



WATER SAMPLING AND REPORTING SERVICES

**COLUMBIA PUBLIC SCHOOLS
BATTLE HIGH SCHOOL
7575 EAST ST. CHARLES ROAD
COLUMBIA, MISSOURI**

Prepared for:
**COLUMBIA PUBLIC SCHOOLS
COLUMBIA, MISSOURI**

Prepared by:
**GEOTECHNOLOGY, LLC, DBA UES
ST. LOUIS, MISSOURI**

Date:
JULY 20, 2024

Project No.:
J044517.01

**SAFETY
TEAMWORK
RESPONSIVENESS
INTEGRITY
VALUE
EXCELLENCE**



July 20, 2024

Mr. David Seamon
District Project Manager
Columbia Public Schools
1818 West Worley Street
Columbia, Missouri 65203

Re: Water Sampling and Reporting Services
Columbia Public Schools
Battle High School
7575 East St. Charles Road
Columbia, Missouri
Project No. J044517.01

Dear Mr. Seamon:

In accordance with Columbia Public Schools' (CPS) Request for Proposal No. C-24043, dated October 10, 2023, Geotechnology, LLC, dba UES, is pleased to provide this drinking water sampling report for the referenced project. Our scope of services included flushing and sampling of drinking water from potable water outlets, laboratory analysis of water samples, and a letter report.

SITE AND PROJECT DESCRIPTION

The subject property consists of the existing Columbia Public Schools Battle High School, located northeast of the intersection of Battle Avenue and East St. Charles Road in Columbia, Missouri. The purpose of the drinking water sampling was to identify potable water outlets that may require remediation in accordance with the State of Missouri's *Get the Lead out of School Drinking Water Act* (RSMo 160.077).

DRINKING WATER SAMPLING

RSMo 160.077 sets standards for lead concentrations in school drinking water, stating that each Missouri school shall provide drinking water with a lead concentration level below five (5) parts per billion (ppb). This Act requires schools to conduct the inventory, sampling, remediation, and monitoring at all potable drinking water outlets used or potentially used for drinking, food preparation, and cooking or cleaning utensils.

In general conformance with the RSMo 160.077 requirements, and the Environmental Protection Agency's (EPA) *3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities* manual, initial water flushing and sampling activities were conducted on March 5, 6, 14, and 15, 2024, and June 26, 2024, by Mr. Brad Lohrum, a Missouri-licensed lead risk assessor. Copies of Mr. Lohrum's training certificate and lead license are included in Appendix A.



An inventory of potable drinking water outlets was provided to UES by CPS. UES personnel sampled the identified outlets utilizing the EPA’s “first-draw” methods. The identified outlets were flushed, then allowed to sit undisturbed for a period of 8-18 hours. Following this stagnation period, the first 250 milliliters (ml) of water expelled from the outlets were collected in laboratory-provided containers. A copy of the drinking water sampling forms, which include a list of sample locations, and the times and dates of flushing and sampling activities, is included in Appendix B. Floor plans depicting approximate sample locations are included as Figures 1, 2, and 3.

Using standard chain-of-custody procedures, the drinking water samples were submitted to Teklab, Inc. of Collinsville, Illinois, an independent, certified Missouri Department of Natural Resources (MDNR) Drinking Water and National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory, for analysis of lead content via EPA Method 200.8: *Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry*.

RESULTS

Laboratory analyses detected the presence of lead at or above 5 ppb in the following samples.

TABLE 1
DRINKING WATER OUTLETS AT OR ABOVE 5 PARTS PER BILLION

Sample Number / Location and Fixture Type	Results
BHS-07 / Room J103 Sink	11.4 ppb
BHS-08 / Room J113 North Sink	5 ppb
BHS-13 / Room H106 North Sink	5 ppb
BHS-14 / Room H106 West Left Sink	13.1 ppb
BHS-15 / Room H106 West Right Sink	9.9 ppb
BHS-16 / Room H106 East Left Sink	14.4 ppb
BHS-17 / Room H106 East Right Sink	25.9 ppb
BHS-18 / Room H110 South Sink	5.2 ppb
BHS-19 / Room H110 West Left Sink	9.4 ppb
BHS-20 / Room H110 West Left Center Sink	17.1 ppb
BHS-21 / Room H110 West Center Sink	16.4 ppb
BHS-22 / Room H110 West Right Center Sink	14.6 ppb
BHS-23 / Room H110 West Right Sink	26.8 ppb
BHS-24 / Room H110 North Sink	8.1 ppb
BHS-27 / Room H114 North Sink	6.5 ppb
BHS-28 / Room H114 East Left Sink	9.3 ppb
BHS-29 / Room H114 East Left Center Sink	7.3 ppb
BHS-30 / Room H114 East Center Sink	8.1 ppb
BHS-31 / Room H114 East Right Center Sink	9.3 ppb



