

Mr. Patrick Schloss  
City of West Allis  
7525 W. Greenfield Avenue  
West Allis, WI 53214

**PROPOSAL FOR VAPOR MITIGATION SYSTEM DESIGN AND  
POST-CONSTRUCTION SAMPLING FOR THE FORMER TELEDYNE SITE  
IN WEST ALLIS, WISCONSIN, IN CONJUNCTION WITH  
USEPA ASSESSMENT GRANT**

Dear Mr. Schloss:

Ramboll Americas Engineering Solutions, Inc. (Ramboll) is pleased to present the City of West Allis (the "City") with this proposal for vapor mitigation system design and post-construction sampling for the Teledyne site on West Burnham Street in West Allis, Wisconsin (the "site" or "property"). It is anticipated that the vapor mitigation system design, oversight, and sampling will be completed using a portion of the City's FY22 United States Environmental Protection Agency (USEPA) Brownfields Assessment Grant. The approximately 8.96-acre property is currently owned by the City who began redevelopment as a public works facility in 2024.

March 11, 2025

The following sections of this proposal provide a brief site background, recommended scope of work, proposed schedule, cost estimate, and contract terms for this project.

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**BACKGROUND**

**Site History**

Based on prior investigations, the site was previously used for manufacturing water-cooled, and later air-cooled, engines for automotive and heavy-duty use. Based on previous environmental site investigations conducted at the site, surficial fill soils contain elevated concentrations of metals and polycyclic aromatic hydrocarbons (PAHs). Elevated concentrations of lead in soil were detected near a historical oil and paint storage area within the former manufacturing facility and in an outdoor storage area to the east of the former manufacturing facility. Chlorinated volatile organic compounds (CVOs) were identified near the former engine test room in the southern portion of the manufacturing facility and in the former oil and paint storage area and outdoor storage area. Petroleum VOCs (PVOs) were detected in soil and groundwater in the former oil reclamation and oil and paint storage areas. Following demolition of the site buildings and pavements, a clay cap was constructed in 2012 over soil with elevated concentrations of lead, VOCs, and PAHs above regulatory standards. Additional site investigation activities were completed by Tetra Tech in 2017 and Braun Intertec Corporation (Braun) in 2019. Prior investigations are summarized in a Site Investigation Report (SIR) dated February 16, 2021 (the "2021 SIR") and the Phase I Environmental Site Assessment (ESA) prepared by Ramboll dated April 2023.

Ref. P3861M-25048

On the City's behalf, Ramboll submitted an Interim Remedial Action Plan (IRAP), a Development at Historic Fill Site Exemption Request, and a Request to Manage

Materials under Wisconsin Administrative Code (WAC) NR 718.12 or NR 718.15 to the Wisconsin Department of Natural Resources (WDNR) in March 2024. These were prepared in consideration of the planned redevelopment of the site as the new Department of Public Works (DPW) facility and were subsequently implemented beginning in May 2024.

### **Proposed Vapor Mitigation System (VMS) Design**

The proposed DPW facility will consist of slab-on-grade foundation construction with no below-ground basements or rooms. In the IRAP report dated March 20, 2024, Ramboll described the proposed measures for addressing the risk of vapor intrusion at the site which consisted of installation of a vapor barrier and a piping network that can be converted to an active ventilation system utilizing roof-mounted extraction fans to evacuate any VOC vapors that could accumulate in the sub-slab. Ramboll proposed the use of high purge volume vapor sampling as an alternative sampling method considering the large size of the building during two post-construction sampling events.

The piping network proposed consists of 2- and 4-inch diameter polyvinyl chloride (PVC) installed within a layer of permeable gravel/stone base course 6 to 9 inches in thickness, but no less than 6 inches thick at any point. A 15-mil vapor barrier will be installed across the footprint of both buildings to be installed directly beneath the concrete floor slab, overlying the permeable gravel bed. The vapor barrier will be sealed at all utility penetrations and where the barrier abuts footings per the manufacturer's specifications. The system was designed such that the piping can be converted to an active sub-slab depressurization system by connecting the piping network to an appropriately sized exhaust fan.

