Making great sport happen

ROYAL PORTRUSH GOLF CLUB

Construction & Environmental Management Plan

Coastal Protection Scheme

Report Date: 29th January 2019
Consultant: Sophie Vukelic, Bob Taylor
and Rowan Rumball

Contents

1.0 Disclaimers and Limitations

Field Surveys

Field surveys are always undertaken by a qualified ecologist. At times, surveys may be limited due to land permission requirements or health and safety restrictions. In such cases, visual assessment is undertaken and photographic evidence is documented. If this occurs, full details are always described in the report.

Limitations and Seasonal Constraints

Due to variation in weather patterns throughout the seasons, it is not always possible to conduct surveys in optimum conditions. Where appropriate, full details are outlined in the report.

Quality Assurance

The ecologist is bound by STRI Group company policy and the Chartered Institute of Ecology and Environmental Management (CIEEM) when undertaking surveys of any type.

2.0 Report Checking

This report has been prepared in accordance with STRI Group quality control procedures as outlined below:

Survey

The survey has been completed and/or supervised by a suitably qualified ecologist.

Report

The report has been prepared and/or quality checked by a suitably qualified ecologist prior to issue to the client.

Report prepared by:	Report checked by:
Sophie Vukelic (BSc Hons) & Rowan Rumball (MSc, GradCIEEM) Ecology and Environment Consultant	Bob Taylor (BSc Hons, MCIEEM) Head of Ecology
For and on behalf of STRI Group Checked on 29th January 2019	

3.0 Introduction

3.1 Outline

STRI Group have been engaged by Royal Portrush Golf Club (RPGC) to produce a Construction/Environmental Management Plan (CEMP) to accompany the application for full planning permission to extend the coastal protection running along the coastal margin north of the 5th green and 6th tees (Dunluce). A Construction Method Statement also forms part of this document (see Section 5).

RPGC propose to undertake a coastal protection scheme along a section of coastline to the east of the golf course. This scheme aims to reduce coastal erosion along the Curran Strand dune system and to improve the longevity of the golf course. It is hoped that the scheme will also help to maintain the unique geomorphology and topography of the tall sand hills, and importantly, to retain long term protection to what is the most vulnerable section of the course in particular the 5th green, 6th tees and newly constructed 7th hole. RPGC attracts significant tourism to Portrush and so its protection is economically important for the whole town.

The scheme comprises of several structural elements:

- Installation of a 20 m rock revetment taper to the existing rock revetment; and
- Installation of sand trap fencing approximately 4 m out from proposed and existing rock revetment.

The existing layout and proposed location and arrangement of the coastal protection scheme is show in the drawings in Appendix 1 (Site Location Plan), Appendix 2 (Existing Layout) and Appendix 3 (Proposed Layout & proposed sections).

Figure 1: Location of 6th tees and existing rock revetment (RPS, 2017).

3.2 Aim of Document

This document has been prepared to address the detailed procedures, sequencing and construction methodology of the coastal protection scheme along with an outline of the sound environmental management of the construction works both pre, during and post-completion. The plan also outlines proposals on traffic and environmental management measures to be adopted during construction. Recognition is given to the ecological and environmental constraints of the site and how best to minimise potential impacts that the works may have. This document will therefore ensure that all aspects of construction are carried out in a sensitive and sustainable manner.

The document will incorporate two main elements:

- Background and description of the construction of the coastal protection
- Environmental management considerations

3.3 Background

The Portrush coastline has suffered from varying rates of erosion over the years. Concerns regarding coastal erosion for RPGC began in 1945, however a lack of records mean that the extent of the erosion and any other specifics are unable to be identified.

In the 1980's, the current 90 m stretch of rock revetment was installed following a severe storm event in 1982 which resulted in a portion of the 6th tee eroding. Gabion baskets were buried approximatly 170 m east and 30 m west of the rock revetments shortly after. This raised the total length og the hard defences to 290 m. However, despite this protection, the eastern section of the strand continues to lack adequate defence from storm action in comparison with the other sections. Indeed, the succession of major winter storms from 2013-2015 had a great impact on the dune system due to lowered beach levels and erosion at the eastern extent of the existing rock revetment. The imminent changes in tidal processes due to climate change are therefore of significant concern to RPGC.

Figure 2: Existing gabions and rock revetment

Studies conducted by RPS for and on behalf of RPGC confirm that the eastern end of the Curran Strand is most vulnerable to storm-induced erosion, such events are predicted to increase in severity and frequency in coming years as highlighted by The United Kingdom Climate Impacts Programme (UKCIMP) and Marine Climate Change Impacts Partnership (MCCIP).

3.4 Purpose

The scheme has a number of interconnected aims relating to both the management of impacts from erosion and the economic value of the golf course. The aims of the scheme are to:

- Reduce erosion of Curran Strand dunes;
- Reduce the rate of decrease in beach level;
- Safeguard the existing golf course layout;
- Ensure that the scheme is environmentally sound and does not unduly impact on adjacent areas, designated conservation sites, Biodiversity Action Plan (BAP) habitats and species and the landscape.

4.0 Context

4.1 Physical Context

4.1.1 Site Location

Address: Royal Portrush Golf Club, Dunluce Road, Portrush, Co. Antrim, BT56 8JQ.

Grid reference (for coastal protection scheme): NW066998 to NR062000.

The application site is located within the administrative area of The Causeway Coast and Glens Borough Council.

Portrush is a small seaside resort town on the north coast of Northern Ireland within County Antrim. It has a population of 6,454 (NISRA, 2011).

RPGC runs along the coast to the east of the town and is bordered by the A2 (Bushmills/Dunluce Road) and the Curran Strand dune system. It forms part of a wider Area of Outstanding Natural Beauty (AONB) and lies adjacent to White Rocks Area of Special Scientific Interest (ASSI). Several other designations are afforded to the site and are outlined below.

4.4.2 Skerries and Causeway Coast SAC, SCI

The stretch of the coastline to the north of the golf course is within The Skerries and Causeway Special Area of Conservation (SAC)/Site of Community Importance (SCI) which is given international protection under the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora 1992) transposed into Northern Ireland law under The Conservation (Natural Habitats, etc.) Reguations (Northern Ireland) 2010 (as amended). The area's sandbanks, reefs and sea caves, along with key species, notably the Harbour Porpoise, are of international importance.

4.4.3 North Antrim Coast SAC

This site is designated due to the extent of several internationally protected habitats and species including: annual vegetation of drift lines, Atlantic salt meadows, fixed dunes with herbaceous vegetation (grey dunes), shifting dunes along the shoreline with *Ammophila arenaria* (white dunes), species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and sub mountain areas in continental Europe), vegetated sea cliffs of the Atlantic and Baltic coasts and Annex 2 species, narrow-mouthed whorl snail (*Vertigo angustior*) for which a specialist survey has been conducted to identify presence or absence of this rare species (see Section 9).

Under Article 6(3) of the Habitats Directive, an appropriate assessment is required where a plan or project (in this case rock revetment and associated works) could have a significant effect, direct or indirect, upon an adjacent European site. It is the responsibility of the developer to include 'sufficient information' with the application to enable the appropriate assessment to be made, if required. This document is provided to identify the constrains from the outset and should be read in conjunction with the ecological and associated documents issued to illustrate the proposed works.

4.4.4 Ramore Head and Skerries ASSI

Designated due to its fauna and geological features. This designation ensures that specified activities that may damage or disturb the surface or subsurface of the area are subject to stringent controls and will require consent from the Department of the Environment.

4.4.5 Portrush NNR

The area is also offered a third tier of protection by way of its inclusion and designation as a National Nature Reserve, located between Harbour and the Blue Pools. The designation centres primarily on the area's geological significance and gives the Department of the Environment the ability to manage the area, for example in prohibiting the illegal removal of fossils.

4.4.6 Royal Portrush Golf Course SLNCI

RPGC is additionally designated as a Site of Local Nature Conservation Importance (SLNCI). Such areas are designated for their flora, fauna or geological interest. Planning permission is not granted for development that would be liable to have a significant adverse effect on the intrinsic nature conservation interest of a designated Site of Local Nature Conservation Importance. The necessary ecological surveys carried out as part of the planning application (see Section 9) for the coastal protection works at RPGC have shown that there will be no significant effect on the designated habitats or species at the site.

4.2 Social and Economic Context

RPGC remains one of the main attractions for visitors to Portrush and Northern Ireland as a whole. It is the only golf club outside of mainland Great Britain to have ever hosted the Open Championship and this major event it set to return for a second time in 2019. Whilst the coastal protection scheme is being sought by RPGC, it is also in the best interest of the local council, the Northern Ireland Executive and local beach users to protect the shoreline that is so characteristic of Portrush.

The Curran Strand provides a significant, free resource for leisure and is a popular destination for both local residents and tourists who enjoy using the beach and water. This, in conjunction with the beach and dune systems importance for RPGC, combine to highlight a significant need to protect its future.

4.2.1 Golf Course

Thousands of golfers descend on RPGC each year to play the famous Dunluce Links which was designed and created by renowned course architect, Harry Colt, in 1929. With the impeding Open Championship in 2019 expected to attract over 250,000 spectators and a revenue of more than £70 million, the course has had a number of changes to accommodate such an event. As part of the redesign a new 7th hole running parallel to the Curran Strand dune system has been constructed. The new 7th, along with the existing 5th green and 6th tees are the most vulnerable to erosion and RPS have predicted that significant losses to the 6th tees could occur given a 1:100 storm event if no protection is installed (Figure 1).

RPGC brings in a significant amount of tourism to Portrush with most visitors staying and dining at local hotels and restaurants. Any disruption to Dunluce Links would therefore likely result in a significant decrease in tourism as the areas lost are repaired/reconstructed.

Figure 3: Area of hinterland that could be lost to coastal erosion under 1 in 100 year event from NW with existing rock revetment and gabions in place (RPS, 2017).

4.2.2 Beach Recreation

Curran Strand is a Blue Flag Beach and so it frequented by tourists and on a daily basis for dog walking and general strolls. The existing rock revetment is also used as a shelter and picnic spot for many visitors.

5.0 Proposed Coastal Protection Scheme

5.1 Scheme Evolution

The design of the coastal protection scheme has evolved due to the procurement of the course changes implemented to satisfy the requirements of the Open Championship in 2019 and for future large scale golf tournaments, along with general protection of the world-famous Dunluce Links.

A series of modelling exercises have tested the performance and viability of the proposed scheme. A 20 m extension of the existing rock revetment in the form of a taper on the western most edge would be the most effective and sustainable coastal defence option available. Results showed that the proposed scheme would effectively mitigate the threat of coastal erosion to the highly vulnerable 6th tees and would also result in less terminal erosion than the existing rock revetment at present.

5.2 Design Details

The scheme comprises of two main elements:

- Installation of a 20 m rock revetment taper to the existing rock revetment
- Installation of sand trap fencing approximately 4 m out from proposed and existing rock revetment
- Vegetation stabilisation on embryo dunes formed after revetment and fencing construction.

Drawings illustrating the design elements are contained in Appendix. The design details of each of the three elements are considered in more detail in the following sections with approximate quantities of material to be used in all structures.

