Elmwood House
74 Boucher Road, Belfast
Co. Antrim BT12 6RZ
T +44 2890 667 914

Q. 5 (H) PROPOSED METHOD OF CONSTRUCTION

Proposed Seawall Replacement Works

The proposed seawall replacement scheme comprises the replacement/encapsulation of the existing 300m long seawall. The proposed works are outlined in detail on the accompanying drawings. It consists of the following main elements:

- Controlled removal of existing steps which are unsafe for use.
- Installation of precast concrete caissons along the front of the existing seawall to act as a foundation to facilitate the placement of precast concrete seawall units.
- Placement of imported clean granular infill in the concrete caisson base units,
- The caisson base unit will be topped with a mortar layer, with the concrete seawall units then installed (Example of proposed seawall units shown in Figures 1 and 2). The precast units will be shaped for them to interlock, then grouted and sealed to both sides, thus avoiding the requirement for dowels or protruding reinforcement
- Placing of imported clean granular backfill between the front face of the existing seawall structure, and the rear face of the new precast structure. Suitable drainage to be provided within the backfill. Surfacing of backfill with asphalt pavement to tie into existing promenade. New handrail along the promenade.
- Placement of stone scour protection in-front of the new precast concrete seawall units to prevent undermining of the toe of the new structure.
- Installation of 2nr sets of steps along seawall structure.
- Provision of access ramp at Aubery Crescent end of seawall structure.

Figure 1 and 2: Examples of proposed precast seawall

The form of foundation and structure varies along the length of the seawall to account for the varying profiles of the existing seawall structure. The preliminary sketches in Figures 3 and 4 show indicative cross sections of the proposed construction.

