



CASCADE

STATEMENT OF  
QUALIFICATIONS

# WHO WE ARE

Cascade Environmental® is a field services contractor that partners with our clients to provide seamless environmental and geotechnical solutions from concept to completion. We provide the industry's most comprehensive in-house suite of field services to support your geotechnical and environmental drilling, site characterization, and environmental remediation projects—no matter how routine or complex.

Our breadth of services and technologies, highly skilled field and support staff, and a world-class safety program are here to support you in every stage of your project.

# OUR HISTORY

Cascade Drilling® was founded in 1991 as a highly regarded Northwestern US regional drilling company operating across three states. Cascade developed a strong reputation for safety, service and reliability, with a particular emphasis on traditional drilling technologies: auger, rotary and direct push. In 2013, the company made a significant investment in sonic drilling technology and expanded its geographic reach across the United States.

Since then, Cascade expanded our service offerings through strategic acquisitions. Today's Cascade family of brands include Cascade Drilling, Cascade Remediation Services, TerraTherm, and Aquifer Drilling & Testing.

# SERVICES & SUBSIDIARIES

## DRILLING

Cascade Drilling Services provides a full range of environmental and geotechnical drilling services. Regardless of lithology or location, Cascade has the right equipment, experience and expertise to do the job. We offer sonic and conventional drilling technologies, and with a fleet that includes track-mounted, truck-mounted, and limited access rigs, we can access almost any drill site.

## REMEDIATION

Cascade Remediation Services focuses on subsurface investigation and remediation applications. With experts ranging from field technicians to environmental data scientists, we partner with you to deliver the right technology for every job, no matter how routine or complex.

**TerraTherm** is a worldwide leader in the development and implementation of in situ and on-site thermal remediation of organic contaminants. We design, build and operate projects from concept to completion, using thermal conduction heating (TCH), steam enhanced extraction (SEE), electrical resistance heating (ERH), and combinations of the above technologies.

**Aquifer Drilling and Testing™** (ADT) provides environmental and geotechnical drilling for a variety of applications in the greater New York City area. ADT's experienced drilling crews operate a diverse drilling fleet including sonic, auger, rotary and specialty equipment.

# MISSION

Cascade is the leading provider of environmental and infrastructure drilling, site characterization, and environmental remediation applications. We are the only nationwide integrated service provider with expert technical capabilities and fleet to fulfill all your project needs--anywhere, every time.

# VISION

Our vision is to integrate technology, safety, sustainability and human potential to tackle the challenging environmental and geotechnical issues facing our clients.

# VALUES

## Safety

We believe in providing a workplace free of recognized hazards for the safety, health and well-being of our employees and clients.

## Excellence

We believe in exceeding expectations in everything we do. We believe in providing outstanding service that gives our clients a competitive edge and makes their job easier.

## Diversity

We believe that diversity is a key component to our company's success and sustainability into the future.

## Passion

We love what we do and strive to be excellent on every level, in every function of our company.

## Growth

We believe in growing our business in a responsible manner through significant investment in our company, our people and our communities. Growth enables us to provide career advancement for our employees and geographical reach to best serve our clients.

## One Cascade

We believe in sharing equally our successes and our failures. Through transparency, integrity, accountability and trust, we work together to achieve our goals.



# SUITE OF SERVICES



## DRILLING

Drilling techniques for any terrain or geology, matched to state of the art measurement methods.

- Environmental & Geotechnical
- Well Completion
- Investigation Derived Waste (IDW) Management



## CHARACTERIZATION

From quick to quantitative, low to high resolution; collect the data to build a powerful CSM and make dynamic, data-driven decisions.

