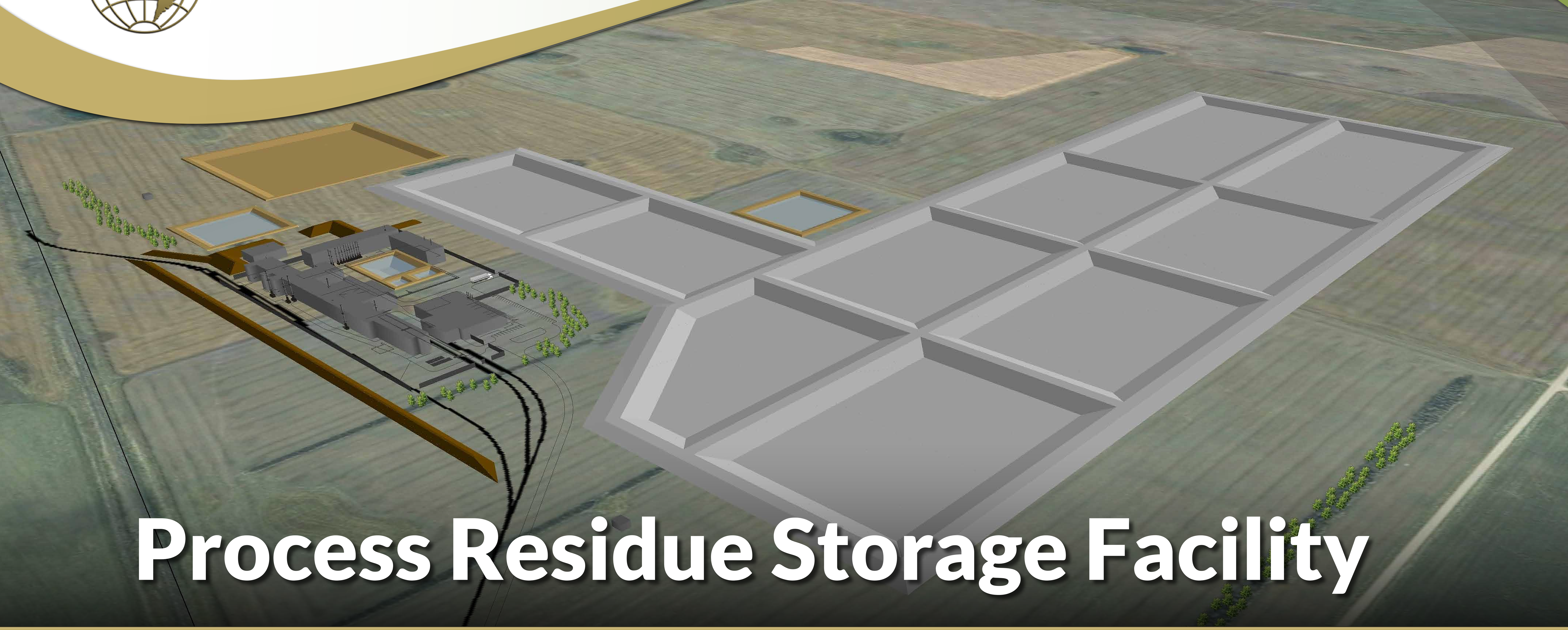
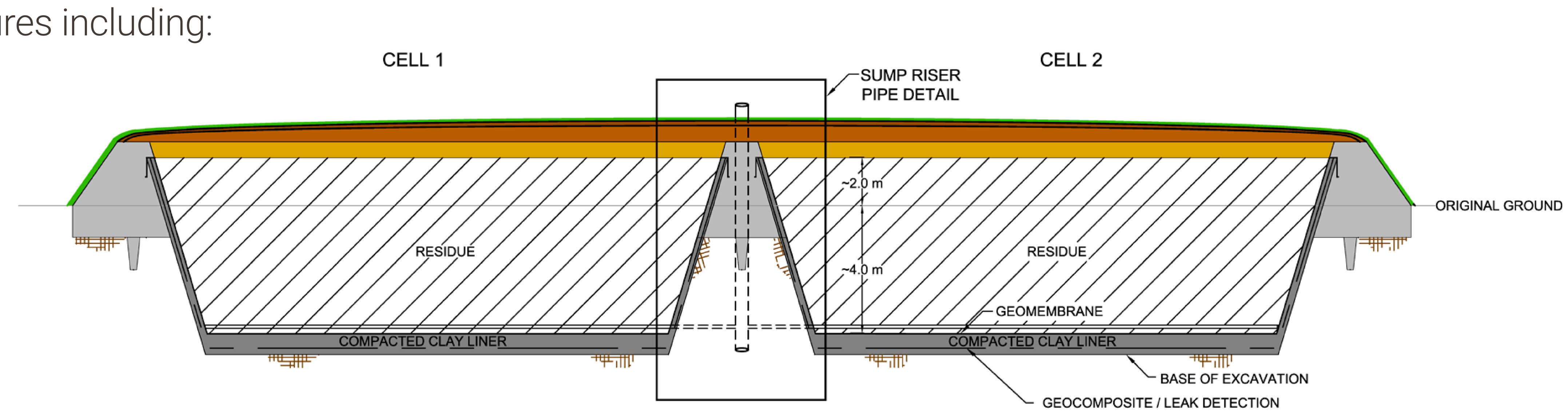
FORTUNE MINERALS LIMITED

