

September 20, 2013

Wells Fargo Data Center  
6831 Arctic Boulevard  
Anchorage, Alaska 99518

Attn: Martin Shields

**RE: MONITORING WELL DECOMMISSIONING, 6831 ARCTIC BOULEVARD,  
ANCHORAGE, ALASKA, ADEC FILE ID 2100.38.492**

Shannon and Wilson, Inc. is pleased to submit our summary report for decommissioning groundwater monitoring wells at Wells Fargo Data Center, 6831 Arctic Boulevard in Anchorage, Alaska (the Property). The Alaska Department of Environmental Conservation (ADEC) requested decommissioning of the site's nine wells prior to issuing a Cleanup Complete with Institutional Controls (CCIC) determination. Work plan approval was received by ADEC Project Manager Grant Lidren on September 10, 2013.

## **SITE AND PROJECT DESCRIPTION**

### **Site Location**

The project site is located at 6831 Arctic Boulevard, Anchorage, Alaska in the northwest  $\frac{1}{4}$  of the southwest  $\frac{1}{4}$  of Section 6, Township 12 North, Range 3 West, Anchorage (A-8) NW Quadrangle, Seward Meridian.

### **Background**

Between 2004 and 2013, eleven Monitoring Wells (B1MW through B11MW) were installed on the Property. The locations of the wells are shown on Figure 1. Of the eleven monitoring wells, Wells B1MW, B4MW, B5MW, B8MW, and B10MW each contained diesel range organics (DRO) and/or benzene contamination above cleanup levels during at least one sampling event. Wells B1MW and B3MW were decommissioned on November 2, 2009 due to well damage. Monitoring Wells B2MW and B4MW through B8MW appeared to have been destroyed or paved over during the 2012 excavation activities. After the 2013 groundwater sampling event, where

Mr. Martin Shields  
Wells Fargo  
September 20, 2013  
Page 2 of 4

SHANNON & WILSON, INC.

DRO concentrations reported in the remaining wells (B9MW, B10MW, and B11MW) were less than ADEC cleanup levels, the ADEC agreed to consider the Property for CCIC status.

### **Purpose and Objectives**

The purpose of this project was to decommission the monitoring wells such that the ADEC can issue a CCIC determination for the site. The objective of the well decommissioning was to locate and decommission Monitoring Wells B2MW, B4MW, B5MW, B6MW, B7MW, B8MW, B9MW, B10MW, and B11MW to reduce the potential for surface contaminants to reach groundwater.

### **FIELD ACTIVITIES**

The field activities for this project took place on September 12 and 16, 2013. Discovery Drilling of Anchorage, Alaska (Discovery) provided equipment and personnel to decommission the wells. Field notes and photographs taken during the well decommissioning activities are included in Attachments 1 and 2, respectively.

On September 12, 2013, two Shannon & Wilson representatives visited the site to mark the approximate locations of Wells B4MW, B5MW, B6MW and B7MW, which were assumed to have been either destroyed or paved over during the 2012 excavation activities. Well B2MW was found damaged by the ADEC on August 23, 2013 during a site inspection. The locations were approximated based on photos and swing ties. A metal detector was also used, and did not indicate that there was metal present at the presumed locations of Monitoring Wells B5MW or B6MW. The metal detector did indicate a metal object near the presumed locations of Wells B4MW and B7MW; the locations where metal objects were encountered were marked in the field so the asphalt could be removed on September 16, 2013 during the well decommissioning effort.

On September 16, 2013, Monitoring Wells B2MW, B7MW, B8MW, B9MW, B10MW, and B11MW were decommissioned. A Shannon & Wilson representative was on-site to document decommissioning activities. In an attempt to locate Wells B4MW, B5MW, B6MW, and B7MW, Discovery cut the asphalt up to two times at each well location and hand dug about 6 inches (Photos 1 and 2) to determine if the well casings were present under the asphalt. Only Well B7MW was located (Photo 3). The asphalt cuts were repaired using asphalt cold-patches (Photo 4).

Mr. Martin Shields  
Wells Fargo  
September 20, 2013  
Page 3 of 4

SHANNON & WILSON, INC.

