



Study Area: Geo-Environmental

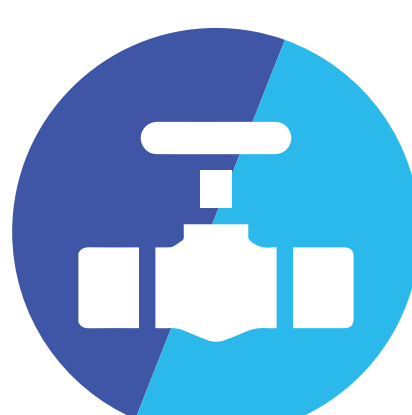
Geo-environmental processes on Grand Cayman contribute to **sourcing potable water** to residents and supporting natural resources.

After assessing the island's baseline geo-environmental conditions, this section of EIA study will evaluate the potential impacts of the proposed project, including potential mitigation measures for avoidance or minimization of impacts. The geo-environmental study includes geology, soils, peat, and hydrogeology.

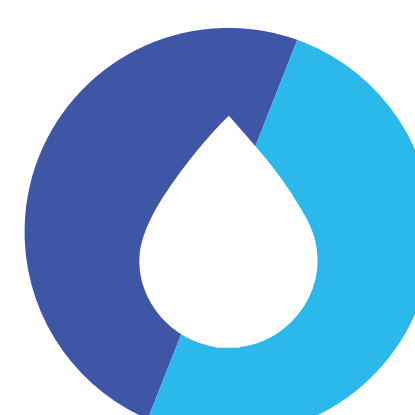
The potential impacts that the EIA will evaluate include:



Removal, covering or compaction of peat around wetlands



Changes in drainage patterns/stormwater management



Temporary water changes during construction phase



Increases in impervious surfaces (pavement) which may modify water recharge rates



Alterations to freshwater lenses (layers of freshwater on top of denser saltwater)

Information on geology, soils, peat and fresh water along with climate and land use changes will be collected and analysed as part of the EIA process.

Potential **mitigation efforts** to avoid or minimise impacts from the EWA on geo-environmental factors and improve resiliency to anticipated effects from climate change could include:

- /// **Salvage and reuse** mangrove peat
- /// **Reduce** need to fill by elevating roadway and employing other design options
- /// **Avoid** placing staging and stockpile areas and access on peat and on/near freshwater lenses
- /// **Use** of low-impact construction vehicles and/or mats
- /// **Require** careful design of roadway in portions of the flow system supporting freshwater lenses
- /// **Design** mitigation measures to maintain good water quality in discharged water
- /// **Ensure** hydrological regimes are maintained, and aquifers are recharged like existing conditions
- /// **Design** stormwater systems to be effective with rising sea level from surface and groundwater
- /// **Use** elevated structures in highly vulnerable areas