request they agreed to give your project an early conceptual review. On April 3, 2008, we received a copy of your submittal to the California Department of Public Health, which they are now reviewing.

We will begin our review of your ROWD when La Paz's CEQA is approved by the City.

If you have any questions, please call Project Manager, Ms. Elizabeth Erickson at (213) 620-2264 or Unit Chief, Dr. Rebecca Chou at (213) 620 6156.

Sincerely,

Tracy J. Egoscue
Executive Officer

Attachment
Cc with attachment:
Mr. Craig George, Mr. Granville Bowman, Mr. Andrew Sheldon, Mr. Jim Thorsen, City of Malibu
Mr. John J. O'Brien, Malibu Lumber LLC
Mr. John Yaroslaski, Ensitu Engineering, Inc.
Mr. Pio Lombardo, Lombardo Engineering, Inc.
Mr. Chi Diep, CA Public Health Drinking Water Program

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

January 15, 2008

Mr. Don Schmitz
Schmitz and Associates, Inc.
Malibu Headquarters
29350 West Pacific Coast Highway, Suite 12
Malibu, CA 90265

TECHNICAL REVIEW OF MALIBU LA PAZ DEVELOPMENT: REQUEST FOR WASTE DISCHARGE/WATER RECLAMATION REQUIREMENTS (FILE NO. 08-0101)

Dear Mr. Schmitz,

The Regional Board staff have completed a review of your Report of Waste Discharge (ROWD) received on December 22, 2006 and have assessed the adequacy of the ROWD to support Waste Discharge Requirements (WDR)/ Water Reclamation Requirements (WRR) for the project. This review is not related to, or in response to, the Draft Environmental Impact Report which the City of Malibu (City) has prepared as lead agency for the Malibu La Paz Development Project (Project).

Background

The development would be located on 15.03 acres at 3700 La Paz Lane in the Civic Center in Malibu. Seven buildings are proposed with 112,508 square feet (ft^2) of office, restaurant and commercial space and a 20,000 ft^2 City Hall with 609 subsurface parking spaces and waste flows greater than 20,000 gallons per day (gpd). The ROWD application is for two projects with the 'alternative' project lacking the City Hall building. The 'preferred project' with City Hall was assessed here. The site is about 1,000 feet west of Malibu Creek.

The December 22, 2006, Engineering Design by EnSitu describes a wastewater treatment system to dispose of a maximum of 29,620 gpd of waste. The collection and treatment system consists of sanitary sewer lines, a grease interceptor, a primary settling tank, an equalization tank, a High Strength FAST treatment using fixed media bacteria with odor control, chlorine tablet disinfection and average subsurface disposal of 7,500 gpd through groundwater discharge and/or irrigation.

The January 8, 2008, Engineering Design by Lombardo Associates, Inc. also uses these treatment components and adds a substantial water reuse system for the buildings, an 800,000 gallon irrigation and holding tank, groundwater wells, a potable supply delivery system for irrigation, and a wetlands. It relies on a computer model to provide ongoing assessment of evapotranspiration to direct disposal of wastewater.

After receiving the ROWD, Staff notified you that the document was incomplete, and supplemental material was provided on March 2, 2007. Staff provided comments on Civic Center projects, including Malibu La Paz Development, to the City of Malibu staff on June 28, July 27, August 27, and September 27, 2007. Staff had a teleconference with both the City and you and your staff on October 29, 2007 on the project. Additional technical information was supplied in support of your ROWD on October 31, 2007. A response to the technical content of the Draft EIR was provided to you on November 5, 2007. Staff met again with Mr. Jim Thorsen and staff from the City on groundwater issues on November 20, 2007. An additional meeting was held with you at the Regional Board on January 8, 2008 at which time substantial technical revisions to the ROWD, sufficient to require the preparation of WRR, were provided. Meetings between your consultant and staff followed between that date and the preparation of this summary. Written correspondence documenting the details of our technical assessment of your ROWD is under review, but our findings were shared with your consultant, Mr. Pio Lombardo, on January 14, 2008.

Findings

Staff has determined the ROWD is incomplete. The engineering material presented is sufficient to support the design concept, but not yet sufficient to ensure that the required regulatory approval can be received for each of the components.

Discussion

The Project design concept is innovative for the City of Malibu area, and may result in very little and perhaps no discharges to shallow groundwater. However, it requires new regulatory review and support for aggressive water re-use within the facility which now includes waste reclamation of irrigation return waters and toilet flushing using Title 22 compliant wastewater discharge through landscape evapotranspiration.

