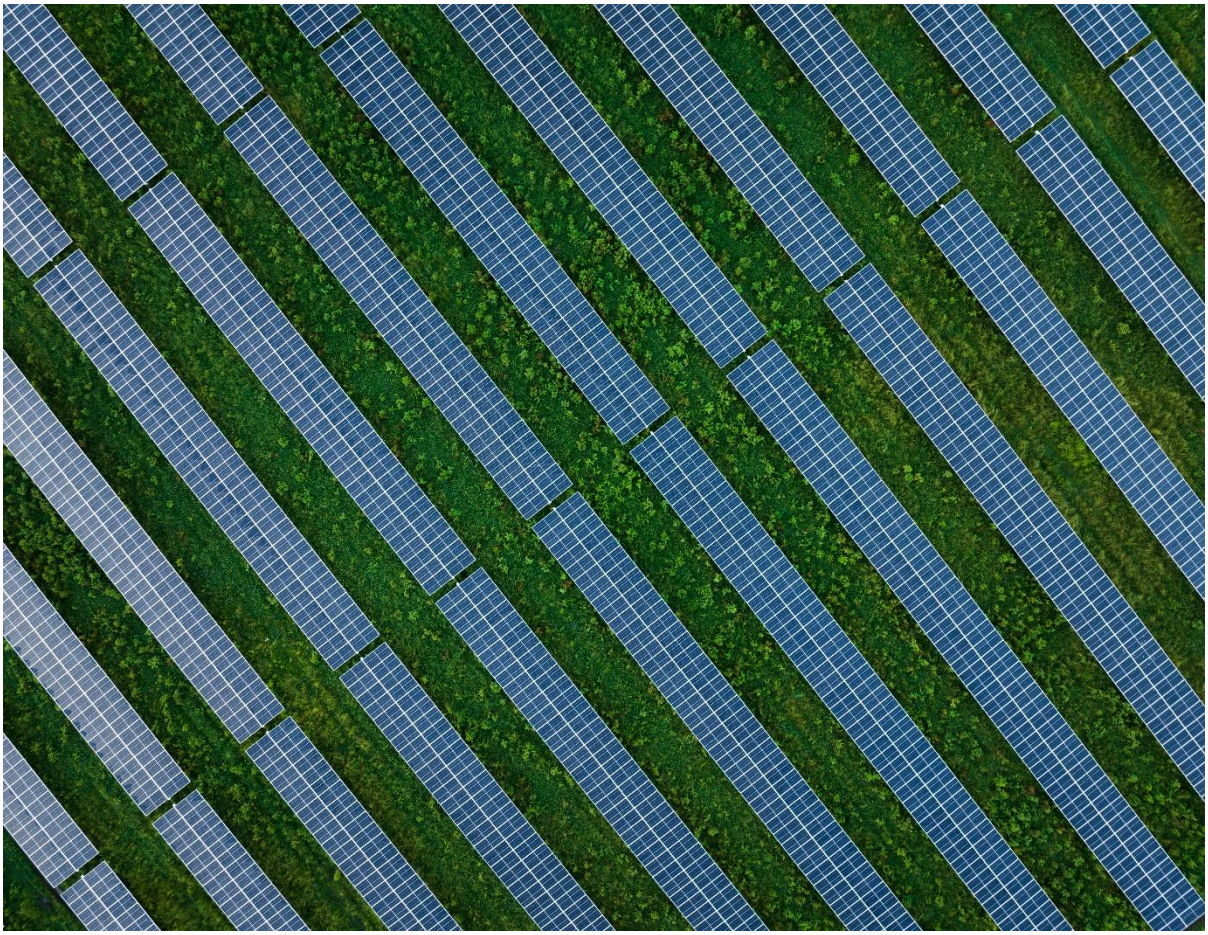


DRAFT – Erosion and Sediment Control Plan

Lodestone Energy Limited

July 2025 – Haldon Station

DRAFT – Erosion and Sediment Control Plan

1. Introduction

1.1 Purpose and Scope

This draft Erosion and Sediment Control Plan (ESCP) supports land-disturbing activities associated with the construction and development of the Haldon Solar Project by Lodestone Energy Ltd. The purpose of this document is to describe how earthworks associated with the Haldon Solar Site (the Site) can be managed to mitigate any potential sediment discharge risk and avoid adverse impacts on the environment during construction.

