Bernal Heights South Slope Organization
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August 8, 2020

President Norman Yee
San Francisco Board of Supervisors
% Angela Calvillo, Clerk of the Board
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

RE: Appeal of CEQA Revised Final Mitigated Negative Declaration
BOS File No. 200800 - Planning Dept. Case No. 2013.1383ENV
3516 and 3526 Folsom Street
Appellant's Response to Planning Department/Project Sponsor Statements

Dear President Yee and Supervisors:

The Bernal Heights South Slope Organization is a longstanding neighborhood association which has worked for seven years alongside hundreds of Bernal Heights families[1] to ensure the safety of PG&E Pipeline 109. Our goal is simple: complete proper environmental review so that adequate safety measures are put in place.

SUMMARY

The project site is uniquely dangerous. Two houses and a new 125' street are proposed for construction atop and adjacent to a massive 26" gas transmission pipeline – one of only two such "trunk" lines in San Francisco. This is the same type of gas line that catastrophically exploded in San Bruno. Unlike other pipeline locations, this site is not protected by asphalt, and it is located in an extremely steep (40%) hillside, which places unusual strain on the pipeline. Additionally, this is the location of a 90-degree "elbow" at the intersection of the proposed new street and Bernal Heights Boulevard – a critical weak point identified by certified pipeline experts – but *omitted* from the Revised Final Mitigated Negative Declaration ("RFMND")'s Vibration Management Plan. Heavy-duty excavation is proposed, but the RFMND fails to analyze the risks and impose adequate safety measures to protect the neighborhood.

[1] See letters of support and petitions in BOS File Nos. 160676, 161278, 170851, and 200800, and the project's Planning Department case files.

Most troubling, the Project Sponsor and Planning Department have ignored the Board of Supervisors' clear requirements for this RFMND, as set forth in BOS Motion No. M17-152, when the Board revoked the previous CEQA determination.

TIMELINE

The project sponsors and Planning Department have repeatedly prioritized the developer's financial interests over public safety, issuing and reissuing defective environmental clearances. To wit, the City has so far *rescinded or revoked three previous CEQA determinations* – unprecedented in San Francisco history.

First CEQA Determination:

- 3/26/14: Planning Department issues a first Categorical Exemption ("CatEx")
- 6/3/16: Bernal Heights South Slope Organization, Bernal Safe & Livable, and other organizations and neighbors appeal the first CatEx. Sierra Club San Francisco, Bernal Heights Democratic Club, Bernal Heights Neighborhood Center, and Bernal Heights neighborhood associations support the appeal.
- 7/8/16: Planning Department **rescinds** the first CatEx.

Second CEQA Determination

- 7/8/16: Planning Department issues a second CatEx.
- 11/14/16: Neighbors appeal the second CatEx.
- 1/24/17: Planning Department **rescinds** the second CatEx.

Third CEQA Determination

- 4/26/17: Planning Department issues a Final Mitigated Negative Declaration ("FMD").
- 7/17/17: Neighbors appeal the FMD.
- 9/12/17: Board of Supervisors **revokes** the FMD with Motion # M17-152.

Fourth CEQA Determination

- 3/25/20: Planning Department issues a Revised Final Mitigated Negative Declaration ("RFMND").
- 4/24/20: Neighbors appeal the RFMND.
- 8/11/20: Hearing scheduled.

Note: The Planning Department's response timeline includes a number of incorrect dates and material omissions. For example, it completely omits the first CatEx, issued in 2014 and rescinded in 2016. This CatEx inaccurately described the project as simply two houses – omitting the new 125' street, major gas pipeline, and steep hillside – and grossly misrepresented

the extent of the excavation and resulting vibration. Incredibly, Planning stated, "the project site is not located in a particularly sensitive or hazardous area," and exempted the project from environmental review. (Certificate of Determination from Environmental Review, Case No. 2013.1383E, March 26, 2014.)

ARGUMENT

Despite the project sponsors' and Planning Department's protestations, the RFMND is clearly defective and expressly violates the mandate of BOS Motion No. M17-152. These are not mere "paperwork problems." The RFMND's errors put lives at risk.

