



Unique Malibu Project Sets Standard for OWTS in Environmentally Sensitive Areas

Environmentally Sensitive Areas

Malibu Creek Plaza is located in one of the most environmentally sensitive areas in Malibu given its proximity to Malibu Creek, the Malibu Lagoon, and the world famous Surfrider Beach. Malibu Creek is categorized by the EPA as impaired for its entire ten mile length from the Lake to Lagoon. Concerns about the potential impact of the facility's existing conventional septic system on the Lagoon and beaches caused the owner to install a state-of-the-art onsite wastewater treatment system (OWTS) to address potential concerns. The new system promises to eliminate any future impact to the environment.

Facility Overview

The Malibu Creek Plaza is a retail shopping complex located on Pacific Coast Highway in Malibu, CA, approximately 10 miles north of Santa Monica. The facility is a major shopping area in the Civic Center area of Malibu whose tenants include three sit down restaurants, a movie theatre, and various retail businesses. The original OWTS was composed of septic tanks and leachfields located onsite beneath the parking lots. The total capacity of the system was estimated at 20,000 gpm.

Site Challenges

There were many challenges associated with the project which needed to be addressed during construction to satisfy all the stakeholders:

Tidal and Creek Influence – The site sits along the southern leg of Malibu Creek which flows from the mountainous area surrounding Malibu down to the Pacific Ocean. During the winter months when there is rainfall, the creek rises and breaches a sandbar which forms during the dry summer months. When the creek breaches in the winter season, the groundwater levels actually drop approximately one to two feet which is contrary to what is typical for most other sites. Construction was started in January to take advantage of the lower groundwater levels and reduced impact on dewatering.

Dewatering – Groundwater at the site averaged between seven and ten feet below grade, which depending upon the specific size tank being installed, required dewatering. The tank excavations ranged between nine to fourteen feet below grade, which meant that all tank excavations required some

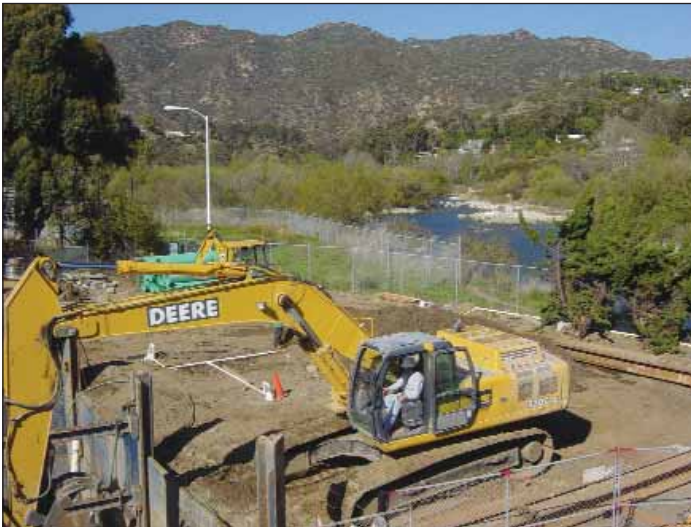


Malibu Creek Plaza is adjacent to the intersection of Pacific Coast Highway and Malibu Creek

level of dewatering. In addition, the subsurface conditions varied so that some areas could be drawn down at a pump rate of 400 gpm while others were as high as 850 gpm. Once the water was pumped down it was stored, tested, and treated using an on-site treatment system provided by Pure Effect, Inc. of Orange, CA. The treatment train was complex and needed to address a variety of contaminants that were present in the groundwater before being discharged under an NPDES permit into Malibu Creek. Specifically, the treatment train included up to 40,000 gallons of storage capacity, granulated activated carbon beds for hydrocarbon removal, coagulation technology, ion exchange bed, sand filter, and bag filter to address suspended solids, trace heavy metals, inorganics, total suspended solids, and turbidity.

