

Title	Surface Material Excavation
<b>Scope of Application</b>	<p>This BMP provides guidance for excavation, handling, storage, and disposal of soils and surface materials during construction work. Specific activities covered by this BMP include:</p> <ul style="list-style-type: none"> <li>• Surface material and soil horizon excavation.</li> <li>• Storage of soil piles for salvage and re-use.</li> <li>• Disposal of excess soils and surface material.</li> <li>• Drainage, erosion and sedimentation control of excavated/disturbed areas.</li> <li>• Back-filling excavated/disturbed areas.</li> <li>• Re-contouring activities.</li> <li>• Erosion control until restoration commences.</li> </ul>
<b>Exceptions</b>	<p>This BMP does NOT apply to the following:</p> <ul style="list-style-type: none"> <li>• Excavations in water bodies or sensitive soil habitats such as permafrost.</li> <li>• Excavation of areas where contamination is known or suspected.</li> <li>• Excavation within 30 m of a known or suspected cultural resource site.</li> <li>• Borrow pits; in-park borrow pits must undergo a separate EIA and conform to the <i>CPS Management Directive 2.4.7 (1989)</i>.</li> </ul> <p><b>Note:</b> The Superintendent or designate may determine that a BMP alone is not sufficient to detect or prevent adverse environmental effects and recommend a separate EIA. Under certain circumstances, the use of this BMP may be applied to activities outside the scope of the application if it is determined that the BMP is sufficient to address all potential adverse environmental effects alone or in combination with another BMP or EIA pathway.</p>
<b>Approved Geographic Area of Application</b>	Northern Prairies Field Unit (Prince Albert and Elk Island National Parks).

<b>Potential Key Effects</b>
<i>Ecological Effects</i>
<ul style="list-style-type: none"> <li>• <b>Soil Quality and Quantity:</b> Excavation activities and the operation of heavy machinery may result in soil compaction and rutting. Disturbed areas may become more susceptible to erosion, which could lead to increased soil losses and sedimentation into streams or water bodies. Improper excavation of top soils and storage of soil piles may result in soil losses.</li> <li>• <b>Soil, Water, and Air Quality:</b> Unclean machinery, fluid leaks, fuel spills, or improper storage and disposal of excavated materials may contribute to contamination of soils, waterways, and air (dust).</li> <li>• <b>Fish and Fish Habitat:</b> Work near water bodies may result in sedimentation of fish bearing waters during excavation, storage, backfilling or disposal activities.</li> </ul>

<ul style="list-style-type: none"> <li>• <b>Vegetation:</b> Excavation, storage, and disposal activities may destroy surrounding vegetation. Areas of disturbance may also facilitate the establishment of non-native seeds.</li> <li>• <b>Wildlife:</b> Wildlife may be displaced by excavation activities or become entrapped in trenched areas.</li> </ul>
<b><i>Cultural Resources</i></b>
<ul style="list-style-type: none"> <li>• Soil excavation may impact buried archaeological artifacts or sites. This BMP does not apply in known cultural resource areas. Prior to excavating outside of previously disturbed areas, consult a cultural resource specialist to determine if a Cultural Resources Impact Assessment (CRIA) is required.</li> </ul>
<b><i>Visitor Safety and Experience</i></b>
<ul style="list-style-type: none"> <li>• Excavated areas pose a public safety risk.</li> <li>• Heavy machinery activities pose a risk to public safety in public use areas.</li> </ul>