TABLE 2 - CONTINUED

Sample Number / Location and Fixture Type	Results
BHS-32 / Room H114 East Right Sink	5.7 ppb
BHS-33 / Room H114 South Sink	12.5 ppb
BHS-34 / Room H114 Teacher's Sink	24.1 ppb
BHS-37 / Room G110 South Sink	6.6 ppb
BHS-38 / Room G110 West Left Sink	5.1 ppb
BHS-39 / Room G110 West Left Center Sink	5.8 ppb
BHS-40 / Room G110 West Center Sink	6 ppb
BHS-42 / Room G110 West Right Sink	5.9 ppb
BHS-44 / Room G110 Teacher's Sink	5.7 ppb
BHS-45 / Room G112 Sink	5.3 ppb
BHS-46 / Room G113 North Sink	9.2 ppb
BHS-47 / Room G113 East Left Sink	8.3 ppb
BHS-48 / Room G113 East Left Center Sink	5.7 ppb
BHS-49 / Room G113 East Center Sink	9.6 ppb
BHS-50 / Room G113 East Right Center Sink	7.3 ppb
BHS-52 / Room G113 East Right Sink	10.6 ppb
BHS-53 / Room G113 Teacher's Sink	9.2 ppb
BHS-57 / Room F110 South Sink	9.7 ppb
BHS-59 / Room F110 West Left Center Sink	7.9 ppb
BHS-60 / Room F110 West Center Sink	5.8 ppb
BHS-61 / Room F110 West Right Center Sink	6.9 ppb
BHS-62 / Room F110 West Right Sink	5.1 ppb
BHS-81 / Room C106 Sink	9 ppb
BHS-83 / Room B109 Dish Wash Sink	11.9 ppb
BHS-101 / Room A102 Left Sink	5.6 ppb
BHS-106 / Room A101 North Right Sink	5 ppb
BHS-107 / Room A101 East Left Sink	9 ppb
BHS-111 / Room A126 Sink	5.2 ppb
BHS-122 / Room D237 Food Prep East Sink	5 ppb
BHS-125 / Room D237 Dish Wash Center Sink	6.7 ppb
BHS-126 / Room D237 Dish Wash Right Sink	5.2 ppb
BHS-130 / Room D231 Dish Rinse Sink	8.1 ppb
BHS-136 / Room D231 Eye Wash Sink	35.7 ppb
BHS-142 / Room D227 Sink	7.8 ppb
BHS-143 / Room D226 Sink	10 ppb
BHS-146 / Room F215 South Sink	7.5 ppb
BHS-147 / Room F215 West Left Sink	7.5 ppb
BHS-148 / Room F215 West Left Center Sink	6.5 ppb