5.2.1 New Rock Revetment

A new rock revetment will be constructed at the toe of the tallest and most vulnerable dune in the Curran Strand dune system. The revetment will be a continuation of the existing 90 m revetment which was installed in the 1980's. It will reduce the impact of erosion and land loss of RPGC Dunluce Links which lies directly behind the dunes. This area has been identified as having the highest risk of erosion should no additional coastal protection be put in place.

The rock revetment will comprise of a 20 m taper starting at a width of 10 m. The taper will gradually reduce from full height of approximately 4.5m MSL at a slope of 1:10 over a distance of 20 m to a final crest height of 2.0m. This 20m section will gradually turn back into the natural dune line to allow for a smooth transition into the unmanaged dune and reduce outflanking at the termination of the revetment. The seaward edge of the taper should slope at approximately 1:2.

The revetment will be constructed of two types of stone: a base layer of 300kg basalt, a secondary layer of 1.8 T basalt, and a primary layer of 4.0 T limestone/cast white concrete boulders. The toe of the structure should be taken down to c. -0.79m MSL (equivalent to LAT) or 1.00m below the lowest recorded beach level.

5.2.2 Sand Trap Fencing

Sand trap fencing has been installed to the eastern extent of the existing rock armour in previous years with successful results. Sand trap fencing can protect vulnerable fore dunes, in particular those that have been subjected to human interference and so would be suitable for installation along the vulnerable area of the dune system in conjunction with the proposed rock revetment.

Sand trap fencing constructed primarily from chestnut paling will be installed approximately 4 m around the perimeter of the whole rock revetment. Additional fencing will be constructed extending from the outermost eastern and western corners of the current rock revetment which will turn in to meet the toe of the existing sand dune. Approximately 200 m of fencing will be required.

Figure 4: Previous sand trap fencing to eastern end of existing rock revetment.

5.2.3 Vegetation Stabilisation

Marram grass is the dominate pioneer species to colonize yellow dunes within the Curran strand dune system. Vegetation will help trap windblown sand by reducing wind speeds close to the dunes surface and reduce the winds scouring effect. This increase in trapped sand helps the dune recovery process after major storm events. Sand accretion caused by the installation of the new rock revetment and sand trap fencing will create foredunes which are unstable and subject to wave action. While these foredunes will have some vegetation from species such as Sand sedge and Sea lime, it is unlikely that vegetation stabilisation will be achieved in the short term.

This stabilisation can be accelerated by the planting of mature Marram grass sprigs. These sprigs will increase in cover and colonise the new foredune creating a stable dune more rapidly than through natural processes. Marram grass should be sprigged after construction of the two main elements in landward areas of bare sand created during construction and in 2020 after initial sand accretion from the new construction. Sprigged areas should be reassessed annually and after each major storm event, replacing lost individuals as required. The exact area of bare sand requiring sprigging is difficult to estimate as final dune size and location is not known, however it is unlikely an area larger than 150m^2 will be required to be sprigged.

5.3 Construction Methods

This section identifies some of the key aspects and major considerations of the construction programme for the coastal defence scheme. It includes a description of the proposed construction schedule, the location of the construction compound and source and delivery of materials. It also details the proposed construction methods for each scheme element to form a synopsis of the attached Method Statement in Appendix 5.

It should be noted that the following methodology has been based on discussions with contractors and from previous working experience.

5.3.1 Construction Schedule

Construction of the scheme is scheduled to commence in autumn 2019 and be completed by the beginning of December 2019; a duration of approximately 4-6 weeks. This means that works will take place outside of the 2019 summer tourism season and bird breeding season.

Throughout construction, working areas will be clearly defined through the use of signs and cones. The working footprint will be protected using Heras fencing installed under supervision by the engaged contractor.

The contractor will also have to take responsibility for ensuring that all the works are in keeping with the Health and Safety requirements under the Construction (Design and Management) (CDM) Regulations (Northern Ireland) 2016.In order to reduce the noise to local residents in proximity of the works, working hours will be agreed with the Local Planning Authority Environmental Health department in advance of construction commencing. In addition, the contractor will be instructed to implement standard good practices and there will be no work over the Christmas and New Year holiday periods. The contractor is required to enter into the 'Considerate Constructors' scheme, which is designed to encourage best practice beyond statutory requirements.

5.3.2 Plant and Equipment

Plant and equipment required to carry out the works include the following:

- CAT 395 Tracked Excavator – to be used for rock armour construction;
- Hitachi 650 Long Reach Tracked Excavator – to be used for rock armour construction;
- Komatsu PC340 Tracked Excavator – to be used for rock armour stock piles;
- 1 nr Volvo 25/35 T Articulated Dump Truck;
- Static Bunding Fuel Bowser;
- Geotextile Roller.

Note – all plant will be washed prior to being brought to site to avoid cross contamination from previous sites.

5.3.3 Delivery of Materials

The delivery of all materials by road is the most feasible option and will allow construction of any of the design elements to immediately commence in October 2019. Based on a typical 20 T load, it is estimated that the following trip quantities will be needed:

- Filter layer 111T / 20T = 5.55 trips
- Underlayer and secondary layers (basalt) 411T / 20T = 20.55 trips
- Primary layer (limestone) 272T / 20T = 13.6 trips

The total number of delivery trips is therefore estimated as 40 trips. The fill material and basalt will be delivered as and when required, during the 4-6 week construction period via 8-wheel tipper lorries.

Deliveries will be timed over a long period to avoid unwanted traffic delays. Actual times on site will also depend upon, and need to work around, tide processes. Provision will be made to make deliveries as efficient as possible. It is not envisioned that there will be any impact on transport infrastructure during this time.

Construction vehicles will need to operate along the beach, transporting rock from the construction compound in Whiterocks Beach car park to where it is needed to build the rock revetment and sand trap fencing. This may limit the amount of beach available to the public during the construction period and will render the western-most pathway from the car park to the beach to be completely out of public use. The contractor will minimise the amount of along-shore movement of rock to ensure continued access to the beach, and Heras fencing will be installed to maintain public safety.

5.3.4 Construction Compound

Site materials and construction equipment will be kept in a secured area within the lower tarmacked section of White Rocks Beach car park (West Side). Provisions for car park surface protection and restoration will need to be in place prior to works commencing.

The compound will also be used as a storage area for diesel and fuel and for the refuelling of plant. All fuels will be handled in accordance with best practice procedures to prevent any possible pollution to the surrounding area. Measures to be taken include storing oils and chemicals in a suitable bunded area and maintaining machinery in good working order to reduce the risk of leaks.

The construction compound will be approximately 2800 m^2. Heras fencing will be placed around the perimeter of the compound and locked at night to reduce the risk of vandalism. Site office units will also be locked at night. Signs will be erected on the fences of the compounds and around the site offices to inform the public of the works. Pedestrian routes near site compounds will be designated and be suitably signed and fenced.

5.3.5 Beach Access

Access to the beach will be by the western-most existing access point. This has been deemed the most suitable route due to its width and proximity to the construction compound. The existing rubbish bins, signage, board walks and fencing will be carefully removed and stored whilst works are in progress and will be promptly reinstated following completion. A temporary road comprising two layers of geogrid and a 400 mm Type 3 Sub Base will be constructed from the car park to the construction area. It is not envisaged that any other amendments will be needed to accommodate vehicle movements. Appropriate signage and fencing will prevent unauthorised access within the working area.

Figure 5: Beach access.

5.3.6 Source of Materials

A number of materials are required for the different design aspects of the scheme, their type, source and transportation to the site are described below.

<u>Rock Material</u>

- There will be two types of rock used for the revetment: basalt and limestone.
- Basalt is a hard-wearing dark-coloured rock that is local to the coastline and will blend in with the basalt used as the base layer in the existing revetment. Limestone is less hard-wearing but is traditionally used in hard coastal defence schemes and also fits in with the limestone cliffs of Whiterocks less than a kilometre east along the beach.
- Basalt will be sourced locally from Croaghan Quarry.
- Limestone will be sourced from Carmean Limeworks.

<u>Fencing</u>

The sand trap fencing will be constructed from FSC certified chestnut paling fencing sourced from a reputable supplier, ideally within Northern Ireland.

Marram sprigs

- The donor site should be as close as possible to the receptor site. Donor sites within protected areas such as SSSIs should be avoided as they will require additional consent from the relevant statutory body.
- Marram disturbed by construction of the main elements should be collected and stored in plastic bags (such as fertiliser bags) and kept in a cool place sheltered from the sun. These plants should be preferentially sprigged.
- Donor sites should be within exposed shorelines or windward dunes even those far back from the shoreline unless there is also a healthy turf stock stabilising the dune.
- The lee side of dunes where Marram is dense and vigorous should be chosen as donor sites. Plants should not be removed in blocks but rather selectively chosen to thin the stand as a whole. No more than 70% should be removed from one area.

5.3.7 Construction of Rock Revetment

- The new revetment will require excavation of the beach to a depth of up to 1 m below the level of the lowest beach level. Excavated sand will be reused as follows:
  - Excavated material other than sand to be placed back at original level
  - Sand material to be placed at original level i.e. top exposed level to re-nourish the dune system.

- No offsite tipping of surplus sand material shall be permitted. Surplus sand material shall be spread along the beach in front of the rock armour revetment in an appropriate manner. Surplus excavated material other than sandy material shall be deposited in areas to reinstate where soil erosion may have occurred.

- A Terram 2000 geotextile matting will be laid first to provide a strong footing for the rock along with a filter layer.

- Rock will arrive by 20 T lorries or flatbed lorries at the construction compound via the A2 – Dunluce Road.

- The rock will be unloaded and stockpiled upon arrival at the compound. Rock will be tipped from 20 T lorries or unloaded by excavators from flatbed lorries and placed in the stockpile. Care should be taken in tipping of rock armour to ensure the truck does not overturn.

- When rock is required for construction it will be loaded by excavator onto a large-wheeled dump truck which will leave the compound and enter the beach via the western-most access point. Note: the work will commence at the most westerly point of the proposed rock revetment, working back and towards the existing revetment.

- The rocks will be transported across the beach to the construction area along a pre-defined, secured route. When using the route, all operatives will be made aware of pedestrian movements to make sure site traffic passes safely.

- All mobile plant shall have warning sirens on whilst using this route. It will be mandatory that all personnel adhere to the strictly set out site access point and haulage route.

- The construction site will have temporary fencing and appropriate signage warning the public of the works in place to prevent unauthorised access within the working area.

- The rock will be tipped/offloaded by excavator onto the beach for construction. Rock will be placed on the geotextile layer by excavator in the order identified in Appendix 3. Rocks shall be lowered into place, one by one at no more than 1 m height for the primary layer armour stone and 1.5 m for the secondary layer armour stone and under layer. Every care will be taken to avoid puncturing the geotextile under layer.

- The delivery of the rock and the placing of the revetment and sand trap fencing will be constrained by the tide therefore construction will only take place during low tidal states.

Figure 6: Site footprint for proposed rock revetment.

5.3.8 Installation of Sand Trap Fencing

- Fence posts will be inserted at least 1.5 m into the ground for stability (3 m height in total) and spaced 2 m apart. See drawing in Appendix 4 for correct placement.