The material presented before and during the review period suggests that it may be possible to obtain support for the design concepts with additional Discharger preparation. Specifically,(1) the California Department of Public Health (CADPH) must approve an Engineering Report for the Production, Distribution, and Use of Recycled Water (Title 22, California Code of Regulations) for the use of any recycled water. The Engineering Report and operational requirements must be approved in advance and provided to the Regional Board before your ROWD can be considered to be complete. (2) The design must be modified to meet the plumbing code assumptions for water use even if the WDR/WRR are for lower discharge volumes and based on your documented lower restaurant consumption. (3) Additional documentation must be provided demonstrating the successful operation of landscape irrigation in a heavily trafficked area such as the Civic Center to confirm the analytical evapotranspiration model presented. (4) Short term impacts on the groundwater elevation from unusual discharge or storm events have not been modeled, except with a steady state model. Confirmation that this use can coexist with City of Malibu commitments for disposal in Legacy Park is required, preferably with a transient groundwater model. And (5) additional odor control design may be necessary.

If you have any questions or need clarification please contact Rod Nelson at (213) 620 2991 or Elizabeth Erickson at (213) 620 2264.

Sincerely,

Tracy J. Egoscue
Executive Officer

CC.
Kurt Souza, California Department of Public Health
Jim Thorson, City of Malibu, jthorson@ci.malibu.ca.us
Stacy Rice, City of Malibu, srice@ci.malibu.ca.us
Craig George, City of Malibu, cgeorge@ci.malibu.ca.us
Stefanie Edmondson, City of Malibu sedmondson@ci.malibu.ca.us
Schmitz, Don, Schmitz and Associates, DonS@schmitzandassociates.net
Deleau, Chris, Schmitz and Associates, cdeleau@schmitzandassociates.net
Martin, Sharon, Schmitz and Associates, smartin@schmitzandassociates.net
Dzurec, Matt, Schmitz and Associates, mdzurec@schmitzandassociates.net
Pio Lombardo, pio@LombardoAssociates.com

M-3 **City of Malibu Hydrogeology Review Sheet for 3700 La Paz Lane, June 26, 2008.**

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City of Malibu

23815 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-7650 • www.ci.malibu.ca.us

HYDROGEOLOGY REVIEW SHEET

Project Information

Date:	June 26, 2008			**Review Log #:**	
Site Address:	3700 La Paz Lane				
Lot/Tract/PM #:	Parcels A & B			**Planning #:**	PPC 00-006
Applicant/Contact:	Schmitz & Associates			**BPC/GPC #:**	
Contact Phone #:	589-0773	**Fax #:**	589-0353	**Planner:**	Stefanie Edmondson
Project Type:	Retail and office commercial development w/onsite wastewater reuse/disposal				

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in **Bold**.)*	**Lombardo Assoc., Inc. 6/3/08, 5/1/08**, Fugro West, Inc. 4/10/06, 10/7/05, 5/31/05, 3/7/05, 8/9/04
Previous Reviews:	9/7/04, 3/28/05 (via email), 6/10/05, 6/9/06

Review Findings

Planning Stage

☒ **APPROVED** from a hydrogeological perspective.

☐ **NOT APPROVED** from a hydrogeological perspective. The listed 'Planning-Stage Review Comments' shall be addressed prior to Planning-stage approval.

Remarks

The Malibu La Paz Development Wastewater Management System Master Plan (WMSMP) dated April 1, 2008 and draft response to City comments dated June 3, 2008 were reviewed for the City from a hydrogeological perspective by Mr. Eric Fordham of GeoPentech, Inc. The referenced report and draft response comments were prepared by Lombardo Associates, Inc. on behalf of the project developer to describe their plan for managing wastewater for the La Paz Development.

Based upon the submitted information, the project comprises a new retail and office commercial development, including grading, construction of multiple buildings, parking areas, and a wastewater collection, treatment and reuse system. Two options are described in the report; the preferred plan based on a floor to area ratio (FAR) of 0.20, and the alternative plan based on a FAR of 0.15. The WMSMP describes a wastewater system and its operation for both options that provides a no net discharge to groundwater. Should the system operate outside of its specification, "off-spec" wastewater would be discharged for up to 20 days per California Department of Public Health's guidelines. The WMSMP includes an assessment of potential impacts on local groundwater levels from discharge of "off-spec" wastewater.

