

# Low-Impact Construction for Small-Scale Projects

*Date: July 17, 2024*

Archaeological sites are an irreplaceable part of history and are protected under provincial legislation. Development activities (new construction, redevelopment, renovations, changes to utilities or services, landscaping, etc.) can damage or destroy archaeological sites. In B.C., costs for archaeological works are the responsibility of the property owner. By choosing low-impact construction methods that minimize ground disturbance, you can help reduce:

- Impacts to archaeological sites
- The costs of archaeological work
- Construction timelines

## Learning More

The *Heritage Conservation Act* (HCA) protects archaeological sites on private and public land, regardless of whether they have been previously identified or damaged. Land disturbances within an archaeological site, even within imported fill, require a permit issued under the HCA.

Archaeological assessments also require permits. Retain an archaeologist for advice and support with permit applications.

Please visit our [website](#)<sup>1</sup> for more information and tools to address responsibilities under the HCA, including information requests about specific properties.

## Construction and Development Options

The following examples of low-impact construction methods can support planning conversations between owners and other parties (e.g., First Nations, local governments, archaeologists, contractors, developers). This list is neither comprehensive nor prescriptive and is meant to inform the planning process. The unique features of archaeological sites encountered during construction can affect the magnitude and severity of impacts.

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<sup>1</sup> <https://www2.gov.bc.ca/gov/content/industry/natural-resource-use/archaeology/private-commercial-or-development-property>

<b>Construction Methods</b>		
<b>Development Options</b>	<b>Description of Impacts</b>	<b>Level of Impact</b>
Avoidance	<p>Adjust the location or orientation of structures to avoid the archaeological site, thereby focusing activities within areas with little or no archaeological materials.</p> <p>Homeowners may seek variances through their local governments (e.g., additional height) in exchange for actions to avoid sites .</p>	Low
Building on existing foundations	<p>Reuse existing foundations to limit impacts to potential archaeological deposits and result in less archaeological work.</p> <p>Using an existing foundation limits the need for further excavation and results in fewer impacts. This may be combined with other methods listed below (e.g., cantilevering).</p>	Low
Importing fill	<p>Importing sufficient fill to support utilities and construction options (e.g., slab on grade foundations).</p> <p>Building the ground surface up with construction fill protects sites and limits activities to culturally sterile deposits.</p>	Low
Alternate foundations: piles	<p>Pilings screwed or driven into the soil may result in less impact to archaeological deposits than conventional foundations.</p> <p>Examples include screw pilings, helical piles and micro-piles</p>	Moderate
Utilities Installations and Upgrades	<p>Linear trench to support underground utilities (e.g., electrical, water). Previous utility trenches may have been subject to assessment or may be located exclusively in imported fill. There is still a risk of previously disturbed archaeological sites.</p>	Low to High
Alternate foundations: Slab-on-grade/slab-on-ground, and raft slab	<p>A concrete raft slab foundation is built on the ground or on a prepared gravel pad to provide a level construction surface for the entire house footprint.</p> <p>These approaches may require removal of organics, leveling and compaction of soil, which may result in impacts to archaeological deposits.</p>	Moderate to High

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Cantilever/Columns, pad footings and grade beams	A rigid structural element that extends horizontally and is unsupported at one end, to extend square footage of a structure beyond the foundation footprint, thus limiting ground disturbance and possible impacts to archaeological deposits. This type of construction may be able to accommodate above-ground crawl spaces on footings.	Moderate to High
Frost-Protected Shallow Foundation	Insulated foundation, close to the ground surface, to prevent frost heave  Comparatively shallow to conventional basements (i.e., foundations may be 16 inches below grade) but may still result in extensive impacts to archaeological deposits.	High
Strip footing Foundation	Combines elements of both slab and crawlspace foundations, typically using a combination of footings and stem walls.  Comparatively shallow to conventional basements (i.e., foundations may be 18 inches below grade, depending on soils and subsoils) but may still result in extensive impacts to archaeological deposits.	High
Subsurface Crawl space	Comparatively shallow to conventional basements that may still result in extensive impacts to archaeological deposits.	High
Full basement	The highest risk of impacts, often requiring the most extensive and costly archaeological work.	Very High
<b>Development Features</b>		
Above ground features	Above-ground pools, hot tubs, and planter boxes result in low impacts.	Low
Landscaping	Consider importing fill to build up the grade of a property to allow for changes to the contours of the ground without extensive impacts to the original ground surface.	Low to Moderate
Fencing	Installation methods may vary from hand-installation of posts or no-dig installation of posts (both recommended) to machine installation through trenching and back-filling (more invasive).	Moderate

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Septic	Replacements and new installations may extensively impact archaeological sites. Limit impacts by installing septic tanks within imported fill or reusing existing septic footprints.	High
In-ground water features	Construction of in-ground pools, hot-tubs, and ponds often require extensive impacts to archaeological sites. Consider above-ground structures instead.	High

## Change Log

<b>Version Date</b>	<b>Key Changes</b>
July 2024	Guidance created, informed by materials provided by the discussions with select local governments