

Solutions:

VOLUME III ISSUE 1

A Treadwell&Rollo Publication **WINTER 2007**



**T&R's assistance
mitigated potential
pathways for
exposure to residual
chemicals.**

- Grover Buhr

DIALOGUE

Redevelopment of urban lands often requires addressing residual chemicals from land uses long forgotten. Many areas of San Francisco that were seaward of the original shoreline were filled in during the late 19th and early 20th centuries and used for various industrial and mercantile ventures before redevelopment starting in the mid- and late-20th-century. North Beach Place is a two-block parcel at Bay and Taylor Streets in North Beach that sits on filled land that formerly housed such facilities as above-ground fuel storage tanks, a cannery, assorted marine construction shops, a soap factory, sulfur works, and an assay laboratory. These were replaced in the mid-20th century by public housing.

Treadwell & Rollo assisted BRIDGE Housing, the John Stewart Company, Em Johnson Interest, and the San Francisco Housing Authority in developing the former public housing site. The low-income housing was replaced by a mixed-use/mixed-income development under the Federal Hope VI Program. The site now provides 341 residential units for former



Photograph courtesy of Nicholas Terlecky and Christiani Johnson Architects.

Lisa Splitter, pictured above, observes tieback testing at the Symphony Towers project located in downtown San Francisco .
[see **DIRECTIONS** inside]

> CONTENT

DIALOGUE

North Beach Site redeveloped under the Federal Hope VI Program.

RESOLUTIONS

Challenging construction issues accompany inner-city development .

TRANSITIONS

New residential and hotel development underway in San Francisco.

CELEBRATIONS

2006 Engineers' League Champs celebrate with Oakland A's.

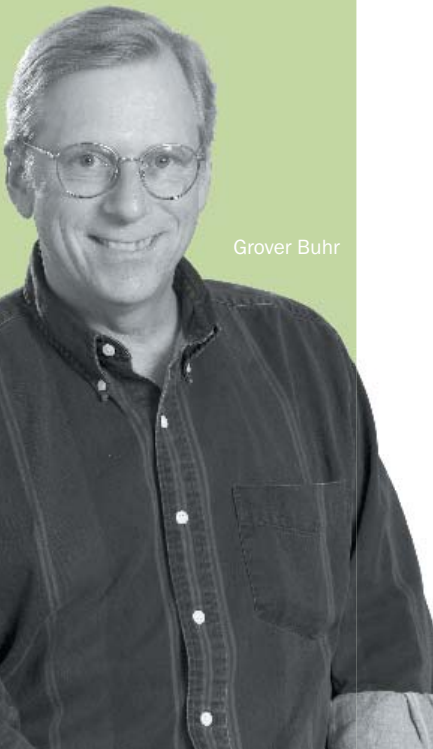
NEWS

Green Business Certification. T&R employees support local Rebuilding Together efforts.



The T&R 2006 Softball team watches the Oakland A's play Minnesota Twins
[see **CELEBRATIONS** inside]

Grover Buhr has more than 20 years experience investigating and restoring contaminated properties. He has conducted site investigation and remediation activities in the United States and Europe at commercial manufacturing facilities, power plants, nuclear weapons research and manufacturing facilities, military bases, refineries, dry cleaners, sea ports and airports. Mr. Buhr's most recent work is concentrated on redevelopment of Brownfields in San Francisco and Oakland for residential uses.



Grover Buhr

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[cover story]

public housing residents and working families make up to 60% of median family income, as well as commercial spaces for retailers at street level, and a child-care center and other community-use areas.

On behalf of the development group, Treadwell & Rollo researched past uses and evaluated their potential to have resulted in contamination. We then performed a field investigation, sampling soil and groundwater, and evaluated the results with respect to U.S. Environmental Protection Agency Preliminary Remediation Goals (PRGs), Regional Water Quality Control Board Risk-Based Screening Levels (RBSLs), Federal and State drinking water standards, and Federal and State hazardous waste criteria. We concluded that soils at the site were impacted with lead, mercury, and other metals, as well as several polycyclic aromatic hydrocarbons. Groundwater at the site was found to contain several metals at concentrations greater than drinking water standards and petroleum hydrocarbons at moderate levels.

To evaluate the potential effect of these contaminants on the proposed redevelopment plans, both to site workers during construction and to site users after completion of the redevelopment, we prepared a human health risk assessment. This assessment indicated that the risk to site workers and users was dependant on direct contact with soils containing the chemicals of concern at the site. Because the site is located seaward of the original shoreline, it was also subject to the San Francisco Public Health Code's Article 22A, which requires specific investigation and mitigation requirements with respect to soil impacted by residual chemicals.

Under the regulatory oversight of the San Francisco Department of Public Health (SFDPH), Treadwell & Rollo then prepared a Site Mitigation Plan (SMP) to address the contaminant issues through construction practices and changes to the development design. The SMP identified worker health and safety requirements to mitigate exposure during redevelopment, and prescribed encapsulation as the remedy to potential site user exposure after construction. This encapsulation included covering the site with building foundation slabs and podium structures, and capping landscaped areas with geotextile fabric and at least two feet of clean soil. The result of this encapsulation was to block potential pathways for human contact with the residual chemicals.

