Construction Specification for Cantilever Full Revet

Revision 1.3

Preparation Requirements

Equipment and Material List

Standard equipment for construction of Durabunker is as follows:

1. Excavator (preferably with swivel bucket).
2. Wacker Plate / Compactor.
3. Granular backfill materials for infill behind bunker wall. A clean structural fill is required, backfill re-claimed from bunker site is preferred but sand content should be no more than 30%. Recommendation is 30/70 mix (30% sand, 70% heavy soil to ensure compaction and stability). Alternatively clean, compactible structural fill with particles no greater than 20mm or ¾".
4. Ordinary Portland Cement (TYPE 2 - Porous, Sulphate Resistant, Cement Used for Soil Stabilization).
5. Plant for mixing of soil-porous cement.
6. Natural turf to re-instate perimeter of bunker on completion of works. Please refer to Fig 6A.
7. Rootzone with high organic content low sand content. Peat and clay based preferable for cold season grasses with minimum 80 / 20 organic matter to sand ratio.
8. Wetting Agent (Optional).
9. Stanley knives and replacement blades. (Mechanical options for cutting are available, i.e. disc cutter or jigsaw).
10. Hand tamper.
11. Hand held blowtorch (Optional for burning off black latex strands that can sometimes appear on bunker wall at completion).
12. PPE to include, in addition to standard Club requirements. Gloves preferably with cut protection, knee protection and eyewear.
13. Forklift (for offloading / handling pallets).
14. Cutting Table / Saw Horses with suitable work surface (plywood or similar) for cutting.
15. Inclinometer or means of checking incline percentage.
16. Long straight edge / level for checking correct incline and conformity of line, during wall construction.
17. Shovels, rakes and buckets.

NOTE: For self-installs all of the above will be supplied by the client. For other installation options (e.g. Contractor Options) we will discuss provision of tooling and material on an individual contract basis.

Recommendations

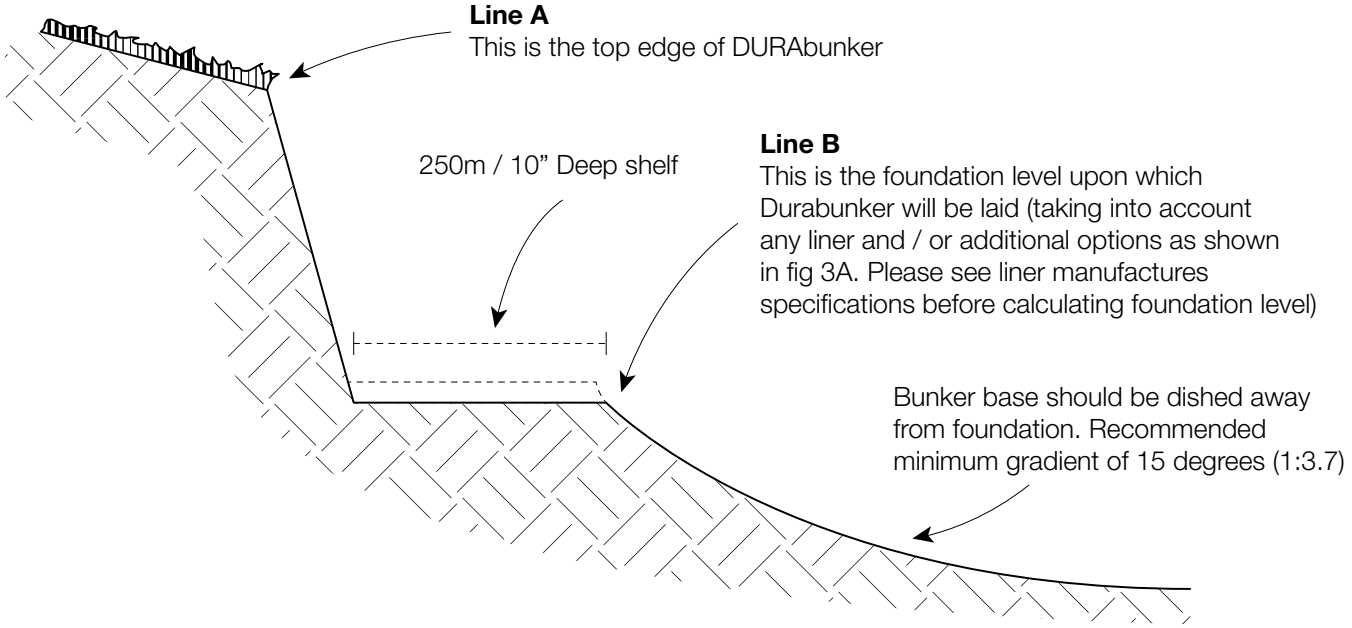
1. In warmer climates, ameliorants (wetting agents) are recommended to enable establishment of natural turf on bunker surrounds.
2. In warm / dry weather, it is recommended that water is applied to DuraBunker Material whilst being stored prior to construction, to prevent turves from drying out.
3. In colder weather where frost is expected it is recommended that DuraBunker material is covered and if possible kept indoors.

