RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341 T-23965

FORM MR-LMO
(Revised January 2025)

FOR DIVISION USE ONLY
File #: M / /
Date Received:
DOGM Lead:
Permit Fee $ Ck #

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291 Fax: (801) 359-3940

NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

This form applies only to mining operations which disturb or will disturb more than five acres in an incorporated area or ten acres in an unincorporated area at any given time.

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

Cultural Resources: To fulfill its obligations under Utah Code Annotated 9-8-404, the Division needs cultural resource (archaeology) information. The amount and type of information required will depend on the mine location, the history of previous disturbance, and other factors. Please contact the Division for further information.

PLEASE NOTE: *This form is to be used as a **guideline** in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements. The Permittee / Operator may submit this information on an alternate form, but the same or similar format should be used.*

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Rule R647-4-104 - Operator(s), Surface and Mineral Owners

Provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. **Business entities listed as the Permittee / Operator, must include names and titles of the corporate officers on a separate attachment.**

1. **Mine Name**: Waterleaf Great Salt Lake Lithium Project

2. Operator name: Waterleaf Phase 1 LLC

   Mailing Address: 9350 South 150 East, Suite 710
   City, State, Zip: Sandy, Utah 84070
   Phone: (801) 694-2245 Fax:
   E-mail Address: Steve.Morrey@lilacsolutions.com

   Type of Business: Corporation ( ) LLC (**X**) Sole Proprietorship (dba) ( )
   Partnership ( ) General _____ or _____limited
   Or:
   Individual ( )

   Entity must be registered (and maintain registration) with the State of Utah, Division of Corporations (DOC) www.commerce.utah.gov.
   Are you currently registered to do business in the State of Utah? (**X**) Yes ( ) No
   Entity # 146258820161
   If no, contact www.commerce.utah.gov to renew or apply.
   Local Business License # Applied (if required)
   Issued by: County Box Eleder County or City

   Registered Utah Agent (as identified with the Utah Department of Commerce) *(Leave blank if the operator is an individual)*:
   Name: CT Corporation System
   Address: 1108 E. South Union Ave.
   City, State, Zip: Midvale, Utah 84047
   Phone: 888 755 1133 Fax:
   E-mail Address:

3. **Permanent Address**: Waterleaf Phase 1 LLC
   9350 S 150 E #710
   Sandy Utah 84070
   Phone: 801 694 2245 Fax:

4. **Contact Person(s)** *Please provide as many contacts as necessary.*
   Name: Steve Morrey Title: Senior Project Director
   Address: 9350 South 150 East, Suite 710
   City, State, Zip: Sandy, Utah 84070
   Phone: (801) 694-2245 Fax:
   Emergency, Weekend, or Holiday Phone: Same
   E-mail Address: Steve.Morrey@lilacsolutions.com

Contact person to be notified for: permitting (X) surety (X) Notices (X) (please check all that apply)

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

5. **Location of Operation**:
County(ies) Box Elder
SW 1/4 of NW 1/4, Section: 31 Township: 9N Range: 7W
SE 1/4 of NW 1/4, Section: 31 Township: 9N Range: 7W
NE 1/4 of SW 1/4, Section: 31 Township: 9N Range: 7W

The names of the surface and mineral owners for any areas which are to be affected by mining. This list should include all private, state and federal ownership and the owners of lands immediately adjacent to the project areas.

6. **Ownership of the land surface** (circle all that apply):
Private (Fee), Public Domain (BLM), National Forest (USFS), ***State of Utah (SITLA)*** or other:

Name: Mango Spiral Jetty LLC Address: 111 E. Broadway, Ste. 900, Salt Lake City, UT 84111
Name: Utah Division of Forestry, Fire and State Lands Address: 1594 W. North Temple, Ste. 3520, Salt Lake City, UT 84116
Name: _____ Address: _____
Name: _____ Address: _____

7. **Owner(s) of record of the minerals to be mined** (circle all that apply):
Private (Fee), Public Domain (BLM), National Forest (USFS), ***State of Utah (SITLA)*** or other:

Name: Utah Division of Forestry, Fire and State Lands Address: 1594 W. North Temple, Ste. N 3520, Salt Lake City, UT 84116
Name: _____ Address: _____
Name: _____ Address: _____
Name: _____ Address: _____

8. **BLM Lease or Project File Number(s) and/or USFS Assigned Project Number(s):** N/A

BLM Claim Numbers: N/A

Utah State Lease Number(s): N/A

Name of Lessee(s): N/A

9. **Adjacent land owners:**

Name: Mango Spiral Jetty LLC Address: 111 E. Broadway, Ste. 900, Salt Lake City, UT 84111
Name: Mackay David J et al Address: 5058 S 300 W, Salt Lake City, UT 84107
Name: MSC Holdings LLC Address: 1160 S. Bonneville Dr., Salt Lake City, UT 84108
Name: Farmland Reserve Inc. Address: PO Box 51196, Salt Lake City, UT 84151-1196

10. **Have the land, mineral and adjacent land owners been notified in writing**?
Yes 11.12.2025 No _____
See APPENDIX A: Waterleaf LMO Notification letters

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

If no, why not? _____

_____

11. **Does the Permittee / Operator have legal right to enter and conduct mining operations on the land covered by this notice**? Yes ____X____ No _____.

R647-4-105 - Maps, Drawings & Photographs

105.1 - Topographic base map, boundaries, pre-act disturbance

Figure 1 provides the general site location within the state and Box Elder County, and then the proposed access road improvement and general property lease area/site boundary within the United States Geological Survey *Rozel Point* 7.5-minute (i.e. 1:24k) quadrangle basemap. The proposed access road begins at the Box Elder County-maintained Rozel Flats Rd. and courses through private property to the proposed commercial plant site and is included in Waterleaf' lease agreement with landowner Mango-Spiral Jetty. Figures 4, 5 and 6 depict existing soils, vegetation and watershed areas, respectively, within and surrounding the lease area. Each of these is discussed in additional detail below.

105.2 - Surface facilities map

Figure 2 provides the site layout of surface facilities associated with the proposed lithium extraction project.

105.3 – Drawings or Cross Sections (slopes, roads, pads, etc,)

Figure 3 provides a plan view and cross-section of the intake and outfall system, including pump location, suction intake location, and outfall location, relative to the plant site and Great Salt Lake bathymetric contours. The intake and outfall system is described in additional detail below.

105.4 - Photographs

Attached

R647-4-106 - Operation Plan

106.1 - Minerals mined

Waterleaf intends to extract lithium from the North Arm of the Great Salt Lake in commercial quantities via parent company Lilac Solutions' proprietary ion exchange direct lithium extraction technology (IX DLE). Minor (i.e. non-commercial) quantities of calcium and magnesium are expected to be removed from the lake as process byproducts and disposed offsite as part of Waterleaf's solid waste management. Estimated commercial production of lithium carbonate equivalent (LCE; Waterleaf's end-product to be produced on site) is ~5,000 tons per annum (nominal), and estimated non-commercial tonnages of gypsum and magnesium are 185 tons and 11,672 tons, respectively. Included in the application is a slide deck summary of the waste streams.

See APPENDIX B: Waterleaf Mg Presentation

The project life is planned as 20 years.

106.2 - Type of operations conducted, mining method, processing etc.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

The project is proposed as a solution mining operation, where lithium is exacted from brine via a proprietary ion exchange process to produce a high purity, battery-grade lithium carbonate product. Great Salt Lake North Arm brine will be pumped through pipeline intake system from open water to the plant site, where it will undergo a series of process steps to extract lithium, before being returned to the lake as spent brine.

The process flow comprises numerous steps, as is common in the hydrometallurgical industry:

- GSL brine is pumped from the lake to a storage/surge buffer pond located on fee land, landward of the GSL Meander Line. The project design brine feed rate is 56,202 cubic meters per day, or approximately 16,631 acre-feet per annum.
- Brine is pre-conditioned and filtered through a multi-media filtration system to remove suspended solids and organic matter prior to entering Lilac's IX DLE train.
- The IX DLE process extracts lithium from brine by exposing brine to Lilac's resin-based IX media, where lithium ions are bound to the media in exchange for a hydrogen ion (H+).
- The resulting eluate is neutralized and filtered to precipitate magnesium in the hydroxide form and calcium and strontium as sulfates, by using hydrated lime, limestone, and recycled carbonate solids. The neutralization precipitates are filtered and removed for disposal as solid waste.
- After neutralization and filtration, eluate softening results in the precipitation of calcium and strontium carbonate. The softening eluate is filtered, and the solids are recycled to the limestone mixing tank.
- The softened eluate contains calcium, magnesium, and trace amounts of strontium, which are removed in the impurity IX along with the hardness ions associated with alkalinity.
- Following IX, the pH of the eluate is lowered to destroy carbonates ahead of reverse osmosis (RO). An RO circuit concentrates lithium using pressure to separate RO-quality water from residual carbonates.
- The concentrate advances to a thermal evaporator, further concentrating the lithium stream, while overhead vapor is captured, cooled/condensed back to liquid, and recycled.
- The concentrated lithium solution from the evaporator advances to the crude lithium crystallization circuit, which uses soda ash to convert lithium sulfate to lithium carbonate crystals. The crystals are then centrifuged and repulped with recycled pure crystallizer mother liquor and RO water to feed to the bicarbonation circuit.
- The lithium carbonate slurry reacts with carbon dioxide in the bicarbonation reactor to convert lithium carbonate to dissolved aqueous lithium bicarbonate.
- Impurities are filtered out, and soluble ions (e.g. magnesium, calcium) are removed by selective IX.
- Eluate from the bicarbonation reactor advances to pure lithium carbonate crystallization. The battery-grade lithium carbonate crystals are dewatered, dried, micronized and packaged for shipment to market.

106.3 - Estimated acreages disturbed, reclaimed, annually

There are five main disturbance area types associated with the project:

1. Access road;
2. Process plant area;
3. Stormwater retention and surge/buffer pond area;
4. Intake and outfall system area; and
5. Temporary construction and laydown area.

Each of these, including the proposed disturbance acreage and reclamation timeline, is described in additional detail below

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Access Road

The access road extends approximately 12,880 linear feet from the public Box Elder County-maintained Rozel Flats Road to the proposed plant site. The road was an existing two-track prior to widening and improvement associated with Waterleaf's pilot plant (permitted and operated with DOGM authorization under E/003/0272. During the pilot phase, the road was widened from approximately 12 feet to approximately 20 feet (approximately 2.37 acres of incremental disturbance) and it was not reclaimed following completion of the pilot project in anticipation of proceeding to the commercial phase. As part of the commercial phase, the access road would be further widened to 30 feet to allow for bi-directional travel of large trucks and other vehicles and equipment, resulting in a further disturbance of 2.96 acres. This road is anticipated to remain following completion of the project, pending agreement with the landowner.

In addition to the main access road, a small portion of the existing two-track would be re-routed around the southwest side of the plant, in order to maintain travel around the plant for the landowner. This short section of re-routed two-track totals approximately 0.6 acre. It would not be widened or improved like the main access road, rather it would simply be bladed and cleared of large vegetation consistent with the condition of the current two-track.

Process Plant Area

The process plant area includes the majority of the equipment, buildings, tanks, pumps and utilities as described in the process flow above, as well as parking, in-plant vehicle travel lanes, and open-air storage areas. The process plant area within the fence line is approximately 12.41 acres, all of which would be disturbed during the operating life of the project (note that the fence line shown in Figure 2 extends around the pond area, which acreage is discussed below). The process plant area is anticipated to contain approximately 30 unique buildings, 23 tanks, and more than 30 different large pumps and would remain disturbed for the life of the project. At the conclusion of operations, the building, tank and pump pads, hardened surfaces, and gravel surfaces would be removed, decompacted and reseeded as part of reclamation.

Stormwater Retention and Surge/Buffer Pond Area

This area sits between the process plant area and the lake and includes a series of berms, swales and lined ponds to capture stormwater runoff from the plant site and to provide a surge buffer for both the intake and outfall pumping systems. The pond area totals approximately 7.05 acres and would remain disturbed for the life of the project. At the conclusion of operations, the berms and swales would be regraded to pre-project conditions, pond liners removed, and all areas reseeded as part of reclamation.

Intake and Outfall System Area

In order to supply brine from open water to the plant, and then to return processed/spent brine back to the lake, an intake and outfall system consisting of high-density polyethylene (HDPE) pipes and skid-mounted pumps would be installed from the plant out to open water. The intake-side pipe is anticipated to be 24-inch-diameter, while the outfall-side pipe would be 28-inch-diameter. Concrete or HDPE saddle weights would be used to anchor the pipes in place. The intake and outfall system, including pipes, pump manifold, and maintenance travel lanes is 8,400 linear feet by 50 feet wide, or approximately 9.64 acres. Although it is not anticipated that the full area would be disturbed at all times during the life of the project, it is expected that changing lake levels may require periodic access and movement of the system within that 50-foot-wide corridor. As such, Waterleaf has taken the conservative assumption that the full 9.64 acres be included in disturbance and reclamation calculations.

Temporary Construction and Laydown Area

This area lies to the east of the main plant area and totals approximately 5.28 acres. This area would be temporarily disturbed during the construction and commission phase, or approximately 20-24 months. Although no hardened surfaces are planned for this area, vegetation clearing and some gravel placement

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

would be utilized to facilitate equipment staging. Following the completion of plant construction, this area would be decompacted, regraded, and reseeded.

106.4 - Nature of materials mined, waste and estimated tonnages

The process will generate solid waste during the following stages:

- Eluate Neutralization: Solid waste will be generated by the precipitation of dissolved impurities during the eluate neutralization process. These materials will be analyzed, sorted, and collected by a third party for permanent off-site disposal.
- Depleted brine clarifier underflow filter press: The solid waste from this filter press will be collected, analyzed and collected by a third party for permanent off-site disposal
- DLE IX Process: The spent DLE IX beads will be stored and transported to Lilac Solutions' Bead facility in Reno, Nevada, for their recycling and reuse. This will also include any fragments from the ion exchange beds that have been removed by filtration.
- Impurities IX Process: The spent Impurity IX beads will be analyzed, sorted, and collected by a third party for permanent off-site disposal.

The process will nominally extract 38.6 t/d from the eluate neutralization circuit and is designed to extract 44.4 t/d. These solids will be removed using filter presses that discharge into roll-off bins. A third party will collect the bins for permanent off-site disposal. Solid waste in roll-off bins will be temporarily stored in a designated buffer area located west of the DLE Building until collection.
The composition of the solid flows is detailed in the table below (this table shows instantaneous design tonnages).

	Unit	Eluate Neutralization Solids	Depleted Brine Solids
Design	Stream	4313	4619
Total mass flow	t/h	1.85	0.326
Solid mass flow	t/h	0.98	0.133
Liquid mass flow	t/h	0.87	0.193
Density	kg/m³	1150	920
Solids content	% p/p	53	41
	Aqueous concentration		
B	mg/L	0.1	0.9
Ca	mg/L	29.7	6.5
Cl	mg/L	43.7	4,001
Fe	mg/L	-	0.01
K	mg/L	9.1	191.0
Li	mg/L	112.0	0.3
Mg	mg/L	0.1	315.4
Na	mg/L	20.3	2,055
SO4	mg/L	754.1	544.5
Sr	mg/L	1.0	0.1
	Mass fraction of solids		
Mg(OH)2	% p/p	8.4	-
CaSO4•2H2O	% p/p	91.3	-

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

	Unit	Eluate Neutralization Solids	Depleted Brine Solids
Design	Stream	4313	4619
SrSO4	% p/p	0.3	-
Brine Solids	% p/p	-	96.3
Flocculant	% p/p	-	3.7

The total tonnage of eluate neutralization solids nominal expected over the 20 year life-of-mine is 254,000 tonnes.

106.5 - Existing soil types, location, amount

Figure 4 provides the Natural Resources Conservation Service's Soil Survey Geographic Database soil types within and adjacent to the project site. Within the fenceline (including the pond area), the following soil types and areas occur:

Bram silt loam – 11.80 acres;
Etil loamy sand, 1 to 6 percent slopes – 0.80 acre;
Palisade silt loam, 1 to 6 percent slopes – 6.69 acres; and
Saxby-Very stony land association – 0.16 ac.

The temporary laydown area is evenly split between Palisade silt loam, 1 to 6 percent slopes (2.65 acres) and Bram silt loam (2.63 acres). A small portion of the intake and outfall system (approximately 170 linear feet) is located within Etil loamy sand, 1 to 6 percent slopes, while the majority is within the Water, saline type.

106.6 - Plan for protecting & re-depositing soils

There is minimal valuable topsoil within the fenceline and temporary laydown areas, with surface soils being shallow and rocky. Stripping and preservation of topsoil is not planned. Rather, surface vegetation will be cleared, surface soils graded and compacted, and plant facilities, including concreted pads, installed on the surface or with minor excavations down to bedrock.

106.7 - Existing vegetation - species and amount

Figure 5 provides the existing vegetation types within and adjacent to the project area. The entirety of Waterleaf's 50-acre land lease is located within a vegetation community dominated by shadscale saltbush shrubs (*Atriplex confertifolia*), with sagebrush located several miles to the northeast. The general area is predominantly within the Great Basin and Intermountain Introduced Annual Grassland and Inter-Mountain Basins Semi-Desert Shrub-Steppe, with flora typically salt tolerant. Grasses include poverty brome (*Bromus sterilis*), Indian ricegrass (*Achnatherum hymenoides*), and squirreltail (*Elymus elymoides*). Shrub species within the area typically include yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus vermiculatus*). The landcover within the project area is dominated by invasive forbs and grasses, primarily prickle Russian thistle (*Salsola tragus*) and cheatgrass (*Bromus tectorum*). Other species present within the area include saltlover (*Halogeton glomeratus*), greasewood (*Sarcobatus vermiculatus*), redstem storksbill (*Erodium cicutarium*), rubber rabbitbrush (*Ericameria nauseosa*), and broom snakeweed (*Gutierresia sarathrae*). Vegetation and soil in the area is heavily disturbed from regular cattle grazing.

106.8 - Depth to groundwater, extent of overburden, geology

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

In the Completed Geotech survey by Kleinfelder: Section 3.3 below. The full report will be included in the Submittal.

3.3 GROUNDWATER
Groundwater was encountered in five explorations at depths of 32 to 43.5 ft bgs, corresponding to an average approximate elevation of 4,205 ft. Groundwater levels are dependent on a number of factors, including seasonal precipitation, nearby bodies of water, land use, and runoff conditions. It is possible that groundwater levels may fluctuate during dryer and wetter seasons of the year. A detailed study of site hydrogeologic conditions, including the potential for fluctuations in groundwater levels, was beyond the scope of work of this investigation.

See APPENDIX C: Kleinfelder Report No. KLE-GSL-GEO-2025, dated September 2025).

There is no overburden associated with this proposal, as this is a solution mining operation rather than conventional open pit mining.

106.9 - Location & size of ore, waste, tailings, ponds

There are no planned ore, waste, or tailing areas. Lithium carbonate product and solid waste will be wholly contained within buildings as shown in Figure 2. There are no evaporation ponds associated with Lilac Solutions' IX DLE process, and the only ponds are those described above.

R647-4-108 - Hole Plugging Requirements

There are no core holes associated with this solution mining operation.

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Lilac Solutions' IX DLE technology is designed to avoid and minimize the hydrologic systems in which it operates, simply removing lithium from the water column and return the de-lithiated brine back to the reservoir from which it came. Utah's Department of Environmental Quality, Division of Water Quality will regulate the discharge of spent brine back to Great Salt Lake, ensuring no harm to the biology and chemistry of the lake.

It is important to note that there are number of chemicals, including a variety of acids and bases, that are part of the lithium extraction process. All chemicals would be stored using industry standard practices and appropriate secondary containment, in order to avoid potential release to Great Salt Lake or regional groundwater.

109.2 - Impacts to threatened & endangered wildlife/habitat

There are two primary special status wildlife species that have the potential to occur in the project area – the kit fox (*Vulpes macrotis*) and the burrowing owl (*Athene cunicularia*). Both species' native habitats include open high desert and scrub-shrub grassland with shallow, soft soils suitable for burrowing and nesting. Ground disturbance within the fenceline would result in loss of habitat for the duration of operations, while ground disturbance within the temporary laydown area would result in short-term loss of habitat. Prior to construction, Waterleaf would conduct a pre-construction biological clearance survey to ensure any individuals are cleared from the disturbance area prior to vegetation clearing and grubbing.

Raptor species may also occur in the general vicinity of the project area; however, no nesting habitat types

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

(e.g. rock outcrops) are present within or immediately adjacent to the project area.

109.3 - Impacts on existing soils resources

Impacts to soil resources would occur in the form of ground clearance within the fenceline and adjacent temporary laydown area. Because this is a solution mining operation, long-term soil impacts would be limited to the processing plant, as there are no open pits and limited road improvements.

109.4 - Slope stability, erosion control, air quality, safety

There are no slopes associated with this proposal requiring special stability measures. The only slopes are minor and are part of the berm and swale drainage and stormwater retention system. The stormwater system will be designed to capture and contain runoff from the plant site and allowed to infiltrate, in order to avoid and minimize direct erosion into Great Salt Lake.

Air Quality will be permitted under a Synthetic Minor Source permit, and Waterleaf has engaged Kleinfelder for completing the permit applications including the Dispersion model. These will be made available when completed.

109.5 - Actions to mitigate any impacts

Prior to construction, Waterleaf would conduct a pre-construction biological clearance survey to ensure any individuals are cleared from the disturbance area prior to vegetation clearing and grubbing.

Impacts will be minimized on soils resources as this is solution mining therefore no open pits.

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

The current land use is open range grazing. Approximately 2 acres, plus the access road, have been previously disturbed during Waterleaf's pilot project phase, with that pilot plant area remaining as graded, not reseeded, and not reclaimed following pilot operations. That area is part of the planned commercial disturbance, within the fenceline.

Following mining operations, the post mining land use would be at the discretion of the landowner but would be reclaimed and revegetated with the intent to return to grazing. This step when completed will include a letter of landowner acknowledgment from Mago Spiral Jetty LLC agreeing to the post mining use and reclamation activities. This letter will be made available to the division at the time of completed work.

110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

There are no highwalls, slopes, drainages, pits, etc. to be reclaimed at the conclusion of operations. The combined area of buildings, tanks, pumps, and parking areas is approximately 4.29 acres, all within the fenceline, and these facilities would be removed and reseeded following operations. Buildings make up more than half of this area, or 2.87 acres, and would require a higher level of removal effort. Tanks, pumps, parking, and other utility areas are primarily simple structures on basic concrete pads, making up the remaining 1.42 acres.

110.3 - Description of facilities to be left (post mining use)

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

The access road would be left for use by the landowner following operations; all other areas would be reclaimed.

110.4 - Description or treatment/disposition of deleterious or acid forming material

Reagents

The reagents unloading facility will be housed within a purpose-built structure incorporating all necessary equipment and ancillary systems for the safe storage, handling, and distribution of reagents across the plant. A list of the reagents to be used is found in Table 1 below.

The layout of the reagent area and associated equipment will be optimized for efficient internal logistics, minimizing land footprint while enabling streamlined transportation, operation, and maintenance. Access will be provided via pedestrian entry points to accommodate forklifts, delivery trucks, and maintenance equipment.

Base

The sodium hydroxide solution will be delivered at a high concentration by road tanker to the process plant and stored in the sodium hydroxide storage tank. An electric resistance heater will be used to raise the temperature of the storage tank during the winter months to maintain the viscosity of the reagent and avoid crystallization. The sodium hydroxide solution will be pumped from the storage tank to the sodium hydroxide dosing tank where the solution will be diluted with RO water before being distributed throughout the plant via a ring main. The ring main then discharges the solution back into the dosing tank.

Acid

Concentrated sulfuric acid will be delivered to site in a road tanker and will be transferred to the sulfuric acid storage tank. A dosing pump will dose the concentrated sulfuric acid to the eluate RO, impurity IX, raw water RO CIP, DLE, bicarbonation IX, water recovery RO, and effluent storage.

Sodium Carbonate

Anhydrous sodium carbonate will be used in the crude lithium precipitation circuit to convert lithium sulfate to lithium carbonate. The sodium carbonate will be delivered by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the sodium carbonate tank. The sodium carbonate will feed into the make-up and storage system from where it will be dosed to the crude lithium carbonate crystallization circuit.

Lime/Limestone

Hydrated lime (calcium hydroxide) will be delivered by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the hydrated lime storage silo.

Hydrated lime will be fed by a screw feeder to the hydrated lime make-up tank where it will be slurried with RO water. The hydrated lime slurry distribution pump will pump the lime slurry through a ring main. The lime will be used as a pH modifier in the eluate neutralization and filtration.

Limestone (calcium carbonate) will be delivered to by bulk trucks and offloaded with the delivery truck's pneumatic offload equipment to the limestone storage silo.

Limestone will be fed by a screw feeder to the limestone make-up tank where it will be slurried with RO water and combined with softened eluate cake to create a slurry. The limestone slurry distribution pump will pump the limestone through a ring main. The limestone will be used as a pH modifier in the eluate neutralization and filtration.

Oxidant

Sodium hypochlorite will be delivered to the site as a concentrated aqueous solution with a road tanker and pumped with the sodium hypochlorite offloading pump into the sodium hypochlorite storage tank. The sodium hypochlorite solution will be pumped by the distribution pump to the DLE circuit. A raw water dosing pump and potable water dosing pump will dose sodium hypochlorite into the raw water and fire water tanks

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

respectively.

Antioxidant

Sodium sulfite will be delivered to site in bulk bags and transferred with a hoist to the sodium sulfite storage silo. A screw feeder feeds sodium sulfite to the sodium sulfite make-up tank where it will be diluted with RO water. The solution will be pumped with the sodium sulfite dosing pump to the IX DLE circuit, where it will be used as an antioxidant in the IX DLE.

Water Treatment and Brine Pre-treatment Chemicals

The antiscalant will be delivered by truck as a concentrated aqueous solution in an IBC container. It will be dosed directly from the IBC into the boiler feed tank, raw water Reverse Osmosis ("RO") system, and water recovery RO system using dedicated antiscalant dosing pumps.
Citric acid will be delivered in bulk bags and transferred using a hoist to the citric acid storage silo. From the storage silo, it will be discharged through a screw feeder into the citric acid make-up tank where it will be mixed with RO water. The citric acid will be then pumped using the citric acid dosing pump to both the IX DLE and the eluate RO CIP tank.
Corrosion inhibitor will be delivered to site as a concentrated aqueous solution in an IBC container and will be pumped directly from the IBC container to the boiler feed tank.
Flocculant will be delivered to site in bulk bags and transferred with a hoist to the flocculant storage bin. Flocculant powder will be transferred with a rotary valve to a screw conveyor and into the agitated flocculant make-up tank where it will be diluted with process water. From the make-up tank the solution will be transferred with the flocculant dosing tank feed pump to the flocculant dosing tank. The flocculant solution will be stored in the flocculant dosing tank, where it will be pumped with the flocculant dosing pumps to the depleted brine clarifier.
The water treatment chemicals sump pump will collect spillage in the area and dispose of the chemicals in the effluent tank, for further treatment.

Filter Aid

Filter aid (diatomaceous earth) will be delivered in bulk bags and transferred with a hoist to the filter aid storage bin. Filter aid will be fed by a screw conveyor to the agitated brine preparation precoat tank where it will be slurried with RO water. The filter aid will be pumped to the eluate neutralization filter press, when required.

Carbon Dioxide

Carbon dioxide will be delivered to the plant in pressurized storage tanks and captured from the lithium process plant for reutilization. Carbon dioxide from the eluate neutralization, bicarbonation reactor, and pure lithium carbonate crystallizer are recovered and re-compressed. The carbon dioxide will be transferred to the eluate softening and bicarbonation reactor in a pressurized pipeline. The carbon dioxide will be injected into the tanks through a diffuser.

All bulk chemical tanks and reagent storage areas will include secondary containment designed for 110% of the largest vessel capacity, in compliance with R315-261-2 and the International Fire Code.

Table 1 Commercial Project proposed Chemicals Usage

Chemical Name	Chemical Formula	Physical Form/ Storage Vessel	Storage Capacity	Use
Sodium Hydroxide (Caustic Soda) (50%)	NaOH	Liquid/ Storage Tank	8,500 gal	pH adjustment
Calcium Hydroxide (Hydrated Lime)	Ca(OH)2	Solid / Storage Silo	60,000 lb	pH adjustment
Calcium Carbonate (Limestone)	CaCO3	Solid / Storage Silo	90,000 lb	pH adjustment

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Sulfuric Acid (93 %)	H2SO4	Liquid / Storage Tank	23,000 gal	DLE elution (recovery of lithium from IX DLE media)
Sodium Carbonate (Soda Ash)	Na2CO3	Solid/Saturator	230,000 lb	Eluate softening
Carbon Dioxide	CO2	Liquid / Storage Tank	60,000 lb	pH adjustment
Sodium Hypochlorite (Bleach) (12%)	NaOCl	Liquid / Storage Tank	17,500 gal	Conditioning agent and cleaning agent
Sodium Sulfite	Na2SO3	Solid / Bulk Bags	7000 lb	Oxidation-reduction potential (ORP) control
Citric Acid	C6H8O7	Solid / Bulk Bags	20,000 lb	Cleaning agent for filters
Argon	Ar	Liquid / Dewars	4,500 ft3	Laboratory equipment (ICP-OES machine)
Nitric Acid	HNO3	Liquid / Storage Drum	50 gal	Analytical reagent (ICP-OES machine)
Flocculant (Polyacrylamide)	N/A	Solid / Bulk Bags	5,000 lb	Chemical treatment of TSS
Diatomaceous Earth	N/A	Solid / Bulk Bags	5,000 lb	Filtration Aid
Antiscalant	N/A	Liquid / Tote	500 gal	Fouling prevention at Boiler and RO systems
Sodium Metabisulfite	Na2S2O5	Liquid / Tote	500 gal	Dechlorination of RO Feed water
Corrosion Inhibitor	N/A	Liquid / Tote	500 gal	Prevent corrosion of mechanical equipment

110.5 - Revegetation planting program

There are variety of native shrub and grass seed mixes which may be appropriate for the site following operations. Waterleaf will consult with the landowner regarding a preferred mix based on grazing objectives prior to application.

R647-4-112 – Variance

No variances are proposed for this application.

R647-4-113 – Surety

A detailed reclamation cost estimate prepared in accordance with R647-4-113 will be submitted for DOGM approval. Waterleaf intends to post a surety bond in the amount approved by DOGM prior to commencing construction.

Reclamation Plan

Waterleaf's Commercial Project is regulated in part by the DOGM's mineral exploration permit program. DOGM's operation and reclamation required practices are specified in Utah Administrative Code R647-2-107, 108 and 109 and include the following measures:

See Figure #7 Reclamation Map.

1. Keep the exploration site in a safe, clean, and environmentally stable condition.
2. Permanently seal all shafts and tunnels to prevent unauthorized or accidental entry.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

3. Plug drill holes with a five-foot cement surface plug. Holes that encounter fluids are to be plugged in the subsurface to prevent aquifer contamination, in accordance with R647-2-108.
4. Construct berms, fences, or barriers, when needed, above highwalls and excavations.
5. Remove, isolate, or neutralize all toxic materials in a manner compatible with federal and state regulations.
6. Remove all waste or debris from stream channels.
7. Dispose of any trash, scrap metal, wood, machinery, and buildings.
8. Conduct exploration activities so as to minimize erosion and control sediment.
9. Reclaim all roads that are not part of a permanent transportation system.
10. Remove and store suitable soil material where practical so it is available for reclamation.
11. Stabilize highwalls by backfilling or rounding to 45 degrees or less, where feasible; reshape the land to near its original contour and redistribute the topsoil and suitable overburden.

Reclamation and Closure Plan

This Reclamation Plan describes the procedures that will be implemented upon cessation of operations to ensure that all project components are safely decommissioned, cleaned, and restored in accordance with FFSL requirements, the Utah Administrative Code (UAC R652-21), and other applicable environmental regulations.

The overall goal of reclamation is to restore the site to a safe, stable, and environmentally compatible condition that supports future land uses and protects surface and groundwater resources.

The following subsections outline reclamation procedures for each major infrastructure category.

Pipe Infrastructure

Cessation of Operations

Upon termination of production activities, all pipeline systems will be safely shut down and isolated. The valves will be closed, and line pressure will be released under controlled conditions to ensure safety and compliance with state environmental regulations.

Purging and Cleaning

All pipes will be purged of fluids and gases using air or inert gas displacement techniques. The interior of the lines will be flushed to remove any remaining residues or processing materials.

Collected purge fluids and residues will be handled and disposed of in accordance with Utah Department of Environmental Quality (UDEQ) waste management regulations and hazardous waste guidelines (R315-261-2).

Removal and Disposal

After cleaning, pipelines and associated support structures—including pumps, valves, sensors, and aboveground supports—will be dismantled and removed. Materials suitable for recycling will be sent to licensed facilities, and all non-recyclable materials will be disposed of at approved waste management sites.