With the exception of Well B10MW, which was pulled up with a hydraulic jack due to the location within the fenced area (see Photo 5), the Monitoring Wells were decommissioned using a CME-75 drill rig. Due to the shallow groundwater at the site, the well casings were removed to allow the aquifer material to collapse in the borehole and then backfilled with bentonite chips (Photo 6). While decommissioning Well B2MW, the casing broke at approximately 5 feet bgs so that the bottom 2.5 feet of the screened interval remained in the ground. If the hole collapsed in on itself (Well B7MW and B8MW), the hole was re-opened by driving a metal rod down the pre-existing hole to about 5 feet bgs and then backfilled with bentonite chips to about 3 feet bgs. Pea gravel was used to backfill each hole to about 0.25 feet bgs. The surface of each well was finished with an asphalt cold patch.

### **Decommissioning Derived Waste Disposal**

The well casings and monuments from Monitoring Wells B2MW, B7MW, B8MW, B9MW, B10MW, and B11MW were disposed of as municipal solid waste by Discovery.

### **CLOSURE AND LIMITATIONS**

This report was prepared for the exclusive use of our clients and their representatives to document the well decommissioning efforts performed at this site. Shannon & Wilson has prepared the document in Attachment 3, Important Information About Your Geotechnical/Environmental Report, to assist you and others in understanding the use and limitations of our reports.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore has not, and will not, disclose the results of this effort, except with your permission or as required by law.

Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) that are signed or sealed by Shannon & Wilson with a wet, blue ink signature. Files provided in electronic media format are furnished solely for the convenience of the client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and hard copies, or you question the authenticity of the report, please contact the undersigned.

Mr. Martin Shields  
Wells Fargo  
September 20, 2013  
Page 4 of 4

SHANNON & WILSON, INC.

If you have any questions or comments regarding this report, please contact Mr. Matt Hemry, P.E., or the undersigned at (907) 561-2120.

Sincerely,

SHANNON & WILSON, INC.