The ESCP sets out the principles and practices of erosion and sediment control methodology, based on a preliminary site design, with commentary about what erosion control practices and sediment treatment devices may be required.

Overall, the site works present a low risk from an erosion perspective, due to the limited nature of earthworks (including no significant cut to fill work), the flat nature of the site, and the approach to stabilise bare areas rapidly.

The ESCP outlines best-practice erosion and sediment control (ESC) methodologies to be implemented across the site and is prepared in alignment with Environment Canterbury's Erosion and Sediment Control Toolbox (ESCT).

Earthworks activities include:

- Establishment of laydown and compound areas.
- Progressive trenching and backfilling of electrical cabling routes.
- Installation of internal access tracks.
- Minor land re-contouring and bulk fill at the substation location.
- Piling for solar arrays (no spoil generation).
- Progressive site stabilisation through vegetation or aggregate.

1.2 Site Location and Description

The site is situated ~15 km southeast of Twizel within the Mackenzie Basin and occupies approximately 320 ha of Haldon Station. The area is bounded by the Tekapo River (north), Lake Benmore (west), and Mount Maggie (east). It is primarily composed of glacial outwash plains and modified pasture. Ground slope is mild, generally west to east, with some historical drainage paths leading toward Lake Benmore.

The site is likely to have an altered surficial layer including topsoil, underlain by natural material comprised of silty, sandy, or clayey gravel layers. The gravel layers may contain cobbles and the gravel is expected to extend to considerable depth, and the site is free draining as a result.

No permanent waterways exist on-site, though overland flow paths are present during high rainfall events, as identified in the flood assessment by Beca[1].

[1] Haldon Solar Farm Flood Risk Assessment, Beca (September 2024)

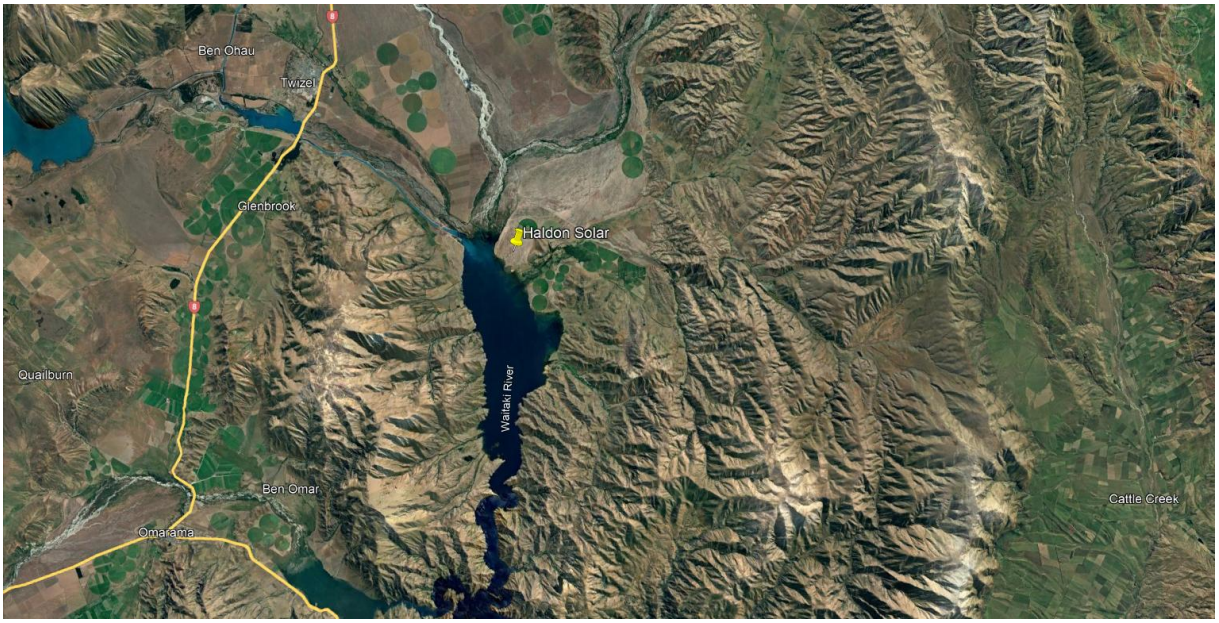


Figure 1 - Project Location

2. Principles of Erosion and Sediment Control

The key principles to be employed for an ESCP are to undertake land disturbing activities in a manner that reduces the risk of erosion of bare soils to occur (erosion control) and, to employ treatment devices to treat all sediment laden water prior to discharging from the Site (sediment control).