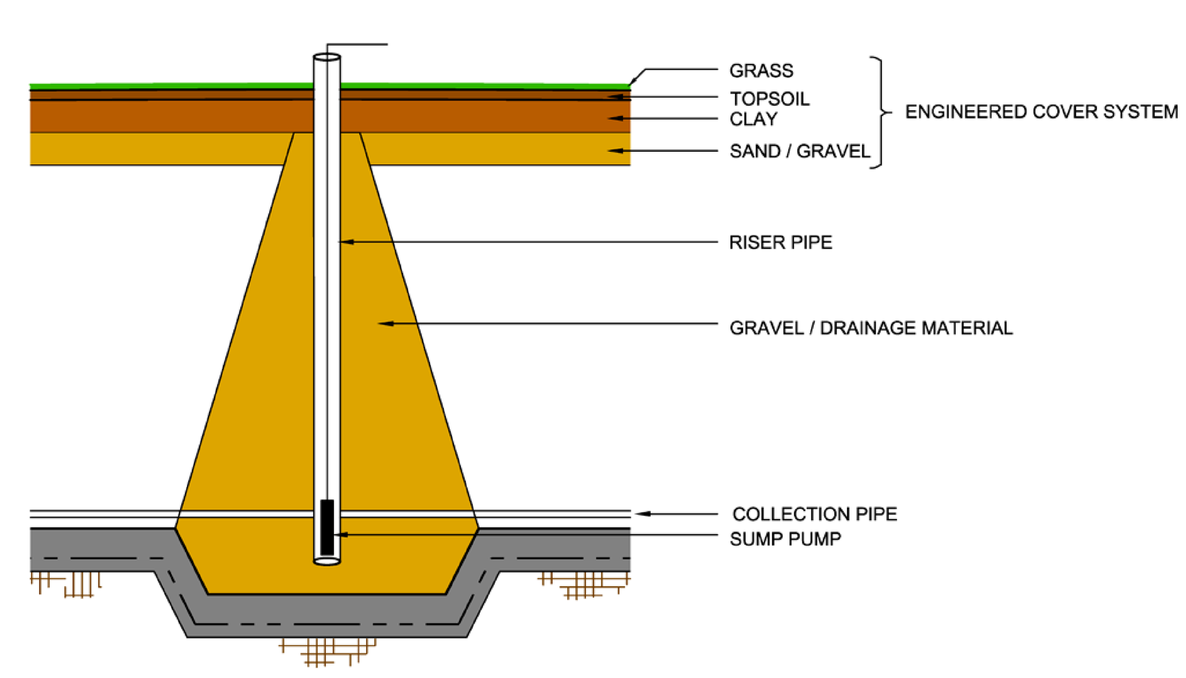
Process Residue Storage Facility



PROCESS RESIDUE MANAGEMENT

- A Process Residue Storage Facility (PRSF) with up to 10 storage cells will store the process residue
- Each cell will be 5 m deep and have a 2 m high perimeter berm
- Each cell is designed with multiple containment features including:
  1) a low permeability geo-membrane liner
  2) two layers of compacted till
  3) a collection system
  4) a leak detection system


CELL 1
CELL 2
SUMP RISER PIPE DETAIL
ORIGINAL GROUND
~2.0 m
~4.0 m
RESIDUE
RESIDUE
GEOMEMBRANE
COMPACTED CLAY LINER
COMPACTED CLAY LINER
BASE OF EXCAVATION
GEOCOMPOSITE / LEAK DETECTION


GRASS
TOPSOIL
CLAY
SAND / GRAVEL
ENGINEERED COVER SYSTEM
RISER PIPE
GRAVEL / DRAINAGE MATERIAL
COLLECTION PIPE
SUMP PUMP

SUMP RISER PIPE DETAIL

SOLUTE MIGRATION MODELLING

- Groundwater flow and contaminant transport modelling was conducted, assuming worst-case criteria:
  - No cover system
  - No collection system
  - Metals are leached from the stable residue
- Under this worst-case scenario:
  - Vertical contaminant migration is limited to < 5 m after 500 years and does not reach the Dalmeny Aquifer
- However, the design case includes:
  - Cover system
  - Collection system
  - Leach tests show residue is safe for landfill disposal
- Therefore, solute migration is even further minimized

METALS ABSORPTION

- Clay tills have a high naturally absorption capacity for dissolved metals, where metals can become fixed in a stable mineral structure in the clay
- The till at the proposed site was laboratory tested for absorption capacity. Tests show the tills can readily remove dissolved metals from the solute through chemical absorption
- The absorption capacity of the natural clay till provides another element of protection for the Dalmeny Aquifer

MITIGATION PLANNING

- Fortune Minerals is committed to aquifer remediation in the unlikely event that solute from the PRSF manages to:
  1) pass through the containment system
  2) contain higher metal concentrations than deemed plausible
  3) migrate further than simulated and reasonable expected
  4) exceed the attenuation capacity of the natural clay till
- It would take nearly 50 years for water flowing horizontally in the Dalmeny Aquifer to reach the northern property boundary
- Fortune Minerals will conduct leak detection and groundwater monitoring throughout operations and after decommissioning
- Impacts to the Dalmeny Aquifer are not predicted and easily mitigated due to the design, operations monitoring, and decommissioning of the PRSF

SASKATCHEWAN METALS PROCESSING PLANT