Donegal County Council & Failte Ireland

Tullan Strand Facility Centre for Water Sports Activities and Accessible Pathway to Tullan Strand Beach

CONSTRUCTION & ENVIRONMENTAL MANAGEMENT PLAN

Proposed Water Sports Facility Building

Comhairle Contae Dhún na nGall
Donegal County Council

Fáilte Ireland

PDA
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1.0 Introduction

This Construction and Environmental Management Plan (CEMP) has been prepared in support of a planning application to An Coimisiún Pleanála (ACP) by Donegal County Council, which is seeking permission for the construction of a facility building for water sports activities, adjoining car park and bus parking area and access pathway to the beach at Tullan Strand, Bundoran, Co Donegal.

The objective of this CEMP is to address and provide mitigation measures to offset any potential negative impacts the project may have on the receiving environment.

The primary areas of concern identified are (1) inadvertent release of sediments and pollutants to the receiving environment causing deterioration in water quality and habitat quality in the adjoining SPA, and the disruption, noise and vibration caused during the construction phase. This report should be read in conjunction with the Natura Impact Statement (NIS), Ecological Impact Assessment Report and site phasing drawings.

The plan will be a 'living' document subject to review throughout project implementation and the relevant guidance and legislation will be consulted accordingly. A list of reference documents and guidance as detailed in section 10.

It is intended that this CEMP will be reviewed and updated as appropriate once planning permission is granted, the construction team has been appointed, and necessary consultations have occurred.

The appointed building contractor will be responsible for compliance with all applicable guidelines and legislation. A detailed management plan will be developed by the appointed contractor, to include method statements and standard operating procedures, which will outline the rose responsibility of staff on site.

Any changes to the CEMP that could affect the above-mentioned Natura 2000 sites will be submitted to Donegal County Council planning service prior to commencement of construction on site.

This CEMP outlines the environmental management strategies for the construction of a small facilities building, pathways, car & bus park and access pathway for pedestrians and emergency vehicles to an adjoining beach. It aims to minimise adverse environmental impacts, ensure regulatory compliance, and implement best practices for sustainable construction.

2.0 Existing Site Description

Figure 2.1 Site of proposed facility building for water sports outlined in red.

Line of proposed pedestrian access route along existing footpath and public road indicated in dashed red line.

Figure 2.2 Continuation of pedestrian access route and emergency vehicle access route dashed red line.

