ERO

Consultants in Natural Resources and the Environment

Long Term Groundwater Monitoring Plan
Thornton Shopping Center
East 88th Avenue and Washington Street
Thornton, Colorado

EPA ID COR000212639
Compliance Order on Consent Number: 24-02-01-01

Prepared for—

Thornton Development Authority
9500 Civic Center Drive
Thornton, Colorado 80229

Prepared by—

ERO Resources Corporation
1626 Cole Boulevard, Suite 100
Lakewood, Colorado 80401
(303) 830-1188
ERO Project #10197

July 18, 2024

Contents

Tables

Figures

Appendices

Long Term Groundwater Monitoring Plan
Thornton Shopping Center
East 88th Avenue and Washington Street
Thornton, Colorado

July 18, 2024

EPA ID #COR000212639
Compliance Order on Consent Number: 24-02-01-01

1.0 Introduction

This Long Term Groundwater Monitoring Plan (LTGMP) is submitted on behalf of the Thornton Development Authority (TDA), consistent with ERO's May 2024 Remedial Investigation and Corrective Measures Work Plan (Work Plan), approved by the Colorado Department of Public Health and Environment (CDPHE) through the Hazardous Material and Waste Management Division (Division) on July 3, 2024. The submittal of this LTGMP is consistent with Paragraph 23 of the Compliance Order on Consent (Consent Order) Number 24-02-01-01 between the TDA and the Division. The Consent Order outlines the compliance and schedule requirements for the remediation of the 15.86-acre Thornton Shopping Center, located at the northeast corner of East 88th Avenue and Washington Street in Thornton, Colorado. Within this LTGMP, "TSC Property" refers to the Thornton Shopping Center real property as shown on the attached figures, whereas "Site" refers to the extent of known impacts associated with the historical release both on the TSC Property as well as off-site. The TSC Property is shown on Figure 1.

The purpose of this LTGMP is to detail the proposed groundwater monitoring across the Site and groundwater plume stability evaluation for on-site and off-site areas. Between 2004 and 2022, approximately 50 groundwater monitoring wells were installed with periodic groundwater sampling events. Groundwater monitoring has been occurring at the Site since 2004 by Freedom Environmental (Freedom), LT Environmental (LTE), R3, Quantum Water & Environment (Quantum), and ERO. ERO, on behalf of TDA, began groundwater monitoring in January 2023 and quarterly groundwater monitoring of Site wells has been occurring since January 2023, with monitoring reports submitted to the Division.

1.1 Location and Physical Setting

The TSC Property is located at the northeast corner of East 88th Avenue and North Washington Street in Thornton, Colorado, generally in the SW 1/4 of Section 23, Township 2 South, Range 68 West of the 6th Principal Meridian. The TSC Property elevation is approximately 5,300 feet above mean sea level (AMSL) at the former shopping center location. The land area is generally flat within the on-site areas of the TSC Property, with the off-site areas having a topographic slope downward to the northeast, north of the former shopping center building, and to the southeast, south of the shopping center building.

The TSC Property is located within the City of Thornton, Colorado, is zoned for commercial land use, and is currently in the final stages of building demolition and all building foundations and asphalt-paved

parking areas remaining. The TSC Property is bounded on the north by commercial land development; to the east by Corona Street followed by single and multi-family residential development; to the south by East 88th Avenue and commercial development, with multi-family and single-family development to the southeast – within unincorporated areas of Adams County; and North Washington Street and commercial development to the west. &&&

Historical records indicate the TSC Property was primarily used for agricultural land use until it was first developed with a commercial shopping center in the early 1960s. The TSC Property buildings were constructed between 1964 and 1979 and were used for retail businesses, including multiple dry cleaners, an automotive parts and repair facility, a laundromat, a gasoline station, restaurants, and other retail stores until vacated in 2023. Historical records indicate three dry cleaners are known to have operated on the TSC Property since the 1960s at the addresses of 8866, 8876, and 8946 North Washington Street (ERO 2022). No dry cleaners currently operate on the TSC Property.

2.0 Long Term Groundwater Monitoring

Long term groundwater monitoring will be conducted on Site wells to evaluate the groundwater plume stability, changes, and completeness of the contamination delineation.

2.1 Scope

In accordance with the Consent Order, the current groundwater monitoring program, in place since January 2023 will continue without delay, incorporating adjustments discussed below.

2.2 Sample Frequency

The current monitoring well network consists of 43 groundwater monitoring wells installed across the Site that have been sampled since January 2023 if groundwater was present, the well was accessible, and/or the well did not contain remnant BOS-100 injectant from previous injections. The listing of the current wells within the monitoring program are shown on Table 1 (attached). All currently monitored wells will continue to be sampled on a quarterly basis through 2024, after which time, a reduced frequency is proposed to take effect based on the following evaluation criteria that categorizes monitoring frequencies into annual, semi-annual, and quarterly:

Annually –	Wells with 6 or more consecutive quarters of non-detectable PCE concentrations and a long-term sampling history of PCE detections below the current U.S. EPA Maximum Contaminant Limit (MCL) of 5.0 micrograms per Liter (µg/L).
Semi-annually	Wells with 6 or more consecutive quarters of PCE concentrations detected below the CDPHE Colorado Basic Standard for Groundwater (CBGWS; CDPHE 2020) of 17 CBGWS (µg/L)
Quarterly	Wells with PCE concentrations in excess of CBGWS

Note: Reduced frequencies are not proposed for implementation until January 2024.

Table 1. Well Summary Table.

	Well Elevation Data									Well Details								
Well ID	Latitude	Longitude	Elevation TOC (amsl)	Total Depth (ft bgs)	Top Screen (ft amsl)	Bottom Screen (ft amsl)	6Q Average DTW	6Q Avg GW Elevation	Sample Type	Material	Diameter (in)	Screen Length (ft)	Sand Pack (ft)	Bentonite Seal (ft)	Grout (ft)	Date Completed	Drill Method	Consultant/Driller
MW-01	1737752.80	3147281.71	5299.16	30	5289	5269	8.88	5290.28	Bailer	PVC	2	20	22	8	6	9/28/2005	4" SS Auger w/SS	Freedom/Dakota
MW-02	1737281.89	3147150.36	5302.21	29	5293	5273	17.71	5284.50	Low Purge	PVC	2	20	22	8	6	9/28/2005	4" SS Auger w/SS	Freedom/Dakota
MW-03	1737659.95	3147383.13	5301.07	29	5297	5272	11.46	5289.61	Low Purge	PVC	2	25	27	8	6	9/28/2005	4" SS Auger w/SS	Freedom/Dakota
MW-04	1737698.87	3147406.26	5299.42	29	5290	5270	10.27	5289.15	Low Purge	PVC	2	20	22	8	7	9/28/2005	4" SS Auger w/SS	Freedom/Dakota
MW-05	1737275.14	3147071.62	5302.58	40	5293	5263	16.35	5286.23	Bailer	PVC	2	30	32	8	7	9/29/2005	4" SS Auger w/SS	Freedom/Dakota
MW-06	1737437.32	3147232.89	5303.23	26	5297	5277	15.10	5288.13	Low Purge	PVC	2	20	22	8	7	9/29/2005	4" SS Auger w/SS	Freedom/Dakota
MW-08	1737744.68	3147385.56	5298.95	29	5290	5270	9.75	5289.20	Low Purge	PVC	2	20	22	8	7	9/29/2005	4" SS Auger w/SS	Freedom/Dakota
MW-09	1737428.75	3147198.53	5302.62	20	5293	5283	15.47	5287.15	Low Purge	PVC	2	10	12	8	7	2/3/2006	4" SS Auger w/SS	Freedom/Dakota
MW-10	1737663.73	3147216.74	5301.73	25	5292	5277	11.55	5290.18	Low Purge	PVC	2	15	17	8	7	3/7/2006	4" SS Auger w/SS	Freedom/Dakota
MW-11	1737503.73	3147216.13	5303.25	24	5294	5279	13.28	5289.97	Low Purge	PVC	2	15	17	8	7	3/6/2006	4" SS Auger w/NX core	Freedom/Dakota
MW-12R	1737505.30	3147136.09	5303.55	24.5	5294	5279	13.04	5290.51	Low Purge	PVC	2	15	17	8	7	3/7/2006	7" Auger w/CME Core	Freedom/Dakota
MW-13	1737280.49	3147331.84	5301.02	25	5291	5276	17.63	5283.39	Low Purge	PVC	2	15	17	8	7	3/7/2006	4" SS Auger w/SS	Freedom/Dakota
MW-14	1737278.50	3147449.24	5300.31	25	5290	5275	17.96	5282.35	Low Purge	PVC	2	15	17	8	7	3/7/2006	4" SS Auger w/SS	Freedom/Dakota
MW-15	1737395.35	3147478.00	5300.16	24.5	5291	5276	18.66	5281.50	Low Purge	PVC	2	15	17	8	7	4/25/2006	4" SS Auger w/SS	Freedom/Dakota
MW-16	1737494.11	3147480.61	5300.28	24	5291	5276	17.61	5282.67	Low Purge	PVC	2	15	17	8	1	4/25/2006	4" SS Auger w/SS	Freedom/Dakota
MW-17	1737408.06	3146994.10	5303.10	24.5	5294	5279	13.21	5289.89	Low Purge	PVC	2	15	17	8	1	4/25/2006	4" SS Auger w/SS	Freedom/Dakota
MW-18	1737355.29	3147687.38	5292.40	25	5282	5267	15.67	5276.73	Low Purge	PVC	2	15	17	6	1	7/22/2011	DPT/4" SS Auger	LTE/Alpine
MW-19	1736908.42	3147595.70	5284.28	25	5269	5259	11.56	5272.72	Low Purge	PVC	2	10	12	13	1	7/6/2011	DPT/4" SS Auger	LTE/Alpine
MW-20	1737138.42	3147604.16	5291.48	23	5278	5268	12.56	5278.92	Low Purge	PVC	2	10	10	11	1	7/6/2011	DPT/4" SS Auger	LTE/Alpine
MW-21	1736450.80	3147590.89	5267.91	22	5261	5246	7.30	5260.61	Low Purge	PVC	2	15	7.5	6	1	7/28/2011	DPT/4" SS Auger	LTE/Alpine
MW-22D 30-35'	1737479.90	3147188.19	5303.38	35	5273	5268	13.41	5289.97	Bailer	PVC	2	5	6	33	1	10/13/2016	4" Auger 2"SS	LTE/Dakota
MW-22D 35-40'	1737484.08	3147187.77	5303.42	40	5268	5263	13.85	5289.57	Bailer	PVC	2	5	6	38	1	10/13/2016	4" Auger 2"SS	LTE/Dakota
MW-22D 41-46'	1737479.52	3147192.45	5303.17	46.5	5262	5257	17.18	5285.99	Bailer	PVC	2	5	6	28	1	10/13/2016	4" Auger 2"SS	LTE/Dakota
MW-22D 48-53'	1737483.39	3147192.04	5303.15	53	5255	5250	19.59	5283.56	Bailer	PVC	2	5	6	46	1	10/13/2017	4" Auger 2"SS	LTE/Dakota
MW-22D 55-60'	1737476.40	3147188.40	5303.27	60	5248	5243	26.52	5276.75	Bailer	PVC	2	5	6	53	1	10/18/2016	4" Auger 2"SS	LTE/Dakota
MW-22D 72.5-75'	1737487.92	3147191.21	5303.44	75	5230	5228	74.97	5228.47	Bailer	PVC	2	1.5	4	70.5	1	10/26/2016	8"HSA, 5" air Hammer	LTE/Dakota
MW-22	1737132.40	3147201.28	5299.56	24	5286	5276	17.08	5282.48	Low Purge	PVC	2	10	Unk	Unk	Unk	5/21/2018	4" HollowStem	R3/Dakota
MW-23	1737147.85	3147699.45	5290.01	25	5275	5265	16.33	5273.68	Low Purge	PVC	2	10	Unk	Unk	Unk	5/21/2018	4" HollowStem	R3/Dakota
MW-23D 31-33.5'	1737282.83	3147335.54	5301	33	5271	5268	17.92	5283.08	Bailer	PVC	2	2.5	3.5	28	1	10/14/2016	4" Auger 2"SS	LTE/Dakota
MW-23D 47-52'	1737287.77	3147333.89	5301	52	5254	5249	21.14	5279.86	Bailer	PVC	2	5	6	45	1	10/26/2016	4" Auger 2"SS	LTE/Dakota
MW-23D 56.5-61.5'	1737287.99	3147328.08	5301.16	60	5246	5241	35.30	5265.86	Bailer	PVC	2	5	5	55	1	10/26/2016	4" Auger 2"SS	LTE/Dakota
MW-23D 64-74'	1737283.48	3147330.40	5301.12	74	5237	5227	74.63	5226.49	Bailer	PVC	2	10	12	62	1	10/18/2016	4" Auger 2"SS	LTE/Dakota
MW-24	1736977.61	3147747.66	5283.66	25	5269	5259	11.84	5271.82	Low Purge	PVC	2	10	Unk	Unk	Unk	5/21/2018	4" HollowStem	R3/Dakota
MW-25	1736768.04	3147656.58	5280.03	12.5	5278	5268	9.35	5270.68	Low Purge	PVC	2	10	Unk	Unk	Unk	5/21/2018	4" HollowStem	R3/Dakota
MW-26D	1736912.92	3147594.06	5284.75	54.5	5240	5230	13.43	5271.32	Bailer	PVC	2	10	12	42	1	3/8/2019	4" Hollow Stem	RETTW/Dakota
MW-27	1737674.11	3146998.32	5301.80	25	5292	5277	10.24	5291.56	Low Purge	PVC	2	15	17	7	1	3/29/2019	8 1/8" Hollow Stem	RETTW/Dakota
MW-28	1737675.56	3147150.78	5301.62	25	5292	5277	11.10	5290.52	Low Purge	PVC	2	15	17	7	1	3/29/2019	8 1/8" Hollow Stem	RETTW/Dakota
MW-29	1736893.24	3147912.02	5276.07	24.5	5267	5252	8.67	5267.40	Low Purge	PVC	2	15	17	7	1	3/29/2019	8 1/8" Hollow Stem	RETTW/Dakota
MW-30	1736470.42	3148155.37	5260.74	24.5	5251	5236	10.16	5250.58	Low Purge	PVC	2	15	17	7	1	3/28/2019	8 1/8" Hollow Stem	RETTW/Dakota
MW-31	1736093.86	3148615.84	5246.61	24	5238	5223	8.69	5237.92	Low Purge	PVC	2	15	17	7	1	3/28/2019	8 1/8" Hollow Stem	RETTW/Dakota
MW-32	1736129.72	3148267.03	5251.06	24	5242	5227	7.73	5243.33	Low Purge	PVC	2	15	16	8	1	10/5/2021	6" Solid Stem	Quantm/DrillPro
MW-33	1736463.84	3148403.79	5257.23	24	5248	5233	9.39	5247.84	Low Purge	PVC	2	15	16	8	1	9/16/2021	6" Solid Stem	Quantm/DrillPro
MW-34	1736848.17	3148153.36	5269.36	24	5260	5245	10.66	5258.70	Low Purge	PVC	2	15	16	8	1	9/16/2021	6" Solid Stem	Quantm/DrillPro
MW-35	1736708.88	3147879.58	5271.72	24	5263	5248	9.56	5262.16	Low Purge	PVC	2	15	16	8	1	9/16/2021	6" Solid Stem	Quantm/DrillPro

ft bgs = feet bwelow ground surface

6Q Average DTW = Average depth to water for six quarters 1Q23 through 2Q24

Unkn = Details unknown

2.3 Sample Timing

Sampling will be conducted on the following schedule to maintain consistency with previous sample data.

Quarterly sampling – January, April, July, and October.

Semi-annual sampling – January and July (effective January 2025)

Annual sampling – July (Effective January 2025)

2.4 Sample Locations

The current groundwater well network for this LTGMP is shown on Figure 2 and Figure 3 and listed in Table 1. Wells MW-18, -19, -20, and -24 are included within the monitoring program, however the wells are to be checked for the presence of BOS-100 injectant and only sampled if the injectant is not present by visual inspection.

2.5 Sampling Protocols

In general, all sampling activities will occur from the least-contaminated wells to the most-contaminated wells, based on historical data, to reduce the potential for cross-contamination. This section outlines the standard protocols for well monitoring and groundwater sampling.

2.5.1 Materials and Equipment

The following materials and equipment may be needed for groundwater sampling:

- Personal protective equipment (PPE), as outlined in the HASP;
- Sample management supplies (e.g., site maps, well logs, field book, groundwater sample field sheets, and chain-of-custody (COC) forms);
- Sample collection supplies (e.g., waterproof markers, sample labels, drum labels, cooler for sample storage, and ice);
- Decontamination equipment and supplies (e.g., commercial handheld spray bottles, Alconox detergent, distilled water, potable water, paper towels, and plastic garbage bags);
- Sample bottles obtained directly from a certified analytical laboratory, and several extra sample bottles in case of breakage and for quality assurance/quality control (QA/QC) samples;
- Clean 5-gallon buckets with sealable lids;
- DOT-rated 55-gallon steel drums for containing purge water;
- Monitoring well keys;
- Assorted tools (e.g., hammer, knife, screwdriver, pliers, and wrenches);
- Calculator;
- Water quality meters (YSI-556 or equivalent);
- Electronic water level indicator;
- Peristaltic ump and appropriately sized polyethylene and/or silicone tubing;
- Pump power supply and/or necessary connections;

- Appropriately sized weighted disposable polyethylene bailers; and
- Nylon/poly rope or bailing twine or string.

2.5.2 Pre-Sampling Decontamination

Before any well purging or sampling, all well probes and other nondedicated sampling devices shall be decontaminated. Each piece of purging and/or sampling equipment that comes into contact with groundwater within a well shall be decontaminated before sampling operations and between each well. Decontamination fluids shall be contained with purge water.

2.5.3 Instrument Calibration

Instrument calibration shall be performed on field equipment used to collect field parameters. If renting the instrument, ensure that the instrument has been calibrated by the rental provider. If the instrument is used over multiple days, the instrument shall be recalibrated each morning in accordance with the manufacturers' procedures and documented in the project field book.

2.5.4 Groundwater Elevation Measurement

Prior to well purging or sampling, a decontaminated water level meter will be used to measure the depth to groundwater at the well (to nearest 0.01 foot). At each well location, the condition of the well manhole and associated well head will be noted in on the field sheet. Any staining or odors on the surface around the manhole, within the manhole vault, wellhead, or well casing will be noted and, if present, photographed. The condition of the manhole, bolts, and security will be noted and field personnel are responsible for notifying the project manager for repair needs.

Prior to any sampling activities, the static water level will be measured from the top of the casing in each groundwater monitoring well using a water level indicator. Measurements will be taken from the marked survey location. In the event a marked location is absent, measurements will be taken from the north side of the well casing. The results will be recorded on the field sheet.

The water level indicator will be decontaminated with an Alconox® solution, distilled water rinse, and allowed to air dry prior to initial use and between use across the monitoring well network.

2.5.5 Monitoring Well Purging

Prior to sample collection, groundwater monitoring wells will be purged of stagnant groundwater using one of two methods – by bailer or micropurging. The selection of the technique for existing wells is based on historical sampling methodology established by Quantum in their First Quarter 2022 Groundwater Summary Report (Quantum 2022) and carried through all sampling conducted by ERO, with approval of CDPHE, since January 2023 (CDPHE 2023c). The sampling method dictates that wells with a total depth of less than 30 feet are sampled via low-flow micropurging with a peristaltic pump and dedicated polyethylene tubing. Wells with a total depth of greater than 30 feet are sampled by new, dedicated bailer. A description of these sampling methods is provided below. The sampling methodology by well is identified on Table 1.

- Low-flow groundwater sampling consists of micropurging with a peristaltic pump and dedicated polyethylene tubing. The pump intake is set approximately at the middle of the screened interval of the well. During micropurging, depth to groundwater, pumping rate, and field parameters (specific conductivity, pH, temperature [ºC], oxidation-reduction potential [ORP], and dissolved oxygen [DO]) are monitored and recorded approximately every five minutes. Groundwater samples are collected after three consecutive readings of three field parameters indicated stabilization (i.e., within 0.2 for pH, 3% for temperature, 3% for specific conductivity, 20 millivolts for ORP, and 10% for DO). Field parameter measurements are to be recorded on well sampling sheets (included within Appendix C)
- Bailer-sampled wells are purged with a new disposable bailer and sampled immediately after purging three casing volumes. If the bailed well goes dry, the well will be sampled at the end of the day. Groundwater parameters are recorded by pouring the bailed water into a cup holding a multi-parameter meter. Field parameter measurements are to be recorded on well sampling sheets (included within Appendix C). Upon completion of purging, the sample is collected directly from the bailer.

Groundwater purge volumes can be calculated using the following:

- 1-inch-diameter well: 0.08 gallon/foot x __ (linear feet of water) = gallons of water
- 2-inch-diameter well: 0.16 gallon/foot x __ (linear feet of water) = gallons of water
- 4-inch-diameter well: 0.65 gallon/foot x __ (linear feet of water) = gallons of water

2.5.6 Sample Collection

Samples are to be collected directly into laboratory-provided, certified clean sample containers. Sample containers for current sampling plan consist of the following:

Volatile Organic Compound (VOC) analysis by EPA Method 8260B – Unpreserved, 40-milliliter (mL) glass vials with Teflon or similar septa cap.

Chloride analysis by EPA Method 300.1 – Unpreserved 250-mL polyethylene bottles

Sampler shall be wearing a new pair of nitrile gloves with the general goal of minimizing agitation, aeration, and sediment in the samples collected. When filling the sample bottles, the water should be poured down the inside of the sample container and not allowed to directly cascade onto the bottom of the container. Samples for VOC analysis shall be checked after capping to ensure the sample is devoid of headspace or air bubbles within the vials.

