

Corrective Action Plan

34842

**Paws Up Ranch LLC
40060 Paws Up Road
Greenough, MT
Facility ID 32-01458 (TID 31141),
Release 6643, Work Plan 34842**

Prepared for:

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WCEC Project No. 23-15630-70

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Environmental



Emergency Response



Industrial Services

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Appendix A - Estimated Cost for Corrective Action Plan #34842

Appendix B - PTRCB Groundwater Monitoring and Sampling Unit Cost Worksheet

1.0 Introduction

West Central Environmental Consultants (WCEC) has prepared this corrective action plan (CAP) for monitoring well installation and groundwater monitoring at the Paws Up Ranch LLC facility (Facility ID 32-01458 (TID 31141), Release 6643, Work Plan ID 34842). The corrective action plan was generated in response to the request by the Montana Department of Environmental Quality (MTDEQ) on March 5, 2024.

1.1 Site Location

The Paws Up Ranch LLC is operated as a luxury resort and operational cattle ranch. The release occurred at the operations bulk fueling area at the southwest corner of the resort headquarters. The maintenance shop is located to the north of the AST site, and a large pole barn used for storage is located east/northeast of the ASTs. The release impacted soils west and north of the diesel AST, with the majority of the area impacted consisting of a gravel surface used for local vehicle traffic and equipment parking. A site location map and a site details map are included as Figure 1 and 2. The Public Land Survey System (PLSS) description for the site is the NW/4, NE/4, of Section 1, T13N, R15W. The approximate geographic coordinates are Latitude 46.9156°, Longitude -113.4358°. Township, range, and section information was obtained using the United States Geological Survey (USGS) Greenough, Montana 1:24,000 Quadrangle. The site is located within the Blackfoot River Hydrologic Unit.

1.2 Geologic/ Hydrogeologic Setting

The surficial geology at the site was deposited during the Tertiary and consists of poorly to moderately sorted conglomerate containing locally derived subangular to subrounded boulders with cobble and silt. Probably correlative with the Sixmile Creek Formation. The total thickness is usually less than 10 m (30 ft) [Lonn, 2010]. This layer is overlain by road gravel placed on the driving surface of the site. Groundwater at the site is between 7 and 10 feet below grade depending on location.

2.0 Scope of Work

2.1 Scope of Work

The scope of work required by the MTDEQ consists of:

- Install monitoring well(s) to assess the magnitude and extent of potential petroleum contamination in groundwater.
- During monitoring well installation, collect soil samples necessary to assess the magnitude and extent of petroleum contamination, assess risk, and determine appropriate remedial techniques as applicable.
- Monitor groundwater by gauging fluid levels and collecting samples by low-flow sampling according to the Montana DEQ Groundwater Sampling Guidance.
- Analyze soil and groundwater samples for petroleum constituents according to the Montana Risk-Based Corrective Action Guidance for Petroleum Releases. Include the analysis of constituents necessary to assess risk or determine appropriate remedial actions.
- Validate all laboratory analytical data using DEQ's Data Validation Summary Form (DVSF).
- Discuss ongoing WP tasks and results with DEQ's project manager; submit written agreed-upon WP modifications as required to complete the WP objectives.
- Once the magnitude and extent of petroleum contamination in groundwater has been identified, prepare and submit a Remedial Investigation Report detailing the results of the investigation. The Report is expected to include all the content outlined in the Report format, including but not limited to discussion, recommendations, conclusions, cumulative data tables, maps, and necessary appendices.
- Use standardized DEQ WP and Report formats found online.
- Submit WP and Reports electronically following the PTCS submittal requirements.

2.2 Monitoring Well Installation & Surveying

WCEC will install four monitoring wells at the facility. A source well will be installed on the north side of the diesel AST within 10 feet of the release location. Three additional wells will be installed down gradient of the ASTs at the approximate locations depicted in Figure 3. One of the down gradient wells will be located between the release location and the irrigation well located north of the release location. The second down gradient well will be located northeast of the release location near the eastern edge of the excavation surface staining. The fourth well will be located approximately 10 feet north of the furthest extent of surface staining observed following the release.

All the soil borings will be logged using the Unified Soil Classification System with all field screening depths depicted on individual boring logs. The groundwater monitoring wells will be drilled by O'Keefe Drilling of Butte, Montana. Wells will be constructed using 2-inch schedule 40 PVC riser and 0.010 slot PVC screen. Each monitoring well will be screened from 5 to 15 feet bgs with solid riser extending from 5 feet bgs to near ground surface. The well annulus will be filled with 10/20 silica sandpack from the bottom of the boring to 6 inches above the screened interval, with the remainder of the boring annulus consisting of a bentonite seal. Surface completions will be constructed using 8-inch flush mount monuments set in concrete. Soil cuttings will be thin spread across the ground surface at the southern edge of the parking area.