<b>Mitigation Measures</b>
<b><i>Erosion and Sedimentation Control</i></b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Plan work during dry weather to minimize erosion and allow for easier sediment control.</li> <li><input type="checkbox"/> Retain existing vegetation and ground cover wherever possible to limit the area of exposed soils.</li> <li><input type="checkbox"/> Establish erosion and sedimentation control measures prior to work commencing: <ul style="list-style-type: none"> <li><input type="checkbox"/> Silt fencing must be erected parallel to work areas along waterways and 10 m on either side of stream crossings.</li> <li><input type="checkbox"/> Trenched silt fences, sandbags, or covered earthen berms should be used to direct surface runoff away from exposed soils and excavated areas.</li> <li><input type="checkbox"/> Surface runoff through excavated areas should be pumped or directed through swales or drainages designed to reduce flow velocity and erosion and maximise settling potential. Swales or drainages should be directed away from existing water bodies and into appropriate sediment settling ponds or dry upland areas. Settling ponds should be discharged by spraying or pumping water into upland, dry areas. Do not discharge settling ponds into existing water bodies or wet areas.</li> </ul> </li> </ul>
<b><i>Wildlife Protection</i></b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Minimize open-trench conditions. Excavate short sections (5-10 m lengths) at a time if large areas of excavation are required.</li> <li><input type="checkbox"/> Excavations should have gently sloped areas or provide escape routes for wildlife every 5-10 m to avoid entrapment.</li> <li><input type="checkbox"/> Every effort should be made not to leave excavations open overnight. In the event they must be left open overnight, cover with lumber or fence off the perimeter.</li> </ul>
<b><i>Use of Heavy Machinery</i></b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Equipment and machinery must be kept clean and properly maintained, in sound mechanical condition, free of any leaks or contaminants such as external grease, fuel, hydraulic fluid or coolant.</li> </ul>

<ul style="list-style-type: none"> <li><input type="checkbox"/> Keep machinery to designated work areas (roads, trails or designated temporary dry, upland workspaces) and away from wet locations. Heavy machinery must not be operated in or cross any water body.</li> <li><input type="checkbox"/> All maintenance and servicing activities must be conducted at least 30 m away from water courses, and machinery must have a spill kit capable of containing 110% of on-site fuel.</li> <li><input type="checkbox"/> Any damage to park infrastructure or property, including roads, trails or culverts must be repaired to the previous condition prior to demobilizing from the site.</li> <li><input type="checkbox"/> Ruts and compacted areas must be back-filled to thawed grade and capped with adequate topsoil for re-seeding. Re-vegetation with a native seed mixture representative of the surrounding area must occur; consult the <i>Restoration BMP</i> and Appendix C for further details.</li> </ul>
<b><i>Pollution Control</i></b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> If evidence of contamination (e.g. visual staining or odours) is uncovered during excavation, the work must stop until the Environmental Assessment Coordinator is notified. Any excavated materials with possible contamination must be isolated and secured on-site until appropriate action is identified.</li> </ul>
<b><i>Soil Excavation, Storage and Backfilling</i></b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Excavate and store surface materials including asphalt, road gravel, or other man-made substances separately from underlying soil horizons.</li> <li><input type="checkbox"/> Gravel and asphalt must either be processed and reused on-site or disposed of outside of the park at a certified facility. Gravel and asphalt must never be buried.</li> <li><input type="checkbox"/> Store material to be reused on a previously disturbed or impervious surface, separate from clean fill.</li> <li><input type="checkbox"/> Excavate soil horizons separately and store in spatially separated piles on an impervious or previously-disturbed surface.</li> <li><input type="checkbox"/> Salvage and replace organics and top soil in the reverse order of excavation over mineral soils during backfilling activities (See Appendix D for details on soil horizons).</li> <li><input type="checkbox"/> Backfill materials should be salvaged from excavated materials wherever possible. Reuse options include backfill beneath cover layers, capping layers, re-grading, berming, and landscaping.</li> <li><input type="checkbox"/> Excavated soils for reuse must be clean (no source of contamination) and free of invasive species.</li> <li><input type="checkbox"/> Additional backfill material must be clean and free of invasive species or seeds. All backfill material must be obtained from a clean off-site source.</li> <li><input type="checkbox"/> Borrow pits are NOT considered as part of this BMP; in-park borrow pits must undergo a separate EIA and conform to the <i>CPS Management Directive 2.4.7 (1989)</i>.</li> <li><input type="checkbox"/> Reduce debris migration off-site (e.g. use sand-bag berms or weighted tarps) when soil storage is required for an extended period (&gt;7 days) and heavy rain or wind is forecasted.</li> <li><input type="checkbox"/> Backfill sloped and re-contoured areas to maintain the surface gradient of the surrounding area or specified end-use design.</li> <li><input type="checkbox"/> Compress back-filled areas to thawed grade.</li> <li><input type="checkbox"/> Cap backfilled areas with topsoil in preparation for re-seeding.</li> </ul>
<b><i>Erosion and Sedimentation Control of Disturbed Areas</i></b>