2.5.7 Sample Labeling

Labels shall be filled out and placed on the bottle at the time of sample collection. At a minimum, the sample label will include the sample ID, sample date and time, project ID, and analysis requested.

2.5.8 Temperature Preservation and Sample Storage

Once the samples have been collected and labeled, the samples are to be placed in bubble wrap and stored in a cooler containing ice as soon as possible so that the temperature of the samples can be

reduced to less than or equal to 4 degrees Celsius but not cold enough to freeze the samples. Only frozen water (ice) shall be used.

2.5.9 Delivery to Laboratory Under Chain-of-Custody

Chain-of-custody forms shall be completed in their entirety at the time of sampling and follow the samples until delivery to the laboratory. The forms shall be completed with a pen, and any blank rows or mistakes are to be clearly crossed out with a single strike-through followed by the sampler's initials and the date the strike-through was performed. The date and time of the sampler's relinquishment shall match the date and time of the laboratory's receipt.

2.5.10 Sample Analysis

All groundwater samples collected shall be analyzed for VOCs associated with dry-cleaning compounds by EPA Method 8260B. This "short-list" of VOC compounds shall include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC).

Select wells (MW-13, -14, -15, -23, and 26D) are monitored for ongoing evaluation of previous BOS-100 injections and will also be analyzed for chloride by EPA Method 300.1.

2.5.11 Quality Assurance/Quality Control

Quality assurance and quality control (QA/QC) will be conducted in accordance with CDPHE requirements. In general, the following procedures will be included in the monitoring activities:

- Standardized field sheets will be used to track all field activities at each well and to site data;
- Trip blanks will be included in each sample shipment container;
- One field duplicate will be collected for the same laboratory analysis as the primary sample at a ratio of 1 field duplicate per 20 primary samples;

QA/QC information will be included within each monitoring report.

3.0 Off-site Plume Delineation

3.1 Background

Based on recent groundwater data presented in quarterly groundwater reports, additional groundwater wells are needed to fully delineate the extent of the groundwater plume. As part of this LTGMP, additional off-site groundwater wells are proposed for installation, primarily in the eastern portion of the groundwater plume, easterly of the TSC Property.

3.2 Proposed Monitoring Well Locations

The proposed wells for shallow off-site groundwater plume delineation are shown on Figure 4 with rationale discussed in Table 2. *Note – although the proposed wells are listed with an alpha-numeric name in Table 2 below, final well nomenclature will use the same sequential numbering system once the wells are installed.*

Table 2. Shallow off-site groundwater delineation wells.

Proposed Delineation Well	Proposed Location	Rationale
MW-A	Alley between East 89th Avenue and Oak Place	Easterly and downgradient of former dry cleaner facility at 8946 N. Washington, within alley that contains the sanitary sewer line for the former TSC.
MW-B	Alley between Oak Place and East 88th Avenue	Easterly of MW-18 that contained PCE up to 3,900 ug/L prior to BOS-100 injections.
MW-C	Desoto Street, south of East 88th Avenue	Delineate the easterly boundary of the known groundwater plume, east of MW-29, MW-33, and MW-34
MW-D	Edison Street, south of East 88th Avenue	
MW-E	Essex Street, easterly of MW-33	

3.3 Groundwater Well Installation

Prior to any subsurface work, ERO will notify Colorado 811 (CO811) and other appropriate entities as directed by CO811. In addition, the appropriate notification and well construction reports will be submitted to the Colorado Department of Natural Resources, Division of Water Resources (CDWR). In addition, TDA will seek license agreements for right-of-way agreements for installation and sampling of wells.

All wells will be installed using hollow-stem auger drilling technology. During drilling, continuous soil cores will be used to obtain a 5-foot-long continuous core of the subsurface at each location. Upon completion of each 5-foot interval, the sampler will be removed, leaving the outer drill augers in the boring. The sampler will then opened, revealing the soil core, which will be logged by a qualified geologist for lithology, staining, and olfactory indications of contamination, and screened with a photoionization detector (PID) with a 10.6-electronvolt lamp capable of detecting VOCs. The sampler will then be placed back in the lead drill rod and the process repeated. Should bedrock conditions preclude the use of continuous sampler, split spoon techniques will be used to sample the lithology.

During drilling, soil samples will be collected from the interval with the highest PID reading and/or location of any observed staining or olfactory indication of suspected contamination. In addition, soil

samples will be collected from the approximate water table, if able to be determined in the field, or mid-depth of the boring, as well as at the base of each boring. A total of up to three soil samples may be collected from each boring. Soil samples will be collected directly from the core as it is removed from the sampler during drilling, packed into laboratory-provided, glass sample jars, labeled, and placed on ice for transport to the laboratory for analysis of VOCs associated with dry cleaning by EPA Method 8260B.

Upon reaching the total depth of drilling, a groundwater monitoring well will be installed in the boring and consist of 15 feet of new, factory-slotted (0.010-inch), 2-inch-diameter polyvinyl chloride (PVC) well screen across the water table with plain casing to the surface. Total depth of the wells is anticipated to be 25 feet bgs, with the well screen interval designed to cross the water table. A filter pack consisting of 10-20 graded silica sand will be placed in the borehole to 2 feet above the screen interval. The annular space in the borehole will be sealed above the sand pack with a hydrated bentonite seal. The wells will be completed with a vehicle-rated manhole cover set in concrete at the surface.

After completion, the monitoring wells will be developed by purging the wells with 2-inch polyethylene disposable bailers of at least five well casing volumes from each well. A decontaminated 2-inch surge block may also be used to develop the well. Sampling of the groundwater wells will be conducted within the first quarterly sampling event following installation and be conducted in accordance with the procedures described in the above section. Wells will be surveyed to the project datum to incorporate into the larger groundwater monitoring well network.

3.4 Installation Schedule

Right-of-way licenses from the City of Thornton and/or Adams County are anticipated to be required for the wells to be installed. For this reason, the installation of the wells is anticipated to occur no later than December 31, 2024 and will to permit the inclusion of the performance monitoring of the wells into the 1Q25 (January) groundwater monitoring event. Monitoring of these wells will continue on a quarterly basis until an alternative frequency is approved by CDPHE.

4.0 Deep Groundwater Plume Investigation

4.1 Background

Limited groundwater data has been collected with respect to deep groundwater contamination on the TSC Property and off-site. To date, the only wells with deep groundwater data are the MW-22D and MW-23D clusters on the TSC Property and MW-26D south of the TSC Property. Historical groundwater data indicates that well MW-22D 55'-60' has consistently had the highest PCE groundwater concentrations of all wells monitored, averaging more than 200,000 ug/L across nine monitoring events since the well was installed in 2016. As shown in Table 1, the screened interval for MW-22D 55'-60' is between 5,243 and 5,248 amsl and screened across a medium to fine grain sandstone (well log for MW-22D in Appendix D). Although this sandstone does not appear in the boring logs for well MW-23D at the southern property boundary, well screen elevations of MW-23D 47'-52' and MW-23D 56.5'-61.5' generally cover the similar screen interval as MW-22D 55'-60'. Well logs for site wells are included in Appendix D.

Groundwater elevations for wells MW-22D 30-35', MW22D 35-40', and nearby shallow well MW-11 have historically been measured to be within 0.5 feet of each other, whereas the wells with deeper screened intervals (MW-22D 41-46' and deeper) have groundwater elevation differences of 4 feet or more, compared with the shallower wells. Based on these observations, there appears to be greater hydraulic connectivity across groundwater at depths up to about 40 feet bgs compared with deeper zones. For this reason, the deep groundwater investigation is proposed to initially target the deeper zones, generally below 40 feet bgs. In addition, because only two well clusters are screened within the deeper intervals, the lateral flow direction of deep groundwater can only be inferred. The purpose of the deep groundwater plume delineation is to establish the lateral contaminant delineation and groundwater flow characteristics of the deeper groundwater at the MW-22D cluster.

4.2 Proposed Monitoring Well Locations

This LTGMP proposes to install three additional clusters of deep groundwater wells to provide additional characterization of the deep groundwater conditions and flow directions on and off the TSC Property. The well clusters will generally be installed easterly, westerly and northerly of the MW-22D cluster to delineate the extent of, and characterize the groundwater flow from this cluster. The proposed wells are shown below on **Figure 5** with rationale discussed in Table 3. *Note – although the proposed wells are listed with an alpha-numeric name in* Table 3 *below, final well nomenclature will use the same sequential numbering system once the wells are installed.*

Table 3. On-site deep groundwater delineation wells.

Proposed Delineation Well	Proposed Location	Rationale
Deep Cluster A	NW of source area, outside of building footprint, adjacent to MW-10	Define the north, presumed upgradient deep groundwater characteristics.
Deep Cluster B	SW of source area, within building footprint, adjacent to MW-17	Define the westerly, lateral deep groundwater characteristics.
Deep Cluster C	East of source area, adjacent to MW-16	Define the easterly, lateral deep groundwater characteristics.

4.3 Well Installation Procedures

Monitoring well installation will follow the same procedures described above in Section 3.3 with each well installed in a separate borehole. It is anticipated that all wells will be able to be installed with traditional auger drilling technology as wells MW-22D 55-60 and MW-23D 56.5-61.5 were in 2016 by LTE (LTE 2016). As experienced by LTE in 2016, it is unlikely that continuous coring will be able to be used because of the density and competency of the bedrock, at which point split-spoon sampling will be used to obtain lithologic information. Proposed screened intervals are shown in Table 4.

Table 4. Deep groundwater well anticipated completion details.

Deep Well Interval	Screen Interval (feet bgs)	*MW-22D Screened Intervals*	Proposed Screen Elevations		
			Cluster A	Cluster B	Cluster C
Upper Deep Screened Intervals	40-45	*5,257-5,262*	5,257-5,262	5,258-5,263	5,255-5,260
Mid-Deep Screened Intervals	48-53	*5,250-5,255*	5,249-5,254	5,250-5,255	5,247-5,252
Lower Deep Screened Intervals	55-60	*5,243-5,248*	5,242-5,247	5,243-5,248	5,240-5,245

Bgs = below ground surface
Screened intervals – feet amsl based on well elevations or nearby well existing well elevations.

4.4 Installation Schedule

The installation of the wells is anticipated to occur no later than December 31, 2024 in order to permit the inclusion of the performance monitoring of the wells into the January 2025 groundwater monitoring event. Monitoring of these wells will continue on a quarterly basis until an alternative frequency is approved by CDPHE.

5.0 Off-Site Performance Monitoring Wells

In 2021, groundwater at four off-site areas (OFS-1 through OFS-4) were treated with BOS 100® under a previously approved corrective action plan (CAP). To date, performance monitoring of these treatment areas has consisted of the quarterly visual confirmation of the continued presence of the BOS 100® injectant and quarterly sampling from wells upgradient from the treatment areas (ERO 2024). As part of this LTGMP, four downgradient performance monitoring wells (MW-36 through MW-39) originally proposed in the previously-approved CAP will be installed in accordance with the Division's May 3, 2022 approval of locations (CDPHE 2022) and shown within the documentation included in Appendix B. Should field conditions require the approved locations to be moved more than 20 feet from those on shown in Appendix B, CDPHE will be consulted with respect to the new location.

5.1 Well Installation Procedures

Monitoring well installation will follow the same procedures described above in Section 3.3. As shown in Table 5, total depth and screened intervals will target well screens across the water table, with preliminary depths identified based on the nearest upgradient well data.

Table 5. Performance monitoring well anticipated construction details.

Performance Well	Nearest Upgradient Well	DTW in Upgradient Well (bgs)	Estimated Depth of Performance Well	Estimated Screen Length for Performance Well
MW-36	MW-24	11.8	20	10
MW-37	MW-19	11.6	20	10
MW-38	MW-20	12.6	25	15
MW-39	MW-15	18.6	25	15

Bgs = below ground surface

5.2 Installation Schedule

Because of the multiple private property access agreements anticipated to be required for each of the wells to be installed, the installation of the wells is anticipated to occur no later than December 31, 2024 in order to permit the inclusion of the performance monitoring of the wells into the January 2025 groundwater monitoring event. Monitoring of these wells will continue on a quarterly basis until an alternative frequency is approved by CDPHE.

6.0 Investigation-Derived Waste (IDW) Management

6.1.1 Solid IDW Accumulation

Any soils potentially in contact with groundwater generated during the drilling and installation of groundwater monitoring wells associated with this LTGMP will be considered hazardous environmental media for chlorinated solvents and will be managed in accordance with the Colorado Hazardous Waste Regulations (CHWR) until or unless deemed not to contain a hazardous waste in accordance with the CPDHE Contained-Out Determination Procedure (CDPHE 2002). Soils above the water table and outside of the footprint of the TSC building and are not suspected to have been in contact with either waste solvents or potentially-contaminated groundwater and will be presumed to be non-hazardous, unless field evaluation indicates otherwise. During drilling, soils will be containerized at the point of generation, typically within DOT-rated 55-gallon steel drums. In addition to labeling requirements under the CHWR, containers shall be labeled with the well location, soil interval depths, and date of initial generation as well as assigned a container inventory number for the project waste database. Containers will be moved at the end of each day of drilling to the central waste accumulation area and stored in a secured facility, currently anticipated to be a locked storage container.

To characterize waste soils generated during drilling activities, representative soil samples will be collected from each set of drums or representing each well bore. One sample per 30-feet of well bore will be collected and analyzed for waste characterization purposes. Samples from multiple drums representing the same well/interval will be composited into one sample. Waste characterization samples will be submitted under chain of custody protocols for VOC analysis by EPA Method 8260B and any additional analysis if required by waste disposal facilities. Prior to management of the soils, should laboratory results permit, a contained-out determination request will be submitted to CDPHE for approval, otherwise solid IDW will be managed as hazardous wastes in accordance with CHWR.

6.2 Liquid IDW Management

6.2.1 Liquid IDW Accumulation

Any groundwater and decontamination water generated during the implementation of this LTGMP shall be considered hazardous waste and managed in accordance with the CHWR unless the waste is deemed to not contain a hazardous waste and can be managed as a solid waste. Groundwater well purge water, development water, and decontamination water without detergents will be collected and containerized as liquid IDW. Decontamination waters that contain detergents will be containerized separately from those without detergents. Buckets used to containerize groundwater during at the point of collection shall be transported within a closed container (e.g. bucket with a lid) to the designated hazardous waste storage area and placed in DOT-rated, new 55-gallon steel drums staged within a secondary containment storage area. The drums shall be in good condition, kept closed following generation, labeled appropriately, and be stored in accordance with CHWR until management and/or disposal.

6.2.2 Liquid IDW Treatment

Liquid IDW generated during the implementation of this LTGMP shall be managed in accordance with the CHWR. Specifically, ERO's October 2, 2023 Request for Treatment by Rule for On-site Generator Hazardous Environmental Media IDW Treatment approved by CDPHE on October 13, 2023 outlines the treatment protocols for the on-site treatment of liquid IDW (Appendix E).

6.2.3 Waste Tracking

An inventory of all drums or containers used for IDW storage, management and ultimately shipped for disposal shall be tracked within a database.

Completed waste manifests from all waste disposal events will be included within the first semi-annual monitoring report following the disposal event.

7.0 Reporting

Reporting of site-wide groundwater monitoring results will occur on a semi-annual basis within the LTGMP Report. Any changes to the monitoring program, such as the additional delineation wells proposed herein or those related to corrective measures, will be documented within the semiannual LTGMP Reports to be submitted by February 28 and August 30 of each year.

8.0 References

Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division (HMWMD). 2002. Appendix 2 – Contained-Out Determination procedure for Environmental Media Contaminated with RCRA Hazardous Waste. May.

Colorado Department of Public Health and Environment (CDPHE). 2020. Water Quality Control Commission. Basic Standards for Ground Water. 5 CCR 1002-41, Regulation No. 41. Effective June 30.

Colorado Department of Public Health and Environment (CDPHE). 2022. Email from Lindsay Murl (CDPHE) to John Dellaport (Quantum Water & Environment). RE: Approval of 4 offsite replacement monitoring well locations. May 3.

Colorado Department of Public Health and Environment (CDPHE). 2024. Approval – Remedial Investigation and Corrective Measures Work Plan; Thornton Shopping Center, NE Corner East 88th Avenue and Washington Street, Thornton , CO 80229; EPA ID# COR000212639. July 3.

ERO Resources Corporation (ERO). 2022. Phase I Environmental Site Assessment - Thornton Shopping Center, NE of North Washington Street at East 88th Avenue, Thornton, Colorado. November 11.

ERO Resources Corporation (ERO). 2023 Request for Treatment by Rule for On-site Generator Hazardous Environmental Media IDW Treatment, Thornton Shopping Center. October 2.

ERO Resources Corporation (ERO). 2024a. Remedial Investigation and Corrective Measures Work Plan, Compliance Order on Consent Number: 24-02-01-01, Thornton Shopping Center, East 88th Avenue and Washington Street, Thornton, CO 80229. May.

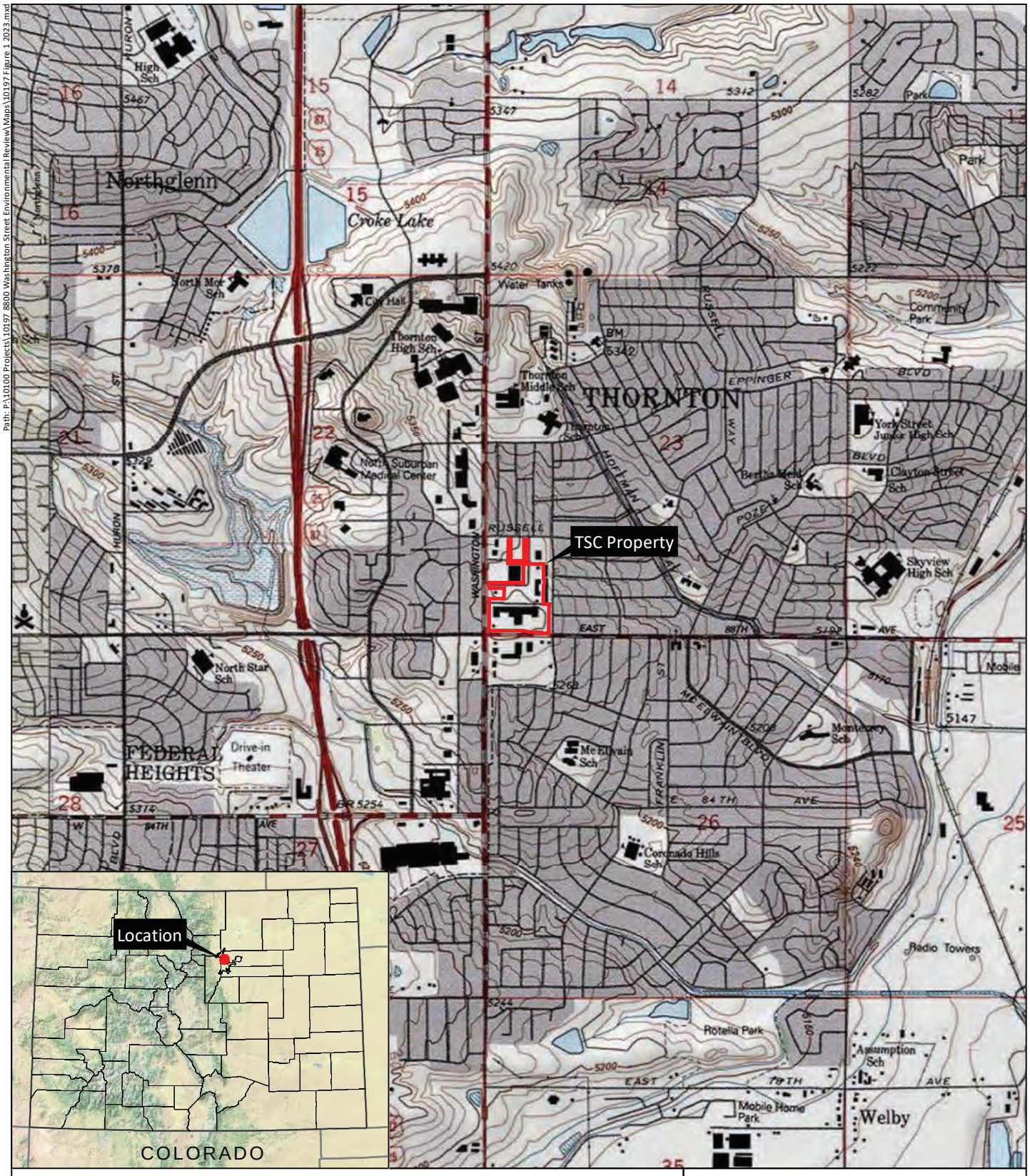
ERO Resources Corporation (ERO). 2024b. 1H24 Groundwater Monitoring Report, Thornton Shopping Center, NE Corner East 88th Avenue and Washington Street, Thornton, Colorado. July 17.

LT Environmental, Inc. (LET). 2016. Limited Site Assessment Report, Thornton Shopping Center, Northeast Corner of East 88th Avenue and Washington Street, Thornton, Colorado. November 2.

Quantum Water & Environment (Quantum). 2022. First Quarter 2022 Groundwater Summary Report, Thornton Shopping Center, Northeast Corner of East 88th Avenue and Washington Street, Thornton, Colorado. HMWMD File: COR000212639/3.2. May 26.

