

TECHNICAL SPECIALTIES

Providing environmental consulting services for commercial, industrial and brownfield redevelopment sites. Primarily focused on the design, implementation, and management of complex investigations including Phase I ESAs; Phase II ESAs; Remedial Investigations; and a variety of remedial actions/mitigations including capping; in-situ injections; groundwater and vapor extraction; and soil excavation.

EXPERIENCE SUMMARY

Fourteen years of experience: Principal Geologist, Senior Geologist and Project Geologist at Roux Associates and Project Hydrogeologist, Staff Hydrogeologist at Kleinfelder.

CREDENTIALS

B.S. Geology, Environmental Geology Track; State University of New York at Stony Brook

OSHA 40-hour HAZWOPER Training

OSHA 8-HOUR Refresher Training, Certificate Current
Transit Worker Identification Credential Card Holder

Loss Prevention System Certified

KEY PROJECTS

- Former Dry Cleaner:** Project Principal for the remediation of a former dry cleaner located in Redwood City, CA. The dry cleaner was previously remediated by others; however, daughter products of PCE persisted in the soil vapor and groundwater. Roux completed an evaluation of existing site data and designed a remedy that included Enhanced Reductive Dechlorination consisting of emulsified lecithin substrate and a natural microbial consortium. Additionally, Roux addressed soil vapor intrusion concerns that were identified through indoor air and sub-slab vapor sampling by restoring the concrete slab, then applying a cost-effective vapor intrusion barrier system on the surface of the concrete slab.
- Sunnyvale:** Project Principal/Project Manager for the redevelopment of a 33-acre former commercial use site into residential use. The Site soils were impacted with lead, arsenic, and pesticides as a result of former orchard use and groundwater was impacted with chlorinated volatile organic compounds (CVOCs) due to adjacent and upgradient Superfund sites. Roux completed Phase I and Phase II investigations which were instrumental in obtaining a "comfort letter" from the Regional Water Quality Control Board (RWQCB), which noted that the groundwater impacts were not from an on-site source. The RWQCB is providing regulatory oversight under a voluntary oversight agreement. Roux also completed a vapor intrusion risk assessment which ultimately demonstrated that site-specific risk values were below target values. Even so,

the client opted to complete a voluntary vapor intrusion mitigation system, which included a vapor barrier and passive sub-slab depressurization system, under each of the residential buildings, along with an innovative in situ permanent soil vapor barrier that consisted of removing permeable soils in a limited area and replacing them with soils amended with cement in order to remove a preferential vapor pathway.

- Santa Clara Square:** Project Principal/Project Manager for the redevelopment of a 64-acre site which is planned to include retail, office, and residential use. The site soils were impacted with lead, arsenic, and pesticides as a result of former orchard use. Roux employed high-resolution soil sampling to delineate soil hot-spots and utilized clean samples as re-excavation confirmation samples negating the need to complete post-excavation sampling. This technique minimized soil excavation and off-haul volumes and simplified scheduling, both of which resulted in significant savings to the client. Additionally, the groundwater at the Site is impacted with CVOCs that are migrating onsite from upgradient sources. Roux designed and installed vapor barriers and passive sub-slab depressurization systems under each of the buildings.
- Former Paint Factory:** Project Manager for brownfields Site that also required a Resource Conservation and Recovery Act (RCRA)-compliant facility closure. Due diligence environmental investigations determined historical site operations adversely impacted the subsurface, including an light non-aqueous phase liquid (LNAPL) plume in addition to petroleum hydrocarbon impacts to the soil and groundwater. Roux provided environmental consulting services for this project, including multiple meetings and discussions with regulators, preparation of multiple interim remedial measure work plans, a RCRA sampling and closure plan, remedial investigation work plan, health and safety plan, community air monitoring plan, RCRA facility closure plan, and the remedial action work plan. Roux completed a remedial investigation at the Site, which characterized the nature and extent of the impacts. The remedial action included a large excavation that required support of excavation (SOE), and was completed under a tent due to odor concerns, multiple ISCO injections, underground storage tank (UST) removal/abandonment, installation of a LNAPL recovery system, and installation of an subsurface sewage disposal systems (SSDS). Additionally, Roux provided oversight of RCRA closure activities at the Site, which included emptying, cleaning, and scrapping 65 above ground storage tanks (ASTs)/vessels; decontaminating the ceilings, walls, and floors of the

paint factory building; and collection of compliance samples.

- **Post Road Corridor:** Project Manager for a brownfields redevelopment site, which consisted of 16 separate parcels spanning 4.5 acres and had a variety of former uses, including automotive service/repair and multiple dry cleaners. The Site has both chlorinated and petroleum hydrocarbon impacts to the soil and groundwater. The remedy will consist of a site cover system, soil hot spot removal, in situ chemical oxidation for groundwater contamination, installation of a sub-slab depressurization system, and the potential installation of a permeable reactive barrier.
- **Syosset Park:** Project Manager for ongoing large and complex redevelopment of a 92-acre Site. The Site has an extensive environmental history, including former use as a wire and conduit manufacturer, former landfill (currently a Federal Superfund site), and town DPW facility. Activities completed including compiling, reviewing, extracting, and summarizing numerous historical environmental reports prepared for the site, interacting with local, state and federal agencies; completing a supplemental soil investigation (including extensive use of XRF technology) and a groundwater investigation. The remedy will likely consist of a site cover, hot-spot removals and a sub-slab depressurization system.
- **LA Central:** Project Manager for the redevelopment of a 4.1-acre site which included a multi-phase, mixed-use affordable housing development offering 992 apartments. Roux Associates initially completed a Phase I and Phase II at the site which identified historic fill in site soils and chlorinates in groundwater as well as a previously unknown land use restriction. Thorough subsequent soil, soil vapor and groundwater investigations Roux Associates defined the nature and extent of the impacted media. The remedy will likely consist of a site cover, soil hot-spot removal, in-situ chemical injections and a sub-slab depressurization system.
- **Amtrak:** Project Manager for multiple projects to support investigation and remediation activities at a 130+ acre active railyard. I was responsible for managing activities in all six Operable Units (OUs), including unsaturated and saturated soil, groundwater, separate-phase hydrocarbon, soil vapor and on-site sewer system. My responsibilities on these projects included characterizing subsurface conditions, including soil (collected hundreds of soil samples), as well as characterizing a 250,000-gallon PCB-contaminated separate-phase hydrocarbon plume. Additionally, I was responsible for managing the design and implementation of remediation activities, including soil excavation and offsite

