Sub-slab Depressurization System Design, Construction, and Commissioning

Former Industrial Property, Ann Arbor, Michigan

Project Highlights

- 40,000 ft2 SSDS footprint
- Seven RadonAway HS5500 mitigation fans
- Over 2,000 feet of PVC piping
- 100 feet of trenched in suction piping
- 24/7/365 telemetry monitoring of system power and pressures
- 45 Vapor Pins® for pressure field extension monitoring
- Onsite emergency backup generator for SSDS power and building lighting
- 25' radius of influence (ROI) per suction pit

Project Summary

At a Michigan Department of Environment, Great Lakes, and Energy (EGLE) brownfield funded site, Hamp, Mathews, & Associates (HMA) was contracted to complete the design, construction and system commissioning of a sub-slab depressurization system (SSDS).

The site was a former machining facility that historically used products containing Chlorinated volatile organic compounds (CVOCs). Sub-slab soil vapors at the site were as high as 2,000,000 micrograms per cubic meter (µg/m3) for tetrachloroethylene, which necessitated the need for vapor mitigation.

HMA performed pressure field extension (PFE) diagnostic testing to determine the soil type(s), ability to propagate flow in sub-slab soils, and a radius of influence (ROI) to design a defensible SSDS. The SSDS design recommended connecting 22 suction pits to seven RadonAway HS5500 mitigation fans. In total, there were seven individual SSDSs designed to mitigate the entire 40,000 ft2 building.

HMA was awarded the contract to complete the construction of the SSDSs in a now active brewing facility. Due to the intrusive nature of constructing a retrofit SSDS into an active brewing facility, dust control was of the utmost importance. A combination of air purifying units (APUs) with high-efficiency particulate air (HEPA) filters, Corsi-Rosenthal boxes, and polythene plastic sheeting barriers was used to prevent cross-contamination with brewery products while construction was completed.

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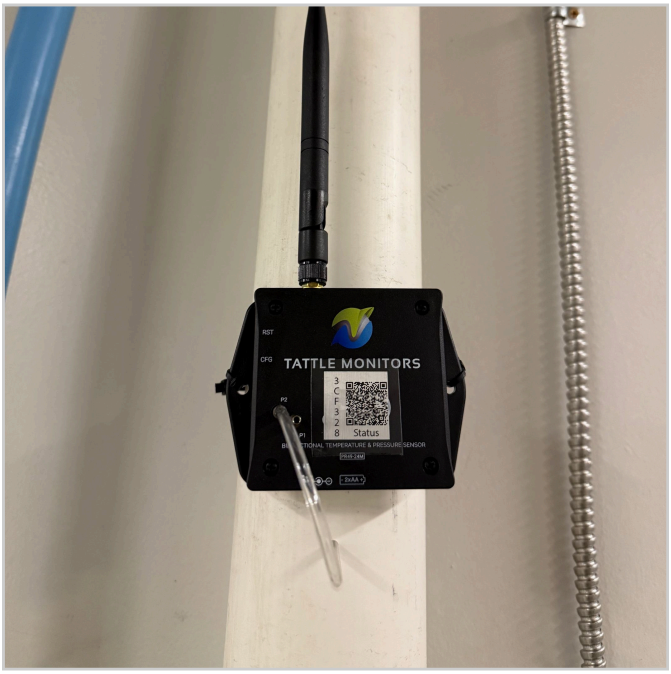
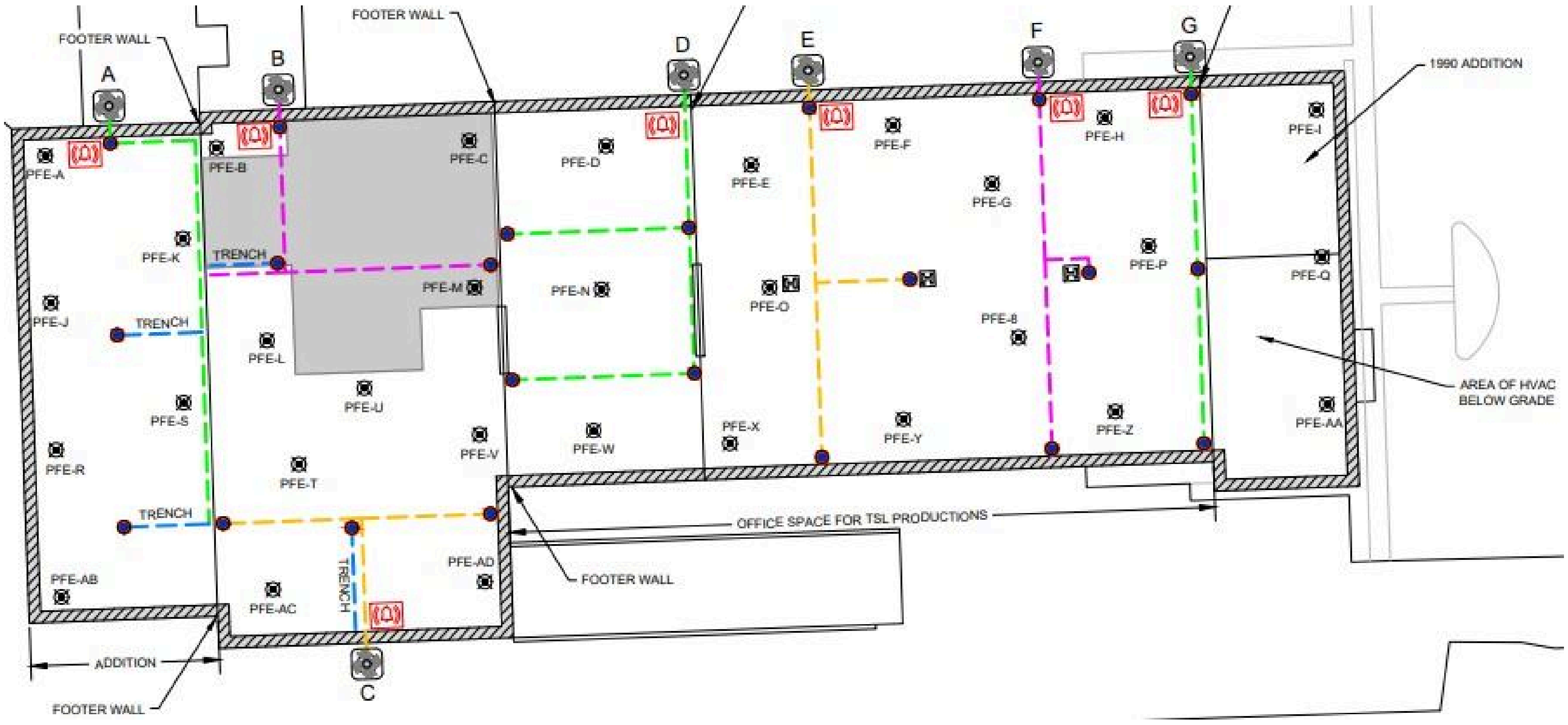


Due to high sub-slab soil vapor concentrations, system commissioning included the sampling of SSDS effluent to confirm compliance with EGLEs *Rule 290 Calculation Tool for Vapor Intrusion Systems*. The SSDS was also required to run without interruption, and an emergency backup generator was included in the design and construction. Telemetry monitoring was utilized for instant access to confirmation of power, pressure, and ambient air temperatures for each individual RadonAway HS500 mitigation fan.



Key Collaborators

EGLE

Applied Environmental

Radonaway

Key Personnel

Project Manager/ Vapor Mitigation Specialist, Doug Spencer

Staff Geologist, Dylan Harter

Senior Environmental Scientist, Luke Hixson