Appendix A Figures

Path: P:\10100 Projects\10197 8800 Washington Street Environmental Review\Maps\10197 Figure 1 2023.mxd



Thornton Shopping Center

Section 23, T2S, R68W; 6th PM

UTM NAD 83: Zone 13N; 502054mE, 4411959mN

Longitude 104.975982°W, Latitude 39.857657°N

USGS Commerce City, CO Quadrangle

Adams County, Colorado

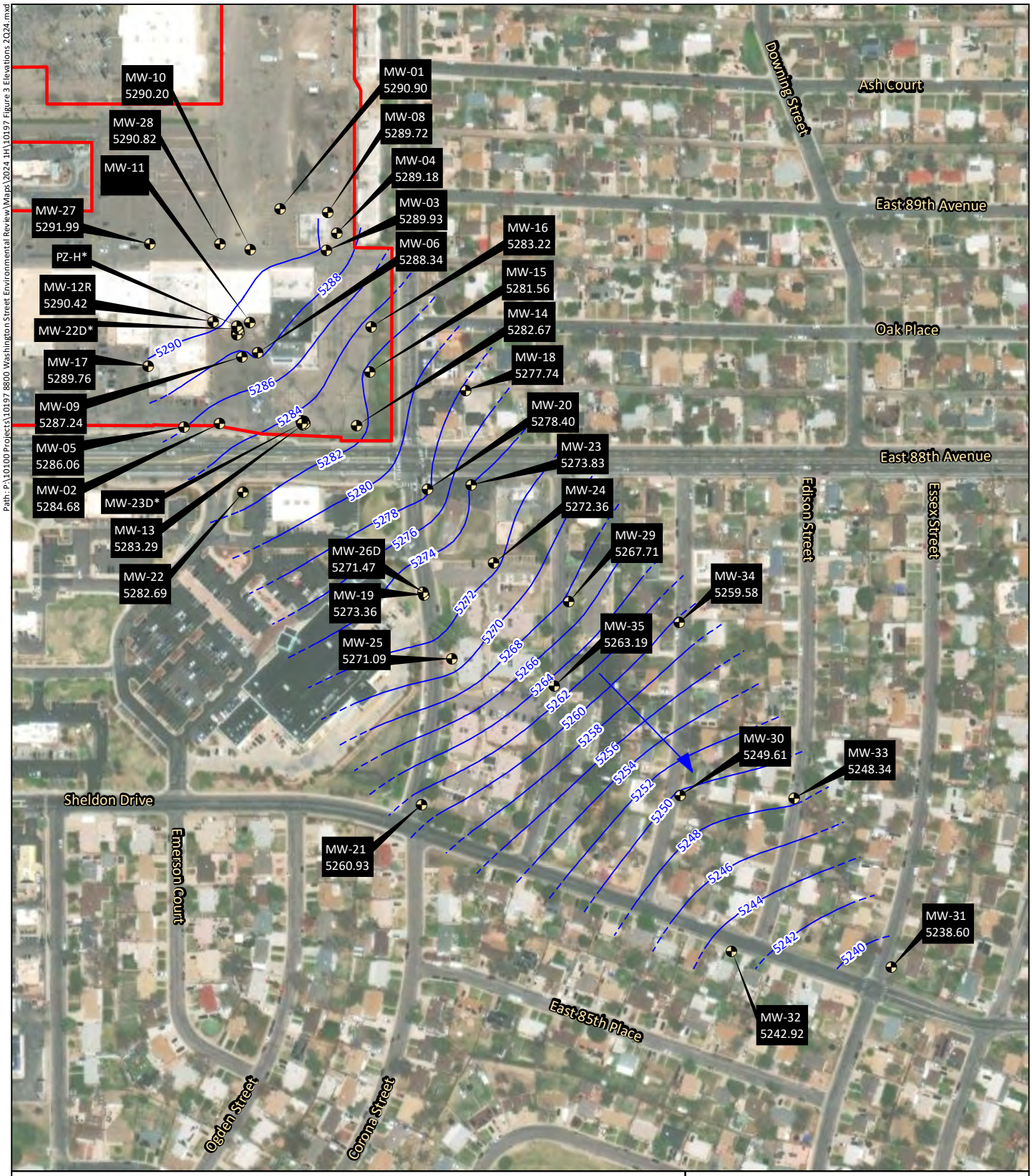
0 1,000 2,000 feet

N

Figure 1
Vicinity Map

File: 10197 Figure 1 2023.mxd [dlH]
March 31, 2023

ERO
ERO Resources Corp.



Path: P:\10100 Projects\10197 8800 Washington Street Environmental Review\Maps\2024 1H\10197 Figure 3 Elevations 2Q24.mxd

Thornton Shopping Center

- Monitoring Well Location
- TSC Property
- 2-Foot Groundwater Contour Interval
- Inferred Contour
- Direction of Groundwater Flow
- * - Not Used for Contouring

MW-21 5260.93 Well ID / Groundwater Elevation (2Q24)

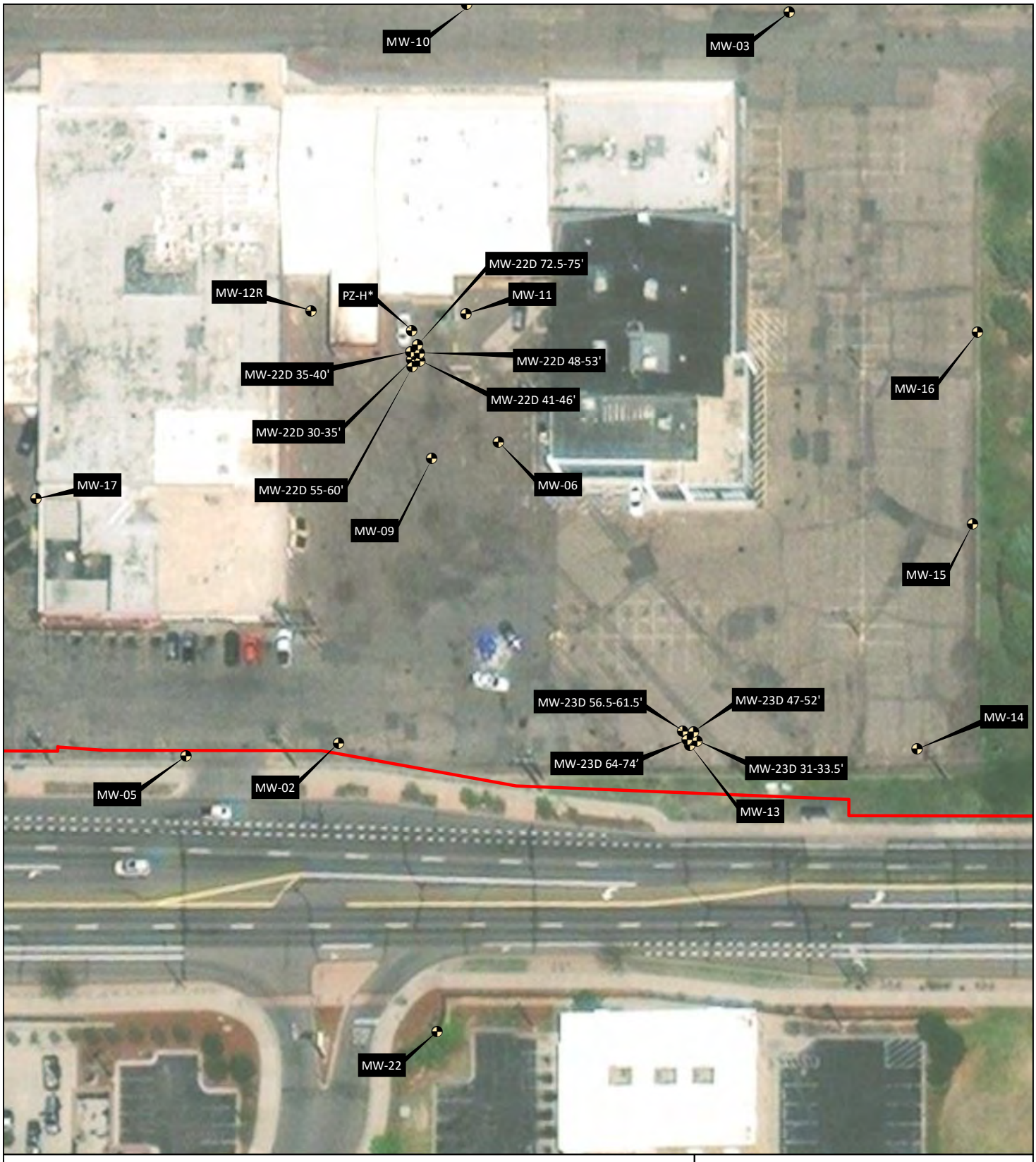
0 150 300 feet

N

Figure 2
Monitoring Well Network

ERO Resources Corp.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community 4/22/2022



Thornton Shopping Center – Long-Term Groundwater Monitoring Plan

TSC Property

Monitoring Well Location

* - Not Used for Contouring

0 35 70 feet

N

Figure 3
Sampling Well Network – Detail

File: 10197 Figure 3 Sample Detail.mxd [dlH]
July 16, 2024

ERO Resources Corp.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community 4/22/2022

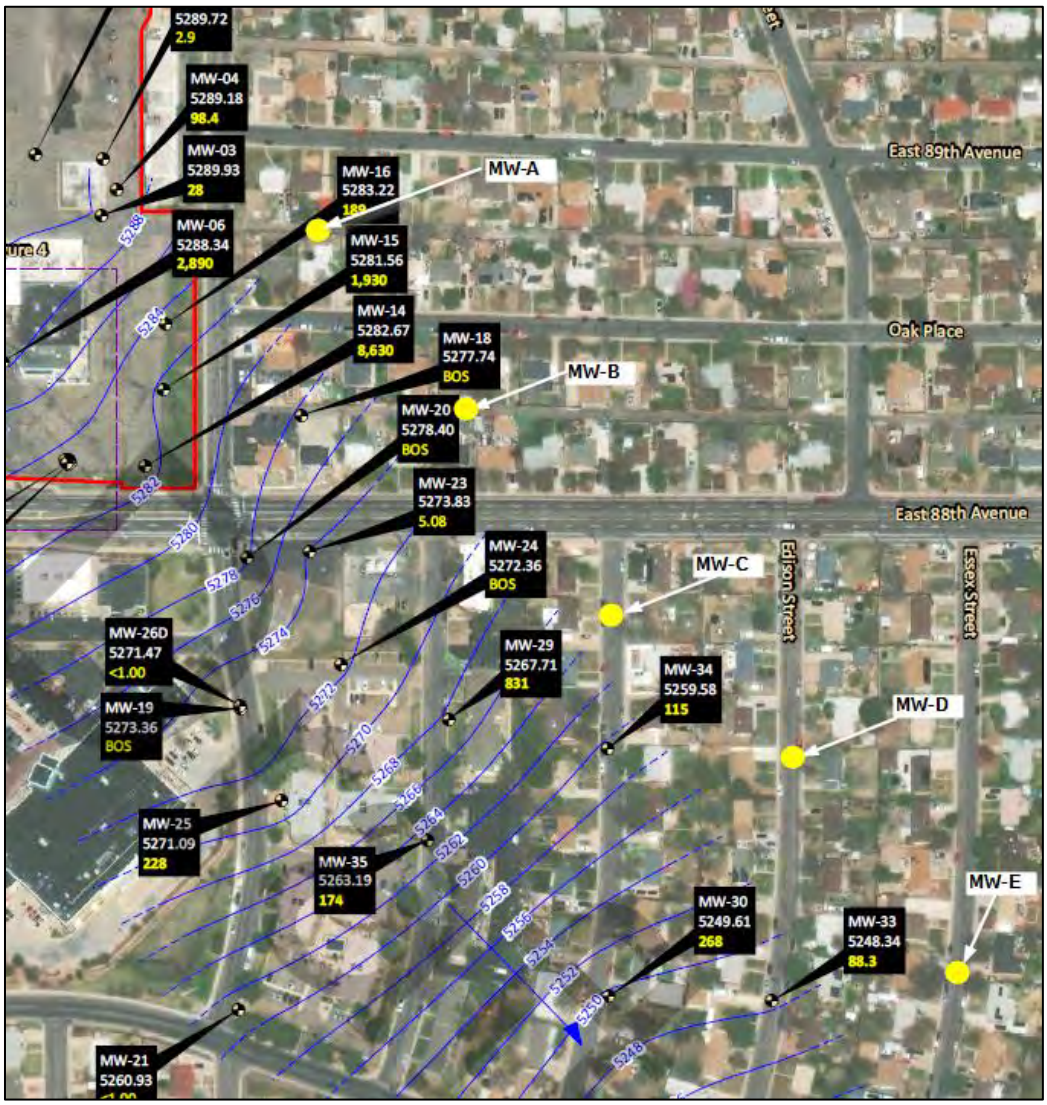


Figure 4. Proposed off-site shallow groundwater delineation wells.
Source: 2Q24 Groundwater Monitoring Figure (ERO 2024b).

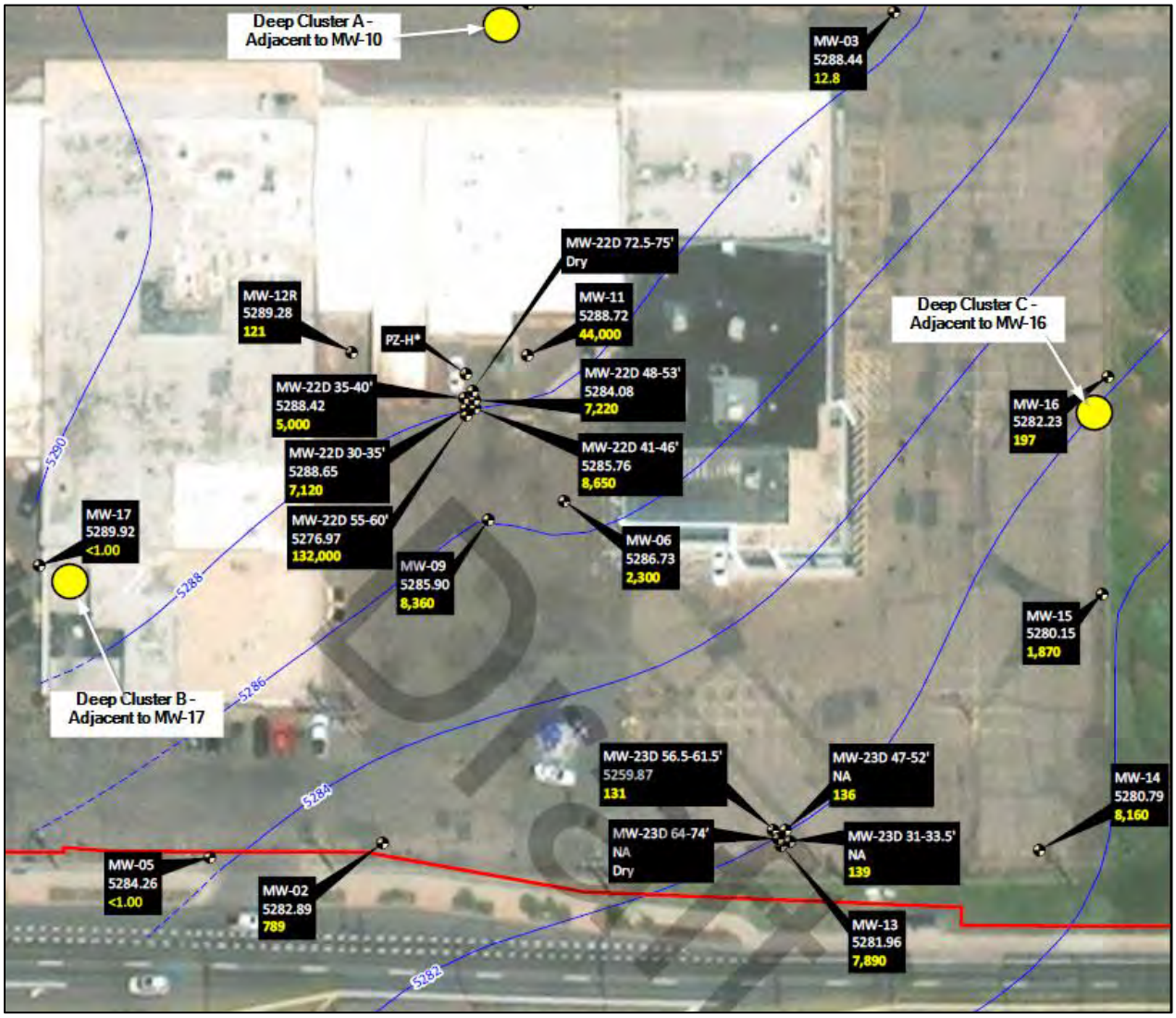


Figure 5. Proposed on-site deep groundwater investigation wells.
Source: 2Q24 Groundwater Monitoring Figure (ERO 2024b).

Appendix B Performance Well Correspondence and Locations

STATE OF COLORADO

Murl - CDPHE, Lindsay <lindsay.murl@state.co.us>

Re: FW: TSC - BOS 100 replacement wells

1 message

Murl - CDPHE, Lindsay <lindsay.murl@state.co.us> Tue, May 3, 2022 at 2:57 PM
To: John Dellaport <john@quantumwaterco.com>
Cc: "jaylon7@gmail.com" <jaylon7@gmail.com>, "Rebecca Almon (ralmon@irelandstapleton.com)" <ralmon@irelandstapleton.com>, Robert Beierle - CDPHE <robert.beierle@state.co.us>, Emily Splitek <emily.splitek@coag.gov>

Hi John,

The Colorado Department of Public Health and Environment (CDPHE) approves of the four replacement monitoring well locations for MW-36 through MW-39 downgradient and offsite from the Thornton Shopping Center, as shown on the figure. These monitoring wells replace monitoring wells damaged by prior BOS-100 injections. Well screens shall be 10 ft, across the water table, in any event not to exceed 15-ft screens.

If field conditions require changing well locations, please provide a figure with their final locations. However, if conditions are such that monitoring wells will not be within approximately 20 feet of the locations shown, please check in CDPHE. Once completed, provide borehole logs and monitoring well completion details to CDPHE. As always, waste generated must be characterized and disposed of in accordance with applicable regulations.

If you have any trouble accessing these monitoring well locations or property owners have questions, please let me know.

Please note my primary phone number is 720-644-6314.

Thank you,
Lindsay

Lindsay Murl
Environmental Protection Specialist
Corrective Action Unit
Colorado Department of Public Health & Environment
COLORADO
Hazardous Materials & Waste Management Division
Department of Public Health & Environment
Email: lindsay.murl@state.co.us
Phone: 720-644-6314
4300 Cherry Creek Drive South
Denver, CO 80246-1530

On Tue, May 3, 2022 at 2:11 PM John Dellaport <john@quantumwaterco.com> wrote:

> Lindsay,
>
> Per my VM today. We are looking for CDPHE concurrence on these proposed monitoring well locations.
>
> John

John C. Dellaport, P.E., P.G. | Env. Div. Manager | Quantum Water & Environment
1746 Cole Boulevard, Suite 340

Lakewood, CO 80401

Office: 720-524-4294 Cell: 720-626-6718

www.quantumwaterco.com

From: John Dellaport
Sent: Friday, March 4, 2022 1:27 PM
To: Lindsay Murl (lindsay.murl@state.co.us) <lindsay.murl@state.co.us>
Cc: Steve Hoffman <steve@quantumwaterco.com>
Subject: TSC - BOS 100 replacement wells

Lindsay,

Would you please review these proposed well locations and let us know if they are acceptable. We'd like to get these installed so that we can conduct our semi-annual performance monitoring.

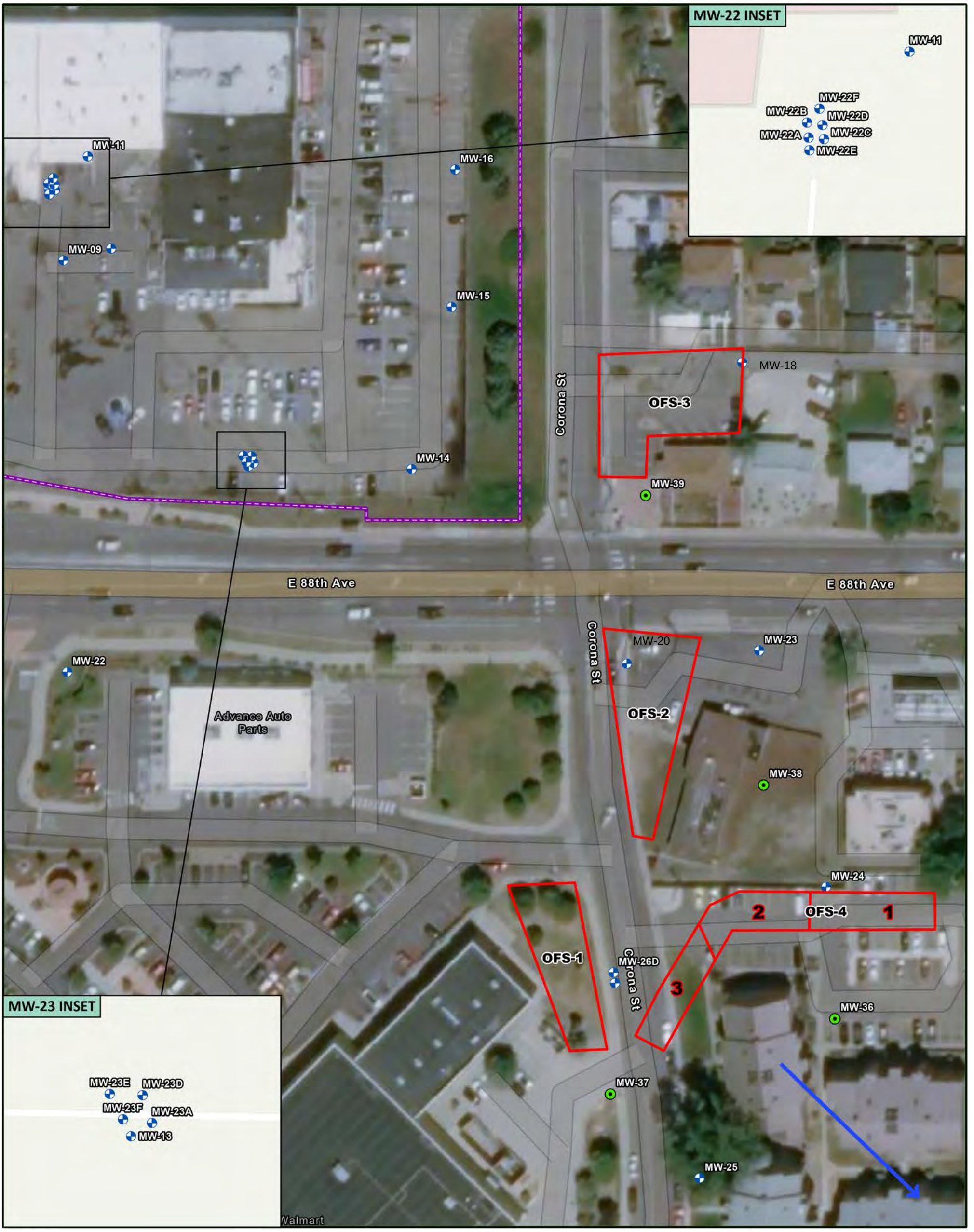
John

John C. Dellaport, P.E., P.G. | Env. Div. Manager | Quantum Water & Environment
1746 Cole Boulevard, Suite 340

Lakewood, CO 80401

Office: 720-524-4294 Cell: 720-626-6718

www.quantumwaterco.com



CDPHE Submittal - Site Detail

Thornton Shopping Center
NE Corner of 88th Ave & Washington St, Thornton, CO

LEGEND

- Proposed Post-Injection Performance Monitoring Well (Actual Location to be Based on Field Access)
- Protected Monitoring Well
- Groundwater Flow Direction
- BOS100 Injection Area
- Thornton Shopping Center Boundary

N

1:800

0 65 130 Feet

Not a survey map. Every effort has been made to ensure the accuracy of the data provided. This map is for reference only and should not be used for surveying purposes.