The WDNR provided the following feedback regarding vapor in their letter *Review of NR 708 Interim Action Plan, Former Teledyne Industries Site* on May 8, 2024:

- Based on detection of VOCs in soil and groundwater in several areas of the site, additional vapor assessment should be completed once the remediation and soil management onsite is completed. Additional data generated during the site activities should be included.
- Currently, the WDNR does not recommend using high purge volume sampling; standard sub-slab sampling is preferred to determine the risk for vapor intrusion.
- Mitigation will be necessary if there is a Vapor Risk Screening Level (VRSL) exceedance in the garage area, in accordance with WDNR guidance document *RR-800: Addressing Vapor Intrusion at Remediation Sites in Wisconsin*, January 2018, in addition to any standard garage air exchange system.

The scope of work included in this proposal is intended to address the above comments provided by the WDNR. The results of post-construction sub-slab vapor sampling will be provided to the WDNR following completion of each sampling event.

### **PROPOSED SCOPE OF WORK**

#### **VMS Design and Sampling Plan Approval Request Letter**

Based on the feedback from the WDNR on the IRAP, outlined above, Ramboll will modify the proposed post-construction sampling plan to include two rounds of discrete sub-slab vapor sampling following building construction. Ramboll's design will also incorporate modifications to the piping layout as indicated by the building designer for constructability. Ramboll will provide a brief response to comments letter, including

drawings of the revised VMS layout and VMS product specifications as submitted by the selected VMS installation subcontractor.

Following completion of the VMS design modifications, Ramboll will prepare a brief approval request letter to the WDNR. The letter will include responses to the three questions/comments provided by the WDNR in the letter dated May 8, 2024, and will append a copy of the VMS design documents. In this letter, Ramboll will include a specific request to conduct post-construction vapor sampling at a frequency of less than one sample per 2,000 square feet of building footprint. Ramboll's recommended sampling approach is further discussed below. Costs associated with WDNR's review of the VMS design are not included in this proposal.

### **Oversight of VMS Installation**

Ramboll will conduct intermittent oversight of the VMS installation in the form of brief site visits during piping, vapor barrier, and extraction fan installation. At a minimum, Ramboll will inspect the installed piping for verification that the piping layout meets the intention of the design and that minimum depth of gravel on the top and bottom of perforated piping is achieved. All sections of the emplaced vapor barrier will be inspected prior to pouring of slab-on-grade concrete for compliance with the VMS design and specifications including inspection of materials used, sufficient overlap and bonding between sections of vapor barrier, and adequate seal of the barrier at wall terminations and punctures for utilities or other piping. For purposes of this proposal, Ramboll has assumed 90 hours of oversight of system construction will be conducted. In the event that the results of post-construction sub-slab vapor sampling indicate that active ventilation of the sub-grade piping is warranted, additional design efforts associated with incorporation of an exhaust fan into the piping network and oversight of fan installation and system activation will be required. These costs are not included in this proposal.

### **Post-Construction Vapor Sampling**

Based on feedback from the WDNR in the letter dated May 8, 2024, Ramboll proposes to request approval to collect 16 sub-slab vapor samples from Building 01 and four samples from Building 02 (20 sample locations total) based on the building use and the limited number of discrete rooms present. This is a lower frequency than the one sample per 2,000 square feet of building footprint (approximately 106 sample locations total for this site) recommended by the WDNR and will require WDNR's approval pursuant to Ramboll's request letter, described above. Ramboll's cost estimate is based on an assumption that the WDNR will approve collection of vapor samples from 20 total locations. If this request is not approved, Ramboll's sampling costs will increase.