The elements of the plan reviewed and commented on from a hydrogeological perspective include:

- Wastewater and irrigation water balance consisting of
    - Wastewater system design flows
    - Average daily wastewater flows
    - Percent of wastewater available for reuse
    - Wastewater volume available for reuse
    - Wastewater volume required to be dispersed
    - Landscape irrigation water demand
- Effluent dispersal and groundwater mounding
    - Drip irrigation system for preferred and alternative plans
    - Deep drip dispersal system for preferred and alternative plans
    - Dispersal comparison using 17 drainfields

Comments

1. The provided analysis of wastewater reuse for similar developments suggests reuse would be at 95% consistent with an office-type setting. Reuse of water from restaurant occupants is not considered in the analysis. We concur with the plans use of 85% wastewater reuse applied to office and retail spaces.
2. The use of groundwater extraction is not a component of the water supply/wastewater management system.
3. Wastewater discharges of 1,000 gpd in lieu of optimizing landscape plantings is presented for sensitivity analysis of the recycled wastewater storage tank size and is not a proposed option to effect the size of the recycled water tank.
4. The WMSMP specifies use of the WeatherTRAK climatologically based controller to manage irrigation. The WMSMP should state that the system (or equivalent) shall be installed and programmed under the guidance of a professional trained and experienced with the controller. Controller programming will need to meet the specific project criteria as stated in the WMSMP as providing landscape irrigation to meet ET demand while eliminating runoff and deep percolation.
5. The ET-Rain analysis presented in the WMSMP is based on daily data from the Santa Monica CIMIS station. Possible climatic differences between the Santa Monica CIMIS station location and the City of Malibu Civic Center area could result in ET variances that may affect storage tank sizing. We concur with the storage tank liquid level simulation used to size the storage tank (WMSMP, Appendix C), which is based on the Santa Monica CIMIS ET-Rain analysis, for the following reasons:
    - The Santa Monica CIMIS station is approximately 12 miles to the east and is the closest weather station to the City of Malibu Civic Center area that provides a full

suite of climatic measurements including ET estimates. The Los Angeles County Department of Public Works report rainfall data for a station at Zuma Beach, which is about 10 miles to the west. The Zuma Beach rainfall measurements for the period from October 1995 through September 2006 are very comparable to those measured at the Santa Monica CIMIS station for the same time period suggesting the use of the Santa Monica CIMIS station ET-Rain data is an appropriate proxy for use in the WMSMP.

- The storage tank is sized for the extreme rainfall events of the mid 1990's and provides for 76 days of recycled water storage at the design dispersal rate. The generation of wastewater during winter months when most rainfall occurs would be expected to be less than the design rate.

6. Constructed wetlands and stormwater detention facilities will be lined and, therefore, will not communicate or recharge groundwater.
7. We concur with the ET_c applied for the landscaping palette in the calculation to balance the wastewater generated by the development. Sensitivity analysis of various landscaping palettes indicates the needed site ET can be achieved by alternate plantings.
8. Table 2.10 of the WMSMP has been corrected to show a total average annual irrigation demand of 13,600 gpd for a landscape area of 266,000 sf (preferred 0.20 FAR option). This demand exceeds the recycled wastewater generated by the project by 3,140 gpd and would be made up using potable water.
9. The WMSMP, Section 2.5.1 and draft response to comments indicate that "off-spec" effluent from the treatment system would be diverted to the subsurface drip irrigation system for dispersal. It is possible, therefore, that the total wastewater generated at the site would be discharged to the drip irrigation system for a period of up to 20 days. Section 2.11 of the WMSMP discusses the impacts of treated wastewater discharges to groundwater, which is further commented on in item 11 below.
10. The groundwater monitoring program described in Section 2.7 of the WMSMP shall also include the ability to monitor across-gradient water quality and to collect automated water levels in all groundwater monitoring wells.
11. The discharge scenarios described in Section 2.11 of the WMSMP are used for sensitivity analysis to demonstrate the systems robustness with respect to impacts to groundwater from discharges should the treatment plant not meet the Title 22 disinfection standards. The analysis indicates that the maximum groundwater rise from dispersal of the estimated average annual daily wastewater for up to 60 days would be less than 1 foot at and beyond the property boundary and less than 3 feet within the property boundary beneath dispersal areas. The maximum sustained daily wastewater flow is estimated at 24,700 gpd. The estimated impact of this flow rate for a 20-day period at the southern

boundary of the project where depth to groundwater is at its shallowest would be less than a foot.