WCEC will survey the top of casing on all monitoring wells at the facility to The Forth Order (0.10 feet times the square root of total distance of the level loop in miles) with a measurement precision of 0.01 feet. The latitude and longitude of all site wells will be surveyed using a Trimble Geo 7X GPS with 1-centimeter post processed accuracy. Site well casing elevations will be correlated to the North American Vertical Datum of 1988 (NAVD 88) using an onsite elevation control point which will be created using the Trimble Geo 7x GPS.

2.3 Monitoring Well/Soil Boring Sample Collection

The continuous soil boring cores will be field screened using a Rae Systems MiniRae™ 3000 photoionization detector (PID). Soil samples will be collected from the soil horizon that exhibits the highest PID reading and from the groundwater interface. If no hydrocarbon impacts are identified through field screening, a single sample will be collected from the groundwater interface.

Soil samples will be packed on ice and shipped to Energy Laboratory (Energy) in Helena, Montana under chain of custody. All the soil samples will be analyzed for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) screen using the Montana Method, as required by the MTDEQ Technical Guidance Document. If the EPH screen exceeds 200 mg/kg Energy will be instructed to run Total Extractable Hydrocarbon (TEH) fractions.

2.4 Groundwater Monitoring

A single groundwater monitoring event will be conducted no sooner than one week after monitoring well installation. Groundwater samples will be collected from all four of the newly installed monitoring wells. Well sampling will be conducted using low flow sampling methodologies in accordance with MTDEQ requirements and WCEC SOPs. WCEC will use a peristaltic pump to purge and sample each monitoring well. Groundwater quality parameter data (conductivity, pH, salinity, dissolved oxygen, temperature, ORP, and turbidity) will be acquired from all site wells sampled during each event using a flow through cell. Groundwater sample collection from each well will be completed following stabilization of groundwater quality parameters. Static water levels, groundwater quality parameter, and purge rate for each well will be recorded in the field using WCEC's Well Sampling Form. Depth to water measurements will be used to calculate the potentiometric groundwater surface, flow direction, and gradient for each event.

Groundwater samples will be preserved in accordance with analytical methods, packed on ice, and delivered to Energy in Helena, Montana under chain of custody. All groundwater samples collected will be submitted for VPH and EPH analyses. Additionally, EPH fraction analysis will be performed for any samples which exceed the EPH screening limit of 1,000 µg/L. A duplicate sample will be collected from the new well installed closest to the release location for use in data validation, and a trip blank will be submitted for each sampling event.

2.5 Data Validation

WCEC will complete the MTDEQ – Waste Management and Remediation Division Data Validation Summary Form. WCEC will submit one trip blank and one field duplicate sample for analysis of relative percent difference (RPD) of groundwater laboratory results for the event. WCEC will collect a duplicate sample from the monitoring well closest to the AST fueling system which will represent source area impacts. The completed data validation form will be included as an appendix to the monitoring report.

2.6 Reporting

A comprehensive report will be prepared following the completion of all corrective actions covered under this work plan. The report will detail the monitoring well installation and groundwater monitoring events. Cumulative data tables will include all new and historical soil and groundwater analytical data associated with the facility. Figures will detail the locations of monitoring wells, irrigation wells, drinking wells, and buried utilities at the facility. A groundwater potentiometric surface map will be created for the groundwater monitoring event.

Corrective Action Plan 34842

Petroleum Release at Paws Up Ranch
40600 Paws Up Rd. Greenough, MT

The remedial activities report will include discussion and recommendations to bring the site to closure. These recommendations will be based on the results of the analysis in the Release Closure Plan that will be included as an appendix to the report. Additional appendices will include soil and groundwater analytical reports, groundwater monitoring field data sheets, monitoring well installation logs, and data validation summary forms.

3.0 Timeline and Costs

The attached *Estimated Costs for Corrective Action Plan #34842* and *PTRCB Groundwater Monitoring and Sampling Unit Cost Work Sheet* [Appendix A] details anticipated project costs to complete the MTDEQ required scope of work. The scope of work outlined in this work plan will be conducted following approval of the MTDEQ. WCEC tentatively expects the well drilling to occur in the summer of 2024 with the initial groundwater monitoring being conducted within 30 days of the installation event.