Q. 5 (H) PROPOSED METHOD OF CONSTRUCTION

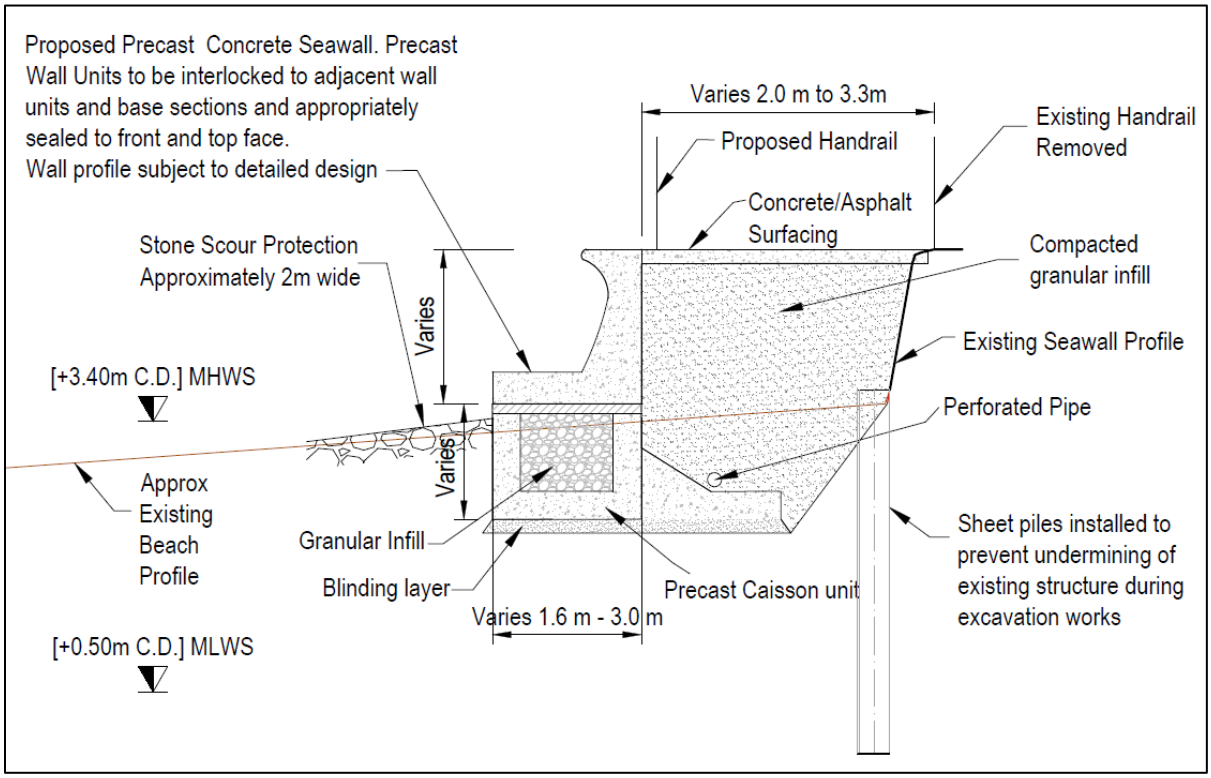

Figure 3: Proposed section for Northern and Southern Section of Seawall

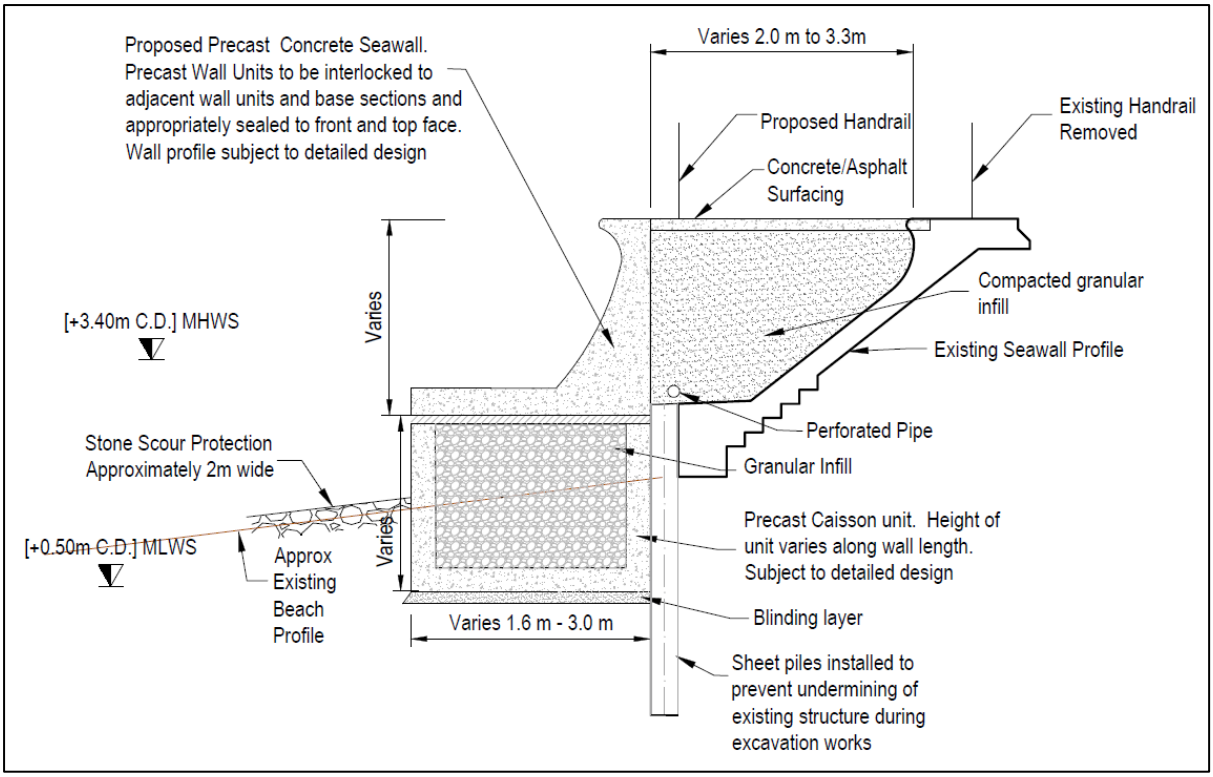

Figure 4: Proposed section for middle section of proposed Seawall

Q. 5 (H) PROPOSED METHOD OF CONSTRUCTION

The height of the replacement seawall structure will be as per the existing seawall (refer to Section 1.2.1). The length of the proposed seawall will be 300m, and the footprint of the structure covers 0.24ha / 2400 sqm.