12. Appendix D of the WMSMP and the subsequent draft response to comments provide a description of modeling input parameters used for transient analysis, simulations and results. A transient calibration of the model was not completed though the parameters assigned for the previously calibrated steady-state model were used along with constant boundary conditions representing a wet season water table. Groundwater aquifer storage properties used in the transient model include a specific yield of 0.1 ft/ft and a specific storage of 10^{-5} 1/ft. These parameter values are within the expected range for the types of alluvial deposits that occur beneath the project site. Analysis of the sensitivity of these storage parameters conducted by comparing transient wastewater loadings of 20,000 and 24,700 gpd for 20 days indicates the expected range in the storage parameter values may result in an estimated groundwater difference at the southern property boundary of about $1/10^{th}$ of a foot. Therefore, using various storage parameters in the model consistent with the expected range would not substantially change the analysis of impacts from discharge of "off-spec" wastewater as presented in section 2.11 of the WMSMP.

Please direct any questions regarding this review sheet to the individual below.

Reviewed by:

Eric S. Fordham, CHG 283, Exp. 2-28-09
Principal Hydrogeologist
GeoPentech, Inc.

Date: 6-26-08

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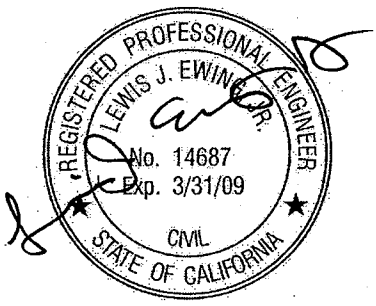

Signed: 6/30/2008

City of Malibu

REVIEW OF PROPOSED WASTEWATER TREATMENT SYSTEM FOR THE MALIBU LA PAZ DEVELOPMENT

FINAL
July, 2008

10540 TALBERT AVENUE • SUITE 200 EAST • FOUNTAIN VALLEY, CALIFORNIA 92708 • (714) 593-5100 • FAX (714) 593-5101

City of Malibu

REVIEW OF PROPOSED WASTEWATER TREATMENT SYSTEM FOR THE MALIBU LA PAZ DEVELOPMENT

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REVIEW OF PROPOSED WASTEWATER TREATMENT SYSTEM FOR THE MALIBU LA PAZ DEVELOPMENT

This report presents the findings from Carollo Engineers' review of a master plan for wastewater treatment at the proposed La Paz Development (La Paz) in the City of Malibu (Malibu). The master plan, prepared by Lombardo and Associates, is titled "Malibu La Paz Development Wastewater Management System Master Plan" (MP), dated April 1, 2008. This report discusses the portions of the master plan covering:

- Wastewater design flows (MP Section 2.2).
- Predicted wastewater quality (MP Section 2.3).
- Conceptual design of the treatment system (MP Section 2.4).
- Permitting requirements (MP Section 2.5).
- Preliminary engineering sizing of treatment processes (MP Section 2.6).
- Proposed monitoring plan (MP Section 2.7).

Specifically excluded from this review are:

- Siting of facilities.
- Demands for recycled water.
- Soils and hydrology.
- Wastewater collection and distribution systems.
- Recommendations for alternative processes.

It should be noted that much of the MP is conceptual and does not contain the detail necessary to fully review the treatment system. The more detailed plan would come later in the form of a facilities plan, a predesign report, or an Engineering Compliance Report.

Our review generally is section by section and contains a brief summary of what is presented in the MP, the methods and results of our review, and comments and recommendations for Malibu to consider.

1.0 WASTEWATER DESIGN FLOWS

This section of the MP first presents a table (Table 2.2) and discussion covering the development of wastewater flows from the project for two development plans. The table is based on floor areas or customers for the various planned occupancies and unit sewage generators for each of those occupancies. The unit generators are from the requirements of the Los Angeles County (County) Plumbing Code. Using the values from the County code,

predicted flows are: 37,120 gallons per day (gpd) for Plan 1 and 30,440 gpd for Plan 2. The unit generators from the County code are representative of those found in textbooks, other codes, and common usage.

The MP first requests that new flows, lower in value than those determined from generators in the County code, be allowed, and then presents an argument based on data from a similar project in the area - the Malibu Creek Plaza (Creek). Using data from Creek, new flow rates are determined and then a peaking and safety factor of 50 percent is applied. The proposed flows now become: Plan 1 - 28,000 gpd and Plan 2 - 23,000 gpd.