The 10 basic principles of erosion and sediment control will be applied (where relevant) to each of the defined scenarios (as applicable) and are outlined for completeness as follows:

- Minimise Disturbance: only work those areas required for construction to take place.
- Stage Construction: carefully plan works to minimise the area of disturbance at any one time.
- Protect steep slopes: where steep slopes exist within the works area, ensure that these are protected as steep slopes are prone to erosion.
- Protect Receiving Environments: map all sensitive receiving environments, streams, and watercourses before works commence.
- Stabilise exposed areas rapidly with sewing new seed or mulch cover.
- Install perimeter controls: divert clean water away from areas of disturbance and divert runoff from areas disturbed to sediment control measures.
- Employ detention devices: treat runoff by methods that allow sediment to settle out.
- Make sure the ESCP evolves: as construction progresses and the nature of land disturbing activities change, the ESCP needs to be modified to reflect the changing conditions on the Site.
- Assess and adjust: inspect, monitor and maintain control measures.
- Use trained and experienced contractors

Any ESCP prepared by the Contractor or their delegate as a requirement of any future conditions of consent will be developed and maintained in accordance with Environment Canterbury's ESCT.

3. Description of Works

The works for the Haldon Solar Project involve a range of land-disturbing and construction activities designed to support the development of a large-scale solar energy installation. These activities will be carried out across the 320 ha site and include careful consideration of erosion and sediment control requirements.

Key components of the work include:

Piling: The photovoltaic (PV) arrays will be installed using pile-driven mounting systems. Each pile will be driven into the ground to a depth of approximately 1.5 to 3 meters depending on local soil conditions. This method avoids excavation and does not generate spoil.

Trenching: Trenching will be required to lay the HV and LV electrical cables. Trenches will be approximately 1.2 meters deep and 600 mm wide, excavated progressively in 100-meter sections. Cables will be laid on a bedding of sand and then backfilled with topsoil. Revegetation will follow with seed and mulch.

Substation Earthworks: The 33/220 kV substation platform will require topsoil stripping over an area of approximately 6,000 m² and the placement of approximately 26,000 m³ of imported fill. The platform elevation is designed to accommodate a 450-year flood event with an additional 300 mm freeboard.

Laydown and Compound Areas: Temporary laydown areas will be established at strategic locations near the site entrance and substation. These areas will be sheeted with up to 300 mm of compacted aggregate and enclosed by perimeter bunds formed from stripped topsoil where available.

Access Tracks: Internal roads will be constructed with a minimum width of 4 meters and surfaced with compacted aggregate to facilitate construction and maintenance access. Where appropriate, roadside drains will be reformed to manage surface water runoff.

Fencing: Approximately 7 km of deer fencing, including rabbit-proof lower mesh, will be installed around the perimeter of the array for security and biosecurity purposes.

Stormwater and Overland Flow Management: While no natural waterways exist onsite, there are several overland flow paths which will be maintained or enhanced to ensure continued drainage. Diversion bunds and silt fencing will be used to prevent sediment-laden water from entering sensitive areas such as the lake buffer zone.

Stabilisation: All disturbed areas, including trenches and laydown areas, will be progressively stabilised through seeding, mulching, or aggregate cover to reduce erosion and sediment generation.

4. Erosion and Sediment Control Approach

This ESCP aims to:

- Minimise sediment generation.
- Stabilise exposed soils promptly.
- Maintain ESC measures through construction.
- Adapt to weather and site-specific conditions.

4.1 Key Measures

- **Stabilised Site Entrances:** Installed per ESCT specs (min. 150mm aggregate, 10m length, 4m width).
- **Silt Fences:** Installed to intercept sediment-laden runoff at laydown areas and near drainage paths.
- **Diversion Bunds:** Topsoil from stripping used to form perimeter bunds (min. 550mm height, 2m width).

- **Progressive Stabilisation:** Re-vegetation with seed and mulch or aggregate cover.
- **Dust Suppression:** Water carting and mulching where necessary.
- **Weather Contingency:** Measures adjusted before, during, and after significant rain events.

