



City of Pismo Beach
Department of Public Works
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www.pismoeach.org

Engineering ~ Pier/Parks ~ Water ~ Wastewater ~ Stormwater ~ Public Facilities ~ Fleet Services

May 28, 2014

**Carolyn Berg
ASCE SLO Brach President**

Re: SLO Branch Annual Award Nomination

Dear Carolyn:

The City of Pismo Beach is pleased to submit the attached nomination materials for the ASCE SLO Branch 2013 Awards Nomination for the Pismo Heights Water System Reconstruction project in the category of Outstanding Private Sector Civil Engineering Project. Along with the completed nomination form, you will find a brief description of the project, a project summary and photographs of the project. If you have any questions, or need further information, please don't hesitate to contact me.

Sincerely,

**Benjamin A. Fine, P.E.
Director of Public Works/City Engineer**

NOMINATION FORM
2014 Awards Program
San Luis Obispo Branch

Entries due **June 3, 2014**.

Please submit all information requested in this form to:
Carolyn Berg, County Public Works Department, County
Government Center, Room 207, San Luis Obispo, CA 93408
cberg@co.slo.ca.us

CATEGORY FOR NOMINATION: Outstanding Private Sector Civil Engineering Project

PROJECT PERSONNEL/PERSON NOMINATED


Individual designated to receive award:

Employer: City of Pismo Beach, 760 Mattie Road, Pismo Beach, CA 93449 Address:
Work phone: (805) 773-4656 Fax: (805) 773-4684 Email: bfine@pismo beach.org

PROJECT INFORMATION (PROJECT CATEGORIES ONLY)

Project name (exactly as it should appear on plaque): Pismo Heights Water System Reconstruction
Project location: Longview Avenue and Merced Street
Description: Instillation of booster station and approx 1 mile new water line
Construction cost: \$3.6M
Completion date: July 2013

NOMINATOR INFORMATION

Submitted by: Benjamin A. Fine, P.E.
ASCE Member? Yes No
Title: Director of Public Works, City of Pismo Beach Employer:
Address: 760 Mattie Road, Pismo Beach, CA 93449 Work
phone: (805) 773-7037 Fax: (805) 773-4684 Email: bfine@pismo beach.org
Signature:  Date: 5/13/14

PROJECT OWNER INFORMATION (PROJECT CATEGORIES ONLY)

Project owner: City of Pismo Beach
Contact person: Benjamin A. Fine, P.E.
Address: 760 Mattie Road, Pismo Beach, CA 93449
Work phone: (805) 773-7037 Fax: (805) 773-4684 Email: bfine@pismo beach.org

ATTACHMENTS: Attach any additional information as suggested in the instructions.



Pismo Heights Water System Reconstruction Project Project Description

The Pismo Heights Water System was a gravity system with a small steel reservoir with a capacity of 100,000 gal, referred to as H3 located at the top of Pismo Heights and a larger concrete reservoir with a capacity of 220,000 gal, referred to as H2, located about half way down the hill. Water was pumped from the Bello Reservoir to H2, and then from H2 up the hill to H3. This system provided adequate water supplies, but neither adequate flows nor pressures for firefighting purposes.

With this project the City constructed a new concrete reservoir directly adjacent to the existing H2 reservoir and matching the H2 reservoir in capacity, doubling the water storage at this location. The two reservoirs are hydraulically connected; however valves were installed to allow isolation of either reservoir. A new booster station was constructed with a total of six pumps, four for domestic use, and two dedicated for fire flows. The H3 tank was decommissioned, and about a mile of new 12" water main was installed to provide increased flows from the newly configured water system.

In summary, in addition to increasing storage by 120,000 gal, this project increased pressure and flows to provide adequate fire protection by eliminating the gravity based system and replacing it with a pressure system. Total project cost was approximately \$3.6 million.



Pismo Heights Water System Reconstruction - Project Summary

The City of Pismo Beach neighborhood known as the Heights has an elevation span of over 530 feet with one access road serving the entire hillside of homes. The hillside is broken into three distinct water distribution zones, all served by a single water main in Longview Avenue. The Pismo Heights Water System Reconstruction Project tackled a top priority recommended by the City's Water Master Plan. The project included upgrading the primary water mains in Longview Avenue and Merced Street, the construction of a new booster station and water reservoir to provide adequate water volume, pressure, and additional water storage for domestic and emergency needs next to the existing Heights 2 Tank site. Combining these improvements into one construction project allowed for a more efficient transition to the new water system and reduced the impacts to residents during construction.

The Heights 2 Tank Site was planned in the 1950's to have an additional tank mirroring the existing tank; however, the planners at the time could not have anticipated the construction of a two-story home adjacent to the property. Constructing the new tank in between the existing tank and the two-story home, while protecting both from sustaining damage while driving in the shoring and excavating out over 25 feet of soil took finesse, collaboration, and solid engineering on both the design team and the contractor. The design for the facility increased storage and the booster station increased pressures and fire flow capabilities through the entire Heights.

Through innovative design and coordination with the contractor and the City, this project also fixed an important constraint to the project site. The old site had limited operator access to attend to the existing tank and booster station. The new site layout provides for two full parking stalls for operators.

The project site was already disturbed with no endangered species or flowers. The City completed their CEQA requirements and issued a Negative Declaration. It was the City's desire to provide a project site that enhanced the beauty of the neighborhood and did not impact the view shed of the hillside. As part of the project, all new low water use landscaping was provided and the overhead utility lines that crossed the south side of the property were removed.

With the narrow roads, small working site, tight working conditions and the public driving and walking in and around the property, safety on the job site was a high priority. Another challenge during construction was maintaining postal service, trash pick-up and emergency access for the duration of the project.