TABLE 3 - CONTINUED

Sample Number / Location and Fixture Type	Results
BHS-149 / Room F215 West Center Sink	6.9 ppb
BHS-150 / Room F215 West Right Center Sink	7.5 ppb
BHS-151 / Room F215 West Right Sink	7.8 ppb
BHS-152 / Room F215 North Sink	5.8 ppb
BHS-153 / Room F215 Teacher's Sink	9.1 ppb
BHS-154 / Room F216 Sink	9.8 ppb
BHS-155 / Room F218 North Sink	6.9 ppb
BHS-156 / Room F218 East Left Sink	10.7 ppb
BHS-157 / Room F218 East Left Center Sink	12.9 ppb
BHS-158 / Room F218 East Center Sink	9 ppb
BHS-159 / Room F218 East Right Center Sink	9.8 ppb
BHS-160 / Room F218 East Right Sink	5.7 ppb
BHS-162 / Room F218 Teacher's Sink	68.8 ppb
BHS-166 / Room G215 South Sink	7 ppb
BHS-167 / Room G215 West Left Sink	17 ppb
BHS-168 / Room G215 West Left Center Sink	7.9 ppb
BHS-169 / Room G215 West Center Sink	10.6 ppb
BHS-170 / Room G215 West Right Center Sink	8.5 ppb
BHS-171 / Room G215 West Right Sink	16.6 ppb
BHS-172 / Room G215 North Sink	10.7 ppb
BHS-173 / Room G215 Teacher's Sink	8.8 ppb
BHS-175 / Room G218 North Sink	5.3 ppb
BHS-176 / Room G218 East Left Sink	7.6 ppb
BHS-177 / Room G218 East Left Center Sink	7.6 ppb
BHS-178 / Room G218 East Center Sink	7.2 ppb
BHS-180 / Room G218 East Right Sink	8 ppb
BHS-182 / Room G218 Teacher's Sink	17.2 ppb
BHS-185 / Room H215 South Sink	20.9 ppb
BHS-186 / Room H215 West Left Sink	516 ppb
BHS-187 / Room H215 West Left Center Sink	8.6 ppb
BHS-188 / Room H215 West Center Sink	12.4 ppb
BHS-189 / Room H215 West Right Center Sink	10.5 ppb
BHS-190 / Room H215 West Right Sink	58.5 ppb
BHS-191 / Room H215 North Sink	13.4 ppb
BHS-192 / Room H215 Teacher's Sink	12.8 ppb
BHS-193 / Room H216 Sink	7.2 ppb
BHS-194 / Room H218 North Sink	5.9 ppb
BHS-195 / Room H218 East Left Sink	9.1 ppb



TABLE 4 - CONTINUED

Sample Number / Location and Fixture Type	Results
BHS-196 / Room H218 East Left Center Sink	8.1 ppb
BHS-197 / Room H218 East Center Sink	12.1 ppb
BHS-198 / Room H218 East Right Center Sink	7.2 ppb
BHS-199 / Room H218 East Right Sink	13.1 ppb
BHS-200 / Room H218 South Sink	5 ppb
BHS-201 / Room H218 Teacher's Sink	5.1 ppb
BHS-206 / Room J215 West Left Sink	9.1 ppb
BHS-207 / Room J215 West Left Center Sink	9.4 ppb
BHS-208 / Room J215 West Center Sink	8.4 ppb
BHS-209 / Room J215 West Right Center Sink	11.9 ppb
BHS-210 / Room J215 West Right Sink	14.6 ppb
BHS-211 / Room J215 North Sink	7.9 ppb
BHS-212 / Room J215 Teacher's Sink	5.4 ppb
BHS-213 / Room J216 Sink	9.7 ppb
BHS-214 / Room J218 North Sink	14.5 ppb
BHS-215 / Room J218 East Left Sink	7.7 ppb
BHS-216 / Room J218 East Left Center Sink	6.5 ppb
BHS-217 / Room J218 East Center Sink	7.4 ppb
BHS-218 / Room J218 East Right Center Sink	7.9 ppb
BHS-219 / Room J218 East Right Sink	5.3 ppb
BHS-220 / Room J218 South Sink	11.5 ppb
BHS-221 / Room J218 Teacher's Sink	5.2 ppb

UES personnel resampled client-designated outlets on June 26, 2024 (BHS-83-2, BHS-122-2, BHS-125-2, BHS-126-2, and BHS-130-2). Laboratory analyses detected the presence of lead at or above 5 ppb in the following samples.

**TABLE 2
 RESAMPLED DRINKING WATER OUTLETS AT OR ABOVE 5 PARTS PER BILLION**

Sample Number / Location and Fixture Type	Results
BHS-83-2 / Room B109 Dish Wash Sink	17.6 ppb
BHS-125-2 / Room D237 Dish Wash Center Sink	8.8 ppb
BHS-126-2 / Room D237 Dish Wash Right Sink	5.9 ppb



UES will not be able to represent that the site contains no lead-bearing water outlets beyond those detected or observed by UES during flushing and sampling activities. Copies of the drinking water analytical results are included in Appendix C.