Site Restoration

The pipeline corridors will be backfilled and recontoured to match the surrounding topography. Erosion control measures such as straw wattles or silt fencing will be used as needed. Native vegetation will be reestablished using seed mixes approved by FFSL and local land management agencies to ensure ecological compatibility.

Monitoring will occur to ensure stabilization and successful revegetation.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Coordination and Compliance

All decommissioning and reclamation activities will be performed in coordination with FFSL, UDEQ, and other applicable regulatory bodies. The final procedures will be refined during the detailed design phase based on updated environmental guidance and local site conditions.

Ponds

Evaporation and Fluid Management

At the conclusion of operations, all process ponds will be maintained in place until the contained liquids naturally evaporate or are removed under an approved water management plan. No new inputs will occur following cessation of production.

Sediment Removal and Cleaning

Once evaporation is complete, any remaining sediments will be tested to determine potential environmental risk. Sediments classified as non-hazardous will be removed and disposed of at an approved landfill; any hazardous materials will be managed according to R315-260 standards. The pond floor and liner will be cleaned to eliminate any residual contaminants.

Liner and Containment Structures

Depending on the liner's condition and regulatory guidance, the pond liner and containment berms will either be:

- Removed and disposed of at a licensed facility; or
- Sealed and left in place to prevent subsurface infiltration if removal poses greater environmental risk.

Site Recontouring and Revegetation

Once decontaminated, pond basins will be backfilled, compacted, and regraded to natural contours that promote surface drainage and prevent erosion.
Native seed mixes approved by FFSL will be applied to reestablish vegetative cover consistent with the surrounding ecosystem. Monitoring and reseeding will be performed as necessary to achieve stable vegetation and minimize erosion.

Regulatory Coordination

All pond reclamation procedures will be developed in collaboration with FFSL, UDEQ, and other applicable agencies during the detailed design phase to ensure environmental protection and compliance with updated local regulations.

Process Plant and Ancillary Facilities

Cessation of Operations

Production activities at the Process Plant will cease in a controlled manner, with all systems safely shut down and depressurized. Chemical reagents, feedstocks, and products will be secured or removed in accordance with applicable safety and environmental standards.

Cleaning and Decontamination

All process equipment—including tanks, vessels, and piping—will be drained, flushed, and cleaned to remove any residual process materials.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Cleaning agents and rinse waters will be collected and disposed of in compliance with UDEQ waste management standards. Any hazardous materials will be managed per R315 hazardous waste regulations.

Equipment and Structural Removal

Once cleaned, process equipment, buildings, foundations, and other ancillary facilities (including utilities, electrical systems, and containment areas) will be dismantled and removed.
Reusable or recyclable components will be recovered where possible. All demolition and waste disposal will occur at licensed and permitted facilities.

Ground Surface Restoration

Following structure removal, the site will be regraded to a stable condition. Disturbed surfaces will be scarified to promote infiltration and seeded with native plant species compatible with the local environment. If residual contamination is detected in soils, remediation will be undertaken per UDEQ standards before revegetation.

Final Inspection and Monitoring

Upon completion of reclamation, a joint inspection with DOGM and FFSL will be conducted to confirm compliance. Post-reclamation monitoring will continue for a period specified in the approved closure permit to ensure stabilization, vegetation success, and environmental integrity.

Reclamation Objectives and Performance Standards

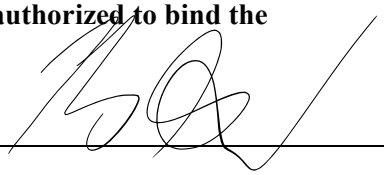
- Restore all disturbed areas to pre-project contours and ecological function.
- Prevent erosion, sedimentation, and contamination of surface and groundwater.
- Ensure long-term stabilization and integration with surrounding landscapes.
- Maintain compliance with UAC R652-21 and UDEQ environmental protection standards.
- Achieve final reclamation certification through DOGM approval.

Coordination and Adaptive Management

The reclamation plan will be finalized in coordination with FFSL, DOGM, and other relevant agencies during the detailed design and pre-closure phases.
If site-specific conditions, environmental regulations, or operational methods change, the plan will be updated accordingly under the principle of adaptive management to ensure ongoing compliance and environmental stewardship.

SIGNATURE REQUIREMENT

I hereby certify that the foregoing is true and correct. **(Note: This form must be signed by the owner or officer of the company/corporation who is authorized to bind the company/corporation).**



Signature of Permittee / Operator/Applicant:_____

Name (typed or print): Nicholas Goldberg_____

Title/Position (if applicable): Authorized Person_____

Date: 11.12.2025

PLEASE NOTE:

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.
Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: ( ) Yes (X) No

X:\GROUPS\MINERALS\WP\FORMS\Notices\Final\mr-lmo-01092025.doc

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

APPENDIX A: Waterleaf LMO Notification Letters

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Waterleaf
RESOURCES

Waterleaf Phase 1 LLC

11.11.2025

Via Certified Mail

Mango, Mackay, MSC, or Farmland.

Subject: Landowner Notification of Intent to Conduct Mining Operations – Utah Division of Oil, Gas and Mining (DOGM) Large Mine Operation (LMO) Notice

Dear Landowner,

In accordance with the requirements of the Utah Division of Oil, Gas and Mining (DOGM) under Utah Administrative Code R647-4 (Large Mining Operations), this letter serves as formal notification that Waterleaf Phase 1 LLC intends to conduct mining-related activities on State-owned mineral leases located near the north arm of the Great Salt Lake, Box Elder County, Utah.

The proposed operations will involve the installation and operation of a non-evaporative direct lithium extraction (DLE) facility, associated infrastructure (including access roads, intake/outfall pipelines, and utility systems), and support areas necessary for mineral extraction and processing. The purpose of this notification is to inform adjacent and mineral landowners that a Large Mine Operation Notice (LMO) will be submitted to DOGM for review and approval. The LMO classification is related to the total acres disturbed, any site over 20 acres in aggregate is considered a Large Mining operations and the total acres with the access road, site foot print and intake system is ~28 acres.

The proposed operation area is located on private lands and partially on sovereign lands managed by the Utah Division of Forestry, Fire & State Lands (FFSL) under mineral lease agreements with Waterleaf Lithium LLC. The project will comply with all applicable DOGM, FFSL, and Division of Water Quality (DWQ) regulations, as well as environmental protection and reclamation requirements.

Should you have any questions, wish to review the application materials, or submit comments, you may contact:

Utah Division of Oil, Gas and Mining (DOGM)
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114
Phone: (801) 538-5340
Email: dogmminerals@utah.gov

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Waterleaf
RESOURCES

Or you may contact the operator directly:

Waterleaf Phase 1 LLC
Attn: Nicholas Goldberg
1700 21st
Oakland, CA 94607
917 446 6443
Nicholas.Goldberg@lilacsolutions.com

We appreciate your attention to this matter. This notification fulfills the requirement of written notice to adjacent and mineral landowners under DOGM rules.

Sincerely,

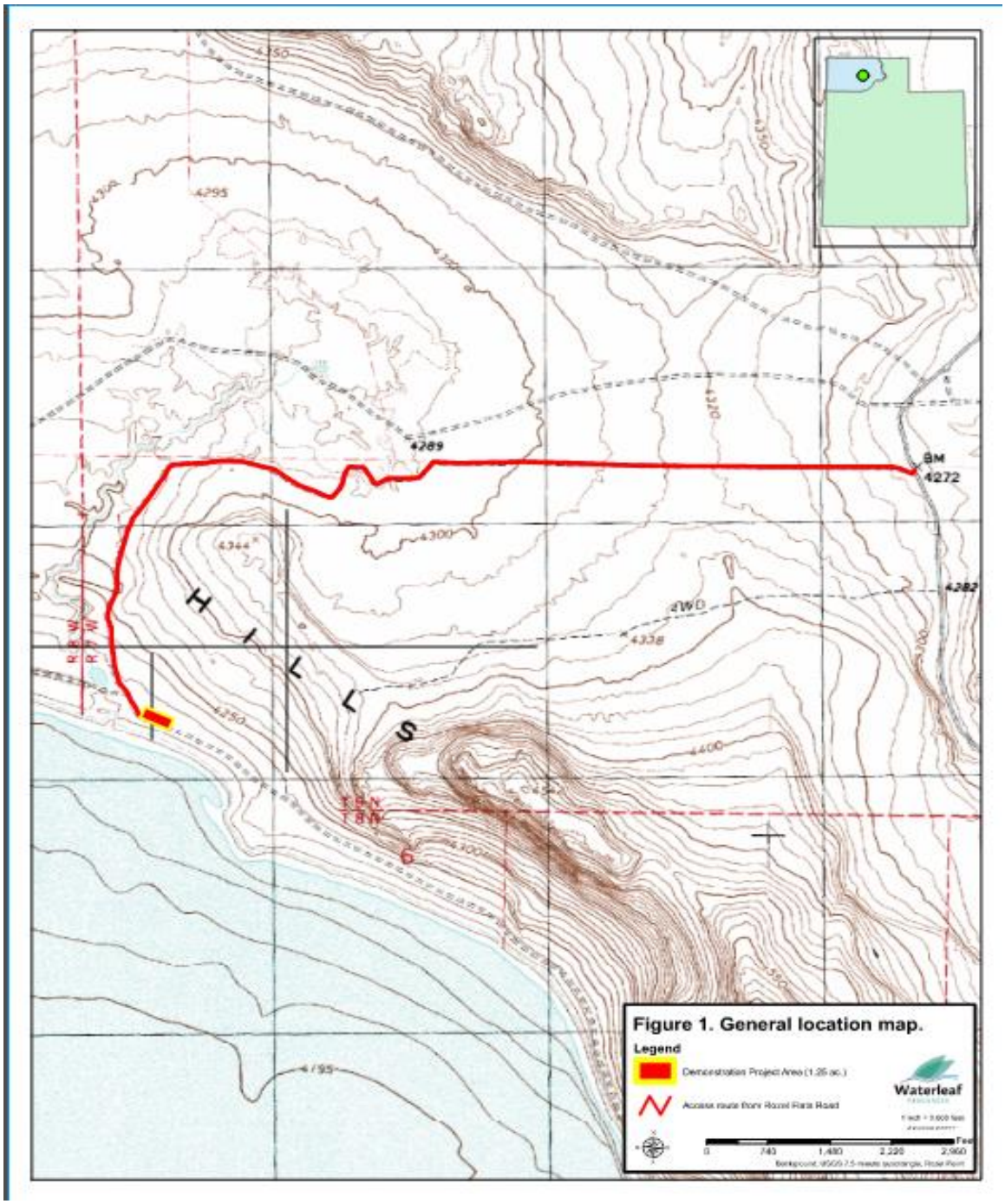
Mark Mulligan
Waterleaf Resources
9350 S 150 E #710
Sandy, Utah 84070
801 694 2245

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Waterleaf
RESOURCES

Attachment: Figure 1 – General Location of the Facility

Figure 1: General Location of the Facility



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

APPENDIX B: Waterleaf Mg Presentation

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

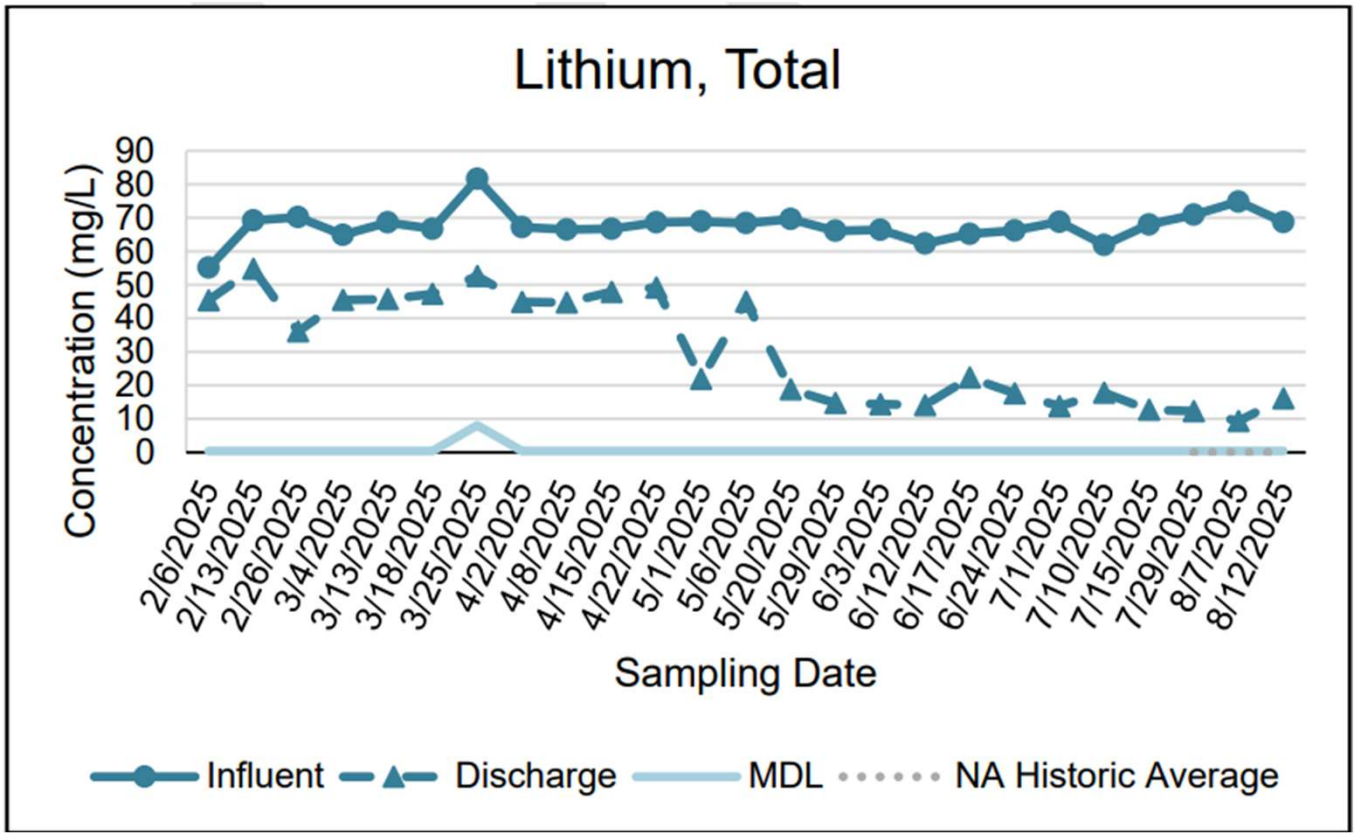
September 19, 2025

GSL Phase 1
DWQ & FFSL Meeting

INTERNAL

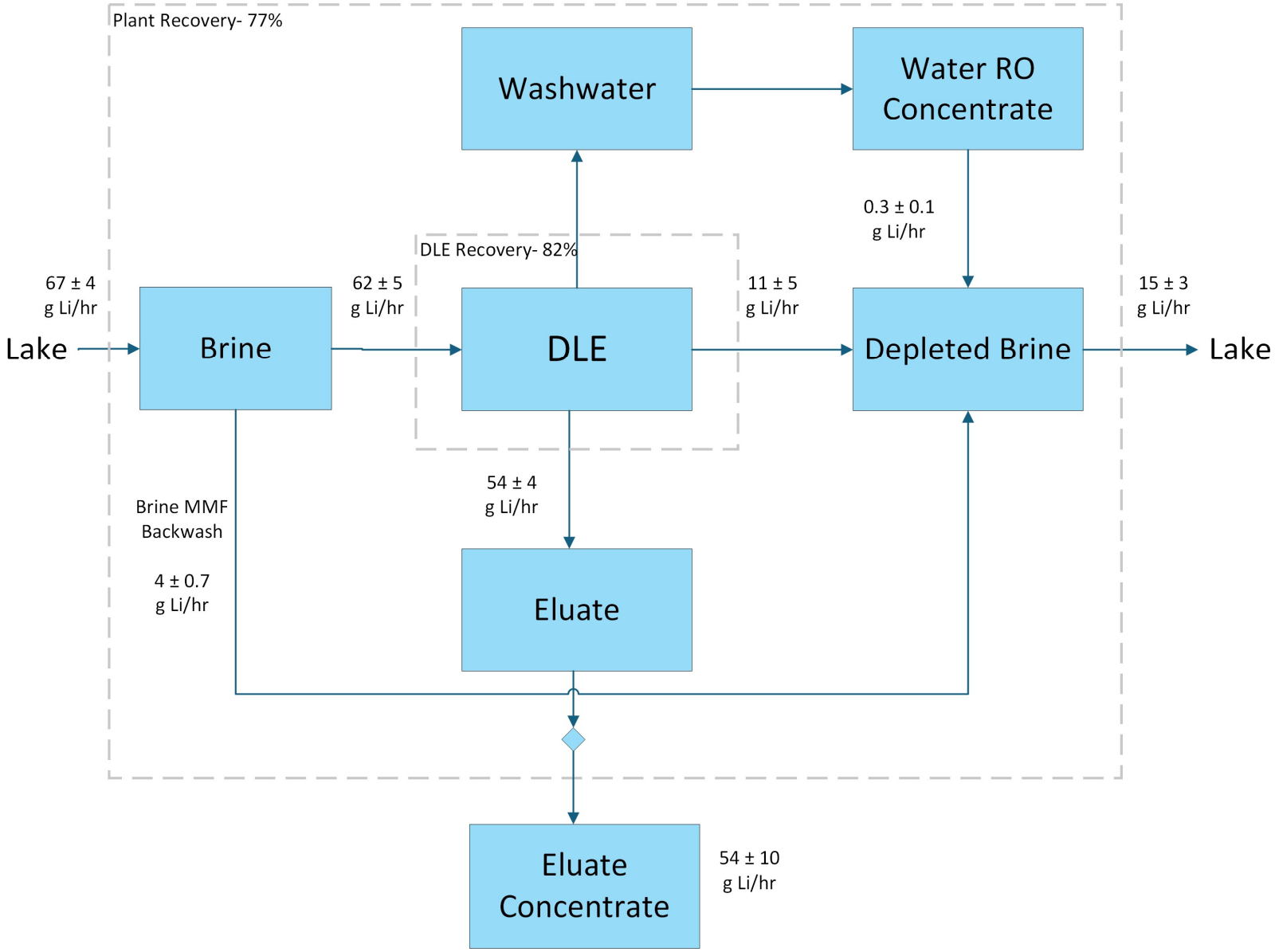
RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Lithium concentration



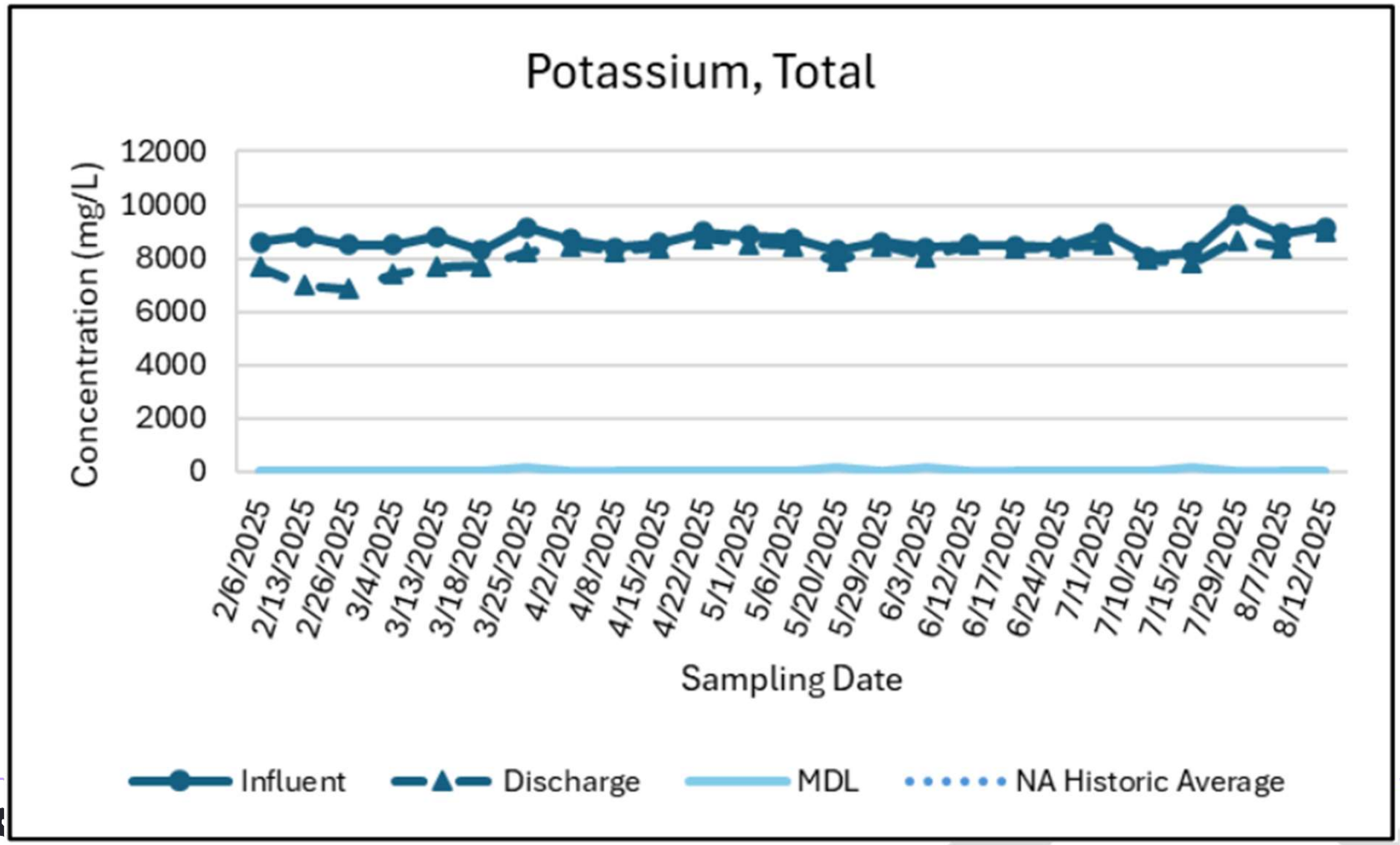
RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Lithium mass balance



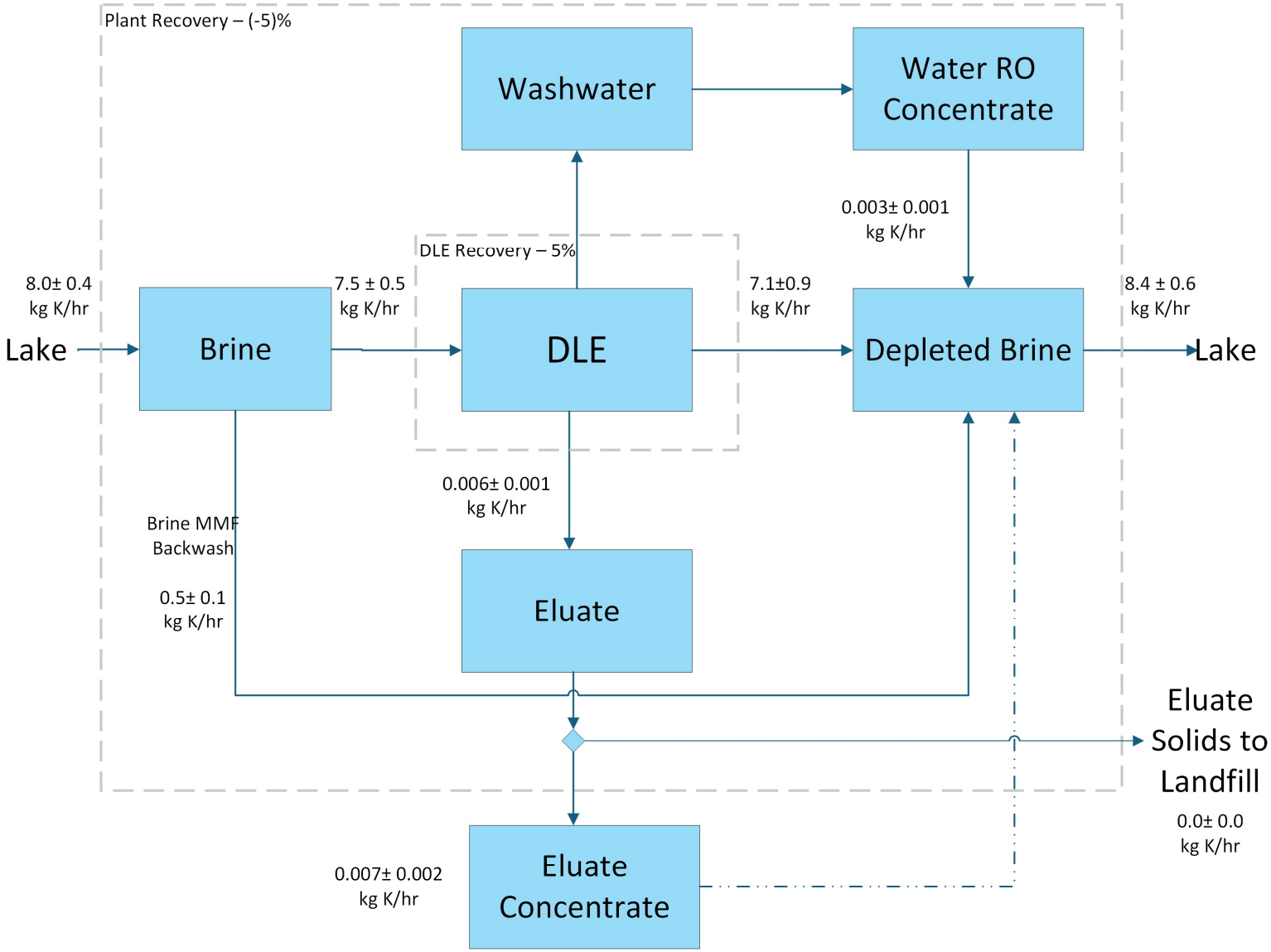
RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Potassium concentration



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

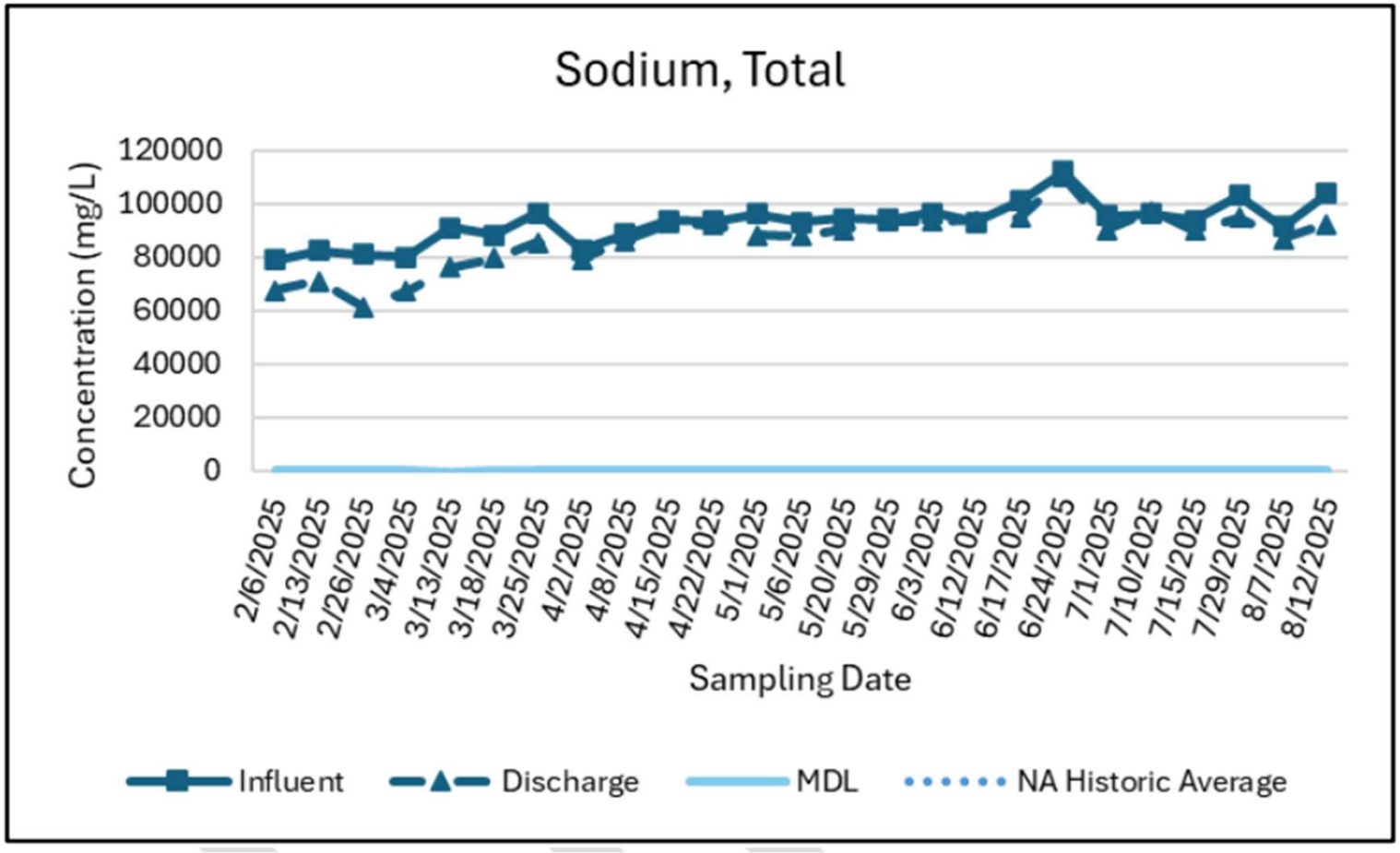
Potassium mass balance



*Potassium returns to the depleted brine in the commercial design via recycle streams

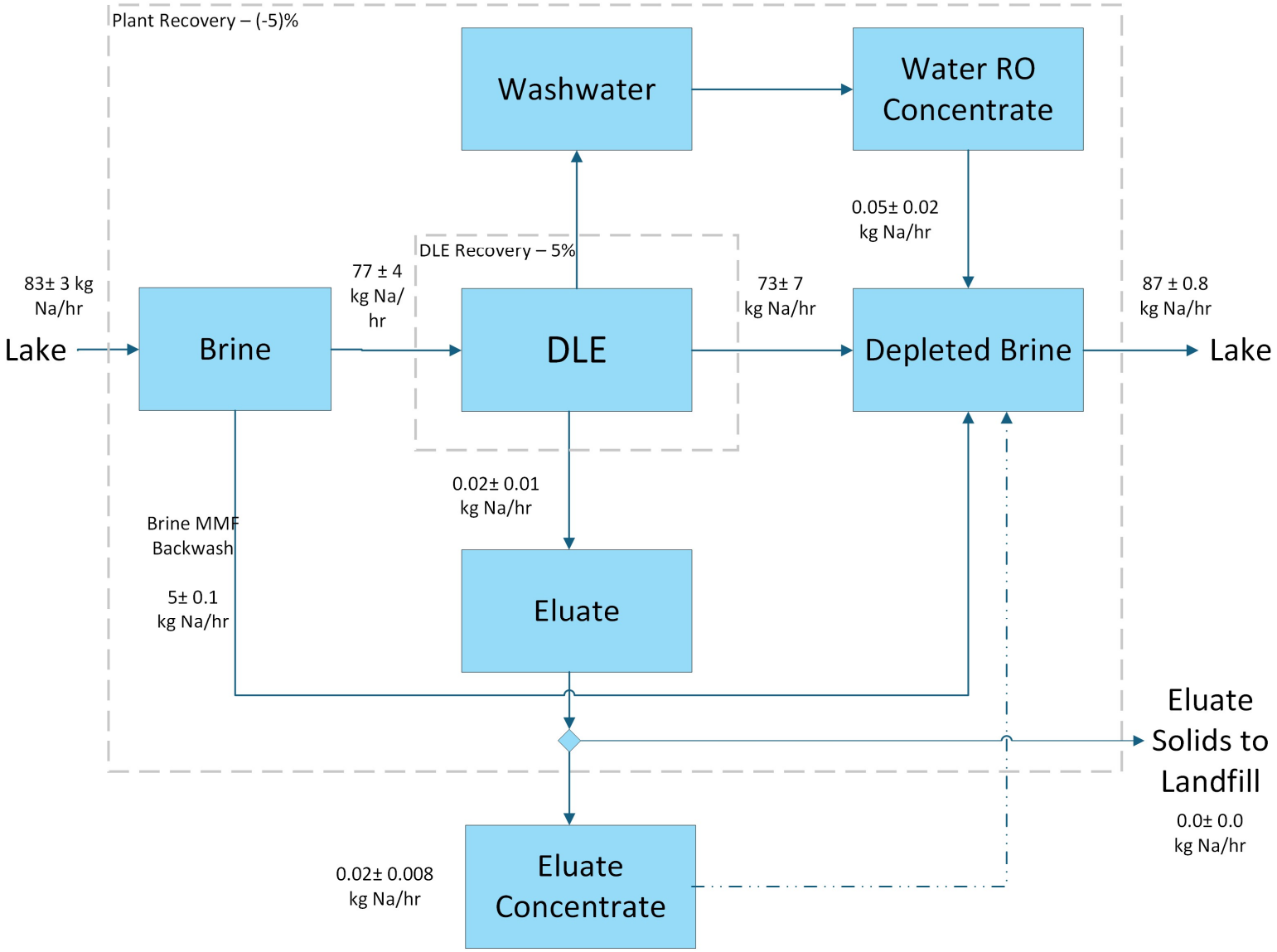
RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Sodium concentration