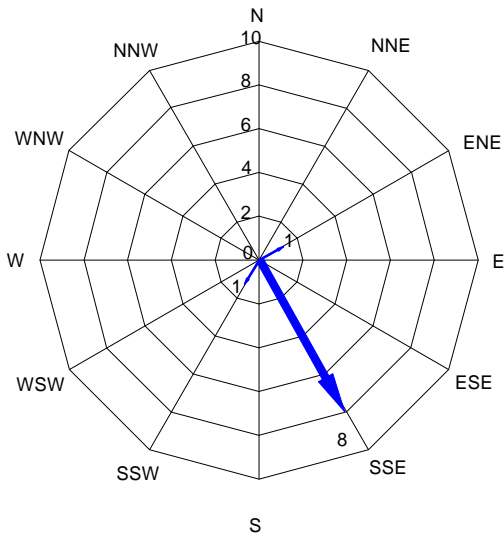
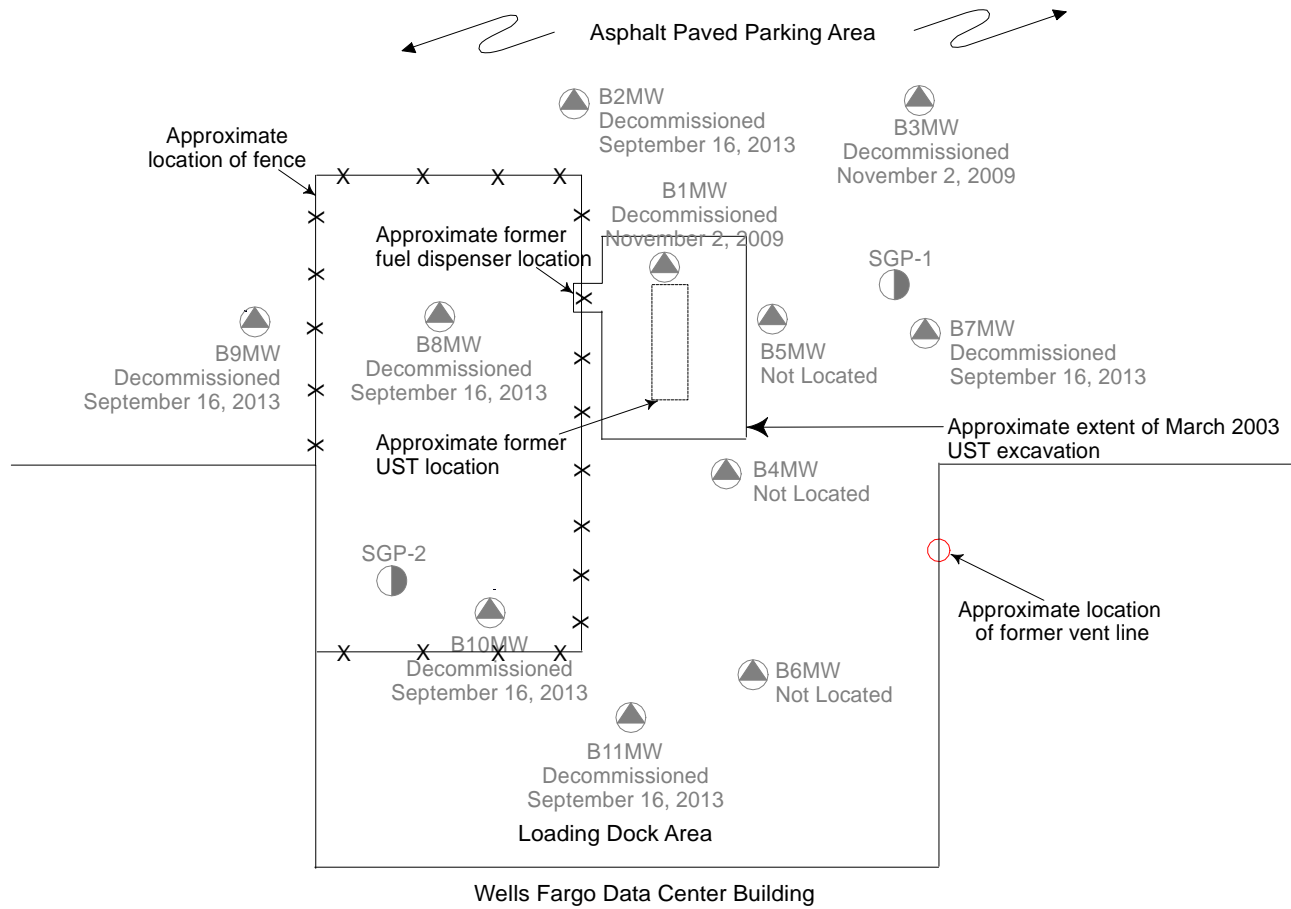


Dane Palmer, E.I.T.  
Environmental Engineer



Shayla Marshall  
Senior Scientist

Encl: Figure 1; Attachments 1, 2, and 3





**Rose/Star Groundwater Flow Diagram**


Number of times groundwater has flowed in a particular direction during nine monitoring events since 2004.

Note - 2013 Data not included in this rose diagram due to inconclusive data

**LEGEND**

-  Approximate location of well that was decommissioned or removed over during site improvements
-  Approximate location of former Soil Gas Point SGP-1



6831 Arctic Boulevard Anchorage, Alaska	
<b>SITE PLAN</b>	
September 2013	32-1-16828-013
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	<b>Fig. 1</b>

**ATTACHMENT 1**  
**FIELD NOTES**

32-1-16828-013

Wells Fargo MW Decom.

9/12/13

1530 DSP and JDS to Wells Fargo to attempt to locate monitoring wells B4MW, B5MW, B6MW, B7MW.

1535 DSP and JDS on-site.

1545 Metal detector not picking up anything at B6MW. Used swing ties and JDS recollection of site to mark approximate location. Marked w/ paint. No sign of well presence.

1600 Metal detector not picking up anything around where swing ties show <sup>B5MW</sup> its location. Marked w/ paint. No sign of well.

1630 Located approximate location of B7MW based on pictures. Metal detector is ~~not~~ detecting the nearby hand rail.

1645 Metal detector is picking up a long thin metal object around where B4MW should be. Probably rebar. Also used past photo to mark location where to make asphalt cut.

No signs of B6MW, B5MW. Metal detector is inconclusive in finding B4MW and B7MW.