RECOMMENDATIONS

Our recommendations are summarized below:

- It is our understanding that the outlets identified in Table 1 that have not been retested have either been removed, marked as non-potable, or have otherwise been taken out of service. Should these fixtures be put back into service following remediation activities, or if replacement fixtures are to be put into service, further sampling and testing should be conducted.
- The outlets identified in Table 2 should be taken out of service pending further remediation activities. These fixtures should be resampled and tested prior to being put back into service.

* * * * *

The following attachments are included in and complete this report:

- | | |
|------------|---|
| Figure 1 | - Drinking Water Sample Locations – First Floor |
| Figure 2 | - Drinking Water Sample Locations – Second Floor |
| Figure 3 | - Drinking Water Sample Locations – Exterior |
| Appendix A | - Certificate and License of Environmental Professional |
| Appendix B | - Drinking Water Sampling Forms |
| Appendix C | - Drinking Water Laboratory Data Sheets |
| Appendix D | - Limitations of Report |

* * * * *

We appreciate the opportunity to provide our professional environmental consulting services to Columbia Public Schools on this project. If you have any questions or comments, please contact me at (314) 997-7440.

Very truly yours,

UES

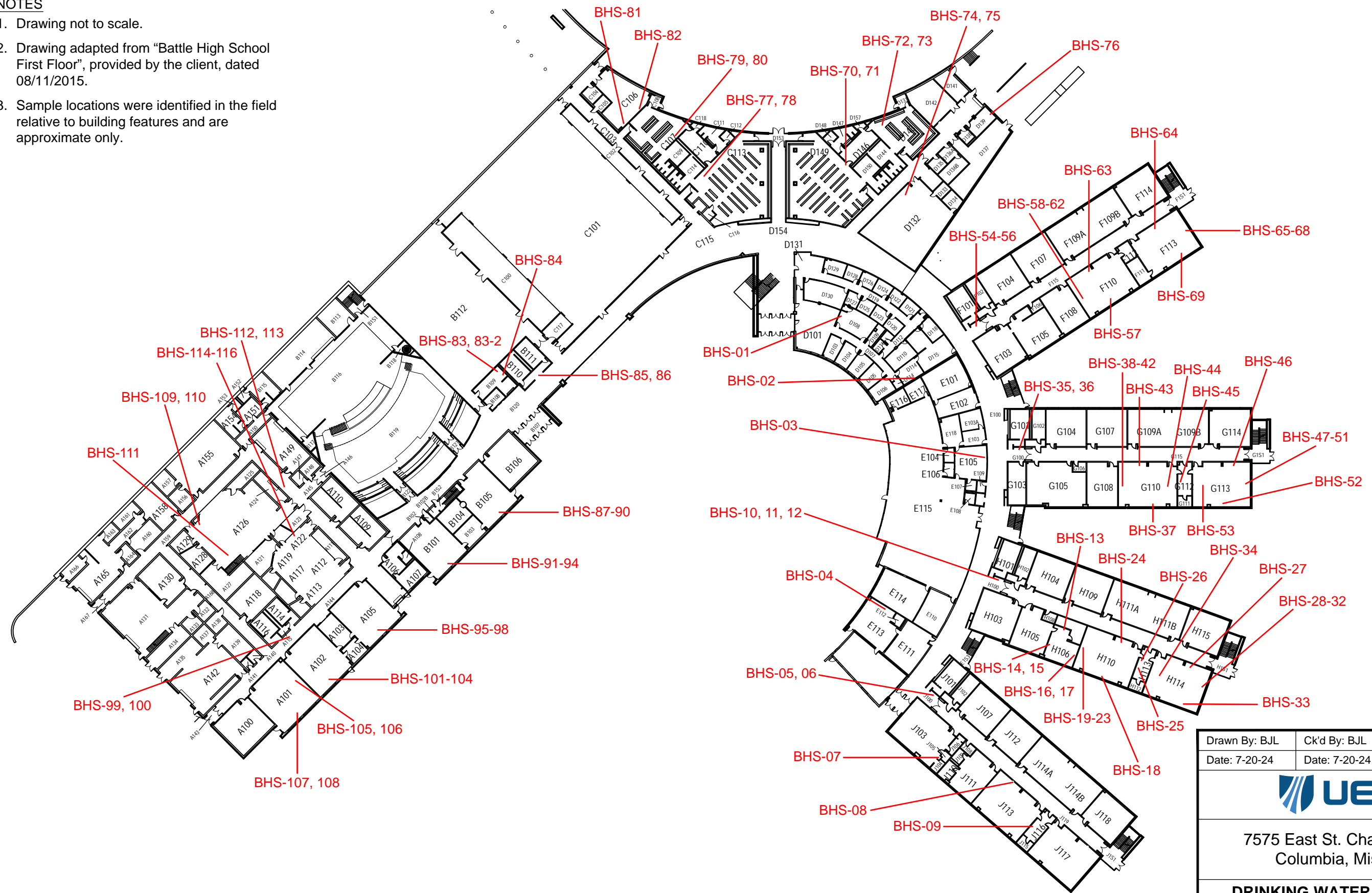
A handwritten signature in blue ink that reads "Bradley J. Lohrum".