Treadwell & Rollo observed and consulted during project construction, documenting soil excavation, removal, and reuse on site, as well as coordinating removal of an underground fuel storage tank encountered during excavations. This tank was discovered, reported, permitted, and removed within ten days, thus minimizing interference with the construction schedule. At the end of the construction period, we prepared a final completion report for soil management activities, assisted in drafting a deed restriction for the property to ensure appropriate future management of the site cap, and obtained site closure from the SFDPH, indicating their approval for the site mitigation and requiring no further action except maintenance of the site cap. Treadwell & Rollo's assistance has mitigated potential pathways for site residents' or users' exposure to residual chemicals in the soil or groundwater.

gsbuhr@treadwellrollo.com

888 HOWARD STREET**Peter Cusack**

Peter J. Cusack has 15 years of experience managing and implementing hazardous waste characterization and remediation projects. His experience includes site assessments, removal of underground storage tanks, Article 22A (Maher) investigations, soil and groundwater sampling and remediation, aquifer pumping tests, contractor oversight, and field inspection for numerous construction projects. His work is often done in coordination with our geotechnical practice.

In order to assess potential soil contaminants and their health risks to future site users, CDC San Francisco retained Treadwell & Rollo to perform environmental and geotechnical investigations for a new residential and hotel development at 888 Howard Street in San Francisco.

The site is at the northeast corner of the intersection of Howard and 5th Streets, and is adjacent to a 12-story office building and the Moscone Center Phase III Expansion project. The proposed development includes a 40-story tower on the southwest portion of the site and a three- to nine-story podium throughout the remainder of the site. A two-level parking garage extending approximately 25 feet below existing grade will be constructed beneath the entire project.

An asphalt-paved parking lot since 1970, the site was previously occupied by diverse uses such as carriage houses, stables, hotels, a greenhouse, and markets. It was underlain by approximately 8 to 15 feet of fill material, and analysis of the material detected elevated total and soluble lead concentrations as well as low levels of petroleum hydrocarbons. The presence of these compounds posed soil-management and potential health and safety issues, which were addressed as part of the site-development activities.

Soil-management objectives included minimizing construction workers', nearby residents', pedestrians', and future site users' exposure to constituents in the soil.

The Soil Management Plan (SMP) provided recommended measures to mitigate the long-term environmental and health and safety risks caused by the presence of the hazardous materials.

Before building construction began, fill material was excavated and disposed of off-site, and the risk of direct contact with the underlying soil was mitigated by encapsulating the soil with concrete foundations and the building. The encapsulation provides a physical barrier between contaminants and site users, thereby reducing potential health risks associated with exposure by dermal contact, inhalation, and ingestion.

Treadwell & Rollo observed the soil disposal activities, consulted during project construction, and will prepare a closure report upon completion of all the soil-mitigation activities. This report will present a chronology of the construction events, a summary of analytical data, and a description of all mitigation activities at the site. The end result of our work is a site that can be safely built upon, and occupied.

pjcusack@treadwellrollo.com

HAPPY NEW YEAR

FROM THE EMPLOYEES OF TREADWELL & ROLLO!

2006 was an exciting year of growth for Treadwell & Rollo, both technically and geographically. Throughout the year we added 23 new employees including staff in San Francisco, Oakland, Sacramento, and in our new project office in Montana. We are also excited about our upcoming expansion into Southern California in 2007 and adding staff in the Los Angeles/Orange County area.

Treadwell & Rollo is well known for its technically challenging and highly visible projects throughout the Bay Area. And now through our office in Sacramento and with support from our Bay Area offices, we have several new projects throughout the Central Valley. In Montana, we're continuing on the exciting Spanish Peaks project as well as offering our services on other assignments.

This past year, Treadwell & Rollo completed its first ASFE Peer Review, a rigorous, voluntary process aimed at further improving the quality of our services and the career success of all our employees. During the year, we also increased our support to community programs including UC Davis' Engineers without Borders Career Event, SEAONC Rebuilding Together Project, the City of Hope Cancer Center, Oakland Children's Hospital, the American Diabetes Association's Napa Valley Tour de Cure, and the Aim High student program in Oakland.

All of us at Treadwell & Rollo truly enjoy working with our outstanding clients. We wish to thank you for your continued support, professionalism, and friendship. On behalf of all of us at Treadwell & Rollo, I wish you a rewarding and healthy new year!

Phil Tringale, President



T&R SOFTBALL TEAM CELEBRATES WITH THE A'S

To help celebrate the success of our Treadwell & Rollo (T&R) softball team as 2006 Engineers' League Champions, T&R secured a luxury suite for them at the Oakland Coliseum on Friday, 6 October 2006 when the Oakland Athletics played the Minnesota Twins in the A's attempt to clinch the first round of the American League championship Series. The A's won big that day (8-3), sweeping the Twins. With refreshments in hand and a congratulations cake to end the day, it was a very enjoyable afternoon for our T&R softball team. Once again CONGRATULATIONS TO OUR TEAM CHAMPIONS! We're looking forward to the 2007 season!