Analysis to justify the reduction in flows is found in Appendix A of the MP. Table A-1 shows flows for the Creek development using both the County generators and, reportedly, actual design flows. The flow based on County generators is 25,614 gpd, while the actual design flow is 12,000 gpd or about half of the County flow. Flows for the Creek development, based on average water use, for the period of November 2000 to November 2003 average 11,123 gpd with the maximum for a 50-day period being 12,731 gpd. Data in Table A-3 for the period of May 7, 2004 through July 13, 2004 show an average daily flow of 9,706 gpd and a maximum day of 17,280 gpd. More recent data, for the period of July 2007 through February 2008 (Table A-4), show wastewater flows of 11,877 gpd average and 17,519 gpd maximum for the Creek development.

The data for Creek do show that the average flow is approximately half and that the peak flows vary up to about 68 percent, respectively, of the flow based on County generators. Also, the make up of the two developments in terms of ratios of retail, office, and restaurant space is roughly the same.

No table similar to Table 2.2 using proposed generation factors is included in the MP. If we use the design criteria listed on page 14 of the MP, the flows for La Paz would be as follows:

Condition	Average Flow (gpd)	Peak Flow (gpd)
Plan 1	18,560	27,840
Plan 2	15,220	22,830

The MP notes various justifications for allowing a variance from the use of Code generators. These include:

- The use of low flow toilets and water-conserving fixtures.
- Code values not taking influent flow equalization into account.
- Code values being generally conservative and for very small systems.

All of these are valid to some extent, and, in fact, some treatment plants have seen a reduction in flow over the past several years. However, the actual extent and effect for each of the above factors is not known. The information from Creek appears to be valid and may

be indicative of what will be the case at La Paz. There may be differences in the make up of new and future tenants and their use patterns at the two developments, however. We, therefore, suggest that the developer furnish flow data vs. tenant makeup for at least one other similar commercial development.

Some factors that might affect the flow, and thus give reason to a conservative approach, include the following questions:

- What is the assurance that the use of low-flow fixtures will remain, particularly in restaurants?
- Will there be restrictions on how much water a tenant can use?
- Will "dry" tenants become "wet" tenants?
- Will the hours of operation change?

Based on the above, including the uncertainties, and if review of data from another development shows the same pattern, we recommend that:

1. The developer be allowed to reduce flow to 80 percent of the County code generated flow. Although this is higher than the 75 percent requested by the developer, we consider the more conservative approach justified because of uncertainties in the prediction of flow.
2. The developer submit an acceptable contingency plan of how higher flows would be accommodated should they develop.

2.0 PREDICTED WASTEWATER QUALITY

Section 2.3 of the MP presents Tables 2.11 and 2.12 showing assumed wastewater characteristics. This information should be expanded to include actual values for average and peak concentrations of BOD_5, TSS, VSS, NH_4^+, pH, oil and grease, temperature, organic nitrogen, and alkalinity for the various contributors of raw wastewater. The values should be based on measurements from at least two similar developments.

The section also briefly discusses effluent quality and presents Table 2.13 showing probable effluent standards. The standards given adequately describe the requirements of Title 22 and in part what the requirements of the RWQCB will be. Note that the requirements of the discharge permit issued by the RWQCB will likely be much more extensive than presented in the MP. Since some limitations imposed by the RWQCB will be based on maximum concentrations or masses of constituents, a table showing the quality of the area's domestic water should be added to the MP.

As in Section 1.0 of this review, a contingency plan should be developed to show how a wastewater flow stronger than predicted would be accommodated.

3.0 CONCEPTUAL DESIGN OF TREATMENT SYSTEM

Section 2.4 lists the proposed treatment processes in Table 2.14 and then provides a block flow diagram showing the treatment train. The individual processes are discussed in more detail in Section 2.6 of the MP. In our opinion, the proposed process train has the potential to produce an acceptable and permittable effluent. There is not adequate information presented, however, make a final judgment. Section 2.4 or Section 2.6 should include a table of all design criteria and a table showing the expected quality in the effluent from each process (in greater detail than is now provided in Section 2.6). These tables should show conditions and expected effluent quality with all units operating and with the largest unit of any process out of service. The effluent quality from each process should include those constituents listed in Section 2.0 of this review as well as turbidity.

Two areas of concern are noted from review of the flow diagram. These are 1) the potential for regrowth of microorganisms in the storage tank following the disinfection process and 2) the use of drip irrigation for disposal of out-of-compliance effluent. These will be discussed in Section 5.0 of this review.

4.0 PERMITTING REQUIREMENTS

Section 2.5 briefly discusses the major permits that will be required for construction and operation of the treatment system. The section correctly states the permitting authorities for the project are Malibu, the RWQCB, and the CDPH. There normally are other agencies with interests in the project, but these typically work through one of the three agencies listed. The Air Quality Management District may also become involved with permitting air releases from odor treatment systems and the venting of ozone from the disinfection system.