Exhibit B

Source(s):
Adams County Assessor
ESRI
R3 - Figure 9 - BOS 100 Treatment Areas

Projection: StatePlane CO Central
Datum: NAD83 (2011)

Job Number: 412E-21
Created: Sep 21, 2021 (CJD)
Checked: Sep 21, 2021 (JCD)
Updated: Sep 23, 2021 (CJD)

QUANTUM
WATER & ENVIRONMENT
1746 Cole Boulevard
Lakewood, CO 80401
720.524.4294
www.quantumwaterco.com

G:\PROJECTS_ENV\ThorntonShoppingCenter\MapDocuments\412E-21 Figures

Appendix C Field Sheet Examples

Groundwater Sample Field Data Sheet

Sample Identification No. _____

Project Information

Project Name: Thornton Shopping Center

Contractor: ERO Sample Tech.: _____

Well Information

Well No: _____ Well Dia. (in) _____

Screen Interval Depth: _____

Total Well Depth: _____

Well Purging Information

Date and time of Well Purging: _____

Depth to Water Level (ft-below TOC): _____

Well Casing Volume (gallons): _____

Volume to be Evacuated During Purging (gallons): _____

Total volume purged (gallons) _____

Field Water Quality Parameters During Well Purging

	Stabilize	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	Sample
Time							
Volume (gallons)							
pH (SI units) .....+/-0.2							
Temperature (°C) .....+/-3%							
SC (umhos/cm) .....+/-3%							
ORP (milivlts) .....+/-20							
DO (mg/l) .....+/-10%							
DTW							
Color							

Sample Collection Information

Date and Time of Sample Collection: _____

Sampling Method (circle): Bailer Peristaltic Pump Diffuser Micro-Purge

Containers	Number	Preservatives	Analyses

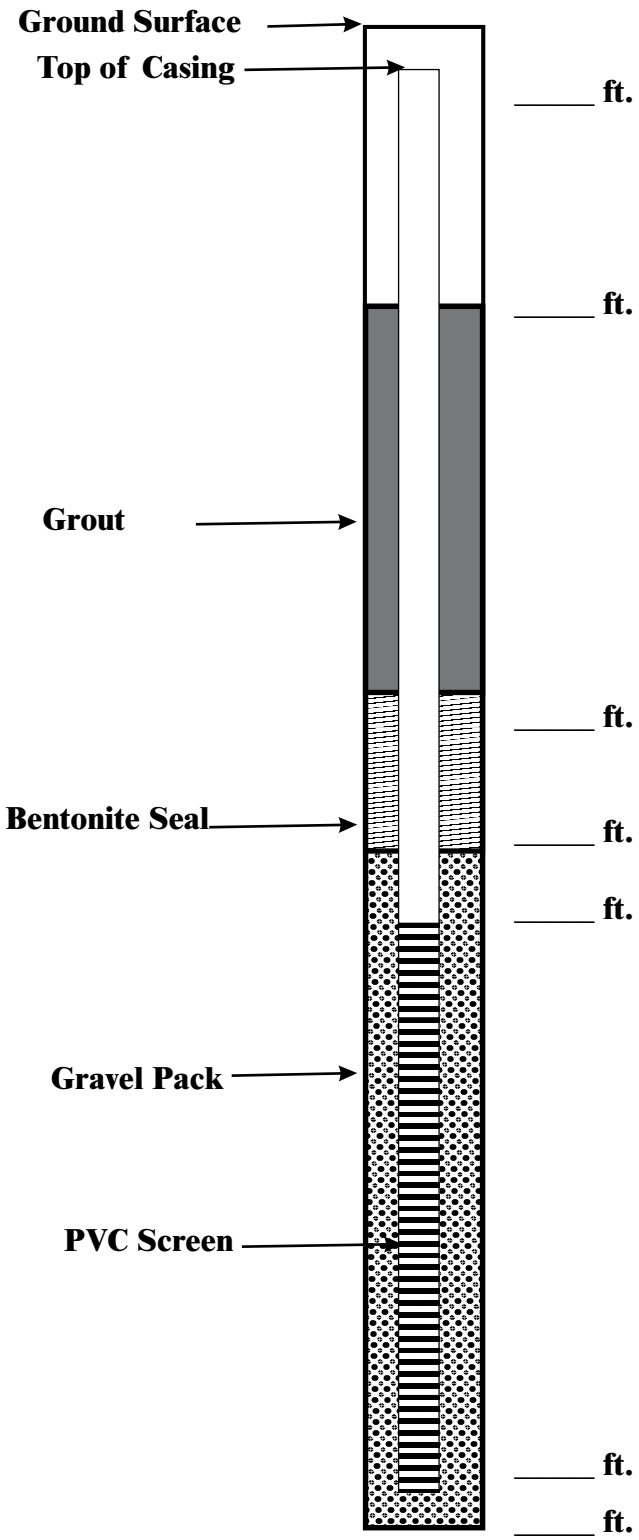
Associated QA/QC Samples: _____

Comments/Observations

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: 830-1199

Well Construction Log

Job number_____ **Well Number**_____



Drilling Summary

Total Depth of Hole: _____
Hole Diameter: _____
Drilling Company:_____
Driller: _____
Rig Type: _____
Bits: _____
Geologist: _____

Construction Time Log

	Start Date	Start Time	Finish Date	Finish Time
Drilling:	_____	_____	_____	_____
Screen Placement:	_____	_____	_____	_____
Filter Placement:	_____	_____	_____	_____
Seal Placement:	_____	_____	_____	_____
Grouting:	_____	_____	_____	_____

Depth to Water

Depth _____ Date: _____ Time: _____

Well Construction Materials

	Grout	Seal	Sandpack
Quantity:	_____	_____	_____
Type:	_____	_____	_____

Screen

Size: _____ Slot: _____
Length: _____ Type: _____

Comments:

_____
_____

ERO Resources Corp.

Project Name:

Contractor:

Project Number:

Log of Boring _____

Date(s) Drilled:	Logged by:	Checked by:	Total Depth of Borehole (ft)	Depth to Water (bgs)
Drilling Method:	Diameter of Borehole (in):		Ground Surface Elevation (ft-msl)	
Drill Rig Type:	Drilling Company:		Groundwater Elevation (ft-msl)	
Driller's Name:	Sampler Type:		Measuring Point Elevation (ft-msl)	
Drilling/Sampling Equipment Sizes:			Northing Easting	

Depth (ft-bgs)	SAMPLES: Blows/6"	SAMPLES: Recovery (ft)	SAMPLES: PID (ppm)	USCS Symbol	Graphic Log	Material Description	Remarks
2							
4							
6							
8							
10							
12							
14							
15							

ERO Resources Corp.

Project Name:

Contractor:

Project Number:

Log of Boring _____

Depth (ft-bgs)	SAMPLES: Blows/6"	SAMPLES: Recovery (ft)	SAMPLES: PID (ppm)	USCS Symbol	Graphic Log	Material Description	Remarks
16							
18							
20							
22							
24							
26							
28							
30							
32							
33							

ERO Resources Corp.

Project Name:

Contractor:

Project Number:

Log of Boring _____

Depth (ft-bgs)	SAMPLES: Blows/6"	SAMPLES: Recovery (ft)	SAMPLES: PID (ppm)	USCS Symbol	Graphic Log	Material Description	Remarks
34							
36							
38							
40							
42							
44							
46							
48							
50							
51							

Appendix D Current Well Logs

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-1

Page 1 of 1

Freedom Project No.:	0605-064
Date:	9/28/2005
Client:	Thornton LLC
Location:	Thornton Shopping Center
Drilling Method:	4" Solid Stem Auger
Drilling Company:	Dakota
Logged by:	RML
Casing Elev.:	95.77

NW of current dry cleaner along parking stripes

Boring Location Sketch

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
28	0.0	5	SP	SAND, poorly graded, fine grained, sli clayey, olive-med gray, damp
60	0.0	10	CS MS	CLAYSTONE/SILTSTONE, weathered, olive, dry
46	0.0	15	CS SS	CLAYSTONE/SANDSTONE,
61	0.0	20		aa
61	0.1	25		aa
85	0.0	30	CS	MUDSTONE, silty, yell brown

Well Diagram: 1 Traffic Box; 2 Concrete Grout; 3 Locking Cap; 4 Sch. 40 PVC; 5 Sch. 40 PVC Screen - 0.010" Slot; Graded Silica Sand; Total Depth = 30'

LEGEND
1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples submitted for laboratory analysis.

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	11.18'	3/21/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

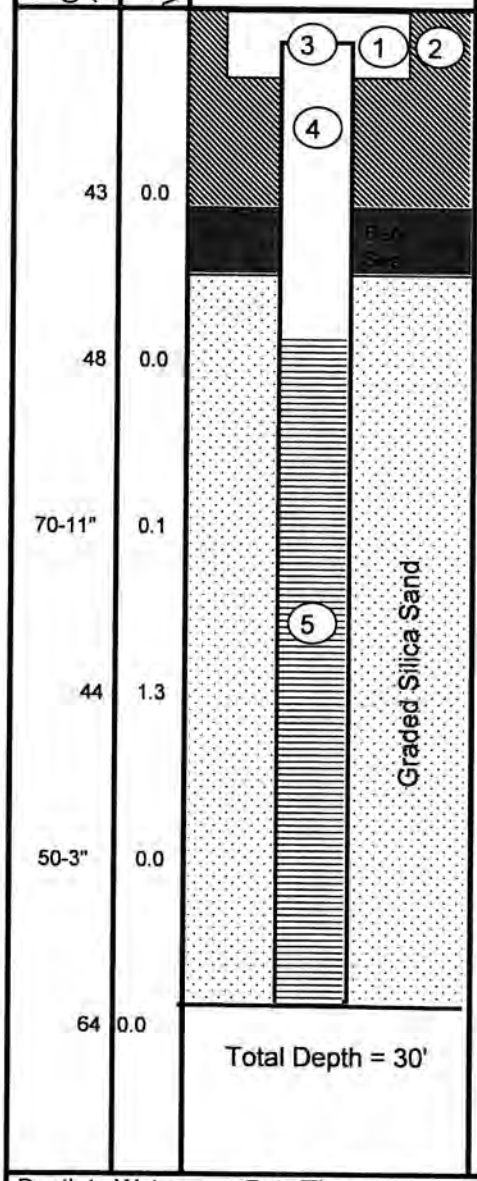
LOG OF BORING/MONITORING WELL MW-2

Page 1 of 1

SE of Family Dollar along the south site boundary

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/28/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	99.10



Blow Count per 12"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
						Asphalt
						clay
43	0.0	5			CS	CLAYSTONE, olive to med gray
48	0.0	10			CS	aa
70-11"	0.1	15			CS SS	CLAYSTONE/SANDSTONE, yellow
44	1.3	20	*		MS SS	SILTSTONE/SANDSTONE, yellow siltstone is gray
50-3"	0.0	25			SS	SANDSTONE, fine - med grained, olive
64	0.0	30			ML	SILTSTONE, olive buff

LEGEND

1. 4" Traffic Box
2. Concrete Grout
3. Locking Cap
4. Sch. 40 PVC
5. Sch. 40 PVC Screen - 0.010" Slot

Note: * sumitted for laboratory analysis as MW-2-4

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	19.80'	3/22/05

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

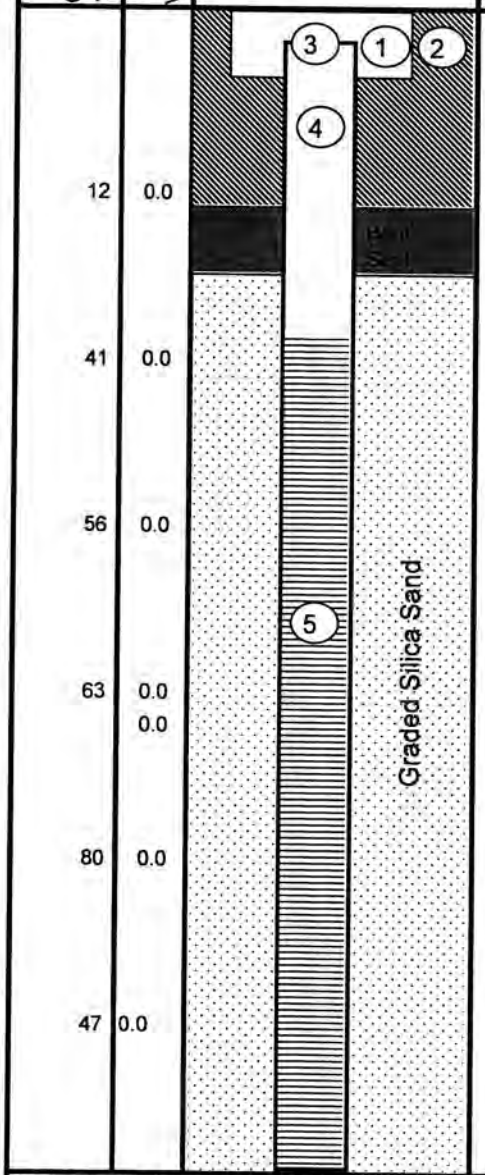
LOG OF BORING/MONITORING WELL MW-3

Page 1 of 1

South side of current dry cleaner

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/28/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	97.67



Blow Count per 12"	PID Values	Depth (feet)	Graphic Log	Soil Class.	Soils Description
					Asphalt
12	0.0	5		CL	CLAY, fill red-brn, sli sandy, fine grained
41	0.0	10		CS	CLAYSTONE, weathered olive
				MS	SILTSTONE/SANDSTONE, fine grained,
				SS	clayey, yellow
56	0.0	15		CS	CLAYSTONE, olive to med gray
63	0.0	20		MS	SILTSTONE/SANDSTONE, ss = yell
	0.0			SS	ms = olive
80	0.0	25		CS	CLAYSTONE, silty olive-gray
47	0.0	30		SS	SANDSTONE, fine grained, clayey, yell-brn to light gray, damp
					Note: No samples submitted for laboratory analysis.

LEGEND

1. 4" Traffic Box
2. Concrete Grout
3. Locking Cap
4. Sch. 40 PVC
5. Sch. 40 PVC Screen - 0.010" Slot

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	13.45'	3/21/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-4

Page 1 of 1

East side of current dry cleaner

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/28/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	95.99

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
	3.2			Asphalt Grab sample - clay fill
15	0.6	5	CL	CLAY, fill red-brn, silty, damp
58	0.3	10	SS	SANDSTONE, fine grained, clayey, micac., light brn-olive
39	0.0	15	MS CS	SILTSTONE/CLAYSTONE, med gray Fe stn
38	0.0	20	SS CS	SANDSTONE CLAYSTONE
52	0.0	25	CS MS	C'STONE/SILTSTONE Olive, fractured in part
78	0.0	30	SS	SANDSTONE, fine grained, clayey, yell-brn

Well Diagram: 1 = 4" Traffic Box; 2 = Concrete Grout; 3 = Locking Cap; 4 = Sch. 40 PVC; 5 = Sch. 40 PVC Screen - 0.010" Slot; Graded Silica Sand

Total Depth = 30'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: * indicates samples submitted for laboratory analysis as MW-4-0 & MW-4-1

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	13.45'	3/21/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

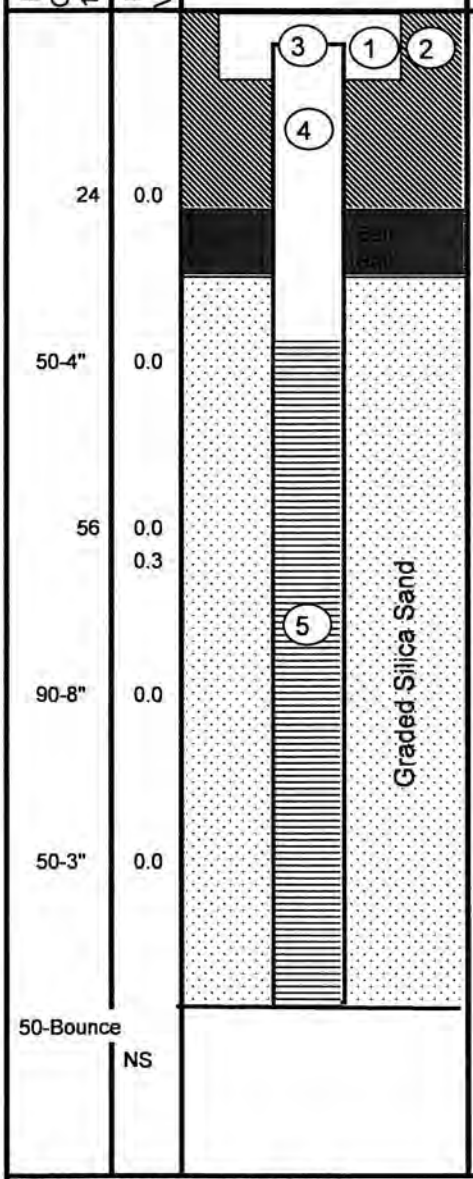
LOG OF BORING/MONITORING WELL MW-5

Page 1 of 2

S of U-Haul along the south site boundary

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/29/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	98.80



Blow Count per 12"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
						Asphalt
						clay
24	0.0	5			CS	CLAYSTONE, weathered, silty, yell-brn to med gray
50-4"	0.0	10			SS	SANDSTONE, weathered, fine-med grained, lt brn & olive
56	0.0	15			SS	aa
	0.3				CS	MUDSTONE/SILTSTONE, yell-ochre
90-8"	0.0	20			MS	SILTSTONE, sandy in part, fine grained, gray brown-yell brn
50-3"	0.0	25			SS	SANDSTONE, aa, clayey
50-Bounce		30			SS	SANDSTONE ??
	NS					

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	19.80'	3/22/05

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-5

S of U-Haul along the south site boundary

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/29/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	98.80

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
65	0.0	35	CS MS	CLAYSTONE/SILTSTONE in part, med-dark gray
84	0.0	40	CS	CLAYSTONE, as above, fractures w/ Fe stn
		45		
		50		
		55		
		60		

Well Diagram: (5) Graded Silica Sand

Total Depth = 40'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples submitted for laboratory analysis.