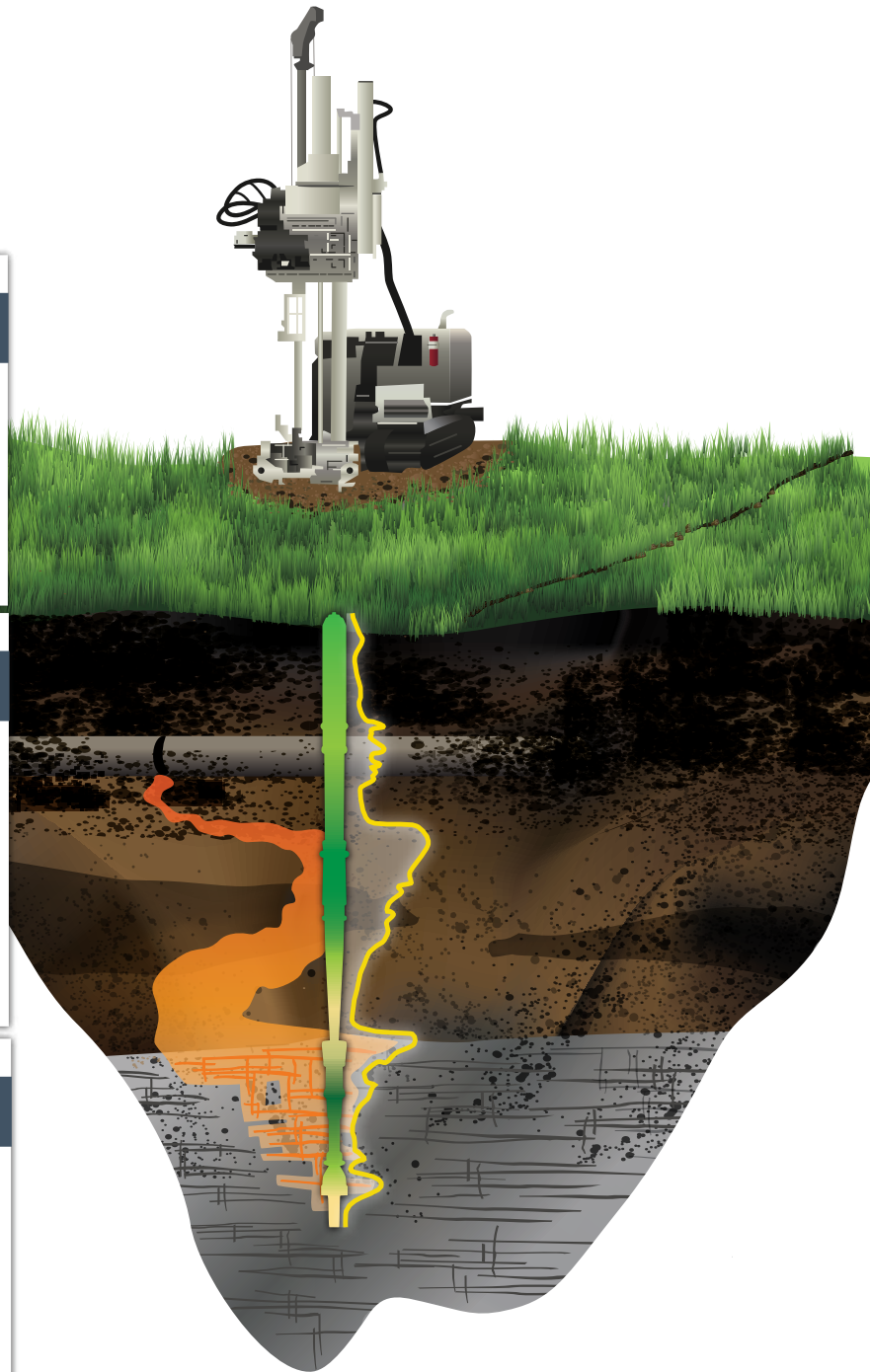
- Discrete Soil, Groundwater & Soil Vapor Sampling
- Continuous Coring
- Direct Sensing
- High Resolution Site Characterization
- 3D Data Visualization



## REMEDIATION

Work with remediation implementation experts to access a wide range of remedies, a high level of precision, and outstanding results.

- Pre-Design Testing
- Reagent & Amendment Injection
- Thermal System Design, Build, Operation
- Combined Thermal Technology Solutions
- Soil Mixing
- Enhanced Recovery or Emplacement
- Method Feasibility Advice



You can complete even the most challenging projects on-time and on-budget with access to our full suite of drilling, site characterization and remediation services.

### Drilling

- Environmental
- Infrastructure
- Utility Clearance

### Characterization

- Traditional
- High Resolution Site Characterization (HRSC)

