SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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November 5, 2002

General Services Administration
400 15th Street Southwest
Auburn, Washington 98001

Attn: Mr. Ron Smith

RE: PROPOSAL FOR SUPPLEMENTAL SCOPE OF SERVICES, ENVIRONMENTAL CONSULTING SERVICES, FEDERAL BUILDING, RICHLAND, WASHINGTON

In response to review comments received from Mr. Norm Hepner with the Washington Department of Ecology (Ecology), we are proposing a supplemental scope of services to further evaluate the source of volatile organic compounds (VOCs) (specifically tetrachloroethylene [PCE]) in groundwater at the Richland Federal Building site. The scope of work will include installation and sampling of an additional groundwater monitoring well immediately upgradient of the former solvent UST and piping system, and a groundwater sampling event of site wells. The objective of this work is to better evaluate whether the former UST and piping system contributed to known PCE contamination in the groundwater in the vicinity of the Federal Building.

In July 2002, Shannon & Wilson collected and analyzed soil samples from the former piping run that connected the USTs to the building. That work was performed in accordance with the original scope of services for this exploration program, as presented in our January 3, 2002 proposal. The depth from which samples could be obtained during that exploration program was limited by difficult soil conditions and the type of equipment that could be used in the restricted space. As a result, although no PCE (or PCE-breakdown product) contamination was detected, we were not able to conclusively establish that all of the soil samples were collected below the former piping elevation, in a zone where contamination would be expected to occur if there had been a leak. Consequently, Ecology is not satisfied that the potential for an on-site source of the PCE contamination has been eliminated. In response to their concern, we have developed this supplemental scope of services as an alternative method to evaluate whether the former UST system has contributed to PCE contamination in groundwater.

SAMPLING RATIONALE

Groundwater monitoring for VOCs at the Federal Building site began in December 1998 at three site wells. One well is situated approximately 7 feet east of the former USTs (MW-03). Since September 2000, the monitoring has also included sampling from a fourth well (MW-04) located upgradient of the former solvent UST system, near the southern property boundary. This

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upgradient well is located approximately 360 feet southwest of MW-03. The locations of the monitoring wells are shown in the attached map.

Contamination in the upgradient well MW-04 indicates that the site is receiving PCE-contaminated groundwater from an unknown upgradient source. However, a comparison of results from MW-03 and MW-04 suggests that there is also a potential for some of the contamination to have originated on site. Alternatively, the elevated contamination in groundwater from MW-03 may reflect that well's more centralized position within the offsite-derived contaminant plume relative to that of MW-04. This alternative hypothesis appears to be the more plausible explanation based on the lack of contamination detected when the USTs were removed in 1997.

In order to better evaluate whether there is an on-site source, an additional well will be installed and sampled. It will be placed a short distance upgradient of the former UST and piping system. The proposed well will be installed in an intermediate upgradient location based on the following criteria:

1) It must be far enough away to be outside of potential influence of volatized constituents if there had been a tank/piping release, and
2) It must be close enough to MW-03 so that a more direct comparison of PCE concentrations in the new well and MW-03 can be made.

There is an accessible location approximately 40 feet south of the former UST installation that would meet these criteria. A map showing the proposed location of this new upgradient well (MW-05) is attached.

Alternative scenarios and interpretations of the investigation results include the following:

- PCE concentrations in groundwater samples from the new and existing wells are comparable, or higher in the new well: the conclusion would be that the PCE contamination is from an off-site source only.

- PCE in groundwater sample from the new well is much lower than that from MW-03: the tentative conclusion would be that the UST system is a contributor. This would be evaluated further by re-sampling of these two wells approximately 42 days later. This duration corresponds to the theoretical travel time for PCE contamination between the two wells, based on a hydrogeological study done by Shannon & Wilson in 2001.

SCOPE OF SERVICES

Our proposed supplemental scope of services includes the following:

- Subcontract with a qualified drilling contractor to install one, 2-inch diameter upgradient monitoring well near the former location of the solvent UST system. The proposed drilling method will involve use of a compact (Lil Brutus) air rotary drill rig. The rig will be lifted inside of the bollard barricade at the site by a crane.

- Mark proposed monitoring well location, and request utility locate services at least 48 hours prior to mobilization for field work. We will contact the city for permission to temporarily block one traffic lane along Jadwin Avenue, if necessary, for parking a crane and drilling support equipment. We have assumed that the well drilling will take place on a Saturday to minimize disruption to traffic and business activity. We will also coordinate our field activities with the building management and security staff.

- Monitor the drilling and well installation. Beginning approximately 5 feet below the ground surface, we will attempt to collect soil samples using a large-diameter split spoon sampler advanced ahead of the drill bit. Soil samples will be screened using a photoionization detector (PID) for indications of volatile constituents. Up to three soil samples will be submitted to a qualified subcontracted laboratory for analysis of VOCs by EPA Method 8260. The samples will be selected based on the PID readings. However, if no indications of volatile constituents are detected by screening, then, at a minimum, the soil sample collected from the water table elevation will be submitted for analysis.

- Survey the top elevation of the new well to be able to correlate water elevation data with that from the other site wells.