1650 DSP and JDS back to office.

32-1-16828-013

# Wells Fargo (Arctic)

9/16/13  
DSP

- 715 DSP move for well decommission of MW2, 4, 5, 6, 7, 8, 9, 10, 11 at Wells Fargo data center.
- 750 DSP to site
- 755 DSP on-site, walk around w/ Disco to look for wells.
- 805 Called Bob cloud to let him know we are here. He said he will get them to unlock fence to access MW-8, MW-10.
- 815 Begin w/ "cut & patches" to look for MW-6
- 820 Had safety meeting w/ Scott, Bonnie, Dene  
Begin looking for MW-6. Mark shield & Bob cloud on-site welding
- 834 Finish looking for MW-6. Not located after two patches. Hand dug down to 2nd asphalt layer where the wells were originally placed
- 845 Set up to decom. MW-11.  
- Pulled the casing out w/ CME Rig (punched bottom) <sup>encountered bridging in the well screen</sup>  
Hydrated → - Filled w/ bentonite chips from to about 1.5 ft bgs  
- Pulled well monument  
- Filled w/ gravel to 0.5 ft bgs  
- Cold patch asphalt
- 915 Begin decom. of MW-4. After two asphalt cuts and hand digging down to 0.5 ft bgs no casing was found. Only one layer of asphalt encountered
- 945 Same process as MW-4. After two cuts, casing not found.
- 1005 Encountered well MW-7. The monument sleeve was damaged (caved in). Pryed out monument w/ bar.  
- Pulled casing but top of hole collapsed  
- Augered down about ~~25~~ 5 ft bgs until existing bentonite was encountered. Poured chips down auger to 3 ft bgs.  
- Poured gravel from 3 - 0.25 ft bgs  
- Asphalt finish
- 1040 MW-2 had a cracked casing w/ well cap jammed down into casing. No monument cap present, just asphalt around PVC casing.



while disco was pulling casing, the bottom 1/2 of the screen broke off.

- Filled w/ chips to 3 feet bgs
- Gravel to 0.5 ft
- Asphalt patch

1100 Begin decom. of MW-8. We were able to back the CME Rig onto well location. (Don't need hydraulic jack)

- Pulled well casing (screened interval smelled like HC)
- hole collapsed. Advanced rod down to 5 ft and fill bentonite to 3 ft bgs. (Hydrated)
- Pulled monument w/ Rig
- Pen gravel to 0.25 ft)
- Asphalt patch.

1145 Pulled MW-10 w/ hydraulic jack.  
Filled hole w/ chips to 3 ft bgs  
Gravel to .5  
Asphalt patch

1200 Decommissioned MW-9, same process as MW-10

1210 Disco off site, called Bob to let him know we are finished. DSP off-site.

**ATTACHMENT 2**  
**SITE PHOTOGRAPHS**



Photo 1: Discovery making two asphalt cuts in an attempt to locate Well B6MW. (September 16, 2013)



Photo 2: Discovery hand-dug down to approximately 6 inches bgs to locate casings of Wells B4MW, B5MW, B6MW and B7MW. (September 16, 2013)

6831 Arctic Boulevard  
Anchorage, Alaska

**PHOTOS 1 AND 2**

September 2013

32-1-16828-013



**SHANNON & WILSON, INC.**  
Geotechnical & Environmental Consultants



Photo 3: Well B7MW casing after damaged monument sleeve was removed. (September 16, 2013)