Refer to indicative site plan (to be appended) for location of ESC elements.

5. Monitoring and Maintenance

ESC measures will be maintained by the Principal Contractor (once appointed) or a nominated site environmental supervisor.

Monitoring includes:

- Daily inspections and after rain >5mm.
- Maintenance logs (date, findings, actions).
- Silt fences cleaned when 20% full.
- Stockpiles covered or seeded if retained longer than 2 weeks.

Decommissioning:

- All disturbed areas stabilised (80% vegetative cover or hard surface).
- Sediment removed and disposed of off-site.
- ESC measures removed once stormwater systems are operational.

6. Summary

The approach outlined in this ESCP relies on an earthworks methodology that minimises exposed areas at any one time and utilisation of sediment control measures where necessary, which are installed and maintained at an appropriate time and manner to minimise the amount of sediment entering waterways.

Overall the site works present a low risk from an erosion perspective, due to the limited nature of earthworks (with no significant cut to fill works proposed), as well as the flat nature of the site and the approach to stabilise bare areas progressively.

The methodology of sediment containment and prevention of erosion detailed in this plan are considered to be effective measures in minimising the potential effects to the environment from this project. Potential effects on the receiving environment from sediment runoff from the Site are considered to be less than minor.

The measures outlined in this ESCP will be adopted by the appointed Contractor, with details of sediment device design associated with their earthworks methodology and staging to be detailed in a final Erosion and Sediment Control Plan.

Appendix A: Typical Details

Stabilised entranceway specifications

Design parameter	Specification
Aggregate size	50 - 150 mm washed aggregate
Minimum thickness	150 mm
Minimum length	10 m
Minimum width	4 m