The proposed vapor sampling locations will be advanced through the concrete building slab and impermeable barrier and into the bed of washed stone that will underly the building footprint. As requested by the WDNR, Ramboll will install these vapor pins with an air-tight seal surrounding the pin. At the conclusion of all required rounds of sub-slab vapor sampling, these pins will be removed and the resulting penetration through the vapor barrier will be repaired and adequately sealed. Consistent with WDNR's requirements for commercial/industrial structures, Ramboll proposes to conduct a total of two sub-slab vapor monitoring events. The first will be conducted immediately following completion of the building slabs after sufficient time has passed for the concrete to cure, with one subsequent event occurring after approximately 3 months. At least one of these events will be conducted during the heating season, at which time the potential for vapor intrusion is considered highest. At a minimum, the first sampling event will be conducted prior to building occupancy. Ramboll will attempt to conduct both of the sampling events prior to occupancy of the building if possible.

Ramboll will install a total of 20 sub-slab vapor monitoring points (Vapor Pins<sup>®</sup>, machined sub-slab vapor sampling probes supplied by Cox-Colvin and Associates, Inc.), consisting of 16 points in Building 01 and four points in Building 02, on the lowest level of the structures to assess the potential for vapor intrusion. Completion of each sample point will include using a hammer-drill to advance a nominal hole (less than 1 inch) through the concrete slab for insertion of a sampling port. Each sub-slab vapor monitoring point (the Vapor Pins<sup>®</sup> are installed in a 5/8-inch hole that is drilled through the concrete floor slab) will be recessed into the existing building slab and covered with a protective cap to reduce interferences with other on-site activities. Care will be taken to avoid buried utilities, re-bar, or other structures that may have been placed in the floor and to maintain the structural integrity of the floor materials.

During each sub-slab vapor sampling event, Ramboll will collect a sub-slab vapor sample from each vapor monitoring point using a 1-liter Summa canister batch-certified as clean by the laboratory and equipped with a flow controller regulating the flow rates to approximately 200 milliliters per minute (WDNR recommended flow rate for sub-slab vapor sampling) over an approximate 5-minute duration. Quality control measures will be implemented during the sub-slab sampling, including vacuum testing of tubing and/or leak detection using a water dam constructed around the sub-slab Vapor Pin<sup>®</sup> to ensure the integrity of the sub-slab vapor sample collected. These samples will be submitted to a Wisconsin-certified analytical laboratory for analysis for VOCs by USEPA Method TO-15. Following the installation of each vapor monitoring point, Ramboll will vacuum any concrete debris and dust around each sampling point. The concrete debris will be taken off site and disposed of as general refuse. Generation of additional investigation-derived waste (IDW) in connection with sub-slab vapor sampling is not anticipated. The costs of the disposal of any IDW generated are not included in this proposal. Ramboll will advise if off-site disposal is necessary and will provide a separate proposal for those related costs.

A chain-of-custody form will be filled out upon sampling completion and will accompany the insulated container of samples to the laboratory. The chain-of-custody form will include the following information: sample identification, date collected, and name of sampler. The chain-of-custody form will be signed by the sampler and completed in a legible manner using waterproof ink. Samples will be transported from the facility to the laboratory via courier or will be dropped off by Ramboll personnel. When transferring samples, the individuals relinquishing and receiving the samples will sign and date the chain-of-custody forms. The original chain-of-custody form will accompany the shipment; a copy will be retained by the field sampler and filed upon return to the office. Per WAC NR 716.14, all sampling results are required to be submitted within 10 days of receiving the laboratory data.