- Collect groundwater samples from all site monitoring wells (five) and analyze the samples for VOCs by EPA Method 8260.

- Prepare a report containing field observations and screening results, a site diagram showing monitoring well locations, a summary of sample analyses and interpretation, the analytical laboratory report, and our conclusions. If an additional round of groundwater sampling is needed, a revised scope of services will be prepared to outline the proposed work. Once the final report is complete, we will submit a copy to Ecology and request that they complete the VCP review.

If this proposal is acceptable, please prepare a revision to the purchase order and return it as our authorization to proceed. We are pleased to have this opportunity to assist you with this project. Please contact us if you have any questions regarding our proposal.

Sincerely,

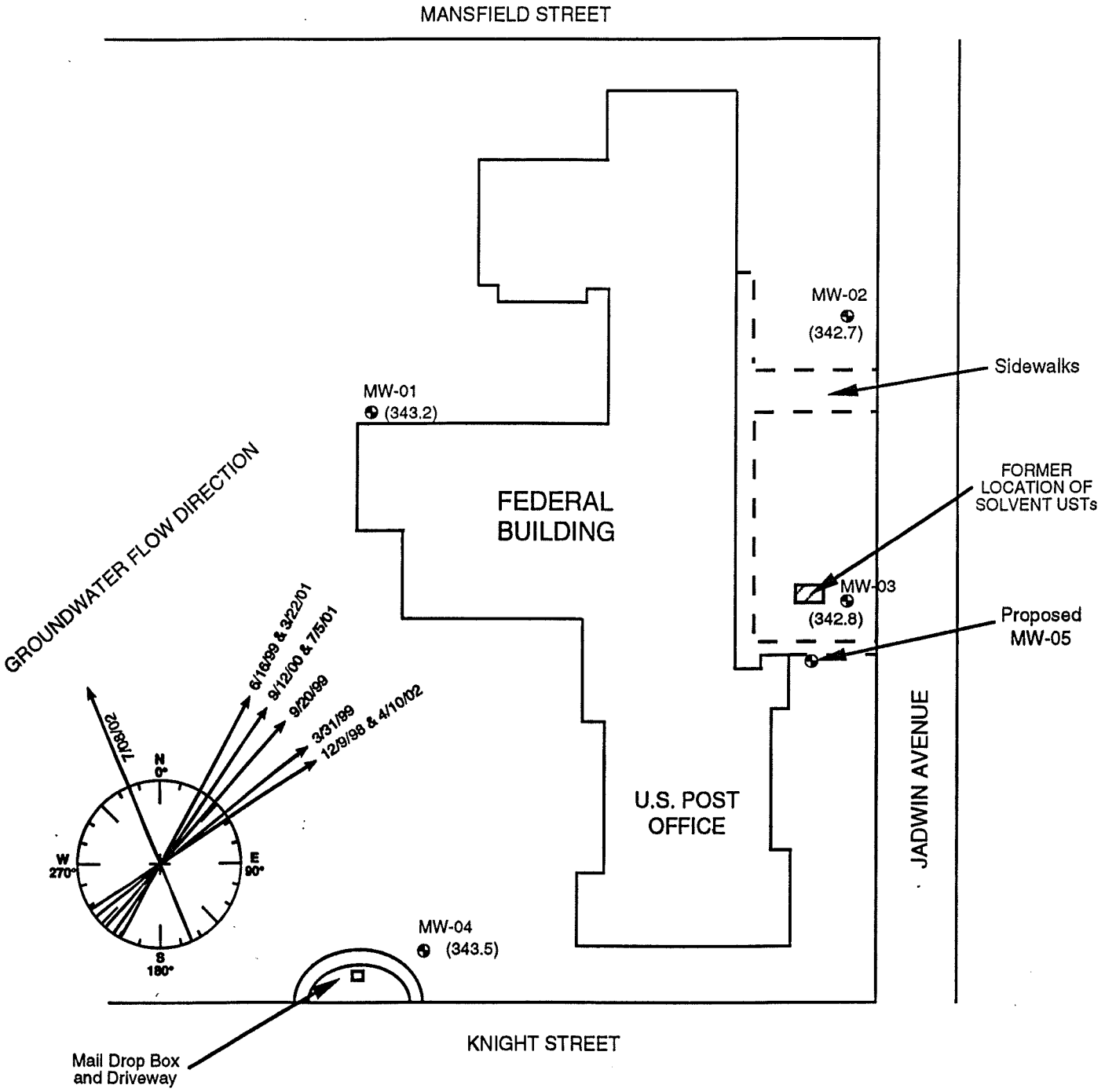
SHANNON & WILSON, INC.

Dee J. Burrie, P.E.
Branch Manager

DRP:DJB:DNC/drp

Enclosures: Site Plan and Well Locations

11-05-02/22-2-15235-008/22-1-11094/drp



MW-01 (344.57) Monitoring well: approximate location, designation, and groundwater elevation on 4-10-02

0 100 200

Approximate Scale in Feet

N

Federal Building and U.S. Post Office
Richland, Washington

SITE PLAN AND WELL LOCATIONS

November 2002 22-2-15235-008

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