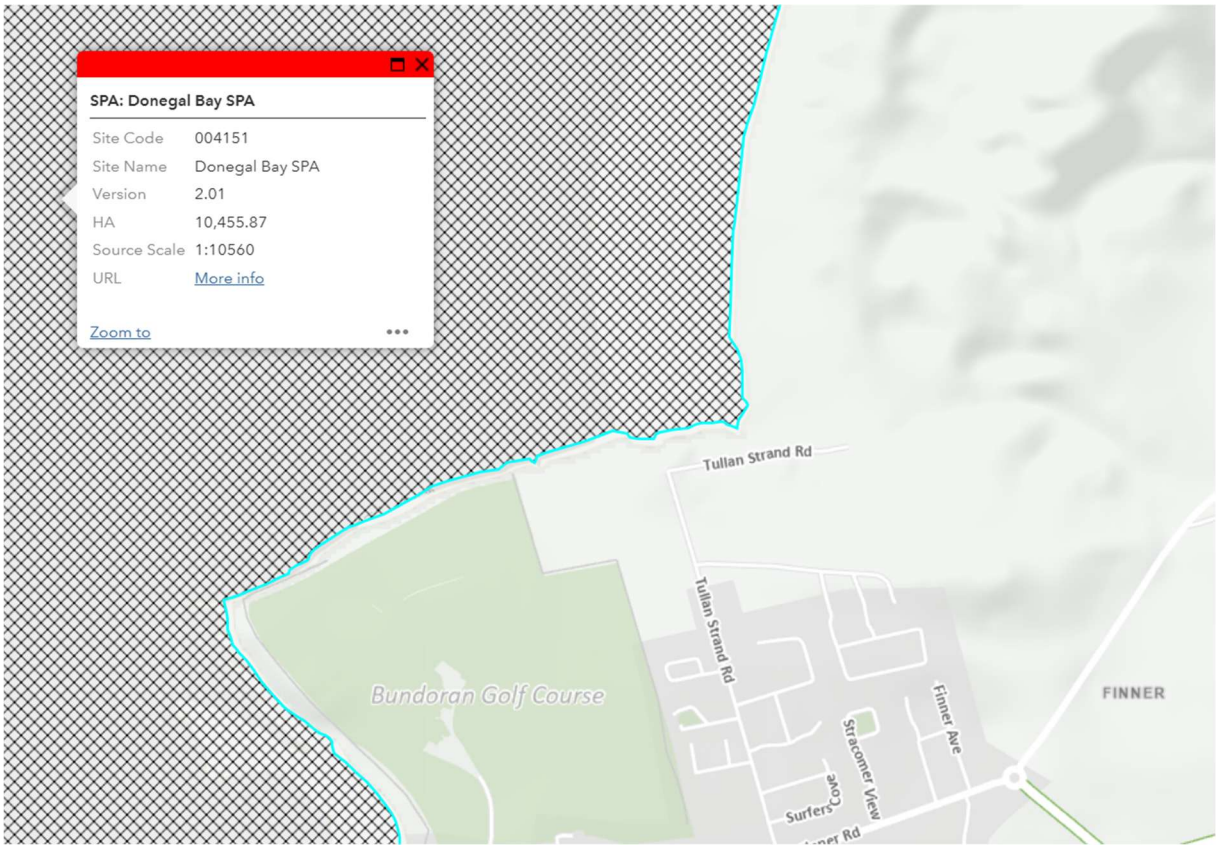

Figure 2.3 Extent of Donegal Special Protection area adjoining site indicated in black crosshatch

2.1 Land Zoning

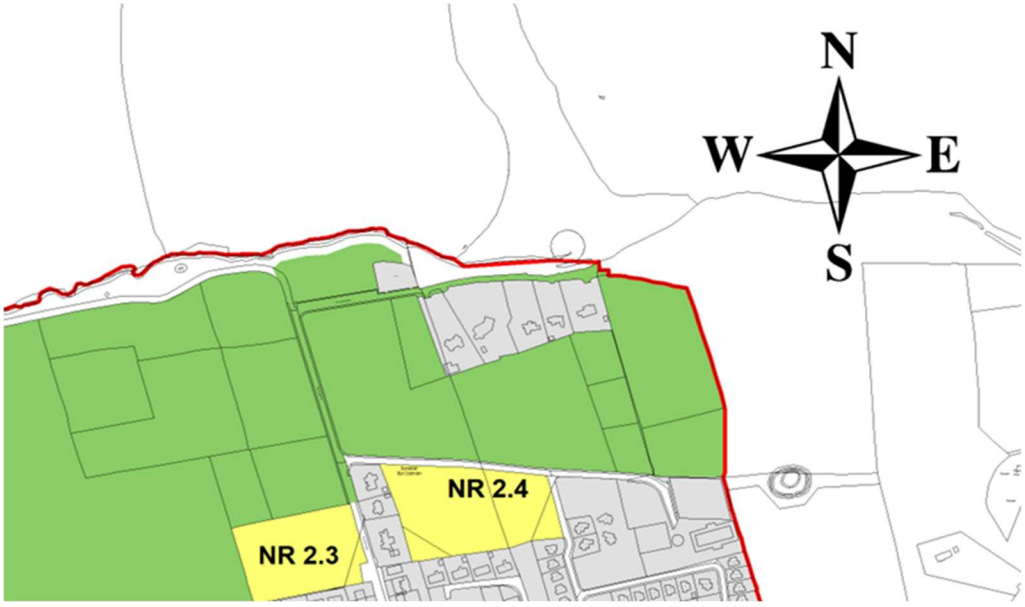

Figure 2.4 Land zoning

The site straddles the Bundoran area plan 2024-2030 and the county development plan area and is zoned as High Amenity.