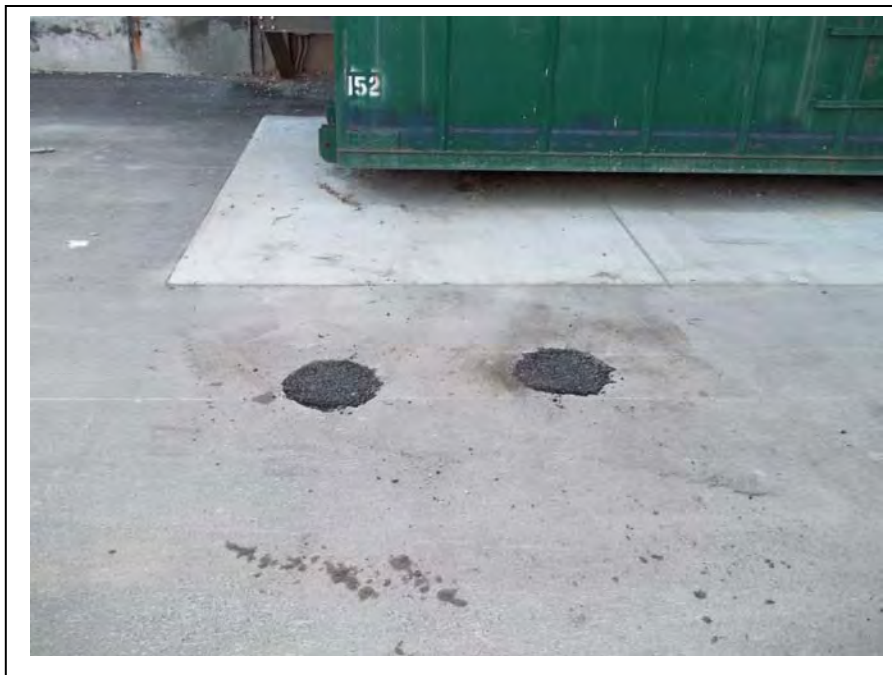


Photo 4: Asphalt cuts were finished with cold patch asphalt. (September 16, 2013)



Photo 5: Monitoring Well B10MW was pulled up with a hydraulic jack. (September 16, 2013)

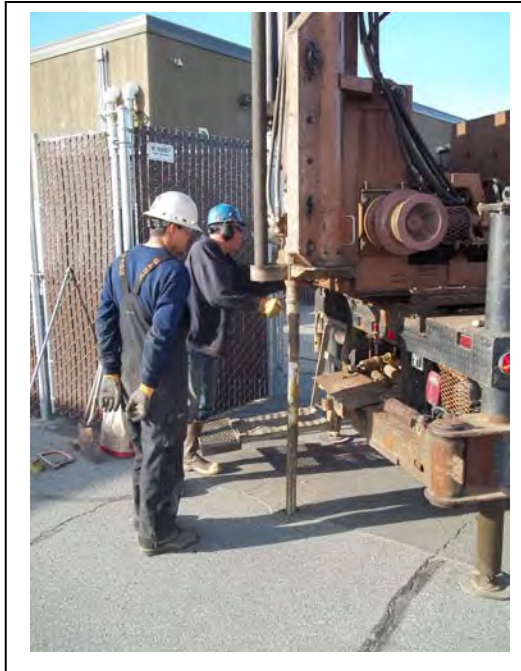


Photo 6: A CME-75 Drill Rig was used to pull the casings of Monitoring Wells B2MW, B7MW, B8MW, B9MW, B10MW, and B11MW. (September 16, 2013)

6831 Arctic Boulevard  
Anchorage, Alaska

**PHOTOS 5 AND 6**

September 2013

32-1-16828-013



**SHANNON & WILSON, INC.**  
Geotechnical & Environmental Consultants



Photo 7: An auger was advanced down to 5 feet bgs to re-open the collapsed hole of Well B7MW. Bentonite chips were backfilled while the auger was retracted. (September 16, 2013)

6831 Arctic Boulevard  
Anchorage, Alaska

**PHOTO 7**

September 2013

32-1-16828-013



**SHANNON & WILSON, INC.**  
Geotechnical & Environmental Consultants

**ATTACHMENT 3**  
**IMPORTANT INFORMATION ABOUT YOUR**  
**GEOTECHNICAL/ENVIRONMENTAL REPORT**



Date: September 2013  
To: Mr. Martin Shields, Wells Fargo  
Re: Monitoring Well Decommissioning, 6831  
Arctic Boulevard, Anchorage, Alaska

## **Important Information About Your Geotechnical/Environmental Report**

### **CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.**

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

### **THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.**

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors, which were considered in the development of the report, have changed.

### **SUBSURFACE CONDITIONS CAN CHANGE.**

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

### **MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.**

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.



## **A REPORT'S CONCLUSIONS ARE PRELIMINARY.**

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

## **THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.**

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

## **BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.**

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

## **READ RESPONSIBILITY CLAUSES CLOSELY.**

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the  
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland