WEIR TANKS

(a.k.a. dewatering tanks)

Weir tanks can be used on construction sites to detain stormwater runoff and promote sediment settling. Compared to other detention measures that are built on site, like basins or sediment traps, tanks can be a convenient and small footprint solution for short duration dewatering activities, since they are readily transported on and off site. The internal structure of the tank includes bottom weirs to help detain water and dissipate energy to aid in the settling of suspended solids.

Figure B2-22: Weir tanks

Application

Weir tanks are can be used alone or as the settling component of a larger water treatment system. Tanks can be particularly useful when:

- Sediment removal is required for short-term pumping / dewatering activities, such that taking the time to construct a BMP with similar sediment removal capacity (e.g. sediment control pond) would be impractical;
- Site specific requirements dictate more stringent effluent water quality standards than are achievable when applying other sediment control BMPs used during dewatering (e.g. sediment bags); or
- Planned pumping rates are high and require a large capacity BMP.

Design and installation

- Tank selection should be done in consultation with the system supplier and determined based on consideration of the anticipated pump rates and the target detention time and sediment removal efficiency. Sediment particle size distribution should also be considered, since finer particles are more difficult to settle.
- Determine the location where the system will be placed based on consideration of the following:
  - Stability of the ground surface.
  - Accessibility by vehicles that will be transporting the tank.

  - Distance from any natural water feature (≥ 30 m recommended where possible)
- The rate at which effluent is discharged from the tank should be based on the capacity of the downstream receiving area to accommodate those flow rates. Ensure the system discharges to a well stabilized area, with flow dispersion and interruption devices placed as needed. Consider the entire flow path to the receiver and apply stabilization measures along the path as needed.
- For a multi-barrier approach, add a sediment control barrier around the area where the active treatment system is placed. This will provide added protection in the event of any pipe leaks.
- Keep a spill response kit near the active treatment system and ensure staff are aware of spills response and reporting protocols.

Inspections and monitoring

- Inspect daily during active use of the system and keep a record of the inspection.
- Carry out routine inspection of sediment accumulation in the tank to determine when clean out is required and ensure previously settled sediment is not becoming re-suspended.
- Carry out routine effluent monitoring to verify performance and ensure that effluent quality meets any applicable standards. If performance declines, consider whether pump rates need to be adjusted or accumulated sediment needs to be removed. Consider enhancing removal efficiency through the use of a polymer flocculant based system.
- Ensure system is monitored daily during active pumping and that staff overseeing the use of the system have a thorough knowledge of proper operation.
- Where there is evidence of erosion at the discharge point or along the flow path downstream of the discharge locations, re-consider whether stabilization is adequate to protect against erosion based on the flows.
- Any repair or maintenance needs identified should be repaired within 48 hours or sooner if natural receptors are at imminent and foreseeable risk of adverse impact.