5.0 PRELIMINARY ENGINEERING SIZING OF TREATMENT PROCESSES

Section 2.6 of the MP expands on the conceptual design briefly discussed in Section 2.4. It presents information on design criteria for each process and provides discussion on system reliability. The information is conceptual at this stage; it should be expanded on in the next stage of the project development. It should be noted that the conceptual design is based on reduced flows discussed in Section 2.2 of the MP and would have to be modified if the approved flows are higher. The individual treatment processes are reviewed below.

5.1 Grease Traps and Septic Tanks

These preliminary treatment parts of the overall treatment train are sized based on the County code and appear to be sized adequately. We have a concern that if the septic tank effluent has not been screened prior to pumping or if grinder pumps are not used, use of pipe smaller than 3 inches will have a potential for plugging.

5.2 Flow Equalization Tank

The text in Section 2.6.2 regarding sizing of the tank is not clear. We recommend that the designer provide calculations and a diurnal mass diagram showing flow, including backwash return from the filters, versus quantity in storage for the tank. Other questions include: Will the tank be compartmentalized so that a part can be taken out of service for cleaning? How will solids entering the tank be kept in suspension or otherwise removed from the tank daily?

5.3 First Stage Recirculation Tank and Recirculating Media Filter

The one-day residence time for the recirculation tank appears adequate, assuming that surge volumes are covered. The mechanism for and degree of nitrification anticipated in this first-stage filter is not provided or discussed. More information or justification for the filter sizing should be provided to show that the proposed loading rates are suitable and what the effluent quality will be. Filter media materials and gradation were not provided.

5.4 Denitrification Filter

The proposed method of denitrification, Nitrex™ filter, should give adequate removal of nitrate if properly designed. No design criteria or influent characteristics are provided to allow review of the process. Again, media materials and gradation were not provided.

5.5 Second Stage Recirculation Tank and Recirculating Media Filter

This second-stage RMF process is provided to polish the effluent from the denitrification process. If properly designed and depending on the media used, it should fulfill that goal. The hydraulic residence times (HRT) in the recirculation tank appears suitable. Again, influent and effluent quality expectations and justification for the stated loading rate are not provided in the MP.

5.6 Filtration System

The MP proposes the use of a mixed-media filtration unit followed by two-stage cartridge filtration. Although not noted in the MP, the designer states that the system actually selected for final design will be from the CDPH's approved list. The loading rate for the granular media filter is stated as 5 gpm/ft^2. This is the rate permitted by CDPH under Title 22 criteria, but here it appears high, particularly for such a small system. The MP does not discuss disposal or recirculation of backwash water, the number of filters proposed, or the possible requirement for addition of coagulating chemicals. Also not included is the anticipated quality of influent and effluent for the process.

Cartridge filters might not be required to meet turbidity standards, and the designer has stated that they might be taken out of the process. We think that they might be beneficial as a polishing step ahead of ultraviolet (UV) disinfection.

5.7 Disinfection System

This two-process system using UV and ozone should be effective at disinfection of the effluent. The ozonation dose and contact time appear suitable. There is no information on the proposed UV dose other than that it will meet the criteria set out in the 2003 edition of "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse." Like filtration, the UV equipment should be from a CDPH-approved list. Although it might not be required in this design, Title 22 requires that disinfection systems considered alternative to what is described in Title 22 be proven by demonstration of effectiveness and reliability. This should be discussed with CDPH. We do not understand the statement under Section 2.6.9 that says, "The Second Stage Recirculation Tank will have an integral pump station that feeds the disinfection system at a steady flow rate."

5.8 Odor Control

The proposed use of soil filters and activated carbon filters to control odors is suitable. No information on points where foul air will be extracted or design criteria for the odor control systems is provided. The designer should verify whether an ozone destructor will be required and whether the AQMD will issue permits for odor treatment systems and ozone releases.

5.9 Electrical Controls and Monitoring

This section notes that a telephone and Internet monitoring system will be installed to provide data on the system and inform operators of emergencies. The section should be expanded in the next phase of the project to specify what information will be available, to whom it will be sent, and who will respond. A California-certified treatment plant operator may be required to operate this plant.

5.10 Reliability

This section briefly notes that there will be a standby generator and that there will be some process redundancy in equipment. Review of reliability features should take place when more complete information is available.

5.11 Performance Monitoring Plan

What is presented is good and needed. A more detailed monitoring plan should be included at the next stage of the project. Monitoring frequencies for some equipment and processes and for water quality at several locations in the process train should be increased from what is proposed.