Step 1 - Preparation for Durabunker Full Revet

Fig. 1A

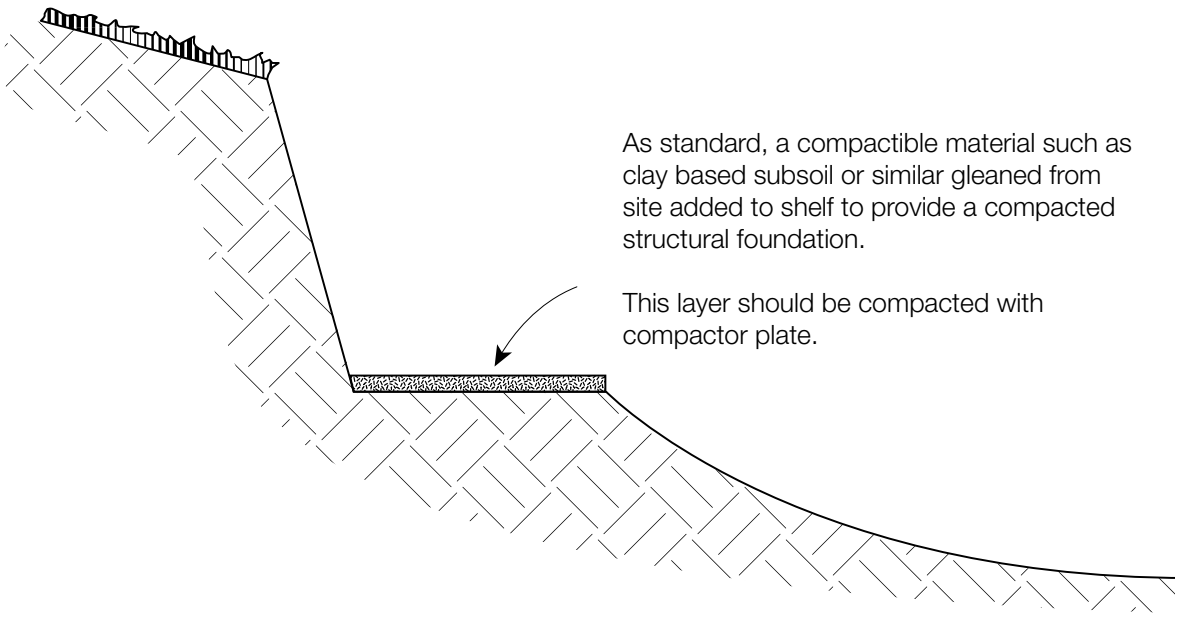
Step 2 - Perimeter Shaping

Fig. 2A



Step 3 - Foundation Layer

Fig. 3A



NOTE: Prior to construction of the base layer/shelf, ground conditions and material suitability are to be assessed. Options are available to ensure required stability if original ground conditions dictate. We offer enhanced stability and water control using methods such as Rubber bonded or porous concrete foundation top layer for unstable ground conditions or extreme climactic conditions.

Step 4 - Duraturf Preparation

- Cut with straight lines or V shape slots...
- V slots need to be backfilled at every layer. Tiles should be laid with slits / slots 'criss-crossing' at every layer where possible.
- Cuts should be made from 2nd or 3rd stitch downwards.
- Tiles should be moist before cutting. If sand is migrating from tiles when cutting water needs to be added to tiles before continuing.