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

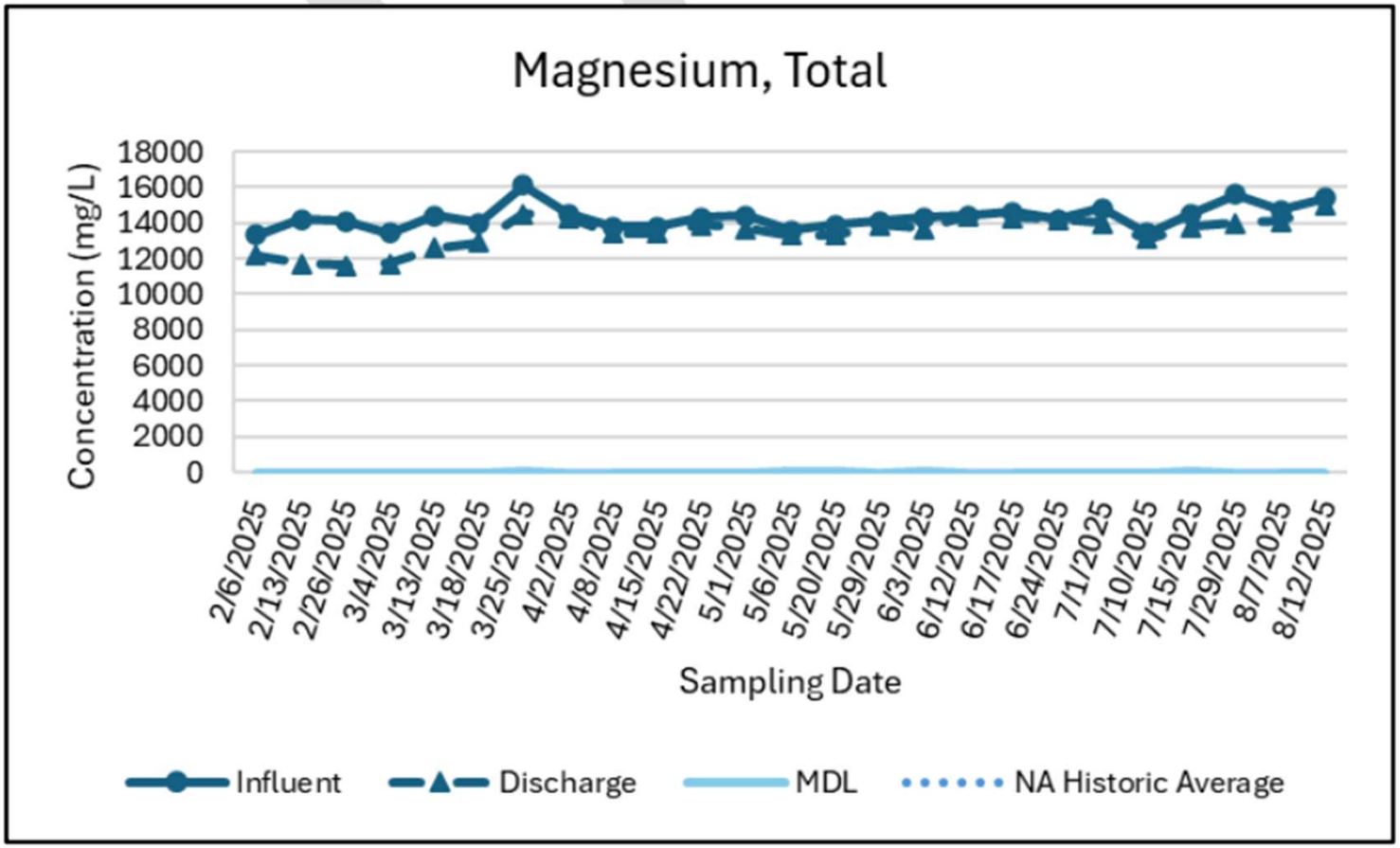
Sodium mass balance



*Sodium returns to the depleted brine in the commercial design via recycle streams

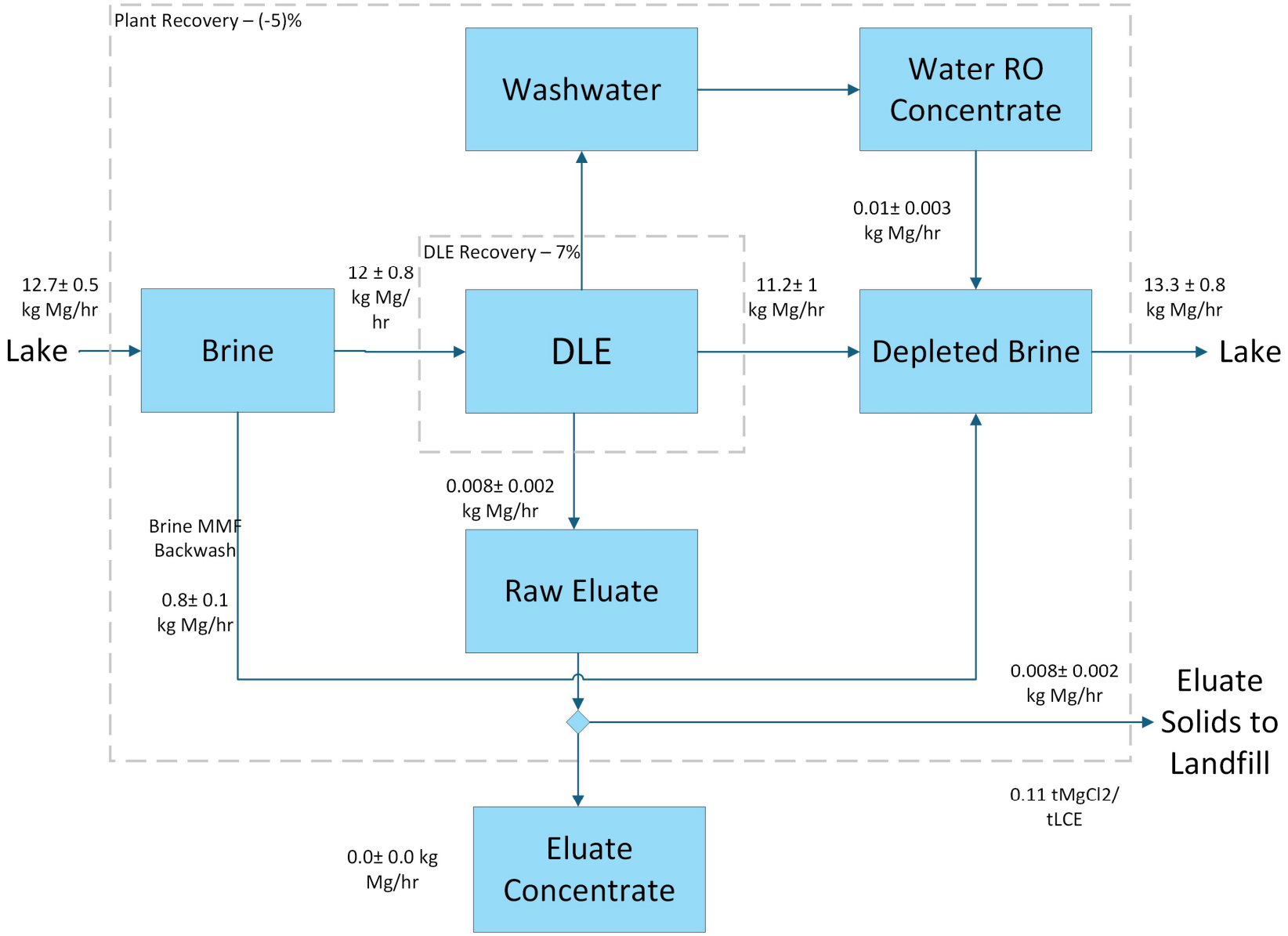
RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Magnesium concentration



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Magnesium mass balance



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Magnesium calculations

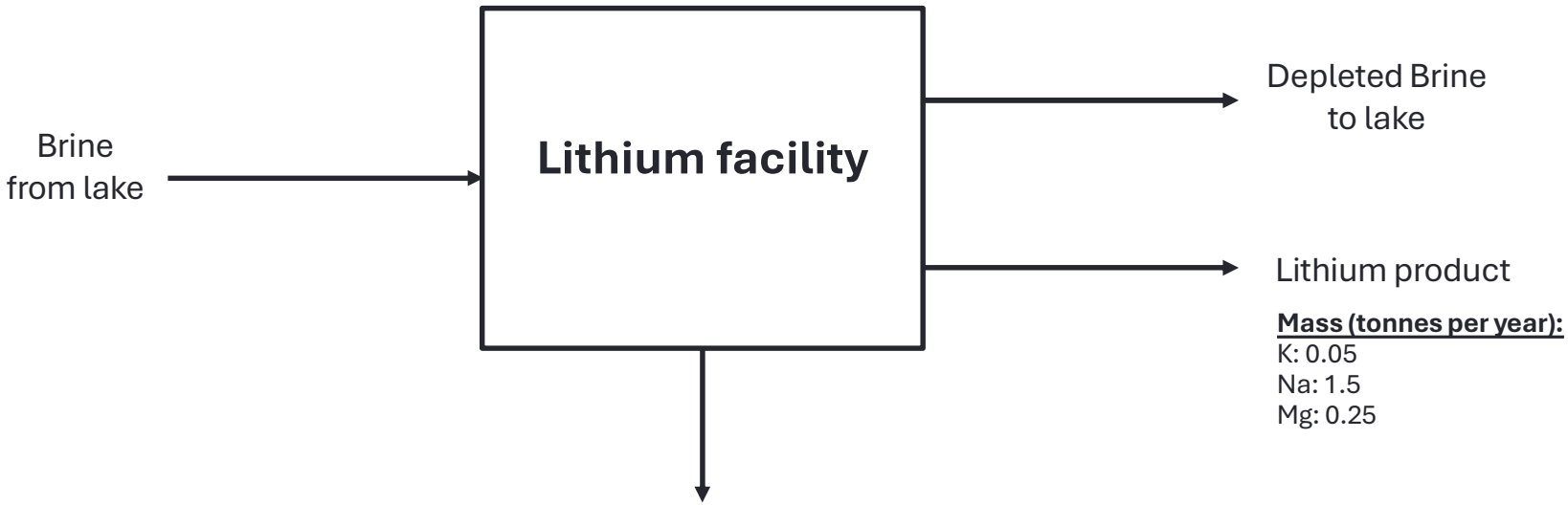
Pilot Stream	Li	K	Na	Mg
Eluate (mg/L)	1922	197	634	284

Note: these are the averages of the constituents during the permit performance run period of 20 May to 10 June

- Phase 1 brine flowrate: 12,500 gpm (equivalent to 18 mgpd)
- Calculates to magnesium of 185 tonnes per year
- Destination of magnesium: waste solids from eluate goes to landfill (the magnesium is part of a solids from eluate neutralization, where there are other constituents in the solids)
- Both sodium and potassium do not come out of solution and recycle to depleted brine back to the lake

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Commercial plant block diagram



RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Eluate neutralization waste solids

Constituent	Value	Units
Total Solids	40.1	%
Chloride	45.35	mg/kg dry
Sulfate	32,700	mg/kg dry
Calcium	287,000	mg/kg dry
Iron	392	mg/kg dry
Lithium	510	mg/kg dry
Magnesium	10,100	mg/kg dry
Potassium	22.6	mg/kg dry
Silica, (as SiO2)	21.6	mg/kg dry
Sodium	44.6	mg/kg dry
Antimony	1.87	mg/kg dry
Arsenic	15.1	mg/kg dry
Cadmium	0	mg/kg dry
Cobalt	0.546	mg/kg dry
Chromium	2.59	mg/kg dry
Copper	5.86	mg/kg dry
Lead	0.762	mg/kg dry
Manganese	3,700	mg/kg dry
Molybdenum	2.5	mg/kg dry
Nickel	6.05	mg/kg dry
Selenium	0	mg/kg dry
Thallium	0	mg/kg dry
Vanadium	12.9	mg/kg dry
Zinc	68.6	mg/kg dry
Mercury	0.103	mg/kg dry
Solids, Other constituents	66,347	mg/kg dry
TOTAL, Solids	**401,000**	**mg/kg dry**

Notes

- Bulk of the solids is gypsum
- Magnesium constitutes 2.5% of the overall solids
- 95% wash efficiency for sodium and potassium has been used to calculate residual interstitial losses
- Sodium & potassium are 0.01% of the waste solids
- Total annual tonnes of sodium and potassium lost to landfill is 1.2 tonnes per annum
  - Potassium: 0.4 tonnes per annum
  - Sodium: 0.8 tonnes per annum

Note: this analysis was done by Chemtech-Ford on a grab sample from the pilot plant

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Final product calculations

Constituent	Units	Value
Li_2CO_3	wt%	99.5
K	mg/kg	10
Na	mg/kg	300
Mg	mg/kg	50

- Phase 1 product tonnage: 5,000 tpa LCE
- Calculates to following tonnes of constituents that goes out with the final product:

Item	Units	Value
Potassium tonnes in product	tpa	0.05
Sodium tonnes in product	tpa	1.5
Magnesium tonnes in product	tpa	0.25

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

APPENDIX C: Kleinfelder Report No. KLE-GSL-GEO-2025, dated September 2025

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

March 21, 2025
Kleinfelder Project No.: 24003588.001A

Mr. Steve Morrey
Project Director, Brine
Lilac Solutions, Inc.

SUBJECT: **Geotechnical Engineering Investigation Report**
Great Salt Lake Project
Commercial Facility Geotechnical Study
Box Elder County, Utah

Dear Mr. Morrey:

Kleinfelder is pleased to submit our geotechnical engineering investigation report for the proposed commercial lithium extraction facility located in Box Elder County, Utah. This work was performed in general accordance with our proposal to you dated November 1, 2024, and your subsequent authorization.

Based on our geotechnical evaluation, we have provided geotechnical recommendations for site preparation, grading and excavation, foundation design, gravel surfacing, and fill placement and compaction for the proposed commercial facility site.

We appreciate the opportunity to provide geotechnical services to you on this project. Please contact the undersigned at 801.261.3336 if you have any questions regarding this report or if we can provide assistance with other aspects of the project.

Respectfully submitted,

KLEINFELDER

Joe Potter, PE
Staff Geotechnical Engineer

Spencer Davis, PE
Principal Geotechnical Engineer

849 West Levoy Drive, Suite 200, Taylorsville, UT 84123-2544 p | 801.261.3336 f | 801.261.3306

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
GREAT SALT LAKE PROJECT SITE
COMMERCIAL FACILITY GEOTECHNICAL STUDY
BOX ELDER COUNTY, UTAH
KLEINFELDER PROJECT NO: 24003588.001A

MARCH 21, 2025

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

A Report Prepared for:

Mr. Steve Morrey
Project Director, Brine
Lilac Solutions, Inc.

GEOTECHNICAL ENGINEERING INVESTICATION REPORT
GREAT SALT LAKE PROJECT SITE
COMMERCIAL FACILITY GEOTECHNICAL STUDY AND SURVEY
BOX ELDER COUNTY, UTAH

Prepared by:

Joe Potter, PE
Staff Geotechnical Engineer

Spencer P. Davis, PE
Principal Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
No. 8287229-2202
SPENCER P DAVIS
03/21/2025
STATE OF UTAH

Matt Moriarty, PE
Senior Geotechnical Engineer

KLEINFELDER
849 West Levoy Drive, Suite 200
Salt Lake City, Utah 84123
Phone: 801.261.3336

March 21, 2025
Kleinfelder Project No.: 24003588.001A

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

1 INTRODUCTION

1.1 GENERAL

This report presents the results of Kleinfelder's geotechnical evaluation to aid in design and construction of a commercial facility associated with the proposed lithium extraction project. The commercial lithium extraction facility will be located within the 50-acre lease site approximately 35 miles west of Brigham City, Utah. The location of the project site is shown in Appendix A. Our services for this study were performed in accordance with the scope of work outlined in our proposal dated November 1, 2024. Kleinfelder previously prepared a geotechnical engineering report (dated March 15, 2024) for the Pilot Facility that is currently in operation at the site. This document supersedes the previous geotechnical report prepared by Kleinfelder for this site.

This report includes our recommendations relating to the geotechnical aspects of project design and construction of the proposed structures and infrastructure for the commercial facility. The conclusions and recommendations stated in this report are based on the subsurface conditions encountered in our exploratory borings at the time they were performed. They also are subject to the limitations and provisions stated in Section 5 of this report. Please also refer to the document titled "Important Information About This Geotechnical Engineering Report," contained in Appendix D.

1.2 PROJECT DESCRIPTION

Our understanding of the configuration for the proposed commercial facility is based on phone and email correspondence with Lilac Solutions, Inc. (Lilac). From our discussions and review of the available information, we understand that the commercial facility will be located within approximately 17-acres of the 50-acre lease. Based on a review of drawing 10630-0000-ME-DPP-0003, "Gecko Small Commercial Battery Grade Lithium Carbonate GSL Ph1 FEL2 USA" dated July 25, 2024, the facility will include elements such as above ground storage tanks, piping, processing units, generators, warehouse structures, storage reservoirs, and gravel and concrete pavement.

Based on discussions with Lilac we understand there will be cuts of up to 10 feet on the northern portion of the facility and that structural column loads for the facility may range from 150 to 250 kips.

We understand that, at the current level of design development, detailed grading plans, structure loading and layouts, and floor elevations are not available. Additionally, we understand that aspects of the design such as facility layout, design of individual structures, etc., may be subject to change as the design continues to progress.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of our study was to evaluate subsurface conditions at the proposed commercial facility site and develop geotechnical recommendations based on the conditions encountered at the site.

The conclusions and recommendations presented in this report are based on our analyses of the data from our field exploration and laboratory testing programs. Kleinfelder's scope of services included:

- Performing subsurface exploration and soil sampling to characterize the subsurface soil profile at the site.
- Performing laboratory testing of selected soil samples to evaluate the engineering properties of the soils.
- Performing laboratory testing of selected soil samples to evaluate corrosion potential of soils at the site.
- Performing engineering analyses and developing geotechnical conclusions and recommendations for design and construction of shallow foundations, roadways, seismic hazard, earthwork, compaction, and site preparation.
- Preparation of this report, which includes a description of the proposed project, a description of the surface and subsurface site conditions found during our exploration and laboratory testing programs, and a summary of our conclusions and recommendations.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The field exploration program for this project was performed from January 20th to February 5th, 2025. Approximate locations of the explorations are contained in Appendix A. The field program consisted of advancing thirty-seven (37) borings within the proposed facility footprint to the planned depth or practical refusal:

- Pavement – Eleven (11) soil borings to 10 feet bgs.
- Structures – Twenty-two (22) soils borings ranging in depth of 30 feet to 60 feet bgs.
- Reservoirs – Four (4) soil borings to 10 feet bgs, with one borehole infiltration test per reservoir.

Additionally, thirteen (13) borings were advanced to 10 feet below existing ground surface (bgs) at approximately 1,000-foot spacings along the proposed roadway alignment, and the results of the roadway borings are presented in a separate letter report. Borings were drilled using a truck-mounted CME-75 drill rig using 8-inch outer diameter (O.D.) hollow-stem augers. Subsurface soil samples were obtained during exploration using a standard split-spoon sampler (2-inch O.D) or a split-barrel California sampler (3-inch O.D.). The split-spoon or California sampler was driven into the soil with blows from a 140-pound automatic hammer falling through a 30-inch drop. The number of blows required to drive the sampler 18 inches into the soil were recorded for each 6-inch increment of penetration on the boring logs. Where blow counts exceeded 50 in 6 inches or less, the depth of penetration was recorded upon reaching 50 blows (example: 50/4”). Relatively undisturbed samples of fine-grained soils were collected using a standard Shelby tube sampler (3-inch O.D.). Upon completion of drilling, all borings were backfilled with the soil cuttings generated while drilling. The hollow stem auger drilling and sampling was performed by Davis Drilling Services and was supervised and logged by a Kleinfelder geoprofessional. Samples obtained during the field exploration were transported to our laboratory for further evaluation and testing.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

The logs of the conditions encountered by Kleinfelder are presented in Appendix B. A key to the exploration logs and a summary of the Unified Soil Classification System (USCS) soil descriptions are also contained in Appendix B. Percolation test results are presented in Section 2.1.1 of this report. The lines defining boundaries between soil types on the logs are based on Kleinfelder's field observations and are therefore approximate. Transition between soil types may be abrupt or may be gradual. Samples will be retained for a period of 90 days from the date of this geotechnical report, after which time the samples will be discarded unless otherwise requested.

2.1.1 Percolation Test Results

Kleinfelder performed two borehole infiltration tests in general accordance with the percolation test method outlined in Utah Code Rule R317-4. The tests were performed in borings 24-B-01 and 24-B-03 using 2-inch diameter PVC casing installed following the completion of drilling. Borings were advanced to 10 ft bgs, a slotted 2-inch-diameter PVC casing was placed, and 12 inches of sand was placed in the base of the hole in the annular space between the casing and the borehole sidewall. A bentonite plug was created above the sand layer. After a soaking period of 24 hours, the water level was measured at regular intervals and recorded in the field. Infiltration results are presented in Table 2-1.

Table 2-1: Percolation Test Results

Item	Results	
Test Location	24-B-01 Depleted Brine Storage Reservoir N 41.46198°, W 112.69320°	24-B-03 Feed Brine Storage Reservoir N 41.46158°, W 112.69138°
Soil Type	Silty Sand (SM)	Silty Sand (SM)
Infiltration Rate	2 in/hr	> 5 in/hr
Test Depth below Existing Grade	10 ft	10 ft

The infiltration rates presented herein were calculated using the Porchet method. The borehole infiltration test measures percolation of water into unsaturated soil. As water is introduced into the soil, the soil becomes saturated and the wetting front advances from the unsaturated zone to the saturated zone. Once the soils become saturated, infiltration rates greatly decrease as water can only move

through soils by hydraulic conductivity at a rate determined by pressure head and soil permeability. Test results are considered valid for the time and place of the actual test. Changes in soil moisture content will affect the infiltration rate. Infiltration rates should be expected to decrease until the soils become saturated. Soil permeability values will then govern groundwater movement. The system designer should incorporate adequate factors of safety to the infiltration rate value used in design.

The infiltration rates presented above were developed based on testing using clean tap water. The designer should consider an appropriate factor of safety if deleterious material such as silt, clay, organic material, or other debris be allowed to accumulate in the proposed detention/retention pond. Fines or debris may significantly reduce the infiltration rate of the proposed facility. Additionally, the infiltration rate presented in this report is specific to the tested locations and depth. Infiltration rates can be significantly reduced if the soils are exposed to excessive disturbance or compaction during construction.

2.2 LABORATORY TESTING

2.2.1 Geotechnical Laboratory Testing

Geotechnical laboratory tests were performed on selected soil samples to estimate their relative engineering properties and soil type. Testing for the following properties was performed in general accordance with recognized ASTM standards:

- Unit Weight and Water Content,
- Sieve Analysis,
- Unit Weight,
- One-dimensional Consolidation,
- Unconsolidated Undrained (UU) Triaxial,
- Direct Shear, and
- Swell Potential

Results of all geotechnical laboratory tests are included in Appendix C of this report. Selected geotechnical test results are also shown on the exploration logs contained in Appendix B.

2.2.2 Analytical Laboratory Testing

The following analytical laboratory testing was performed on soil samples by an independent analytical laboratory:

- pH,
- Resistivity,
- Water Soluble Sulfate, and
- Water Soluble Chloride.

The analytical laboratory test results are presented in Appendix C and are summarized below in Table 2-2.

Table 2-2: Analytical Laboratory Test Results

Exploration No.	Depth (feet bgs)	pH	Resistivity (ohms-cm)	Water Soluble Sulfate (mg/kg dry)	Water Soluble Chloride (mg/kg dry)
24-S-04	5.0	8.6	< 100	1570	6360
24-S-17	10.0	8.6	< 100	1920	7240

Kleinfelder's scope of services does not include corrosion engineering and, therefore, a detailed analysis of the corrosion test results is not included. A qualified corrosion engineer should be retained to review the test results for further evaluation and design protective systems, if considered necessary.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

3 SITE CONDITIONS

3.1 SURFACE

The project site is generally undeveloped with the exception of a gravel access road traversing the lease property and the temporary facility that has previously been constructed by Lilac on the site. The site is located along the historic shoreline of the Great Salt Lake. Historic aerial imagery published by the Utah Division of Wildlife Resources (DWR) indicates Great Salt Lake water levels approached the site as recently as 2012. Lake water levels fluctuate seasonally, and a study of lake levels is not within the scope of this report. The site slopes moderately upward to the north and is sparsely vegetated with grass and brush.

3.2 SUBSURFACE CONDITIONS

Subsurface conditions encountered in our explorations generally consist of interbedded medium stiff to hard clay and silt mixtures, along with loose to very dense sand. Subsurface conditions are variable due to the lacustrine depositional environment but generally become denser and harder with depth. Limited areas of loose sand were observed near the ground surface in borings 24-P-04, 24-S-15, and 24-S-17. Based on the results of our laboratory testing, fine grained soils at the site generally exhibit high plasticity.

The exploration logs presented in Appendix B and the laboratory test results presented in Appendix C should be referred to for more detailed information regarding the subsurface soil conditions at the site.

3.3 GROUNDWATER

Groundwater was encountered in five explorations at depths of 32 to 43.5 ft bgs, corresponding to an average approximate elevation of 4,205 ft. Groundwater levels are dependent on a number of factors, including seasonal precipitation, nearby bodies of water, land use, and runoff conditions. It is possible that groundwater levels may fluctuate during dryer and wetter seasons of the year. A detailed study of

site hydrogeologic conditions, including the potential for fluctuations in groundwater levels, was beyond the scope of work of this investigation.

3.4 GEOLOGIC SETTING

The site is located within Box Elder County, Utah, on the eastern margin of the Basin and Range Physiographic Province. The site is located west of the Promontory Mountain Range, near Rozel Hills and Rozel Flat. The Basin and Range Province is characterized by approximately north-trending valleys and mountain ranges, which have been formed by extensional tectonics and displacement along normal faults (Hunt, 1967). The Great Salt Lake, located adjacent to the site, is a remnant of the prehistoric Pleistocene-aged Lake Bonneville. The Great Salt Lake is an endorheic saline lake, which receives inflow of water from a number of rivers in the region.

Published geologic maps of the Box Elder County area (Doelling, 1980) mapped the shallow deposits at the site as consisting of lacustrine gravel deposits with minor sand, silt, and clay. Explorations conducted as a part of this report generally agree with the published geology, although they indicate that lacustrine deposits are generally more fine-grained at the site.

3.5 GEOLOGIC HAZARDS

3.5.1 Seismicity and Faulting

The proposed project site is located within the Intermountain Seismic Belt – a seismically-active region that extends from Arizona to Montana (Smith and Arabasz, 1991). Active faults in the region are potential sources for seismic loading hazards for the site. Active earthquake faults are typically considered as faults that have moved during the past 10,000 years. A trace of the active Great Salt Lake Fault Zone is mapped by the USGS approximately 1.8 miles to the southwest of the commercial facility site.

Seismic design parameters consistent with the 2024 International Building Code (IBC) are based on the American Society of Civil Engineers (ASCE) 7-22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures. Based on our site investigation and subsequent analysis, **the underlying**

soil at the site corresponds with a Site Class CD per Table 20.2-1 of ASCE 7-22. The general seismic design parameters were obtained per 2024 IBC/ASCE 7-22 based on the site class, site coordinates, and the risk category of the structure using the ASCE Online Hazard Tool (https://ascehazardtool.org/). The design parameters for the site are summarized in Table 3-1. If a multi-period spectrum is required per Section 11.4.5 of ASCE 7-22, one can be provided upon request.

Table 3-1: General Ground Motion Parameters Based on ASCE 7-22

Parameter	Value	ASCE 7-22 Reference
Latitude (degrees)	41.4627	N/A
Longitude (degrees)	-112.6924	N/A
Assumed Building Risk Category	II	N/A
$\overline{v}_s$ (ft/s)	1141	Equation 20.4-1
Velocity Profile Method	Estimated	N/A
S_S (g)	0.70	USGS Seismic Design Geodatabase
S_1 (g)	0.22	USGS Seismic Design Geodatabase
T_L (s)	6	USGS Seismic Design Geodatabase / Figure 22-14
Site Classes Considered for Derivation of Ground Motion Parameters	C, CD, D	Table 20.2-1 / Section 20.3
S_{MS} (g)	0.89	USGS Seismic Design Geodatabase / Figure 22-1
S_{M1} (g)	0.57	USGS Seismic Design Geodatabase / Figure 22-2
S_{DS} (g)	0.59	USGS Seismic Design Geodatabase
S_{D1} (g)	0.38	USGS Seismic Design Geodatabase
PGA_M (g)	0.35	USGS Seismic Design Geodatabase / Figure 22-9

3.5.2 Liquefaction and Lateral Spreading

Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure buildup resulting from dynamic loading, such as that caused by an earthquake. Among other effects, liquefaction can result in densification of such

deposits causing settlements of overlying layers after an earthquake as excess pore water pressures are dissipated. Horizontally continuous liquefied layers may also have a potential to spread laterally where sufficient slope or free-face conditions exist. The primary factors affecting liquefaction potential of a soil deposit are: (1) magnitude and duration of seismic ground motions; (2) soil type and consistency; (3) degree of soil saturation; (4) geologic age and origin; and (5) depth below ground surface.

Based on the soil conditions encountered during our field investigation at the site, including the relatively high density of the granular soils as indicated by blow count values, it is our opinion that the potential for liquefaction at this site is low and does not warrant further consideration.

3.5.3 Moisture Sensitive Soils

Native fine-grained Fat Clay (CH) soils encountered during field explorations show potential to swell or heave upon the introduction of moisture. A series of load to prevent swell tests were performed on samples at varying depths. The load to prevent swell test measures the load required to maintain constant specimen volume following the introduction of water. Laboratory results indicate that the load to prevent swell for native soils at existing water content is approximately 400 which represents a relatively low risk to structures. However, if soils are allowed to desiccate (dry out), the load to prevent swell increases to approximately 2,200 psf. Table 3-2 contains results of swell testing.

Table 3-2: Swell Potential Laboratory Results

Boring Number	Depth (ft)	Load To Prevent Swell (psf)	Dry Unit Weight (pcf)	Water Content (%)
24-S-06	2.5	259	84	34.5
24-S-12	5	377	83	34.4
24-S-12	5	2,180 (Note 1)	78 (Note 1)	3.0 (Note 1)

Note 1. Test specimen was remolded from soil allowed to air dry for 48 hours prior to testing.

Due to the risk of expansive soils, near-surface fine-grained soils should not be allowed to desiccate during footing, slab-on-grade, and pavement construction. If native fine-grained soils are allowed to dry, the soil should be scarified, moisture conditioned to between 0 and 3 percent above optimum water content, and recompacted, as outlined in Section 4.2.4, prior to continuing construction.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL CONCLUSIONS

Based on the results of our field exploration and laboratory testing, it is our opinion that the site is suitable for the construction of the proposed improvements provided that the recommendations contained in this report are followed. These opinions, conclusions, and recommendations are based on our field exploration, engineering analysis, the properties of the materials encountered in our borings, the results of the laboratory testing program, and our understanding of the proposed development of the site.

This report is intended to support design of the project elements at the current level of project development. The recommendations presented herein are based on information provided by Lilac at the time this report was prepared. As development plans are finalized, it is possible that design information, including structure location, loading, and design grade may change. Where changes occur, Kleinfelder should be notified to re-evaluate our recommendations considering the refined design information and modify our recommendations, as warranted.

In general, native near-surface soils at the commercial facility site are not suitable for use as structural fill due to excessive fines content and plasticity. These soils may be used for general site/common fills in landscaping, parking and softscape areas.

Further discussion of material requirements and the suitability of the native soils to meet these requirements are more specifically discussed in Section 4.2.4. The surficial soils in portions of the site, including below proposed structures, roads, and fills, may be loose and accordingly may require over-excavation to expose competent soil and/or stabilization with geotextile fabric or geogrid. Specific recommendations to address this issue are presented in Section 4.2.1.

The following sections of this report present our recommendations for general site preparation and grading, structural fill material requirements and compaction, site pavements, design of foundations and slabs-on-grade. Recommendations regarding the design of aggregate-surfaced roadways is presented in a separate letter report.

4.2 EARTHWORK

4.2.1 General Site Preparation and Grading

Prior to commencing site-grading operations, planned building, pavement, and parking areas should be stripped of all vegetation, topsoil, loose/soft surficial soils, and other debris/deleterious materials to expose competent native soils. The required stripping depth will vary across the site depending on the amount of vegetation, topsoil, loose/soft surficial soils, and debris/deleterious materials present. Based on our site observations and field exploration, we anticipate required stripping depths of 6 to 24 inches depending on the type of vegetation and loose soils present. Locally deeper stripping depths may be required to remove deeper root systems of larger brush and to remove loose surficial soils that may be encountered.