3.0 Project Description

Donegal County Council is applying to An Coimisiún Pleanála for permission to construct a development with a number of separate elements as follows;

1 Construction of a Fáilte Ireland & Donegal County Council funded facility building for water sports activities which provides for toilet showering and changing facilities for persons using the adjoining beach and popular surf area at Tullan Strand, an adjoining car and bus park facility and a landscaped public realm area linking the building to the existing footpath network and existing car park at the entrance to Tullan Strand.

2 Provision of upgraded pedestrian accessibility footpath and safety barriers along the public road and provision of a new pathway and emergency vehicle roadway to Tullan Strand to facilitate accessible access for all to the beach and emergency vehicles access to a safe stand point.

The proposed building is to be located adjoining the existing public road in a location which does not impede on the existing car parking or adjoining grassed activity area which is commonly used by surf schools as an assembly and set out area for students and equipment and during competitions for spectators, promotional stands and catering facilities.

The location is essentially on top of an elevated area of land close to the cliff face with the ocean with a beach located at a lower level and currently access to the beach is via an un-authorised ad hoc pathway which is difficult to walk on and extremely difficult if not impossible to use by persons with movement challenges i.e. buggies or wheelchairs.

The proposal is to provide an accessible walkway from the road and car park to the beach which will cross through agricultural farmland prior to crossing a small stream and a small area of sand dune before arriving at the beach.

Figure 3.1 Site Outlined in Red.

Figure 3.2 Overall Site layout plan

3.1 Site Preparation

Area 1. Facility Building for Water Sports

The ground conditions in this area are primarily a layer of topsoil and earth material on a shallow bedrock.

The groundworks will include the removal of the topsoil down to solid sub strata and the stoning of same to provide for the car parking area and public realm area and laying of a concrete raft foundation for the building.

Installation of infrastructure for services. i.e. surface water drainage, foul water drainage, water mains and electricity supply, hydrocarbon & silt traps, stormwater attenuation.

Construction of concrete base raft foundations and construction thereafter of cast in situ / precast concrete frame and single pitch roof.

Area 2. Improved footpaths and realignment of the existing Car Park

The works in this area will involve the upgrade of the existing footpath and realignment of the entrances to the existing car park and realignment of the existing car park spaces to take account of the widened footpath along the road edge.

The works in this area require minimal new work and primarily require improved alignment and improved entrances to the existing car park area from the public road.

Area 3. Walkway & Pathway form the public road down to the Beach

Works in this area require the construction of an accessible pathway meeting all accessibility requirements from the public road through and over an area of existing agricultural land, across a footbridge to a small stream and a boardwalk set on top of sand dunes to the flat section of the beach.

The construction of a paved roadway to allow for emergency access vehicles to a turning point adjoining the pathway to the beach and construction of a cattle crush to replace a cattle crush to be removed at the current entrance to these lands and the construction of a natural stone-faced wall as a new boundary between the path and roadway and the remainder of the third party agricultural lands.

3.2 Construction

Area 1. Facility Building for Water Sports

Excavation of existing topsoil inert material and movement of the material within the site to form mounding around the car park. No material is to be moved off site and all access material is to be reused in the mounding around the car park area.

Excavation of trenches and foundations and the installation of service pipe network, pumping station and stormwater soakaway, with oil/grit interceptor and installation of electrical and telecom services from the adjoining road to the building.

Pouring of concrete foundations and installation of cast in situ or precast structural columns posts and roof and building completion to include the installation of toilets, showers, plant room and all necessary utilities and services.

Hard landscaping to the public realm area to include provision of seating, paving, way signage for the building (to include a standalone totem sign) and any necessary boundary treatments.