Duraturf prepared for **Concave** Edges

Duraturf prepared for **Convex** Edges

Step 5 - Installation

Fig. 5A Single Stack*

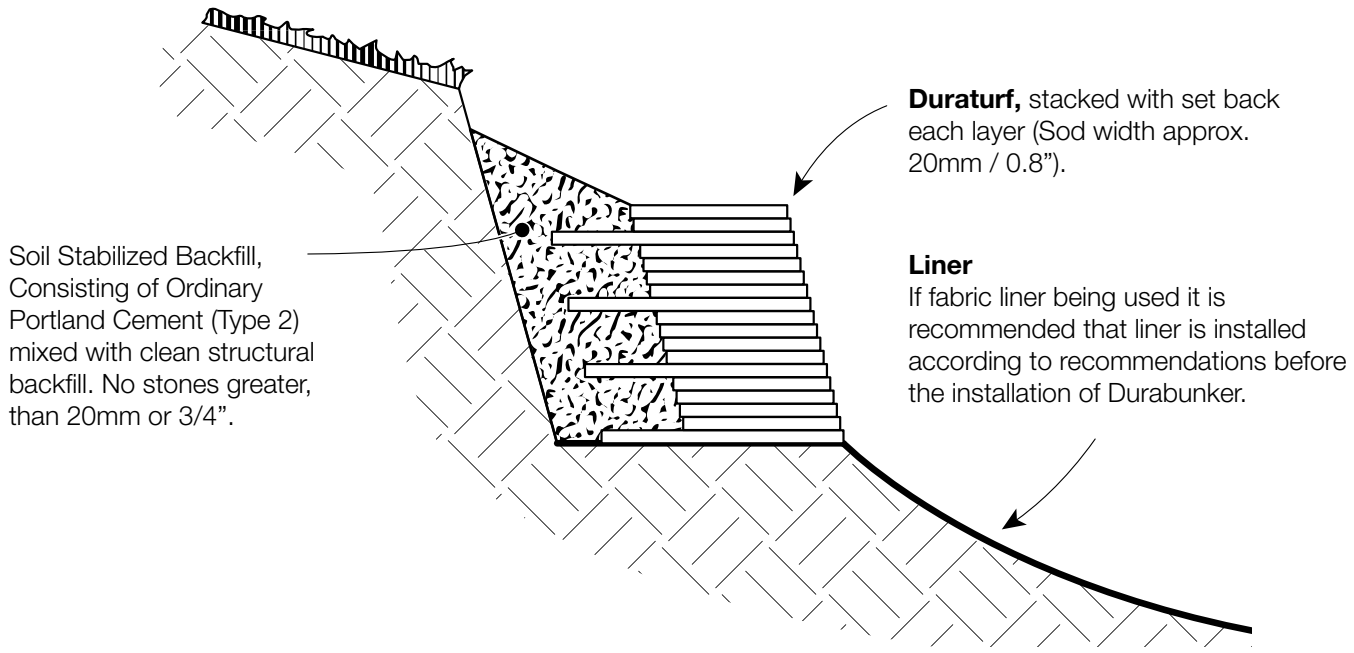
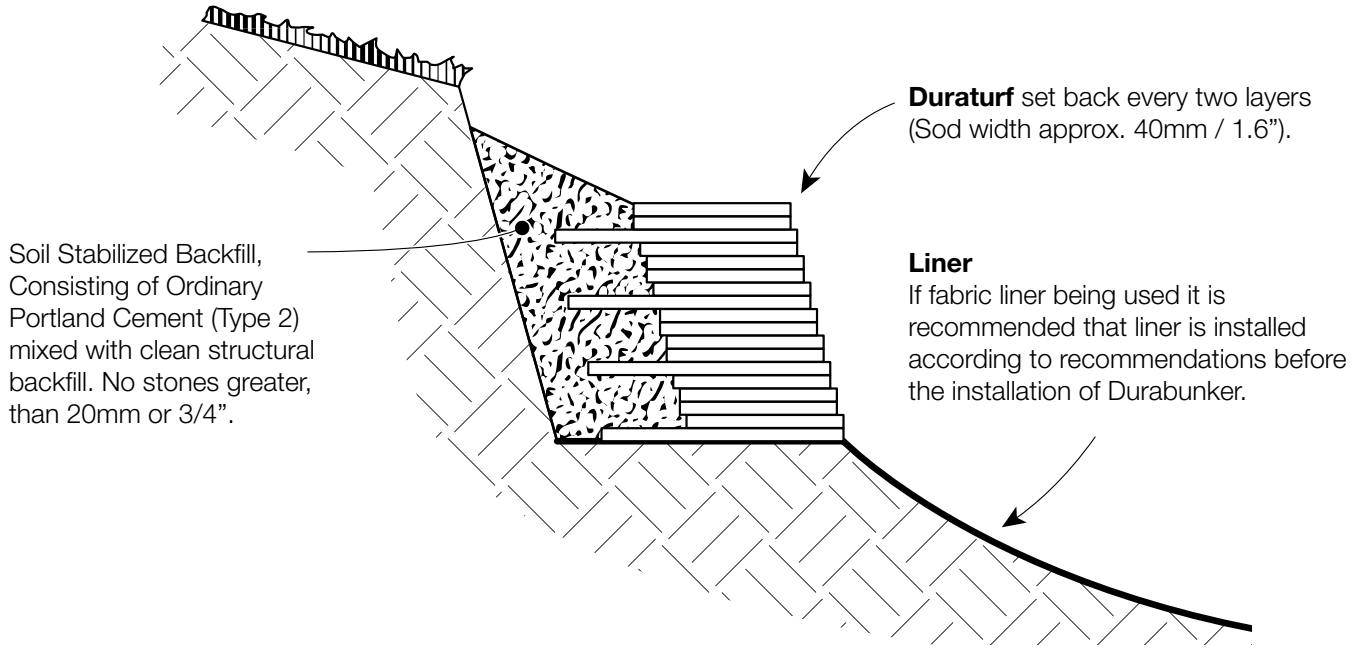