- Optimal fencing will consist of 50% open space and 50% wooden slats, to optimise sand deposition.

- Additional sprig planting of marram will be beneficial on the landward side of the fencing to further stabilise the dunes.

Figure 7: Site footprint for sand trap fencing.

5.3.9 Sprigging of Marram grass

- Marram should be dug up from the donor sites with at least 150mm of healthy root or rhizome with two or three nodes from which new roots and shoots can grow.

- If the Marram being collected is from a dense block and individuals cannot be collected. Small 300mm by 300mm sections should be cut using a spade, dug up, and individual plants pulled away from the root mass.

- A bundle of Marram approximately 40mm in diameter should be planted as a single sprig. The leaf base (where the roots begin) should be buried at least 50-100mm below the surface of the sand to encourage active growth. Notch planting using a spade is ideal for Marram creating a hole around 250mm in depth.

- Marram should not be sprigged within 2-3m vertical distance of mean high tide level. Any lower and there is a risk of damaging the plant by sea water.

- Only slopes to a maximum of 1:2 should be planted. While Marram is likely to survive on steeper slopes, these slopes are unlikely to be stabilised without extensive vegetation and will collapsed. Planting should begin at the top of a slope and work downwards to reduce trampling.

- Sprigs should be planted in staged lines a max of 450mm apart, if Marram supplies are sufficient then this distance can be reduced to 300mm. This placement should minimise wind speed along the surface of the dune and encourage sand accretion.

5.4 Traffic management

Basalt and fill material will be sourced from Croaghan Quarry located on Shinny Road, Coleraine BT51 4PS. The haulage route from this location will include vehicles travelling north along Cashel Road towards the Dunhill Road (A37). From here, vehicles will travel along the Ring Road until reaching the Bushmills Road roundabout. Vehicles will travel along Cloyfin Road before continuing on Priestland Road towards Bushmills. From Bushmills, vehicles will travel along the Dunluce Road before turning right into Whiterocks Road.

Limestone will be sourced from Carmean Limeworks located on Carmean Road, Moneymore BT45 7UT. The haulage route from this location will include vehicles travelling along the A29 towards Dunhill Road. From here vehicles will utilise the same haulage route as described above.

Detailed traffic management measures will be set out in the final CEMP to be agreed with CCGBC in consultation with DfI Roads prior to the commencement of construction.

The traffic management measures will likely include, but not limited to, the following mitigation suggested below to ensure road safety during the construction period:

- Deliveries will be scheduled to avoid peak times around the morning and evening rush hour;
- During the delivery/construction periods, temporary advanced warning signs will be in place to caution road users of HGV traffic entering and exiting Whiterocks Road. Signage will be located approximately 100 yards from the entrance to Whiterocks Road on both approaches to the Whiterocks Road;
- Advanced notice of construction and associated deliveries will be provided to the occupiers of Strand Avenue properties; and
- The site contractor will have prior notice of timings of deliveries. This will ensure traffic along the Whiterocks Road can be managed by site operatives once delivery vehicles have turned off the main Dunluce Road. This may include the use of manual stop/go boards to ensure any oncoming traffic can safely pass or wait until the delivery vehicle has reached the construction compound.

The final traffic management measures to be adopted will be agreed with DfI Roads prior to commencement of construction as part of the CEMP.

5.5 Reinstatement

The beach and access routes (including the construction compound) will be reinstated following completion of works. A sufficient allowance for repairs to the car park and associated access will be made to ensure that the car park and access route are returned to their previous state.

5.6 Public Notification

The construction compound and construction site is highly conspicuous to the public due to the main access route being through a public car park and Curran (East) Strand and White Rocks Beach being a popular recreational site. It will therefore be imperative to clearly notify the local community well in advance of the commencement of works through letter drops to local schools, residential and business properties close by to the works.

Heras fencing shall be erected around the main construction site, signage installed, and letter drops to properties in the immediate vicinity of the works (i.e. along Strand Avenue and Dunluce Road). VMS (variable message signs) will be used in conjunction to notify the public of the works at least two weeks prior to commencement of the works. All mobile equipment will have warning reversing sirens to notify site personnel and the public.

5.7 Operational Management and Monitoring

A supervisory role will be assumed by the ECoW prior to, during, and post construction to ensure that the coastal protection works are being carried out in accordance with the plan. Monitoring is essential to evaluate the success of the works and to also make sure that any environmental risks are dealt with as efficiently as is possible, whether that be before, during or after the rock revetment and sand trap fencing has been installed.

The rock revetment will need to be monitored on a monthly basis for the first 6 months after installation, reducing to bi-annual monitoring thereafter and immediately after any damaging storm events. The monitoring will identify any repairs or adjustments that may be necessary.

The sand trap fencing, having a lower life span than the rock revetment, will require more regular maintenance as and when necessary. This will be carried out by greenkeeping staff during monitoring.

There will also be a requirement to carry out monitoring of selected beach profiles as well as whole-beach topography studies to test the effectiveness of the scheme. This monitoring work is proposed to be undertaken by STRI Group whom have considerable experience in coastal monitoring and fixed-point photography.

6.0 Environmental Management Plan

6.1 Aims

The Environmental Management Plan has been formulated to reconcile the construction and operational measures required to ensure the successful installation of the rock revetment and chestnut paling fencing, as well as the necessary constraints imposed by the sensitive nature of the areas adjacent to the construction site. As such, this plan attempts to satisfy the coastal protection aims whilst minimising environmental and ecological impacts of the construction process.

Such plans work to a hierarchy of mitigation processes:

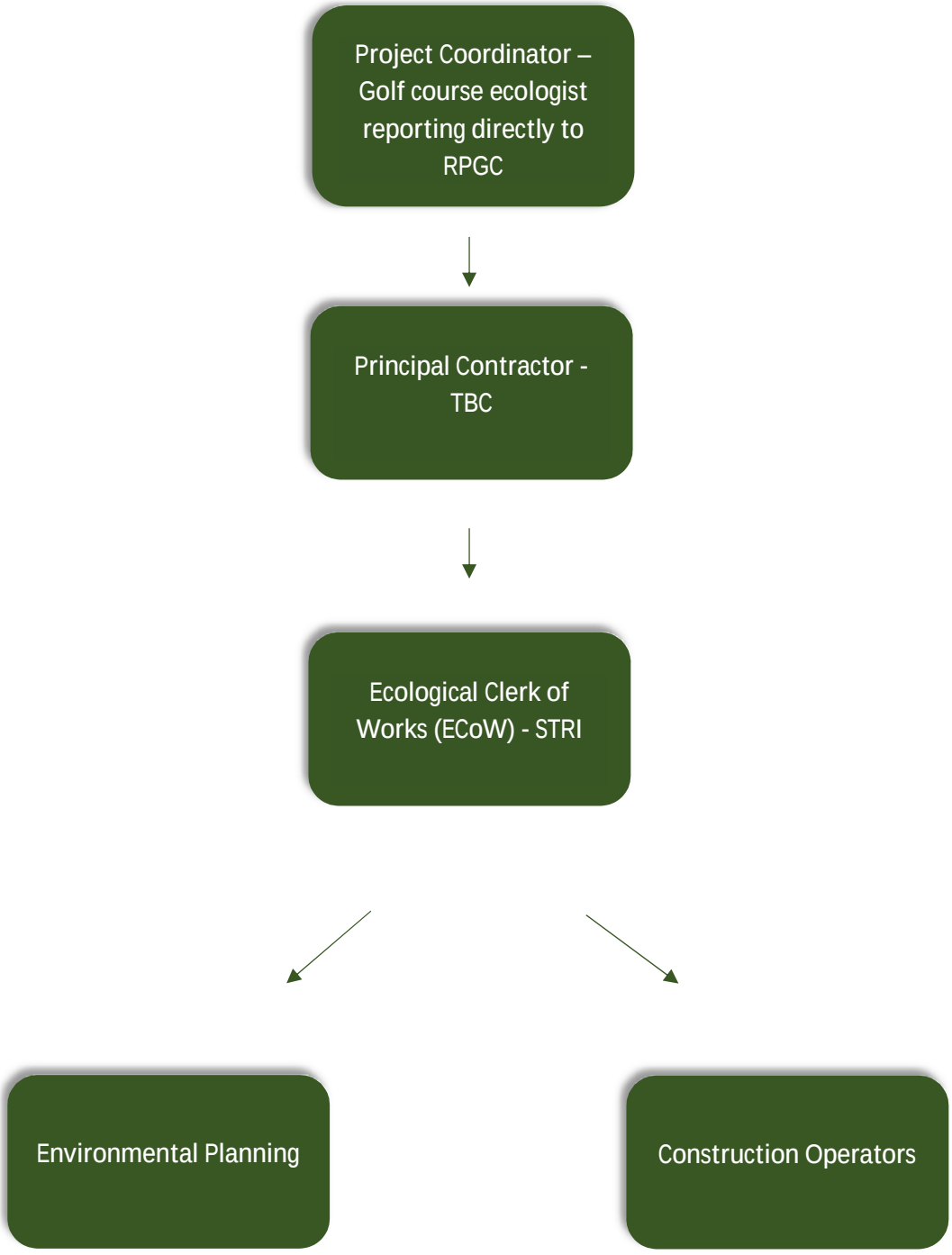
AVOIDANCE Making changes to scheme's design (or potential location) to avoid adverse environmental effects. REDUCTION Where avoidance is not possible, adverse effects can be reduced through sensitive environmental treatments/design. REMEDIATION Where adverse effects are unavoidable, management measures can be introduced to limit their influence. COMPENSATION Where avoidance or reduction measures are not available, it may be appropriate to provide compensatory measures. It should be noted that compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one. ENHANCEMENT
Projects can have positive effects as well as negative ones, and the project preparation stage presents an opportunity to enhance these positive features through innovative design. It is anticipated that this development may offer site enhancement in terms of the increased ecological and environmental benefits.

6.2 Conservation Aims

The principal conservation aims of the plan are:

- To minimise the environmental and ecological impact of the development both during the construction and operational phases on the dune systems within the construction area and any indirect effects on the wider adjacent SAC.
- To provide guidance on the timing and methodologies of working.
- To maintain populations of important species on site.

6.3 Project Team Roles and Responsibilities



Project Coordinator - responsible for ensuring, through the incorporation of the provisions included in the CEMP, that any consent conditions under the control of the developer are satisfactorily discharged.

Principal Contractor – includes programme and budgeting, and on-site lead. To ensure that there EMP measures and conditions are satisfactorily implemented, RPGC will make the EMP a binding requirement of the Principal Contractors contract, with penalties for non-compliance. As on-site lead, the Principal Contractor has day-to-day control over construction processes and therefore plays a vital role in ensuring all operations are carried out to appropriate standards.

The appointed Principal Contractor will be expected to have experience of installing excellent quality rock revetment. In addition, they will ideally be equally experienced and expert in working within ecologically and archaeologically sensitive landscapes. An understanding of the political nature and public interest that surrounds this project is also essential.

