Targeted Brownfield Assessment & Cleanup of Former Manufactured Gas Plant Site, 260 River Street, Montpelier, Vermont

STONE ENVIRONMENTAL

Services / Expertise
EPA-Funded Brownfield Redevelopment –VT DEC Brownfields Technical Assistance Grant
Site-Specific Quality Assurance Project Plan
Phase II ESA (ASTM E1903-11)
Groundwater and Soil Sampling
Supplemental Site Investigation / Phase III ESA
Vapor Intrusion Investigation
Asbestos and Building Material Abatement
Remedial Action Planning – ECAA & CAP
Preparation of Plans, Specifications, and Engineering Documents,
Green & Sustainable Remediation

Markets
Private Industry, State Government

Project Location
Montpelier, Vermont

Date Completed
2017 to present

Project Owner
260 River Corporation, LLC
Malone Properties, Inc.

Project Team
Lee Rosberg (Project Manager) ,David Abrahamson, PE, Dan Voisin, Dan Curran, Katrina Mattice, PE, Peter Lazorchak, PE, LEED AP, Gabe Bolin, PE, Amy Macrellis, Branden Martin, PE, Warren Rich, Laura Rajnak, Barb Patterson, Heather Cox

Subcontractors
NRC Services, Phoenix Environmental, Con-Test Laboratories, Absolute Spill Response, Cascade Technical Services

The former manufactured gas plant sits along the bank of the Winooski River in Montpelier, Vermont.

IN THE SPRING OF 2017, Stone was hired to assess the site of a former manufactured gas plant on the banks of the Winooski River, prescribing alternatives including monitoring natural attenuation of sub-surface coal tar, excavating riverbank coal tar with off-site disposal, and developing area soils onsite with engineered barriers and institutional controls.

A Site-Specific Quality Assurance Project Plan was designed to determine whether Recognized Environmental Conditions (RECs) identified in a previous Phase I ESA have resulted in releases of contaminants to the environment and, if so, to define the degree, nature, and extent of contamination. Stone developed a Conceptual Site Model (CSM) to evaluate contaminants, release mechanisms, and the site's geologic setting to assess fate and transport of contaminants of concern.

Phase II ESA field work included advancing 69 soil borings using a Geoprobe, collection of 69 soil samples for analysis of several parameters, installation, development, and low-flow sampling of 11 groundwater monitoring wells, installation and collection of groundwater samples from 5 temporary sampling points, collection of 2 asphalt samples for polychlorinated biphenyl (PCB) analysis, mapping the extent of coal tar discovered along the Winooski River, and collection of three surface water and three sediment samples from the Winooski River.

A Supplemental Site Investigation (SSI) was completed in January 2018 to evaluate the degree and extent of contaminants identified during the Phase II ESA and assess their potential impacts to sensitive receptors. Additional field tasks were completed at this time to support an Evaluation of Corrective Action Alternatives (ECAA). These included a vapor intrusion assessment into the existing Site building and within the footprint of a proposed building, removal of asbestos-containing floor tiles, and a soil quality assessment of soils that will be disturbed during proposed site redevelopment.

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In the fall of 2018, Stone submitted an ECAA report to evaluate and select appropriate corrective actions to prevent unacceptable risks to human health and the environment through various exposure pathways to known site contaminants. Three remedial alternatives were developed for each area of concern, specifically subsurface coal tar contamination within the former MGP, coal tar along the bank of the Winooski River, and contaminated soils within the developable portion of the site. After an evaluation of alternatives for protectiveness, compliance with applicable regulations long-term effectiveness and performance, short term effectiveness, implementability, environmental impact/sustainability, cost, and community acceptance, the project team decided on the following remedial alternatives

- Sub-surface coal tar: monitored natural attenuation with institutional controls.
- Riverbank coal tar: excavation with off-site disposal.
- Developed area soils: on-site soil management with engineered barriers and institutional controls.

In August 2019, Stone submitted a partial Corrective Action Plan (CAP) for completing the preferred cleanup alternatives related to coal gasification wastes. The CAP was approved by Vermont DEC in September 2019 and Stone submitted applications for permits under Vermont Rivers Program and US Army Corp of Engineers rules to install a temporary coffer dam within the Winooski River, excavate coal tar for stabilization and off-site disposal, and site restoration.

Top: Tar released to the ground surface on the bank of the Winooski River. Bottom: Excavation crews employ a coffer dam in the Winooski River while removing coal tar contaminated soils. Photos by Stone Environmental

Stone prepared specifications and coordinated cleanup efforts with the site owner's preferred contractors. Cleanup activities began in late November 2019 using local contractors (Dubois Construction and Malone Properties), who cleared vegetation, constructed a coal tar stockpile pad to store and dewater excavated coal tar and sediment prior to off-site disposal. An approximately 280-foot-long cofferdam was temporarily installed around the coal tar excavation area and a silt curtain was installed in the Winooski River around each coal tar excavation area prior to installation of the coffer dam and coal tar excavation. Between December 9 and 19, approximately 700 tons of coal tar and sediment were excavated from the bank and channel of the Winooski River, all of which was transported to Casella's landfill in Clinton County, New York for disposal between December 16 and January 3, 2020.

In July 2020, Stone prepared a Soil Management Plan and Partial CAP for the site that included green spaces, the access drive, parking lot, sidewalks, and new building slab be constructed engineered barriers with all PAH contaminated soil managed on-site. Stone provided oversight of site redevelopment between August and December 2020 to ensure compliance with the Soil Management Plan and Partial CAP. Following streambank restoration and installation of a fence, anticipated to be completed in May 2021, the prospective purchaser will receive a Certificate of Completion as an enrollee of Vermont's Brownfields Reuse and Environmental Liability Limitation program (BRELLA). Long-term groundwater monitoring downgradient of the former MGP where coal tar remains in the subsurface will be required.