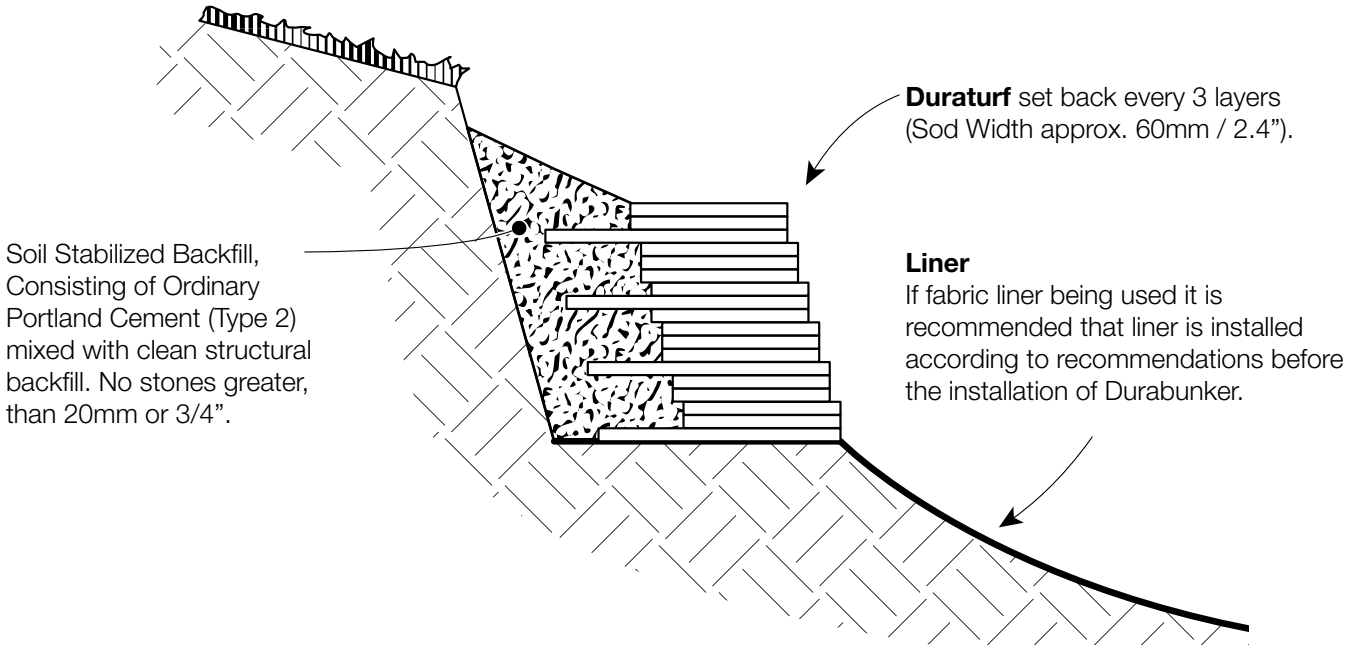
Fig. 5B Double Stack*



*Single / Double / Triple stack to be determined by architect, Project Manager or Client.

Step 5 - Installation

Fig. 5C Triple Stack*



*Single / Double / Triple stack to be determined by architect, Project Manager or Client.

Face Angle Calculation

Required face angle should be set using inclinometer and stakes / poles firmly fixed in ground set at required angle. If it is not possible