The red line boundary of the proposed works identified on **Drawing MO735-RPS-ML-XX-DR-C-0300**, totals 0.7ha in area. The entirety of the works proposed are above Mean Low Water Springs (MLWS). The area of proposed marine works below the Mean High Water Springs (MHWS) is c.0.23ha.

Proposed Construction Methodology

A summary of the likely project phases is set out below.

Demolition / Site Clearance / Site Set Up

There will be a temporary site compound in the immediate vicinity of the site to support the proposed development during the construction period. The location of this has not yet been determined, however one option may be at the northern end of the seawall close to Aubrey Crescent.

The area of works along the promenade and beach will be fenced off, and initial works will see the removal of the existing concrete steps with a rock breaker mounted on small excavator working from the beach. Construction access to the beach is expected to be via a temporary access ramp constructed to the north side of the RNLI slipway. The existing handrail along the promenade will also be removed. This phase is likely to take approx. 3 weeks.

It is anticipated that the beach and the promenade (between Aubery Crescent and the RNLI slipway) will be closed for the duration of the construction work to ensure public safety, however there may be opportunities to open sections of the beach and promenade early, if site security and safety measures allow. Storage of materials on the promenade may be considered where off site storage is not feasible.

Alternative arrangements are proposed during the construction period, to maintain pedestrian/cycle links along the Promenade. Pedestrians will be diverted along a suitable and safe alternative route for the duration of the construction period, which will be kept to a minimum.

All efforts will be taken by North Ayrshire Council and their Appointed Contractor to ensure that construction vehicles do not obstruct resident vehicles, driveways, and access. Access to the RNLI facilities and parking will be maintained at all times.

Every effort will be made by the Council and their appointed Contractor to minimise disruption to residents in this local area during the construction works.

Protection Works for the Existing Seawall structure

Sheet piles will be installed to the front edge of the toe along the length of the existing wall to provide temporary protection against undermining whilst excavations are being carried out. These will be installed using a vibratory hammer where possible. It is expected that due to the nature of the ground conditions to the south of the site an impact hammer may be required to install the piles. It is conservatively estimated that 150 m of the 300 m anticipated length of piling may be driven by means of impact piling. This phase is likely to take approx. 6 weeks and would run concurrent to removal of the steps and handrailing.

Excavation

Beach material will be excavated to facilitate the installation of the concrete caisson units using a small excavator working from the beach to prevent settlement into the sand. This material is unsuitable for reuse, and as such, will be taken offsite for disposal to a licensed facility. This phase is likely to take approx.9 weeks.

Seawall Installation

Bedding material (lean mix concrete) will be placed within the excavated areas by a small excavator working from the beach. The caisson units will be installed on top of this material by a crane or telehandler on the promenade or beach and filled with imported clean granular material. The precast concrete seawall unit will be placed on top of the caissons and grouted into place.

The space between the rear of the replacement seawall unit and the face of the existing seawall will be backfilled with imported clean granular fill and compacted by an excavator working from the promenade. The precast installation is likely to take approx. 9 weeks, with the backfilling taking approx. 8 weeks.

Scour protection will be installed with suitably sized/graded stone placed in layers on the beach surface to the front of the precast concrete seawall, by an excavator working on the beach area. The timing of each phase of works will be subject to tidal restrictions on working times.

Q. 5 (H) PROPOSED METHOD OF CONSTRUCTION

Surfacing

Asphalt surfacing will be placed on the newly constructed section of promenade and resurfacing works to the existing promenade will also be carried out at this time, taking approx. 4 weeks.

All areas of surfacing will include a rolled asphalt surface course containing 14mm red coated chippings. All existing benches, bollards, movable planters, and litter bins will be removed prior to the promenade resurfacing and reinstated upon completion.

Street furniture and Beach Access

It is proposed to install a new handrail along the length of the replacement seawall. Access to the beach will be provided via a ramp at the Aubery Crescent end of the seawall. Steps will be installed at both an intermediate point along the wall and close to the RNLI slipway. These will be precast concrete steps and will have a gate to the top edge and railings that tie in with the proposed new handrail along the crest of the new seawall.