### Remediation

- Thermal
- Injection
- Emplacement

# BY THE NUMBERS

800  
employees

34  
locations

~4,000  
jobs performed in 2022

\$229  
net sales

2,000  
fleet assets

**Ranked #72**

**2022 ENR Top 200 Environmental Firms**

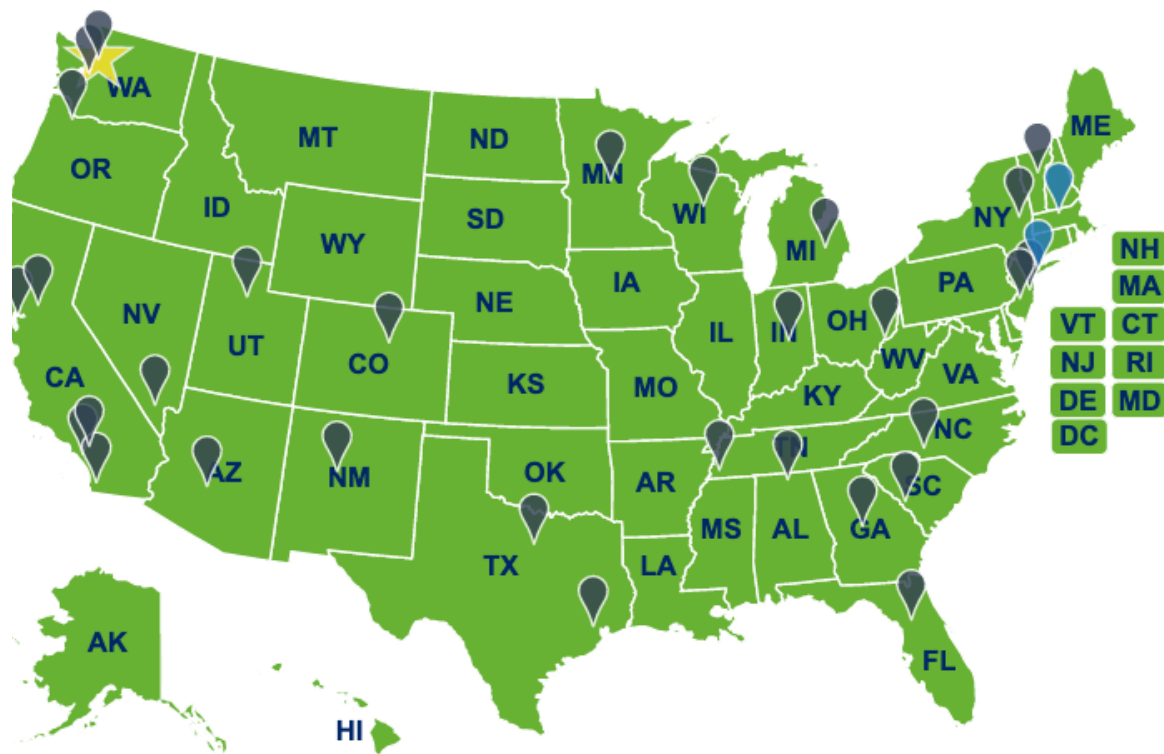
9th consecutive year on the list



Drilling  
Industry Ranking

**#1 SONIC**  
drilling contractor in the US

# LOCATIONS



**34**  
offices  
nationwide

## Corporate Office

22722 29th Drive SE, Suite 228  
Bothell, Washington 98021

See our website for contact information for individual offices.  
[www.cascade-env.com/locations](http://www.cascade-env.com/locations)

# FLEET

No matter when or where you need it, we have the equipment and coverage to support your project. Cascade's fleet includes more than 2,000 vehicles, rigs, and support equipment nationwide. They include rigs appropriate for restricted and limited access project sites, track-mounted equipment for sensitive surfaces, and electric portable rigs for safe indoor drilling. Whether you need sonic, rotary, auger, direct push or diamond coring technologies, our full range of rig options can reach any site.

Reliable equipment is essential in getting the job done safely, on time and on budget. Our extensive maintenance and repair program minimizes breakdowns and ensures quick turnaround when they occur. We manage a network of 15 maintenance and repair (M&R) shops across the country that perform preventative maintenance and small to medium class repairs. Our three refurbishment centers handle large-scale restoration and refurbishment of rigs and support equipment.



**2,000**  
fleet assets



**Sonic  
Auger  
Rotary  
Direct Push  
Diamond Coring**



# HEALTH & SAFETY

Our CORE™ Health & Safety Program empowers every employee to advocate for their personal safety and the safety of everyone in the organization. CORE is a behavior-based program focused on incident prevention and is designed to...

- Focus on the prevention of work-related incidents through enhanced training
- Create a measurable behavior-based, self-sustaining safety culture that is easily articulated and comprehended
- Assign specific responsibilities at all levels throughout the company and provide proven tools to eliminate incidents

## CORE ELEMENTS



### TRAINING

Training is the foundation of the CORE Program and is structured to develop skills, accentuate strengths, support client performance, and drive toward a zero incident goal.