to anchor gradient indicators in ground due to rock or previous installation of liner a system of anchoring pins in bunker wall holding stakes / poles at required gradient can be used. Alternatively check gradient every 3 to 4 layers for accuracy.

NOTE: Stabilized Soil Backfill to be used where ground and climactic conditions dictate.

Step 6 - Edge Re-Instatement

Fig. 6A

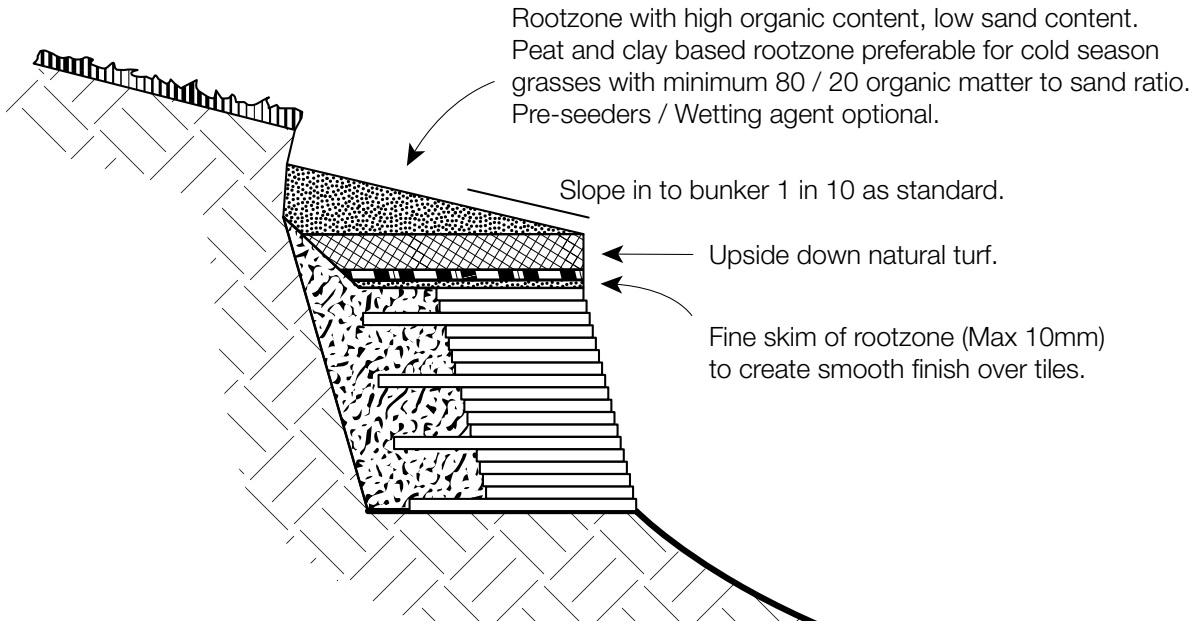
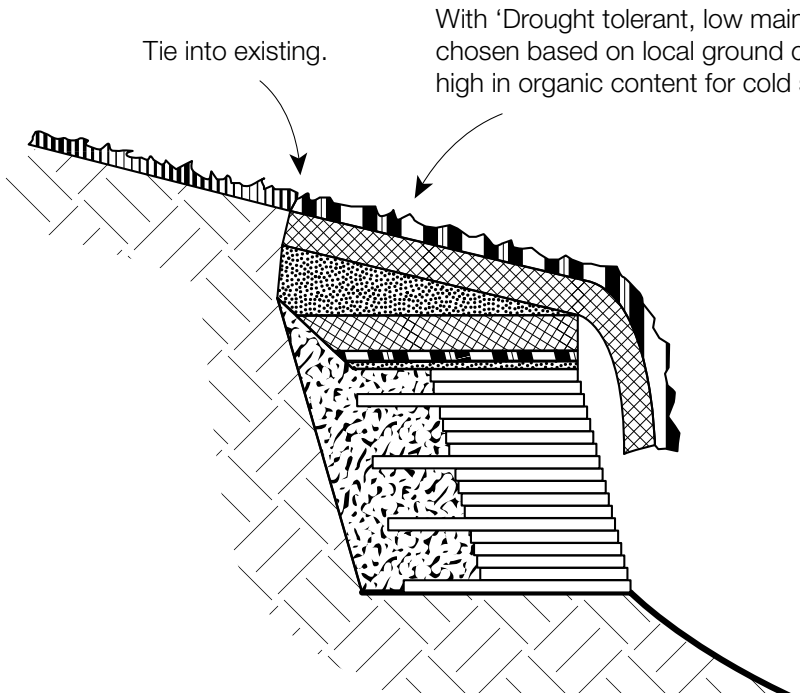