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	18.60'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

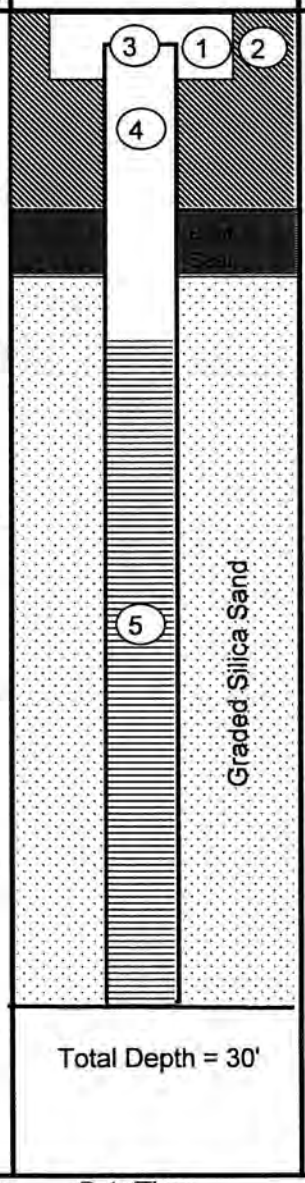
LOG OF BORING/MONITORING WELL MW-6

Page 1 of 1

Just S of the laundromat

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/29/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	99.76



Blow Count per 12"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
						Asphalt
						clay
43	0.0	5			CS	CLAYSTONE, silty, gray-yell brn
60	0.0	10			ML	SILTSTONE (or vfg SS), yell brn-gray
43	0.2	15			CS	CLAYSTONE, silty, highly fractured
71	85	20	*		CS	MUDSTONE, yell brn-gray
50-6"	2.1	25			SS	SANDSTONE, fine - med grained, silty, yell-gray
63	10.6	30			ML	SILTSTONE, gray-olive

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: * sumitted for laboratory analysis as MW-6-4

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	17.06'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-7

Page 1 of 1

Just S of the laundromat

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	9/29/2005
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	96.24

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
16	9.0	5	CL	CLAY, fill?, silty, sli sandy, fine grained, med gray - no odor
13	7.2	10	CL	aa
14	10	15	CL	aa, incr. silt and sand
16	2.1	20	SC	SAND, very fine-fine grained, clayey, fill?, yell-ochre
27	4.8	25	CS MS	CLAYSTONE/SILTST. gray, fractured
		30		

Well Diagram: 1 = 4" Traffic Box; 2 = Concrete Grout; 3 = Locking Cap; 4 = Sch. 40 PVC; 5 = Sch. 40 PVC Screen - 0.010" Slot; Graded Silica Sand; Total Depth = 25'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: * sumitted for laboratory analysis as MW-7-1

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	9.16'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-8

Page 1 of 1

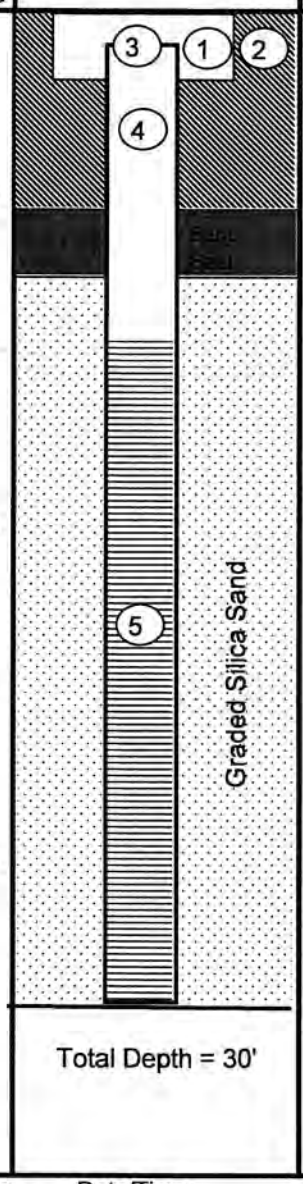
Freedom Project No.:	0605-064
Date:	9/29/2005
Client:	Thornton LLC
Location:	Thornton Shopping Center
Drilling Method:	4" Solid Stem Auger
Drilling Company:	Dakota
Logged by:	RML
Casing Elev.:	95.56

North side of current dry cleaner

Boring Location Sketch

Blow Count per 12"	PID Values	Depth (feet)	Graphic Log	Soil Class.	Soils Description
					Asphalt
20	4.3	5		CL	CLAY, silty, yell brn, moist
57	6.0	10 *		SS	SANDSTONE, fine grained, clayey, yell-ochre
35	3.8	15		CS MS	CLAYSTONE/SILTSTONE in part, olive, hard, blocky, highly frac. in part
52	5.1	20			aa
52	7.5	25		CS	CLAYSTONE, blocky olive
45	3.4	30		SS	SANDSTONE, v fine-fine grained, clayey, olive

Note: * indicates samples submitted for laboratory analysis as MW-8-2



LEGEND

1. 4" Traffic Box
2. Concrete Grout
3. Locking Cap
4. Sch. 40 PVC
5. Sch. 40 PVC Screen - 0.010" Slot

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	11.70'	3/21/05

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-9

Page 1 of 1

S of the laundromat. 35' W and 8'N of MW-6.

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	2/3/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	99.21

Blow Count per 12"	PID Values	Well Diagram	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
							Asphalt
40	0.2		15			MS	SILTSTONE, clayey, yell brn, moist

Well Diagram: 3, 1, 2, 4, Bent Soil, Graded Silica Sand, 5

Total Depth = 20'

Depth scale: 5, 10, 15, 20, 25, 30

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	16.80'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-10

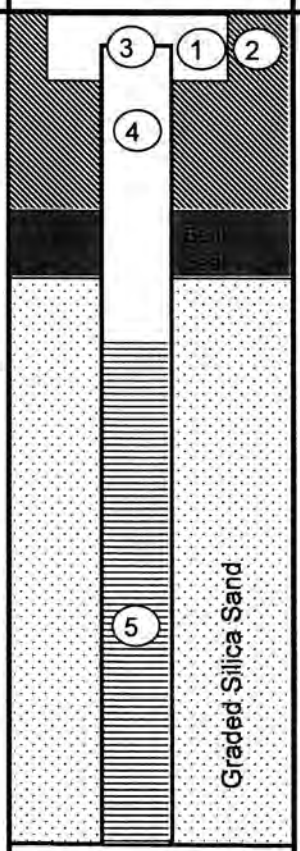
Page 1 of 1

N side of building in parking area N of laundromat

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	3/7/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	98.35

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
95-11"	1.5	5	MS	SILTSTONE, lt-yell gray, hard, vf sand @5.5-6'
91-11"	1.0	10	MS	SILTSTONE, lt olive-yell
74	<1	15		aa, blocky w/ fractures
50-4"	<1	20		aa, dark olive, trace fine sand
		25		
		30		



Total Depth = 25'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	13.74'	3/21/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-12

Page 1 of 1

S of Chinese Buffet

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	3/7/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	7" HSA w/ CME Core		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	100.12

Blow Count per 12"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
58	1.0					Asphalt
87	1.2				ML	SILT, lt brownish yell
					MS	SILTSTONE, lt brownish yell-gray
2.0' Rec.	3.0	5				
2.0' Rec.	5.0	10				aa, gray
2.5' Rec.	6.0	15	*			aa, harder
Not Recorded	4.0	20				aa
	14	25				
No Drives 5'-TD		30				

Well Diagram: 1 4" Traffic Box; 2 Concrete Grout; 3 Locking Cap; 4 Sch. 40 PVC; 5 Sch. 40 PVC Screen - 0.010" Slot; Graded Silica Sand

Total Depth = 25'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: * sumitted for laboratory analysis as MW-12@15

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	15.92'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-11

Page 1 of 1

SEC of the laundromat

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	3/6/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" auger/NX Core		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	99.81

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
20	0.0			Asphalt
			ML	SILT, clayey, yellow-gray
49	0.0			
71	0.0	5	MS	SILTSTONE, clayey, blocky, yell-gray
93-10"				
94-10"	1.5			aa, dry
		10		
	5		MS	SILTSTONE, blocky, gray, damp
	150	15		
	1100			aa w/ v fine grained sand, rust
	105	20		
	31			aa w/ fine grained sand @ 20'
	204			
	84	25		
		30		

Well Diagram: 1 4" Traffic Box; 2 Concrete Grout; 3 Locking Cap; 4 Sch. 40 PVC; 5 Sch. 40 PVC Screen - 0.010" Slot; Graded Silica Sand

Total Depth = 25'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: * sumitted for laboratory analysis as MW-11@15 and MW-11@17

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	15.76'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

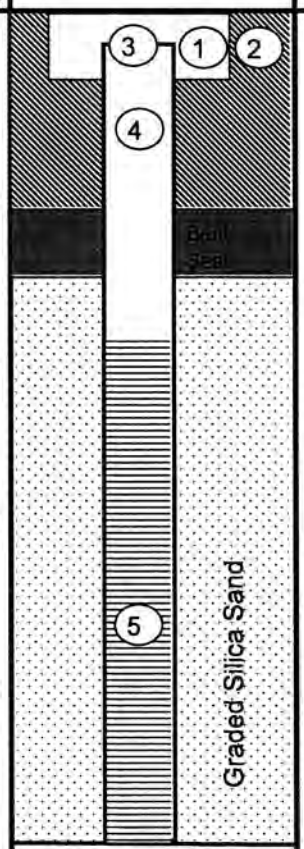
LOG OF BORING/MONITORING WELL MW-13

Page 1 of 1

SE along 88th by sign

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	3/7/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	97.61



Blow Count per 12"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
						Asphalt
54	2.0	5			MS	SILTSTONE, dk gray, hard, blocky
60	2.5	10				aa
84-11"	3.0	15				aa, rusty brown, softer
39-10"	12	20			MS	SILTSTONE, dk gray, hard, blocky, gypsum(?) @ 20.5'
71	9	25				aa
		30				

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	19.47'	3/22/05

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-14

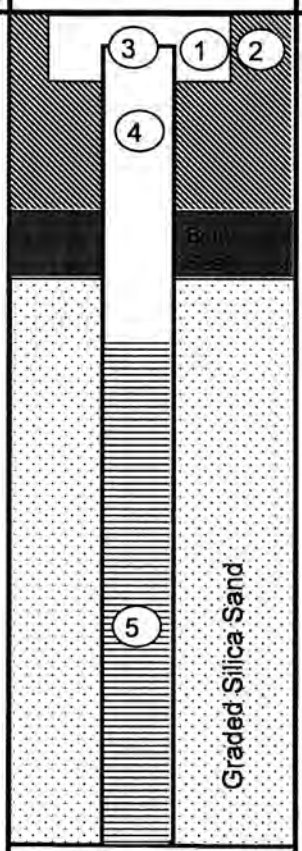
Page 1 of 1

SEC of the site along 88th in the parking lot

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	3/7/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	RML	Casing Elev.:	96.92

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
36		5	MS	SILTSTONE, weathered(?), yell brn, w/ some fine grained sand
86-10"		10	MS	SILTSTONE, olive gray, blocky
86-10"		15		aa
93		20		aa
		25		
		30		



LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	18.81'	3/22/05

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

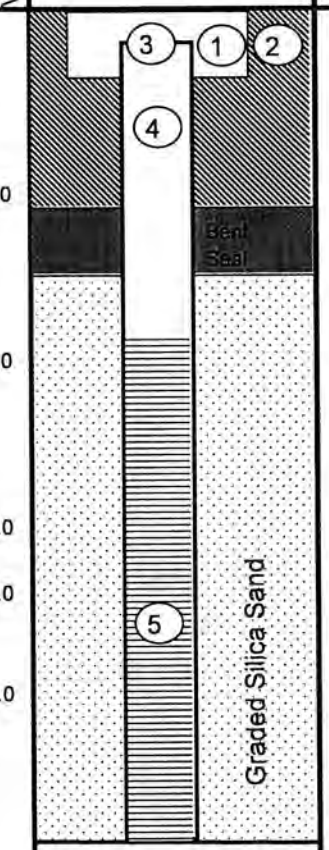
LOG OF BORING/MONITORING WELL MW-15

Page 1 of 1

East of the site along Corona Street

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	4/25/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	CWP	Casing Elev.:	96.76



Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
24	0.0	5	CL	CLAY, silty, sli sandy, tan-lt brn
			SC	SAND, fine to v fine grained, clayey
34	0.0	10	CS	CLAYSTONE, sli silty, brn-olive gray
80	0.0	15	MS	SILTSTONE, clayey, sandy
52	0.0		CS	CLAYSTONE, as above
83-9"	0.0	20	MS	SILTSTONE
			SS	SANDSTONE
		25		
		30		

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	19.46'	6/28/06

FREEDOM ENVIRONMENTAL
CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-16

Page 1 of 1

East of the northeast corner of the main building

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	4/25/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	CWP	Casing Elev.:	96.88

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
20	0.0	5	CL	CLAY, silty, sli sandy, tan-lt brn
			SC	SAND, fine to v fine grained, clayey
			MS	SILTSTONE, weathered, tan-lt brn
44	0.0	10	SS	SANDSTONE, weathered, v fine-med gr.
74	0.0	15	CS	CLAYSTONE, sli silty, brn-olive gray
50-5"	0.0	20	MS SS	as above
		25		
		30		

Well Diagram: 1 4" Traffic Box; 2 Concrete Grout; 3 Locking Cap; 4 Sch. 40 PVC; 5 Sch. 40 PVC Screen - 0.010" Slot; Bent. Seal; Graded Silica Sand; Total Depth = 25'

LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	17.55'	6/28/06

FREEDOM ENVIRONMENTAL CONSULTANTS, INC.

LOG OF BORING/MONITORING WELL MW-17

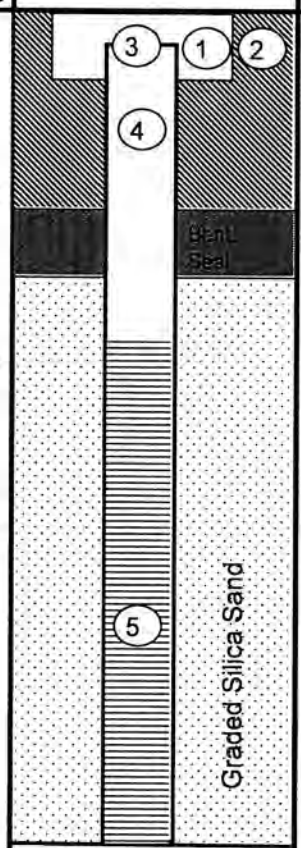
Page 1 of 1

Upgradient well west of U-Haul

Boring Location Sketch

Freedom Project No.:	0605-064	Date:	4/25/2006
Client:	Thornton LLC		
Location:	Thornton Shopping Center		
Drilling Method:	4" Solid Stem Auger		
Drilling Company:	Dakota		
Logged by:	CWP	Casing Elev.:	99.32

Blow Count per 12"	PID Values	Depth (feet)	Soil Class.	Soils Description
				Asphalt
56	0.0	5	CS	CLAYSTONE, weathered, yell, tan, gray
			SS	SANSTONE, silty, clayey
84	0.0	10	CS	as above
44	0.0	15	CS	as above
81-11"	0.0	20	MS	SILTSTONE, sandy, clayey
76	0.0	25		
		30		



LEGEND

1 4" Traffic Box
2 Concrete Grout
3 Locking Cap
4 Sch. 40 PVC
5 Sch. 40 PVC Screen - 0.010" Slot

Note: No samples sumitted for laboratory analysis

Depth to Water	Date/Time	Depth to Water	Date/Time
None	At drilling	10.73'	6/28/06

Well Location Sketch:

Compliance · Engineering · Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	MW-18	Project:	Thornton Shopping Center
Date:	7/22/2011	Project #	033711001
Logged By:	John Brown	Drilled By:	Alpine Field Services
Elevation: NM	Detector: MiniRAE-Lite (10.6)	Drilling Method:	4" Dia. Solid Stem Auger
Sampling Method:	5' Length MacroCore (DP)		
Gravel Pack:	10-20 Silica Sand / 6-23' BGS	Seal:	Granular Bentonite
Grout:	Granular Bentonite		
Casing Type:	Sch. 40 PVC	Diameter: 2"	Length: 7.5'
Hole Diameter:	4"		
Screen Type:	Sch. 40 PVC	Slot: 0.010"	Diameter: 2"
Length:	15'	Total Depth:	25.0' Boring / 23.0' Well
Depth to Water:	Dry		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks
					0				
Not Applicable - Direct Push	Dry	-----			1		Augered	Asphalt	0 - 0.5' Asphalt
		-----						RoadBase	0.5 - 1.0' Gravel Roadbase, Loose, Dry
		2.3			2				1.0 - 5.0' Brown Clay, Stiff, Slightly Moist
		0.3							
		ND	None		3		46"		
		ND							
		ND			4				
		ND							
		ND			5			CL	
	Moist	ND							5.0 - 8.4' Brown Clay, Medium Stiff to Soft, Moist
		ND			6				
		ND							
		ND			7				
		ND	None	7-8'			60"		
		ND			8				
		ND							
		ND			9				8.4 - 9.6' Brown Weathered Claystone, Stiff But Friable, Moist
		ND							
	Dry	ND			10				9.6 - 10.0' Same As Above, Very Stiff, Non-Friable, Dry
		ND							10.0 - 12.5' Brown Weathered Claystone, Medium Stiff, Slightly Moist
	Slightly Moist	ND			11				
		ND	None				30"		
		ND			12				
		ND							
		ND			13				12.5 - 15.0' Same As Above, Dry
		ND							
		ND	None		14		30"		
		ND							
		ND			15				
		ND						WCS	15.0 - 17.5' Same As Above, Dry
		ND			16				
		ND	None				30"		
		ND			17				
		ND							
		ND			18				17.5 - 20.0' Same As Above, Dry
		ND							
	Dry	ND	None		19		30"		
		ND							
		0.3			20				
		0.3							20.0 - 22.0' Same As Above, Very Stiff, Dry
		1.8			21				
		3.5	None	21-22'			30"		
		0.5			22				
		0.6							
		ND			23				22.0 - 25.0' Brown Claystone, Very Stiff, Moderately Friable, Dry
		ND							(Unweathered & More Competant)
		ND	None		24		30"	CLS	
		ND							
		ND			25				

Well Completion Diagram: Flushmount; TD = 23' BGS

Bottom of Boring at 25' BGS

= 10-20 Silica Sand Pack
= Well Screen
= Hydrated Granular Bentonite

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:

Compliance - Engineering - Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	MW-19	Project:	Thornton Shopping Center
Date:	7/6/2011	Project #	033711001
Logged By:	John Brown	Drilled By:	Alpine Field Services
Elevation:	NM	Detector:	MiniRAE-Lite (10.6)
Drilling Method:	4" Dia. Solid Stem Auger	Sampling Method:	5' Length MacroCore (DP)
Gravel Pack:	10-20 Silica Sand / 13-25' BGS	Seal:	Granular Bentonite
Grout:	Granular Bentonite		
Casing Type:	Sch. 40 PVC	Diameter: 2"	Length: 14.5'
Hole Diameter:	4"		
Screen Type:	Sch. 40 PVC	Slot: 0.010"	Diameter: 2"
Length:	10'	Total Depth:	15.0' Boring / 25.0' Well
Depth to Water:	10.08'		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks
					0				
		-----			1		Augered	Asphalt	0 - 0.5' Asphalt
		-----						RoadBase	0.5 - 1.0' Gravel Roadbase, Loose, Dry
		ND			2				
		ND							1.0 - 4.7' Brown Clay, Trace Silt, Medium-Stiff, Moist, No Odor
		ND			3				
	Moist	ND	None				45"	CL	
		ND			4				
		ND							
		ND			5				
		ND		5-6'					5.0 - 6.0' Same As Above
		ND			6				
		ND			7				6.0 - 10.0' Brown Silt, Trace Clay, Medium-Stiff, Dry, Friable, No Odor
		ND							
	Dry	ND	None		8		60"	ML	
		ND							
		ND			9				
		ND							
		ND			10				10.0 - 10.5' Same As Above
		ND			11				10.5 - 12.5' Brown Fine Sand, Trace Silt & Clay, Slightly Moist, Medium-Dense, No Odor
		ND							
	Slightly Moist	ND	None	11-12'	12		30"	SP	
		ND							
		ND			13				12.5 - 15.0' Brown Fine Sand, Trace Silt & Clay, Dense, Dry, No Odor
		ND							*Iron Staining in Horizontal Bands at 13', 14', and 14.5'
		ND			14				
	Dry	ND	None				30"		
		ND		14-15'	15				
					16				**Direct-Push Drilling Refusal at 15' BGS**
					17				**Installed Well Using 4" O.D. Solid-Stem Augers**
					18				***Observed Clay/Weathered Claystone on Augers**
					19				**from 15-25' BGS**
					20				
					21				
					22				
					23				
					24				
					25				

Not Applicable - Direct Push

Well Completion Diagram: Flushmount

TD = 25' BGS

= 10-20 Silica Sand Pack

= Well Screen

= Hydrated Granular Bentonite

BGS = Below Ground Surface

ND = Not Detected

NM = Not Measured

TD = Total Depth

Well Location Sketch:

Compliance - Engineering - Remediation

LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	MW-20	Project:	Thornton Shopping Center
Date:	7/6/2011	Project #	033711001
Logged By:	John Brown	Drilled By:	Alpine Field Services
Elevation: NM	Detector: MiniRAE-Lite (10.6)	Drilling Method:	4" Dia. Solid Stem Auger
Sampling Method:	5' Length MacroCore (DP)		
Gravel Pack:	10-20 Silica Sand / 13-25' BGS	Seal:	Granular Bentonite
Grout:	Granular Bentonite		
Casing Type:	Sch. 40 PVC	Diameter: 2"	Length: 14.5'
Hole Diameter:	4"		
Screen Type:	Sch. 40 PVC	Slot: 0.010"	Diameter: 2"
Length:	10'	Total Depth:	20.0' Boring / 25.0' Well
Depth to Water:	9.29'		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks
					0				
		-----			1		Augered	Asphalt	0 - 0.5' Asphalt
		-----						RoadBase	0.5 - 1.0' Gravel Roadbase, Loose, Dry
		ND			2				1.0 - 4.0' Brown Clay, Trace Silt, Medium-Stiff, Moist, No Odor
		ND							
		ND	None		3		47"		
		ND							
		ND			4				
		ND							
		ND			5				
	Moist	ND							
		ND			6			CL	5.0 - 10.0' Same As Above, Trace Fine Gravel at Tip, No Odor
		ND		6-7'					
		ND	None		7				
		ND							
		ND			8		60"		
		ND							
		ND			9				
		ND							
		ND			10				
		ND							10.0 - 15.0' Brown to Orange-Brown Weathered Claystone, Medium-Stiff, Dry, Friable
		ND			11				
		ND							
		ND			12				
		ND							
	Dry	0.6	None	12-13'	13		60"		
		0.6							
		ND			14			WCS	
		ND							
		ND			15				
		ND							15.0 - 19.3' Brown to Orange Brown Weathered Claystone, Trace Very Fine Sand, Very Stiff, Slightly Moist, Friable
		ND			16				
		ND							
		ND			17				
		ND							
		ND	None		18		60"		
		ND							
	Slightly Moist	ND		18.8-19.3'	19				
		ND							
		ND			20				19.3 - 20.0' Medium-Brown Claystone, Slightly Moist, Indurated (Hard / Unweathered)