Bradley J. Lohrum
Project Manager

BJL/MSR:bjl/jsj

NOTES

1. Drawing not to scale.
2. Drawing adapted from "Battle High School First Floor", provided by the client, dated 08/11/2015.
3. Sample locations were identified in the field relative to building features and are approximate only.



Drawn By: BJJ	Ck'd By: BJJ	App'vd By: MSR
Date: 7-20-24	Date: 7-20-24	Date: 7-20-24



7575 East St. Charles Road
Columbia, Missouri

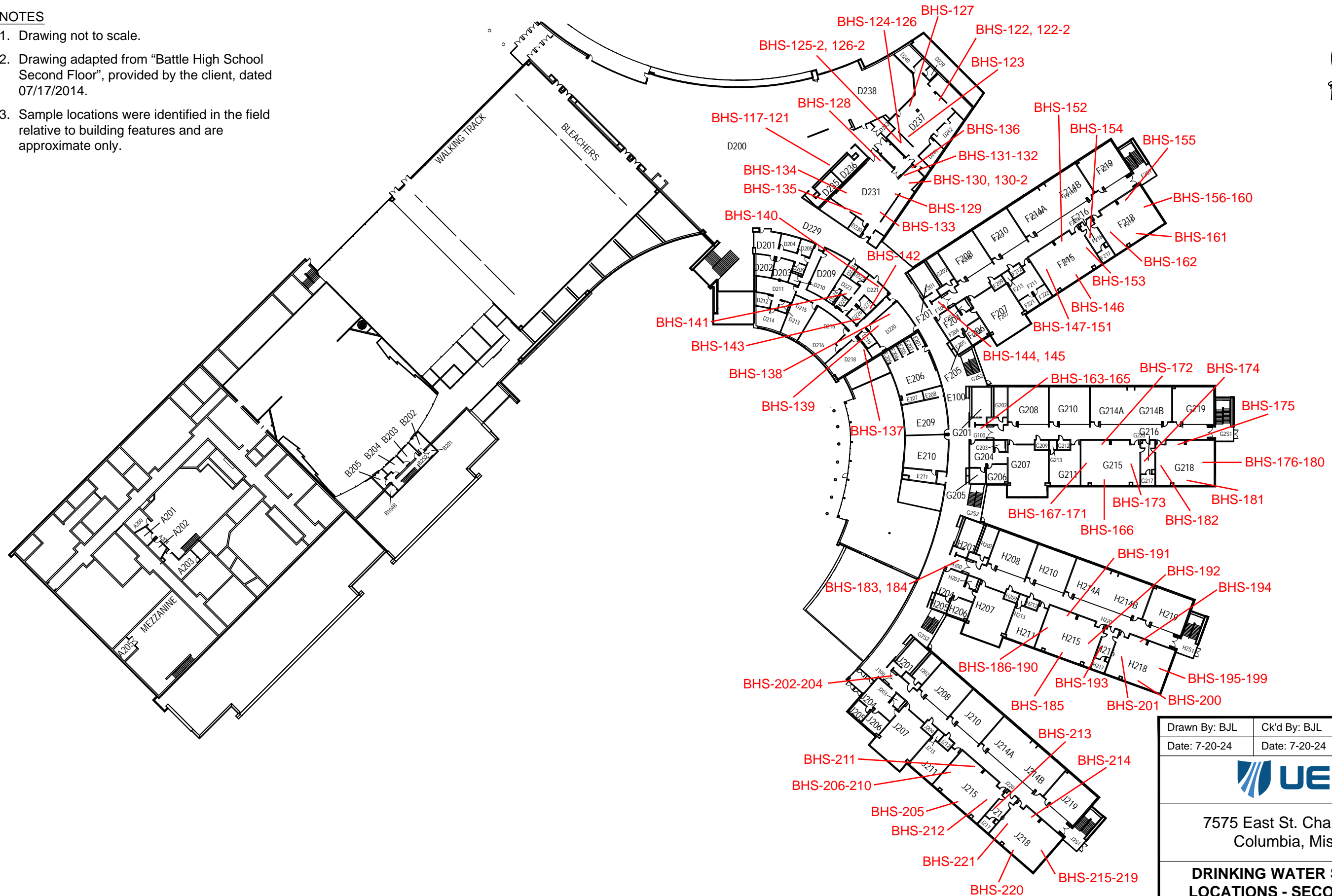
**DRINKING WATER SAMPLING
LOCATIONS - FIRST FLOOR**

Project Number
J044517.01

FIGURE 1

NOTES

1. Drawing not to scale.
2. Drawing adapted from "Battle High School Second Floor", provided by the client, dated 07/17/2014.
3. Sample locations were identified in the field relative to building features and are approximate only.



Drawn By: BJJ	Ck'd By: BJJ	App'vd By: MSR
Date: 7-20-24	Date: 7-20-24	Date: 7-20-24



7575 East St. Charles Road
Columbia, Missouri

**DRINKING WATER SAMPLING
LOCATIONS - SECOND FLOOR**

Project Number
J044517.01

FIGURE 2

NOTES

- 1. Drawing not to scale.
- 2. Drawing adapted from "Site Building Plans Columbia High School", provided by the client, dated 05/17/2010.
- 3. Sample locations were identified in the field relative to building features and are approximate only.



BHS-226
BHS-227

BHS-222
BHS-223
BHS-224
BHS-225

SOFTBALL RESTROOMS

PRESSBOX

Drawn By: BJL	Ck'd By: BJL	App'vd By: MSR
Date: 7-20-24	Date: 7-20-24	Date: 7-20-24
7575 East St. Charles Road Columbia, Missouri		
DRINKING WATER SAMPLING LOCATIONS - EXTERIOR		
Project Number J044517.01	FIGURE 3	



APPENDIX A

CERTIFICATE AND LICENSE OF ENVIRONMENTAL PROFESSIONAL



APPENDIX B

DRINKING WATER SAMPLING FORMS



APPENDIX C

DRINKING WATER LABORATORY DATA SHEETS



APPENDIX D

LIMITATIONS OF REPORT

ENVIRONMENTAL SAMPLING LIMITATIONS OF REPORT

1. The Report has been prepared on behalf of and for the exclusive use of the addressee, solely for use in documenting specific sample results. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of UES.
