SEDIMENT (DEWATERING) BAG

A sediment bag is a large geotextile bag that is used to filter sediment laden water from a pump hose. They are commonly applied to treat water during construction site dewatering activities. As water is pumped through the bag, sediment is removed through filtration and gravitational settling caused by energy dissipation. The bag also disperses the water from the pump hose, preventing erosion typically associated with concentrated flows.

Figure B2-15: Sediment bag surrounded by filter sock

While the apparent opening size (AOS) of the geotextile fabric determines the maximum size of particle is filtered out, a significant amount of sediment removal is attributed to the reduction in flow velocity and associated gravitational settling.

Application

- Suitable anywhere dewatering of sediment laden water is necessary to create a dry work area, and particularly where space is limited.
- Examples: dewatering of an isolated in stream work area, tunneling, excavating for a basement, or drawing down a sediment control pond to allow for maintenance.
- Applied where flow dispersion is needed to prevent erosion, as the bag receives concentrated water from the hose and disperses.
- Best used as a dewatering treatment train (see Figure B216- and B2-17).

Design and installation

- Sediment bags are manufactured in various sizes and are pre-sealed on all sides except for a small opening on one end, adequately sized for a dewatering hose. Refer to the manufacturer's specifications for capacity and sizing details as well as proper clamping procedure.
- Select sediment bag constructed from durable, non-woven UV stabilized geotextile with a high puncture and tear resistance.
- Ensure the manufacturer's specified water flow rate and apparent opening size are appropriate for the planned flow rates and the expected particle size distribution of the water being treated.
- Bag should be located at least 30 m from any natural water feature in order to minimize risk of a sediment spill into the feature if the bag ruptures. Where siting 30 m away is not possible, consult with the local CA for guidance on potential laydown areas and any additional measures (e.g. dewatering treatment train setup) and monitoring efforts that can be applied to mitigate risk.
- Bag should be located so that it is easily accessed for maintenance and removal purposes and so that water discharged from the bag doesn't cause or aggravate erosion.
- Place bags on a relatively flat surface to ensure the bag doesn't shift downslope.

- Place on stabilized ground (e.g. grassed surface, rock pad) and underlain with non-woven geotextile fabric to prevent erosion under and around the bag. Installing a rock pad or wood pallet below the bag can be beneficial as it make allow for better drainage out of the bottom of the bag.
- As part of a ***treatment train*** or ***multi-barrier approach*** to dewatering through a sediment bag, install a sediment control barrier such as a filter sock around the bag in order to provide more opportunity for sediment settling. See dewatering treatment train shown in Figures B2-16 and B2-17.
- Ensure the planned flow path from the bag to the ultimate receiver is stable, and where it is not, create a stable flow pathway to ensure the discharge doesn't cause erosion.
- During freezing conditions keep the bag elevated, such as with a rock pad, to prevent it from freezing to the ground and tearing when being lifted away for removal.

Inspection and maintenance

- Inspect daily during active pumping into the bag to ensure that there are no tears or leaks in the seals or the bag, and also check that the discharge from the bag is not causing erosion underneath it or anywhere along the flow path from the bag to the receiver. Keep a record of the inspection.
- Where there is evidence of erosion, re-consider whether stabilization is adequate to protect against erosion based on the flows coming out of the bag.
- Confirm that the pumps and bag size are continuing to provide the desired level of water treatment. Where sediment levels in discharged water remain elevated, consider adding or replacing with a different dewatering practice (e.g. weir tanks) to provide additional sediment removal.
- Inspect bag to determine whether it is full and requires replacement.
- Where the bag is damaged or no longer functioning, cease pumping immediately and replace or repair components.
- Replace the bag once it's not functioning and/or according to the manufacturer's instructions. If the flow through rate begins to decline significantly that may indicate the bags is full and requires replacement. The amount of sediment contained in the bag can also be confirmed once pumping is ceased and the bag is left to drain.
- Keep additional bag(s) on site so that replacement can be handled quickly when needed.
- 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.