		---			21				20.0 - 23.0' *Sample Stuck in Core Barrel
		---	None					CLS	Appears to Be Indurated / Unweathered Claystone
		---			22		0"		

		---			23				
					24				**Direct-Push Drilling Refusal at 23' BGS**
					25				**Installed Well Using 4" O.D. Solid-Stem Augers**

Not Applicable - Direct Push

Well Completion Diagram: Flushmount

TD = 25' BGS

= 10-20 Silica Sand Pack

= Well Screen

= Hydrated Granular Bentonite

BGS = Below Ground Surface

ND = Not Detected

NM = Not Measured

TD = Total Depth

Well Location Sketch:

Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	MW-21	Project:	Thornton Shopping Center
Date:	7/28/2011	Project #	033711001
Logged By:	John Brown	Drilled By:	Alpine Field Services
Elevation:	NM	Detector:	MiniRAE-Lite (10.6)
Drilling Method:	4" Dia. Solid Stem Auger	Sampling Method:	5' Length MacroCore (DP)
Gravel Pack:	10-20 Silica Sand / 6-23' BGS	Seal:	Granular Bentonite
Grout:	Granular Bentonite		
Casing Type:	Sch. 40 PVC	Diameter: 2"	Length: 7.5'
Hole Diameter:	4"		
Screen Type:	Sch. 40 PVC	Slot: 0.010"	Diameter: 2"
Length:	15'	Total Depth:	22.5' Boring / 23.0' Well
Depth to Water:	Dry		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks
					0				
Not Applicable - Direct Push	Dry	-----	None		1		Augered	Asphalt	0 - 0.6' Asphalt
		-----						RoadBase	0.6 - 1.0' Gravel Roadbase, Loose, Dry
		ND			2				1.0 - 5.0' Brown Silty-Clay, Soft to Medium-Stiff, Slightly Moist
		1.6			3		47"		
		ND			4				
		ND			5				
	Slightly Moist	ND	None		6		60"	CL	5.0 - 9.5' Same As Above, Soft, Slightly Moist
		ND			7				
		ND			8				
		ND		8-9'	9				
		ND			10				9.5 - 10.0' Brown Weathered Claystone, Stiff But Friable, Dry
		ND			11				10.0 - 14.4' Same As Above, Stiff But Friable, Dry
		ND			12		60"		
		ND	None		13				
		ND			14				
		ND			15				14.4 - 15.0' Brown Weathered Claystone, Very Stiff, Dry (Mineralized)
		ND			16			WCS	15.0 - 17.5' Brown Weathered Claystone, Stiff But Friable, Dry
	Dry	ND	None		17		30"		
		ND			18				17.5 - 20.0' Same As Above, 3" Thick Sandy Lense at 18' BGS
		ND			19		30"		
		ND	None		20				
		ND			21				20.0 - 22.0' Same As Above
		ND			22		30"		
		ND	None		23			CLS	22.0 - 22.5' Brown Claystone, Competant & Unweathered, Dry

Bottom of Boring at 22.5' BGS

Well Completion Diagram: Flushmount; TD = 23' BGS

= 10-20 Silica Sand Pack

= Well Screen

= Hydrated Granular Bentonite

BGS = Below Ground Surface

ND = Not Detected

NM = Not Measured

TD = Total Depth

Remediation Risk Reduction, LLC	LOG OF BORING __SB-22_____	Page _1_ of _1__

Northwest corner of Advance Auto Parts property.

Boring Location Sketch

R^3 Project No.:	Thorn-001	Date:	5/21/2018
Client:	Thornton, LLC		
Location:	Thornton Shopping Center, Thornton, CO		
Drilling Method:	4" Hollow Stem Auger		
Drilling Company:	Dakota Drilling		
Logged by:	JHO	Casing Elev.:	Not Meas.

Blow Count per 6"	PID Values	Depth (feet)	Sample Interval	Graphic Log	Soil Class.	Soils Description
	0.0					Landscaping mulch and topsoil
3,4			*		CL	Clay, brown, with trace silt, soft, dry, no odor
4,3	0.0					
5,5		5				aa
6,4	0.0					
3,5			*		CL	CLAY, gray, with trace silty sand, stiff, dry, no odor
6,8	0.0					
7,8						aa
18,18	0.0	10			CL	CLAYSTONE, light brown to orange, weathered with some fine sand, medium, dry, no odor
	0.0					aa
	0.0				CL	CLAYSTONE, light brown to orange, weathered, stiff, dry, no odor
	0.2	15	*			aa
	0.0				CL	CLAYSTONE, light gray, weathered with trace fine sand, hard, dry, no odor
	0.0		*			aa
		20			CL	CLAYSTONE, light brown to brown, weathered with some fine sand, medium, dry, no odor
	0.0				CL	
	0.0					
	0.0	25	*		CL	
		30				Samples for laboratory analysis SB22 (4', 8', 16, 19', 25') (soil)* MW-22 TD - 25'

Well Diagram

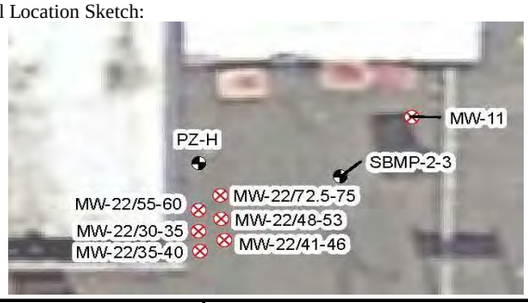
1 — 2" Sch. 40 PVC

2 — 2" Sch. 40 PVC Screen - 0.010 Slot

LEGEND

Depth to Water	Date/Time	Depth to Water	Date/Time
23.70	5/22/18 12:50		

Well Location Sketch:



Compliance » Engineering » Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

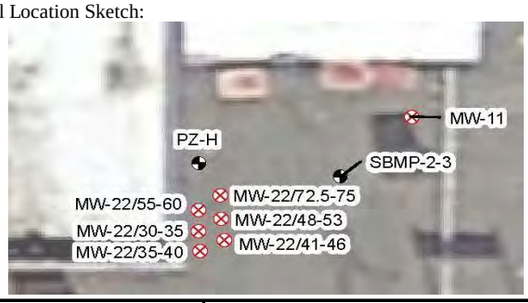
Boring/Well Number:	**MW-22 / 30-35'**	Project:	**Thornton Shopping Center**
Date:	**10/13/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation:	**NM**	Detector: **MiniRAE-3000**	
Drilling Method:	**4" Auger**	Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (29-35')**	Seal: **Hydrated Granular Bentonite**	Grout: **Cement - Bentonite Grout**
Casing Type:	**Sch. 40 PVC**	Diameter: **2"** Length: **30'**	Hole Diameter: **5.5"** Depth to Liquid: NM
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **5'**	Total Depth: **35'** Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					J-Plug & Flushmount
					5				**SEE SOIL BORING LOG FOR MW-22 / 72.5-75' FOR LITHOLOGY AND ADDITIONAL INFORMATION**	
					10					
					15					
					20					
					25					
					30					
					35					TD = 35' BGS
					40					
					45					
					50					
					55					
					60					
					65					
					70					
					75					

= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance ~ Engineering ~ Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

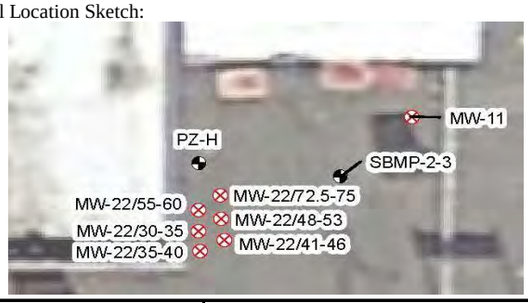
Boring/Well Number:	**MW-22 / 35-40'**	Project:	**Thornton Shopping Center**
Date:	**10/13/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation:	**NM**	Detector: **MiniRAE-3000**	
Drilling Method:	**4" Auger**	Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (34-40')**	Seal:	**Hydrated Granular Bentonite**
Grout:	**Cement - Bentonite Grout**		
Casing Type:	**Sch. 40 PVC**	Diameter: **2"** Length: **35'**	Hole Diameter: **5.5"**
Depth to Liquid:	NM		
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **5'**	Total Depth: **40'**
Depth to Water:	NM		

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75				**SEE SOIL BORING LOG FOR MW-22 / 72.5-75' FOR LITHOLOGY AND ADDITIONAL INFORMATION**	J-Plug & Flushmount; TD = 40' BGS

= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance ▪ Engineering ▪ Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

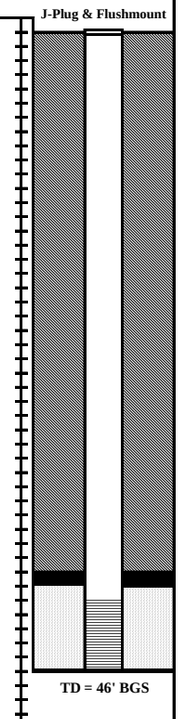
Boring/Well Number:	**MW-22 / 41-46'**	Project:	**Thornton Shopping Center**
Date:	**10/13/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (40-46')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**

Casing Type:	**Sch. 40 PVC**	Diameter:	**2"**	Length:	**41**	Hole Diameter: **5.5"**	Depth to Liquid: NM
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter:	**2"**	Length:	**5'**	Total Depth: **46'**	Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75

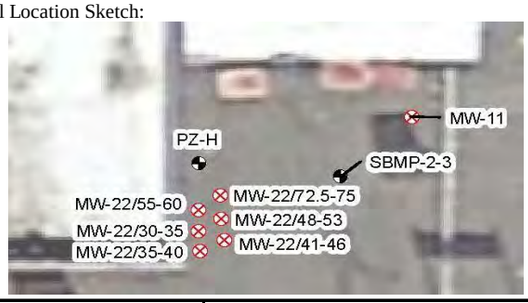
SEE SOIL BORING LOG FOR MW-22 / 72.5-75' FOR LITHOLOGY AND ADDITIONAL INFORMATION



= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance ▪ Engineering ▪ Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

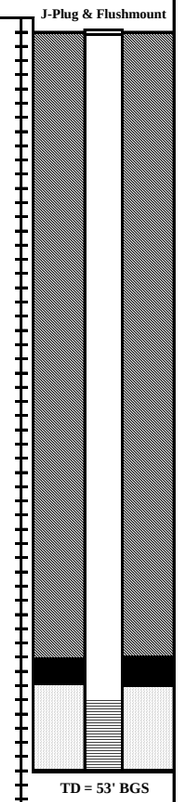
Boring/Well Number:	**MW-22 / 48-53'**	Project:	**Thornton Shopping Center**
Date:	**10/14/2016**	Project #	**057714002**
Logged By:	**Jeremy Pike**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (47-53')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**

Casing Type:	**Sch. 40 PVC**	Diameter:	**2"**	Length:	**48**	Hole Diameter: **5.5"**	Depth to Liquid: NM
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter:	**2"**	Length:	**5'**	Total Depth: **53'**	Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75

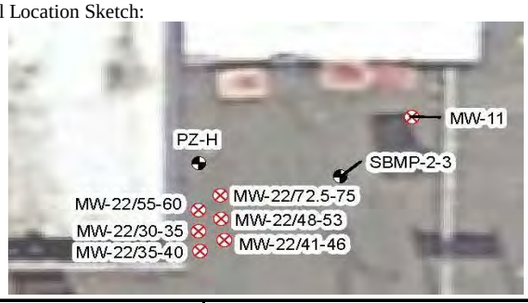
SEE SOIL BORING LOG FOR MW-22 / 72.5-75' FOR LITHOLOGY AND ADDITIONAL INFORMATION



= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

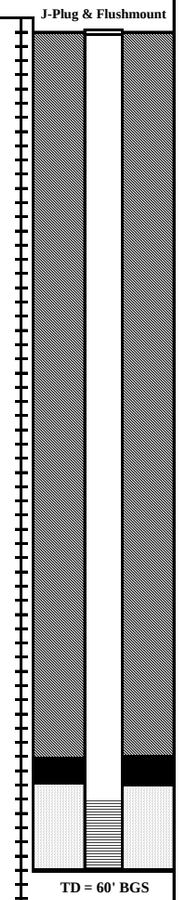
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	**MW-22 / 55-60'**	Project:	**Thornton Shopping Center**
Date:	**10/18/2016**	Project #	**057714002**
Logged By:	**John Brown**	Drilled By:	**Dakota Drilling**
Elevation:	**NM**	Detector: **MiniRAE-3000**	
Drilling Method:	**4" Auger**	Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (54-60')**	Seal: **Hydrated Granular Bentonite**	Grout: **Cement - Bentonite Grout**
Casing Type:	**Sch. 40 PVC**	Diameter: **2"** Length: **55'**	Hole Diameter: **5.5"** Depth to Liquid: NM
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **5'**	Total Depth: **60'** Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75

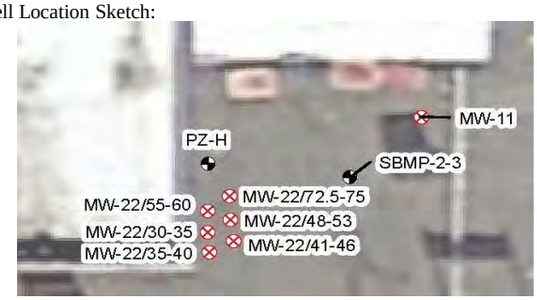
SEE SOIL BORING LOG FOR MW-22 / 72.5-75' FOR LITHOLOGY AND ADDITIONAL INFORMATION



= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



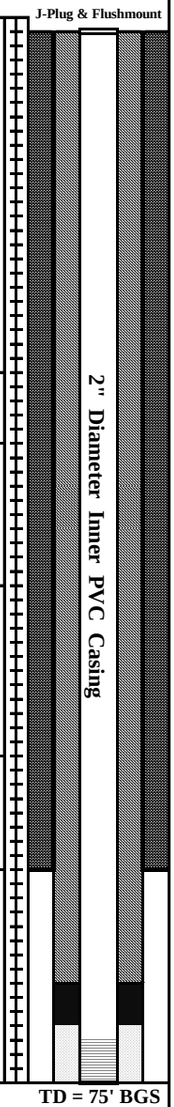
Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	**MW-22 / 72.5-75'**	Project:	**Thornton Shopping Center**
Date:	**10/21/2016 to 10/26/2016**	Project #	**057714002**
Logged By:	**J. Brown & J. Pike**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**8" ID Hollow Stem / 5" Air-Hammer Bit**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (71-75')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**
Casing Type: **Sch. 40 PVC**	***6" Outer Casing Grouted in 10" hole to 60' BGS**	Diameter: **6" / 2"** Length: **60' / 72.5'**	Hole Diameter: **10" OH / 5" IH** Depth to Liquid: NM
Screen Type: **Sch. 40 PVC**	Slot: **0.010"**	Diameter: **2"** Length: **2.5'**	Total Depth: **75'** Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks
					0				
No Samples From Groundsurface to 25' BGS					5				**See Soil Boring Log for PZ-H For Shallow-Zone Lithology**
					10				
					15				
					20				
54/6"	Moist	6, 38, 12, 12	NO	25.5'	25		11"	CLS	25-26.5' Brown Claystone w/ Siltstone Interbeds, Weathered, Moist, Iron Oxide Staining Along Thin Lenses, Trace Sand, No Staining, No Odor
15,27,24	Dry	3, 18, 3, 0.4	NO	31'	30		18"	SS	30-31.5' Brown Siltstone, Dry, Dense, Horizontal Bands of Iron Staining Throughout, No Staining, No Odor
15, 27, 33	Dry	0.7, 0.2 0.1, 0.1	NO	36.5'	35		18"		35-36.5' Brown Siltstone, Dry, Dense, grading into fine brown sand at tip, No Staining, No Odor
18,20,28	Dry	ND, ND, ND, ND	NO	41'	40		18"	CLS	40-41.5' Brown Claystone, Dry, Dense, Unweathered (Competent), No Staining, No Odor
18,29,40	Dry	249, 213, 41, 27	NO	45.3'	45		18"		45-46.5' Brown Claystone, Dry, Dense, Unweathered (Competent), No Staining, No Odor
18,18,27	Dry	23, 37, 33, 10	NO	51.5'	50		18"		50-51.5' Brown-Dark Brown Sandy/Mineralized Claystone, Dry, V-Dense
				53'	55			SS	Very Hard Drilling at 52' BGS - Likely CLS / SS Interface
50/4"	Moist	122, 58, 96	NO	55'			10"		55-55.5' Orange-Brown F-M Grained Sandstone, Poorly Cemented, Friable, Dense, Moist, No Staining, No Odor
75/1"	Dry	0.1, 0.1	NO	60'	60		6"	SS-CG	60-60.1' Grayish-Blue F-M Grained Sandstone/Conglomerate, Very, Dense, Likely Low Permeability, Highly Cemented, No Staining, No Odor
Logged Lithology Only From Splitspoons 65-75' BGS				66.5'	65				65-65.5' Grayish-Blue Sandstone/Conglomerate
				68.5'					68-68.5' Grayish-Blue Sandstone/Conglomerate
				73'	70				73-73.5' Grayish-Blue Sandstone/Conglomerate
					75				

Well Completion Diagram



= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Remediation Risk Reduction, LLC

LOG OF BORING __SB-23_____

Page _1_ of _1__

In the northern portion of the Togethor Liquors property.

Boring Location Sketch

R^3 Project No.:	Thorn-001	Date:	5/21/2018
Client:	Thornton, LLC		
Location:	Thornton Shopping Center, Thornton, CO		
Drilling Method:	4" Hollow Stem Auger		
Drilling Company:	Dakota Drilling		
Logged by:	JHO	Casing Elev.:	Not Meas.

Blow Count per 6"	PID Values	Depth (feet)	Soil Class.	Soils Description
				6" Asphalt
5,5	0.0		CL	Clay, brown, with some silt, medium stiff, dry, no odor
6,9				
4,6	0.0		CL	Clay, brown, with trace silt, medium stiff, dry, no odor
6,7		5		
5,6	0.0		CL	Clay, brown, stiff, dry, no odor
11, 10				
6,7	0.0		CL	CLAY, light brown, medium, dry, no odor
7,11				
	0.0			No Recovery
		10	CL	CLAY, brown, with trace silt, medium, dry, no odor
	0.0			
				aa
	0.0			
				aa
	0.0	15		
	0.0		CS	CLAYSTONE, brown to orange, weathered with some fine sand, medium, moist, no odor
	0.0			aa
	0.0	20	CS	CLAYSTONE, brown, weathered with fine sand, medium, dry, no odor
	0.0		CS	CLAYSTONE, brown, slightly weathered with trace fine sand, medium, dry, no odor
	0.0		CS	aa
		25		
				Samples for laboratory analysis
		30		SB23 (5', 8', 14, 19', 25') (soil)*
				MW-23
				TD - 25'

Well Diagram

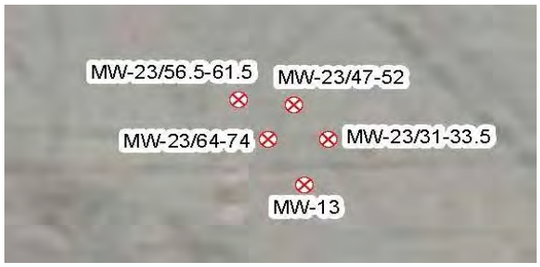
1 2

LEGEND

1 2" Sch. 40 PVC
2 2" Sch. 40 PVC Screen - 0.010 Slot

Depth to Water	Date/Time	Depth to Water	Date/Time
__11.35_____	__5/23/18 09:50_____	_____	_____

Well Location Sketch:



Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	**MW-23 / 31-33.5'**	Project:	**Thornton Shopping Center**
Date:	**10/14/2016**	Project #	**057714002**
Logged By:	**Jeremy Pike**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (30-33.5')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**

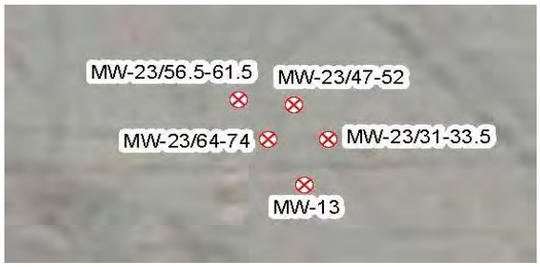
Casing Type:	**Sch. 40 PVC**	Diameter:	**2"**	Length:	**31'**	Hole Diameter: **5.5"**	Depth to Liquid: NM
Screen Type:	**Sch. 40 PVC** Slot: **0.010"**	Diameter:	**2"**	Length:	**2.5'**	Total Depth: **33.5'**	Depth to Water: NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0				**SEE SOIL BORING LOG FOR MW-23 / 64-74' FOR LITHOLOGY AND ADDITIONAL INFORMATION**	J-Plug & Flushmount
					5					
					10					
					15					
					20					
					25					
					30					
					35					TD = 33.5' BGS
					40					
					45					
					50					
					55					
					60					
					65					
					70					
					75					

= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

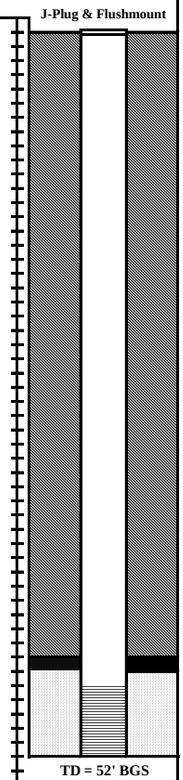
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	**MW-23 / 47-52'**	Project:	**Thornton Shopping Center**
Date:	**10/26/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (46-52')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**
Casing Type: **Sch. 40 PVC**	Diameter: **2"** Length: **47'**	Hole Diameter:	**5.5"**
		Depth to Liquid:	NM
Screen Type: **Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **5'**	Total Depth:	**52'**
		Depth to Water:	NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75