5.12 Effluent Storage and Disposal

As noted in Section 3.0 of this review, we have three concerns regarding disposal or use of effluent from the plant. The first involves the proposal to store final effluent for long periods

(up to 20 days) in tanks with no disinfectant residual. We are concerned that there will be regrowth or bacteria in the tanks. The designer should consider this and either show why it will not be of concern or show how it will be addressed.

Corollary with this is the growth of biofilms in the storage tanks and distribution piping. Depending on water age and the concentration of residual nitrogen in the effluent, film that can impair water quality and potentially clog the drip irrigation system can develop. Information on design of the storage tanks is not provided at this time, so we are not able to assess circulation patterns in the storage system.

The second concern is the use of drip irrigation for disposal of out-of-compliance effluent that may contain particulates. Can the drip irrigation system operate effectively when changed with out-of-compliance effluent? Further, can the drip system pass the entire plant flow when being fed out-of-compliance effluent? The designer should address these concerns.

The other concern involves effluent disposal during start-up. Effluent during start-up will likely not meet discharge requirements for several constituents and for three or more weeks. What will be the disposition of this effluent?

6.0 PROPOSED MONITORING PLAN

A proposed monitoring program is given in MP Sections 2.5 and 2.7, primarily in Table 2.15. We are in agreement with most of what is presented in Table 2.15 for effluent monitoring. We recommend changing the table, however, to require more frequent or continual monitoring of some parameters. We recommend requiring use of a continuous turbidity analyzer rather than using grab samples, and increasing the monitoring frequency of BOD, nitrate and ammonia, pH, and TSS to weekly sampling. Turbidity is the main indicator of effluent compliance with Title 22, and high turbidity, along with failure of the disinfection system, will be one of the primary indicators causing automatic diversion of effluent from the recycled water use system. As noted, the above pertains to effluent monitoring for compliance.

An additional monitoring plan and an operations manual covering monitoring of the individual processes should be prepared and submitted along with the preliminary design report or Title 22 - Engineering Compliance Report. This operations monitoring program should be designed to show that each process is performing as designed. Such monitoring would allow operators to see trends and note potential problems before they affect effluent quality. Depending on the process and parameter, this monitoring would be continuous, daily, weekly, or monthly based on the parameter, and would include alarms and instrumentation as well as physical/chemical information on the waste as it flows through the treatment train.

7.0 OTHER CONSIDERATIONS

Although not covered in the MP, there is concern regarding containment of and public contact with recycled water from irrigation systems. Spray irrigation of small areas of the development, primarily for median strips in parking areas, has been proposed. This is both feasible and common, but requires controls to prevent runoff from leaving the area and design and operating practices that limit the drift from sprinklers.

Title 22 is the primary regulation controlling irrigation with recycled water. The regulation states that runoff from irrigation shall be confined to the use area. The use area would be defined in the authorization to use recycled water and should be discussed with the CDPH. Title 22 also places restrictions on spray irrigation with recycled water, but does not put defined limits on overspray around commercial areas except that sprays shall not enter dwellings, designated outdoor eating areas, or food handling facilities.

The RWQCB might also regulate spray and runoff from the site through clauses in the waste discharge requirements for the development.

Two other documents may govern the use of recycled water either directly or through adoption by other agencies:

- "Guidelines for Distribution of Nonpotable Water" by the California-Nevada Section of the American Water Works Association.
- "Recycled Water User Manual" by Los Angeles County Recycled Water Advisory Committee, adopted by the Los Angeles County Department of Health Services.

These documents, particularly the latter, set design and operating criteria for irrigation systems. Restrictions and guidance include limiting the time of irrigation to periods when the public is not present and designing and operating the system to prevent overspray and runoff. They also require the designation of a use area or site supervisor who would be responsible for operation and maintenance of the system, compliance with regulations and permits, and notifications to regulatory agencies.

8.0 FINDINGS AND RECOMMENDATIONS

Findings from our review of the developer's master plan include the following:

- Based on the review of this conceptual report, we judge that the proposed treatment process train, with noted modifications, can produce an effluent meeting Title 22 requirements.
- Allowing a reduction in wastewater flow generators from those used in the County code should be considered. More data and justification on which to base a decision should be provided for review.

- More information on wastewater characteristics should be submitted.
- More information on handling out-of-compliance effluent should be submitted.