Figure 2 - Stabilised entranceway specifications

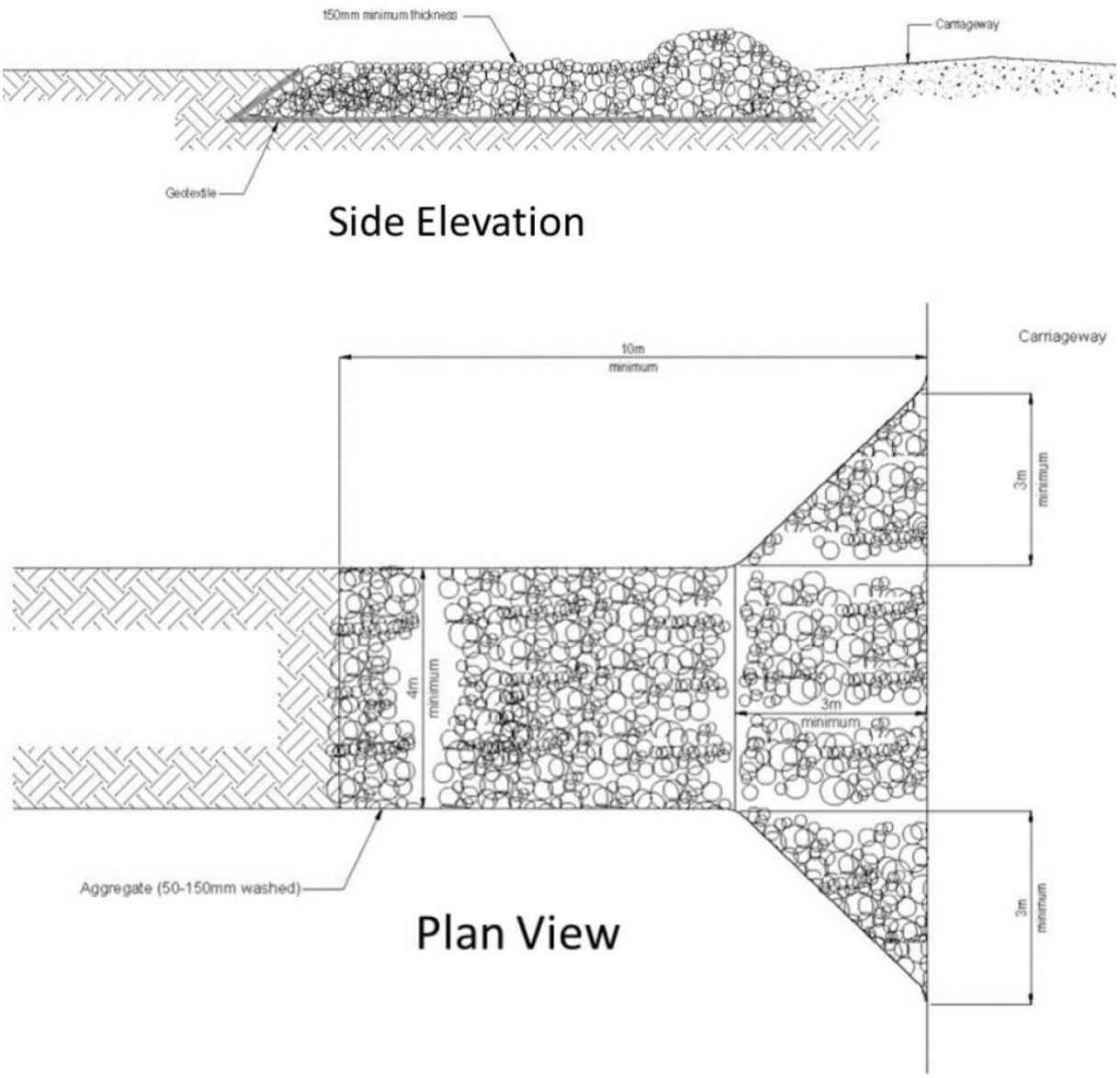


Figure 3 - Stabilised entranceway - side elevation and plan view

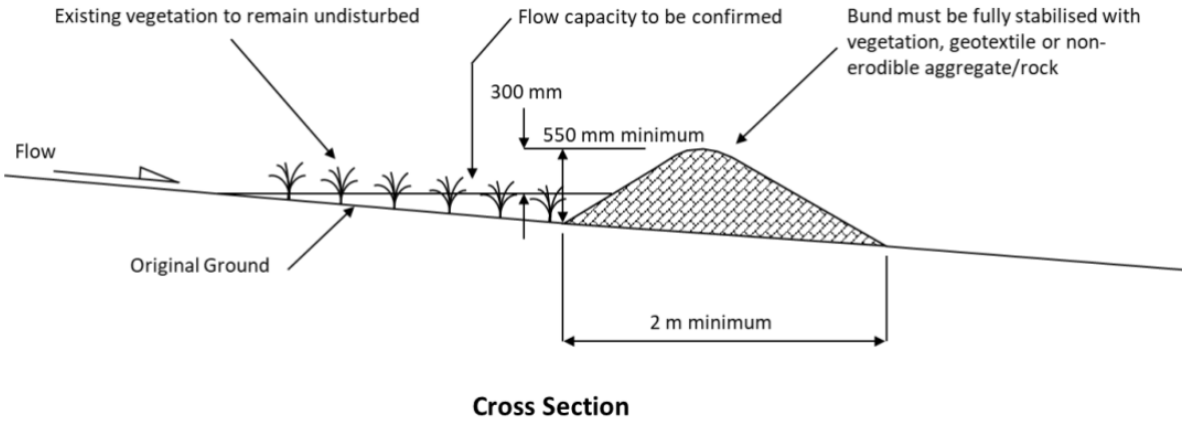
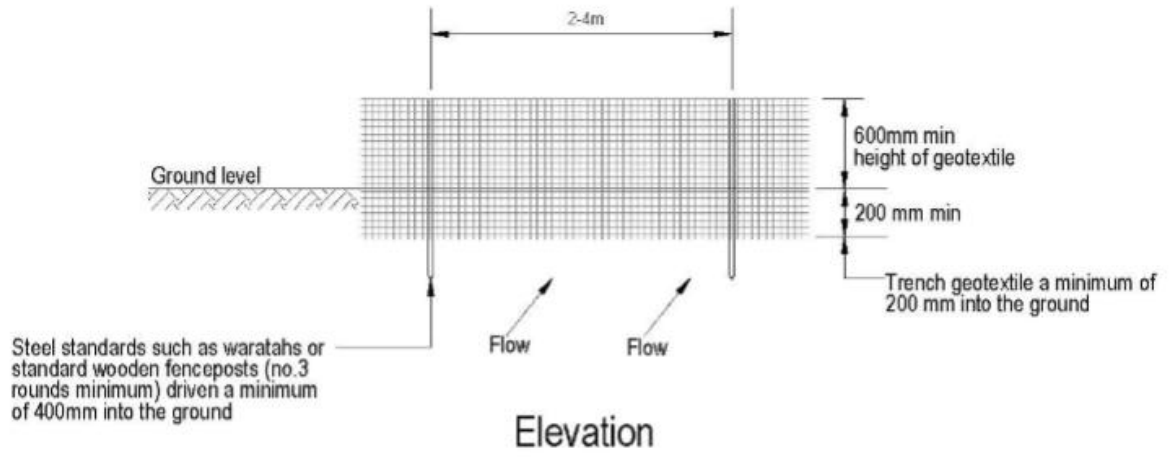