Shoring – The subsurface conditions and depth of excavation required shoring to be installed for worker safety and structural integrity of the excavation. IWS excavated from 9 to 14 feet deep, depending upon tank sizing. IWS utilized Slip Sheet Shoring to secure the sidewalls during the excavation.

Utility Relocation – Site work required relocating a large



Malibu Creek is adjacent to the project site

PG&E transformer and main sub-feed to one of the tenant buildings. IWS worked with the engineer to recommend some site modifications to avoid having to relocate water, telephone, and gas utility lines.

Existing Retail Complex – IWS executed the project while the businesses remained open, which required a delicate balance of traffic control, close communication with the property manager and tenants to schedule work and service issues, logistical coordination with crane contractor and concrete tank manufacturer. Parking space was at a premium so laydown area was minimal and any work in the parking lot had a potential impact on the tenants and their business.

Concrete Tank Installation – Concrete treatment tanks were used due to requirements to minimize the depth of the excavation and accommodate the available space for the treat-



Pure Effect Dewatering Treatment Train



The Double Whammy – Box shoring and Dewatering required for tank installation

ment system. The tanks were shipped in pieces and sealed in the field. Each “half” of the tank weighed over 51,000 lbs which required special handling and precautions which included a 300 Ton crane, extended transportation trailers to accommodate the load, and other safety precautions.

Scope of Work

IWS self performed all construction activities for the project which included piping, excavation, concrete, electrical, setting tanks, and other miscellaneous site work. The scope of work for construction included modifications to the collection system, installation of a new treatment system, and retrofit of the existing dispersal fields as follows:

Collection – The existing facility utilized conventional septic tanks for primary treatment only. The system upgraded included installing new grease tanks and primary septic tanks along with new collection piping and effluent pumping systems.

Treatment – The OWTS upgrade included the installation of a secondary treatment system composed of: 14, Orenco AX-100 units at grade; a denitrification system composed of 5, 15,000 gallon tanks; 2, Recirc tanks (16,000 and 8,000 gal); 1, Dosing tank (2,000 gal); 1, Equalization tank (16,000 gal); and 1, Ozone/UV Disinfection system housed in a control building. The system included a sophisticated control system which required over 50,000 linear feet of control and power wire between the control panel and all pumps, valves, and instrumentation measurement points.



Drainfield installation in parking lot area

Dispersal – The system upgrade included excavating the existing pressure dosed drainfields and replacing with new drainfield material and all associated piping. The drain fields are located under the asphalted parking lot areas due to space constraints at the site. Approximately 10,000 ft² of drain field area was replaced.

Project Team

The success of the project required a team effort of a variety of players which included: Steve Braband of BioSolutions (consultant to the client and provider of equipment and O&M services); Steve Soboroff (Owner); Cindy McAfee of McAfee Management (Property Manager); Lombardo Associates; Mike Slaby of Pure Effect (dewatering treatment system); and Integrated Water Services, Inc. (provided the turn-key construction of the system).



Orenco Advantex Treatment Pods prior to fence installation



Large concrete tanks required special transport and handling

Regulatory

During the construction phase, IWS maintained open communication with various departments within the City of Malibu which included: Craig George, Environmental and Building Safety Manager; Andrew Sheldon, Environmental Health Specialist; and Mark Kumo, Building Inspector.

Schedule

The project was constructed ahead of schedule and completed within 6 months from initiation to start-up. Despite the numerous changes in scope that occurred during the project, IWS maintained the projected schedule. Cindy McAfee, Property Manager for Malibu Creek, said “IWS really worked well with the Owner and the tenants to minimize the impact to their ongoing retail business while getting the project completed on schedule. IWS had the resources and expertise to complete this complex project on schedule and maintained great communication with all the stakeholders to make for a very smooth project”.

Celebrity Watch

No article about Malibu would be complete without mention of celebrity sightings. Our crews had the pleasure of seeing Dick Van Dyke, Gary Busey, Sam Elliott, Pierce Brosnan, and Lindsay Lohan during the course of the project. We knew the paparazzi weren't there for the OWTS. ●

For More Information Contact

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