Ecological Clerk of Works – supervises on-site works during key stages of the construction and will also be responsible for informing contractors and construction works of the sites sensitivities. The ECoW will keep a record of protected features found (e.g. species, habitats as appropriate) and of advice given on site. The ECoW will report any findings or breaches of condition to the relevant bodies.

Construction Operators (including contractors and construction workers) – all those involved in the construction phase will be made aware of the overall aims of the CEMP and the actions set out within it.

6.3.1 Briefing and Training

Appropriate training of operators on the ground is crucial to successful EMP implementation. The ECoW will be responsible for training all engaged contractors and subcontractors in relevant environmentally compliant site practice through a series of 'toolbox talks' (short talks designed to assist Environmental Managers in briefing contractors in a clear and concise manner to ensure key points are taken on board). The ECoW will prepare toolbox talks to outline:

- The environmental value of the site;
- Protection measures to be implemented;
- Expected practice on site;
- Procedures in the event of an emergency including how to inform of incidents and minimise environmental damage through prompt action.

6.4 Preventative Measures

Prior to commencement of works:

- General site induction to all Personnel;
- Notification and identification of all services on site;
- All plant operatives CSCS Certificates checked for compliance;
- Refuelling of vehicles will be carried out on hard standing, fully bunded ground away from the beach area in existing contractor's compound. Spill kit to be readily available at all times.

During works:

- All site Personnel will be required to wear safety helmets (EN 397), protective gloves (EN 420), high-visibility clothing (EN 471) and safety footwear (EN 345) at all times. Ear defenders (EN 352-3) should be worn as required.
- Signs and barriers will be erected on the construction site and in areas where there will be plant operating to warn the public and prevent trespassing into unsafe areas.
- A First Aider will be available on site at all times with the appropriate first aid equipment.

6.3 Risk Assessments

It will be the Principal Contractors responsibility to provide risk assessments for all works involved in the scheme.

7.0 Environmentally Significant Changes

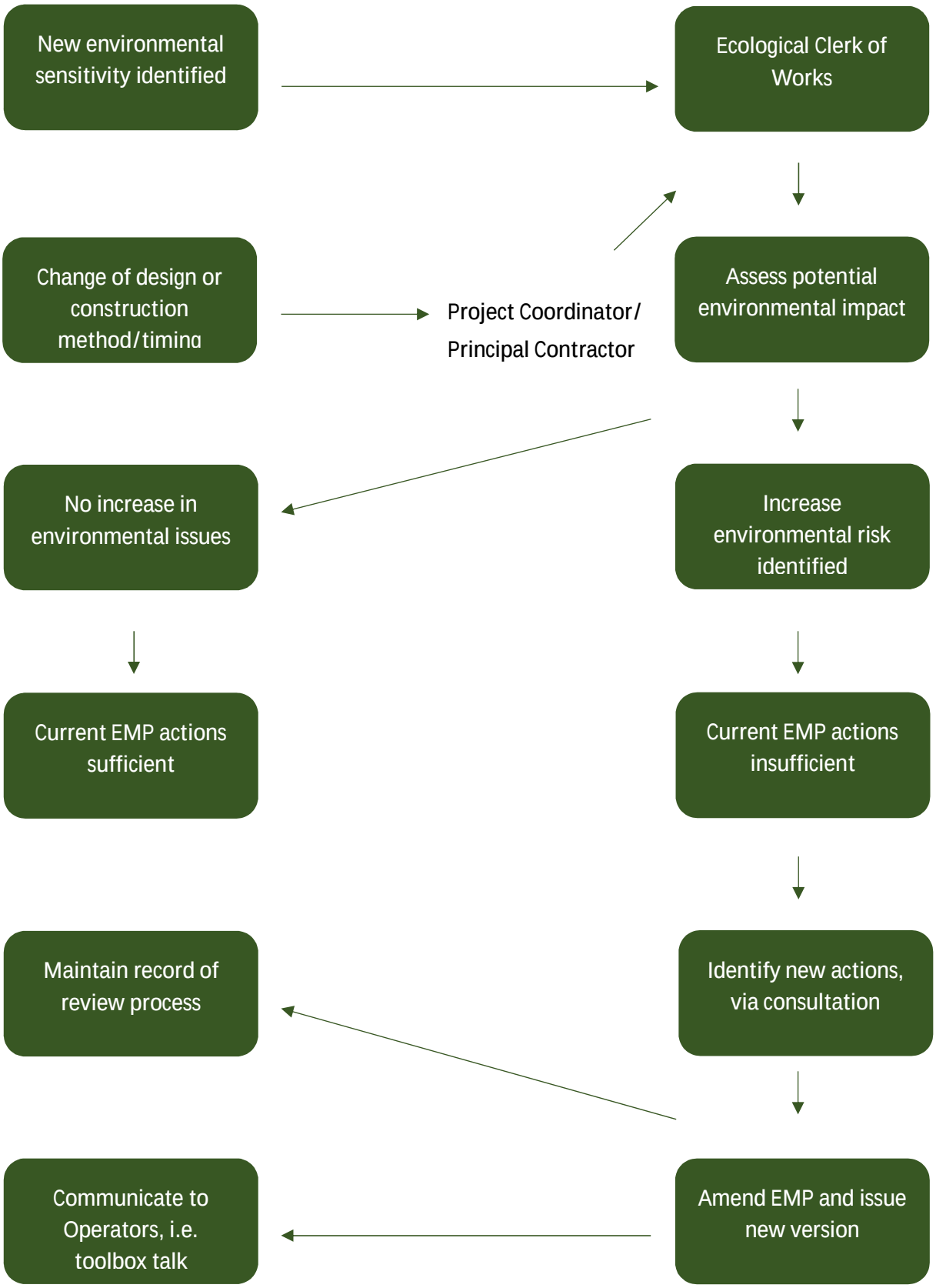
It is important for an CEMP to be able to accommodate change and respond to any need for further assessment requirements.

Changes are most likely to arise for one of two main reasons:

A new environmental sensitivity is identified as a consequence of changing environmental conditions/evolving trends; or,

Changes are introduced to the development design/construction methods or construction programming.

The following diagram indicates the process that will be followed should such changes be identified:


New environmental sensitivity identified
Ecological Clerk of Works
Assess potential environmental impact
Project Coordinator/ Principal Contractor
Change of design or construction method/timing
Increase environmental risk identified
No increase in environmental issues
Current EMP actions insufficient
Current EMP actions sufficient
Identify new actions, via consultation
Maintain record of review process
Amend EMP and issue new version
Communicate to Operators, i.e. toolbox talk

8.0 Identified Hazards

A series of general concerns have been highlighted that apply during the construction process:

8.1 Habitat Protection

There will be limited intrusion into any habitats, other than the bare sand on the dune face and beach. The access route will be protected through the placement of temporary tracking which will be removed and remediated following the works. Any displaced marram or other vegetation during the works will be reused and replanted as close to its original placement as possible.

8.2 Storage and Use of Hazardous Liquids

It should be in the Contractor's interest that all machinery on site uses bio-diesel to prevent pollution of seawater, particularly plant that will be operating adjacent to the water's edge. All hazardous liquids (including fuel) needed for construction vehicles and machinery will be stored in double bunded tanks (bunded to minimum 110% capacity) within the construction compound and maintained in a clean and safe manner. Drip trays/bunds will be in place during refuelling of all machinery and a fully bunded fuel bowser will be on site complete with spill kit and foam fire extinguishers within close vicinity. When storing plant overnight or when plant is stationary for other prolonged periods of time, drip trays should be used beneath to avoid fuel leakage as a precautionary measure.

Oils and lubricants will be stored in sealed containers on drop trays inside steel storage units within the construction compound. Spill kits and disposal bins will also be kept close by should a spill occur.

All chemicals will be registered on site with the appropriate SDS and chemical risk assessment.

Vehicles and equipment will be refuelled only by a competent operative within a designated bunded area within the construction compound. Care should be taken not to overfill plant fuel tanks and an adequate supply of absorbent material should be available at all times. Fuel transfer pumps should be immediately isolated after use and any used absorbent material should be stored in the appropriate bin for disposal off site. All spills should be reported immediately to the Site Engineer. In the case of large and slow moving equipment, where return to the compound may be unfeasible, care will need to be taken to ensure that sufficient fuel is on board before the equipment leaves the compound to complete the expected construction tasks.

8.3 Spillages

See Emergency Response Plan (Appendix 6) for appropriate mitigation should a spillage occur.

8.4 Stranding

Emergency repair tools and/or towing equipment will be available at all times in the case of any broken-down equipment on the beach. Life rings will also be readily available for use in the event of a person falling into deep water, these to be stored on the main excavators working on the rock armour.

Site Personnel should be aware that during certain spring high tides, and in stormy conditions the working area within the site boundary may be reduced by higher water levels. Operatives should also be aware that the times of high tide will vary daily and that a set of tide tables will be available on site. The Site Supervisor will monitor the tide times and associated water levels on a daily basis and will schedule the daily activities accordingly.

8.5 Waste Disposal

There is likely to be limited waste however, where possible, all packaging from materials used for the Scheme will be returned to the original supplier for reuse, or recycled. Disposal will always be considered as the 'last resort' option and when necessary will only be carried out at an appropriately licenced tip.

Drip trays will be emptied on a regular basis, especially after rain and their contents stored in appropriate containers in a secure bunded area within a materials storage area and will be collected by authorised personnel for recovery and/or disposal.

8.6 Stockpiling

There will be minimal stockpiling of material on site but where necessary, material will be kept in a secured area within Whiterocks Beach car park. Stockpiling of the material should take into consideration the following:

- Material to be kept separate i.e. 4, 1.8 & 0.3 tonne armour stone and under layer material.
- Stockpile area should be level firm ground free from obstructions, unauthorised access should be prevented and area must be well-lit at night.
- Primary armour stone to be placed seaward of the secondary armour stone and under layer stone, this will allow protection for the smaller stone during stormy or flooding conditions. Note this is highly unlikely to occur.
- Care should be taken to ensure that all rocks placed in the stock pile are well supported to minimise the risk of one rolling off the stock pile, and no persons should be allowed to climb on the rock armour pile.
- Segregation of the public from the stockpile area using warning signs and if possible physical barriers to prevent the public, especially children from climbing on to stockpiles.

- Ensure that personnel keep a safe distance from tipper trucks unloading.
- Site personnel to be clearly instructed on the discharge and reloading of the quarry material.
- Action to prevent formation of soft areas on the beach as stockpiles are removed

The site should provide adequate and safe space for storage and for the manoeuvring lorries/dumpers, the handling equipment and the possible reloading of site vehicles.