Decommissioning

- Allow bag to drain over time until the bulk of the water is gone.
- Remove bag with minimal disturbance to stabilized areas or nearly natural features. The full bag should never be lifted over a water feature or a person.
- Dispose of or reuse sediment based on its quality and the requirements stated in existing excess soil policy and legislation.
- Properly disposed of the sediment bag.
- Clean and restore the sediment bag lay down area.

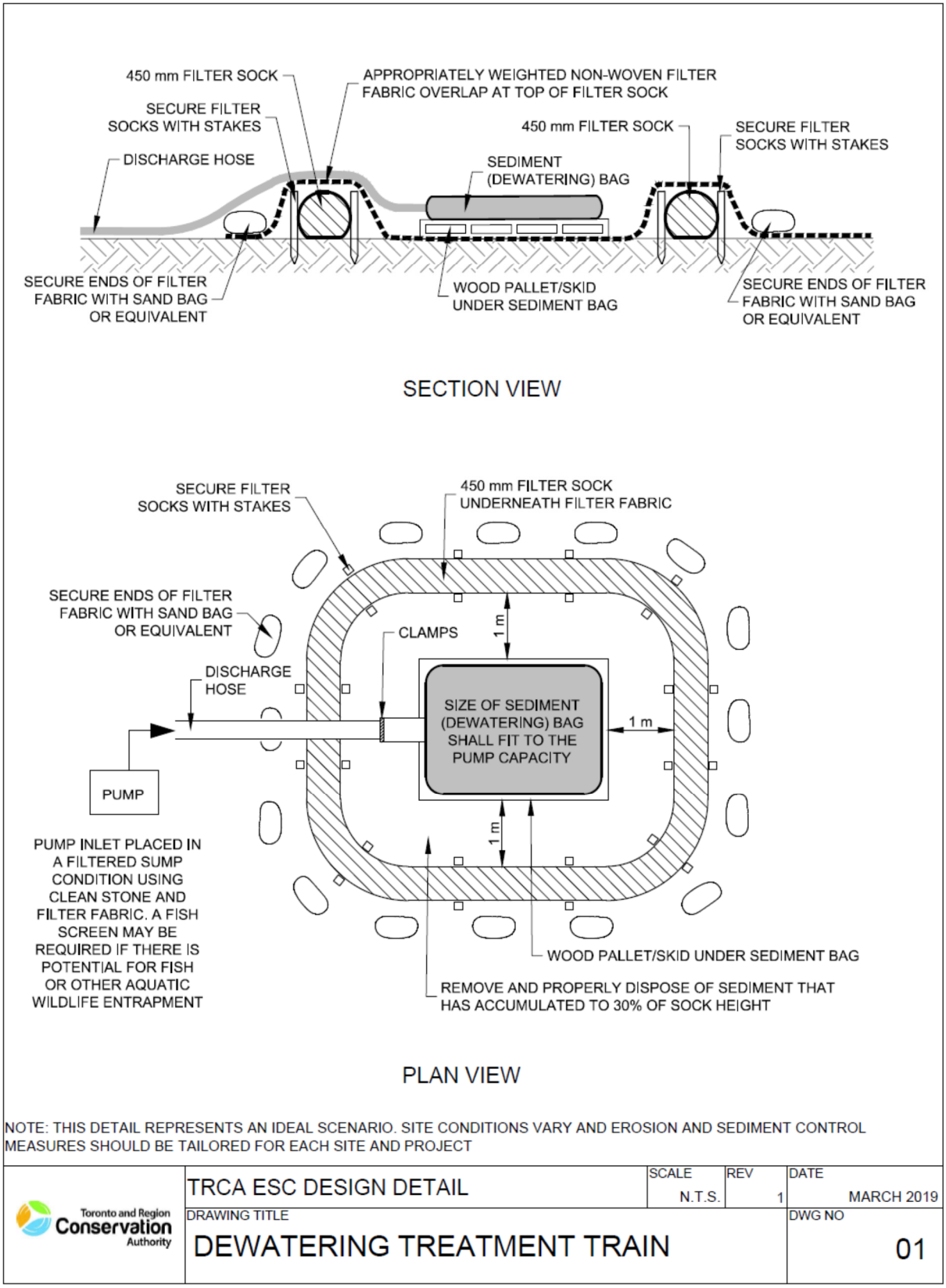

Figure B2-16: Dewatering bag treatment train (unfrozen conditions)