In pertinent part, Motion No. M17-152 required:

> MOVED, that this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety; and, be it
>
> FURTHER MOVED, In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document;
>
> (BOS Motion No. M17-152, File No. 171022.)

1. The Planning Department failed to "enlist an independent qualified expert to . . . prepare a Vibration Management Plan"

The Board's motion explicitly required that "the Planning Department shall enlist an independent qualified expert to determine the location, depth and condition of Pipeline 109 *and prepare a Vibration Management Plan* . . . " (Emph. added.) This independence is critical to ensure public trust and integrity of any Vibration Management Plan, given the history of omitting critical data.

Yet Planning allowed the project sponsors to hire their own acoustic consulting firm to prepare the Vibration Management Plan. This is not a new, independent expert hired by Planning as required by the Board's Motion; **it is the project sponsors' *same consulting firm***

that wrote the previous FMND document that the Board found defective in 2017, causing the FMND's revocation.

Over a year ago, we reviewed a draft of this RFMND and were surprised to see the Board's clear requirement of "an independent qualified expert" disregarded. In a meeting with planners and the project sponsor, we asked for clarification of what "independent" means. We were met by a lot of squirming in the chairs. Not until we were given the Planning Department's "Agreement to Protocols to Ensure Objectivity in Environmental Review Documents" did we understand the reason for the squirming: they had not followed their own guidelines, which state the purpose is to "eliminate potential conflict of interests or the appearance of conflicts of interest and promote objectivity . . . ."

Make no mistake: the Planning Department knows what *independent* means. After our meeting, Planning submitted the acoustic firm's Vibration Management Plan to an "independent peer reviewer" in an attempt to make it look like the BOS Motion's requirement was met. But in doing so, Planning limited the data to be reviewed and corrupted the review's integrity. The peer reviewer did not conduct his own investigation. He did not "use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area" or "prepare a Vibration Management Plan." Rather, he relied on the project sponsor's incomplete analysis. Thus, this Plan omits critical information and does not reliably mitigate the possibility of a catastrophic accident.

2. Critical pipeline risk-factors were omitted from the RFMND's analysis

The RFMND omits any analysis of the 90-degree bend in the pipeline adjacent to the project site, creating a lapse in analysis that undermines the integrity of this Plan. The bend's unique vulnerability to vibration damage has been singled out by two certified geotechnical experts. Planning dismisses this pipe section as simply an elbow bend that "occurs frequently," and shows a map with other pipeline bends. But a unique combination of factors impact this joint, including extensive excavation in hard bedrock adjacent to the welded bend, radically steep incline, proposed new street extension involving tons of concrete and foundation pilings – all risk-factors with vibration consequences that were not analyzed in the RFMND.

Additionally, a thirty-foot pine tree grew directly over the pipeline in this location for many years – in violation of PG&E's own encroachment guidelines. Tree roots commonly degrade the exterior portion of pipelines and can cause leaks. This pine tree was recently cut down, but PG&E left the stump and roots in place. There has been no analysis as to whether the tree roots have damaged the pipeline and, if so, how construction-related vibrations would exacerbate that damage.

In fact, the Vibration Management Plan prepared by the project sponsor's consultant (Illingworth & Rodkin, "I&R"), omits *all* critical information about Pipeline 109. There is no documentation stating when it was build, what it is made of, whether was it welded together from smaller pieces (like the pipeline that failed in San Bruno), the average and maximum allowable operating pressures, the operational and maintenance history, any prior detected leaks, or when it was last internally inspected and how that inspection was performed. The I&R report provides none of this information. Nothing about the pipeline.

There is no justification for why these consultants (whose specialty is acoustics and air quality management, not pipeline safety) can credibly prescribe vibration safety levels for this pipeline when their analysis omits all relevant pipeline information. It is worth noting that this information was critical in determining the cause of the San Bruno explosion, and the same is true here. Unless the relevant pipeline information is relied upon in preparing the Vibration Management Report, a fatal accident may cause widespread injury and death. Without proper analysis, a serious unmitigated danger still exists.

3. The RFMND's Emergency Evaluation and Evacuation Plan is patently dangerous

BOS Motion No. M17-152 requires: "FURTHER MOVED, That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation".