Innovative construction staging and strategic phasing were hallmarks of this project. The complexity of eliminating old, creating new and extending pressure zones was a challenge. All of which was coordinated and accomplished while continuing to maintain water service to all the homes. The project was a huge success; with the Heights Distribution Zone now meeting all pressure and fire flow requirements.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights Site Pre-construction

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Before: Front of Tank and Booster Station, looking north. Operator's parking stall in front.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Before: Neighbor's driveway and failing railroad retaining wall.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-During Construction: Start of excavation for the tank. Drilling for install the pilings for the shoring. At ground level with the two-story house.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-During Construction: Excavating down over 30 feet. The two-story house in the background, 30-feet above the foot level of the tank.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



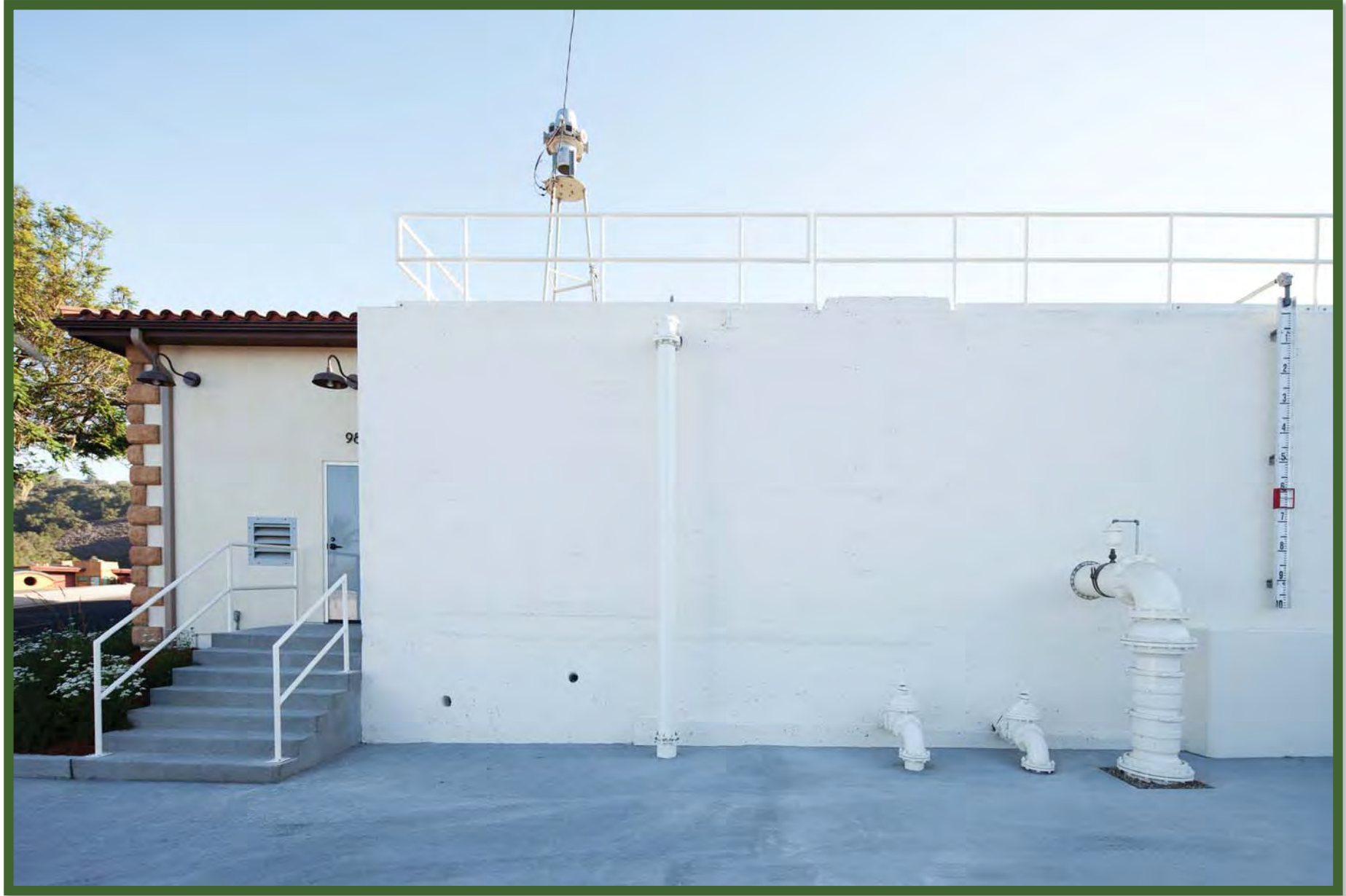
Pismo Heights-During Construction: Construction of the new booster station building. Note the existing booster station building still sitting on its foundation with the ground graded out around it.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Finished construction: Front of the site was lowered 4 to 9 feet. Both tanks were painted and guard rail installed at the top of the tank. The generator is located at the back of the property behind the wrought iron fence.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Finished Construction: Front face of the old tank and the access door to the booster station building.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Finished Construction: Side view of the new booster station building with the second driveway and the two hydro-pneumatic tanks to assist with stabilizing system pressures and water hammer.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Finished Construction: Looking from the corner of Merced Street. The west portion of Longview Avenue on the right side of the picture was excavated down 9 feet and then re-compacted and then paved.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Main Control Room: The six pumps and control panels with the roll up door in the background.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Main Control Room: The fire pump in the foreground.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Main Control Room: The pump control panels.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights-Main Control Room: The internal controls.

2014 ASCE-Outstanding Private Civil Eng. Project-L.A. Section
Project of the Year: Pismo Heights Tank and Booster Station Upgrade



Pismo Heights 2, post construction.