Area 2. Improved footpaths and realignment of the existing Car Park

Alterations to the existing footpath and car park primarily within the existing stone base area of the existing footpath and car park to include revised entrances and crossing bays adjoining the public road.

Area 3. Walkway & Pathway from the public road down to the Beach

Excavation to solid strata and the construction of a hard finish footpath and hard finish emergency vehicle only access roadway.

Boardwalk and bridleway construction: The proposed elevated structure will be constructed on Fibre Reinforced Polymer (FRP)/ timber driven piled foundations. The elements of the structure will be constructed from FRP/timber which will be manufactured offsite and transported to the field at the eastern end of the boardwalk. The weight of all elements will be limited to what can be transported manually. Piles will be carried into place and installed using hand portable equipment. FRP/timber beams, decking planks and handrails will then be assembled in place using hand portable equipment. The constructed portion of the boardwalk will be used to move FRP elements across the dune habitat as the works advance.

Erection of split hazel fencing around the dunes and construction of a natural stone-faced wall to form a new boundary between the joining agricultural lands and the lands to be transferred to Donegal County Council to accommodate the roadway and the pathway.

3.3 Operation (Construction Phase)

The proposed site offices, storage compounds, staff facilities, such as canteen and toilets are to be located in works area 1 in areas B, C and D as set out on the attached layout map.

This location will minimise disruption to the public road and will provide adequate safe working area for the operatives and machinery on a stone based area of the site which will eventually be finished off as a car park and therefore will not lead to any unnecessary disturbance and stoning of ground.

The materials storage compound will be fitted with a drainage facility to drain into a petrol grit oil interceptor so as to minimise the discharge of any hazardous waste into the receiving environment.

Oil storage will be bunded, and hazardous materials will be stored in a locked container with access available to the site manager and site foreman only.

This site office and storage facility will service the entire work areas 1, 2 & 3.

3.3.1 Operation (Life Cycle Phase)

During the operation and life cycle period of the building, Donegal County Council will establish a maintenance plan and resource and fund the maintenance and day-to-day operation of the building and surrounding public realm areas.
In addition to the day to day cleaning, upkeep and general maintenance of the building the following items will require a regular monitoring schedule and funding pot to maintain safe operational standards.

Discharge of wastewater and surface stormwater and management of same.
Utility services to include Irish water mains water supply and discharge of foul sewerage to a pumping station and provision of a rising man to pump sewerage to the existing public mains at Tullan Strand Road.
Maintenance of the boardwalk and dune management programme.

