



REMEDIATIONS SOIL EXCAVATION MANAGEMENT ...Expert Excavation and Structural Support

OBJECTIVE

Excavation is one of the most effective and often least expensive means of removing contaminated soil from a property. The remedial technique is effective for most contaminants, may achieve contaminant reduction to background levels, and when coupled with soil recycling effectively terminates associated liability for a property.

ADVANTAGES AND DISADVANTAGES

Excavation as a tool in the remediation of contaminated soil has the advantage of removing the contaminants completely from the local environment, thus limiting the potential for contaminant migration. Excavated soil then is available for any appropriate treatment or disposal method — either on-site or off-site. Excavation is a relatively rapid process that also facilitates speedy treatment. Limitations associated with excavation commonly are associated with access, such as location beneath a building or other structure; however, **Clean Properties** has in-house vacuum excavators capable of facilitating soil removal under such conditions. Disadvantages of excavation include disruption of property and on-site operations, space required for handling excavated soil (storage or treatment), continued liability if contaminated soil is shipped to a disposal site rather than treated on-site or recycle off-site, and the dwindling availability of receiving in-state facilities.

DETERMINATION OF SUITABLE SOIL REUSE/DISPOSAL SITE

Laboratory testing is necessary to determine if soil at a property has been impacted above MCP Reportable Concentrations and Reportable Conditions, to support evaluation of options and costs for treatment and on-site or off-site reuse, and to identify appropriate locations or facilities suitable for off-site reuse or disposal. Pre-excavation soil testing using borings is useful for planning activities and estimating soil management costs at larger properties in conjunction with redevelopment or at smaller properties where space or time is a significant consideration; however, precharacterization can be relatively expensive. Typically, a smaller number of tests is required to provide representative chemical information on soil stockpiles after excavation. **Clean Properties** is experienced in determining and implementing the most appropriate and economical testing protocols for sites, evaluating test data for suitable soil management options, and providing appropriate oversight and documentation for the acceptance and transport of contaminated soil to in-state and out-of-state treatment/recycling/disposal facilities (including LSP Opinion Letters, Material Shipping Records, Bills of Lading, and Hazardous Waste Manifests).

CONTAMINATED SOIL TREATMENT, RECYCLING, REUSE, OR DISPOSAL

Once excavated, contaminated soil can be treated on-site or off-site using a variety of technologies, including soil venting, bioremediation, thermal treatment, or chemical oxidation. By removing the contaminants from the soil using combined excavation and treatment methods, associated liability is minimized and the soil is potentially available for return to the excavation site. If contaminant concentrations are within certain limits, petroleum- or metal-contaminant soils can be recycled by incorporation into asphalt or concrete. Although recycling usually is conducted at an off-site facility, portable batching plants can be used on-site if sufficient quantities of contaminated soil must be processed and if a local use for the generated paving material warrants. Recycling serves to limit liability associated with the former contamination by confining the contaminants in a non-hazardous medium.

ENGINEERING AND CONSTRUCTION CAPABILITIES

Clean Properties has construction engineers experienced in evaluating a proposed excavation site to determine any special requirements that may be necessary to safely remove the identified contaminated soil. **Clean Properties** is experienced in staging its excavation equipment to provide the least possible disruption of adjoining areas of operation, exposing impacted soils in a manner that best supports subsequent structural restoration, designing structural support systems to enable safe excavation along side or beneath structures, depressing groundwater levels to allow for excavation of impacted soils below the water table, and replacing excavated soil with subsurface footings and compacted soil to assure continued support of impacted structures. **Clean Properties** also has a landscape architect on staff who can assist in appropriate restoration of site conditions following completion of excavation and backfill activities.

CLEAN PROPERTIES' STAFF & EXPERIENCE

Clean Properties has conducted hundreds of soil excavation projects ranging from a few tens to tens of thousands of cubic yards. **Clean Properties'** scientific, engineering, and business expertise will work with you to identify the appropriate combination of soil excavation and treatment/reuse/recycling methods to accomplish your remediation in the timeframe, cost, and level of disruption to your property and operations most suitable for site conditions, and while providing an appropriately acceptable margin of protection against future environmental liability.