Fig. 6B

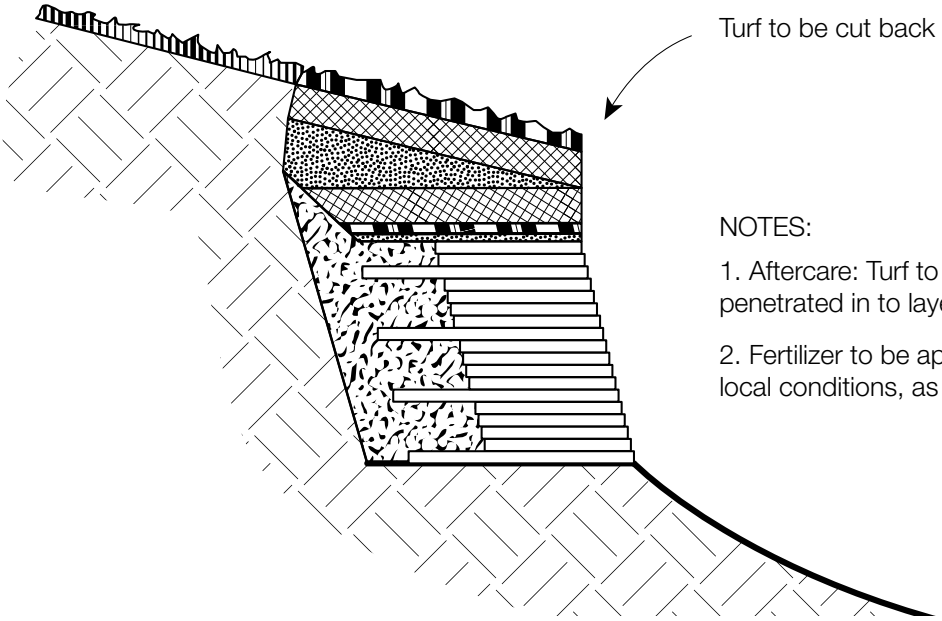
When turf is used for re-instatement it is recommended that it is draped over the edge of the bunker to form a shield, protecting the rootzone against washout whilst turf establishes and roots knit in.



Example of overhanging turf.

Step 7 - Finishing

Fig. 7



NOTES:

1. Aftercare: Turf to be constantly damp until roots have penetrated in to layer 1.

2. Fertilizer to be applied within rootzone appropriate to local conditions, as and when required.

Completed Bunker

Durabunker™ is protected by various IP rights including:

International Patents Pending derived from WO2012/007741

Granted UK Patent No: GB2490637B
Granted European Patent No: EP2490717
Granted US Patent No: USD682966S

EU Registered Design No.: 001929456