The Planning Department did not prepare such a Plan. Rather, the project sponsor *himself* printed out a Google map, drew some arrows on it, and called it an "Emergency Response and Evacuation Plan." It was not developed or supervised by an emergency response professional; rather, it is merely a series of arrows on a map.

Gas flows downhill and with the wind, and the project sponsor's Plan fails to take account of Bernal's hilly, windy conditions and is riddled with dangerous mistakes. This is a vulnerable and unstable area with steep, unaccepted streets, dead-ends, and shifting terrain with limited ingress and egress. The arrows on the map point up streets that are dead ends, accessible only by foot, which is impossible for the elderly and disabled neighbors who live here.

Especially in light of the project site's unique geography, the Plan must be created by a qualified fire and emergency professional. A site visit is also essential to properly evaluate the safety risks in this area, where emergency vehicles have repeatedly experienced serious access problems. For example, a critical intersection at Chapman and Folsom (at the base of the project) is the only access for emergency vehicles, especially hook-and-ladder trucks. If the intersection is blocked by a pipeline accident or construction vehicles, it would prevent emergency response access to 22 homes north of Chapman.

PG&E has also failed to do its due-diligence to ensure proper emergency response. It submitted two letters of general off-the-shelf safety guidelines and confirmed the "routing" of the pipeline through the area. It has accepted two "potholes" dug over a 150'-plus section of the pipeline as proof of the pipeline's condition. The RFMND's safety standards for the entire section are based on these two potholed locations. Incredibly, PG&E is allowing itself a three-hour response time in the event of a gas leak or accident.

Emergency access blockage and a patently defective evacuation Plan – prepared by the project sponsor himself – demonstrate that the project's impacts have not been evaluated or mitigated as required by CEQA.

CONCLUSION

In their response to this Appeal, the project sponsors argue that the Board of Supervisors should ignore the RFMND's serious defects and the resulting risks because these issues are "outside the scope of the motion." But that is clearly incorrect. Our substantial evidence and arguments fall squarely within BOS Motion No. M17-152, which includes a clear mandate to include "any appropriate safety protocols that must be employed during project construction . . . to reduce the risk of damage to the pipeline." It also calls for a proper "Vibration Management Plan" and "Emergency Response and Evacuation Plan."

Based on the substantial evidence in this file and the prior related files (incorporated herein by reference[2]), including expert reports, analysis, and testimony, the RFMND is fatally flawed. For the safety of the Bernal Heights community, the RFMND must be revoked and replaced with a full EIR.

The risk of a catastrophic explosion is simply too deadly to ignore the RFMND's serious defects and hope for the best.

Respectfully submitted,

Kathy Angus
Co-Chair Bernal Heights South Slope Organization

Encl.: Analysis of Revised Final Mitigated Negative Declaration, Steven P. Viani, P.E., Civil Engineer C30965, Aug. 6, 2020

[2] *Inter alia*, see FN 1.

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August 6, 2020

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San Francisco, CA 94102

RE: Appeal of CEQA Revised Final Mitigated Negative Declaration

Planning Case No. 2013.1383ENV

BOS Motion No. M17-152

Building Permit Application Nos. 2013.12.16.4318 and 2013.12.16.4322
3516 and 3526 Folsom Street

President Yee:

I have been retained on behalf of the Appellant, Ms. Kathy Angus, Bernal Heights South Slope Organization, to provide some key concerns with the Revised Final Mitigated Negative Declaration Appeal (RFMNDA) response from Planning dated August 3, 2020. While others have concerns about a variety of key statements, my concerns are the potential negative impacts to the L109 PG&E 26 inch gas transmission pipeline, associated with evaluation of the location and elevation information and vibration associated with the specific construction equipment that will be used to construct the required improvements. These items are interrelated, but will be presented separately. All of the documents referenced were obtained from the administrative file and will not be attached to this document.