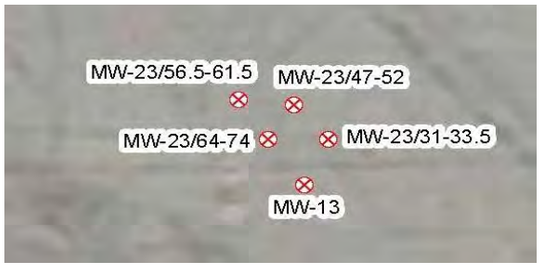
SEE SOIL BORING LOG FOR MW-23 / 64-74' FOR LITHOLOGY AND ADDITIONAL INFORMATION



= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

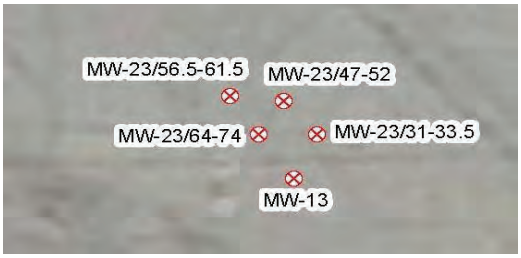
Boring/Well Number:	**MW-23 / 56.5-61.5'**	Project:	**Thornton Shopping Center**
Date:	**10/26/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (55.5-61.5')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**
Casing Type: **Sch. 40 PVC**	Diameter: **2"** Length: **56.5'**	Hole Diameter:	**5.5"**
		Depth to Liquid:	NM
Screen Type: **Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **5'**	Total Depth:	**61.5'**
		Depth to Water:	NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					J-Plug & Flushmount
					5				**SEE SOIL BORING LOG FOR MW-23 / 64-74' FOR LITHOLOGY AND ADDITIONAL INFORMATION**	
					10					
					15					
					20					
					25					
					30					
					35					
					40					
					45					
					50					
					55					
					60					
					65					
					70					
					75					TD = 61.5' BGS

= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Well Location Sketch:



Compliance - Engineering - Remediation
LT Environmental, Inc.
4600 W. 60th Avenue
Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	**MW-23 / 64-74'**	Project:	**Thornton Shopping Center**
Date:	**10/18/2016**	Project #	**057714002**
Logged By:	**Brandon Finn**	Drilled By:	**Dakota Drilling**
Elevation: **NM**	Detector: **MiniRAE-3000**	Drilling Method:	**4" Auger**
		Sampling Method:	**2" Dia. Split Spoon**
Gravel Pack:	**10-20 Silica Sand (62-74')**	Seal:	**Hydrated Granular Bentonite**
		Grout:	**Cement - Bentonite Grout**
Casing Type: **Sch. 40 PVC**	Diameter: **2"** Length: **64'**	Hole Diameter:	**5.5"**
		Depth to Liquid:	NM
Screen Type: **Sch. 40 PVC** Slot: **0.010"**	Diameter: **2"** Length: **10'**	Total Depth:	**74'**
		Depth to Water:	NM

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample Interval	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					J-Plug & Flushmount
No Samples From Groundsurface to 30' BGS					5				**See Soil Boring Log for SBMP-25 For Shallow-Zone Lithology**	
					10					
					15					
					20					
					25					
					30					
Not Recorded	Wet	0.2	NO	30' 31-33.5'	35		**Not Recorded**	**CL**	30-40' Brown Clay, Medium-Stiff, Slightly Plastic, Cohesive, No Staining, No Odor	
	Wet	0.1	NO	35-40'	40			**CLS**	40-74' Brown to Dark Brown Claystone, Dense but Friable, No Staining, No Odor	
	Wet	0.1	NO	41-46'	45					
	Wet	0.0	NO		50					
	Moist	0.0	NO	47-52'	55					
	Moist	0.0	NO		60					
	Moist	0.0	NO		65					
	Dry	0.0	NO		70					
	Dry	0.0	NO		75					TD = 74' BGS

= 10-20 Sand Pack
= Well Screen
= Hydrated Granular Bentonite Seal
= Cement - Bentonite Grout

BGS = Below Ground Surface
ND = Not Detected
NM = Not Measured
TD = Total Depth

Remediation Risk Reduction, LLC

LOG OF BORING SB-24

Page 1 of 1

In the northern portion of the condominium property.

Boring Location Sketch

R^3 Project No.:	Thorn-001	Date:	5/21/2018
Client:	Thornton, LLC		
Location:	Thornton Shopping Center, Thornton, CO		
Drilling Method:	4" Hollow Stem Auger		
Drilling Company:	Dakota Drilling		
Logged by:	JHO	Casing Elev.:	Not Meas.

Blow Count per 6"	PID Values	Depth (feet)	Soil Class.	Soils Description
				6" Asphalt
4,4			CL	Clay, brown, with some silt, medium, moist, no odor
6,8	0.0	*		
4,6				aa
8,12	0.0	5		
4,6			CL	Clay, light brown, with trace silt, medium stiff, dry, no odor
10,10	0.2	*		
4,8				No Recovery
18,24		10	CL	6"-CLAY, light brown, with few fine to medium grained sand,
	0.0		SM	medium, dry, no odor. SAND, brown, fine to medium
			CL	grained, loose, dry, no odor
	0.0			CLAYSTONE, brown, weathered with some fine grained
				grained sand, medium, dry, no odor
	3.0	15 *		aa
	0.2		CS	CLAYSTONE, brown, less weathered with some
				fine sand, stiff, dry, no odor
				aa
	0.8	*		
		20	CS	CLAYSTONE, brown to orange-brown, weathered with
	0.2			some fine sand, medium, moist, no odor
			CS	CLAYSTONE, brown to orange-brown, slightly
	0.3	*		weathered with trace fine sand, medium, dry, no odor
	0.0	*	CS	CLAYSTONE, brown, indurated, hard, dry, no odor
		25		
				Samples for laboratory analysis
		30		SB24 (4', 8', 16, 20', 24') (soil)*
				MW-24
				TD - 25'

Well Diagram: 1 = 2" Sch. 40 PVC; 2 = 2" Sch. 40 PVC Screen - 0.010 Slot

Depth to Water	Date/Time	Depth to Water	Date/Time
11.34	5/23/18 09:40		

Remediation Risk Reduction, LLC

LOG OF BORING SB-25

Page 1 of 1

In the grassed area west of the 8760 building on the condominium property.

Boring Location Sketch

R^3 Project No.:	Thorn-001
Date:	5/21/2018
Client:	Thornton, LLC
Location:	Thornton Shopping Center, Thornton, CO
Drilling Method:	4" Hollow Stem Auger
Drilling Company:	Dakota Drilling
Logged by:	JHO
Casing Elev.:	Not Meas.

Blow Count per 6"	PID Values	Depth (feet)	Soil Class.	Soils Description
			CL	2" grass, CLAY, grayish-brown, with some silt, medium, dry, no odor
3,6			CL	aa
9,11	0.0		CL	CLAY, brown, with trace silt, soft, dry, no odor
3,7		5		
4,14	0.0		CL	CLAYSTONE, brown, weathered with some fine sand, soft, dry, no odor
25,45				
50	0.0		CL	aa
46				
50	0.0	10	CL	
			SM	11.5'- SANDSTONE, brown to gray-brown, hard, dry, no odor
	0.0			
		15		Refusal at 13; bgs
		20		
		25		
		30		

Well Diagram: 1 (2" Sch. 40 PVC); 2 (2" Sch. 40 PVC Screen - 0.010 Slot)

Temporary Well
Total Depth - 13'

LEGEND
1 2" Sch. 40 PVC
2 2" Sch. 40 PVC Screen - 0.010 Slot

Samples for laboratory analysis
SB25 (5', 10', 13') (soil)*
MW-25

TD - 13'

Depth to Water	Date/Time	Depth to Water	Date/Time
9.09	5/22/18 12:00		

BORING NUMBER MW-26

LOGO

RETTEW

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/8/19 **COMPLETED** 3/8/19
GROUND ELEVATION _____ **HOLE SIZE** 4 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 4'
AT TIME OF DRILLING ---
LOGGED BY Daniel Simpson **CHECKED BY** Trey Hedrick
AT END OF DRILLING ---
NOTES
AFTER DRILLING 20.45 ft With IP

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(SM) 85 % sand, 15 % fines, poorly graded, fine grained, moist, medium plasticity, no odor Brown	Casing Type: PVC Asphalt
			PID = 0		(SM) 80 % sand, 20 % fines, poorly graded, fine grained, moist, medium plasticity, no odor	
10			PID = 0.5		(SM) 80 % sand, 20 % fines, poorly graded, medium to coarse grained, dry, high plasticity	
					13.0 (SP) moist Light brown	
			PID = 0.9		(SP) 100 % sand, poorly graded, fine grained, dry, low plasticity, no odor Light brown	
					18.0 (SW) 5 % gravel, 90 % sand, 5 % fines, well graded, fine grained, dry, low plasticity, no odor Light brown	
20			PID = 2		21.0 (SW) 90 % sand, 10 % fines, well graded, fine grained, wet, medium plasticity, no odor Light brown	Bentonite Seal
					(SM) 60 % sand, 40 % fines, well graded, fine to medium grained, dry, low plasticity, no odor Brown	
			PID = 2.6		(SP) 90 % sand, 10 % fines, poorly graded, fine to medium grained, dry, medium plasticity, no odor Light brown	
					27.0 (SP) 90 % sand, 10 % fines, poorly graded, fine grained, moist, medium plasticity, no odor Light brown	
30			PID = 0.5		(SW) 80 % sand, 20 % fines, well graded, fine grained, moist, low plasticity, no odor Brown	
					(SW) 80 % sand, 20 % fines, well graded, fine grained, dry, low plasticity, no odor Brown	
			PID = 0.4		(SP) 85 % sand, 15 % fines, poorly graded, fine grained, dry, low plasticity, no odor Light brown	
					(SM) 80 % sand, 20 % fines, poorly graded, fine grained, dry, low plasticity, no odor Light brown	
40			PID = 0.4		(SM)	
			PID = 0.5			
50			PID = 0.6		51.0 (SM) moist	Sand Pack Screened Interval
					(SM) 80 % sand, 20 % fines, poorly graded, fine grained, dry, high plasticity, no odor Light brown	
			PID = 0		55.0	

Bottom of borehole at 55.0 feet.

LOGO

RETTEW

BORING NUMBER MW-27

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/29/19 **COMPLETED** 3/29/19
GROUND ELEVATION _____ **HOLE SIZE** 8 1/8 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 8' 1/8
AT TIME OF DRILLING ---
LOGGED BY Trey Hedrick **CHECKED BY** _____
AT END OF DRILLING ---
NOTES 4411952.67N, 502018.6E
AFTER DRILLING 11.05 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Type: PVC
					1.0 (SM) 90 % sand, 10 % fines, brown, poorly graded, fine grained, dry, loose, no odor Cuttings	
	AU				(SM) 90 % sand, 10 % fines, dense	
5		25	PID = 0.1		5.0 (SP) 95 % sand, 5 % fines, brown grayish, poorly graded, fine grained, dry, loose, no odor	Bentonite Seal 8-1
10			PID = 0.1		(SP) 95 % sand, 5 % fines, brown, poorly graded, fine grained, dry, loose, no odor	
15			PID = 0		15.0 (SM) 90 % sand, 10 % fines, brown grayish, poorly graded, fine grained, moist, loose, no odor	Sand Filler 25-8 Screened interval 25-10
20			PID = 0.3		20.0 (SP) 95 % sand, 5 % fines, brown grayish, poorly graded, fine grained, dry, dense, no odor	
			PID = 0			
25					25.0	

Bottom of borehole at 25.0 feet.

LOGO

RETTEW

BORING NUMBER MW-28

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/28/19 **COMPLETED** 3/29/19
GROUND ELEVATION _____ **HOLE SIZE** 8 1/8 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 8' 1/8
AT TIME OF DRILLING ---
LOGGED BY Trey Hedrick **CHECKED BY** _____
AT END OF DRILLING ---
NOTES 4411952.74N , 502259E
AFTER DRILLING 11.72 ft With IP

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Type: PVC
					ASPHALT 1.0	
					SANDY SILT, Cuttings 3.0	
		50			(SP) 95 % sand, 5 % fines, brown, poorly graded, fine to medium grained, dry, medium dense, no odor 5.0	Bentonite Seal 8-1
5			PID = 0		(SW) 95 % sand, 5 % fines, brown, well graded, fine to coarse grained, dry, loose, no odor 10.0	
10			PID = 0		(SM) 90 % sand, 10 % fines, brown, poorly graded, fine grained, dry, loose, no odor 15.0	
15			PID = 0		(SP) 95 % sand, 5 % fines, brown, poorly graded, fine grained, dry, loose, no odor	Sand Filler 25-8 Screened interval 25-10
20			PID = 0		(SP) 95 % sand, 5 % fines, brown, poorly graded, fine to medium grained, wet, dense, no odor	
			PID = 0.4		25.0	
25					Bottom of borehole at 25.0 feet.	

LOGO RETTEW

BORING NUMBER MW-29

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/29/19 **COMPLETED** 3/29/19
GROUND ELEVATION _____ **HOLE SIZE** 8 1/8 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 8' 1/8
AT TIME OF DRILLING ---
LOGGED BY Trey Hedrick **CHECKED BY** _____
AT END OF DRILLING ---
NOTES 4411708.58N, 502292.4E
AFTER DRILLING 8.34 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Type: PVC
					Dry	
					1.0	
					(SC) 90 % sand, 10 % fines, brown, poorly graded, fine grained, dry, dense, no odor	
		3			(SC) 90 % sand, 10 % fines, brown, poorly graded, fine grained, dry, medium dense, no odor	
5		5				Bentonite Seal 8-1
		5	PID = 0		5.0 (SM) 95 % sand, 5 % fines, brown grayish, poorly graded, fine to medium grained, dry, dense, no odor	
					▼	
10			PID = 0		10.0 (SP) 5 % gravel, 90 % sand, 5 % fines, brown grayish, well graded, fine to coarse grained, dry, loose, no odor	
			PID = 3.6			
15					15.0 Center Bit - No barrel	Sand Filler 25-8
						Screened interval 25-10
20					Center Bit - No barrel	
25					Bottom of borehole at 25.0 feet.	

LOGO

RETTEW

BORING NUMBER MW-30

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/28/19 **COMPLETED** 3/28/19
GROUND ELEVATION _____ **HOLE SIZE** 8 1/8 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 8' 1/8
AT TIME OF DRILLING ---
LOGGED BY Trey Hedrick **CHECKED BY** _____
AT END OF DRILLING ---
NOTES 4411575.42N, 502369.5E
AFTER DRILLING 7.31 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Type: PVC
					ASPHALT 1.0	
					(SM) 90 % sand, 10 % fines, brown, poorly graded, fine to medium grained, dry, dense 3.0	
	AU	17			(SP) 95 % sand, 5 % fines, brown, poorly graded, fine to medium grained, dry, loose 5.0	
5			PID = 0.4		(SM) 90 % sand, 10 % fines, brown, poorly graded, fine to medium grained, dry, dense	Bentonite Seal 8-1
10			PID = 0.3		(SP) 95 % sand, 5 % fines, brown, poorly graded, fine grained, dry, dense 10.0	
15			PID = 0		(SP) 95 % sand, 5 % fines, light gray light brownish, poorly graded, fine grained, dry, dense	Sand Filler 25-8
						Screened interval 25-10
20			PID = 0.1		(SW) 95 % sand, 5 % fines, brown, well graded, medium to coarse grained, dry, loose 20.0	
			PID = 0			
25					25.0	

Bottom of borehole at 25.0 feet.

BORING NUMBER MW-31

LOGO RETTEW

CLIENT Flywheel Capitol
PROJECT NAME 88th and Washington
PROJECT NUMBER 114132001
PROJECT LOCATION 88th and Washington, Thorton, Colorado
DATE STARTED 3/28/19 **COMPLETED** 3/28/19
GROUND ELEVATION _____ **HOLE SIZE** 8 1/8 inches
DRILLING CONTRACTOR Dakota Drilling
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 8' 1/8
AT TIME OF DRILLING ---
LOGGED BY Trey Hedrick **CHECKED BY** _____
AT END OF DRILLING ---
NOTES 4411464.47N, 502506.4E
AFTER DRILLING 8.45 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Type: PVC
					ASPHALT 1.0	
					3.0	
					(SP) 95 % sand, 5 % fines, brown, poorly graded, fine grained, dry, dense, no odor	
5		21	PID = 0.6		(SP) 95 % sand, 5 % fines, light brown, poorly graded, fine grained, dry, dense, no odor 6.0	Bentonite Seal 8-1
					(SM) 88 % sand, 12 % fines, brown, poorly graded, fine grained, dry, loose, no odor 7.0	
			PID = 0.6		(SP) 95 % sand, 5 % fines, brown, poorly graded, fine grained, dry, loose, no odor	
10					10.0	
					(SM) 88 % sand, 12 % fines, light brown, poorly graded, fine grained, dry, loose, no odor	
					12.0	
					(SW) 95 % sand, 5 % fines, light brown, poorly graded, fine to medium grained, dry, loose, no odor 13.0	
					(SM) 85 % sand, 15 % fines, light brown, poorly graded, fine grained, dry, loose, no odor	
15			PID = 2.2		(SM) 80 % sand, 20 % fines, light brown, poorly graded, fine grained, dry, loose, no odor	
					(SM) 80 % sand, 20 % fines, light brown, poorly graded, fine grained, dry, loose, no odor 17.0	Sand Filler 25-8
					(SW) 90 % sand, 10 % fines, light brown, well graded, fine to coarse grained, dry, loose, no odor 18.0	Screened interval 25-10
					(SM) 85 % sand, 15 % fines, light brown, poorly graded, fine grained, dry, loose, no odor	
20			PID = 0.2		(SM) 80 % sand, 20 % fines, light brown, poorly graded, fine grained, moist, dense, no odor	
			PID = 0.2		25.0	
25					Bottom of borehole at 25.0 feet.	

QUANTUM WATER & ENVIRONMENT

SOIL BORING AND WELL CONSTRUCTION LOG

BOREHOLE NUMBER: MW32

PROJECT NAME/NUMBER: **412E-21**
LOCATION: **1310 Sheldon Drive, Denver, CO 80229**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **6" SSA**
GEOLOGIST: **Steve Hoffman** DRILLER: **Blake Jones**
DATE BEGUN: **10/5/2021** DATE COMPLETED: **10/5/2021**

TOTAL BORING DEPTH: **25 Feet**
TOTAL WELL DEPTH: **24 Feet**

INITIAL AND STATIC WATER LEVEL (BGS)		
Depth (ft)	NA	NA
Date	NA	NA

DEPTH	STATIC WATER	RECOVERY (ft)	PID (ppm VOC)	USCS	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL CONSTRUCTION
0.0 – 25.0				CH	Asphalt Clay: Light brown, moist, high plasticity.		J plug cap CONCRETE VAULT 2" O.D. SCH 40 PVC RISER BENTONITE CHIP SEAL
				CH	Claystone: Light brown, dry, high plasticity.		SAND 10 X 20 MESH 2" O.D. SCH 40 PVC SCREEN BOTTOM CAP

SOIL BORING AND WELL CONSTRUCTION LOG

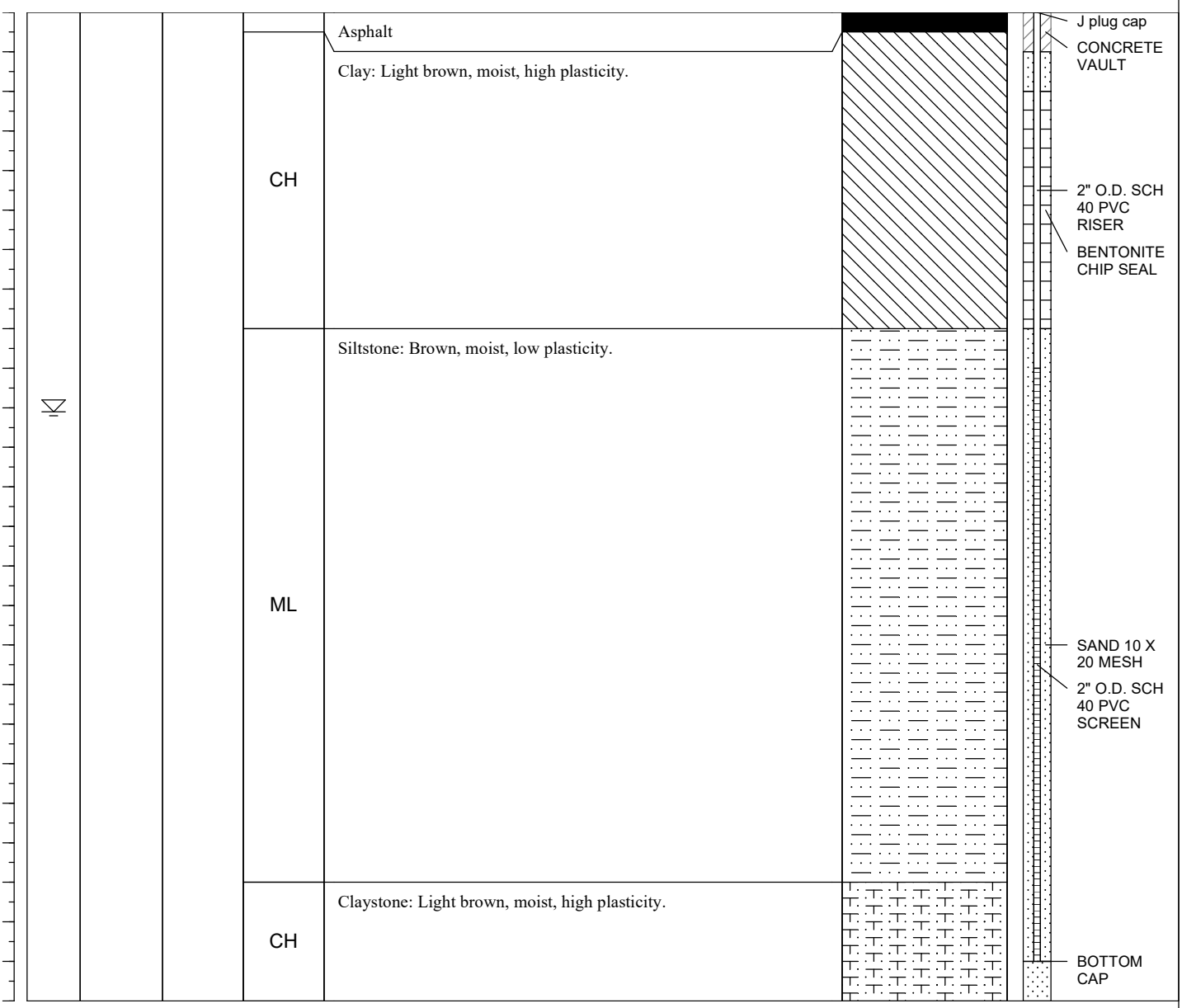
BOREHOLE NUMBER: MW33

PROJECT NAME/NUMBER: **412E-21**
LOCATION: **8661 Edison St, Denver, CO 80229**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **6" SSA**
GEOLOGIST: **Steve Hoffman** DRILLER: **Blake Jones**
DATE BEGUN: **9/16/2021** DATE COMPLETED: **9/16/2021**

TOTAL BORING DEPTH: **25 Feet**
TOTAL WELL DEPTH: **24 Feet**

INITIAL AND STATIC WATER LEVEL (BGS)		
Depth (ft)	NA	10.10
Date	NA	9/24/2021

DEPTH	USCS	LITHOLOGY DESCRIPTION
0.0 – 1.0		Asphalt
1.0 – 8.0	CH	Clay: Light brown, moist, high plasticity.
8.0 – 22.0	ML	Siltstone: Brown, moist, low plasticity.
22.0 – 25.0	CH	Claystone: Light brown, moist, high plasticity.



