

Table A-1.B. Evaluation factors for excavation

Remedial time frame	Concern	Low
	Discussion	Very short. Weather conditions, seasonal groundwater levels, the size of the LNAPL source zone and depth of the source have an impact on the time to implement an excavation. Off-site disposal and handling may also factor in the time it takes to conduct an excavation project. Very large excavation projects may be slowed by the rate at which trucks can be moved from the site to disposal facility.
Safety	Concern	Moderate
	Discussion	Some potentially significant safety issues, but construction related and typically routine. Large excavations involve side-stability issues and the potential for collapse. In an area with dense infrastructure, these may significantly impact the safety concern for excavation. Traffic safety could also be an issue. Excavated material could come in contact with workers. Potential for worker exposure to contaminated soil, liquids, and vapors must be managed.
Waste management	Concern	Moderate to high
	Discussion	Significant waste stream may be generated. Excavation projects often involve off-site waste handling, waste characterization, and disposal.
Community concerns	Concern	Low to moderate
	Discussion	Public generally familiar with and accustomed to construction excavations. Concerns may be heightened due to volatile emissions, dust, noise, odors, traffic, exhaust, visual/aesthetic, safety impacts, etc.
Carbon footprint/energy requirements	Concern	High
	Discussion	Equipment emissions and short-term energy requirements large. Energy is used for the excavation machinery and trucks to haul the wastes off site. In addition, for volatile LNAPLs, the excavation generates emissions.
Site restrictions	Concern	High
	Discussion	Disruptive technology, physical space, and logistical demands significant. Often excavation is infeasible due to site improvements, buildings, structures, roads, etc. Due to the use of large, heavy equipment and the need for clearance on either side of the excavation, could be constrained due to buildings, facility requirements, utilities, and natural habitats.
LNAPL body size	Concern	Small to moderate
	Discussion	Very large LNAPL bodies may be infeasible to excavate. The size of the LNAPL body directly affects the cost and extent of the excavation. Smaller, shallow LNAPL bodies may be more amenable to excavation. If the LNAPL body is really extensive, it will take longer to excavate or present more logistical challenges.
Other regulations	Concern	Low to moderate
	Discussion	Waste management characterization, waste manifesting, construction storm water protection plans, construction permits, and transport provisions applicable. Typically routine compliance with local and state regulations. Potential vapor emissions limits.
Cost	Concern	High
	Discussion	May be a high-cost alternative.
Other	Concern	Low
	Discussion	Winter excavations may reduce need for dewatering, but may involve other challenges such as frost, road restrictions, and stockpile freezing.