Concern 1: Evaluation of Gas Transmission Pipeline Location and Elevation Information

The location of the pipeline has been provided in relation to the property boundaries of 3516 and 3526 Folsom St. as depicted in the Westover Surveying drawing dated 12/19/17. The gas transmission pipeline was potholed and exposed in two locations, and this drawing provides a schematic representation of the pipeline with relation to the assumed location on the drawing depicting the eastern property boundary line for 3516 &

3526 Folsom St. The gas transmission pipeline was reported to be 9.5 feet east of the property line.

Drawing C1.0 dated August 2016, contained in the October 4, 2016 Discretionary Review prepared by the San Francisco Planning department depicts cross sections through various locations on Folsom St., but notably at 3516 and 3526 Folsom St, the location of the proposed buildings. Neither of the two cross-sections at the proposed building sites shows the location of the gas transmission pipeline. Moreover, without accurately established locations of the depth and location of the gas transmission pipeline on C1.0 subsequent construction approaches and their environmental impacts cannot be determined to be safe.

Drawing C1.0 has contains a centerline profile of Folsom St., including the gas transmission pipeline. Based on the drawing, it appears to depict the gas transmission pipeline in the center of the 39.5 foot wide easement for the roadway. However, in reality, the main does not run down the center line of Folsom St., rather it appears to be offset to the west of the centerline approximately 10 feet. As the road way slopes, the amount of soil cover over the gas transmission pipeline to accommodate the aggregate base, concrete roadway and asphalt concrete wearing surface will be temporarily reduced during construction. This will have the short term effect of reducing the distance between the gas transmission pipeline and the mechanical sources of construction vibrations. Moreover, the amount of base and pavement for Folsom Street, is on the order of 20 inches and thus during construction, the vibration source will be 20 inches closer than calculated.

The above concerns and issues require an in-depth evaluation of the gas transmission pipeline's location based on real location data to insure the location issues are adequately assessed to address safety concerns. In order to meet safety concerns, it would be necessary to establish the gas transmission pipeline's accurate location and depth prior to construction of Folsom St. improvements before the project is approved.

Concern 2: Evaluation of Vibration Equipment Analyzed

In the October 17, 2019 ICF report titled "*Review of Vibration Management Plan prepared for 3516-3526 Folsom Residential Construction"*, developed by Mr. David M. Buehler. Mr. Buehler reviewed the …"document entitled 3516 and 3526 Folsom Street and Folsom Street Extension Construction Vibration Management Plan prepared by Illingworth & Rodkin for technical accuracy."

The Illingworth document evaluated 4 major sources of construction vibration, they consist of:

- excavation equipment (for utility trenches)
- drilling equipment (for piers)
- hand operated jack hammer (for foundation work)
- grading equipment (for removal of topsoil)

Mr. Buehler believed the …" the assessment of the potential vibration impact to the PG&E pipeline to be technically accurate and consistent with common practice." His belief was based primarily on the authors (Illingwood & Rodkin) using conservative assumptions. However, Mr. Buehler did not perform an independent review to establish if the equipment selected was proper and appropriate for the work being performed. While the list of potential sources of vibration provided above are accurate, they are an incomplete list as there are other significant vibration that provide more vibration, such as those associated with excavation and compaction for Folsom St and the associated concrete flatwork.

The City of San Francisco has developed specifications for the street and concrete flatwork that would apply to this work which are contained in Part 2- *STREETS AND HIGHWAYS, SECTION 200 PREPARATION AND COMPACTION OF SUBGRADE* standard specifications. Some of the relevant work elements and equipment are presented below applicable to both street and flatwork construction:

1. Placement of 6 inches of aggregate base after excavation and compaction using a 3-wheeled steel tire roller weighing at least 12 tons that apply at least 325 lbs. per linear inch of rear tire width.
2. Subsequent passes to produce compaction would require oscillating equipment similar to the above that is at least 4 feet wide.
3. The next course would consist of placement of at least 6 inches of concrete base using a mechanically vibrating screed.
4. Additional asphalt layers up to 8 inches total will be required and compacted with equipment similar to that described in item 1 above.

The equipment associated with street compaction and construction was not included or analyzed in the initial Illingwood & Rodkin document or the subsequent ICF review and represents a serious source of vibration that was ignored in the analyses. Moreover, the amount of base and pavement for Folsom Street, is on the order of 20 inches thick, requires at least 20 inches of excavation, which adds further risk of impacting the gas transmission pipeline and decreases the distance between the pipeline and the construction equipment but increases the vibration because vibration intensity increases the closer the equipment gets. Given the concerns about the location of the gas transmission pipeline and proximity to Folsom Street construction, the vibration issue was not properly evaluated and poses a serious safety risk.