Figure 4 - Cross section of a clean water bund (perimeter bund). Note, topsoil stripped from laydown / compound will be limited and may not result in sufficient topsoil to form a 550mm high bund

Figure 5 - Example turfing where scrape from within the site stabilises the perimeter bund. The perimeter bund provides both clean and dirty water control



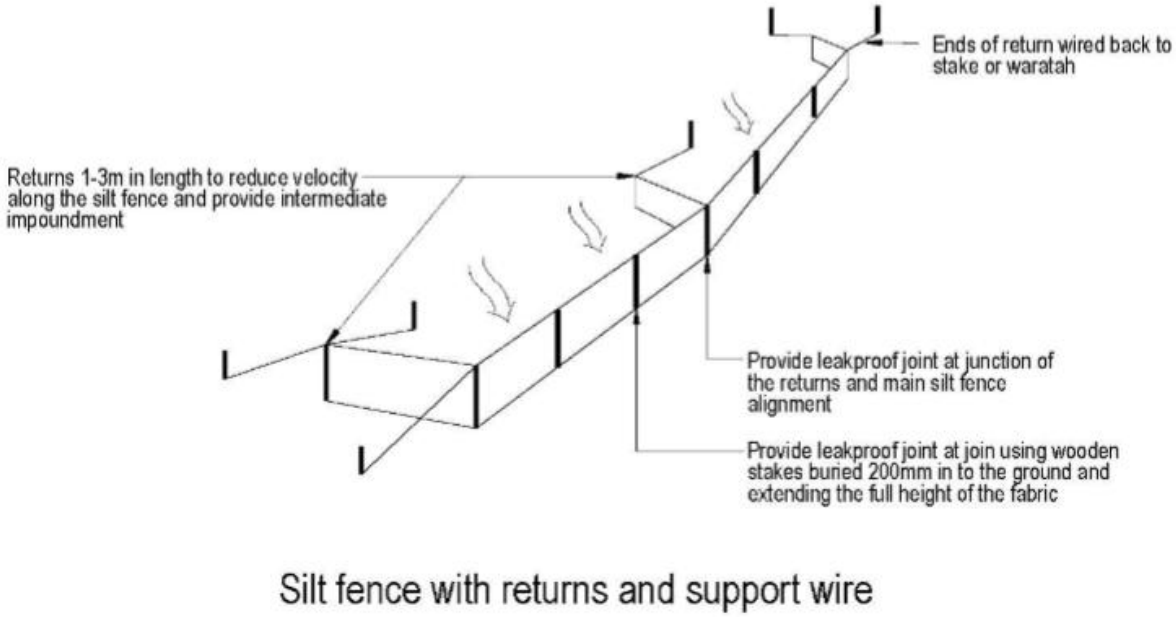
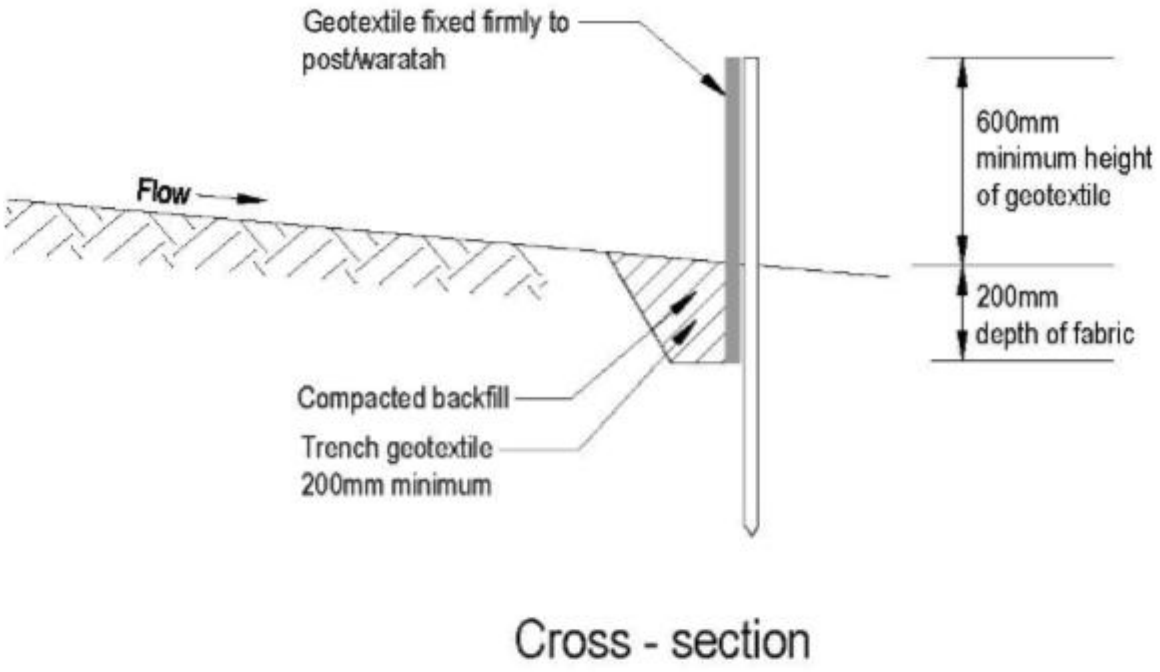