As part of the project moving to the next stage, we recommend that Malibu require the developer to:

- Prepare and submit a detailed preliminary design report containing the information discussed above and addressing the comments and questions presented.
- Develop contingency plans covering how wastewater quantity and quality above what is used in the master plan will be accommodated if necessary.
- Obtain tentative discharge requirements from the RWQCB so that the agency's requirements are known and can be addressed.

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M-4 **City of Malibu Biology Review Referral Sheet, La Paz Commercial Development NO City Hall, June 21, 2008.**

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City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 317-1950

BIOLOGY REVIEW
REFERRAL SHEET

TO: City of Malibu City Biologist DATE: 6/21/2005

FROM: City of Malibu Planning Department

PROJECT NUMBER:	SPR 07-126, SPR 07-127, SPR 07-148, SPR 07-149, MM
JOB ADDRESS:	3700 LA PAZ LN CDP 05-106
APPLICANT / CONTACT:	
APPLICANT ADDRESS:	29350 W. PCH #12 Malibu, CA 90265
APPLICANT PHONE #:	(310)589-0773
APPLICANT FAX #:	(310) 589-0353
PROJECT DESCRIPTION:	La Paz Commercial Development NO City Hall 1/19/6

TO: Malibu Planning Department and/or Applicant

FROM: Dave Crawford, City Biologist

___ The project review package is INCOMPLETE, please submit the following items (See Attached).

N The project is consistent with policies contained in the LCP and CAN proceed through the Planning process.

___ The project CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design (See Attached).

___ The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources, and therefore requires review by the Environmental Review Board (ERB).

SIGNATURE DATE 7/14/08

Additional requirements/conditions may be imposed upon review of plan revisions.

Dave Crawford, City Biologist, may be contacted at the City Hall Annex counter on Mondays and Thursdays between 8:00 a.m. and 12:30 p.m., by e-mail at dcrawford@ci.malibu.ca.us , or by leaving a detailed message at (310) 456-2489, extension 277.

Rev. 09-21-06 gs

City of Malibu

23815 Stuart Ranch Road, Malibu, California 90265
(310) 456-2489 Fax (310) 456-7650

Planning Department

BIOLOGICAL REVIEW

Site Address: 3700 La Paz Lane
Applicant/Phone: Schmitz&Assoc./(310)589-0773
Project Type: Commercial Development/NO City Hall
Project Number: CDP 05-106
Project Planner: Stefanie Edmondson

RECOMMENDATIONS:

1. The revised landscape plan is **APPROVED.**

   All previous conditions of approval identified in the September 2006 Biological review for the project remain in effect.

Reviewed By: _____ Date: 7/14/08
Dave Crawford, City Biologist

310-456-2489 ext.277 (City of Malibu); e-mail dcrawford@ci.malibu.ca.us
Available at Planning Counter Mondays and Thursdays 8:30 a.m. to 12:30 p.m.

M-5 **City of Malibu Biology Review Referral Sheet, La Paz Commercial - City Hall, June 21, 2008.**

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City of Malibu

23815 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 317-1950

BIOLOGY REVIEW REFERRAL SHEET

TO: City of Malibu City Biologist DATE: 6/21/2005

FROM: City of Malibu Planning Department

PROJECT NUMBER: CUP 05-004, GPA 07-002, LLA 05-004, ZMA 07-002, Z

JOB ADDRESS: 3700 LA PAZ LN CDP 05-107

APPLICANT / CONTACT:

APPLICANT ADDRESS: 29350 W. PCH #12
Malibu, CA 90265

APPLICANT PHONE #: (310)589-0773

APPLICANT FAX #: (310) 589-0353

PROJECT DESCRIPTION: La Paz Commercial - City Hall 1/19/6

TO: Malibu Planning Department and/or Applicant

FROM: Dave Crawford, City Biologist

___ The project review package is INCOMPLETE, please submit the following items (See Attached).

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Rev. 09-21-06 gs

City of Malibu

23815 Stuart Ranch Road, Malibu, California 90265
(310) 456-2489 Fax (310) 456-7650

Planning Department

BIOLOGICAL REVIEW

Site Address: 3700 La Paz Lane
Applicant/Phone: Schmitz&Assoc./(310)589-0773
Project Type: Commercial Development/with City Hall
Project Number: CDP 05-107
Project Planner: Stefanie Edmondson

RECOMMENDATIONS:

1. The revised landscape plan is **APPROVED.**

   All previous conditions of approval identified in the September 2006 Biological review for the project remain in effect.

Reviewed By: _____ Date: 7/14/08
Dave Crawford, City Biologist

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Available at Planning Counter Mondays and Thursdays 8:30 a.m. to 12:30 p.m.