Conclusion

It is my considered engineering opinion, based on 43 years of experience, some of which was in San Francisco working on the Clean Water Program, that serious equipment vibration concerns were not properly addressed in this Negative Declaration process. These issues should be identified, located and carefully evaluated in a follow up process prior to approval of the permit.

If you need further information, please call me at 916-952-8503.

Sincerely,

Steven P. Viani P.E.
Civil Engineer C30965 exp. 3/31/22

Steven P. Viani, P.E
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(916-952-8503)

Education and Specialized Training

BS Civil Engineering, California State University, Sacramento
Graduate courses in Geotechnical Engineering
Continuing education classes in claims avoidance, negotiations and project management
OSHA 40 hour training
USACOE Construction Quality Management Certification

Professional Registrations

Registered Civil Engineer in California, Arizona and Washington
Licensed A, B & Haz. Contractor (RMO Alvia Services Inc)

Employment History

State Water Resources Control Board (2-year assignment with Army Corps of Engineers)-Associate Engineer	(1977-1982)
Kellogg Corporation-Senior Engineer	(1982-1983)
Department of Health Services-Senior Engineer	(1984-1987)
Roy F. Weston, Inc.-Project Director	(1987-1990)
Canonie Environmental Services, Inc.-Western Regional Manager	(1990-1994)
Geo Con Inc.-Western Regional Manager	(1994-1998)
Layne-Christensen Co.-Western Regional Manager	(1998-1999)
BCN Company-Vice President of Operations	(1999-2001)
Donald B. Murphy Contractors Inc.-Regional Manager	(2001-2003)
Private Consulting/Alvia Services Inc	(2003-Present)

Representative Experience

Over the past 40 years, has held senior level positions in construction, consulting and governmental entities. Have managed, directed or performed projects ranging from $3000 Phase 1 Preliminary Site Assessments to $20 Million site remediations, including many large and significant environmental and geotechnical construction projects as a direct hire contractor. Have 25 plus years experience in managing business units and design departments with total P+L responsibility and staff management up to 35 people. Have worked nationwide and internationally in Asia and Europe.

Legal, Claims and Defect Oriented Experience

- Developed a remediation plan for the removal of construction debris in Malibu, CA. Project involved the determination of quantity, permitting, construction oversight and closure parcel containing illegally disposed debris. Los Angeles County and Coastal Commission involvement.
- Provided expert review of shoring/scaffolding failure at mid-rise residential/commercial building in San Francisco that was overloaded.
- Provided expert services for water damage and intrusion for single family housing, multi-family housing and businesses involving stucco, windows, roofs, siding from wind-driven rain, expansive soils and mechanical damage.
- Provide expert services for a fatal accident involving improperly secured construction equipment on a construction site in Northern California.