Figure 6 - Silt fence design details



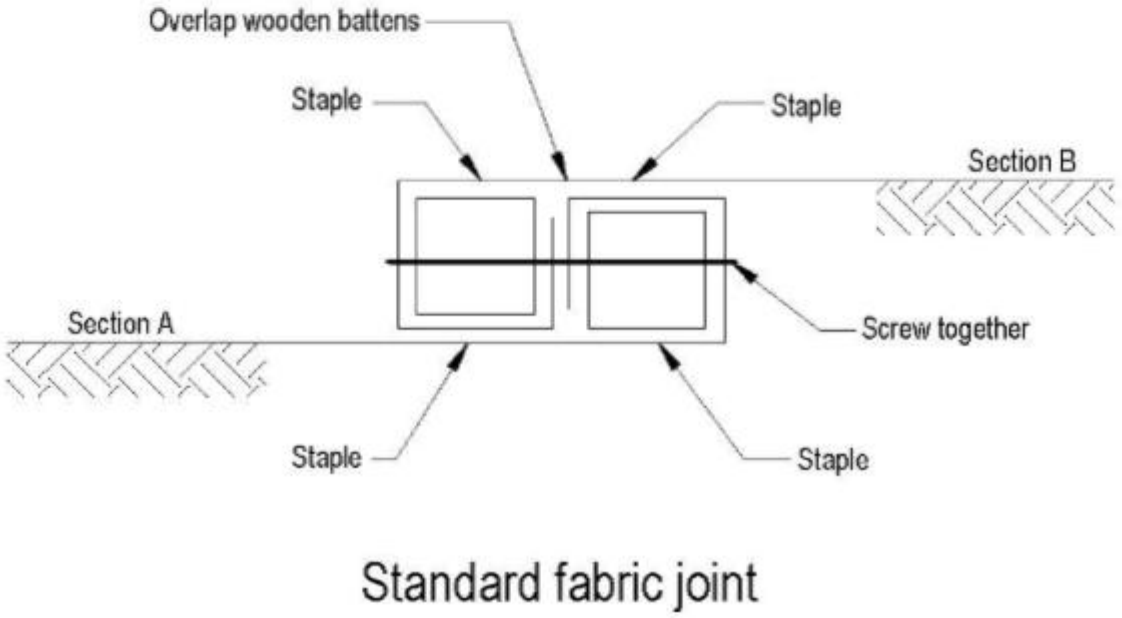


Figure 7 - Silt fence cross-section and fabric joint

Appendix B: ESC diagrams and technical details (to be prepared in detailed design phase).

Appendix C: ESC layout plan for Haldon (to be prepared in detailed design phase).

Appendix D (Optional): Construction sequencing and indicative programme (to be prepared in detailed design phase).