<input type="checkbox"/> Re-seed or develop areas with bare soil as soon as possible. <input type="checkbox"/> Erosion control measures such as 100% biodegradable erosion control blankets, coconut matting or hydro seeding must be implemented in disturbed areas and maintained until development commences or vegetation re-establishes. For additional restoration measures, see the <i>Restoration BMP</i> .
<b><i>Disposal of Excess Soils</i></b>
<input type="checkbox"/> Clean, weed-free excess soil must be disposed of outside of the park or at Bear Trap (PANP) or the Wood Yard (EINP) unless otherwise specified. <input type="checkbox"/> Excavated gravel or paved surface material (asphalt) must be processed on-site for reuse within the same work area or disposed of outside of the park at an approved facility. <input type="checkbox"/> If excavated soils contain potential contaminants, they must be secured on-site for appropriate off-site disposal. For more details, refer to the <i>Construction Waste Management BMP</i> .
<b><i>Cultural Resources</i></b>
<input type="checkbox"/> Prior to excavating outside of a previously disturbed area, contact a cultural resources specialist to determine whether a Cultural Resources Impact Assessment (CRIA) is required. <input type="checkbox"/> If archeological artifacts are discovered or suspected during excavation, all work must stop, any excavated material must be secured onsite, and the Parks Canada representative must be notified.
<b><i>Visitor Safety and Experience</i></b>
<input type="checkbox"/> Plan construction work around peak visitor seasons, such as during the fall or winter months, wherever possible. <input type="checkbox"/> Install appropriate warning signs (in both official languages) around excavation areas. <input type="checkbox"/> Sufficient barriers and security must be used to restrict access of the public for the duration of open-trench work. <input type="checkbox"/> All work and machinery must be contained within work area.

<b>Development and Review</b>		
<b>Date</b>	<b>Name, Position</b>	<b>Summary</b>
08-06-2014	Aisha Uduman, Student Brent McDougall, Resource Conservation Officer EINP Christine Hamilton, Technical Services Officer PANP Mark McIntyre, Technical Services Officer EINP Heather McPhee, Ecology Team Leader, PANP	BMP development
21-12-2015	Fiona Moreland, Ecology Team Leader, PANP	Review

<b>Approval</b>		
<b>Name, Title</b>	<b>Signature</b>	<b>Date</b>
David Britton, Field Units Superintendent, Northern Prairies Field Unit	Original signed by Genevieve Jones, Acting FUS	June 12, 2018

### **Referenced BMPs:**

*Construction Waste Management BMP*

*Restoration BMP*

### **References:**

Residential and Civil Construction Alliance of Ontario. 2012. Best Management Practices for Handling Excess Construction Soils in Ontario. Guidance document, Version 1.0. Accessed June 11, 2014: [http://www.rccao.com/news/files/RCCAO\\_NOV2012.pdf](http://www.rccao.com/news/files/RCCAO_NOV2012.pdf)

Ontario Ministry of the Environment. 2014. Management of Excess Soil – A Guide for Best Management Practices. Government document. Accessed June 11, 2014: <https://dr6j45jk9xcmk.cloudfront.net/documents/1389/244-excess-soil-en.pdf>