Following stripping, exposed native soils should be proof-rolled with a fully loaded tandem-axle dump truck or fully loaded water truck and observed by the geotechnical engineer or his representative to identify soft, loose, or unstable areas.

Where encountered during proof-rolling, unstable soils should be stabilized under the observation of the geotechnical engineer. Unstable subgrade could be over-excavated 12 to 24 inches below existing grade and replaced with approved structural fill underlain by geotextile fabric and/or geogrid, depending on the severity of the instability. The geotextile fabric should consist of a woven geotextile, such as Mirafi 600X or equivalent. The final depth of removal will depend upon conditions observed in the field once overexcavation begins and should be assessed by the geotechnical engineer. The overexcavated areas should be backfilled with structural fill in accordance with Section 4.2.4. Geotextile fabric and/or geogrid should be placed in accordance with the manufacturer's recommendations. Specific recommendations regarding the depth of overexcavation, type and thickness of granular material to use and the type and

placement of geotextile to stabilize the subgrade should be provided by the geotechnical engineer based on observation of the site-specific conditions exposed.

The contractor should be aware that high plasticity fine-grained soils were observed within anticipated excavation depths. These high plasticity clay soils will be easily disturbed and will likely become unstable, especially during wet weather. Additionally, subgrade soils should not be allowed to dry out as the near-surface high plasticity clays and silts will experience surficial cracking that will result in unstable conditions. Allowing high plasticity clays to dry will also increase the risk that the soils will swelling upon introduction of water.

4.2.2 Wet Weather Construction

If exposed to excess moisture and repeated construction traffic, native near surface soils will become unstable, especially during wet weather. The use of track-mounted equipment with low ground pressure tracks and/or the use of dump and spread techniques to place material should be considered, particularly if construction occurs during the wet seasons of the year. Subgrade soils that become unstable or disturbed due to exposure to excess moisture will require replacement or remedial measures as outlined in Section 4.2.1.

4.2.3 Excavatability

We anticipate that excavation of the on-site materials can generally be performed using conventional earth-moving equipment. The contractor should conduct their own evaluation of site conditions, the potential difficulties involved, and the type of equipment needed.

4.2.4 Structural Fill and Compaction

Structural fill placed below proposed structures should be comprised of imported or native material that meets the specifications outlined in Table 4-1. Criteria for fill used in parking areas are outlined in a Table 4-2.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Table 4-1: Criteria for use of Structural Fill

Gradation Requirements	
Standard Sieve Size	Percent Passing
4 inch	100
¾ inch	100-70
No. 40	10-60
No. 200	0-15[1]
Plasticity Requirements of Fines (Atterberg Limits)	
Plasticity Index	6 or less

Note 1: Fill with more than 15 percent fines may be acceptable as approved by Kleinfelder.

Table 4-2: Criteria for Untreated Base Course

Gradation Requirements	
Standard Sieve Size	Percent Passing
1-1/2 inch	100
1 inch	90-100
¾ inch	70-85[1]
½ inch	65-80
3/8 inch	55-75
No. 4	40-65
No. 16	25-40
No. 200	7-11
Plasticity Requirements of Fines (Atterberg Limits)	
Plasticity Index	6 or less[2]

Note 1: For improved performance and maintenance of aggregate-surfaced pavements, this value may be increased to 100.
Note 2: For improved performance and maintenance of aggregate-surfaced pavements, this value may be increased to 12 or less.

The majority of native soils encountered within practical excavation depths on the site contain significant amounts of fine-grained material. These soils generally do not meet the requirements set forth in Table 4-1 and are not suitable for use as structural fill. They may be used in non-structural areas; however, these soils will be very sensitive to moisture and will be more difficult to place and compact.

Imported fill materials should be approved by the testing agency prior to importing. Also, prior to placing structural fill, the excavation should be observed by the testing agency to note that unsuitable material has been removed, and the exposed soil is in a firm and unyielding condition.

Structural fill should be placed in maximum 8-inch-thick loose lifts and compacted to at least 95 percent of the maximum dry density as determined by ASTM-D1557 (Modified Proctor). The contractor will need to moisture condition the soils to be within the range outlined in Table 4-3 at the time of compaction. Placement and compaction criteria for roadway areas will be presented in a separate letter report.

Table 4-3: Structural Fill Placement and Compaction Criteria

Fill Location	Material Type	Percent Compaction* (ASTM D1557)	Moisture Content	Minimum Compaction Testing Frequency Per Lift
Top 12 inches below interior and exterior concrete slabs	Imported Gravel or Aggregate Base	95 minimum	-2% to +2% of optimum	5,000 Square Feet
Below foundation bearing level	Granular Structural Fill	95 minimum	-2% to +2% of optimum	5,000 Square Feet
Site grading fills placed below building areas (extending 1H:1V beyond outside perimeter footings)	Granular Structural Fill	95 minimum	-2% to +2% of optimum	5,000 Square Feet
Foundation wall backfill	Granular Structural Fill	95 minimum	-2% to +2% of optimum	500 Square Feet
Utility trench backfill	Granular Structural Fill or Approved Trench Backfill Material	95 minimum	-2% to +2% of optimum	100 Linear Feet
Landscape/Undeveloped Areas	On-site soil / Granular Structural Fill	85 minimum	-2% to +3% of optimum	15,000 Square Feet

4.2.5 Temporary Excavation Stability

Stability of construction excavations is the contractor's responsibility. If stability of an excavation becomes questionable, the excavation should be evaluated promptly by Kleinfelder. The soils classification and strength properties presented in this report may be used for the planning of excavations and trench slopes in accordance with OSHA requirements or for the design of excavation slopes, shoring, and/or the use of trench boxes. Construction personnel should be aware that soil conditions may change rapidly if soil moisture conditions change or if soils that have been disturbed by previous excavations are encountered. Measures should be taken to protect construction personnel

from raveling of trench sidewalls. If sloughing or free water is encountered, it may be necessary to reduce trench slopes beyond OSHA requirements or provide shoring. All excavations should comply with current OSHA safety requirements. If unstable conditions, or conditions other than those described in the geotechnical explorations are encountered during construction, excavation slopes should immediately be evaluated by the contractor's Competent Person.

All temporary excavations should be backfilled using structural fill that meets the requirements of Section 4.2.4 of this report and compacted in accordance with Table 4-3 in section 4.2.4 of this report.

4.2.6 Utility Trenches

The Contractor is responsible for the safety of all personnel working in utility trenches. All utility trenches should be excavated in accordance with Section 4.2.5 of this report and applicable OSHA standards. Prior to placement of pipe bedding material, the trench bed should be inspected to identify soft or unstable soils. If soft or unstable soils are identified, subgrade stabilization or over-excavation and replacement should be performed in accordance with the recommendations of Sections 4.2.1 and 4.2.4. Pipe bedding material should conform to the pipe manufacturer's recommendations. Bedding or fill material should be properly placed and compacted to provide adequate support for the pipe. Trench backfill should be placed and compacted according to the requirements of Section 4.2.4.

4.3 SHALLOW FOUNDATIONS

At the request of Lilac, we have provided recommendations for shallow foundation systems. Our recommendations were developed using expected footing sizes and loads provided by Lilac. In developing our recommendations for foundation designs, we have assumed that proposed site grades will be at approximately elevation 4,235 ft. If extensive fills are required as the design progresses, Kleinfelder should be notified to evaluate and confirm the applicability of the recommendations provided herein.

Footings should be established a minimum of 30 inches below the lowest adjacent final grade for frost protection and confinement. Horizontal loads acting on foundations formed in open excavations will be resisted by friction acting at the base of foundations and by passive earth pressures. If structural designs

make use of passive earth pressures, it is important that any backfill below or around footings is placed and compacted properly. Therefore, we recommend that the geotechnical engineer, or his representative, be present during any footing backfill placement.

Based on the information provided by Lilac, we understand that a number of structures at the site will be supported on conventional cast-in-place concrete continuous and spread foundations. All shallow foundations should bear on a minimum of 12 inches of properly compacted structural fill. Shallow foundations may be proportioned in accordance with Table 4-4. Structural fill should be placed within the zone of influence of the foundation defined by a 1Horizontal:1Vertical (1H:1V) plane extending downward from the edge of the foundations, schematically shown in Figure 4-1. This will facilitate proper distribution of the applied foundation pressures within the structural fill and meet the requirements for bearing capacity.

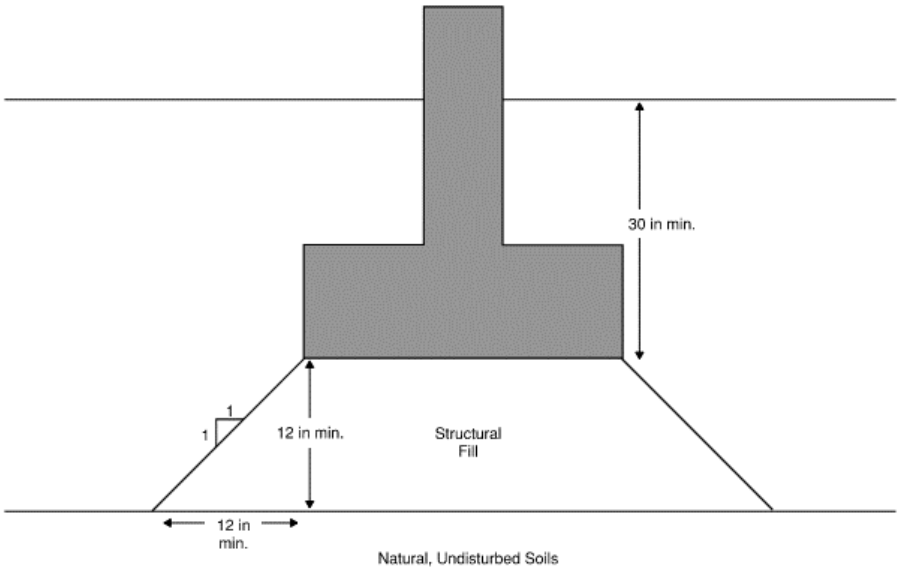


Figure 4-1: Foundation Zone Influence

We understand that various liquid and slurry tanks are proposed as part of the project. Based on plans provided to Kleinfelder, tanks may have diameters up to approximately 30 feet. We anticipate tanks will be supported on mat foundations up to approximately 30-foot diameter. We have provided a higher bearing capacity for circular footings provided the tank structures can tolerate larger total and differential settlement values.

Shallow foundations supporting building loads should be separated at least 10 feet from tank foundations to prevent additional settlements. Adjacent tank foundations should be separated at least 4 feet to prevent additional settlements.

Table 4-4: Allowable Soil Bearing Pressure

Item	Isolated Footing (Note 1)	Continuous Footing (Note 1)	Circular Footing (Note 1)	Circular Footing (Note 2)
Allowable Bearing Capacity	2,000 psf			2,200 psf
Bearing Depth	30 inches below adjacent final grade			
Required Bearing Stratum	12 inches of properly prepared Granular Structural Fill			
Maximum Footing Dimensions	12 x 12 ft	5 ft	30 ft	30 ft
Minimum Footing Dimensions	2 x 2 ft	1.5 ft	2 ft	2 ft

Note 1: Maximum and minimum dimensions to limit total settlement to 1 inch and differential settlement to less than ½ inch.
Note 2: Maximum diameter to limit total settlement to 1.5 inches and differential settlement to less than ¾ inch.

4.4 LATERAL EARTH PRESSURES

Horizontal loads acting on foundations formed in open excavations will be resisted by friction acting at the base of foundations and by passive earth pressures acting on the embedded face of the foundation. If design makes use of passive earth pressures, it is important that any backfill below or around footings is properly placed and compacted structural fill as described in Section 4.2.4. In this case, we would recommend the geotechnical engineer, or his representative be present during any footing backfill placement.

Lateral earth pressures may be proportioned according to Table 4-5. The friction acting along the base of footings, founded on granular structural fill, may be computed by using a nominal/ultimate coefficient of friction of 0.45 with the normal dead load. A nominal/ultimate lateral passive earth pressure may be computed by using an equivalent lateral fluid weighing 400 pounds per cubic feet (pcf) for the side of footings placed against properly compacted granular structural fill. The structural designer should refer to Section 1807.2.3 of IBC 2024 for appropriate factors of safety for use in the foundation sliding analysis.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Table 4-5: Recommended Equivalent Fluid Pressures (EFP)

Unit	Active[1,2,4] (EFP_A)	At-rest[1] (EFP_o)	Seismic[1,3,4] (EFP_{AE})
	Pounds per cubic foot (pcf)		
Granular Fill ϕ'=34°, γ'=130 pcf K_a=0.28, K_{ae}=0.41	37	57	53
Native Soil ϕ'=32°, γ'=120 pcf K_a=0.31, K_{ae}=0.44	37	56	53

Note 1: Assumes fully drained granular structural fill soil, level conditions at toe and crest of wall, and a vertical wall back face.
Note 2: Assumes deflection at crest of wall is 0.001H for active condition, where H is the wall height.
Note 3: Seismic combines the active and dynamic increment earth pressures and is distributed analogous to the active earth pressure.
Note 4: Neglects soil-wall interface friction.

4.5 CONCRETE SLABS-ON-GRADE

Concrete slabs on grade should be designed with a minimum of 4 inches of free-draining gravel overlying 8 inches of untreated base course below the slab. Prior to placement of the free-draining gravel and base course layers below the slab, the native soil should be prepared as recommended in Section 4.2.1 of this report.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. Special precautions must be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking, or curling in the slabs. We recommend that all concrete placement and curing operations be performed in accordance with the American Concrete Institute Manual (ACI, 2017).

As a basis for designing concrete slab thickness, soil subgrade moduli (k_{v1}) may be proportioned according to Table 4-6. These values correspond to a 1-foot square plate and should be adjusted for the designed slab geometry.

Table 4-6: Soil Subgrade Modulus Values for a one-foot Square Plate

Location	Subgrade Soil Type	Soil Subgrade Modulus, k_{v1} (pci)
Commercial Facility	Native Soils	200

4.6 PAVEMENT DESIGN AND CONSTRUCTION

We understand that the site will contain Portland Cement Concrete (PCC) or gravel-surfaced parking, drive lanes, and truck turnaround areas. Geotechnical recommendations for the 2.5-mile-long access road are provided in a separate letter report. Kleinfelder's pavement designs were performed in general accordance with the AASHTO Guide for Design of Pavement Structures (1993) and Federal Highway Administration Earth and Aggregate Surfacing Design Guide (2017). We have provided recommendations for concrete and gravel sections assuming a 20-year design life and 220,000 total 18-kip Equivalent Single Axle Loads (ESALs).

A design California Bearing Ratio (CBR) of 7 percent was used for the analyses, based on the results of both laboratory CBR tests and correlations with laboratory index testing and grain size analyses. Concrete pavement design was performed using a modulus of rupture of 650 psi and 10-foot joint spacings. Kleinfelder should be notified if the actual traffic and material conditions differ from our assumptions. Table 4-7 presents our recommended PCC and gravel pavement sections

Table 4-7: Pavement Section Recommendations

Material	Material Thickness (in.)	
	Aggregate-Surfaced Pavement (Drive Lanes and Parking)	PCC Pavement (Truck Turnaround and Unload Areas)
Portland Cement Concrete	-	6
Untreated Base Course	8	6
Granular Borrow Subbase	8	8

Granular Borrow subbase may consist of fill meeting UTBC or Structural Fill gradations (Tables 4-1 and 4-2), or other granular material approved by the geotechnical engineer.

4.6.1 Pavement Subgrade Preparation

Prior to pavement construction, planned parking/roadway areas should be prepared as outlined in Section 4.2.1 of this report. The final subgrade should be graded to provide positive drainage and prevent ponding and/or moisture infiltration. Granular borrow should be placed soon after subgrade grading to prevent desiccation of near-surface fine-grained soils and to provide a weather-resistant working pad.

Once the subgrade has been proof-rolled and approved, the subbase and untreated base course should be placed. The subbase and untreated base course should be compacted to a minimum of 95 percent of the maximum dry density as determined in accordance with ASTM D1557 (Modified Proctor). Moisture content at the time of compaction should be within 2 percent of optimum.

4.7 MOISTURE PROTECTION AND SURFACE DRAINAGE

Precautions should be taken during and after construction to eliminate, or at least reduce the potential for saturation/desiccation of native subgrade soils. Over-wetting of the native soils prior to or during construction may result in softening and pumping, causing equipment mobility problems and difficulty in achieving compaction. The fill, building pads, and adjacent areas should be graded to allow water to drain away from structures to prevent ponding near foundational elements, pavement, or site flatwork.

4.8 SOIL CORROSION AND REACTIVITY

Kleinfelder has completed laboratory testing to provide data regarding corrosivity of onsite soils. Our services do not include corrosion engineering and, therefore, a detailed analysis of corrosion test results is not included in this report. A qualified corrosion engineer should be retained to review the test results, perform additional testing as required, and design protective systems that may be required. Kleinfelder may be able to provide those services.

Laboratory resistivity, water-soluble sulfate, water-soluble chloride, and pH tests were performed on soil samples from the commercial facility site. Results of these tests are listed in Appendix C and summarized in section 2.2.2 of this report. If fill materials will be imported to the project site, similar corrosion potential laboratory testing should be completed on the imported material.

Metal and concrete elements in contact with soil are subject to degradation due to corrosion or chemical attack. Therefore, buried metal and concrete elements should be designed to resist corrosion and degradation based on accepted practices. Chemical test results indicate the native near surface soils are corrosive to buried ferrous piping. We recommend that a corrosion engineer be consulted to recommend appropriate protective measures, as needed.

The degradation of concrete or cement grout can be caused by chemical agents in the soil or groundwater that react with concrete to either dissolve the cement paste or precipitate larger compounds within the concrete, causing cracking and flaking. The concentration of water-soluble sulfates in the soils is a good indicator of the potential for chemical attack of concrete or cement grout. The American Concrete Institute (ACI) in their publication *Guide to Durable Concrete* (ACI 201.2R-08) provides guidelines for this assessment.

The concentrations of soluble sulfates indicate that the subsurface soils at the commercial facility site represent a Class S1 exposure to sulfate attack on concrete in contact with the soil based on ACI 318-19 Table 19.3.1.1. Therefore, in accordance with ACI Building Code 318-19, special provisions for selection of cement type are not required.

4.9 SLOPE STABILITY RECOMMENDATIONS

We understand cut slopes and two brine storage reservoirs are planned within the new commercial facility. At this project stage, we understand proposed slopes are a maximum of 15 ft in height. To achieve a slope configuration with a suitable factor of safety, we recommend that reservoir side slopes be constructed no steeper than 2H:1V. If slopes steeper than 2H:1V and/or taller than 15 ft are proposed as the project progresses, Kleinfelder should be contacted in order to reassess our recommendations.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

5 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than three years from the date of the report.

The work performed was based on project information provided by Client. Any changes in the project information listed herein that will have an impact on recommendations in this report must be approved by Kleinfelder's engineer.

It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues covered in this report with Kleinfelder, so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

As the geotechnical engineering firm that performed the geotechnical evaluation for this project, we recommend that Kleinfelder be retained to verify the design assumptions and confirm the recommendations of this report are properly incorporated in the design of this project, and properly implemented during construction. This may avoid misinterpretation of the information by other parties and will allow us to review and modify our recommendations if variations in subsurface conditions are encountered. It is our recommendation Kleinfelder be retained to provide the following continuing services for the project:

- Review the project plans and specifications, including any revisions or modifications;
- Observe and evaluate the site earthwork operations to confirm subgrade soils are suitable for construction of site improvements; and
- Confirm that imported fills meet specified material requirements and are placed and compacted in accordance with project specifications.

If a third party is retained to provide the above activities, they are responsible to notify Kleinfelder of any changed site conditions that affect the recommendations presented herein. Kleinfelder must also be retained to perform a supplemental evaluation and to issue a revision to our original report. If notification is not provided, the testing company will assume responsibility associated with the changed site conditions.

Kleinfelder cannot be responsible for interpretation by others of this report, or the conditions encountered in the field.

This report, and any future addenda or reports regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions.

6 REFERENCES

AASHTO, 1993, "Guide for Design of Pavement Structures," American Association of State Highway and Transportation Officials, Washington, D.C.

American Concrete Institute (2016), Guide to Durable Concrete, Reported by ACI Committee 201, ACI 201.2R-16.

American Concrete Institute (2014), ACI 318-14 Standard and Report - Building Code Requirements for Structural Concrete. American Concrete Institute. Farmington Hill, MI.

American Society of Civil Engineers (ASCE), 2022, ASCE Standard 7-22 - Minimum Design Loads for Buildings and Associated Criteria for Other Structures. American Society of Civil Engineers/Structural Engineering Institute. Reston, VA.

Giraud, Richard E. and Shaw, Lucas M., (2007), Landslide Susceptibility Map of Utah, Utah Geological Survey Map 228DM, Utah Geological Survey.

Doelling, Hellmut H. (1980), Geology and mineral resources of Box Elder County, Utah. M-57. UGMS. 1:125,000 scale.

Hunt, C.B., (1967), Physiography of the United States: San Francisco, W.H. Freeman, 480 p.

IBC (2024). "International Building Code," International Code Council.

Rocscience Inc., (2022), Settle3 Version 5.018, A commercial software program for settlement and consolidation analyses, Toronto, Canada.

Utah Division of Wildlife Resources (2024). "Great Salt Lake Water Levels," Great Salt Lake Ecosystem Program https://wildlife.utah.gov/gslep.html. Accessed March 13, 2024.

USGS (2012), "Quaternary fault and fold database for the United States," U.S. Geological Survey, https://www.usgs.gov/programs/earthquake-hazards. Accessed March 13, 2025.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

Appendix A

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

APPENDIX A

EXPLORATION LOCATION PLAN AND SITE VICINITY MAP

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

N

NOT TO SCALE

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	24003588.001A
DRAWN BY:	E. Ence
CHECKED BY:	J. Potter
DATE:	2/17/2025

SITE VICINITY MAP

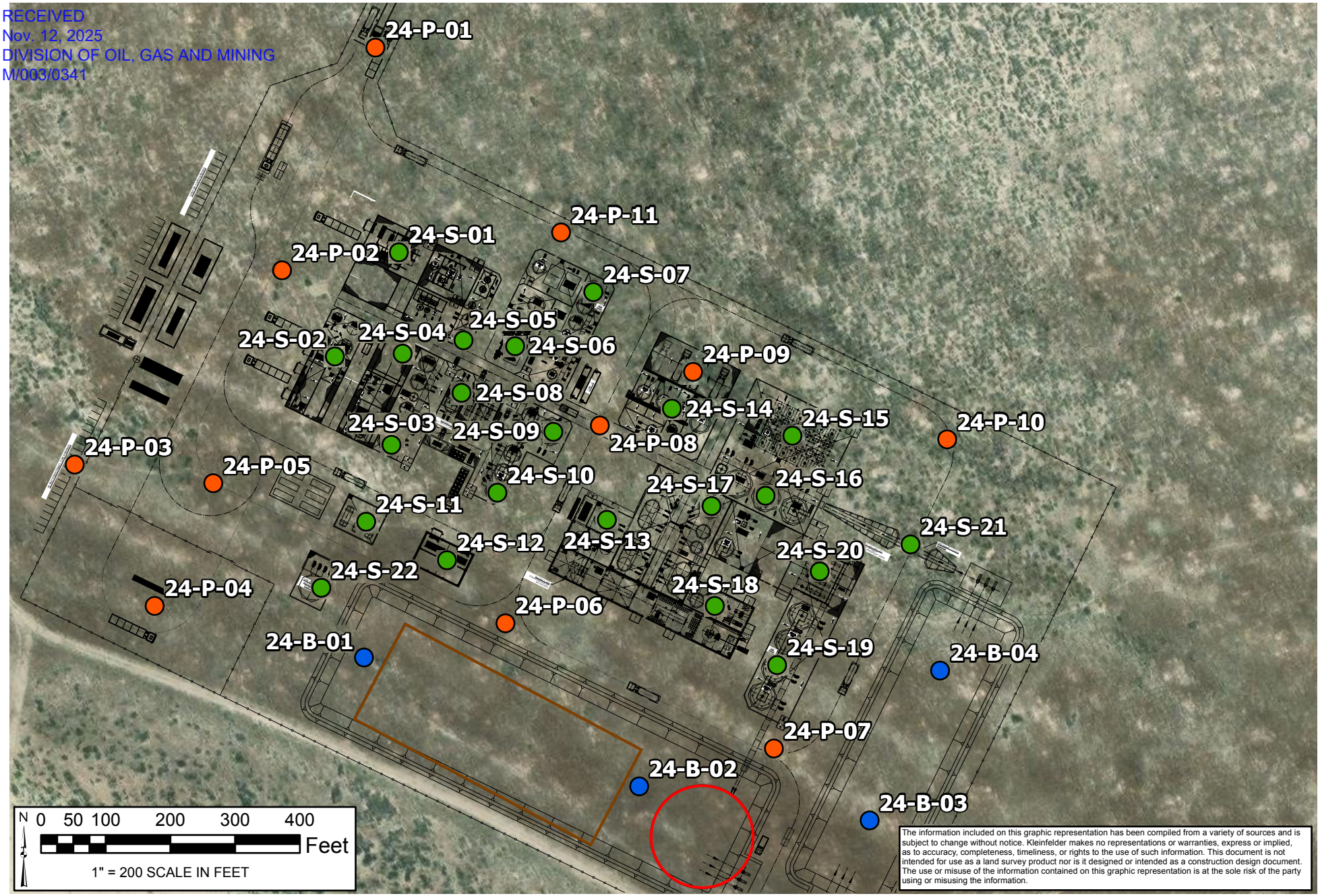
GSL Project Commercial Facility

Box Elder County, Utah

FIGURE

A-1

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341



LEGEND

- Reservoir Borings
- Structure Borings
- Pavement Borings
- Temporary Lithium Facility
- Temporary Reservoir

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	24003588.001A
DRAWN BY:	E. Ence
CHECKED BY:	J. Potter
DATE:	2/17/2025

SITE EXPLORATION LOCATION PLAN

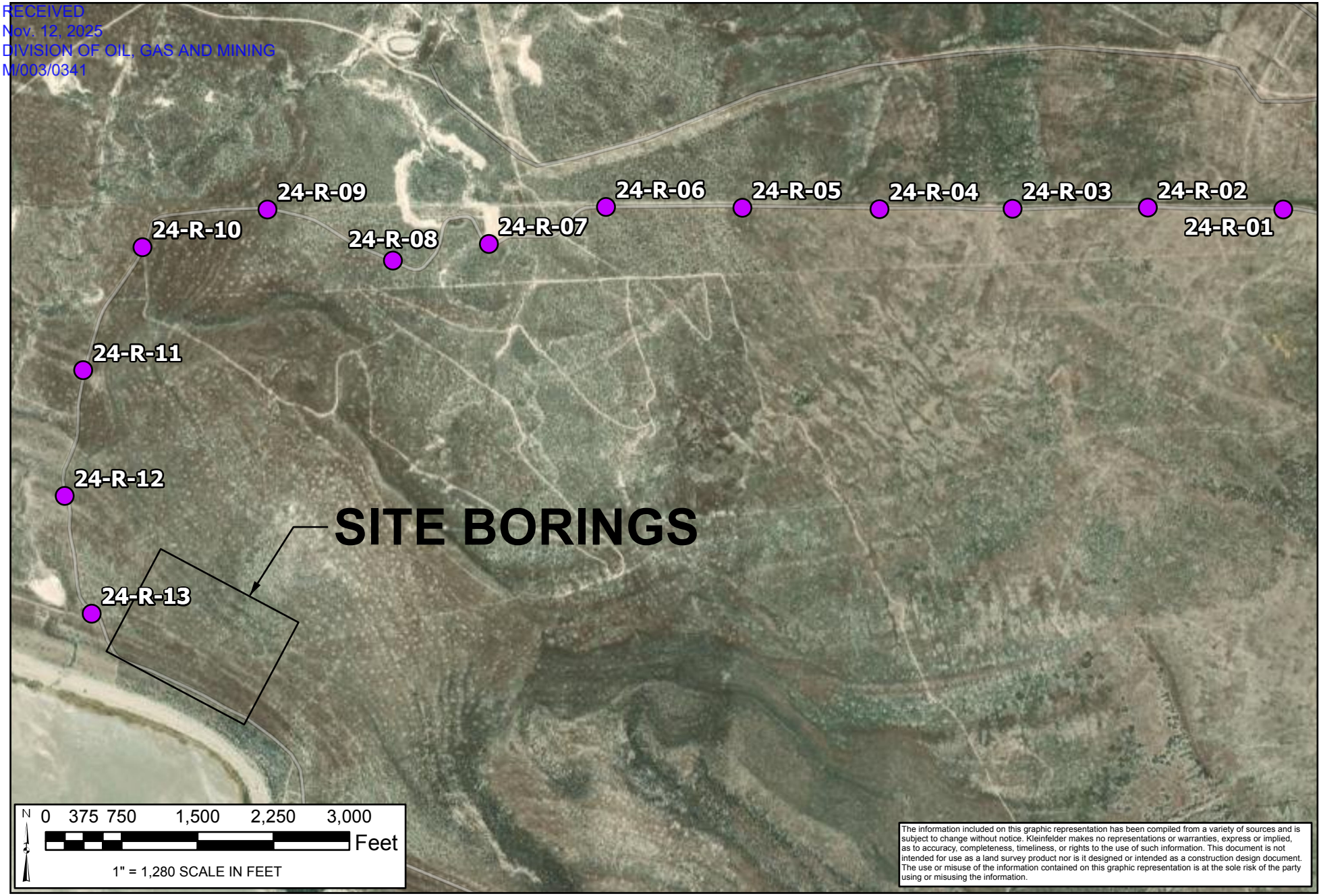
GSL Project Commercial Facility

Box Elder County, Utah

FIGURE

A-2

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341



LEGEND

- Roadway Borings

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.	24003588.001A
DRAWN BY:	E. Ence
CHECKED BY:	J. Potter
DATE:	2/17/2025

ROADWAY EXPLORATION LOCATION PLAN

GSL Project Commercial Facility

Box Elder County, Utah

FIGURE

A-3

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

Appendix B

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

APPENDIX B

EXPLORATION LOGS

DRILLING METHOD/SAMPLER TYPE GRAPHICS

- BULK SAMPLE
- CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)
- SHELBY TUBE SAMPLER
- STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after stabilizing period)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

C_u - Coefficients of Uniformity
C_c - Coefficients of Curvature
WOH - Weight of Hammer
WOR - Weight of Rod

REFERENCES

1. American Society for Testing and Materials (ASTM), 2011, ASTM D2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System).

UNIFIED SOIL CLASSIFICATION SYSTEM[1]

COARSE GRAINED SOILS (More than 50% retained on No. 200 Sieve)	**GRAVELS** (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVEL WITH <5% FINES	**GW**	WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP	POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH 5% TO 12% FINES	**GW-GM**	WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND
			GW-GC	WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND)
			GP-GM	POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND
			GP-GC	POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND)
		GRAVELS WITH > 12% FINES	**GM**	SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
			GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND
	SANDS (50% or more of coarse fraction passes the No. 4 Sieve)	CLEAN SANDS WITH <5% FINES	**SW**	WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP	POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH 5% TO 12% FINES	**SW-SM**	WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL
			SW-SC	WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
			SP-SM	POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL
			SP-SC	POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
		SANDS WITH > 12% FINES	**SM**	SILTY SAND, SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND, CLAYEY SAND WITH GRAVEL
			SC-SM	SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS (50% or more passes the No. #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		**ML**	SILT, SILT WITH SAND, SILT WITH GRAVEL
			CL	LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL
			CL-ML	SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL
			OL	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL
	SILTS AND CLAYS (Liquid Limit 50 or greater)		**MH**	ELASTIC SILT. ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	3/4/2025

GRAPHICS KEY

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-1

GRAIN SIZE[1]

DESCRIPTION		SIEVE SIZE	GRAIN SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)
Gravel	coarse	3/4 -3 in.	3/4 -3 in. (19 - 76.2 mm.)
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.8 - 19 mm.)
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)
Fines		Passing #200	<0.0029 in. (<0.07 mm.)

