OLD BAR
EROSION PROTECTION WORKS
1. Works to be entirely within the following properties:

- Property Boundary
- Crest of Sand-filled Geotextile Container Wall
- Toe of Sand-filled Geotextile Container Wall

2. Extent shows initial works the subject of this approval. As erosion progresses, additional approvals may be required to allow the erosion protection works to be extended (for proposed alignment see drawing OB-EPW-005).
1. Offshore 100yr ARI Design Conditions [Worley Parsons Coastline Hazard Definition Study 2010]
   - $H_s = 7.8\,\text{m}$
   - $T_p = 9.7\,\text{sec}$
   - Surge = $1.5\,\text{m}$ AHD

2. Design Conditions at structure
   - $H_s = 1.5\,\text{m}$ [allowing for erosion to $0.0\,\text{m}$ AHD]
   - $T_p = 9.7\,\text{sec}$
   - Surge + wave setup = $2.7\,\text{m}$ AHD
   - SLR = $0.9\,\text{m}$
   - Max wave runup level $6.2\,\text{m}$ AHD


4. Alignment based on back of proposed crest along 2010 surveyed +6m AHD contour. It is expected that there has been some erosion since the survey was undertaken.

5. Wall to be completely within private property.

6. For cross section, see drawing OB-EPW-003.

7. It is preferable for entire works to be constructed as a single project. This may not be possible. As such, works may be staged with individual properties constructed independently if required. A temporary return will need to be constructed at intermediate boundary points in the interim. For detail of temporary return, see drawing OB-EPW-004.

8. Maintenance to be undertaken as required. This may include re-stacking after large events and repair/ replacement of containers as required.

9. In preparation for works to be constructed as a single project. This may not be possible. As such, works may be staged with individual properties constructed independently if required. A temporary return will need to be constructed at intermediate boundary points in the interim. For detail of temporary return, see drawing OB-EPW-004.

NOTES:
1. Oblique 100yr ARI Design Conditions: Worth Parsons Coastline Hazard Definition Study 2010
2. $H_s = 7.8\,\text{m}$
3. $T_p = 9.7\,\text{sec}$
4. $H_s = 1.5\,\text{m}$ (allowing for erosion to $0.0\,\text{m}$ AHD)
5. Surge + wave setup = $2.7\,\text{m}$ AHD
6. SLR = $0.9\,\text{m}$
7. Max wave runup level $6.2\,\text{m}$ AHD
9. Alignment based on back of proposed crest along 2010 surveyed +6m AHD contour. It is expected that there has been some erosion since the survey was undertaken.
10. Wall to be completely within private property.
11. For cross section, see drawing OB-EPW-003.
12. It is preferable for entire works to be constructed as a single project. This may not be possible. As such, works may be staged with individual properties constructed independently if required. A temporary return will need to be constructed at intermediate boundary points in the interim. For detail of temporary return, see drawing OB-EPW-004.
13. Maintenance to be undertaken as required. This may include re-stacking after large events and repair/ replacement of containers as required.
1. All measurements are in meters.

2. Survey by Mark Seales Consulting Surveyors 6th July 2010.

3. For wall alignment, see drawing OB-EPW-002.

4. If excavation reveals substantial rock outcrops, containers may be founded on rock (if approved by certifying engineer).

5. Geotextile underlay
   - To be ELCOMax 600R (or approved equivalent).
   - Each section to be overlapped 1m (min)

6. Sand filled Containers to be ELCORock (2.5m³) or suitable alternative.
   - To be fabricated using 1209RP geotextile (or approved equivalent).
   - Containers which are not exposed may be fabricated using 1200R (or approved equivalent).
   - Containers to be sloped such that the landward side is 0-200mm lower than seaward side.
   - May be filled to achieve independent interlocking and butted joints (like bricks).
   - To be laid so that filling ports are not exposed.
   - May be rotated to ensure independent interlocking and butted joints (like bricks).