### COMPLIANCE & RISK MANAGEMENT

Compliance and risk management incorporates a closed-loop process to eliminate gaps in regulation adherence, and seeks to reduce incidents, exposures and liabilities for Cascade and its clients.

### INSPECTIONS & AUDITS

Inspections and audits validate safe practices and processes are in use and compliance with all regulatory and internal practices is achieved.

### COMMUNICATIONS

Communication ensures understanding and strengthens safety education. It provides definitive instruction and support and is a way to solicit feedback.

### RECOGNITION & ACCOUNTABILITY

We encourage involvement and provide a platform for advancement when we celebrate the achievements, responsibility, and leadership of our employees.

### MANAGEMENT INVOLVEMENT

Managers and supervisors are not exempt from participating in the seven elements of this program—they model what it means to incorporate them into every part of the work day.

### INCIDENT INVESTIGATION & CASE MANAGEMENT

Incident investigation is important in understanding causes, the improvement of procedures, and the development of preventative measures.

# HEALTH & SAFETY

	2022	2021	2020
<b>TRIR</b>	0.93	0.86	0.77
<b>DART</b>	0.84	0.38	0.29
<b>LTC</b>	0.56	0.19	0.29
<b>Fatalities</b>	0.00	0.00	0.00
<b>EMR</b>	0.58	0.55	0.59
<b>Hours Worked</b>	2,149,339	2,098,390	2,082,591

## UNDERSTANDING SAFETY STATS

- **TRIR:** The Total Recordable Incident Rate reflects the number of OSHA recordable injuries during the total hours worked by all employees that year.
- **DART:** The Days Away, Restricted, and Transfer case rate reflects the number of cases which involve days away from work, days of restricted work activity, and/or days of job transfer during the total hours worked by all employees that year.
- **LTC:** The Lost Time Case rate reflects the number of occupational injuries or illnesses which result in an employee being unable to work a full assigned work shift during the total hours worked by all employees that year.
- **Fatalities:** The number of workplace incidents that result in death of an employee.
- **EMR:** The Experience Modification Rate is a number used by insurance companies to gauge both past cost of injuries and future chances of risk. An EMR of 1.0 is considered the industry average.

An average of  
**75**  
hours of training  
per employee

59,000 hours  
of training conducted in 2022



# COVID-19 MEASURES

Because Cascade Environmental performs work deemed essential by the Department of Homeland Security, we have developed an extensive range of policies and procedures to prevent the spread of COVID-19. These have been implemented in conjunction with our existing Injury and Illness Prevention Plan (IIPP) and CORE™ safety program.

- **Employee Exam and Badge.** Every employee has reviewed the COVID-19 health and safety plan (HASP), Job Safety Analysis (JSA), and exposure control plan (ECP), and passed a COVID-19 exam with a score of 80% or higher. Upon completion, employees then receive a badge they must wear on every project site.
- **Office Distancing & Sanitation.** Office employees are required to implement distancing and CDC sanitation measures. Each office location posted a copy of the COVID-19 HASP, JSA, and ECP near the entrance, as well as other required signage.
- **COVID-19 HASP.** This document supplements other health and safety plans, and describes how work must be performed by Cascade personnel, personal protection requirements, monitoring and site control procedures, and contingency plans. Each site-specific COVID-19 HASP is read and understood by every employee working on the project site.
- **Job Safety Analysis (JSA).** The COVID-19 JSA details risk assessment for general prevention, mobilization, hotel, office work, specific job site tasks and general field work to mitigate exposure to COVID-19.
- **ECP for Bloodborne Pathogens.** These guidelines provide policy and safe practices to prevent the spread of disease from handling or contact with blood, other potentially infectious materials (OPIM), and sharps while working. Employees are required to review this document and CDC Guidelines for COVID-19.
- **Journey Management Plan (JMP).** This plan is designed to reduce incidents and injuries involving vehicle operations. The COVID-19 Addendum summarizes recommendations for contact management should cases of COVID-19 be identified.
- **Exposure Management Guidelines.** This outlines what an employee must do when exposed to a confirmed case of COVID-19 or display symptoms, and subsequent steps taken by the organization such as, pre-screening, exposure control, contact tracing and testing.
- **Essential Worker Letter.** The Department of Homeland Security designated Cascade's services as "essential" under the Essential Critical Infrastructure definitions. This document authorizes all employees for work-related travel and expedites COVID-19 testing.