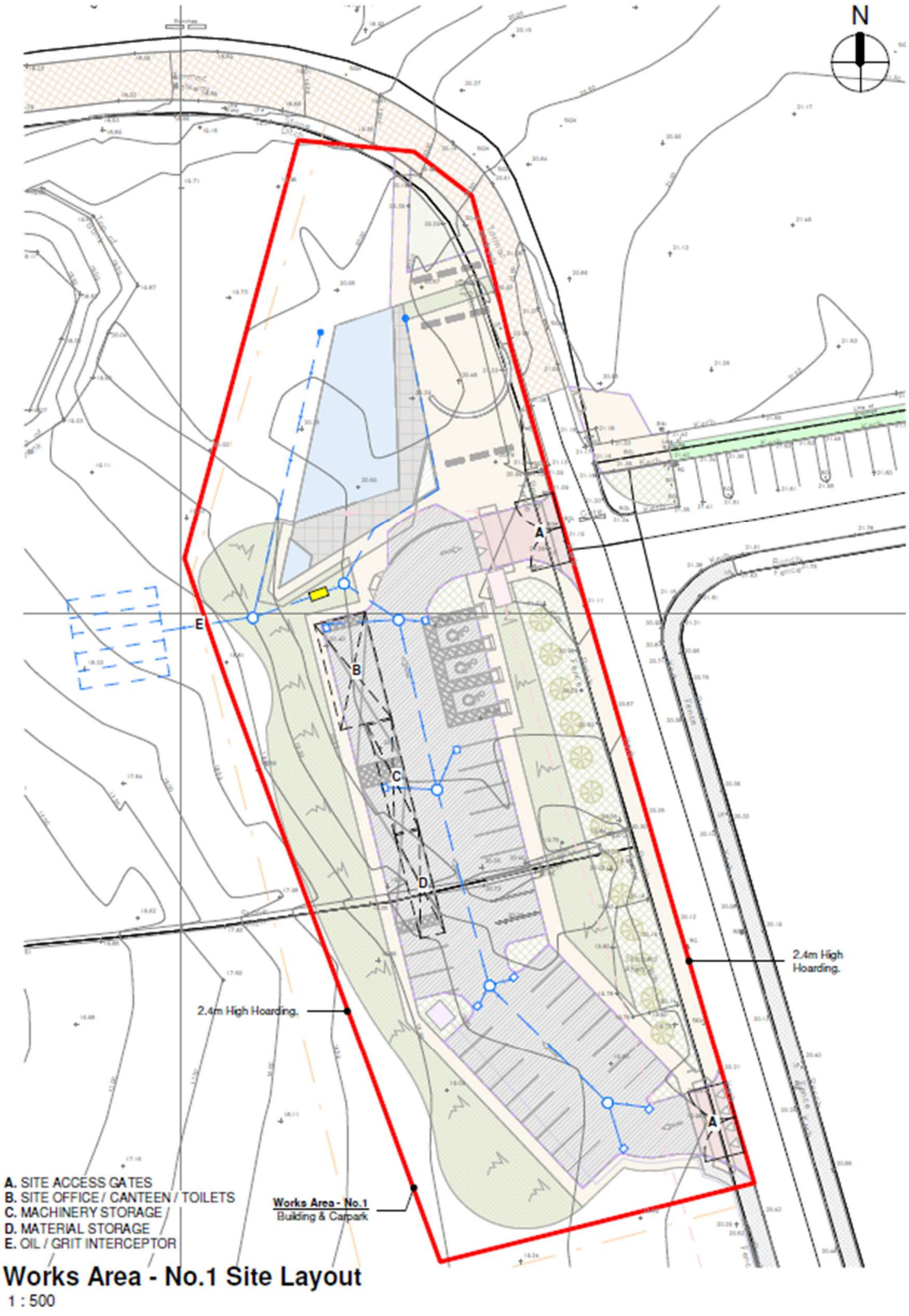

Figure 3.3 Works Area 1

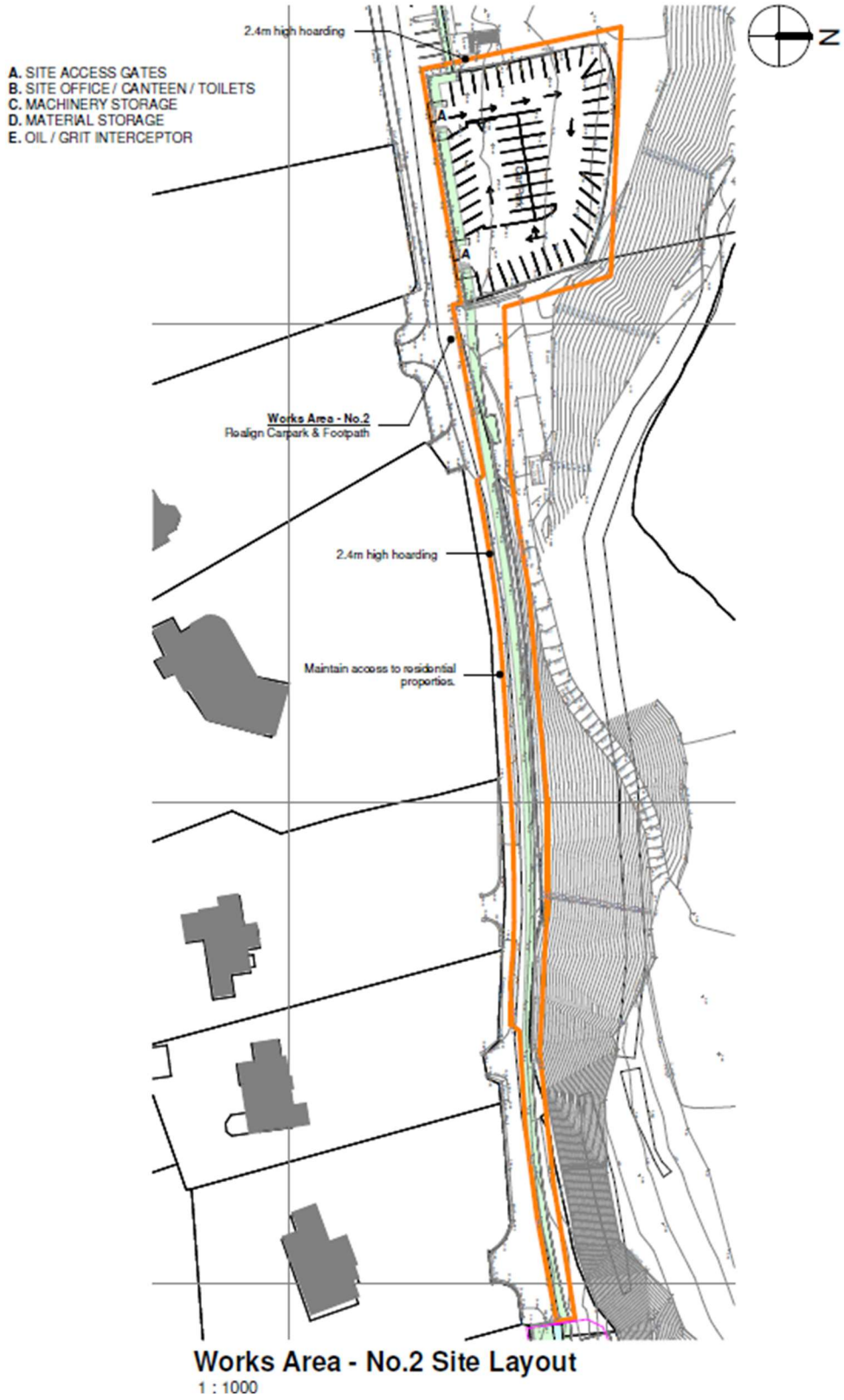

Figure 3.4 Works Area 2 Realignment of existing footpath and existing car park and the provision of a new footpath along the edge off the roadway to give pedestrian access to the beach.