8.7 Plant Operation

To comply with Health and Safety regulations, all plant operatives must adhere to the following when working on site:

- All operatives to wear suitable PPE (hard hat, Hi-visibility vest/Jacket and safety boots are mandatory throughout the site). Additional PPE such as gloves and ear protection will be used as required. Life Jackets should also be worn whilst working alongside deep water. Personnel operating plant will not be required to wear a life jacket whilst inside an enclosed cab, however they should put one if they get out of their cab alongside deep water.
- All operatives will comply with the requirements of the Contract Health & Safety Plan, Environmental Plan and with all matters raised during the site inductions.
- Lone working will not be permitted at any time.
- All persons involved in the operation will be given the details of this method statement in the form of a 'Tool-box Talk'.
- All personnel not involved in the operation should remain outside the working area.
- All visitors must report to the Site Foreman and must be signed in and out of the site area and inducted. They must also be accompanied at all times whilst on site.
- Only certified personnel should operate plant.
- All site traffic will be constrained to approved site routes.
- No item of plant will be allowed to carry passengers at any time.
- Personnel other than operatives and Sub Contracts should be kept out of the working area, and in particular away from all items of plant. If unauthorized personnel do enter the working area and approach an item of plant, the operator should stop work, and wait until they have vacated the immediate area (this may include politely requesting that the person vacate the area).
- Items of plant should not be operated and should have their controls isolated whilst using a mobile phone.
- All lighting required for the works will be provided by the headlights on the plant items.

- All items of plant and vehicles must have working flashing orange beacons at all times whilst being operated. Site Personnel should ensure that no obstacles are left in the working area at the end of each shift, i.e. for example rock armour should either have been incorporated into the works or should be in a stock pile.
- Excavators should be established on a stable level platform before lifting of armour begins.
- All rocks should be kept as close to the ground as possible at all times whilst being held by the grab or bucket, and at no time should anyone move below a suspended rock.
- Care should be taken in tipping of rock revetment to ensure the truck does not overturn.
- Care should be taken to ensure that all rocks placed in the stock pile are well supported to minimise the risk of one rolling off the stock pile, and no persons should be allowed to climb on the rock armour stock pile.
- Ensure that Personnel keep a safe distance from dumper trucks unloading.

8.8 Plant Maintenance

All items of plant should be inspected daily and any faults or damage should be reported immediately to the Site Engineer and Head Office. All hydraulic hoses should be inspected daily and all damaged/worn hoses should be reported to the Site Engineer who will arrange for them to be replaced. In the event of a hose burst, the damaged hose should be isolated as soon as possible and any spilt oil cleaned up using absorbent materials, even if it is biodegradable, again all spills should immediately be reported to the Site Engineer.

9.0 Ecological Implications

9.1 Potential Ecological Impacts

The proposal under consideration is significant but is very localised, and, with appropriate site working, will represent no negligible impact on the land form interest, or indeed the coastal interest. Nevertheless, even though no international designations apply, under the Planning Act 2011, it will be necessary to ensure that no impacts (direct or indirect) are exerted on the adjacent designated land uses. All site working will need to give recognition to the main legislation that applies. A final site walkover will be carried out immediately before any works commence along with regular updates being sent to the ECoW during the construction process.

In recognition of the above, STRI Group were assigned to conduct a series of ecological surveys to help inform the decision process. A botanical assessment, wintering bird survey and mollusc survey were carried out along with a desktop review of ecological data within 2 km of the survey site, collated from the Northern Ireland Centre for Environmental Data and Recording (CETaR). A casual assessment for small mammals was also conducted.

Note that any issues arising regarding European Protected Species during the construction process will result in an immediate cessation of works in the affected area and the retained ECoW will be

contacted immediately. The Northern Ireland Environment Agency shall be made aware of the issue also. All parties will then work to find an appropriate solution and work will not resume within the affected area until a resolution is agreed by all parties and fully implemented.

9.2 Legislation and Local Plan Overview

The Habitats Directive is administered in Northern Ireland through The Conservation (Natural Habitats etc.) Regulations 1995. This legislation came into operation in 1995 with the purpose of implementing the European Council (EC) Directive on the conservation of natural habitats and flora (the Habitats Directive). Species of particular concern fall into one of several annexes and, on this site, include the narrow mouthed whorl snail (*Vertigo angustior*) which is found in only one 'close by' location on the North Antrim coastline.

The Wildlife (Northern Ireland) Order 1985 (as amended) states that it is an offence to intentionally or recklessly kill, injure or take any wild bird or animal included in Schedule 5 of this Order. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The legislation also prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places.

The Order makes it an offence to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

The Order contains measures for preventing the establishment of species not native to Northern Ireland which may be detrimental to native wildlife, and prohibits the release of animals and the planting of plants listed on Schedule 9. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

The Wildlife and Natural Environment Act (Northern Ireland) 2011 amended the Wildlife Order by giving protection to a wider range of plants, animals and birds, and providing additional enforcement powers and increased penalties for wildlife related offences. The Act also introduced a statutory duty on all public bodies to further the conservation of biodiversity.

The Welfare of Animals Act (Northern Ireland) 2011 makes it an offence to cause unnecessary suffering to any animal. To avoid any breach of the Act through entombment or injury, the applicant should ensure that best practice techniques are applied during construction works.

Northern Area Plan 2016 highlights the plans for future development throughout the four council areas that were brought together to make the Causeway Coast and Glens Borough Council. A full HRA of the entire area has been carried out to show that no development will have any adverse effect on any designated sites, including those that RPGC sits within and adjacent to.

Integrated Coastal Zone Management Strategy for Northern Ireland (ICZM), 2006-2026 has an objective to establish sustainable levels of economic and social activity in coastal areas while protecting the coastal environment. The coastline at RPGC lies within this strategy.

9.3 Ecological Survey Results

The full ecological survey reports should be read for more detail. The following outline the survey results for the purpose of the environmental management plan.

9.3.1 Mollusc Survey

The mollusc survey, conducted by Evelyn Moorkens (conchologist), focused primarily on the internationally protected *Vertigo angustior* species which is known to exist within the locality. The results of the survey concluded that the current habitat conditions are unsuitable for *Vertigo angustior* with the majority of species found being typical of dune grassland.

9.3.2 Wintering Bird Survey

A wintering bird survey was carried out by Sophie Vukelic (STRI) to assess the site for bird presence throughout the winter months (October to March). It was concluded that the area is of low value to wintering birds with no birds noted to be actively utilising the area to be under construction.

9.3.3 Botanical Assessment

A botanical assessment of the site identified four distinct vegetation communities ranging from fixed dune grassland to dune scrub. No evidence of rare or scarce plants was noted, the only notable species being northern marsh orchid (*Dactylorhiza purpurella*) which is common and grows throughout the UK.

9.3.4 Small Mammal Survey

Upon conducting the above surveys, signs of small mammals were also assessed with no significant evidence discovered.

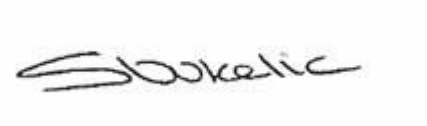
9.3.5 Marine Life

No surveys have been carried out to assess the aquatic floral and faunal interests adjacent to the site of working. The RPS Coastal Erosion Study highlighted that there will be no direct impacts to sediment transportation from the construction element of the rock armour and sand-trap fencing. It is therefore unlikely that there will be any impact on aquatic species both during and post-construction. Construction will only be undertaken at low tide to further reduce the risk of any negative impacts to marine life. Impacts will be further negated given the short length of the rock armour proposed, especially when considered in relation to the total length of the Curran Strand (West Side).

10.0 Licencing

A marine licence for 'marine construction works/land reclamation/beach replenishment in the territorial sea and controlled waters adjacent to Northern Ireland' will be acquired prior to commencement of any works by the appointed Planning Officer.

Signed



Sophie Vukelic

Ecological and Environmental Consultant

STRI

sophie.vukelic@strigroup.com

Revision by:

Rowan Rumball BSc (Hons) MSc GradCIEEM Ecologist
Ecological Consultant
t. +44 (0)1274 565131
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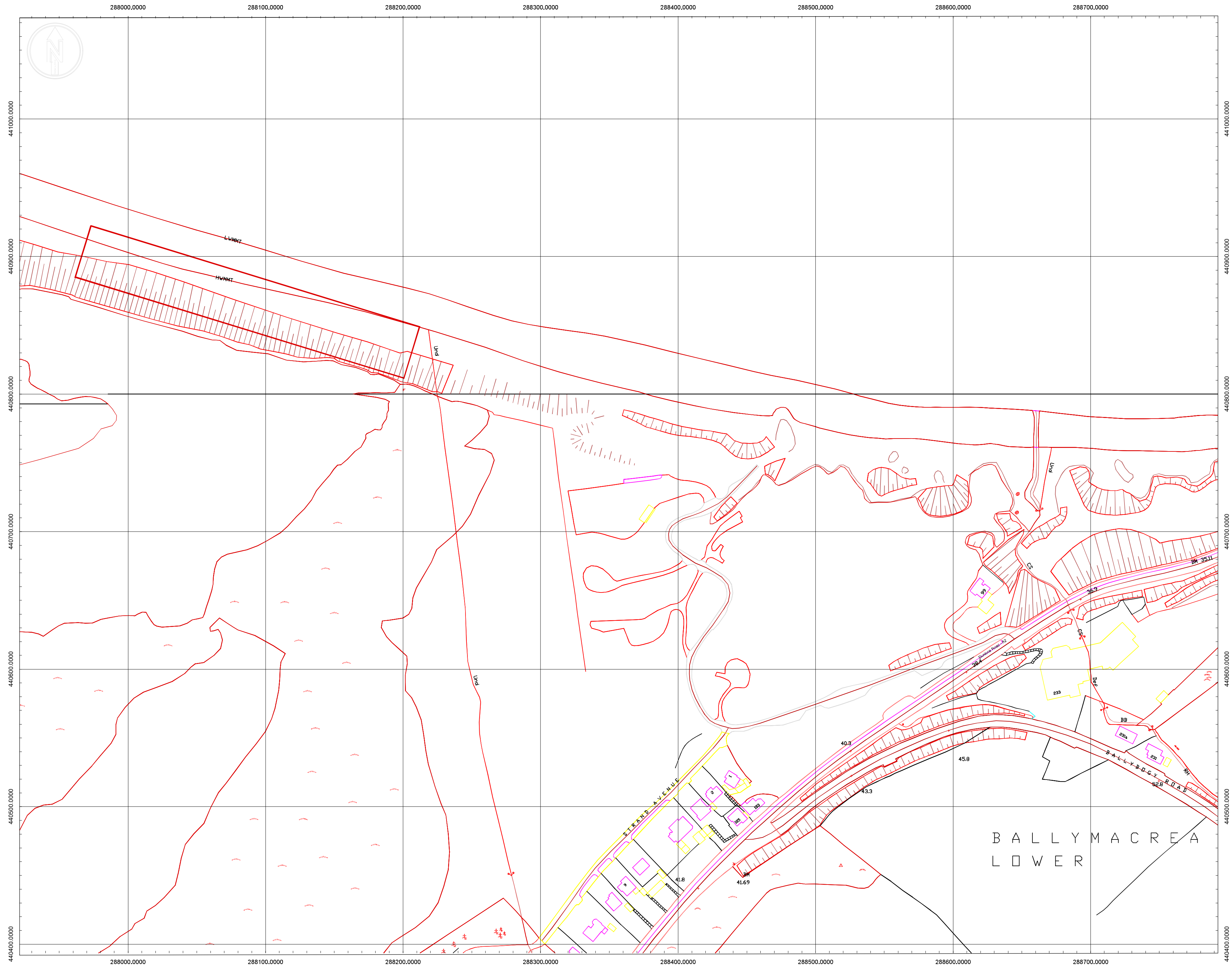
Appendix 1 – Location Plan



legend

Site border

drawing details

client:	project:	drawing title:	
Royal Portrush GC	Royal Portrush GC – Coastal protection	Royal Portrush GC – Location of proposed construction access & haulage route Drawing no: EC105661 003	drawn by: MR checked by: SV date: 10.03.2017 scale: 1:1250 @ A1

revision history

revision:	details:	DR	CH	AP	date:

drawing status

Planning

notes

OSNI maps – 00610NE & 00606SE
provided by:
www.nidirect.gov.uk/campaigns/ordnance-survey-of-northern-ireland

Site working area: 0.975ha

It is the contractor's responsibility to ascertain the location of all services prior to the commencement of work. Setting out shall be the responsibility of the contractor, any discrepancies shall be reported and clarified at the earliest opportunity.