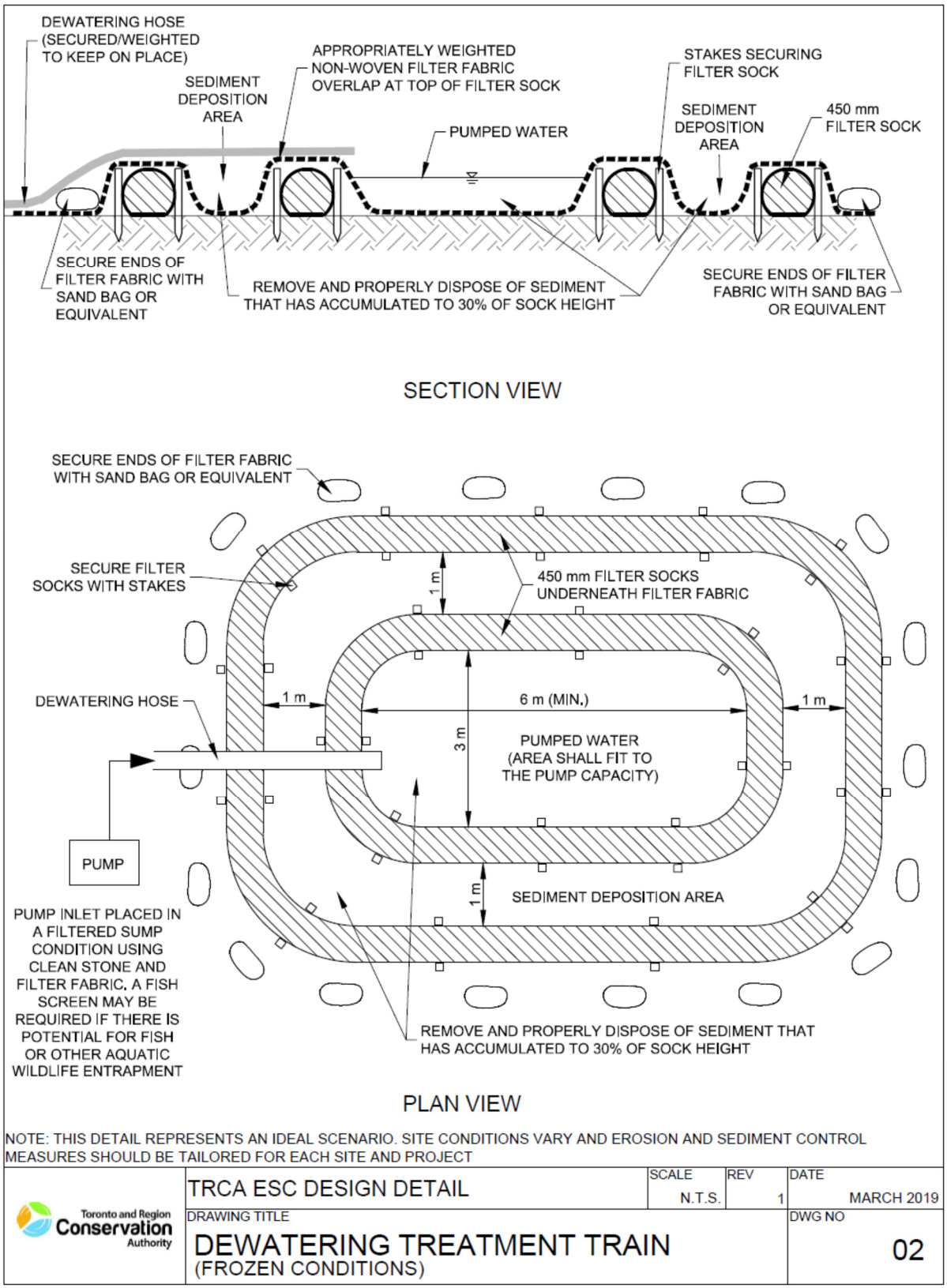

Figure B2-17: Dewatering bag treatment train (frozen conditions)