- Provided expert services, including accident reconstruction of a major fall injury case involving truck loading at an active wastewater treatment facility in the San Francisco area.
- Provided expert witness services for issues related to a subsiding rock retaining wall causing damage to an adjacent dwelling in San Francisco, CA.
- Provided inspection/evaluation of 50+ residential and commercial damaged by a refinery explosion in Utah.
- Provided expert engineering review of construction defects and standard of care associated with sewer lines, water lines, moisture intrusion, land movement, drainage systems, land development, soils testing, residential construction and other civil engineering defects.
- Provided expert witness services for cost and schedule claim by County of Monterey against CM and Prime Contractor involving asbestos containing materials and affected by mold.
- Provide expert witness service for pile driving operations affecting defectively designed and constructed stucco clad public library in LA area.
- Provided expert witness services and court testimony for construction defect case involving expansive soils, construction impacts and water damage to a house foundation in Irvine, CA.
- Provided expert services for construction dispute involving an environmental remediation groundwater collection and storage system constructed at a large refinery facility in New Jersey.
- Provided expert witness services for accident involving multi-party commercial construction site in Auburn, CA involving rolling scaffolding.
- Reviewed remedial measures for condo building in Sacramento affected by water intrusion through roofs, walls and walkways that resulted in mold.
- Provided expert witness testimony for contractual dispute involving adequacy of geotechnical report, differing site conditions and cost to repair for sewer line in Las Vegas, NV.
- Provided expert witness services for issues related to a subsiding rock retaining wall causing damage to an adjacent dwelling in San Francisco, CA.
- Provide expert services to insurance group for major excavation support failure in San Francisco to determine cause and cost to repair caused by differing soil conditions.
- Provide contract review and claims support for steel water reservoir project in Honouliuli, HI affected by delays, changes and differing site soil conditions.
- Provided contract review and cost to complete for a 900 unit military family housing project in Honolulu, HI. Project encountered with numerous changes that required renegotiation of unit prices, payment for acceleration and additional time related overhead.
- Successfully negotiated a $ 6 million termination for convenience claim for a Superfund site. Developed an estimate of contractor costs and negotiated a fair and reasonable settlement while representing a state government entity. Project required negotiation of an acceleration claim for previous contractor, expert testimony at various court proceedings and presentations to media.
- Prepared and negotiated a changed site conditions, acceleration, directed change, constructive change and defective and deficient contract document change order with the US Army Corps of Engineers for a slurry wall project.
- Developed and negotiated large change orders for quantity increases and changes for design/build environmental remediation projects.
- Developed claim document for high rise hotel in downtown Los Angeles involving directed changes, constructive changes, defective and deficient contract documents, acceleration and significant contractual issues.

Construction Oriented Experience

- Oversaw construction of large wastewater treatment plants, pump stations, earth-pressure balance and open road header tunnels and box sewers for Federal Government construction program in San Francisco. 12 foot diameter tunnel was 1 mile open face cut using road header and steel sets and wood lagging prior to permanent liner. Tunnel was constructed using Earth-pressure balance method with steel liner plate prior to permanent concrete liner was then cast.

- Designed and constructed micropile foundation system for elevated transit structure for BART.
- Designed and constructed a micropile supported foundation for Hotel Berry in Sacramento, CA.
- Constructed Administration, Switchyard and Electrical Control steel framed buildings consisting of about 50,000 square feet for a combined–cycle gas fired power plant.
- Designed/built a pre-engineered steel framed maintenance building for major northern California public utility at a wind energy facility.
- Designed and constructed a micropile foundation for a community college administration building in Alameda, CA.
- Designed and built a micropile project for a new state building in Sacramento.
- Designed and constructed micropile foundation system for elevated transit structure for BART.
- Designed and constructed a micropile supported foundation for Hotel Berry in Sacramento, CA.
- Designed and built a micropile slope stabilization project for the emergency support of a sewer main sliding into a creek in Thousand Oaks.
- Constructed slope stabilization for a hydro-electric powerhouse in the Sierra Nevada Mountains involving rock anchors, soil nails, drains and shotcrete.
- Constructed projects using ground anchors, tiebacks, compaction grouting, chemical grouting, jet grouting, soil mixing, shotcrete, micropiles, driven piles and sheet piles, often under design/build contracts.
- Constructed soil nail, soldier pile and wood lagged excavation support projects for building excavations and soil removal projects.
- Constructed numerous slurry wall projects for seepage control using soil-bentonite, soil-cement-bentonite, soil-cement-bentonite-fly ash and soil-attapulgite for groundwater control on civil and environmental projects. Size of barrier walls ranged from 100,000 sf to 350,000 sf.
- Constructed ADA upgrade and remodel for US Coast Guard Pacific Strike Force Facility in Novato.
- Investigated, designed and oversaw abatement of asbestos affected state buildings after Loma Prieta earthquake in 1989.
- Managed lead abatement, asbestos abatement, structural repairs and painting for 1400 military housing units at Beale Air Force base.
- Designed and managed asbestos abatement activities for 500,000 square feet of office space for TRW buildings in El Segundo.
- Performed ground improvement projects involving dynamic compaction and vibro compaction/vibro-replacement.