7. Revegetation
   - Upon completion of the structure, any remaining scarp above the top of the structure is to be profiled to a stable batter without compromising the stability of adjacent structures.
   - Replicated areas should be stabilised with vegetation.

8. Maintenance
   - Annual maintenance inspection to be undertaken at least yearly and after storm events.
   - Wall to be maintained/repaired regularly.

- Imported material to be clean sand free of organics and with a low fine content.
- Containers to be filled using imported sand.
- Backfill to be undertaken using imported sand.
- Any excess sand (from importing or from excavation) to be placed on the beach in a natural profile.
- May be rotated to ensure independent interlocking and butted joints (like bricks).
- To be laid so that filling ports are not exposed.
- May be rotated to ensure independent interlocking and butted joints (like bricks).

Dotted additional outer containers to be placed if/as required.

Excavated sand to be placed over toe on completion of works.

Sand to be reinstated over structure on completion of works.

Geotextile (See note)

Geotextile (See note)
1. This drawing shows the temporary return with respect to staging of the works. Design is to provide as much integrity as possible during construction. It is not intended to provide protection over an extended period or in response to storm events.

2. Return to extend so that each layer of containers abuts the existing scarp. If feasible or delays in construction are anticipated, return should be extended behind scarp.

3. After construction of the temporary return, existing natural surface levels are to be reinstated (i.e. the excavation for the return is to be fully backfilled).

4. Excavation for temporary return not to extend beyond scarp without the prior consent (in writing) of the adjacent owner. Excavation to ensure that integrity of existing structures are not compromised.

5. When adjoining section of wall is constructed, works are to integrate smoothly with the existing structures. This may necessitate some restacking of containers to ensure adequate interlocking. Containers which form part of the temporary return may be reinstated and used as part of the main structure or may be left in place.

Next Stage of Construction

Temporary Return (see insert)

TEMPORARY RETURN DETAIL 1:250 at A3

* "Toe" Containers not required for temporary works

Return to Butt into existing scarp where possible (min embedment if not achievable)
1. Ongoing erosion will threaten adjacent properties and risk to safety if not protected. A nominated and revised alignment has been recommended (red footprint); although additional approvals will be required in consultation with additional authorities.

2. In the event that the proposed works are flanked and no adjacent works are undertaken the wall is to be extended along the property boundary. Consideration will need to be given to presence of existing structures.

3. See OB-EPW-006 for cross section C.

PROPOSED ALIGNMENT FOR FUTURE WORKS. (NOT PART OF THIS APPROVAL)

EXTENT OF WORKS INCLUDED IN THIS APPROVAL
1. All measurements are in meters.
2. Profile from Survey by Mark Seales Consulting Surveyors 6th July 2010.
3. For x-section location, see drawing OB-EPW-005.
4. If excavation reveals substantial rock outcrops, containers may be founded on rock if approved by certifying engineer on site.
5. Geotextile underlay:
   - To be ELCOMax 600R (or approved equivalent).
   - Each section to be overlapped 1m (min).
6. Sand filled Containers to be ELCORock (2.5m^3) or suitable alternative.
   - To be fabricated using 1209RP geotextile (or approved equivalent). Containers which are not exposed may be fabricated using 1200R (or approved equivalent).
   - Containers to be sloped such that the landward side is level or lower than seaward side.
   - To be hydraulically filled using manufacturer’s filling frame (or approved equivalent) and placed to manufacturer’s specifications.
   - May be rotated to ensure independent interlocking and butted joints (like bricks).
   - To be laid so that filling ports are not exposed.
   - Revegetation:
     - Upon completion of the structure, any remaining scarp above the top of the structure is to be profiled to a stable batter without compromising the stability of adjacent structures.
     - Reprofiled areas should be stabilised with vegetation.
7. Maintenance:
   - Maintenance inspection to be undertaken yearly and post storm events.
   - Wall to be maintained/repaired regularly.