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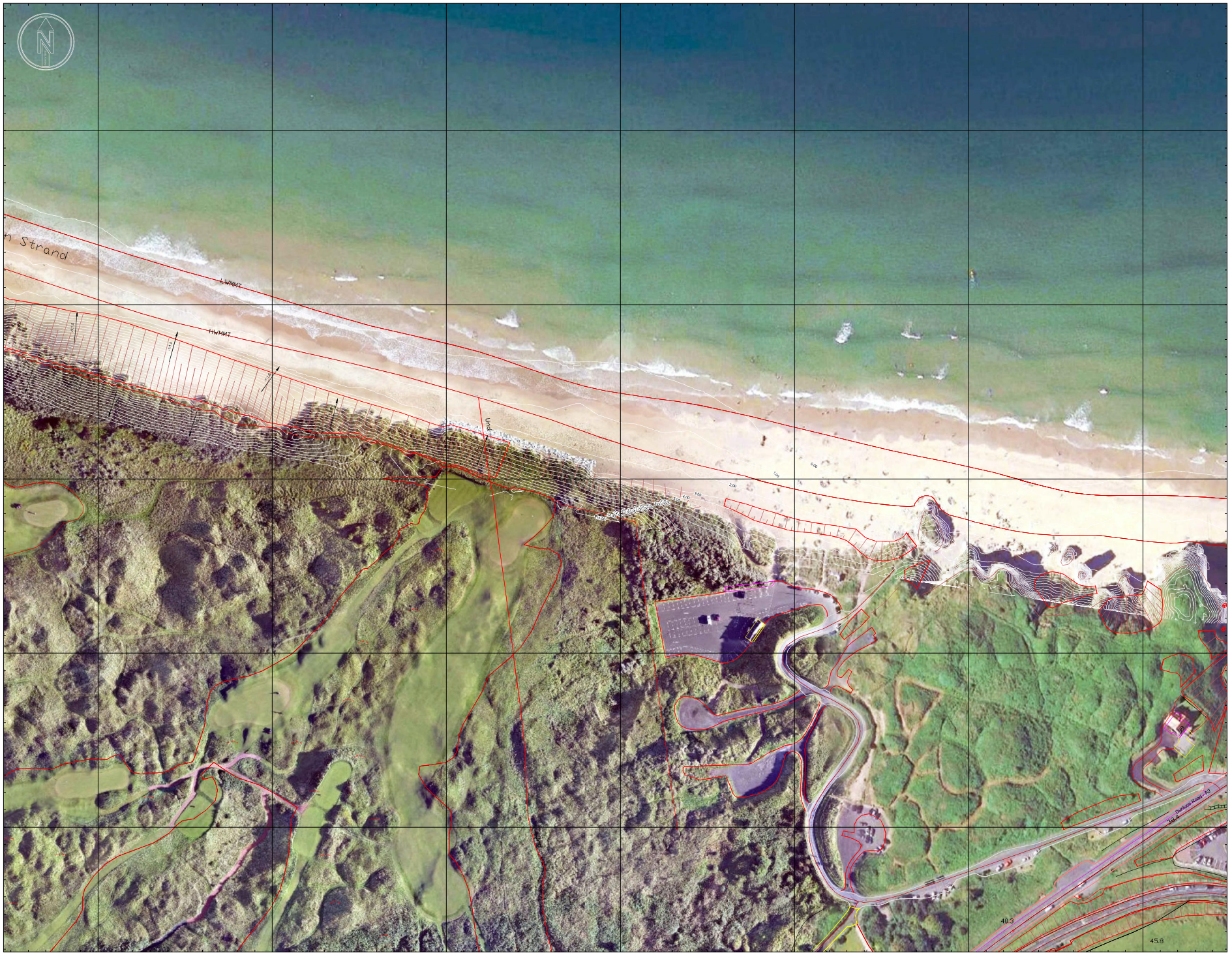
Appendix 2 – Existing Layout of Topographical Detail



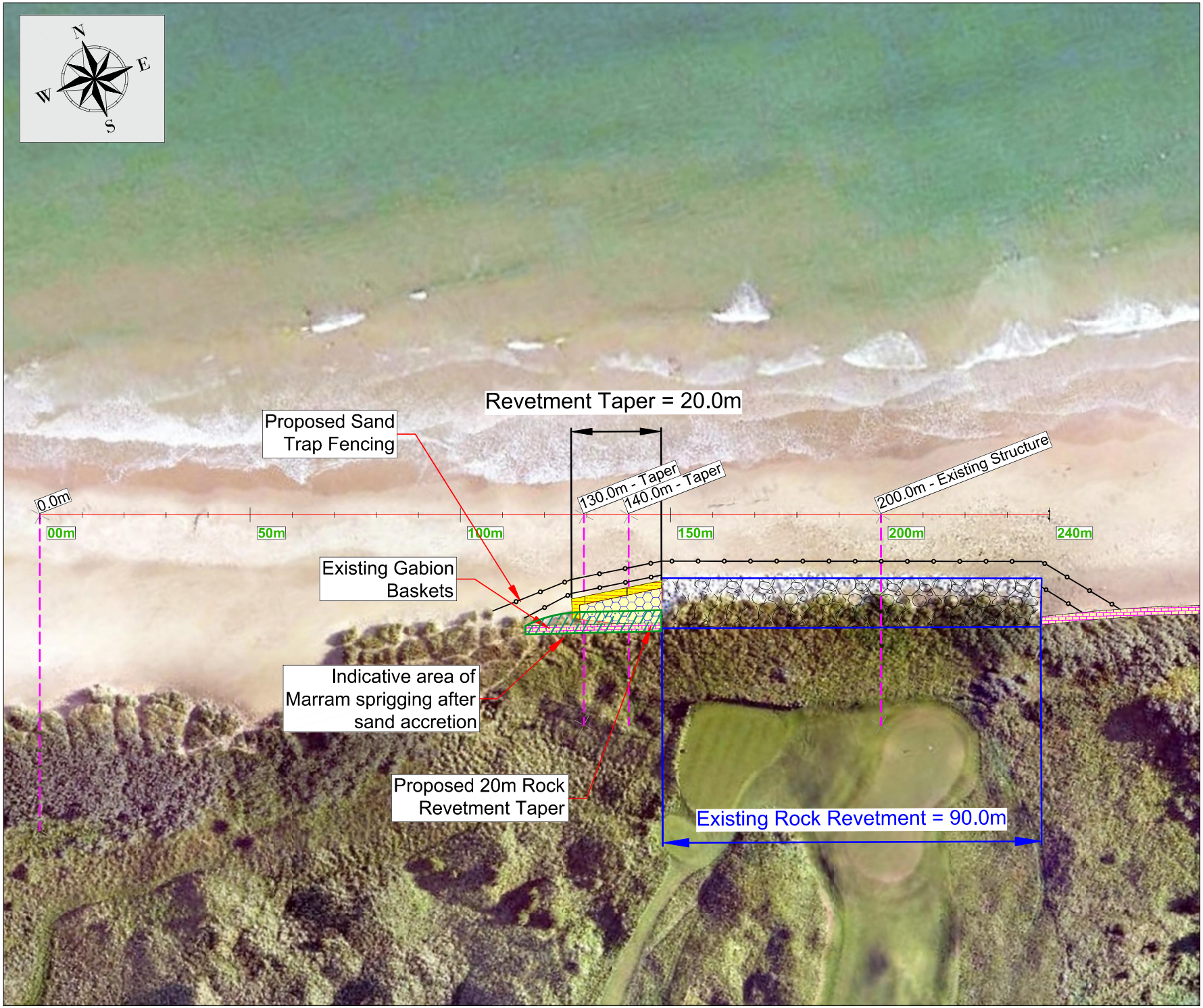
Existing contours

Existing gradients

Planning

STRI

Appendix 3 – Proposed Layout & Proposed Sections



NOTES

1. Verifying Dimensions.
The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.

2. Existing Services.
Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.

3. Issue of Drawings.
Hard copies, dwf and pdf will form a controlled issue of the drawing. All other formats (dwg, dxf etc.) are deemed to be an uncontrolled issue and any work carried out based on these files is at the recipients own risk. RPS will not accept any responsibility for any errors arising from the use of these files, either by human error by the recipient, listing of un-dimensioned measurements, compatibility issues with the recipient's software, and any errors arising when these files are used to aid the recipients drawing production, or setting out on site.

Proposed

- Sand trap fencing
- Toe of 20m Rock Revetment Taper
- 20m Rock Revetment Taper
- Indicative area of Marram Sprigging after sand accretion

Existing

- Rock revetment
- Buried gabion baskets

rev	amendments	drawn	date

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Client
Royal Portrush Golf Club

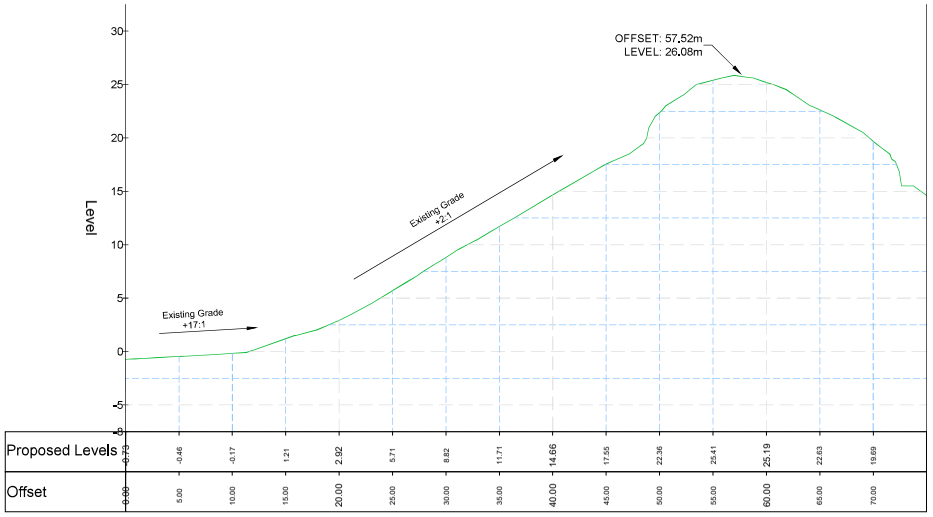
Project
RPGC Coastal Erosion and Mitigation Measures Study