SECONDARY CONSTITUENT[1]

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

PLASTICITY[1]

DESCRIPTION	CRITERIA
Non-Plastic	A 1/8 in. (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT[1]

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL[2, 3]

CONSISTENCY	SPT - N (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Easily penetrated several inches by fist
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1,000	Easily penetrated several inches by thumb
Medium Stiff	4 - 8	0.5 ≤ PP <1	1,000 - 2,000	Can be penetrated several inches by thumb with moderate effort
Stiff	8 - 15	1 ≤ PP <2	2,000 - 4,000	Readily indented by thumb but penetrated only with great effort
Very Stiff	15 - 30	2 ≤ PP <4	4,000 - 8,000	Readily indented by thumbnail
Hard	>30	4 ≤ PP	>8,000	Indented by thumbnail with difficulty

APPARENT DENSITY - COARSE-GRAINED SOIL[2]

APPARENT DENSITY	SPT-N (# blows / ft)
Very Loose	<4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

STRUCTURE[1]

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness.
Laminated	Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.
Homogeneous	Same color and appearance throughout

ANGULARITY[1]

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

REACTION WITH HYDROCHLORIC ACID[1]

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

CEMENTATION[1]

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or little finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

REFERENCES

1. American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
2. Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
3. United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

SOIL DESCRIPTION KEY
(For additional tables, see ASTM D2488)

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-2

BORING LOG 24-B-01

Date Begin - End:	2/04/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 50° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46198°
Longitude: -112.69320°
Approximate Ground Surface Elevation (ft.): 4,228
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)
4225	0		**Silty SAND (SM)**: fine to coarse sand, non-plastic, light brown, dry, medium dense			
					BC=5 6 11	13"
	5		**Poorly Graded SAND with Silt and Gravel (SP-SM)**: fine to coarse sand, non-plastic, light brown, dry, very dense		BC=20 27 75/3"	15"
4220			**Silty SAND (SM)**: fine sand, non-plastic, light brown and gray, dry, very dense			
					BC=8 21 35	12"
	10					
4215	15					
4210	20					
4205	25					
4200	30					
4195						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on February 04, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/5/2025

BORING LOG 24-B-01

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-3
PAGE: 1 of 1

BORING LOG 24-B-02

Date Begin - End:	2/04/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 48° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46169°
Longitude: -112.69236°
Approximate Ground Surface Elevation (ft.): 4,229
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)
4225	0		**Poorly Graded SAND with Silt and Gravel (SP-SM)**: non-plastic, light brown and gray, dry, very dense			
					BC=4 26 50/3"	9"
	5		**Silty SAND (SM)**: fine sand, non-plastic, light brown and gray, dry, medium dense, iron oxide staining			
					BC=6 5 8	18"
4220					BC=3 8 20	16"
	10				BC=4 12 16	18"
4215			**SILT (ML)**: low plasticity, light brown and gray, dry, hard			
	15				BC=3 13 28 PT=3.0	18"
4210	20					
4205	25					
4200	30					
4195						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on February 04, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/5/2025

BORING LOG 24-B-02

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-4
PAGE: 1 of 1

BORING LOG 24-B-03

Date Begin - End:	2/04/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 46° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46158°
Longitude: -112.69138°
Approximate Ground Surface Elevation (ft.): 4,235
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Poorly Graded SAND with Silt and Gravel (SP-SM): non-plastic, light brown, dry, dense											Driller notes cobbles
4230	5				BC=20 20 16	5"								
			Silty SAND (SM): non-plastic, light brown and gray, dry, very dense		BC=28 50/3"	9"								
4225	10													
4220	15													
4215	20													
4210	25													
4205	30													

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on February 04, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/5/2025

BORING LOG 24-B-03

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-5
PAGE: 1 of 1

BORING LOG 24-B-04

Date Begin - End:	2/04/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 44° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46205°
Longitude: -112.69108°
Approximate Ground Surface Elevation (ft.): 4,248
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			FIELD EXPLORATION				LABORATORY RESULTS							
4245			**Poorly Graded SAND with Silt and Gravel (SP-SM)**: fine to coarse sand, non-plastic, light brown, dry, dense		BC=7 16 30	10"								
	5		**Sandy Lean CLAY (CL)**: low plasticity, light brown and gray, dry, hard		BC=5 21 45 PP=3.5	18"								
4240					BC=5 16 50/4" PP=4.0	16"								
	10				BC=50/4"	4"								
4235														
	15				BC=15 49 75/3" PP=4.5	15"								
4230														
	20													
4225														
	25													
4220														
	30													
4215														

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on February 04, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/5/2025

BORING LOG 24-B-04

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-6
PAGE: 1 of 1

BORING LOG 24-P-01

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46403°
Longitude: -112.69347°
Approximate Ground Surface Elevation (ft.): 4,258
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): low plasticity, light brown, moist, very stiff											
4255					BC=5 10 17 PP=4.5	16"								
	5		hard		BC=15 22 35 PP=4.5	18"		33.6						
			Silty SAND (SM): fine sand, non-plastic, light brown, moist, very dense											
4250					BC=50/5"	5"								
	10				BC=22 50/3"	9"								
4245														
	15													
4240														

The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-01

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-7
PAGE: 1 of 1

BORING LOG 24-P-02

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46332°
Longitude: -112.69387°
Approximate Ground Surface Elevation (ft.): 4,244
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium sand, non-plastic, light brown, dry, medium dense											
					BC=5 8 15	14"								
4240														
	5		dense		BC=13 20 28	16"					48			
					BC=9 18 34	17"								
			Lean CLAY (CL): low plasticity, light brown, dry											
4235														
	10		**Silty SAND (SM)**: fine sand, non-plastic, light brown, dry, very dense		BC=20 40 50	16"								
4230	15													
4225														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-02

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-8
PAGE: 1 of 1

BORING LOG 24-P-03

Date Begin - End:	1/21/2025	**Drilling Company:**	Davis Drilling		
Logged By:	J. Potter	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 20° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46270°
Longitude: -112.69475°
Approximate Ground Surface Elevation (ft.): 4,231
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4230	0		**Silty SAND with Gravel (SM)**: fine to coarse sand, non-plastic, reddish brown, dry, medium dense											
					BC=2 4 10	8"								
	5		**SILT with Sand (ML)**: non-plastic, gray, slightly moist, very stiff, clay lenses 1/4" thick											Auger chatter
4225					BC=7 11 18	12"								
			stiff		BC=6 7 7	8"					71			
	10		**Lean CLAY (CL)**: medium plasticity, olive gray, slightly moist, very stiff, friable											
4220					BC=6 11 18 PP=4.5	14"								
	15													
4215														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 21, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-03

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-9
PAGE: 1 of 1

BORING LOG 24-P-04

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 15° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46226°
Longitude: -112.69441°
Approximate Ground Surface Elevation (ft.): 4,228
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium sand, non-plastic, light brown, dry, loose											
4225					BC=2 2 4	2"								
	5		very dense		BC=9 34 46	16"		6.0			16			
4220			fine sand, medium dense		BC=5 8 10	18"								
	10		**SILT (ML)**: fine sand, low plasticity, light brown, dry, stiff		BC=2 3 7 PP=1.25	18"								
4215	15													
4210														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-04

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-10
PAGE: 1 of 1

BORING LOG 24-P-05

Date Begin - End:	1/21/2025	**Drilling Company:**	Davis Drilling		
Logged By:	J. Potter	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 20° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46264°
Longitude: -112.69416°
Approximate Ground Surface Elevation (ft.): 4,232
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND with Gravel (SM): fine to coarse sand, non-plastic, yellow, dry, very dense											
4230					BC=9 38 50/3"	8"								
	5		**Fat CLAY (CH)**: high plasticity, white, slightly moist, very stiff, blocky, iron oxide staining		BC=2 6 11 PP=3.0	12"						62	37	
4225			**SILT with Sand (ML)**: non-plastic, olive gray, dry, hard, laminated, pinholes		BC=31 28 50/5"	14"								
	10		iron oxide staining		BC=21 41 50/3"	12"								
4220														
	15													
4215														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 21, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-05

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-11
PAGE: 1 of 1

BORING LOG 24-P-06

Date Begin - End:	1/23/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46220°
Longitude: -112.69292°
Approximate Ground Surface Elevation (ft.): 4,233
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): non-plastic, light brown, dry, very dense											Auger grinding
4230					BC=50/2"	2"								
	5		**Lean CLAY with Sand (CL)**: low plasticity, light brown, dry, hard		BC=12 13 29 PP=4.5	18"					81			
			Lean CLAY (CL): low plasticity, light gray, dry, hard, iron oxide staining		BC=12 48 50/3" PP=4.5	15"								
4225														
	10		**Silty SAND (SM)**: fine sand, non-plastic, light brown, dry, very dense, iron oxide staining		BC=34 50/2"	8"								
4220														
	15													
4215														

The boring was terminated at approximately 10.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/25/2025

BORING LOG 24-P-06

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-12
PAGE: 1 of 1

BORING LOG 24-P-07

Date Begin - End:	1/23/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46181°
Longitude: -112.69179°
Approximate Ground Surface Elevation (ft.): 4,236
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4235	0		**Silty SAND with Gravel (SM)**: fine to medium sand, non-plastic, light brown, dry, very dense											
					BC=14 41 20	11"				70	17			
	5		**Lean CLAY (CL)**: low plasticity, light gray, moist, medium stiff, pinholes											
4230					BC=4 3 4 PP=1.75	16"								
			hard		PP=4.5	21"								
	10		**Silty SAND (SM)**: fine to medium sand, non-plastic, light gray, dry, very dense											
4225					BC=50/4"	3"								
	15													
4220														

The boring was terminated at approximately 10.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-P-07

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-13
PAGE: 1 of 1

BORING LOG 24-P-08

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46283°
Longitude: -112.69252°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brown, dry, dense											
					BC=4 11 22	13"								
4245	5		**SILT (ML)**: medium plasticity, light brown, moist, hard, iron oxide staining											
					BC=14 48 50/2" PP=4.5	14"								
					BC=16 50/5" PP=3.0	11"		29.4				45	16	
4240	10		**Silty SAND (SM)**: fine sand, non-plastic, light brown, moist, very dense											
					BC=23 50/5"	11"								
4235	15													

The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-P-08

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-14
PAGE: 1 of 1

BORING LOG 24-P-09

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46300°
Longitude: -112.69213°
Approximate Ground Surface Elevation (ft.): 4,259
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)
			Sandy SILT (ML): fine sand, non-plastic, light brown, dry, very stiff			
					BC=3 9 12	14"
4255						
	5		hard, iron oxide staining		BC=5 30 50/4"	16"
					BC=17 50/3"	9"
4250						
	10				BC=20 50/3"	9"
4245						
	15					
4240						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
				51			

The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-P-09

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-15
PAGE: 1 of 1

BORING LOG 24-P-10

Date Begin - End:	1/22/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46279°
Longitude: -112.69105°
Approximate Ground Surface Elevation (ft.): 4,269
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine to medium sand, non-plastic, light brown, dry, dense											
					BC=8 12 20	11"								
4265														
	5		**Elastic SILT (MH)**: high plasticity, light brown, dry, hard		BC=8 23 50/5" PP=4.5	17"								
			moist, iron oxide staining		BC=10 24 50 PP=4.5	18"						83	38	
4260														
	10				BC=12 26 50/5" PP=4.5	17"								
4255														
	15													
4250														

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 22, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-P-10

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-16
PAGE: 1 of 1

BORING LOG 24-P-11

Date Begin - End:	1/23/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46344°
Longitude: -112.69269°
Approximate Ground Surface Elevation (ft.): 4,260
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brown, moist, dense											
					BC=7 13 24	13"		24.2						
4255	5		very dense		BC=40 50/5"	8"								
			moist		BC=35 50/5"	11"								
4250	10		**Lean CLAY (CL)**: low plasticity, light brown, moist, hard		BC=21 50/3"	9"								
4245	15													

The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-P-11

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-17
PAGE: 1 of 1

BORING LOG 24-S-01

Date Begin - End:	1/27/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46338°
Longitude: -112.69337°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY with Sand (CL): low plasticity, light brownish gray, moist, hard											
					BC=9 18 20	15"		22.6						
4245	5				BC=17 25 50	18"					74			
					BC=75/4"	1"								
4240	10				BC=18 50/5" PP=4.5	11"								
			Sandy Elastic SILT (MH): high plasticity, light brownish gray, moist, hard											
4235	15				BC=21 64 75/3" PP=4.5	15"						59	27	
4230	20				BC=12 32 50/3" PP=3.5	15"								
4225	25		yellowish brown		BC=44 50/4" PP=4.0	10"								
			Silty SAND (SM): fine sand, non-plastic, light brownish gray, moist, very dense											
4220	30				BC=43 75/4"	10"								
4215	35													

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 27, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-01

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-18
PAGE: 1 of 1

BORING LOG 24-S-02

Date Begin - End:	1/27/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46305°
Longitude: -112.69363°
Approximate Ground Surface Elevation (ft.): 4,241
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4240	0		**Fat CLAY (CH)**: high plasticity, light brownish gray, moist, hard											
					BC=6 9 28	17"								
4235	5				BC=16 50/4" PP=4.5	10"		26.0						
					BC=13 23 50/4" PP=4.5	16"						60	30	
4230	10		light brown		BC=22 39 50/4"	16"								
4225	15				BC=40 50/2" PP=4.5	8"								
			Sandy Fat CLAY (CH): high plasticity, light brownish gray, moist, hard											
4220	20		light brown, iron oxide staining		BC=20 50/5" PP=4.5	11"					59			
4215	25				BC=50/5"	5"								
			Silty SAND (SM): non-plastic, light brownish gray, moist, very dense											
4210	30				BC=33 50/4" PP=1.75	10"								
4205	35													

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 27, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-02

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-19
PAGE: 1 of 1

BORING LOG 24-S-03

Date Begin - End:	1/24/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46277°
Longitude: -112.69340°
Approximate Ground Surface Elevation (ft.): 4,239
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4235	0		**Clayey SAND (SC)**: fine sand, high plasticity, light brown, moist, medium dense, pinholes		BC=8 9 18	12"								
	5		**Sandy Fat CLAY (CH)**: high plasticity, light brown, moist, hard		BC=16 39 50/3" PP=2.5	15"		35.4						
			Silty SAND (SM): fine sand, non-plastic, light gray, moist, very dense		BC=50/4"	4"								
4230	10		**Sandy Fat CLAY (CH)**: high plasticity, light gray, moist, hard		BC=24 57 75/3" PP=3.0	15"		35.7	72.6					UU Triaxial Test
4225	15				BC=17 50/4" PP=4.5	10"					63			
4220	20		**Fat CLAY (CH)**: high plasticity, light gray, moist, hard		BC=20 50/4" PP=4.5	10"								
4215	25		**Fat CLAY with Sand (CH)**: high plasticity, light gray, moist, hard		BC=25 50/1"	7"								
4210	30		**Fat CLAY (CH)**: high plasticity, greenish gray, moist, hard		BC=50 37 50/3"	15"								
4205	35													
4200														

The boring was terminated at approximately 31.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 24, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-03

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-20
PAGE: 1 of 1

BORING LOG 24-S-04

Date Begin - End:	1/24/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46306°
Longitude: -112.69336°
Approximate Ground Surface Elevation (ft.): 4,244
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Sandy Fat CLAY (CH): high plasticity, light brown, moist, very stiff											
4240					BC=6 7 11	13"								
	5		hard		BC=12 36 45 PP=4.0	18"		38.2				52	25	Corrosion Testing
			Fat CLAY (CH): high plasticity, light gray, moist, hard, 2" thick gravel lens		BC=50/5" PP=4.5	5"								
4235	10				BC=22 50/4" PP=4.5	10"								
			Sandy Fat CLAY (CH): high plasticity, light gray, moist, hard											
4230	15				BC=50/5" PP=4.5	5"								
4225	20		black staining		BC=16 38 50/3" PP=2.5	15"					54			
4220	25				BC=26 50/5" PP=4.5	11"								
4215	30		iron oxide staining		BC=18 50/5" PP=3.0	11"								
4210	35													
4205														

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 24, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-04

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-21
PAGE: 1 of 1

BORING LOG 24-S-05

Date Begin - End:	1/27/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 40.46310°
Longitude: -112.69310°
Approximate Ground Surface Elevation (ft.): 4,248
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4245	0		**Silty SAND (SM)**: fine to medium sand, non-plastic, olive brown, slightly moist, dense		BC=9 16 22	16"		18.4	81.6					
	5		very dense		BC=34 50/4"	9"					36			
4240			**Clayey SAND (SC)**: fine sand, low plasticity, light brownish gray, slightly moist, very dense		BC=11 75/4"	10"								
	10				BC=13 50/4"	9"								
4235			**Sandy Lean CLAY (CL)**: low plasticity, light brownish gray, slightly moist, hard											
	15				BC=75/4"	3"								
4230			**SILT (ML)**: non-plastic, light brownish gray, slightly moist, hard, trace fine to medium gravel											
	20				BC=30 50/3"	9"						NP	NP	
4225			**Lean CLAY (CL)**: low plasticity, light brownish gray, slightly moist, hard											
	25				BC=29 50/5" PP=4.5	10"								
4220			**Silty SAND (SM)**: fine sand, non-plastic, light brownish gray, slightly moist, very dense											
	30				BC=75/5"	5"								
4215														
	35													
4210														

The boring was terminated at approximately 30.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 27, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-05

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-22
PAGE: 1 of 1

BORING LOG 24-S-06

Date Begin - End:	1/27/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46308°
Longitude: -112.69288°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): medium plasticity, light brownish gray, slightly moist, very stiff		BC=4 8 16 PP=3.5	12"								Swell Test
4245	5		**Sandy Lean CLAY (CL)**: medium plasticity, light brownish gray, slightly moist, hard		BC=12 75/4"	10"								
			Lean CLAY (CL): medium plasticity, light brown, slightly moist, hard		BC=28 50/4" PP=4.5	10"						48	22	
4240	10		**Clayey SAND (SC)**: medium plasticity, light brownish gray, slightly moist, very dense		BC=19 75/5" PP=4.5	11"					38			
4235	15				BC=33 50/2"	8"								
			Lean CLAY with Sand (CL): medium plasticity, light brownish gray, slightly moist, hard, silt lenses 1/8" thick											
4230	20				BC=49 50/4"	10"								
			Sandy SILT (ML): non-plastic, light brownish gray, slightly moist, hard											
4225	25				BC=50/5"	5"								
4220	30				BC=50/5"	5"								
4215	35													

The boring was terminated at approximately 30.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 27, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/28/2025

BORING LOG 24-S-06

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-23
PAGE: 1 of 1

BORING LOG 24-S-07

Date Begin - End:	1/30/2025 - 1/31/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 32° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46325°
Longitude: -112.69255°
Approximate Ground Surface Elevation (ft.): 4,258
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): non-plastic, light brown, moist, dense											
4255					BC=4 14 25	10"								
			Lean CLAY with Sand (CL): low plasticity, light brown and gray, moist, hard, iron oxide staining											
	5				BC=9 19 48	18"		35.7			81			
4250					BC=25 50/3"	10"								
			Silty SAND (SM): fine sand, non-plastic, light brown and gray, moist, very dense											
	10				BC=50 50/3"	7"								
4245														
	15		medium plasticity		BC=15 49 50/4"	16"								
4240														
	20		iron oxide staining		BC=27 50/3"	9"						39	10	
4235														
	25				BC=50 50/4"	10"		21.9						
4230														

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-07

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-24
PAGE: 1 of 2

BORING LOG 24-S-07

Date Begin - End:	1/30/2025 - 1/31/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 32° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46325°
Longitude: -112.69255°
Approximate Ground Surface Elevation (ft.): 4,258
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4225	35		**Silty SAND (SM)**: fine sand, low plasticity, light brown and gray, moist, very dense		BC=50/4"	4"								
			non-plastic		BC=75/5"	5"								
4220			**Sandy SILT (ML)**: low plasticity, light brown and gray, moist, very dense											
4215	40				BC=28 50/4"	10"					57			
	45		non-plastic, wet		BC=17 38 50/4"	16"								
4210														
4205	50													
4200	55													

The boring was terminated at approximately 46.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 31, 2025.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 46 ft. below ground surface during drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-07

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-25
PAGE: 2 of 2

BORING LOG 24-S-08

Date Begin - End:	1/24/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46293°
Longitude: -112.69311°
Approximate Ground Surface Elevation (ft.): 4,245
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brown, slightly moist, very dense		BC=6 21 41	15"								
4240	5		**Sandy Fat CLAY (CH)**: high plasticity, light gray, slightly moist, hard		BC=40 50/5" PP=4.5	11"		21.9						
			Silty SAND (SM): fine sand, non-plastic, light brown, slightly moist, very dense		BC=15 45 50/2"	13"								
4235	10				BC=27 50/5"	11"								
			Sandy Fat CLAY (CH): high plasticity, light gray, slightly moist, hard, iron oxide staining											
4230	15				BC=14 38 50/2" PP=3.5	14"						54	26	
4225	20				BC=10 28 44 PP=4.0	18"					63			
			Silty SAND (SM): fine sand, non-plastic, light brown, slightly moist, very dense											
4220	25				BC=50/5"	5"								
			Fat CLAY with Sand (CH): high plasticity, light gray, slightly moist, hard											
4215	30				BC=15 34 50/3" PP=4.5	15"								
4210	35													

The boring was terminated at approximately 31.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 24, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/29/2025

BORING LOG 24-S-08

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-26
PAGE: 1 of 1

BORING LOG 24-S-09

Date Begin - End:	1/31/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 32° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46281°
Longitude: -112.69272°
Approximate Ground Surface Elevation (ft.): 4,247
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Clayey SAND (SC): fine to coarse sand, high plasticity, light brown and gray, moist, medium dense											
4245					BC=7 11 15	11"								
	5		**Sandy Fat CLAY (CH)**: high plasticity, light brown and gray, moist, hard, iron oxide staining, fine sand		BC=15 27 50/5" PP=4.5	17"		35.8						
4240			**SILT with Sand (ML)**: non-plastic, light brown and gray, moist, hard		BC=32 50/3"	9"								
	10				BC=22 50/4"	10"					76			
4235			**Silty SAND (SM)**: fine to coarse sand, non-plastic, light brown and gray, moist, very dense, trace fine to coarse gravel											
	15				BC=50/4"	4"								
4230			**Sandy Fat CLAY (CH)**: high plasticity, light brown and gray, moist, hard											
	20				BC=26 50/5" PP=4.5	11"								
4225														
	25		black staining		BC=17 31 50/2" PP=4.5	14"						53	25	
4220														

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-09

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX

B-27

BORING LOG 24-S-09

Date Begin - End:	1/31/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 32° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46281°
Longitude: -112.69272°
Approximate Ground Surface Elevation (ft.): 4,247
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4215			**Sandy Fat CLAY (CH)**: high plasticity, light brown and gray, moist, hard		BC=50/5"	5"								
	35				BC=17 50/5" PP=2	11"					63			
4210														
	40				BC=62 75/3"	NR								
4205			**Silty SAND (SM)**: fine sand, non-plastic, light brown and gray, wet, very dense											
	45				BC=35 50/5"	11"								
4200			**Sandy Fat CLAY (CH)**: high plasticity, brown and yellow, wet, hard											
	50				BC=27 29 50/5"	15"		39.9						
4195					BC=29 50/5" PP=4.5	11"								
	55													
4190														

The boring was terminated at approximately 54 ft. below ground surface. The boring was backfilled with auger cuttings on January 31, 2025.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 38.5 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 43.5 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-09

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-28
PAGE: 2 of 2

BORING LOG 24-S-10

Date Begin - End:	1/23/2025 - 1/24/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46262°
Longitude: -112.69296°
Approximate Ground Surface Elevation (ft.): 4,240
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Fat CLAY with Sand (CH): fine sand, high plasticity, light brown, moist, hard											
					BC=4 17 24	15"						61	36	
4235	5		iron oxide staining		BC=11 34 50/3" PP=4.5	15"								
					BC=21 44 50/4" PP=4.5	16"					74			
4230	10		**Clayey SAND (SC)**: fine sand, low plasticity, light brown, moist, very dense, iron oxide staining		BC=17 50/5"	10"								
			Sandy Lean CLAY (CL): low plasticity, light brown, moist, hard											
4225	15				BC=23 38 50/5" PP=3.25	17"								
			SILT with Sand (ML): medium plasticity, light brown, moist, hard											
4220	20				BC=14 34 50 PP=3.0	18"						44	12	
4215	25				BC=20 27 34 PP=2.5	18"		36.8						
			Clayey SAND (SC): low plasticity, light brown, moist, dense, 2" thick sand lens											
4210	30				BC=10 14 22 PP=2.0	18"								
4205	35													

The boring was terminated at approximately 31.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/29/2025

BORING LOG 24-S-10

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-29
PAGE: 1 of 1

BORING LOG 24-S-11

Date Begin - End:	1/23/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 25° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46253°
Longitude: -112.69351°
Approximate Ground Surface Elevation (ft.): 4,234
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, gray, moist, dense											
					BC=20 14 17	12"		7.4						
4230	5		very dense		BC=14 38 50/4"	13"								
			Fat CLAY (CH): high plasticity, light gray, moist, hard, iron oxide staining		BC=18 26 50/5" PP=4.5	17"						59	29	
4225	10		**Fat CLAY with Sand (CH)**: high plasticity, light gray, moist, hard		BC=20 47 50/4" PP=4.5	16"								
			Silty SAND (SM): fine sand, non-plastic, light brown, moist, very dense											
4220	15				BC=50/4"	4"								
4215	20				BC=30 50/5"	11"								
4210	25		**Fat CLAY with Sand (CH)**: high plasticity, light gray, moist, hard		BC=19 37 50/3" PP=4.5	15"					72			
			Sandy Fat CLAY (CH): high plasticity, light gray, moist, hard											
4205	30				BC=14 39 50/2" PP=4.5	14"								
4200	35													
4195														

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/29/2025

BORING LOG 24-S-11

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-30
PAGE: 1 of 1

BORING LOG 24-S-12

Date Begin - End:	1/23/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 30° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46240°
Longitude: -112.69317°
Approximate Ground Surface Elevation (ft.): 4,234
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4230			**Clayey SAND (SC)**: fine sand, high plasticity, light gray, moist, dense											Auger grinding
					BC=4 15 17	10"								
	5		**Fat CLAY with Sand (CH)**: high plasticity, greenish gray, moist, hard, iron oxide staining		BC=4 18 24 PP=1.75	18"		37.2				62	38	Swell Test
4225			**Silty SAND (SM)**: non-plastic, light gray, moist, very dense		BC=13 29 50/3" PP=4.5	15"								
	10		**Sandy Fat CLAY (CH)**: high plasticity, light gray, moist, hard, iron oxide staining		BC=35 44 50/2" PP=4.5	14"					51			
4220			**Silty SAND (SM)**: non-plastic, light gray, moist, very dense, trace fine to coarse gravel											
	15				BC=28 50/2" PP=4.5	8"								
4215														
	20				BC=50/3"	3"								
4210			**Sandy Elastic SILT (MH)**: high plasticity, brownish gray, moist, hard											
	25				BC=21 44 50/2" PP=4.5	14"						54	23	
4205														
	30				BC=21 48 50/4" PP=3.0	16"		38.7						
4200														
	35													
4195														

The boring was terminated at approximately 30.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 23, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/29/2025

BORING LOG 24-S-12

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-31
PAGE: 1 of 1

BORING LOG 24-S-13

Date Begin - End:	1/28/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46253°
Longitude: -112.69249°
Approximate Ground Surface Elevation (ft.): 4,243
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4240			**Silty SAND (SM)**: fine sand, non-plastic, light brownish gray, moist, very dense		BC=9 16 35	16"								
	5		**Clayey SAND (SC)**: low plasticity, light brownish gray, moist, very dense		BC=24 75/5" PP=4.5	11"		29.2	72.9					
4235			**Silty SAND (SM)**: fine sand, non-plastic, light brownish gray, moist, very dense		BC=30 50/4"	9"								
	10				BC=38 75/3"	9"					43			
4230														
	15		fine to medium sand		BC=50/4"	4"								
4225			**Sandy SILT (ML)**: medium plasticity, light brownish gray, moist, hard											
	20				BC=50/4"	4"						43	15	
4220			**Silty SAND (SM)**: fine to medium sand, non-plastic, light brownish gray, moist, very dense											
	25				BC=23 75/2"	8"								Direct Shear Test
4215														
	30				BC=50/3"	3"								
4210														
	35													
4205														

The boring was terminated at approximately 30.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 28, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-13

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-32
PAGE: 1 of 1

BORING LOG 24-S-14

Date Begin - End:	1/30/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 37° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46288°
Longitude: -112.69222°
Approximate Ground Surface Elevation (ft.): 4,255
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Sandy Lean CLAY (CL): low plasticity, light brown and gray, moist, hard, trace fine to coarse gravel		BC=9 19 31	11"								
4250	5		iron oxide staining		BC=11 24 46 PP=4.5	18"								
			Sandy SILT (ML): medium plasticity, light brown and gray, moist, hard, trace fine to coarse gravel		BC=50/3"	3"								
4245	10				BC=21 50/4"	10"						49	20	
4240	15				BC=23 50/4"	9"					61			
4235	20				BC=37 50/3"	18"								
			Clayey SAND (SC): fine sand, low plasticity, light brown and gray, moist, very dense											
4230	25		iron oxide staining		BC=19 50 50/2"	18"		34.8						
			Silty SAND (SM): fine sand, non-plastic, light brown and gray, moist, very dense											
4225	30				BC=31 50/3"	9"								
			Sandy Lean CLAY (CL): low plasticity, light brown and gray, moist, hard											

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 1/31/2025

BORING LOG 24-S-14

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-33
PAGE: 1 of 2

BORING LOG 24-S-14

Date Begin - End:	1/30/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 37° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46288°
Longitude: -112.69222°
Approximate Ground Surface Elevation (ft.): 4,255
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Sandy Lean CLAY (CL): low plasticity, light brown and gray, moist, hard		BC=18 50/1"	7"								
4215	40	iron oxide staining		BC=17 50/5" PP=2.0	11"					53			
		Silty SAND (SM): fine sand, non-plastic, light brown and gray, wet, very dense, iron oxide staining		BC=45 75/2" PP=2.5	8"								
4205	50			BC=50/3"	3"								
		Elastic SILT with Sand (MH): high plasticity, light brown and gray, moist, hard, fine sand											
4200	55			BC=44 75/3"	9"	MH				73	51	21	
		Silty SAND (SM): non-plastic, light brown and gray, wet, very dense											
4195	60			BC=25 50/5"	11"								
4190	65												

The boring was terminated at approximately 61 ft. below ground surface. The boring was backfilled with auger cuttings on January 30, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-14

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-34
PAGE: 2 of 2

BORING LOG 24-S-15

Date Begin - End:	1/29/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46280°
Longitude: -112.69171°
Approximate Ground Surface Elevation (ft.): 4,260
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): non-plastic, light brownish gray, moist, loose											Driller notes cobbles
					BC=4 4 6	10"								
4255	5		very dense		BC=19 37 50/5"	17"		5.5			27			
					BC=22 36 50	18"								
4250	10				BC=18 35 42	18"		6.9						
4245	15				BC=25 50/5"	11"								
			Sandy Lean CLAY (CL): medium plasticity, light brownish gray, moist, hard											
4240	20				BC=30 50/4"	10"						47	23	
			Silty SAND (SM): non-plastic, light brownish gray, moist, very dense											
4235	25				BC=50/5"	5"								
			Sandy Lean CLAY (CL): medium plasticity, light brownish gray, moist, hard											
4230	30				BC=16 50 50/3" PP=4.5	15"		28.3						
4225	35													

The boring was terminated at approximately 31.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 29, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-15

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-35
PAGE: 1 of 1

BORING LOG 24-S-16

Date Begin - End:	1/29/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46259°
Longitude: -112.69182°
Approximate Ground Surface Elevation (ft.): 4,253
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4250	0		**Silty SAND (SM)**: fine sand, non-plastic, light brown, moist, very dense, trace gravel											Driller notes cobbles
					BC=12 23 29	14"								
	5		light brownish gray		BC=18 35 48	18"				98	29			
4245					BC=22 38 49	15"								
	10				BC=18 44 50/5"	17"								
4240														
	15				BC=28 50/4"	9"								
4235														
	20				BC=20 50/5"	11"								
4230			**Sandy Lean CLAY (CL)**: low plasticity, light brownish gray, moist, hard											
	25				BC=13 21 45	18"					54			
4225														
	30				BC=27 50/3"	9"								
4220														

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 1/30/2025

BORING LOG 24-S-16

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-36
PAGE: 1 of 2

BORING LOG 24-S-16

Date Begin - End:	1/29/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46259°
Longitude: -112.69182°
Approximate Ground Surface Elevation (ft.): 4,253
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4215			**Lean CLAY with Sand (CL)**: medium plasticity, light brownish gray and yellowish brown, moist, hard		BC=14 45 50/4"	16"					75			
	40				BC=20 50/4" PP=4.25	10"		34.9						
4210														
	45		light brownish gray		BC=18 50/5" PP=3.5	11"								
4205														
	50				BC=32 50/5"	11"						48	22	
4200														
	55				BC=18 44 50/4" PP=3.0	16"								
4195			**Clayey SAND (SC)**: medium plasticity, light brownish gray, moist, very dense											
	60		fine sand laminations 1/8" thick		BC=30 50/5" PP=2.0	11"								
4190														
	65													
4185														

The boring was terminated at approximately 61 ft. below ground surface. The boring was backfilled with auger cuttings on January 29, 2025.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 45 ft. below ground surface after drilling completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-16