SYMPHONY TOWERS DEVELOPMENT

Located on the busy intersection of Van Ness Avenue and Turk Street in San Francisco, the Symphony Towers Development faced some of the most challenging construction issues associated with inner-city development—constrained site access and the presence of construction debris and loose fill in the upper ten feet of subsurface soil. These issues were complicated by the fact that the proposed development was to be surrounded by three retaining walls and five existing, independently supported, and settlement-sensitive buildings. The proposed development was to front on Van Ness Avenue and Turk Street, both of which are busy inner-city commuter arteries.

The Symphony Towers development consists of a seven-story residential tower and a 13-story tower, with an at-grade plaza level located in between. The client provides parking for the residents of the development by including two levels of below-grade parking, which required an excavation ranging from 30 to 45 feet below the existing street grade.

With the adjacent buildings supported on foundation elements located above the level of planned excavation, the main geotechnical concerns for the development of the site were not simply the design of the foundation for the two towers and below-grade parking, but also providing support to the various existing adjacent structures and improvements during the construction process.

Treadwell & Rollo performed a limited-

access investigation prior to demolition of the buildings. Based on the results of this investigation, and on information from the numerous other projects we had completed within the area, we were able to provide recommendations on design parameters for the foundation of the proposed development and for several shoring techniques that would be used in underpinning and supporting the existing structures and improvements.

Where the face of the excavation fronted onto Van Ness Avenue and Turk Street we recommended the use of soldier beams and lagging with tiebacks to provide lateral support to the temporary retaining walls. Where existing structures were to be underpinned, we recommended the use of drilled slant piles and tiebacks. Wood lagging boards were used between the slant piles to provide a temporary retaining structure between them.

The risk associated with potential ground loss beneath the adjacent structures' foundations and floor slabs during the installation of drilled slant piles and wood lagging was mitigated through the effective use of permeation grout. We provided recommendations prior to and during construction on optimal use of the permeation grout to minimize any ground loss potential. These precautionary measures helped minimize movement of the adjacent buildings during excavation and construction, and maintained within acceptable limits.

jpheugas@treadwellrollo.com

lsplitter@treadwellrollo.com



Lisa Splitter

Lisa Splitter has provided construction observation and subsurface investigation services for projects including low- and high-rise residential buildings, elevated roadways, bridges, and pipelines. Her field experience includes the observation and testing of driven piles, tie-backs, and micropiles, nuclear density testing of soil, and observation of the construction of soldier beam and lagging shoring systems.



James Heugas

In the last five years, James Heugas has provided foundation design, construction observation and project management for various projects throughout the San Francisco Bay area. As a project manager, his experience includes directing subsurface investigations, and performing engineering analyses including settlement and bearing capacity, and providing project management support for his clients during construction.



T&R IS GOING GREEN

Treadwell & Rollo is proud to announce that we are now certified as a Green Business and operating in an environmentally responsible way. Treadwell & Rollo has developed firm-wide green purchasing guidelines and we are implementing our Reduce, Reuse and Recycling program. We also support the purchasing of locally produced environmentally preferable goods and services that minimize environmental and health impacts.

Treadwell & Rollo has been working with local representatives of the Bay Area Green Business Program and to become a certified "green" business. The Bay Area Green

NEWS

REBUILDING TOGETHER

Josh Graber organized a group of T&R employees to take part in the Structural Engineers Association of Northern California Rebuilding Together 2006 weekend.



Before

the Women's Re-entry and Restorative Justice Center in San Francisco



After

and painted walls and murals, poured a new concrete ramp for ADA compliant access from the parking lot, remodeled a health care clinic, installed a new sink and a reception desk, hung cabinets, shelving and countertops and landscaped the exterior.

On 29 April 2006, the SEAONC team of over 100 volunteers met at

Business Program is sponsored by the Associate of Bay Area Government (ABAG) in partnership with local environmental agencies and utilities that assist businesses in becoming "green." To be certified "green" you must meet the program standards for conserving resources, preventing pollution and minimizing your wastes.

If you would like your company to become "green" please visit the Bay Area Green Business Program website at www.greenbiz.ca.gov for more information.

TAKE NOTE

MARKETING DIRECTOR Andrea Oman

MANAGING EDITOR Faith Ragan

CONTRIBUTING EDITOR Danielle Machotka

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PRODUCTION Carole Nuttall and Faith Ragan

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amoman@treadwellrollo.com

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Treadwell&Rollo

www.treadwellrollo.com

SAN FRANCISCO

555 Montgomery St, Suite 1300
San Francisco, CA 94111
[415] 955 9040

OAKLAND

501 14th St, 3rd Floor
Oakland, CA 94612
[510] 874 4500

SACRAMENTO

777 Campus Commons Rd, Suite 200
Sacramento, CA 95825
[916] 565 7412

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