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

STONE ENVIRONMENTAL
100% EMPLOYEE-OWNED

Services / Expertise

EPA-Funded Brownfield Redevelopment – VT DEC Brownfields Technical Assistance Grant
Site-Specific Quality Assurance Project Plan
Phase I ESA (ASTM E1527-13)
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 and CAP
Preparation of Plans, Specifications, and Engineering Documents,
Green & Sustainable Remediation
PCBs in Air Assessment

Markets

Private Industry
State Government

Project Location

Montpelier, Vermont

Duration

2017-Present

Project Owner

260 River Corporation, LLC
260 River Street Montpelier Properties, LLC.

Project Team

Dan Voisin; Katrina Mattice, PE; Peter Lazorchak, PE LEED AP; Amy Macrellis; Branden Martin, PE; Laura Rajnak; Barb Patterson; Jodie Wright

Coffer dam and coal tar excavation cells along the Winooski River in Montpelier, Vermont. The former building supply retailer building has been redeveloped as the headquarters for a wastewater service contractor.

In 2017, the Vermont Department of Environmental Conservation (VT DEC) hired Stone Environmental to assess a former manufactured gas plant site along the Winooski River. Stone created a Site-Specific Quality Assurance Project Plan to determine if the Recognized Environmental Conditions (RECs) identified in an earlier Phase I Environmental Site Assessment (ESA) resulted in releases of contaminants to the environment and 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 understand the fate and transport of the contaminants.

Phase II ESA field work included:

- Advancing soil borings using a Geoprobe,
- Collecting soil samples for analysis of several contaminants of concern,
- Installing, developing, and low-flow sampling of groundwater monitoring wells,
- Installing and collecting groundwater samples from temporary sampling points,
- Collecting asphalt samples for polychlorinated biphenyl (PCB) analysis,
- Mapping the extent of coal tar discovered along the Winooski River, and
- Collecting surface water and sediment samples from the river.

The Phase II ESA identified releases of coal tar from historic manufacturing operations, resulting in groundwater, soil, and sediment contamination that required cleanup under Vermont regulations.

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

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 exposure pathways to known site contaminants. Three remedial alternatives were developed for each area of concern: subsurface coal tar contamination within the former plant, coal tar along the bank of the Winooski River, and contaminated soils within the developable portion of the site. Comparison criteria for corrective action alternatives included protectiveness, compliance with applicable regulations, short- and long-term effectiveness, feasibility, environmental impact and sustainability, cost, and community support. The project team selected the following remedial alternatives:

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

In August 2019, Stone submitted a partial Corrective Action Plan (CAP) to remediate the coal tar waste. The CAP was approved by VT DEC in September 2019 and Stone secured permits with the Vermont Rivers Program and US Army Corp of Engineers to install a temporary coffer dam within the Winooski River, excavate coal tar for on-site stabilization prior to off-site disposal, and site restoration.

Stone prepared specifications and coordinated cleanup efforts. Activities began in late November 2019 using local contractors who cleared vegetation and constructed a coal tar stockpile pad to store and dewater excavated coal tar and sediment. A cofferdam of approximately 280 feet was temporarily installed around the excavation area and a silt curtain was installed in the river around each excavation area. In December 2019, approximately 700 tons of coal tar and sediment were excavated from the riverbank and channel and transported to Casella's landfill in Clinton County, New York, for disposal. All work was performed under Stone's oversight.

In July 2020, Stone prepared a Soil Management Plan and Partial CAP for the developable portion of the site. Green spaces, the access drive, the parking lot, sidewalks, and the new building slab were constructed to serve as engineered barriers with all PAH-contaminated soil managed on-site. Stone provided oversight to ensure compliance with the remedial plans On June 23, 2022, following streambank restoration and installation of a fence, the prospective purchaser received a Certificate of Completion from Vermont's Brownfields Reuse and Environmental Liability Limitation Program. Stone continues groundwater monitoring downgradient of the former plant where coal tar remains in the subsurface. Today, the site's in active reuse by a business employing more than 50 people.

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.