# COMPASS™



At Cascade, we believe sustainability is about taking care of the natural environment, investing in our communities, and growing our business in a way that positively impacts all our stakeholders. Our corporate sustainability program, Compass™, aligns our sustainability efforts with our core values and the expectations of those impacted by our business. Under leadership of the Sustainability Council, the program fosters accountability, transparency, and continuous improvement in understanding the company's financial, environmental and social performance.

Since Compass was founded in 2014, we have...

- Provided \$100K in charitable contribution matching grants
- Reduced fuel consumption 7% while increasing fleet 4%
- Invested \$200M to directly improving our environmental impact, workforce safety and employee wellbeing

Cascade's annual sustainability report details our goals and progress. The report is prepared in accordance with the Global Reporting Initiative's (GRI) guidelines and is available on our website.

## Cascade's Sustainability Policy

Cascade supports the advancement of sustainability by integrating the principles of environmental stewardship, social responsibility and economic prosperity into the decisions and actions that drive our business.

# CASE STUDIES



## **SOIL & GROUNDWATER SAMPLING** YOSEMITE NATIONAL PARK, CA

Cascade was hired to collect soil and groundwater samples in a remote wilderness setting. Track-mounted direct push technology (DPT) rigs were used to handle access restrictions, stream crossings, mud, heavily wooded areas and complex lithologies. Two rigs completed more than 700 shallow borings for soil sampling and 20 DPT groundwater samples. When hard rock was encountered, an HQ coring technique was used.



## **SITE CHARACTERIZATION** DEEPWATER, NJ

Cascade scoped and implemented a high resolution site characterization (HRSC) triad investigation, utilizing multiple means of investigation to identify DNAPL and the distribution of dissolved and sorbed contamination. Cascade crews installed temporary piezometers to determine hydraulic head distribution, conducted a soil gas survey with on-site analytic analysis, and collected shallow soil samples. A MIP survey was performed at 25 locations, and the data was used to determine locations for WaterlooAPS sampling. WaterlooAPS transects were used to define hydrostratigraphy, vertical hydraulic gradient and water quality. Soil coring was also conducted to analyze VOCs, bulk density, porosity, organic carbon and moisture content. The investigation was completed in one mobilization. DNAPL was detected at 54 locations and contaminant distribution was delineated.

# CASE STUDIES



## **CHEMICAL REDUCTION & BIOREMEDIATION** CONCORD NAVAL AIR WEAPONS STATION, CA

Cascade's consulting client was contracted by the Navy to address a large TCE plume. Cascade performed field activities using Geoprobe 8040DT deep application drill rigs. Cascade mixed chemicals on site and performed more than 350 direct push injections of a combined ZVI/emulsified oil substrate. The target interval was between depths of 45 to 95 bgs in heterogeneous sands and clays. The ZVI solution was suspended in guar along with shearing a 100% substrate solution to a 4% emulsion. Each injection received between 1700 and 600 gallons of solution. The project was completed on time and within budget.



## **CHEMICAL OXIDATION AND REMEDIATION** MCCONNELL AIR FORCE BASE, KS

The low permeability of the silty and swelling clays prohibited the use of standard injection technologies at this site. Cascade conducted three pilot tests (two AVI and one activated persulfate) to refine the injection designs in a base-wide program. For full scale implementation, Cascade used three pneumatic emplacement systems and injection crews to inject more than 2,700 tons of ZVI and 197 tons of activated sodium persulfate over three years. Nine different sites on base were treated with ZVI and three with the persulfate in 1,283 pneumatic fracturing points over 25 acres.

# CASE STUDIES



## **THERMAL REMEDIATION HAZARDOUS WASTE FACILITY, CT**

The client's site was the former home of Solvents Recovery Service of New England, a hazardous waste treatment and storage facility. For decades, the company had received waste industrial solvents, and poor handling practices resulted in subsurface contamination. TerraTherm was brought in to perform thermal conduction heating (TCH) to remove the contaminants. Heating and treatment occurred in two overlapping phases, which were intended to help manage peak removal mass rates and make the design and procurement of the off-gas treatment system practical.

During the installation of the thermal wells, our experts discovered the bedrock elevation varied more than anticipated. To address the variance, heater borings were installed and then heaters were custom designed to the appropriate depths.

By project's end, TerraTherm successfully removed 496,000 lbs of VOC contamination, a greater than 99% reduction in COC mass, and achievement of all soil cleanup goals.

**Find more case studies and project highlights at:**  
[www.cascade-env.com/resources/project-highlights](http://www.cascade-env.com/resources/project-highlights)

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