Consulting Oriented Experience

- On contract to provide soils investigation and consulting services to pool contractors in N. Calif.
- Provide consulting and design services for residential and commercial structures affected by fire, wind, structural design deficiencies, impacts, earthquakes and other factors.
- Planning and conceptual design for construction of a multi-waste stream processing center for an industrial waste recycling center in San Diego County, CA.
- Developed geotechnical reports for new housing, including stick-built and manufactured housing throughout California.
- Evaluation of AST's and treatment ponds at oil collection facility in Santa Maria, CA.
- Performed forensic investigations for wastewater treatment plants, schools, commercial buildings and houses for water intrusion damage, expansive soils, presence of mold and construction defects.
- Designed and oversaw abatement of numerous asbestos abatement projects in California.
- Planned and permitted high tech chemical storage and fabrication facilities internationally.
- Developed large scale Phase 1 property transfer program for major renovation of prime San Francisco real estate.

- Performed numerous Phase 1 Preliminary Site Assessments, Remedial Investigations, Feasibility Studies and Corrective Measures Studies using a variety of technologies.
- Assistant author on document concerning repairs and lining UST's.

Remediation and Environmental Experience

- Expert services related to evaluation and removal of UST and AST systems on California.
- Developed a Remedial Investigation /Feasibility Study for the Purity Oil Sales Superfund site in Malaga, CA. Site was former oil processor that had filled onsite ponds and AST's with construction debris containing oil, PCB, lead and asbestos that impacted soil, surface water and groundwater. RI/FS included on-site and off-site investigation, surface water sampling, development of remedial objectives and interim remedial measures.
- Developed a Remedial Investigation/Feasibility Study/Remedial Design for the removal of PCB's and PAH's from a site in Norwalk, CA. Documents were submitted to LAFD and City of Norwalk for approval prior to initiating cleanup. Clean closure granted.
- As part of a construction claim on a 4-story parking structure at San Francisco International Airport, evaluated an earthwork claim concerning the presence of hazardous waste, rock, trash and unsuitable materials and their effect on the project schedule. Further analysis of environmental requirements on illegal filling of wetlands in San Francisco Bay.
- Completed the remediation of the Capri Pumping Services site in East Los Angeles, CA. Site was contaminated with lead, copper, cadmium, solvents and petroleum hydrocarbons. Remediation of this State Superfund site included preparation of a health risk assessment for lead exposure to the surrounding community.
- Oversaw the remediation of the Jibboom Superfund Site in Sacramento, CA. Site was a former scrap yard that had impacted the area with lead, PCB, and hydrocarbons. Extensive air monitoring of the perimeter was performed to limit migration of contaminants. Later designed remediation of inside surfaces at remaining building involving PCB, lead and asbestos.
- Site manager for the McColl Superfund site in Fullerton, CA. Involvement included site sampling of surface and subsurface runoff, construction of site facilities and management of remedial contractors.
- Project manager for the Kyocera facility in Sorrento Valley, CA. Project involved leaking UST solvent tank that impacted groundwater and adjacent wetlands and ponds. Project included on-site and off-site investigation, development of remedial alternatives, permitting and monitoring.
- Remediated a PCP impacted groundwater plume using funnel-gate technology at a wood treating facility. Project involved innovative concept using activated carbon in a passive treatment system.
- Designed and remediated 2500 CY TCA impacted soil inside an existing manufacturing structure in Southern California.
- Designed, permitted and remediated 70,000 CY of TPH impacted soil removal for the closure of the Lockheed C plant in Burbank, California. Clean closure granted.
- Oversaw the design and construction of a groundwater treatment facility for pesticide contaminated soils in Fresno, California as well as excavation of 10,000 CY of pesticide impacted soils.
- Remediated a TCE/TCA impacted groundwater plume using a Deep Soil Mix (DSM) wall that was 65 feet deep and had a surface area of 50,000 SF at an active rail yard.
- Remediated soil impacted with solvents using vapor extraction at the Xerox site in Santa Ana. California. Project included permitting, monitoring and maintenance.
- Constructed a gasoline extraction trench using biopolymer slurry and an HDPE membrane at the port of Los Angeles.
- Developed environmental analysis for portion of former Superfund site that would be removed from Superfund designation to assess impacts on new owners of that piece of property.