3.1 Planned Workflow & Cost Explanations

The estimated costs in Appendix A include completion of monitoring well installation and one groundwater monitoring included in this work plan. WCEC will complete these tasks during 2024 during a two separate events as follows:

Event 1: Monitoring well installation, well development, and surveying (staff – Staff scientist on initial drilling day with a staff scientist & field tech on second day for well development and surveying (2 staff, 1 vehicle)

Events 2: Groundwater monitoring (1 staff, 1 vehicle)

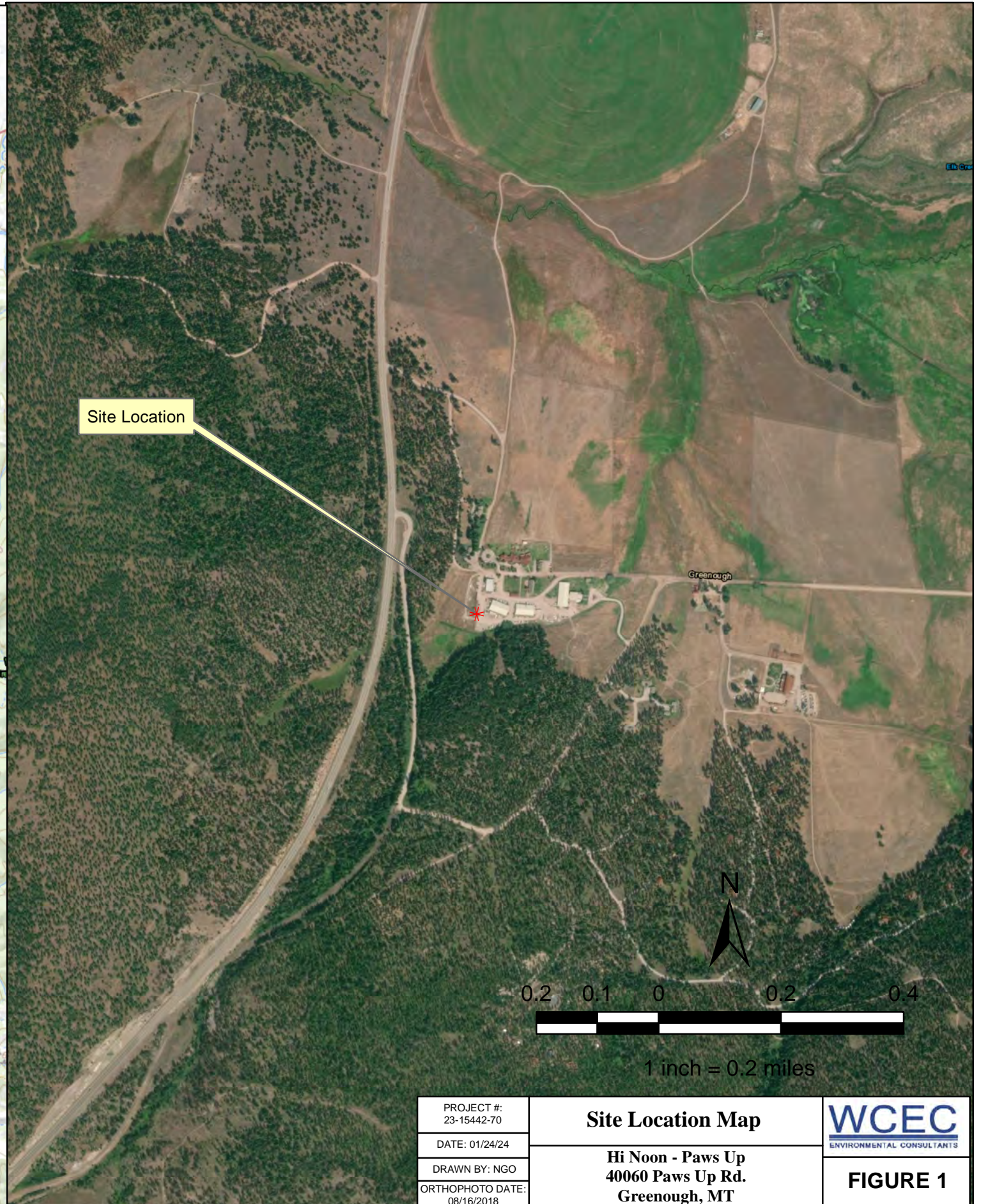
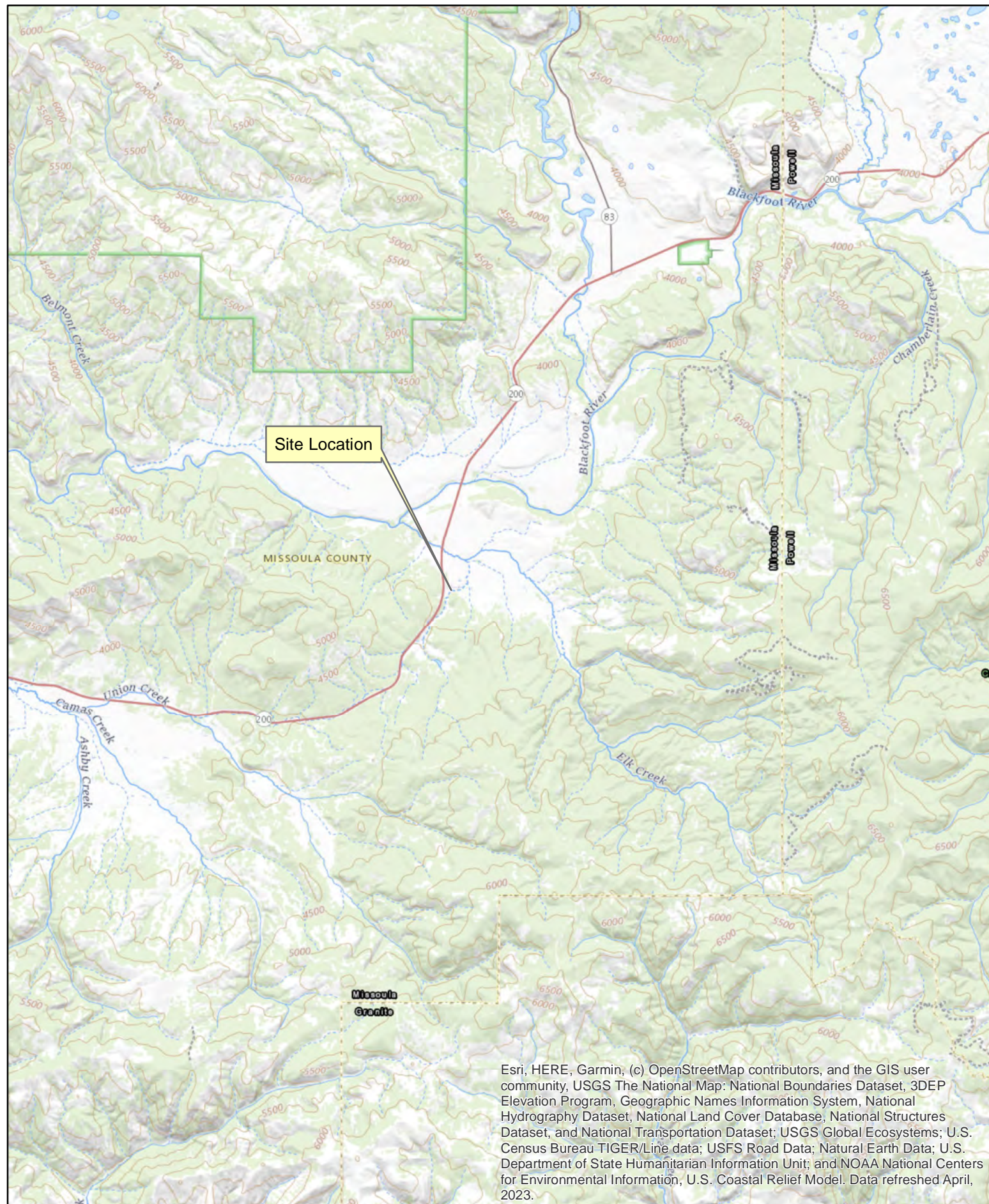
This workflow is outlined in sequential order of required tasks outlined in this CAP. The attached PTRCB Groundwater Monitoring and Sampling Unit Cost Worksheet includes groundwater sampling costs with a corresponding cost total for all remedial action outside groundwater monitoring detailed on the *Estimated Cost Spreadsheet for Corrective Action Plan #34842*.