SOIL BORING AND WELL CONSTRUCTION LOG

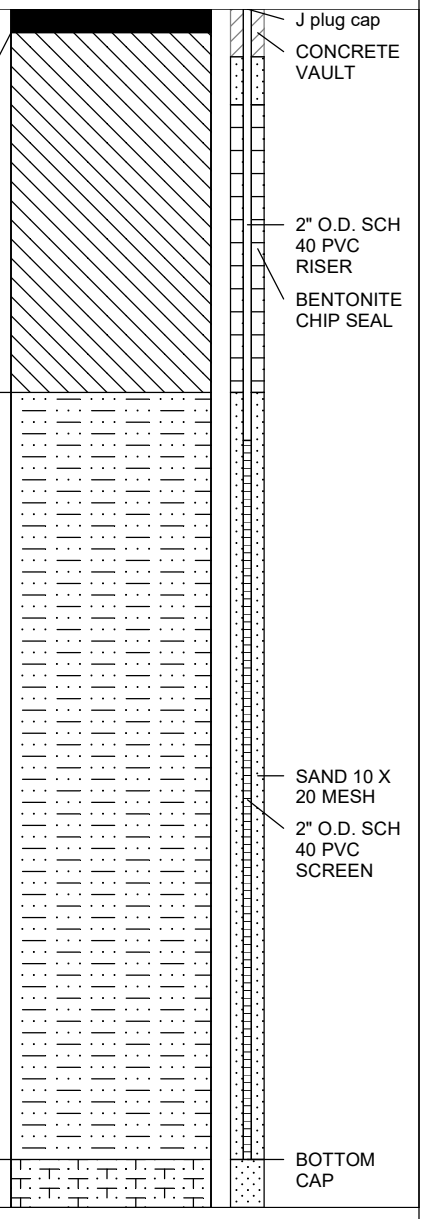
BOREHOLE NUMBER: MW34

PROJECT NAME/NUMBER: **412E-21**
LOCATION: **8741 De Soto St, Denver, CO 80229**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **6" SSA**
GEOLOGIST: **Steve Hoffman** DRILLER: **Blake Jones**
DATE BEGUN: **9/16/2021** DATE COMPLETED: **9/16/2021**

TOTAL BORING DEPTH: **25 Feet**
TOTAL WELL DEPTH: **24 Feet**

INITIAL AND STATIC WATER LEVEL (BGS)		
Depth (ft)	NA	11.62
Date	NA	9/24/2021

DEPTH	STATIC WATER	RECOVERY (ft)	PID (ppm VOC)	USCS	LITHOLOGY DESCRIPTION
0.0					Asphalt
1.0					Clay: Brown, moist, high plasticity.
2.0					
3.0					
4.0				CH	
5.0					
6.0					
7.0					
8.0					Siltstone: Light brown, dry.
9.0					
10.0					
11.0					
12.0	▽				
13.0					
14.0					
15.0					
16.0				ML	
17.0					
18.0					
19.0					
20.0					
21.0					
22.0					
23.0					
24.0				CH	Claystone: Brown, moist, high plasticity.
25.0					



WELL CONSTRUCTION

SOIL BORING AND WELL CONSTRUCTION LOG

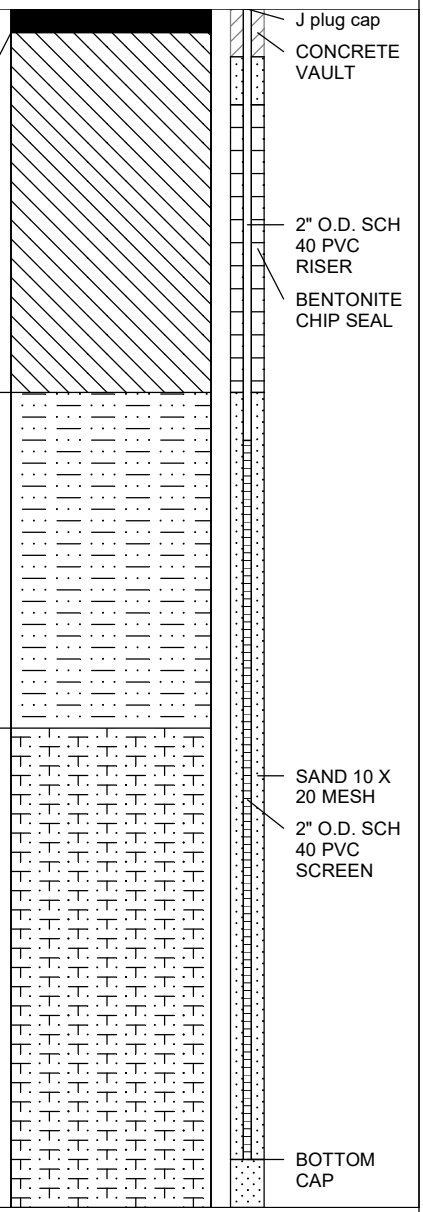
BOREHOLE NUMBER: MW35

PROJECT NAME/NUMBER: **412E-21**
LOCATION: **8761 Dawson St, Thornton, CO 80229**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **6" SSA**
GEOLOGIST: **Steve Hoffman** DRILLER: **Blake Jones**
DATE BEGUN: **9/16/2021** DATE COMPLETED: **9/16/2021**

TOTAL BORING DEPTH: **25 Feet**
TOTAL WELL DEPTH: **24 Feet**

INITIAL AND STATIC WATER LEVEL (BGS)		
Depth (ft)	NA	8.78
Date	NA	9/24/2021

DEPTH	STATIC WATER	RECOVERY (ft)	PID (ppm VOC)	USCS	LITHOLOGY DESCRIPTION
0.0					Asphalt
1.0					Clay: Brown, moist, high plasticity.
2.0					
3.0					
4.0				CH	
5.0					
6.0					
7.0					
8.0					
9.0	▽				Siltstone: Brown, dry, low plasticity.
10.0					
11.0					
12.0				ML	
13.0					
14.0					
15.0					
16.0					Claystone: Brown, moist, high plasticity.
17.0					
18.0					
19.0					
20.0				CH	
21.0					
22.0					
23.0					
24.0					
25.0					



Appendix E Liquid IDW Treatment by Rule Plan and CDPHE Approval

COLORADO
Department of Public Health & Environment

October 13, 2023

Chad Howell
Thornton Development Authority (TDA)
9500 Civic Center Drive
Thornton, CO 80229
SENT VIA EMAIL: Chad.Howell@thorntonco.gov

RE: Request for Treatment by Rule for On-site Generator Hazardous Environmental Media IDW Treatment; Thornton Shopping Center, NE Corner East 88th Avenue and Washington Street Thornton, CO 80229; EPA ID# COR000212639; CDPHERM HAZ COR - Corrective Action

Dear Mr. Howell,

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) has reviewed the Request for Treatment by Rule for On-site Generator Hazardous Environmental Media IDW Treatment dated October 2, 2023 (the Request) for the Thornton Shopping Center at the northeast Corner East 88th Avenue and Washington Street in Thornton, CO 80229 (the Site). The Request was written by ERO Resources Corporation on behalf of Thornton Development Authority (TDA).

The Request regards treating groundwater investigation-derived waste (IDW) from monitoring activities under permit-by-rule provisions provided in the Colorado Hazardous Waste Regulations Section 100.21(d) (6 CCR 1007-3). The Request proposes to use potassium permanganate to treat each 55-gallon drum containing IDW. A minimum of 0.1% solution (one 4-ounce jar) of potassium permanganate powder will be used per container.

A solution of 0.1% has the potential to treat Tetrachloroethene (PCE) concentrations of 700 milligrams per liter (mg/L). To-date, laboratory analysis confirms that concentrations of PCE associated with the Site are significantly less than 700 mg/L. Confirmation samples will be collected from each and every drum after treatment. If the drums contents exceed hazardous waste thresholds, after treatment, then the drum will be retreated and resampled, until it meets contained-out criteria.

A contained-out determination request will follow each monitoring event. Generally, this request will summarize the detected chlorinated concentrations, the amount of potassium permanganate powder used to treat each drum, confirmation sample results and will provide the proposed permitted Subtitle D Disposal Facility that will manage the drums.

The Division hereby approves the Request as written. If you have any questions regarding this letter, I may be contacted at 303-692-3283 or via email at evelin.flamenco@state.co.us.

With regards,

Richard Mruz Digitally signed by Richard Mruz Date: 2023.10.13 17:09:36 -06'00' (for)

Evelin Flamenco
Hazardous Waste Corrective Action Unit
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment

CC: Richard Mruz, Jr., Hazardous Waste Corrective Action Unit Leader
Jack Denman, ERO Resources Corporation

ERO Resources Corporation

Denver 1626 Cole Boulevard, Suite 100, Lakewood, CO 80401-3306
Durango 835 East Second Avenue, Suite 400, Durango, CO 81301
Hotchkiss 161 South 2nd Street, PO Box 932, Hotchkiss, CO 81419
Idaho 7154 West State Street, Suite 398, Boise, ID 83714

October 2, 2023

Mr. Rick Mruz, Unit Leader
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, CO 80222-1530

RE: Request for Treatment by Rule
for On-site Generator Hazardous Environmental Media IDW Treatment
Thornton Shopping Center
NE Corner East 88th Avenue and Washington Street, Thornton, Colorado
EPA ID: COR000212639

Dear Mr. Mruz,

On behalf of the Thornton Development Authority (TDA), ERO Resources Corporation (ERO) is requesting a generator treatment permit by rule authorization to treat PCE-contaminated liquid investigation-derived waste (IDW) on-site in accordance with Colorado Hazardous Waste Regulations (CHWR) §100.21(d) to reduce contaminant concentrations prior to disposal. This letter serves as the waste analysis plan in accordance with CHWR §100.21(d)(4) for the treatment of hazardous waste generated solely at the following facility:

Facility: Thornton Shopping Center
NE Corner East 88th Avenue and Washington Street
Thornton, CO 80229

Responsible Entity: Thornton Development Authority (TDA)
9500 Civic Center Drive
Thornton, CO 80229

Contact: Chad Howell, Redevelopment Administrator
Thornton Development Authority
303-538-7390
chad.howell@thorntonco.gov

EPA ID #: COR000212639

On behalf of TDA, ERO is seeking authorization from the Colorado Department of Public Health and Environment (CDPHE) to treat hazardous liquid IDW consisting of contaminated environmental media (ground water) generated from site monitoring and well development activities under the permit-by-rule provisions of CHWR §100.21(d). The liquid IDW consists of ground water from site wells containing dissolved concentrations of F-listed solvents, specifically PCE related to former dry cleaning operations

at the site. The site has been under characterization and remediation by others until January 3, 2023, at which time TDA assumed control of site operations and implementation of monitoring activities.

Waste Analysis. As part of quarterly of groundwater sampling events conducted by ERO, 38 site groundwater monitoring wells are purged and sampled each quarter. To date, three quarters of sampling has occurred in 2023 (1Q23, 2Q23, and 3Q23). Well development/purge water was generated at each well and transported to the central waste storage area and placed in new or reconditioned 55-gallon steel drums within a constructed secondary containment area. The drums are currently being managed as hazardous wastes in accordance with Colorado Hazardous Waste Regulations as hazardous waste.

Pre-Treatment Sampling. As part of pre-treatment characterization for this request, ERO sampled each drum of purge water generated during the first three events of 2023. As part of sampling, ERO opened each of the drums and collected a representative sample of water in each drum. Samples were collected by lowering a new, disposable polyethylene bailer into each drum to collect a vertical composite of the water within each drum. The sample within the bailer was then placed directly into laboratory-provided, certified clean 40-mililiter glass vials which were labeled according to the drum accumulation start date, placed on ice and submitted to Pace Analytical Laboratory in Mt. Juliette, Tennessee or Origins Analytical Laboratory in Denver, Colorado. The established TSC monitoring program only analyzes groundwater for the contaminants of concern (COCs) consisting of chlorinated compounds related to dry cleaning operations (tetrachloroethylene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC)) by EPA Method 8260B, not the full list of volatile organic compounds (VOCs) included within EPA Method 8260. For this reason, ERO submitted samples for full VOC analysis to the laboratory.

Results. A summary of detected VOCs is presented in Table 1 with the laboratory sheets attached to this request. As shown in Table 1, primary COCs detected were PCE and associated degradation compounds (TCE, cis-1,2 DCE, and vinyl chloride) or those VOCs commonly associated with dry cleaning facilities (e.g. chloroform, 1,2-dichloropropane). This is to be expected because historical knowledge of the release at the TSC indicates PCE formerly used as a dry cleaning solvent was released.

Additional VOCs were detected in the representative waste samples, however ERO and TDA are not aware of a known release of these compounds within the area, and these detected compounds are not considered part of the identified waste stream associated with the TSC. Based on historical site monitoring data, the origin of these additional VOCs is unknown, but may be the result of one or more likely sources including, but not limited to the historically urbanized area with multiple gasoline service stations nearby and/or remnant of the manufacturing or reconditioning processes of the original drums currently used for waste storage. For these reasons, the additional, low level VOCs are not considered wastes that are subject to this treatment by rule request.

Based on three quarters of IDW sampling data (Table 1), PCE concentrations in any one drum of liquid IDW ranges from 0.024 mg/L to 40.7 mg/L, a range that is suspected to be largely dependent on the

wells sampled at the time of generation. As shown on Table 1, the average and median site-wide monitoring PCE concentrations have remained similar across three quarters of sampling (average: 5.1 mg/L to 6.2 mg/L; median 0.278 to 0.295 mg/L), while the range in PCE concentration in liquid IDW has fluctuated.

Treatment Plan. ERO proposes to treat the ground water IDW generated from developing and sampling ground water wells, and future development, and sampling activities by adding potassium permanganate to the liquid IDW[1]. The proposed treatment and amount of permanganate will follow the following procedure:

- The treatment will occur in 55-gallon steel drum containers.
- In general, enough permanganate will be added to each 55-gallon drum to achieve a minimum 0.1% solution by weight for non-contaminated water. For example, based on ERO's experience and measurements, one 4-ounce jars of potassium permanganate powder[2] added to a 55 gallon drum of IDW will produce a 0.1% solution. This solution is theoretically/stoichiometrically capable of treating 55 gallons of IDW with a PCE concentration of 700 milligrams per Liter (mg/L). Based on these calculations and past experience, ERO believes that the ratio of permanganate is sufficient to oxidize the concentrations of ethenes in liquid waste.
- ERO acknowledges that in some instances, the proposed ratio of permanganate may exceed the molar equivalent needed to fully treat waste with lower concentrations, however this proposal is meant to provide a mechanism for treatment of the historical range of PCE concentrations as well as degradation products, without pre-treatment sampling.
- Water in the drums will be stirred and agitated to fully dissolve the permanganate. ERO will sample the treated water on a per-drum basis to confirm full treatment of hazardous constituents (PCE and associated degradation products).
- All treated wastes will be sampled for the full list of VOCs by EPA method 8260 on a per-drum basis.
- Post-treatment sample results that show treatment of F-listed wastes will be submitted to CDPHE for a contained-out determination in accordance with Option I of Unrestricted Use in Table A2-1 of the CDPHE Contained-Out Determination Procedure for Environmental Media Contaminated with RCRA Hazardous Waste. Contained-Out determination requests will include the following information for each treatment event:
    - Narrative description of range of contaminant concentrations detected during the groundwater monitoring event represented by the liquid waste;
    - Mass of permanganate used per treated drum;
    - Post-treatment sample results from each drum; and

[1] Liquid IDW generated during 1Q23 was the subject of a singular treatment by rule request, approval and ultimate contained out determination dated July 13, 2023.
[2] Density of potassium permanganate powder used by ERO has been field measured to be 1.6 g/cm^3.

  - Proposed disposal facility.

- Upon such a determination, ERO will dispose of the water offsite as non-hazardous waste at a permitted solid waste disposal facility.
- Post-treatment sample results that show insufficient treatment of F-listed wastes will either be re-treated and resampled, or managed in accordance with applicable regulations.
- All drums/containers will be managed as hazardous waste in accordance with applicable regulations until receipt such a determination.

Thank you for the opportunity to present this plan to minimize wastes at the TSC facility. Please feel free to call me at 720-812-3576 if you have any questions or comments and we look forward to your response.

Sincerely,

Jack Denman
Environmental Scientist

Attachments: Laboratory Reports L1597926, Y307190, Y307666

cc: Mr. Chad Howell, TDA

Table 1. Waste Analysis Results (in µg/L).

Analyte	CBGWS	1Q23			2Q23		3Q23	
		L1597926			Y307190		Y307666	
		DM012323	DM012423	DM012723	DM042523	DM42423	DM071223	DM071323
Acetone	*6,300*	133	245	<25,000	17	96.6	<8.0	9.98
Benzene	*5*	<1.00	0.116 J	<1.00	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	*100*	<1.00	<1.00	0.299 J	<1.0	<1.0	<1.0	<1.0
Chlorodibromomethane	*14*	<1.00	<1.00	0.144 J	<1.0	<1.0	<1.0	<1.0
Chloroform	*3.5*	<5.00	<5.00	0.234 J	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	*600*	<1.00	0.22 J	<1.00	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	*7*	<1.00	0.462 J	2.72	<1.0	<1.0	<1.0	<1.0
Cis-1,2-Dichloroethene	*14*	0.456 J	**24.7**	1.18	<1.0	<1.0	13.7	1.52
Trans-1,2-Dichloroethene	*100*	<1.00	<1.00	0.267J	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	*0.52*	<1.00	<1.00	**2.08**	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	*NS*	1.25 J	<10.0	7.11 J	<5.0	<5.0	<5.0	<5.0
Methyl Tert-Butyl Ether	*NS*	0.226 J	1.01	0.423 J	<1.0	<1.0	<1.0	5.16
1,1,1,2-Tetrachloroethane	*NS*	<1.00	<1.00	0.334 J	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	*5*	**34.6**	**2,830**	**40,700**	**76.6**	**23.9**	**951**	**7,480**
Toluene	*560*	<1.00	<1.00	0.299 J	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	*200*	<1.00	<1.00	0.213 J	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	*2.8*	<1.00	<1.00	0.322 J	<1.0	<1.0	**10.2**	**76.5**
Trichloroethene	*5*	0.882 J	**20.3**	**26.7**	<1.0	<1.0	**8.64**	**14.7**
1,2,3-Trimethylbenzene	*NS*	<1.00	<1.00	0.12 J	NA	NA	NA	NA
Vinyl Chloride	*0.023*	<1.00	**0.243 J**	<1.00	<1.0	<1.0	<1.0	<1.0
Xylenes, Total	*1,400*	<3.00	0.403 J	0.438 J	<3	<3	<3	<3
Sitewide Monitoring Results Summary								
Max PCE from Monitoring		*103,000*			*98,900*		*33,700*	
Average PCE		*6,228*			*6,487*		*5,110*	
Median PCE		*294*			*278*		*295*	

Qualifiers: J: The identification of the analyte is acceptable; the reported value is an estimate.

Shaded - Analyte detected

Yellow - Analyte detected above Colorado Basic Groundwater Standard (CBGWS - 5 CCR 1002-41)

NA – Analyte not analyzed by laboratory
"NS" – No Standard