Title
20m Rock Revetment Taper
Plan View
-

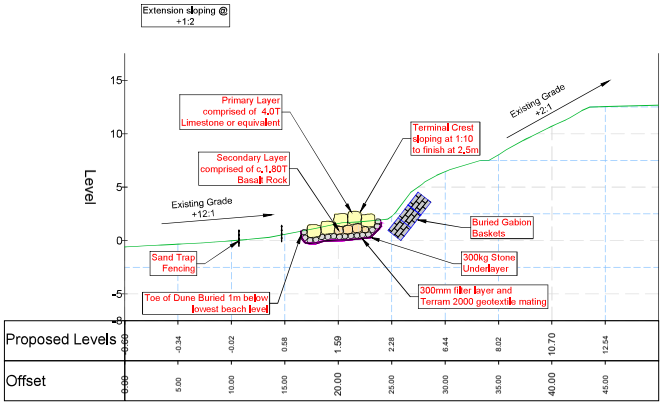
Drawing Status	Sheet Size	Drawing Scale
Final	A3	1:500 @ A1

Drawing Number	Rev
IBE /0947	Rev03

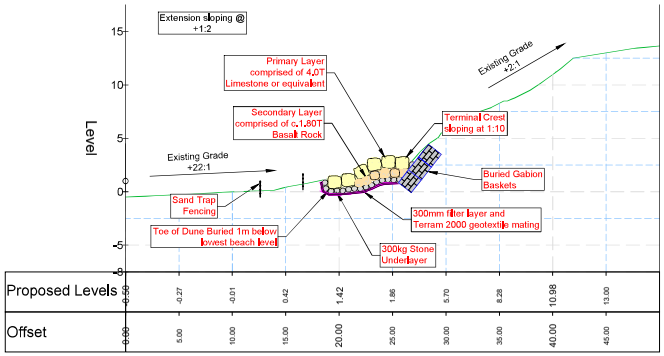
Project Leader	Drawn By	Date	Initial Review
AKB	KC	09/01/2019	AKB



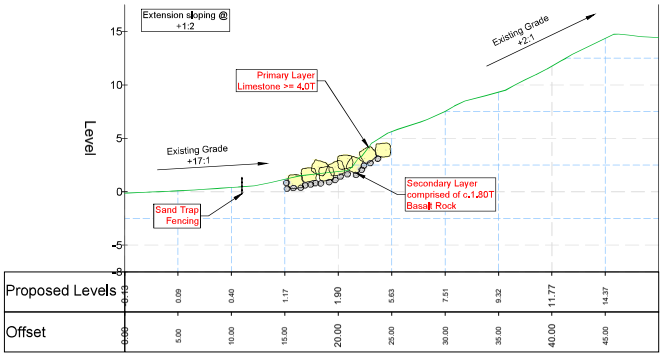
Chainage 0.0m



Chainage 130.0m - Taper



Chainage 140.0m - Taper



Chainage 200.0m - Existing Structure

NOTES

1. Verifying Dimensions.
   The contractor shall verify dimensions against such other drawings or site conditions as pertain to this part of the work.

2. Existing Services.
   Any information concerning the location of existing services indicated on this drawing is intended for general guidance only. It shall be the responsibility of the contractor to determine and verify the exact horizontal and vertical alignment of all cables, pipes, etc. (both underground and overhead) before work commences.

3. Issue of Drawings.
   Hard copies. dwf and pdf will form a controlled issue of the drawing. All other formats (dwg, dxf etc.) are deemed to be an uncontrolled issue and any work carried out based on these files is at the recipients own risk. RPS will not accept any responsibility for any errors arising from the use of these files, either by human error by the recipient, listing of un-dimensioned measurements, compatibility issues with the recipient's software, and any errors arising when these files are used to aid the recipients drawing production, or setting out on site.

rev	amendments	drawn	date

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Client

Royal Portrush Golf Club

Project

RPGC Coastal Erosion and Mitigation Measures Study

Title

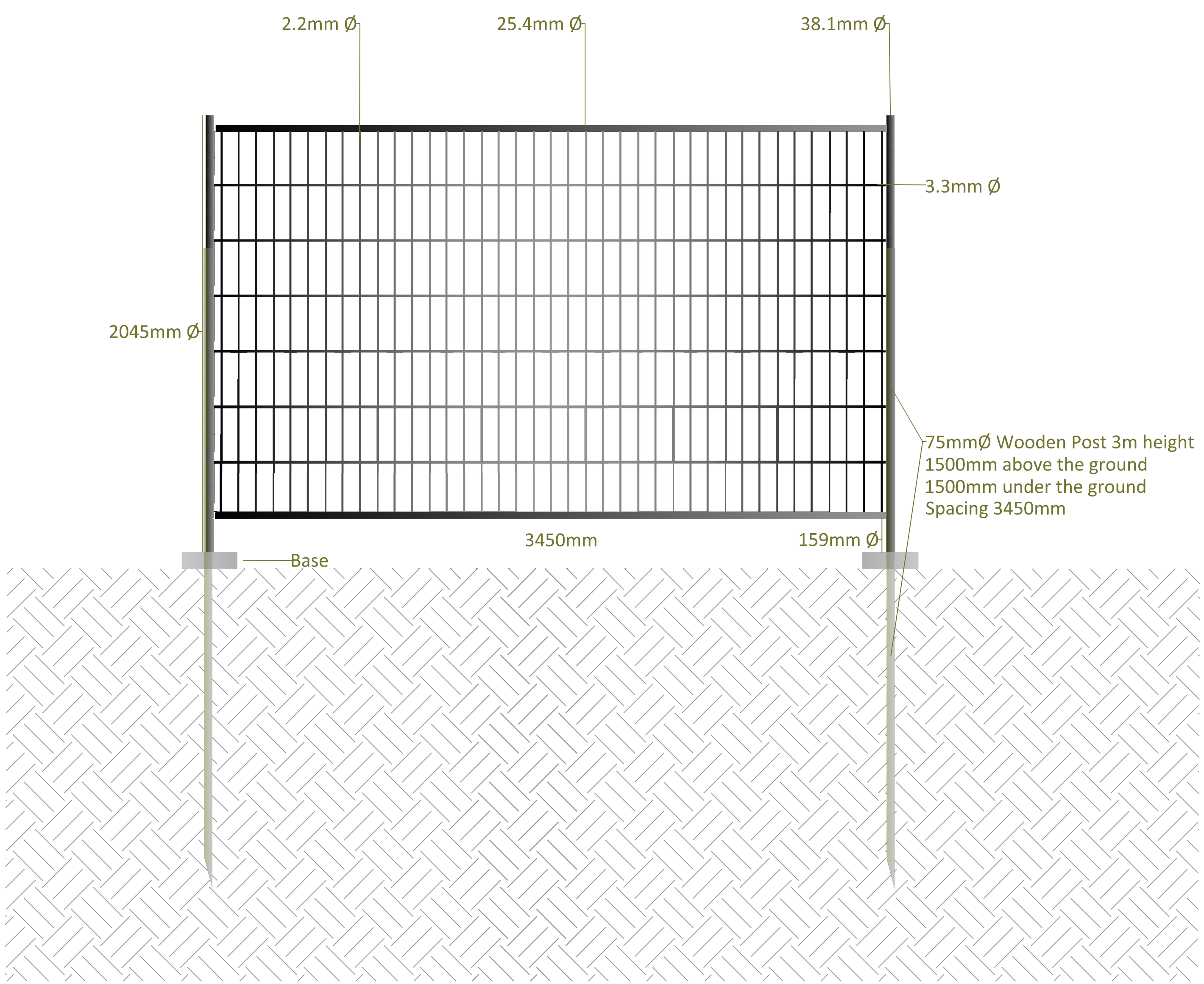
20m Rock Revetment Taper
Typical Cross-Sections
-

Drawing Status	Sheet Size	Drawing Scale
Final	A3	1:250 @ A1

Drawing Number	Rev
IBE /0947	Rev03

Project Leader	Drawn By	Date	Initial Review
AKB	KC	09/01/2019	AKB

Appendix 4 – Elevational Detail of Heras and Sand Trap Fencing



legend

drawing details

client:	project:	drawing title:	
Royal Portrush GC	Royal Portrush GC	Heras Fencing Detail	drawn by: AK
			checked by: SV
			date: 20/03/2017
		drawing no: EC105661 005	scale: see drawing @ A2

revision history

revision:	details:	DR	CH	AP	date:
A.	decription.	–	–	–	00-00-00

drawing status

DRAFT FOR INFORMATION

notes

–

It is the contractor's responsibility to ascertain the location of all services prior to the commencement of work. Setting out shall be the responsibility of the contractor, any discrepancies shall be reported and clarified at the earliest opportunity.

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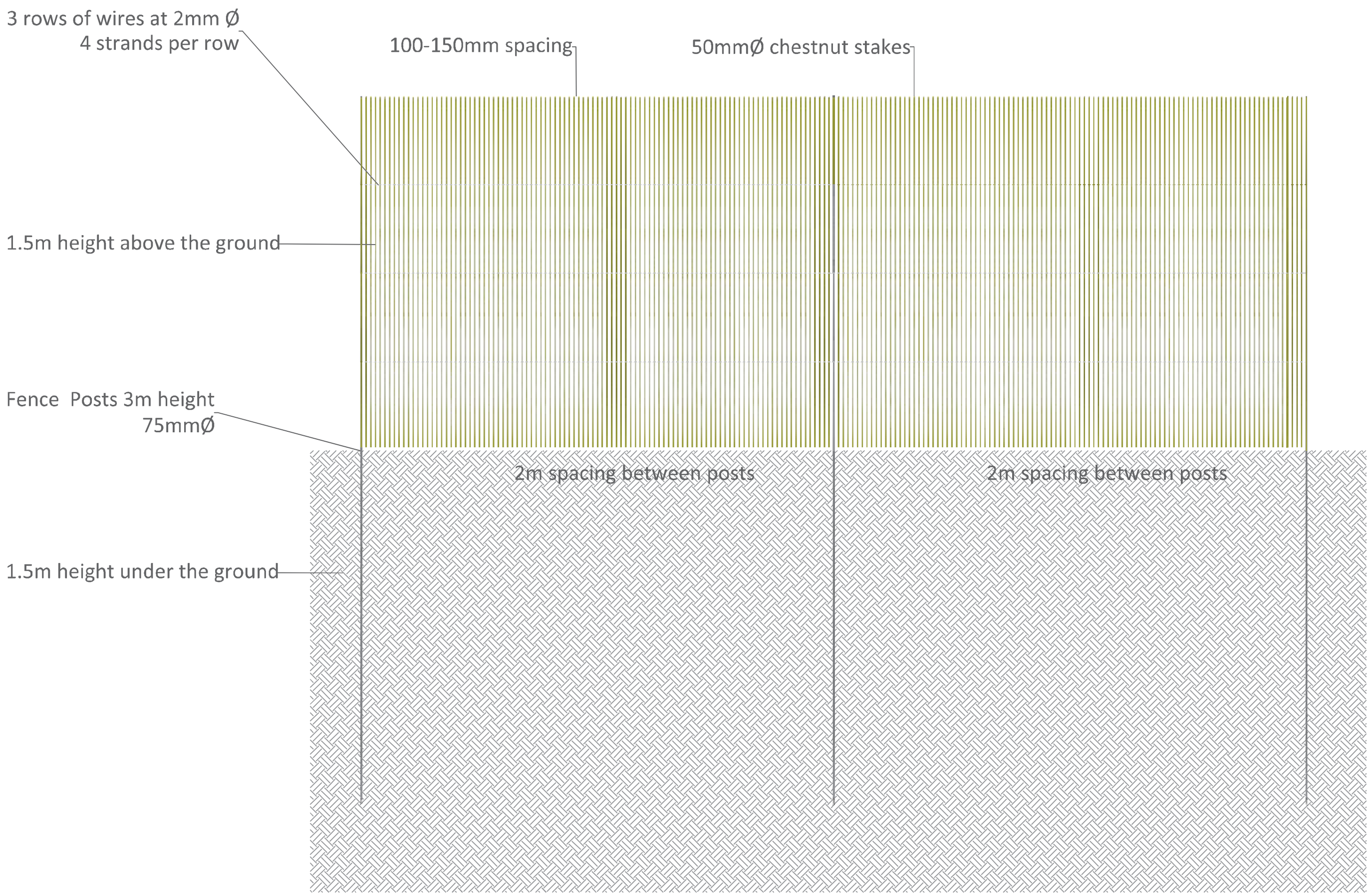
Appendix 5 – Detail Chestnut