List of Figures

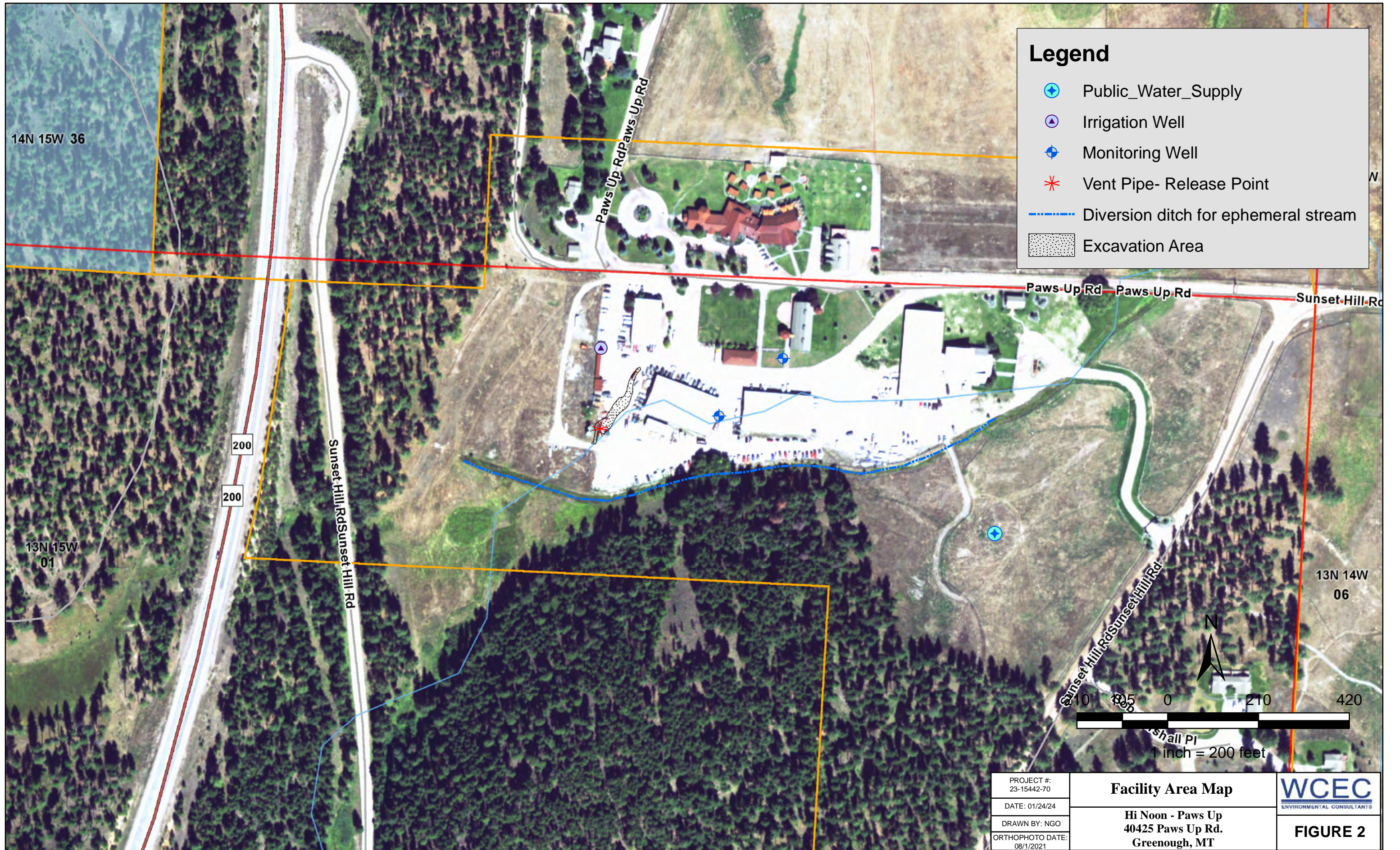
Figure 1: Site Location Map

Figure 2: Site Details Map

Figure 3: Proposed Monitoring Well Installation Locations



PROJECT #: 23-15442-70	Site Location Map	WCEC ENVIRONMENTAL CONSULTANTS
DATE: 01/24/24		
DRAWN BY: NGO	Hi Noon - Paws Up 40060 Paws Up Rd. Greenough, MT	FIGURE 1
ORTHO PHOTO DATE: 08/16/2018		



PROJECT #:
23-15442-70

DATE: 01/24/24

DRAWN BY: NGO

ORTHO PHOTO DATE:
08/1/2021

Facility Area Map

Hi Noon - Paws Up
40425 Paws Up Rd.
Greenough, MT

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FIGURE 2



Appendix A

Estimated Cost for Corrective Action Plan #34842