### **VMS Construction Documentation Report**

The details of the installation of the VMS and the results from post-construction vapor sampling will be incorporated into a consolidated VMS construction documentation report. The report will include preparation of as-built drawings of the VMS, verification that the intent of the design was implemented, presentation of sub-slab vapor sampling analytical data, and comparison of analytical data to WDNR VRSLs for a conclusion of whether continued monitored vapor mitigation is necessary based on post-construction conditions. The scope of this proposal assumes that analytical sampling will indicate that active vapor mitigation is not required, and therefore no long-term operations and maintenance of the system is required following construction, sampling, and documentation. In the case that post-construction sub-slab analytical sampling indicates that active vapor mitigation is necessary, Ramboll would propose a change order for the design, oversight, and verification of the installation of a blower fan to convert the piping to an active system which would require long-term operations and maintenance.

## ESTIMATED PROJECT COSTS AND SCHEDULE

The scope of services described herein will be completed on a time and materials basis in accordance with the Master Contract with the City, dated November 10, 2016, and the attached fee schedule, provided in our Proposal for Professional Consulting Services, dated August 24, 2022. The total estimated cost to complete the VMS oversight and post-construction sampling services, as presented herein is **\$59,600**. Ramboll has assumed that any WDNR review fees required will be paid to the WDNR directly by the Client. A breakdown of costs is provided in the following table. If additional tasks or extended oversight hours are requested, additional costs will be incurred. Ramboll will not exceed the estimated costs without prior approval from the Client.

Ramboll anticipates that oversight of the installation of the VMS will take place in approximately April 2025, consistent with the schedule for construction of the associated building elements. The first vapor intrusion sampling event will take place within 4 weeks following the completion of the building slabs, and the second sampling event will take place approximately 3 months thereafter.

Task/Assumptions	Labor Cost	Subcontractor and Supplies Cost	Total Cost
WDNR VMS Design and Sampling Plan Approval Request Letter	\$4,600	--	\$4,600
Oversight of VMS Installation <i>Assumes up to 100 hours for oversight (construction/activation and post-startup), as described above</i>	\$13,600	--	\$13,600
Post-Construction Vapor Sampling and WDNR Results Reporting	\$17,600	\$15,600	\$33,200
VMS Construction Documentation Report	\$8,200	--	\$8,200
<b>Total Estimated Cost</b>	<b>\$44,000</b>	<b>\$15,600</b>	<b>\$59,600</b>

## CLOSING

Thank you for the opportunity to be of service. If you find this proposal acceptable, please provide a Proceed Order, using the CDA's Standard procedure and referencing this proposal. If you have any questions or need further information, please contact us.

Yours sincerely,



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**ATTACHMENT**  
**RATE SCHEDULE**

## City of West Allis Proposed Fee Schedule for Brownfield Services

<b>Labor</b>		
<b>Labor Category (Invoice Title)</b>	<b>Labor Rate</b>	<b>Estimated % Time</b>
Project Principal (Principal)	\$200	2%
Senior Managing Consultant	\$175	10%
Managing Consultant	\$155	15%
Sr. Consultant 2	\$130	5%
Sr. Consultant 1	\$120	5%
Engineer/Geologist (Consultant 3)	\$110	20%
Engineer/Geologist (Consultant 2)	\$100	20%
Field Staff (Consultant 1)	\$85	10%
CAD/GIS Drafting	\$80	8%
Administrative Support	\$65	5%

<b>Field Instruments/Equipment<sup>1</sup></b>		
<b>Description</b>	<b>Units</b>	<b>Unit Cost</b>
PID (10.6 ev lamp)	day	\$70
Water Level Meter	day	\$30
0.45 micron filters	each	\$25
Peristaltic Pump	day	\$50
Concrete Corer	day	\$150

Personal Vehicle Mileage (fed rate) <sup>2</sup>	mile	\$0.585
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### Notes:

1: Other supplies/equipment will be rented as needed and the invoices will be passed through to the WDNR with no mark-up applied.

2: Based on project needs, distance to site and other factors, Ramboll may elect to rent a vehicle for field work. Typical vehicle rental rates, based on our company preferred provider fee schedule are between \$40 and \$70/day. Gasoline is additional.

A 10% mark-up will be added to all Subcontractor services.