2. The sampling was performed in accordance with generally accepted practices of other consultants undertaking similar projects at the same time and in the same geographical area, and UES endeavored to observe that degree of care and skill ordinarily exercised by other consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the project. UES does not and cannot represent that the site contains no hazardous waste or material, or other latent condition beyond that observed by UES.
3. In the event that information is developed relative to environmental or hazardous waste or material issues at the site and not contained in this report, such information shall be brought to UES' attention. UES will evaluate such information and, based on this evaluation, may modify the conclusions stated in this Report.
4. The conclusions and recommendations contained in this Report are based in part upon the data obtained from a limited number of water samples. The identified presence of contaminated water is limited to the extent that they could be identified by instrumentation and sampling and testing. There is a potential for contaminated water above the indicated concentrations to occur elsewhere on the site. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, and/or if changes are made in regulations, it will be necessary to reevaluate the conclusions and recommendations of this report.
5. If quantitative laboratory testing was performed as part of the assessment by an outside laboratory, UES has relied upon the data provided, and has not conducted an independent evaluation of the reliability to these data.
6. Chemical analyses have been performed for specific parameters during the course of this sampling as described in the text. Do not assume that a given analyte is not present at the site simply because it was not present at the test locations. The analyte may exist on the site where tests were not performed. In addition, it should be noted that additional chemical constituents not tested for during the sampling could be present in water at the site.