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drawing details

client:	project:	drawing title:	
Royal Portrush GC	Royal Portrush GC	Chestnut Paling Detail	drawn by: AK checked by: SV date: 20/03/2017
		drawing no: EC105661 004	scale: see drawing @ A2

revision history

revision:	details:	DR	CH	AP	date:
A.	decription.	–	–	–	00-00-00

drawing status

DRAFT FOR INFORMATION

notes

–

It is the contractor's responsibility to ascertain the location of all services prior to the commencement of work. Setting out shall be the responsibility of the contractor, any discrepancies shall be reported and clarified at the earliest opportunity.

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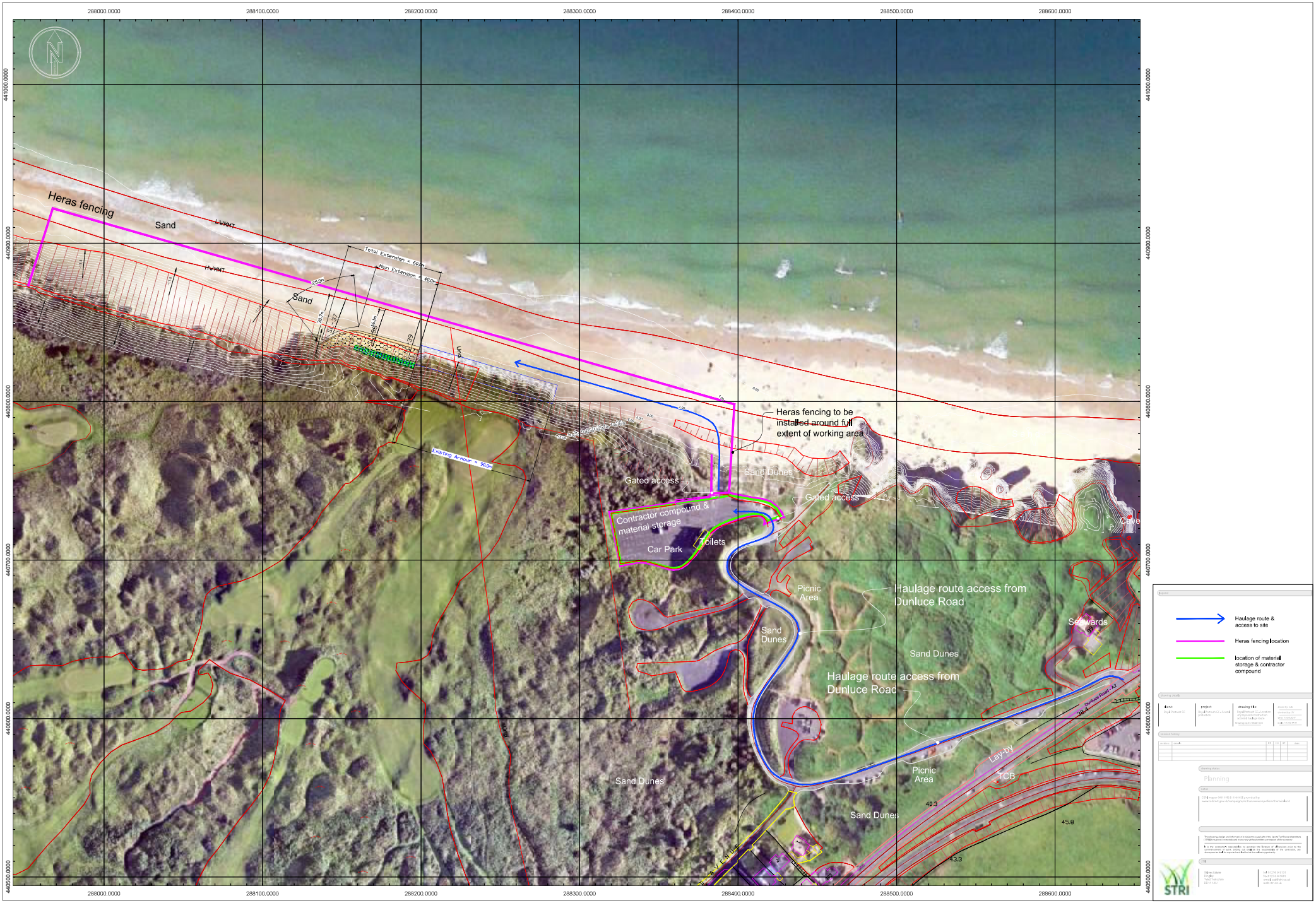
Appendix 6 – Location of Proposed Construction Compound – Access & Haulage Routes


288000.0000
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288500.0000
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441000.0000
440900.0000
440800.0000
440700.0000
440600.0000
440500.0000
Heras fencing
Sand
LWMT
HWMT
Sand
Total Extension = 60.0m
Main Extension = 40.0m
25.0m
30.0m
Existing Armour
Heras fencing to be installed around full extent of working area
Gated access
Sand Dunes
Gated access
Contractor compound & material storage
Car Park
Toilets
Picnic Area
Haulage route access from Dunluce Road
Sand Dunes
Seawards
Sand Dunes
Haulage route access from Dunluce Road
Sand Dunes
Picnic Area
Lay-by
TCB
40.3
45.8
43.3
Haulage route & access to site
Heras fencing location
location of material storage & contractor compound
Planning
STRI

Appendix 7 – Emergency Response Plan

Making great sport happen

ROYAL PORTRUSH GOLF CLUB

Emergency Response Plan

Report Date: 27th April 2016 Revised 9th March 2017
Consultant: Sophie Vukelic

Contents

Introduction

Pollution prevention measures have been developed to minimise the risk of an environmental accident occurring during the Royal Portrush Golf Club Coastal Protection Works. These measures combine both the current UK best practice and guidance from the following documents:

- NIEA, Pollution Prevention Guidelines, PPG1 (July 2013), Understanding your environmental responsibilities - good environmental practices.
- NIEA, Pollution Prevention Guidelines, PPG5 (October 2007), Works and maintenance in or near water.
- NIEA, Pollution Prevention Guidelines, PPG6 (2012), Working at construction and demolition sites.

However in the unlikely event of an environmental incident occurring, it is important to have a comprehensive emergency response plan in place in order to minimise the potential impacts.

This is an operational response plan. Please read prior to commencement of any work and store in a convenient location for ease of access should any incident arise.

Note: It is important that all strategic, tactical and operational staff working on the project understand this plan and are aware of their specific roles and responsibilities.

Outline of Procedures

The emergency response plan follows the 'Source – Pathway – Receptor' model as described in PPG1. In the event of an environmental incident the following will be prioritised:

- Stop the pollution at source.
- Interrupt any pathways to the environment.
- Report the incident in as much detail to site management and the Project Ecologist.
- Clean the contaminated area.
- Analyse the event to prevent further incidents.

The Site Manager and Ecological Clerk of Works (ECoW) will ensure that all site Personnel are trained in the ERP through an induction toolbox talks with daily updates and safety briefings.

Procedures – Spillage/Incident

Note: Before commencing with any work on site, and, before any equipment is allowed on the upper beach the acting ECoW must be satisfied that all machinery is in excellent working order and that all services have been carried out immediately prior to this current project. The ECoW must record details of service history of all machinery and equipment and store the records for immediate access.

All machinery and equipment brought to site will be stored with the agreed storage compound for a minimum of one full night (overnight) to enable surface examination for signs of leaks, drips or other surface contamination.

Physical checks will be made within the agreed storage location at the start of the project and before access onto the beach specifically in respect of leaks, drips or potential surface contamination physical checks will be made daily in accord with the about to ensure any early signs of leakage, contamination or potential breakdown are identified.

The following procedures are intended to be a guide for dealing with incidents*. It is the responsibility of site Personnel to act in accordance with these procedures whilst applying common sense and ensuring their own health and safety, and those of others.

1. **Identify the source of the spillage (if possible) and cut off at source.**
2. **Identify where the spillage has gone to and/or where it may migrate. If spillage is near a watercourse (Atlantic Ocean) contain the spillage using an appropriate spill kit.**
3. **If a spill has reached a watercourse, the following measures should be applied:**
    - Place flexible absorbent booms around the spillage to minimise the spread.
    - Place absorbent cushions in the affected area inside the booms.
    - Use Drizit Pads (or similar) to soak up pollutants.
4. **Notify all parties in an appropriate order (see next section) with key information. Notification should be made by one person only whilst the remainder of staff present attend to the spill.**
5. **Clean any contaminated surfaces immediately. All contaminate materials should be placed in sealed polythene containers and stored within the designated waste storage area (see Waste Management Plan).**
6. **Dispose of contaminated materials appropriately in accordance with the site Waste Management Plan.**
7. **Complete a Non-Conformance Report.**

Key Information

- The substance that was spilled.
- Approximate volume and time of spillage.
- Accurate location of spillage.
- All measures taken.
- Help required.
- Whether the spill has reached a watercourse.

*Note: Incident refers here to any event that directly or indirectly leads to an environmental pollution event, or to any event causing injury or harm to the environment or to persons working within the environment. Incidents also refer to any near misses that could potentially if repeated lead to a pollution event.

Key Contacts

Name	Role	Contact
TBC	Project Manager	TBC
Sophie Vukelic/Bob Taylor	Ecological Clerk of Works (ECoW)	TBC

If the spillage is likely to cause pollution then the Project Ecologist or a 'Contractors Name' staff member will contact the Northern Ireland Environment Agency using the emergency hotline number

0800 807060