

# Gravel Mine Site

## CALIBRE

Our Success Follows Yours

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### About CALIBRE

CALIBRE Systems, Inc. is an employee-owned management consulting and information technology solutions company supporting government and industry.

CALIBRE is committed to the success of our customers and delivers enduring solutions that solve management, technology, and program challenges.

### Solutions That Make a Difference

We work in multidisciplinary teams, partnering with you to deliver practical, timely, best value solutions that solve your management, technology, and program challenges and help you achieve your business objectives. This collaborative work style helps produce the results you seek – today and where you want to be tomorrow.

### Project Scope

>> **CALIBRE Systems, Inc. (CALIBRE) completed work on this project including: 1) Project scoping/planning based on data quality objectives (DQOs) to identify data gaps; 2) Developing project work plans and quality assurance plans; 3) Remedial investigation and feasibility study (RI/FS); 4) Completing a geophysical survey to delineate the gravel quarry / waste material boundary; and 5) Excavation of the overburden and segregation of the waste material. Our team started the project as a PA/SI intending to implement an Interim Action (the WA Model Toxics Control Act [MTCA] equivalent to an EE/CA). Based on the conditions encountered (drums buried within the overburden and fill), Ecology changed that objective and determined that an RI/FS was necessary. The scope of work we completed included all work plan/ planning documents, site investigation, remedial design, permitting, removal action, site reclamation, and post-removal action monitoring.**

### Benefits to the Customer

>> **CALIBRE successfully closed the former Hytec quarry site, while reducing the regulated portion of waste to 7% of the total material. Transportation costs were minimized by using or reusing onsite materials to the extent possible.**

### PROJECT SUMMARY

The Hytec Mine Site is located in and around former gravel mines/quarries in the Black Hills area of western Thurston County, WA. The project scope included the investigation, remedial design and removal actions of multiple filled areas that were part of the former gravel mines. Contaminants of concern at the site included lead, cadmium, arsenic, selenium and zinc that were associated with both the overburden and excavated materials and additional fill materials from unspecified sources over the last 70 years. We used a Data Quality Objectives (DQO) process to prepare the investigation work plan ensuring that sufficient data were collected for each of the anticipated site decisions. The plans included a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) including SOPs for all field activities. Following the field investigations, an ARARs evaluation was completed to establish benchmarks/criteria for data evaluation. Our team's analysis of the site included: human health and ecological risk assessments following MTCA and CERCLA guidelines; collection of background samples and statistical analysis of percentiles and upper tolerance limits to establish the distribution of naturally occurring inorganic elements; identifying nature and extent of impacted areas; developing alternatives and cost estimates for removal action alternatives.



*Excavated materials being loaded for transport to a licensed disposal facility.*



*Backfilled area being prepared for surface contouring and reseeding.*



*On-site segregation of regulated wastes, allowing for significant transport and disposal cost savings.*



*Temporary roadway providing continued access for local residents during construction activities.*

CALIBRE's removal-action work plan for the site included specifications, schedule, permits, O&M plan, QAPP, Health and Safety Plan (HASP), and SAP to address confirmation sampling requirements and long-term monitoring. The removal-action work plan also included required procedures for waste management including testing, designation/ profiling and a stormwater/ erosion control plan to meet County and State requirements. Native vegetation was used to restore and reclaim all areas of the site. Some of the relevant features of the removal design and implementation included pollution prevention measures such as containment systems for all fuel storage/transfer operations and stormwater/ erosion protection control for all work areas.

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The expedited lab analysis allowed CALIBRE to quickly certify full removal of the waste and backfilling was initiated in a compressed timeline. The accelerated schedule was necessary to provide road access to private residences.

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CALIBRE's on-site construction manager directed the contractor to perform a careful inspection and segregation of all materials removed which reduced the waste volume. Using this process, the total regulated waste volume was reduced to less than 7% of the total materials handled. The use of recovered materials included use of non-regulated waste as cover material in the nearest landfill and use of an on-site borrow source for all backfill requirements. These two design considerations resulted in significant energy savings and costs by minimizing the materials transport distance.