disposal, removal and abandonment of USTs ranging in sizes up to 17,000 gallons, demolition of contaminated buildings and infrastructure, and installation and operation of a dual phase high vacuum extraction (DPVE) system to recover PCB-contaminated separate-phase hydrocarbon through a network of over 40 recovery wells. Due to the highly volatile nature of the separate-phase hydrocarbon and the urban setting of this site, extensive emissions and odor engineering controls were used when excavating and managing soil and product. Additionally, extensive Community Air Monitoring was completed during all phases of work.

- **Neil Court:** Project Manager for a fast-paced property transfer complicated by multiple environmental issues. Roux Associates designed and implemented a Phase II Environmental Site Assessment at a former warehouse. Results of the Phase II ESA revealed petroleum hydrocarbon impacts to soil related to former USTs, an orphaned pipeline, and unregistered and impacted drywells. In support of the pending transaction, Roux Associates prepared a work plan, performed hot-spot soil excavations, removed the orphaned pipeline, prepared a summary report, received closure from state regulator and cleaned, restored, and registered each of the site's 12 drywells classified as Class V injection control wells with the USEPA. The above work was completed in less than a month in order to comply with the client's sales agreement for the site.
- Project Manager for brownfield redevelopment a 23-story passive-house mixed use building. Roux Associates completed Phase I and Phase II investigations which identified orphaned USTs and LNAPL. The remedy included enhanced fluid recovery events and excavation prior to the redevelopment of the Site. Additionally, a vapor barrier and a passive sub-slab depressurization system were also added to the building design.
- Project Manager for a Phase II Environmental Site Assessment completed in conjunction with interior decontamination and selective demolition at a former research and development facility of a major automobile manufacturer. Project included a Phase II site investigation that included soil and groundwater sampling, oversight of interior decontamination activities (including management of multiple waste streams generated therefrom) and oversight of selective interior demolition.
- Project Manager for the completion of Phase I and Phase II Environmental Site Assessment activities associated with a proposed mixed-use redevelopment located in Westchester, New York. Work included management of subsurface investigation activities to

characterize soil conditions and working closely with client's architects and construction contractors to integrate the proposed site remediation into the project development plan (including evaluating multiple potential disposal scenarios). Site contaminants included hydrocarbons (including a free-product plume from former USTs), and historic fill constituents.

- Project Manager for the investigation of a Spill in Williamsburg, Brooklyn, New York in which we successfully demonstrated to NYSDEC's Spills Group that impacts to a deep groundwater zone beneath our client's site were a result of offsite contamination migrating onsite from a nearby active gasoline station (not a result of our client's former industrial operations). Impacts included the presence of several feet of free product in a deep groundwater zone. We were successful in getting our client's Spill Case closed, saving our client from additional investigation activities, and what will likely be a multi-million-dollar remediation.
- Project Manager for the completion of a Preliminary Assessment and Site Investigation (PA/SI) at an active ship dry dock facility in Hoboken, New Jersey. I was responsible for the coordination and management of field investigation activities, which included soil, groundwater, and sediment sampling, as well as the preparation of a PA and SI report. This work was completed on behalf of a potential buyer of the property who planned to redevelop this site into a New York City ferry terminal.
- Project Manager for a UST removal program at a vacant parcel located in Paterson, New Jersey for a major transit agency. Further work included the completion of a soil and groundwater investigation, installation of monitoring wells, oversight of remedial excavation activities, the completion of aquifer testing, and completion of routine groundwater investigations as part of the NJDEP-approved monitored natural attenuation remedy for the site.
- Project Manager performed multiple Phase I and II Environmental Site Assessments as part of due diligence in support of divestiture of retail petroleum stations located throughout New York and New Jersey by a major oil company.
- Project Manager for divestment of multiple petroleum service facilities, which included decommissioning, cleaning, and removal of USTs, oversight of remedial excavations, and excavation and restoration of drywells.
- Performed numerous Phase I Environmental Site Assessments according to ASTM E1527-05 for due diligence of large retail shopping centers, industrial facilities, office buildings, and vacant land. Associated activities included agency contact, database management and interpretation, report preparation, and recommendations for additional work.
- Project Manager for the construction and installation of remedial AS/SVE systems, groundwater pump and treat systems, and petroleum service station upgrade.
- Provided oversight of UST removal at multiple sites including residential, commercial, and industrial on behalf of major insurance companies.
- Performed multiple AS/SVE feasibility study and 48-hour pump tests to evaluate employing of the technology to remediate impacted sites.
- Performed field duties including groundwater sample collection; soil sample logging and collection; drilling oversight; supervision of monitoring well construction; enhanced fluid recovery; excavation oversight; underground storage tank removal; SVE/AS pilot testing; remediation system construction oversight, operation and maintenance of remediation systems.