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-37
PAGE: 2 of 2

BORING LOG 24-S-17

Date Begin - End:	1/29/2025 - 1/30/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46258°
Longitude: -112.69205°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brown, dry, loose											
					BC=5 3 4	8"								
4245	5		**Clayey SAND (SC)**: fine sand, high plasticity, light brownish gray, dry, very dense, pinholes		BC=6 21 50/4"	16"								
			Sandy Fat CLAY (CH): high plasticity, light brownish gray, dry, hard		BC=19 38 50/3"	15"								
4240	10				BC=15 31 50/5" PP=4.5	17"						52	25	Corrosion Testing
			Silty SAND (SM): fine sand, non-plastic, light brownish gray, dry, very dense, iron oxide staining											
4235	15				BC=21 50/4"	10"								
4230	20				BC=50/5"	5"								
			Sandy Fat CLAY (CH): high plasticity, light gray, dry, hard											
4225	25				BC=14 35 50 PP=4.5	18"					61			

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-17

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX

B-38

PAGE: 1 of 2

BORING LOG 24-S-17

Date Begin - End:	1/29/2025 - 1/30/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46258°
Longitude: -112.69205°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Sandy Fat CLAY (CH): high plasticity, light gray, dry, hard		BC=7 18 31 PP=2.5	18"								
4215	35				BC=14 44 50 PP=4.5	18"								
			Silty SAND (SM): non-plastic, light gray, moist, very dense											
4210	40				BC=35 67 75/4"	16"		21.2	102.7					
			Sandy Fat CLAY (CH): high plasticity, bluish gray, moist, hard											
4205	45				BC=44 50/2" PP=4.5	8"								
4200	50													
4195	55													

The boring was terminated at approximately 45.5 ft. below ground surface. The boring was backfilled with auger cuttings on January 30, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/31/2025

BORING LOG 24-S-17

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-39
PAGE: 2 of 2

BORING LOG 24-S-18

Date Begin - End:	1/28/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Clear, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46226°
Longitude: -112.69204°
Approximate Ground Surface Elevation (ft.): 4,243
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brownish gray, dry, medium dense											
4240					BC=3 8 3	5"								
	5		pinholes		BC=2 7 15	15"		10.6						Driller notes cobbles
4235			light gray, very dense		BC=21 50/5"	11"								
	10				BC=19 50/5"	11"								
4230			**Sandy Fat CLAY (CH)**: high plasticity, light gray, dry, hard, iron oxide staining											
	15				BC=7 15 23	18"						63	35	
4225														
	20		mottled brown and gray		BC=21 41 50/2" PP=4.5	14"					59			
4220			**Silty SAND (SM)**: fine sand, non-plastic, light brownish gray, dry, very dense, iron oxide staining											
	25				BC=17 50/4"	10"								
4215			**Clayey SAND (SC)**: fine sand, high plasticity, gray and olive green, dry, very dense											
	30				BC=21 50/5" PP=3.0	11"								
4210														
	35													
4205														

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 28, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-18

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-40
PAGE: 1 of 1

BORING LOG 24-S-19

Date Begin - End:	2/03/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46207°
Longitude: -112.69177°
Approximate Ground Surface Elevation (ft.): 4,241
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4240			**Silty SAND (SM)**: fine sand, non-plastic, light brown, moist, medium dense											
					BC=9 13 16	13"								
	5		very dense		BC=8 30 60	18"		13.0	72.6		26			Direct Shear Test
4235			**Sandy SILT (ML)**: non-plastic, light brown and gray, moist, hard											
					BC=20 50/5" PP=3.5	11"								
	10				BC=20 55 75/3" PP=4.5	15"								
4230														
	15				BC=26 50/4" PP=4.5	10"								
4225			**SILT (ML)**: non-plastic, light brown and gray, moist, hard, trace sand											
	20				BC=40 75/4" PP=4.5	10"						NP	NP	
4220			**Lean CLAY (CL)**: low plasticity, light brown and gray, moist, hard, sand lenses 1/16 inch thick											
	25				BC=6 16 39 PP=3	18"								
4215			**Sandy SILT (ML)**: non-plastic, light gray, moist, hard											
	30				BC=16 55 75/4" PP=4.5	16"		36.4	76.8					
4210			**Silty SAND (SM)**: fine sand, non-plastic, olive gray, moist, very dense											
	35				BC=34 50/2"	8"								
4205														

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 2/3/2025

BORING LOG 24-S-19

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-41
PAGE: 1 of 2

BORING LOG 24-S-19

Date Begin - End:	2/03/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46207°
Longitude: -112.69177°
Approximate Ground Surface Elevation (ft.): 4,241
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4200			**Silty SAND (SM)**: fine sand, non-plastic, olive gray, moist, very dense		BC=34 75/4"	10"								
4195	45		wet		BC=29 46 50/5"	12"		46.4						
4190	50		moist		BC=47 70 75/3" PP=4.5	15"								
4185	55		**Sandy SILT (ML)**: non-plastic, olive gray, moist, hard		BC=45 31 50 PP=0.25	18"								
					BC=35 75/3"	9"								
4180	60													
4175	65													
4170	70													
4165	75													

The boring was terminated at approximately 59 ft. below ground surface. The boring was backfilled with auger cuttings on February 03, 2025.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 41 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/3/2025

BORING LOG 24-S-19

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-42
PAGE: 2 of 2

BORING LOG 24-S-20

Date Begin - End:	1/28/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46237°
Longitude: -112.69159°
Approximate Ground Surface Elevation (ft.): 4,250
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Silty SAND (SM): fine sand, non-plastic, light brown, dry, dense											
					BC=4 6 23	NR 11"		7.3						Shelby tube refusal
4245	5		very dense		BC=20 50 50/4"	16"								
			light brown gray		BC=17 31 46	18"								
4240	10		light gray		BC=21 30 32	18"					24			
4235	15				BC=18 63 75/3"	15"								
4230	20				BC=22 36 50/5"	17"								
4225	25		**Lean CLAY (CL)**: low plasticity, light gray, dry, hard		BC=21 45 50/4" PP=1.25	16"								
4220	30				BC=18 49 50/2" PP=1.5	14"								
4215	35													

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 28, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-20

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-43
PAGE: 1 of 1

BORING LOG 24-S-21

Date Begin - End:	1/28/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Sunny, 35° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

Latitude: 41.46245°
Longitude: -112.69121°
Approximate Ground Surface Elevation (ft.): 4,257
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4255			**Silty SAND with Gravel (SM)**: fine to coarse sand, non-plastic, light brown and gray, moist, very dense, fine to coarse gravel											
					BC=30 50/5"	9"				67	22			
	5		**Sandy Fat CLAY (CH)**: high plasticity, light gray, moist, hard											
					BC=12 14 22	18"					66			
4250					BC=10 50/2" PP=2.5	8"								
	10				BC=22 33 50/5" PP=4.5	17"		35.4	79.2			50	23	Consolidation Test, UU Triaxial Test
4245														
	15				BC=25 39 50 PP=4.5	18"								
4240														
	20		iron oxide staining, trace fine to coarse gravel		BC=27 52 60 PP=4.5	18"								
4235														
	25				BC=20 33 48 PP=4.5	18"								
4230														
	30		**Silty SAND (SM)**: fine sand, non-plastic, light brown and gray, moist, very dense		BC=42 75/5"	11"								
4225														
	35													
4220														

The boring was terminated at approximately 31 ft. below ground surface. The boring was backfilled with auger cuttings on January 28, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	1/30/2025

BORING LOG 24-S-21

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-44
PAGE: 1 of 1

BORING LOG 24-S-22

Date Begin - End:	2/03/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46232°
Longitude: -112.69370°
Approximate Ground Surface Elevation (ft.): 4,231
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4230			**Poorly Graded SAND (SP)**: fine to coarse sand, light brown and gray, dry, medium dense, gravel lens 1" thick											
					BC=4 4 8	13"								
	5		**Silty SAND with Gravel (SM)**: fine to coarse sand, non-plastic, light brown and gray, dry, dense		BC=20 21 12	13"		7.0		69	16			
4225			**Sandy Lean CLAY (CL)**: fine to coarse sand, low plasticity, light brown and gray, dry, very stiff		BC=7 7 10 PP=3.0	16"								
	10		**Silty SAND (SM)**: non-plastic, light brown and gray, dry, very dense		BC=16 35 50	18"								
4220			**Sandy Lean CLAY (CL)**: medium plasticity, light brown and gray, moist, hard											
	15				BC=21 50/5" PP=1.0	11"						43	18	
4215			**SILT (ML)**: non-plastic, light brown and gray, moist, hard											
	20				BC=17 44 40	18"								
4210			**Sandy SILT (ML)**: non-plastic, light brown and gray, moist, hard											
	25		wet		BC=13 50 75/4"	16"								
4205			**Silty SAND (SM)**: fine sand, non-plastic, olive gray, wet, very dense											

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 2/3/2025

BORING LOG 24-S-22

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-45
PAGE: 1 of 2

BORING LOG 24-S-22

Date Begin - End:	2/03/2025	**Drilling Company:**	Davis Drilling		
Logged By:	C. Lundskog	**Drill Crew:**	Jeremy / Christian		
Hor. / Vert. Datum:	NAD83 - NAVD88	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	72.5%
Weather:	Overcast, 40° F	**Exploration Diameter:**	8 in. O.D.	**Hammer Cal. Date:**	1/31/2024

FIELD EXPLORATION

Latitude: 41.46232°
Longitude: -112.69370°
Approximate Ground Surface Elevation (ft.): 4,231
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Push Tube(PT)= psi Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
4200			**Silty SAND (SM)**: fine sand, non-plastic, olive gray, wet, very dense		BC=18 35 50/3"	15"								
			Sandy Elastic SILT (MH): high plasticity, light brown and gray, wet, hard, iron oxide staining											
4195	35				BC=40 75/4"	10"	MH				52	55	21	
4190	40				BC=31 50/4" PP=4.5	10"								
4185	45				BC=60 75/4"	10"								
4180	50													
4175	55													

The boring was terminated at approximately 46 ft. below ground surface. The boring was backfilled with auger cuttings on February 03, 2025.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 25 ft. below ground surface during drilling.
▼ Groundwater was observed at approximately 32 ft. below ground surface at the end of drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	24003588.001A
DRAWN BY:	EE
CHECKED BY:	JTP
DATE:	2/3/2025

BORING LOG 24-S-22

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
B-46
PAGE: 2 of 2

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

Appendix C

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

APPENDIX C

LABORATORY TEST RESULTS

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
24-P-01	5.0	LEAN CLAY (CL)	33.6								
24-P-02	5.0	SILTY SAND (SM)					48				
24-P-03	7.5	SILT WITH SAND (ML)					71				
24-P-04	5.0	SILTY SAND (SM)	6.0				16				
24-P-05	5.0	FAT CLAY						62	25	37	
24-P-06	5.0	LEAN CLAY WITH SAND (CL)					81				
24-P-07	2.5	SILTY SAND WITH GRAVEL (SM)			100	70	17				
24-P-08	7.5	SILT (ML)	29.4					45	29	16	
24-P-09	5.0	SANDY SILT (ML)					51				
24-P-10	7.5	ELASTIC SILT (MH)						83	45	38	
24-P-11	2.5	SILTY SAND (SM)	24.2								
24-S-01	2.5	LEAN CLAY WITH SAND (CL)	22.6								
24-S-01	5.0	LEAN CLAY WITH SAND (CL)					74				
24-S-01	15.0	SANDY ELASTIC SILT (MH)						59	32	27	
24-S-02	5.0	FAT CLAY (CH)	26.0								
24-S-02	7.5	FAT CLAY (CH)						60	30	30	
24-S-02	20.0	SANDY FAT CLAY (CH)					59				
24-S-03	5.0	SANDY FAT CLAY (CH)	35.4								
24-S-03	10.0	SANDY FAT CLAY (CH)	35.7	72.6							UU Triaxial Test
24-S-03	15.0	SANDY FAT CLAY (CH)					63				
24-S-04	5.0	SANDY FAT CLAY (CH)	38.2					52	27	25	Corrosion Testing
24-S-04	20.0	SANDY FAT CLAY (CH)					54				
24-S-05	2.5	SILTY SAND (SM)	18.4	81.6							
24-S-05	5.0	SILTY SAND (SM)					36				
24-S-05	20.0	SILT (ML)						NP	NP	NP	
24-S-06	2.5	LEAN CLAY (CL)									Swell Test
24-S-06	7.5	LEAN CLAY (CL)						48	26	22	
24-S-06	10.0	CLAYEY SAND (CL)					38				

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

LABORATORY TEST RESULT SUMMARY

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
24-S-07	5.0	LEAN CLAY WITH SAND (CL)	35.7				81				
24-S-07	20.0	SILTY SAND (SM)						39	29	10	
24-S-07	25.0	SILTY SAND (SM)	21.9								
24-S-07	40.0	SANDY SILT (ML)					57				
24-S-08	5.0	SANDY FAT CLAY (CH)	21.9								
24-S-08	15.0	SANDY FAT CLAY (CH)						54	28	26	
24-S-08	20.0	SANDY FAT CLAY (CH)					63				
24-S-09	5.0	SANDY FAT CLAY (CH)	35.8								
24-S-09	10.0	SILT WITH SAND (ML)					76				
24-S-09	25.0	SANDY FAT CLAY (CH)						53	28	25	
24-S-09	35.0	SANDY FAT CLAY (CH)					63				
24-S-09	50.0	SANDY FAT CLAY (CH)	39.9								
24-S-10	2.5	FAT CLAY WITH SAND (CH)						61	25	36	
24-S-10	7.5	FAT CLAY WITH SAND (CH)					74				
24-S-10	20.0	SILT WITH SAND (ML)						44	32	12	
24-S-10	25.0	SILT WITH SAND (ML)	36.8								
24-S-11	2.5	SILTY SAND (SM)	7.4								
24-S-11	7.5	FAT CLAY (CH)						59	30	29	
24-S-11	25.0	FAT CLAY WITH SAND (CH)					72				
24-S-12	5.0	FAT CLAY WITH SAND (CH)	37.2					62	24	38	Swell Test
24-S-12	10.0	SANDY FAT CLAY (CH)					51				
24-S-12	25.0	SANDY ELASTIC SILT (MH)						54	31	23	
24-S-12	30.0	SILTY SAND (SM)	38.7								
24-S-13	5.0	CLAYEY SAND (SC)	29.2	72.9							
24-S-13	10.0	SILTY SAND (SM)					43				
24-S-13	20.0	SANDY SILT (ML)						43	28	15	
24-S-13	25.0	SILTY SAND (SM)									Direct Shear Test

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

LABORATORY TEST RESULT SUMMARY

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-2

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
24-S-14	10.0	SANDY SILT (ML)						49	29	20	
24-S-14	15.0	SANDY SILT (ML)					61				
24-S-14	25.0	CLAYEY SAND (SC)	34.8								
24-S-14	40.0	SANDY LEAN CLAY (CL)					53				
24-S-14	55.0	ELASTIC SILT WITH SAND (MH)					73	51	30	21	
24-S-15	5.0	SILTY SAND (SM)	5.5				27				
24-S-15	10.0	SILTY SAND (SM)	6.9								
24-S-15	20.0	SANDY LEAN CLAY (CL)						47	24	23	
24-S-15	30.0	SANDY LEAN CLAY (CL)	28.3								
24-S-16	5.0	POORLY GRADED SAND WITH SILT (SP-SM)				98	29				
24-S-16	25.0	SANDY LEAN CLAY (CL)					54				
24-S-16	35.0	LEAN CLAY WITH SAND (CL)					75				
24-S-16	40.0	LEAN CLAY WITH SAND (CL)	34.9								
24-S-16	50.0	LEAN CLAY WITH SAND (CL)						48	26	22	
24-S-17	10.0	SANDY FAT CLAY (CH)						52	27	25	Corrosion Testing
24-S-17	25.0	SANDY FAT CLAY (CH)					61				
24-S-17	40.0	SILTY SAND (SM)	21.2	102.7							
24-S-18	5.0	SILTY SAND (SM)	10.6								
24-S-18	15.0	SANDY FAT CLAY (CH)						63	28	35	
24-S-18	20.0	SANDY FAT CLAY (CH)					59				
24-S-19	5.0	SILTY SAND (SM)	13.0	72.6			26				Direct Shear Test
24-S-19	20.0	SILT (ML)						NP	NP	NP	
24-S-19	30.0	SANDY SILT (ML)	36.4	76.8							
24-S-19	45.0	SILTY SAND (SM)	46.4								
24-S-20	2.5	SILTY SAND (SM)	7.3								
24-S-20	10.0	SILTY SAND (SM)					24				
24-S-21	2.5	SILTY SAND WITH GRAVEL (SM)			97	67	22				
24-S-21	5.0	SANDY FAT CLAY (CH)					66				

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

LABORATORY TEST RESULT SUMMARY

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-3

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
24-S-21	10.0	SANDY FAT CLAY (CH)	35.4	79.2				50	27	23	Consolidation Test, UU Triaxial Test
24-S-22	5.0	SILTY SAND WITH GRAVEL (SM)	7.0		97	69	16				
24-S-22	15.0	SANDY LEAN CLAY (CL)						43	25	18	
24-S-22	35.0	SANDY ELASTIC SILT (MH)					52	55	34	21	

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

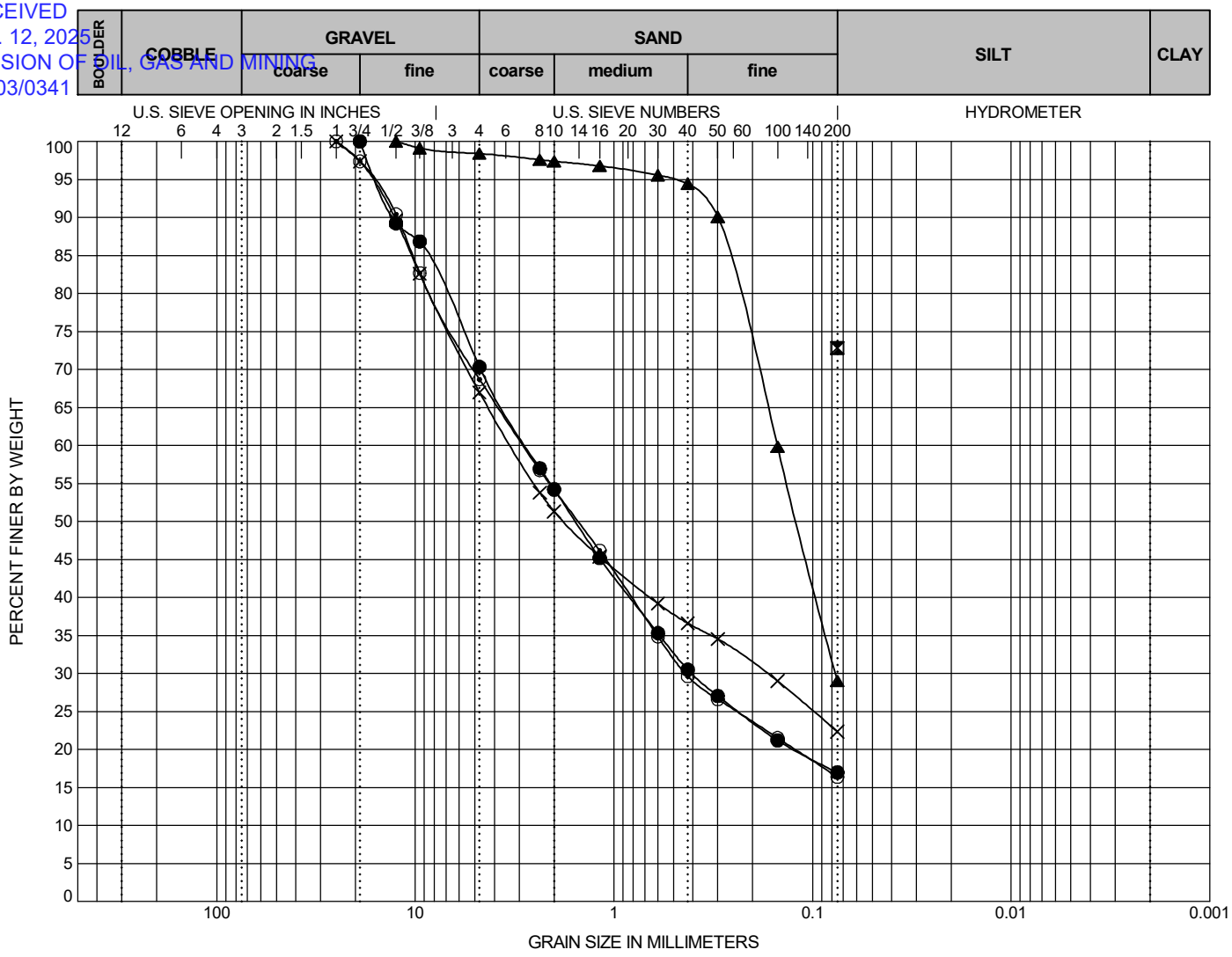
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

LABORATORY TEST RESULT SUMMARY

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-4



Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	24-P-07	2.5	SILTY SAND WITH GRAVEL (SM)	NM	NM	NM
⊠	24-S-14	55	ELASTIC SILT WITH SAND (MH)	51	30	21
▲	24-S-16	5	SILTY SAND (SM)	NM	NM	NM
×	24-S-21	2.5	SILTY SAND WITH GRAVEL (SM)	NM	NM	NM
⊙	24-S-22	5	SILTY SAND WITH GRAVEL (SM)	NM	NM	NM

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt*	%Clay*
●	24-P-07	2.5	19	2.763	0.405	NM	NM	NM	100	70	17	NM	NM
⊠	24-S-14	55	0.075	NM	NM	NM	NM	NM			73	NM	NM
▲	24-S-16	5	12.5	0.151	0.077	NM	NM	NM		98	29	NM	NM
×	24-S-21	2.5	25	3.283	0.17	NM	NM	NM	97	67	22	NM	NM
⊙	24-S-22	5	25	2.859	0.436	NM	NM	NM	97	69	16	NM	NM

*These numbers represent silt-sized and clay-sized content but may not indicate the percentage of the material with the engineering properties of silt or clay. Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D6913(Sieve Analysis) and ASTM D7928 (Hydrometer Analysis).
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

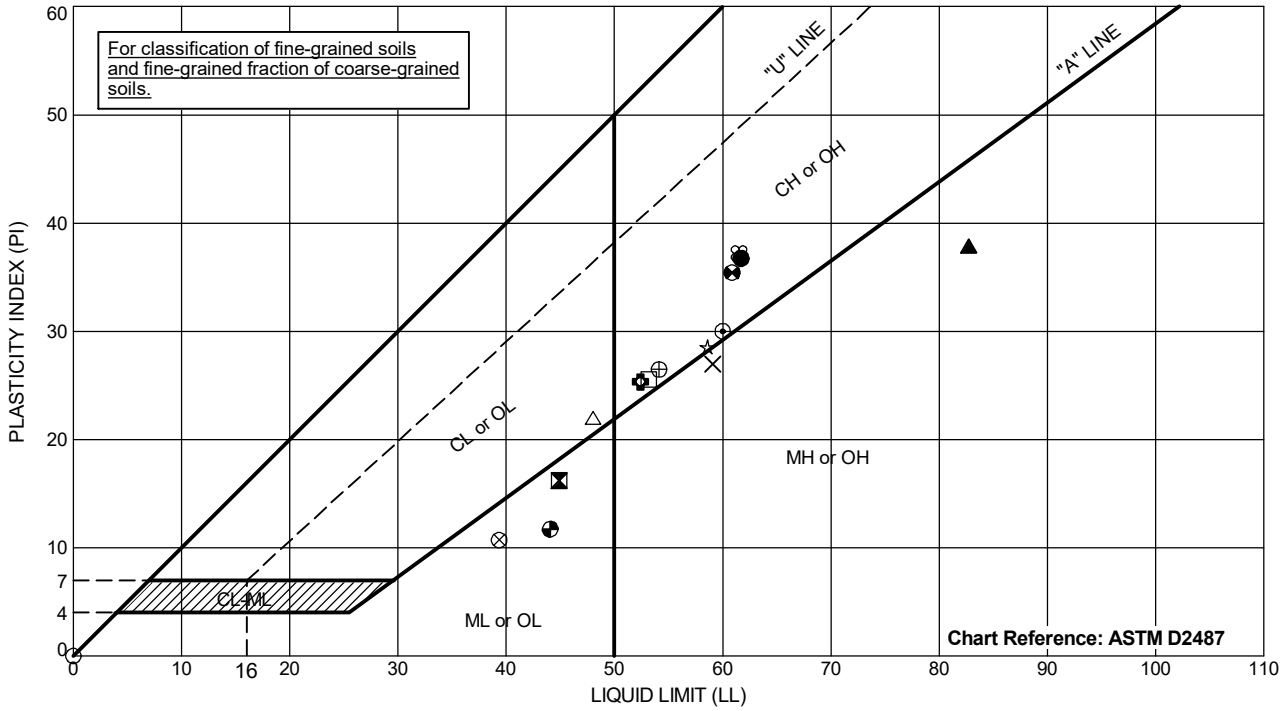
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

SIEVE ANALYSIS

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-5



Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	24-P-05	5	FAT CLAY	NM	62	25	37
⊠	24-P-08	7.5	SILT (ML)	NM	45	29	16
▲	24-P-10	7.5	ELASTIC SILT (MH)	NM	83	45	38
×	24-S-01	15	SANDY ELASTIC SILT (MH)	NM	59	32	27
⊙	24-S-02	7.5	FAT CLAY (CH)	NM	60	30	30
✿	24-S-04	5	SANDY FAT CLAY (CH)	NM	52	27	25
○	24-S-05	20	SILT (ML)	NM	NP	NP	NP
△	24-S-06	7.5	LEAN CLAY (CL)	NM	48	26	22
⊗	24-S-07	20	SILTY SAND (SM)	NM	39	29	10
⊕	24-S-08	15	SANDY FAT CLAY (CH)	NM	54	28	26
□	24-S-09	25	SANDY FAT CLAY (CH)	NM	53	28	25
◓	24-S-10	2.5	FAT CLAY WITH SAND (CH)	NM	61	25	36
◕	24-S-10	20	SILT WITH SAND (ML)	NM	44	32	12
☆	24-S-11	7.5	FAT CLAY (CH)	NM	59	30	29
⊠	24-S-12	5	FAT CLAY WITH SAND (CH)	NM	62	24	38

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

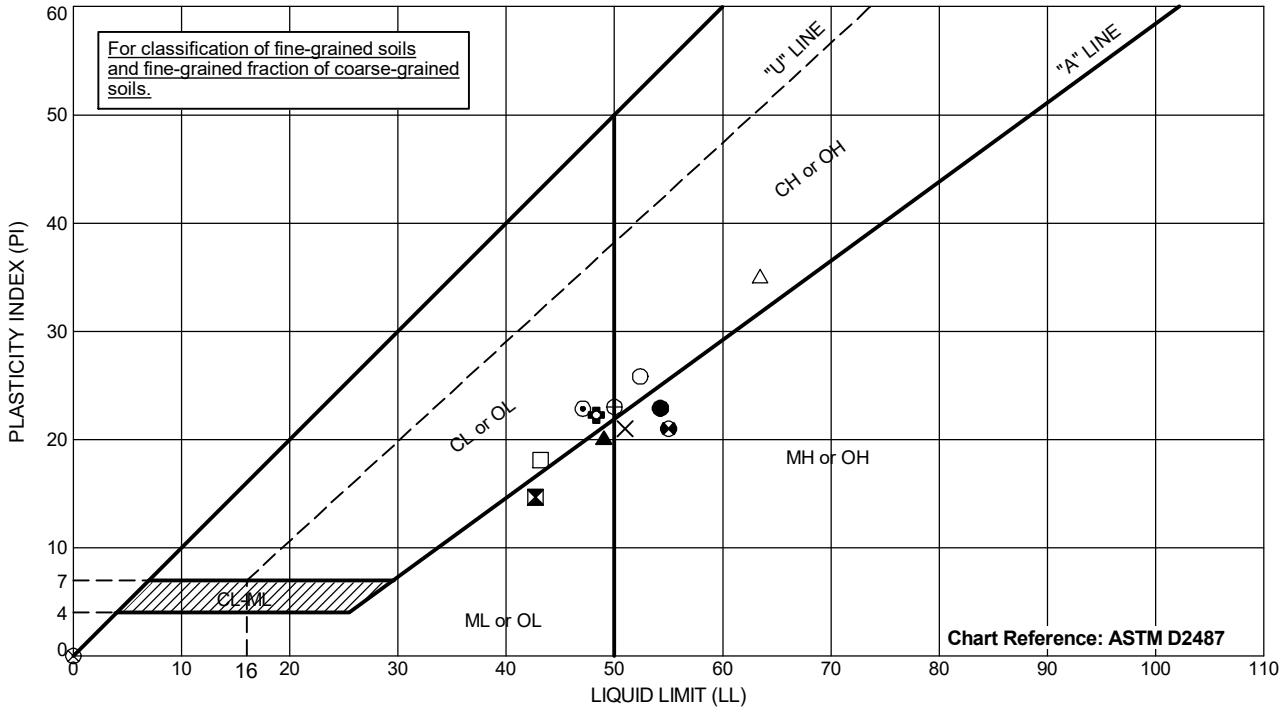
KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

ATTERBERG LIMITS

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-6



Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	24-S-12	25	SANDY ELASTIC SILT (MH)	NM	54	31	23
⊠	24-S-13	20	SANDY SILT (ML)	NM	43	28	15
▲	24-S-14	10	SANDY SILT (ML)	NM	49	29	20
×	24-S-14	55	ELASTIC SILT WITH SAND (MH)	73	51	30	21
⊙	24-S-15	20	SANDY LEAN CLAY (CL)	NM	47	24	23
✿	24-S-16	50	LEAN CLAY WITH SAND (CL)	NM	48	26	22
○	24-S-17	10	SANDY FAT CLAY (CH)	NM	52	27	25
△	24-S-18	15	SANDY FAT CLAY (CH)	NM	63	28	35
⊗	24-S-19	20	SILT (ML)	NM	NP	NP	NP
⊕	24-S-21	10	SANDY FAT CLAY (CH)	NM	50	27	23
□	24-S-22	15	SANDY LEAN CLAY (CL)	NM	43	25	18
⊠	24-S-22	35	SANDY ELASTIC SILT (MH)	52	55	34	21

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 24003588.001A
DRAWN BY: EE
CHECKED BY: JTP
DATE: 3/4/2025

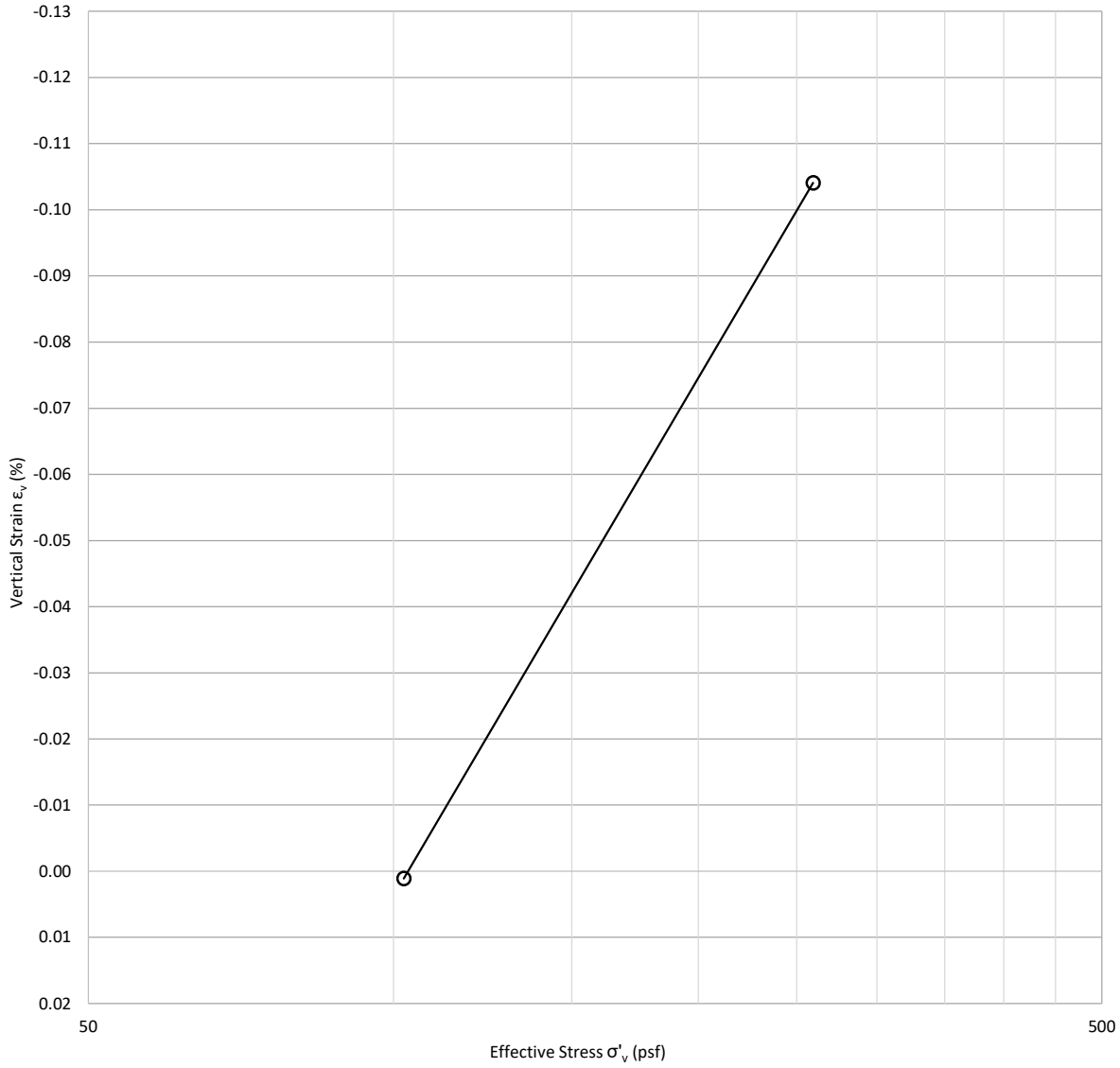
ATTERBERG LIMITS

GSL Project Commercial Facility
Box Elder County, UT

APPENDIX
C-7

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Load to Prevent Swell



Project and Sample Information

Project:	Lilac - Geotech Support at GSL
Project No.:	24003588.001A
Boring No.:	24-S-06
Sample Depth (ft):	2.5
Description:	Light Gray, Clayey Sand
Liquid Limit:	-
Plastic Limit:	-
Plasticity Index:	-

Specimen Properties

	Initial	Final
Height (in):	1.012	1.013
Diameter (in):	2.500	2.500
Water Content (%):	34.8%	35.5%
Dry Unit Weight (pcf):	84.4	84.3
Saturation (%):	96%	98%
Void Ratio:	0.96	0.96

Inundation Stress (psf): Seating (End of Load Step)
Specific Gravity, Gs: 2.70 (Assumed)

Stress (psf)	Dial (in)	1-D ε_v (%)	H (in)
Seating	0.000	0.00	1.012
259	-0.001	-0.10	1.013

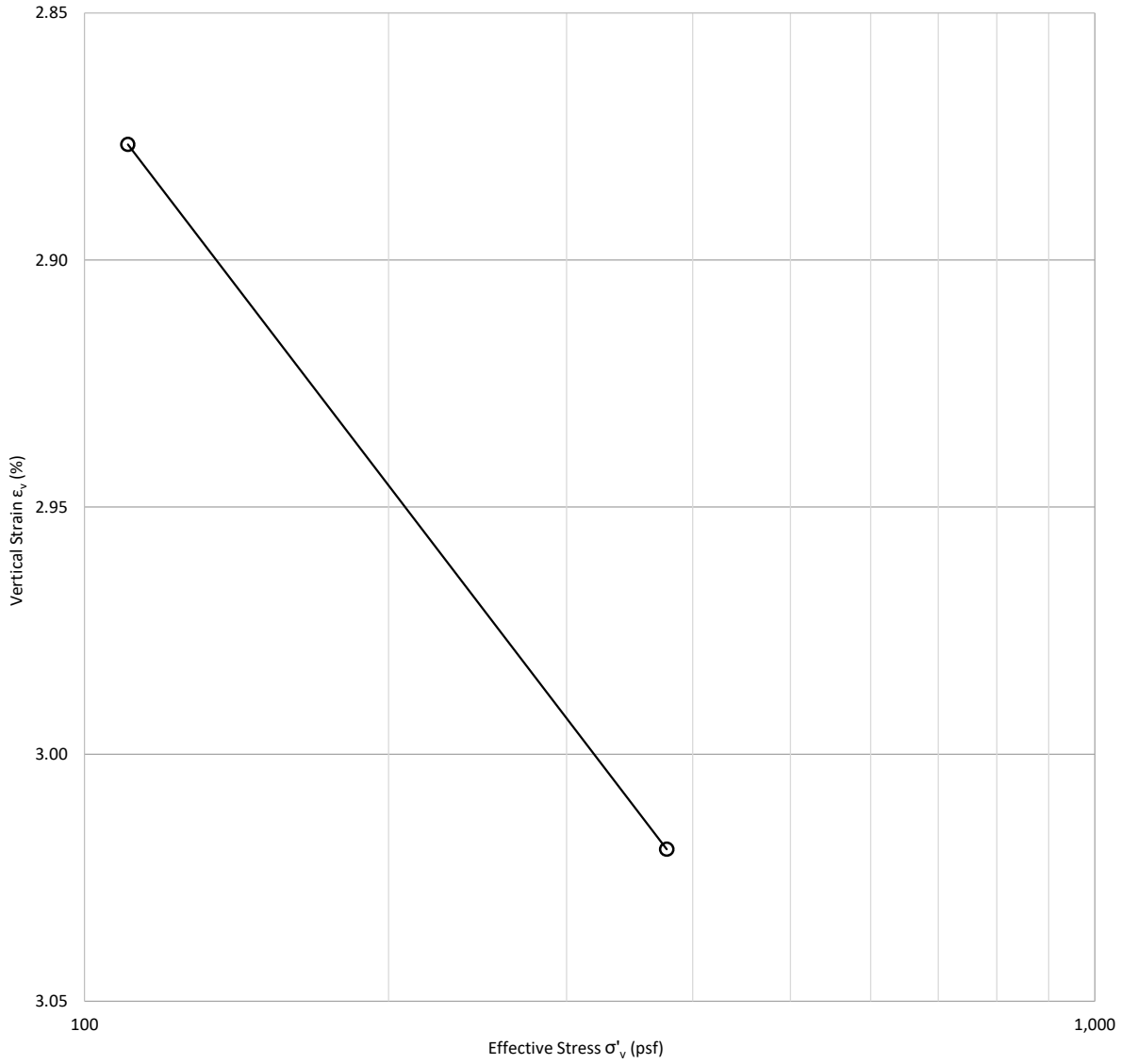
Remarks: Load to prevent swell is 259 psf. Specimen remolded to a total unit weight of 113 pcf at as-is water content.

KLEINFELDER
Bright People. Right Solutions.

CLIENT:	Lilac Solutions
TESTED BY:	JK
CHECKED BY:	JTP
DATE:	3/13/2025

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Load to Prevent Swell



Project and Sample Information

Project:	Lilac - Geotech Support at GSL
Project No.:	24003588.001A
Boring No.:	24-S-12
Sample Depth (ft):	5
Description:	Light Gray, Fat Clay
Liquid Limit:	62
Plastic Limit:	24
Plasticity Index:	38

Specimen Properties

	Initial	Final
Height (in):	1.027	0.996
Diameter (in):	2.500	2.500
Water Content (%):	34.4%	35.8%
Dry Unit Weight (pcf):	83.1	85.7
Saturation (%):	92%	100%
Void Ratio:	0.99	0.93

Inundation Stress (psf): Seating (End of Load Step)
Specific Gravity, Gs: 2.70 (Assumed)

Stress (psf)	Dial (in)	1-D ε_v (%)	H (in)
Seating	0.030	2.88	0.997
377	0.031	3.02	0.996

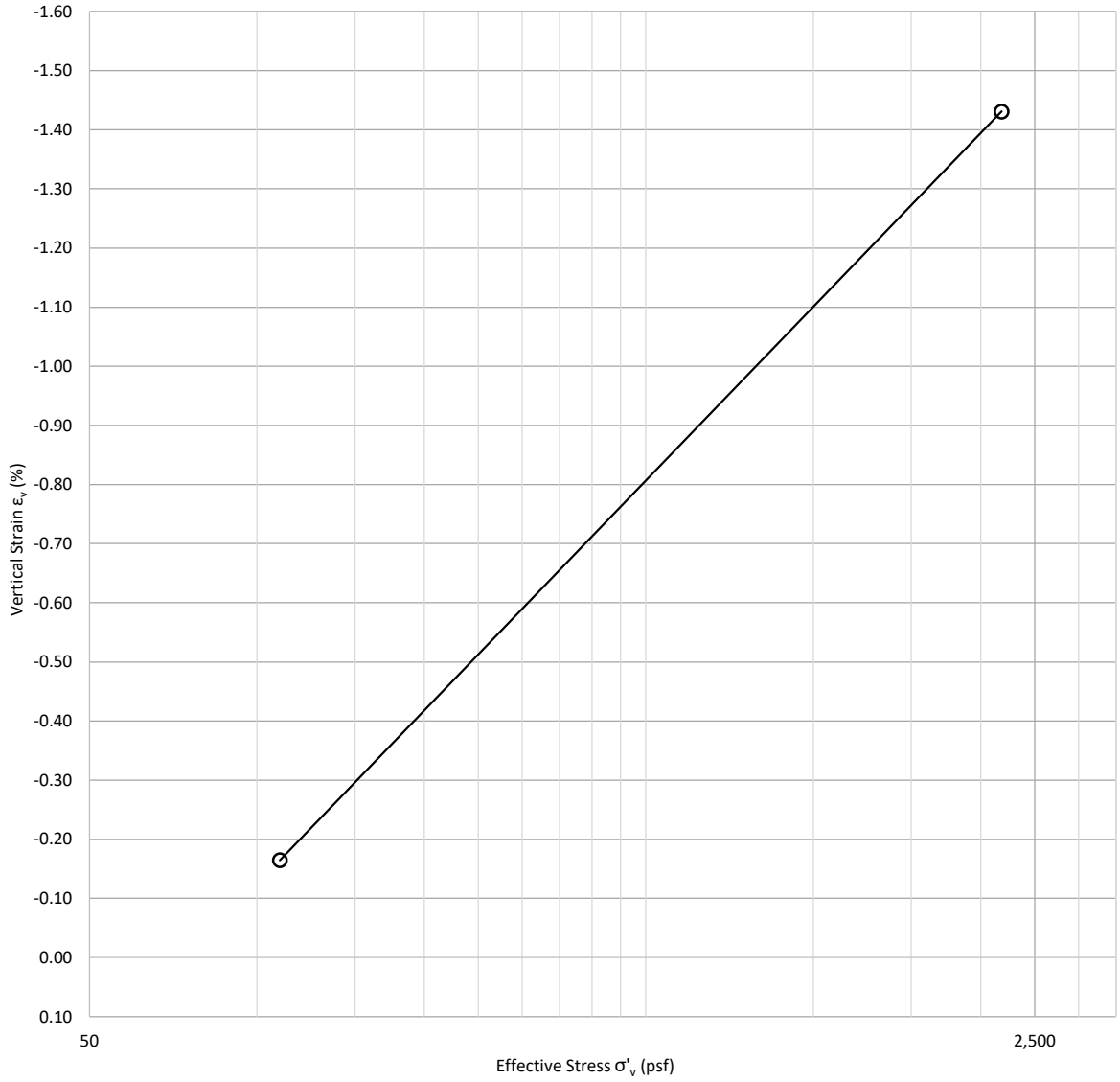
Remarks: Load to prevent swell is 377 psf. Specimen remolded to a total unit weight of 110 pcf at as-is water content.

KLEINFELDER
Bright People. Right Solutions.

CLIENT:	Lilac Solutions
TESTED BY:	JK
CHECKED BY:	JTP
DATE:	3/12/2025

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Load to Prevent Swell



Project and Sample Information

Project:	Lilac - Geotech Support at GSL
Project No.:	24003588.001A
Boring No.:	24-S-12
Sample Depth (ft):	5
Description:	Light Gray, Fat Clay
Liquid Limit:	62
Plastic Limit:	24
Plasticity Index:	38

Remarks: Load to prevent swell is 2,180 psf. Specimen was air dried for 48 hours and remolded to a total unit weight of 84 pcf.

Specimen Properties

	Initial	Final
Height (in):	0.999	1.013
Diameter (in):	2.500	2.500
Water Content (%):	3.0%	40.8%
Dry Unit Weight (pcf):	78.4	77.3
Saturation (%):	7%	95%
Void Ratio:	1.11	1.14

Inundation Stress (psf): Seating (End of Load Step)
Specific Gravity, Gs: 2.70 (Assumed)

Stress (psf)	Dial (in)	1-D ε_v (%)	H (in)
Seating	-0.002	-0.16	1.001
2180	-0.014	-1.43	1.013

KLEINFELDER
Bright People. Right Solutions.

CLIENT:	Lilac Solutions
TESTED BY:	JK
CHECKED BY:	JTP
DATE:	3/14/2025

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

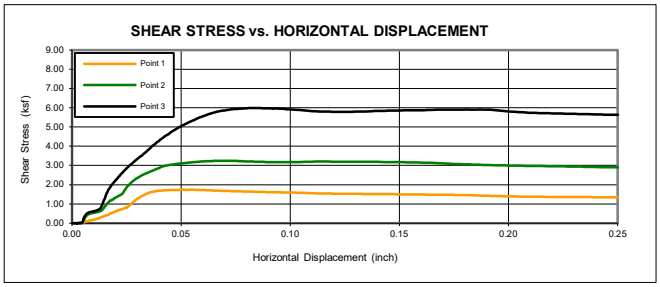
KLEINFELDER
Bright People. Right Solutions.

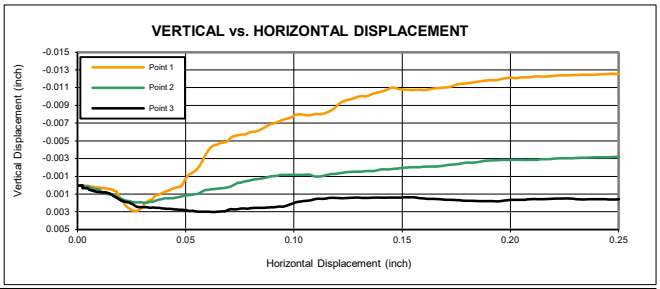
PROJECT:	Lilac - Geotech Support at GSL	**JOB NO:**	24003588.001A
LOCATION:	24-S-13 @ 25'	**PO NUMBER:**	-
MATERIAL:	Light Gray, Clayey Sand	**LAB NO:**	25-SLC-00190
SAMPLE SOURCE:	SPT	**DATE SAMPLED:**	-
SAMPLE PREP.:	Remolded to 117 pcf at In-Situ Moisture Content of 25.2%		

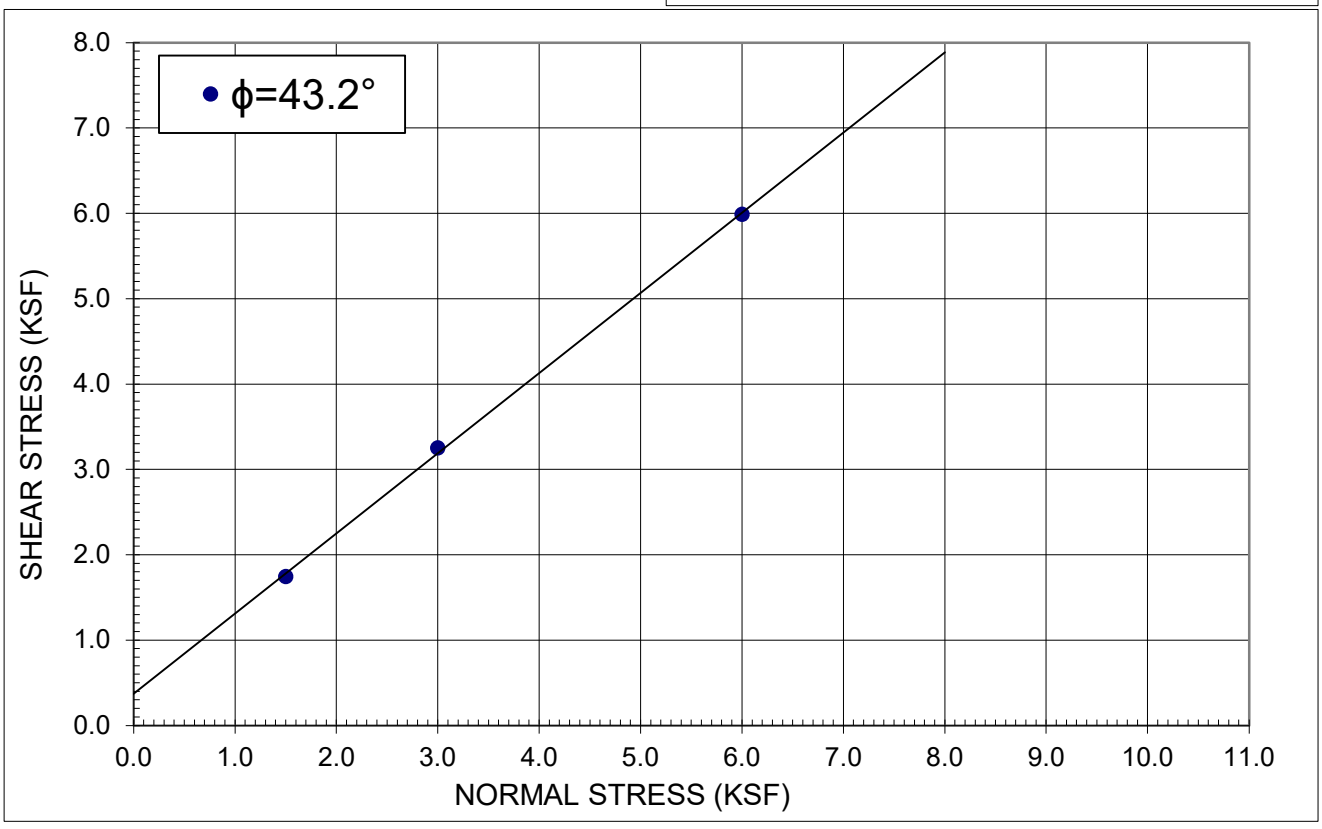
DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS (ASTM D3080)

Initial thickness of specimen (in.):	1.00	1.00	1.00
Initial diameter of specimen (in.):	2.50	2.50	2.50
Rate of deformation (in/min):	0.0025	0.0025	0.0025
Direct shear point:	1	2	3
Dry mass of specimen (g):	120.6	120.1	121.3
Initial Moisture Content:	25.0%	24.8%	25.2%
Initial Wet Density (pcf):	116.9	116.3	117.8
Initial Dry Density (psf):	93.5	93.2	94.1
Final Moisture Content:	31.5%	30.5%	29.4%
Final Wet Density (pcf):	123.2	121.6	121.5
Final Dry Density (pcf):	93.7	93.3	94.2
Normal Stress (ksf):	1.50	3.00	6.00
Max Shearing Stress (ksf):	1.74	3.25	5.99
Vert Deformation @ Max Shear (in):	-0.002	0.000	0.003
Horiz Deformation @ Max Shear (in):	0.054	0.071	0.085

Shearing device used:







RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

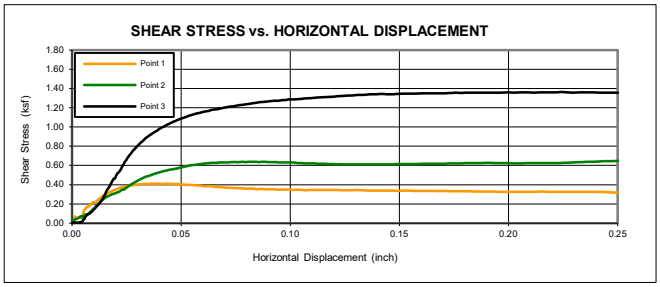
PROJECT:	Lilac - Geotech Support at GSL	**JOB NO:**	24003588.001A
LOCATION:	24-S-19 @ 5'	**PO NUMBER:**	-
MATERIAL:	Light Gray, Silty Sand	**LAB NO:**	25-SLC-00190
SAMPLE SOURCE:	Ring	**DATE SAMPLED:**	-
SAMPLE PREP.:	Remolded to In-Situ Density and Moisture Content - 82.0 pcf at 13.0%		

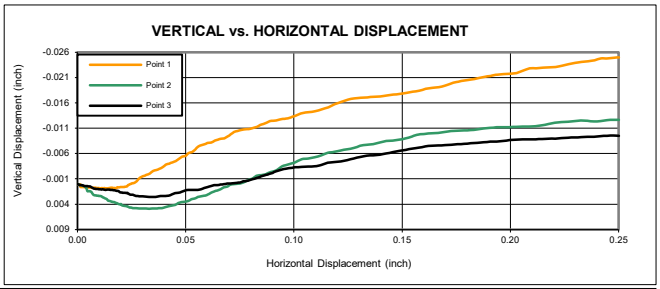
DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS (ASTM D3080)

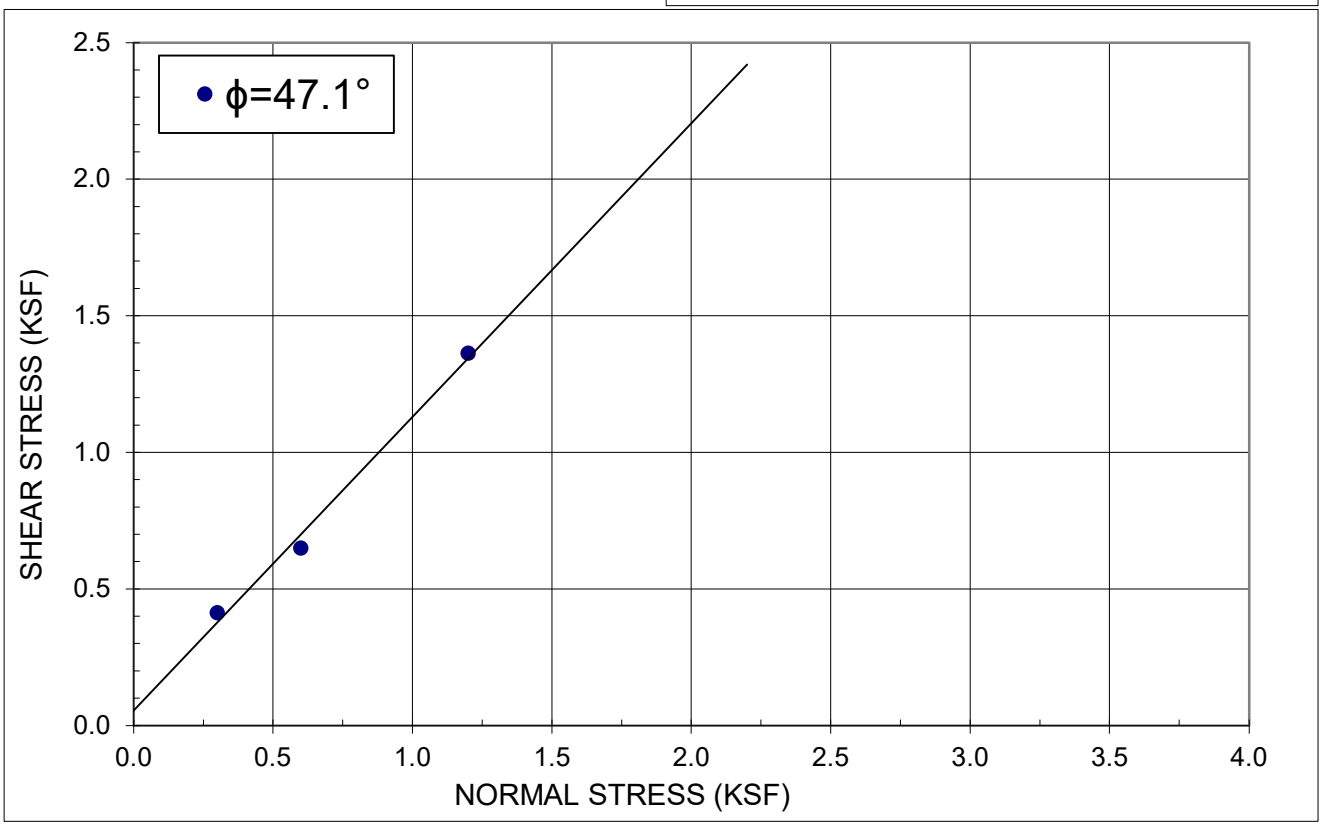
Initial thickness of specimen (in.):	1.00	1.00	1.00
Initial diameter of specimen (in.):	2.50	2.50	2.50
Rate of deformation (in/min):	0.0003	0.0003	0.0003
Direct shear point:	1	2	3
Dry mass of specimen (g):	92.5	92.5	93.1
Initial Moisture Content:	14.1%	13.9%	13.9%
Initial Wet Density (pcf):	81.9	81.7	82.3
Initial Dry Density (psf):	71.8	71.7	72.2
Final Moisture Content:	41.0%	40.1%	37.7%
Final Wet Density (pcf):	101.4	101.8	100.4
Final Dry Density (pcf):	72.0	71.9	72.4
Normal Stress (ksf):	0.30	0.60	1.20
Max Shearing Stress (ksf):	0.41	0.65	1.36
Vert Deformation @ Max Shear (in):	-0.003	-0.013	-0.009
Horiz Deformation @ Max Shear (in):	0.036	0.250	0.224

Shearing device used:

Created by DigiShear Version 3.1.3; Copyright 2004, GEOTAC







Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

Project: Kleinfelder
No: M00194-164 (24003588.1A)
Location: Lilac - GSL
Date: 3/6/2025
By: BRR
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: 24-S-21
Sample: A
Depth: 10'
Description: Light brown fat clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

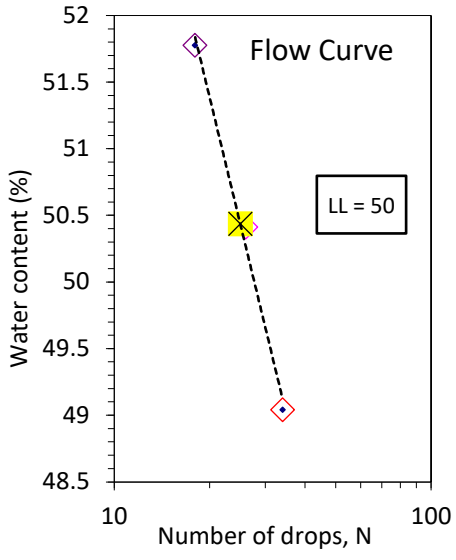
Plastic Limit

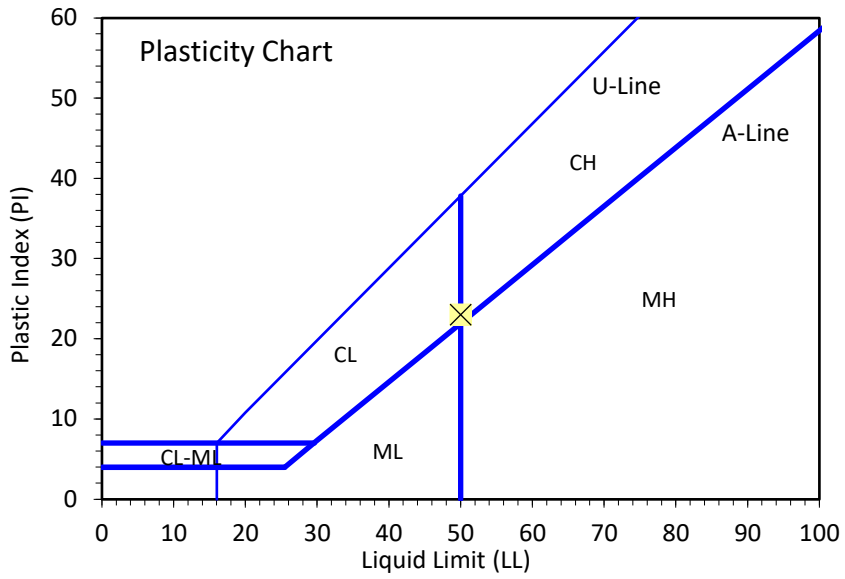
Determination No	1	2				
Wet Soil + Tare (g)	13.28	14.85				
Dry Soil + Tare (g)	11.98	13.30				
Water Loss (g)	1.30	1.55				
Tare (g)	7.08	7.47				
Dry Soil (g)	4.90	5.83				
Water Content, w (%)	26.53	26.59				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	34	26	18			
Wet Soil + Tare (g)	12.53	12.92	13.41			
Dry Soil + Tare (g)	10.74	11.09	11.37			
Water Loss (g)	1.79	1.83	2.04			
Tare (g)	7.09	7.46	7.43			
Dry Soil (g)	3.65	3.63	3.94			
Water Content, w (%)	49.04	50.41	51.78			
One-Point LL (%)		51				

Liquid Limit, LL (%)	**50**
Plastic Limit, PL (%)	**27**
Plasticity Index, PI (%)	**23**





Entered by:_____
Reviewed:_____

One-Dimensional Consolidation Properties of Soils

(ASTM D2435)

Project: Kleinfelder
No: M00194-164 (24003588.1A)
Location: Lilac - GSL
Date: 3/4/2025
By: CJ

Boring No.: 24-S-21
Sample: B
Depth: 10-11.5'
Sample Description: Light brown clay
Engineering Classification: Not requested
Sample type: Undisturbed-trimmed from thin-wall

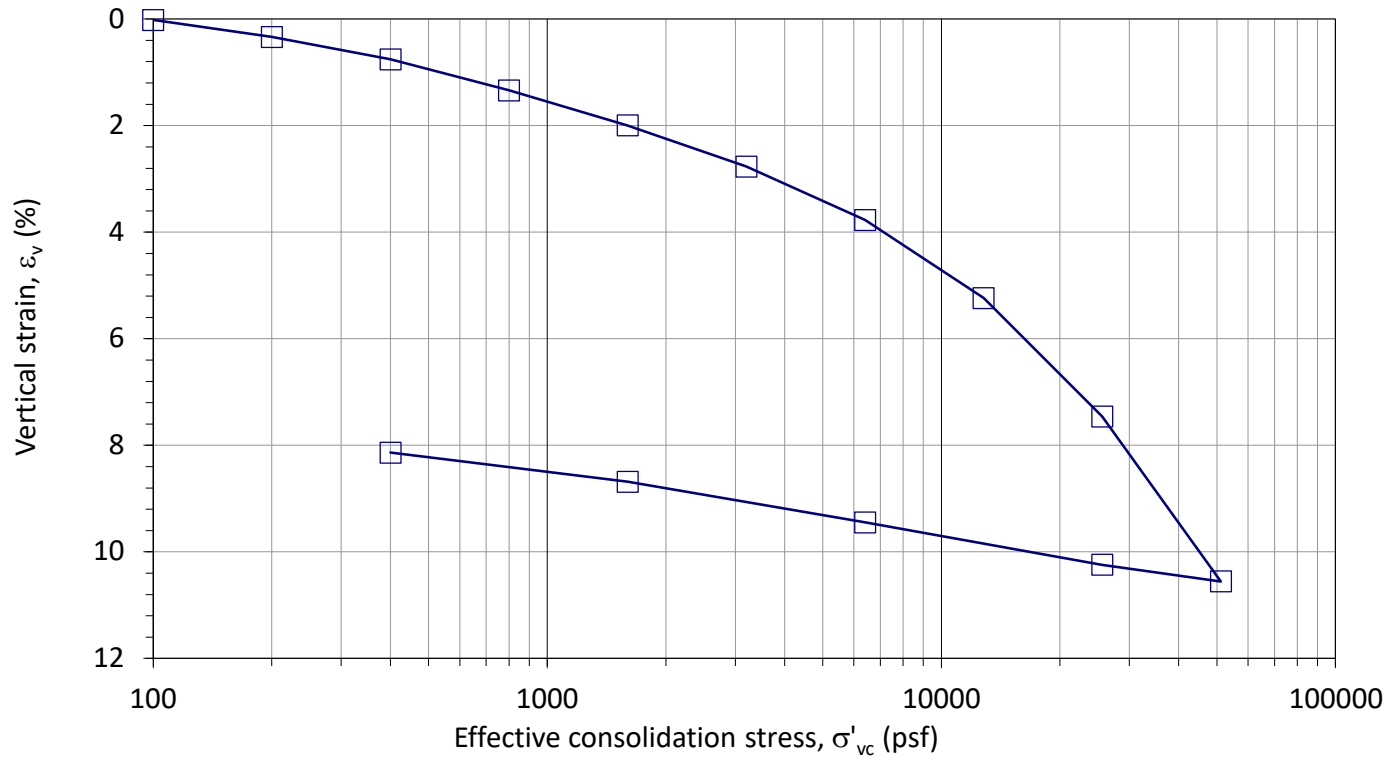
Test method:	A	
Inundation stress (psf), timing:	100	Beginning
Specific gravity, G_s	2.70	Assumed

Water type used for inundation Tap

	Initial (o)	Final (f)
Sample height, H (in.)	0.919	0.844
Sample diameter, D (in.)	2.412	2.412
Wt. rings + wet soil (g)	144.75	153.52
Wt. rings/tare (g)	45.09	45.09
Unit wt., γ (pcf)	90.4	107.08
Wet soil + tare (g)	265.17	248.21
Dry soil + tare (g)	226.22	211.38
Tare (g)	127.71	140.29
Water content, ω (%)	39.5	51.8
Dry unit wt., γ_d (pcf)	64.8	70.5
Saturation	0.67	1.00

*Note: C_v, C_c, C_r, and s_p' to be determined by Geotechnical Engineer.

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9190	1.6014
100	0.0002	0.02	0.9188	1.6009
200	0.0031	0.33	0.9159	1.5927
400	0.0070	0.76	0.9120	1.5817
800	0.0123	1.34	0.9067	1.5665
1600	0.0183	2.00	0.9007	1.5494
3200	0.0254	2.77	0.8936	1.5294
6400	0.0347	3.77	0.8844	1.5033
12800	0.0481	5.24	0.8709	1.4651
25600	0.0685	7.46	0.8505	1.4074
51200	0.0970	10.55	0.8220	1.3268
25600	0.0941	10.24	0.8249	1.3350
6400	0.0868	9.45	0.8322	1.3556
1600	0.0798	8.69	0.8392	1.3754
400	0.0748	8.14	0.8442	1.3897



Entered: _____
Reviewed: _____

Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

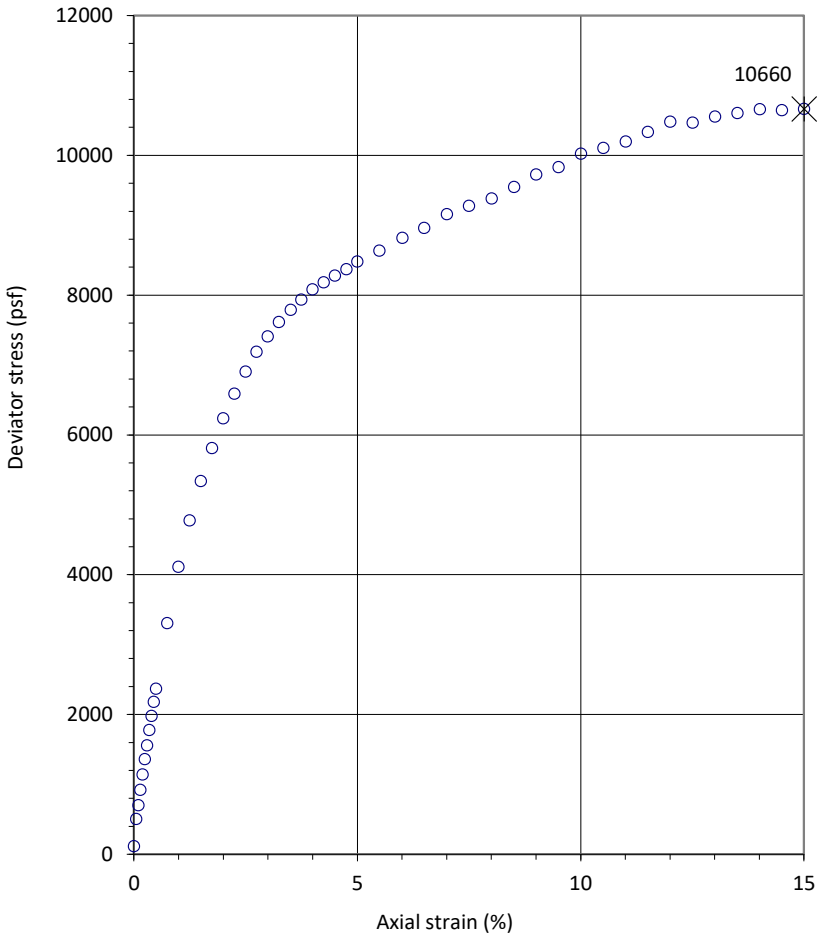
Project: Kleinfelder
No: M00194-164 (24003588.1A)
Location: Lilac - GSL
Date: 3/3/2025
By: RH

Boring No.: 24-S-03
Sample:
Depth: 10'
Sample Description: Light brown clay
Sample type: Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.926	
Sample diameter, D (in.)	2.389	
Sample volume, V (ft^3)	0.0154	
Wt. rings + wet soil (g)	793.00	
Wt. rings/tare (g)	105.90	
Moist soil, Ws (g)	687.10	
Moist unit wt., γ_m (pcf)	98.5	
Dry unit wt., γ_d (pcf)	**72.6**	
Saturation (%)	72.7	
Void ratio, *e*	1.32	

Wet soil + tare (g)	364.34
Dry soil + tare (g)	301.83
Tare (g)	126.64
Water content, w (%)	**35.7**
Confining stress, σ_3 (psf)	1191
Shear rate (in/min)	0.0178
Strain at failure, ε_f (%)	15.00
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf)	10660
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf)	5330

Axial Strain	σ_d $\sigma_1-\sigma_3$	Q 1/2 σ_d
0.00	112.1	56.0
0.05	499.3	249.7
0.10	695.8	347.9
0.15	915.1	457.6
0.20	1134.2	567.1
0.25	1355.3	677.6
0.30	1553.5	776.8
0.35	1771.9	886.0
0.40	1976.0	988.0
0.45	2175.7	1087.9
0.50	2362.1	1181.0
0.75	3304.0	1652.0
1.00	4108.7	2054.3
1.25	4772.6	2386.3
1.50	5333.7	2666.9
1.75	5808.0	2904.0
2.00	6233.4	3116.7
2.25	6584.4	3292.2
2.50	6900.2	3450.1
2.75	7183.7	3591.8
3.00	7402.0	3701.0
3.25	7610.3	3805.2
3.51	7783.5	3891.8
3.75	7929.4	3964.7
4.00	8078.4	4039.2
4.25	8175.5	4087.8
4.50	8274.4	4137.2
4.76	8364.5	4182.3
5.00	8475.0	4237.5
5.50	8629.1	4314.6
6.01	8811.7	4405.8
6.50	8957.1	4478.5
7.01	9153.5	4576.8
7.50	9270.9	4635.4
8.01	9378.9	4689.4
8.51	9542.8	4771.4
9.01	9718.8	4859.4
9.51	9826.9	4913.4
10.01	10020.0	5010.0
10.51	10099.4	5049.7
11.01	10190.9	5095.4
11.51	10328.3	5164.2
12.01	10476.5	5238.2
12.51	10461.8	5230.9
13.01	10548.7	5274.3
13.51	10599.0	5299.5
14.01	10652.2	5326.1
14.51	10640.4	5320.2
15.00	10660.2	5330.1



Entered by:_____

Reviewed:_____

Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

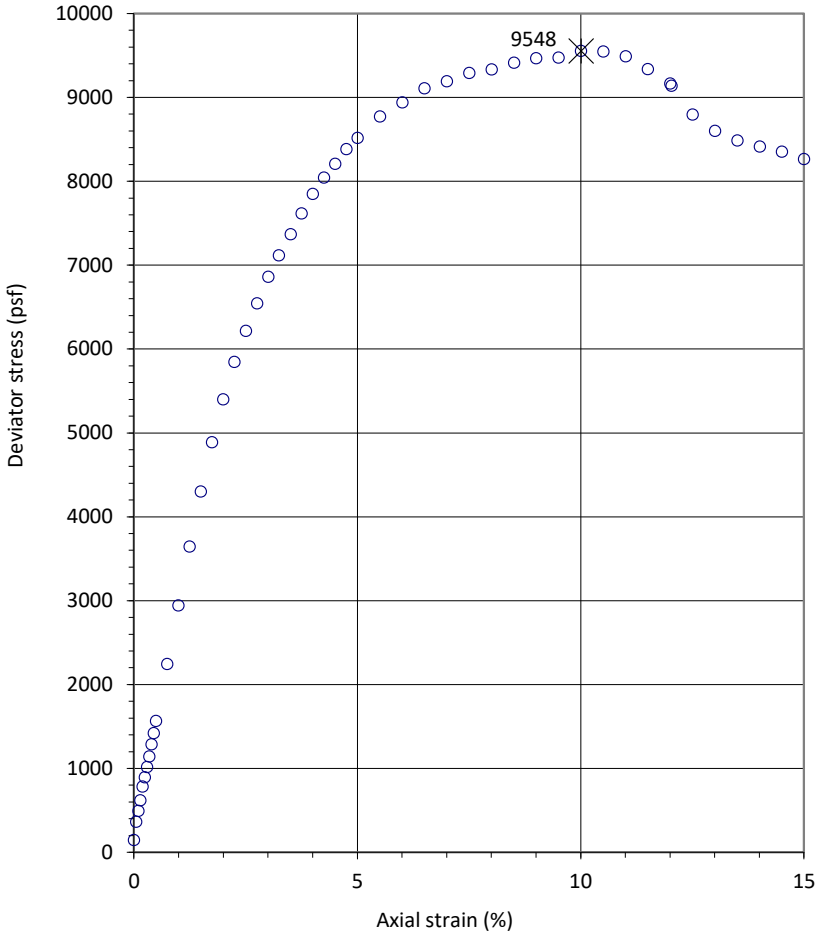
Project: Kleinfelder
No: M00194-164 (24003588.1A)
Location: Lilac - GSL
Date: 3/3/2025
By: RH

Boring No.: 24-S-21
Sample: A
Depth: 10'
Sample Description: Light brown clay
Sample type: Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.842	
Sample diameter, D (in.)	2.416	
Sample volume, V (ft^3)	0.0155	
Wt. rings + wet soil (g)	860.94	
Wt. rings/tare (g)	107.42	
Moist soil, Ws (g)	753.52	
Moist unit wt., γ_m (pcf)	107.2	
Dry unit wt., γ_d (pcf)	**79.2**	
Saturation (%)	84.3	
Void ratio, *e*	1.13	

Wet soil + tare (g)	325.16
Dry soil + tare (g)	272.48
Tare (g)	123.56
Water content, w (%)	**35.4**
Confining stress, σ_3 (psf)	1211
Shear rate (in/min)	0.0175
Strain at failure, ε_f (%)	10.01
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf)	9548
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf)	4774

Axial Strain	σ_d $\sigma_1-\sigma_3$	Q 1/2 σ_d
0.00	141.8	70.9
0.05	357.8	178.9
0.10	489.8	244.9
0.15	614.6	307.3
0.20	778.3	389.2
0.25	888.8	444.4
0.30	1011.2	505.6
0.35	1139.6	569.8
0.40	1281.7	640.9
0.45	1414.6	707.3
0.50	1561.1	780.6
0.75	2240.0	1120.0
1.00	2940.1	1470.0
1.25	3639.9	1819.9
1.50	4295.9	2148.0
1.75	4884.7	2442.4
2.00	5397.0	2698.5
2.25	5842.0	2921.0
2.51	6211.3	3105.7
2.76	6538.9	3269.5
3.01	6856.6	3428.3
3.25	7110.4	3555.2
3.51	7365.8	3682.9
3.76	7611.0	3805.5
4.01	7843.6	3921.8
4.26	8040.3	4020.2
4.51	8202.9	4101.4
4.76	8380.2	4190.1
5.01	8512.5	4256.3
5.51	8768.6	4384.3
6.01	8934.1	4467.0
6.51	9103.9	4552.0
7.01	9186.3	4593.1
7.51	9287.7	4643.9
8.01	9327.6	4663.8
8.51	9409.5	4704.8
9.01	9463.6	4731.8
9.51	9470.3	4735.2
10.01	9548.2	4774.1
10.51	9541.7	4770.9
11.01	9486.7	4743.4
11.51	9333.8	4666.9
12.01	9161.8	4580.9
12.04	9134.2	4567.1
12.51	8791.0	4395.5
13.01	8596.6	4298.3
13.51	8480.6	4240.3
14.01	8409.4	4204.7
14.51	8347.3	4173.6
15.00	8260.1	4130.0



Entered by:_____

Reviewed:_____

Z:\PROJECTS\M00194_Kleinfelder_SLC\164_Lilac-GSL\[UU_GTv2.xlsm]2

Chemtech-Ford Laboratories
Serving the Intermountain West Since 1953
9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com

Certificate of Analysis

Kleinfelder, Inc.
Joe Potter
849 West Levoy Drive Suite 200
Taylorsville, UT 84123-2544

PO#: **24003588.001A**
Receipt: **3/10/25 17:12 @ 24.2** °C
Date Reported: 3/20/2025
Project Name: **Lilac- Great Salt Lake Project- Program 3**

Sample ID: **24-S-04 @5'**
Matrix: **Solid**
Lab ID: **25C0666-01**
Date Sampled: **1/24/25 10:00**
Sampled By: **Joe Potter**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride, Soluble (IC)	6360	mg/kg dry	13	EPA 300.0	3/11/25	3/11/25	SPH
pH	8.6	pH Units	0.1	EPA 9045D	3/11/25 16:16	3/11/25 17:02	
Resistivity	ND	ohm m	1.0	SSSA 10-3.3	3/17/25	3/17/25	SPH
Sulfate, Soluble (IC)	1570	mg/kg dry	13	EPA 300.0	3/11/25	3/11/25	SPH
Total Solids	77.4	%	0.1	CTF8000	3/11/25	3/11/25	SPH

Chemtech-Ford Laboratories
Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com

Certificate of Analysis

Kleinfelder, Inc.
Joe Potter
849 West Levoy Drive Suite 200
Taylorsville, UT 84123-2544

PO#: **24003588.001A**
Receipt: **3/10/25 17:12 @ 24.2** °C
Date Reported: 3/20/2025
Project Name: **Lilac- Great Salt Lake Project- Program 3**

Sample ID: **24-S-17@10'**

Matrix: **Solid**
Lab ID: **25C0666-02**
Date Sampled: **1/29/25 11:00**
Sampled By: **Joe Potter**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride, Soluble (IC)	7240	mg/kg dry	127	EPA 300.0	3/12/25	3/12/25	SPH
pH	8.6	pH Units	0.1	EPA 9045D	3/11/25 16:16	3/11/25 17:04	
Resistivity	ND	ohm m	1.0	SSSA 10-3.3	3/17/25	3/17/25	SPH
Sulfate, Soluble (IC)	1920	mg/kg dry	13	EPA 300.0	3/11/25	3/11/25	SPH
Total Solids	78.9	%	0.1	CTF8000	3/11/25	3/11/25	SPH

Chemtech-Ford Laboratories
Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com

Certificate of Analysis

Kleinfelder, Inc.
Joe Potter
849 West Levoy Drive Suite 200
Taylorsville, UT 84123-2544

PO#: **24003588.001A**
Receipt: **3/10/25 17:12 @ 24.2** °C
Date Reported: 3/20/2025
Project Name: **Lilac- Great Salt Lake Project- Program 3**

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).
1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.
1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.
1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.
On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SPH = Sample submitted past method specified holding time.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

Appendix D

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

KLEINFELDER
Bright People. Right Solutions.

APPENDIX D

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #1 Base Map

RECEIVED
NOV. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

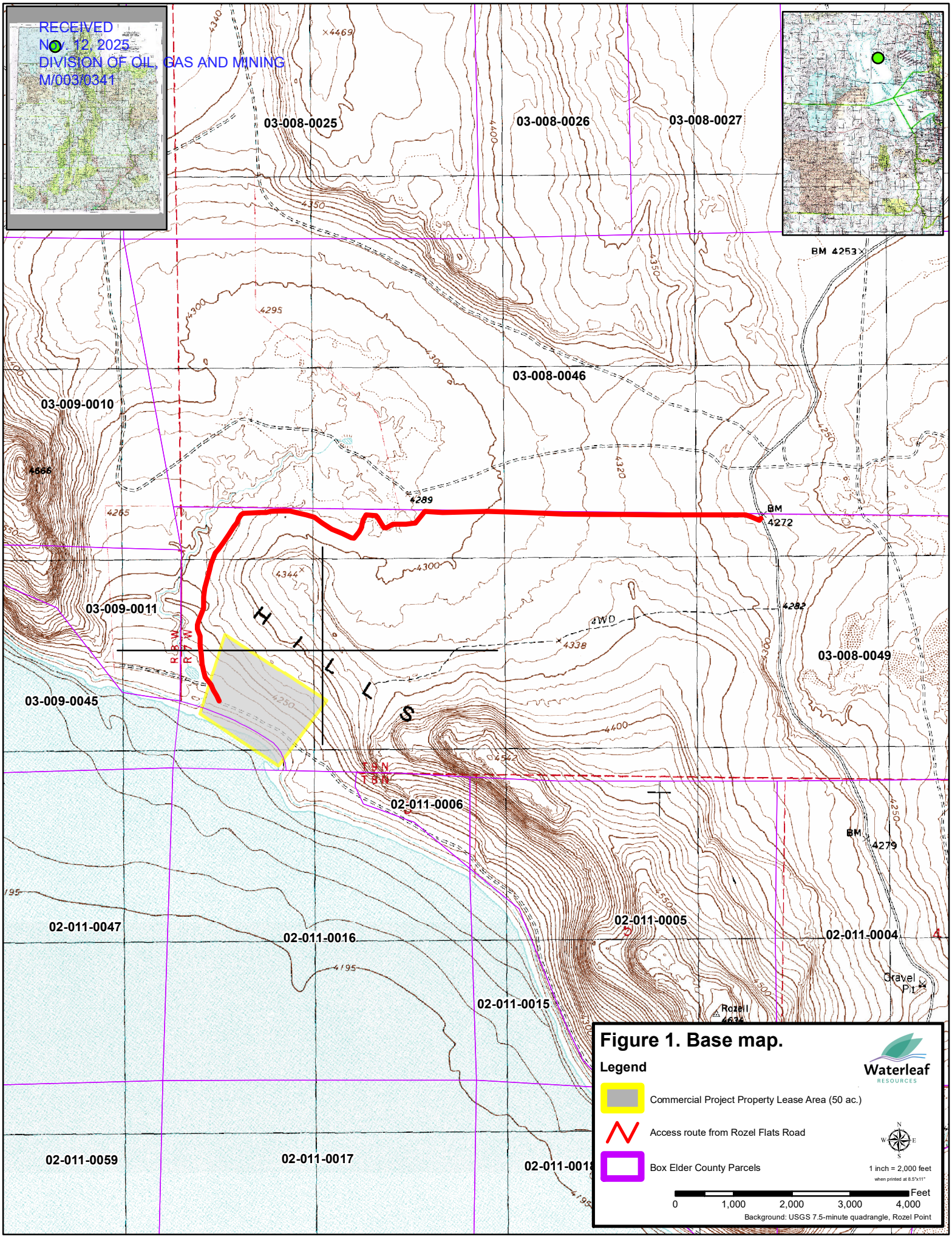


Figure 1. Base map.

Legend

- Commercial Project Property Lease Area (50 ac.)
- Access route from Rozel Flats Road
- Box Elder County Parcels

Waterleaf RESOURCES

1 inch = 2,000 feet
when printed at 8.5"x11"

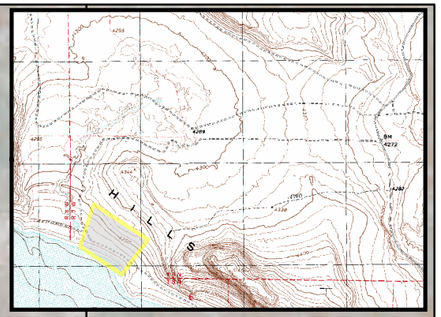
Feet
0 1,000 2,000 3,000 4,000

Background: USGS 7.5-minute quadrangle, Rozel Point

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #2 Surface Facilities Map

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341



Fuel Storage (LNG)
Maintenance Shop & Warehouse
Diesel Fuel System
Utilities (Gensets)
Waste Storage
Laboratory
Plant Area
(12.41 ac.)
Equipment House
Equipment House
Admin. Operations Building
Compressed Air
Lithium Carbonate Drying & Packaging
Ion Exchange
Utility Building
Lithium Carbonate Drying & Packaging
Lithium Carbonate Precipitation and Separation
Eluate Softening, Naturalization, Filtration
Lime/Limestone
DLE Utilities
Antiscalant
Base
Effluent Storage
Eluate Naturalization & Filtration
Equipment House
DLE Reagents, Bleed / Wash Water Treatment
Fence
Flocculant & Makeup Distribution
Sodium Sulfite / Sodium Hypochlorite
Acid
Base
Equipment House
Outfall Surge Pond
Retention Swale
MMF Brine Pre-Conditioning
Effluent Storage
Stormwater Retention
and Surge Buffer
Pond Area (7.05 ac.)
Intake Surge Pond
Temporary Construction
Laydown Space (5.28 ac.)
Rerouted Road

Figure 2. Surface facilities map.

Legend

- Commercial Project Fenciline (19.46 ac.)
- Building (var.)
- Tank (var.)
- Pump (var.)
- Vehicle Travel Path
- Waterleaf Land Lease Area (50 ac.)

Waterleaf RESOURCES

N W E S

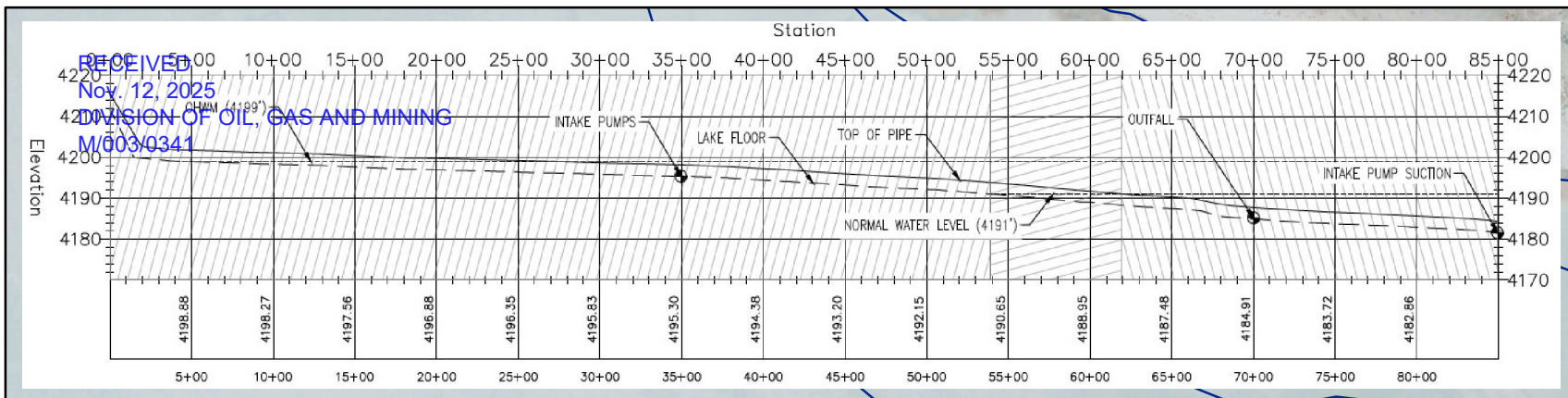
1 inch = 150 feet
when printed at11"x17"

0 75 150 225 300 Feet

Background: NAIP 2021 Box Elder County

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #3 Intake Outfall Map



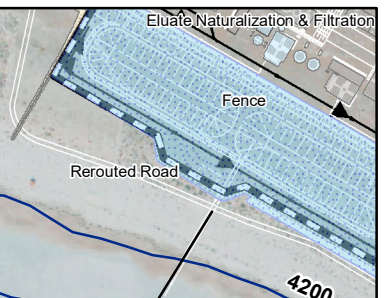


Figure 3. Intake/outfall map.

Legend

Intake/outfall easement centerline

Waterleaf RESOURCES

1 inch = 500 feet
when printed at11"x17"

0 250 500 750 1,000 Feet

Background: NAIP 2021 Box Elder County

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #4 Soils Map

Soil Type Key

BR - Bram silt loam
ETB - Ertsberg sand, 1 to 6 percent slopes
HD - Harding silt loam
PAB - Palisade silt loam, 1 to 6 percent slopes
PU - Playas
SA - Saltair silty clay loam, 0 to 1 percent slopes
SkE - Sanpete gravelly silt loam, 6 to 30 percent slopes
SlE - Sanpete gravelly silt loam, high rainfall, 10 to 30 percent slopes
SN - Saxby-Very stony land association
VS - Very stony land
W - Water
WnB - Windmill gravelly loam, 1 to 6 percent slopes
WS - Water, saline

VS
HD
PAB
BR
SN
HD
BR
VS
HD
BR
PAB
SA
SN
W
BR
SA
VS
SN
PAB
VS
SA
SA
W
ETB
SN
BR
VS
VS
SN
ETB
SkE
WS

Figure 4. Soils map.

Legend

Waterleaf RESOURCES

Commercial Project Property Lease Area (50 ac.)

Access route from Rozel Flats Road

1 inch = 2,000 feet
when printed at 8.5"x11"

Feet
0 1,000 2,000 3,000 4,000

Background: USGS 7.5-minute quadrangle, Rozel Point

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #5 Vegetation Map

Dominant Vegetation Type Key

301 - Sagebrush
303 - Shadscale
701 - Water

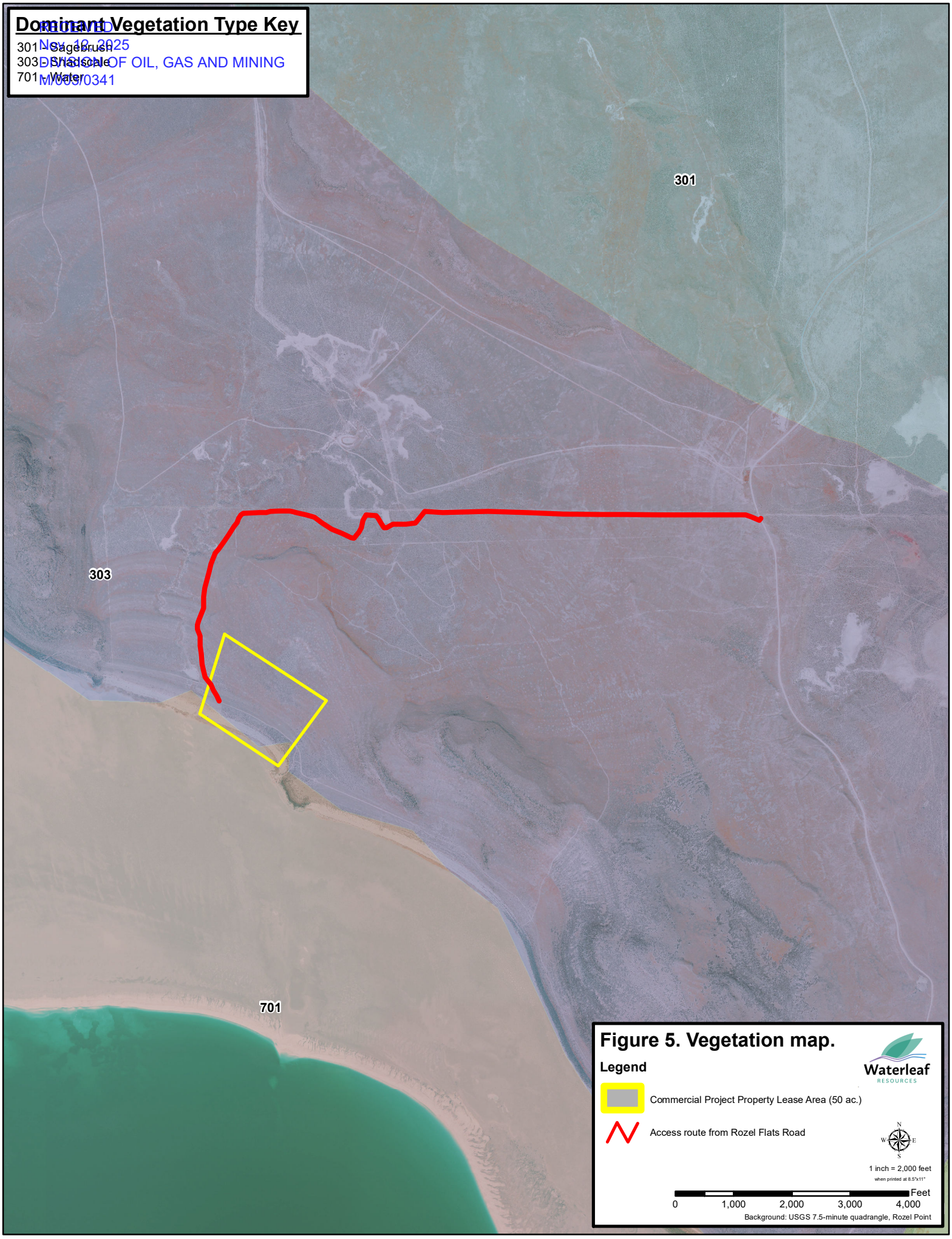


Figure 5. Vegetation map.

Legend

Waterleaf RESOURCES

Commercial Project Property Lease Area (50 ac.)

Access route from Rozel Flats Road

N
W E
S

1 inch = 2,000 feet
when printed at 8.5"x11"

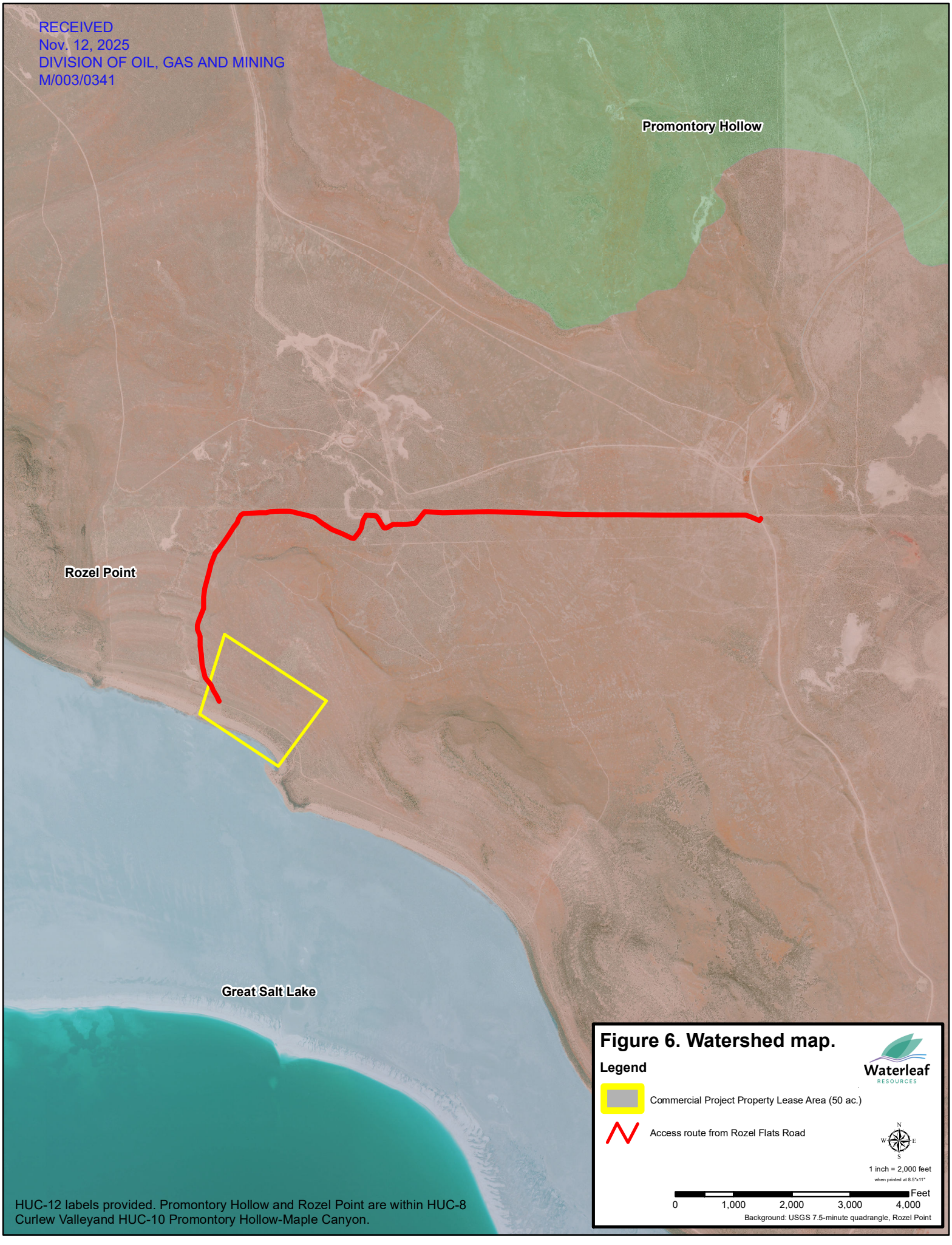
Feet
0 1,000 2,000 3,000 4,000

Background: USGS 7.5-minute quadrangle, Rozel Point

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #6 Watershed Map

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341



HUC-12 labels provided. Promontory Hollow and Rozel Point are within HUC-8 Curlew Valleyand HUC-10 Promontory Hollow-Maple Canyon.

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Figure #7 Reclamation Map

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

Plant and pond area to be regraded and reseeded
at the end of project life (26.51 ac.)

Rerouted road to remain
post-mining (0.60 ac.)

Regraded and reseeded
following construction (5.28 ac.)

Intake and outfall system to be removed, decompacted and regraded at the end of project life (9.60 ac.; not shown)

Figure 7. Reclamation map.

Legend

Waterleaf Land Lease Area (50 ac.)

Waterleaf
RESOURCES

N
W E
S

1 inch = 150 feet
when printed at11"x17"

0 75 150 225 300 Feet

Background: NAIP 2021 Box Elder County

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

105.4 - Photographs

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341

RECEIVED
Nov. 12, 2025
DIVISION OF OIL, GAS AND MINING
M/003/0341