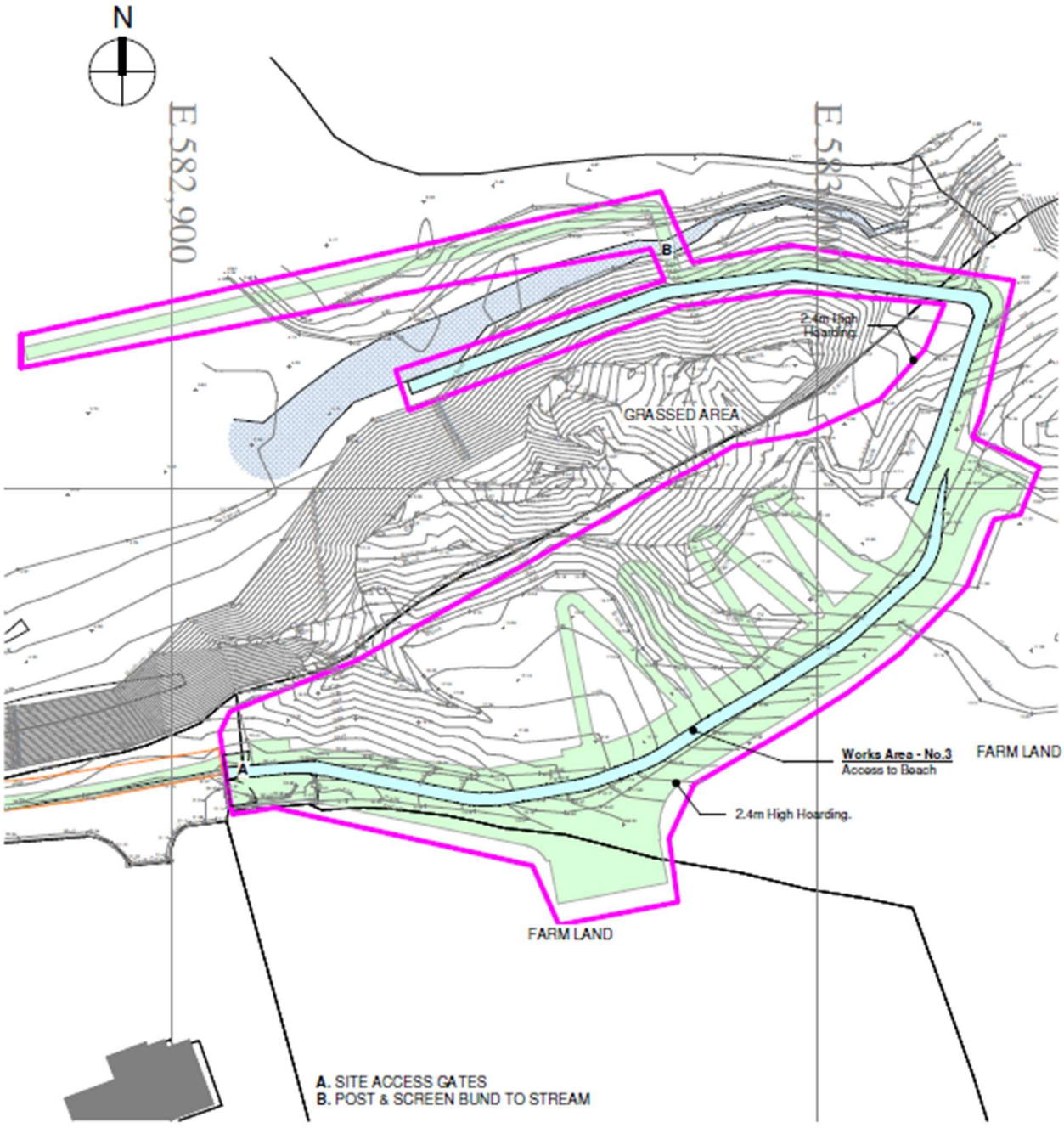

Figure 3.5 Works Area 3. Provision of a new pathway and boardwalk to the beach and provision of a hard finished roadway to provide for a replacement cattle crush and access for emergency vehicles to a drop off collection point close to the access to the beach.

4.0 Flood Risk

Works area 1 & 2 are positioned at a high level and there is no flood risk in these areas, there is a possibility of tidal surge as the proposed walkway meets the beach at the very end of works area 3.

This possibility has been taken into account by the structural engineers and their design of the landing point onto the beach Donegal County Council have knowledge of these situations from other walkways provided across dunes onto beaches throughout county.

5.0 Potential Impact of Construction on the Environment

Although the construction phase of the project is small scale and short-term compared with the permanent works that are being built, there are risks to the Natura 2000 sites in the vicinity of works. A NIS and Ecological Impact Statement has been prepared and the following potential impacts identified for which mitigation is required.

Potential impacts pertain to the construction and operational phases of the project. Potential impacts from the construction phase have been identified as:

- Habitat degradation due to the introduction and spread of invasive alien plant species
- Habitat degradation due to hydrological impacts via surface water
- Habitat degradation due to noise and disturbance
- Habitat degradation of Dune habitat
- Direct loss of habitat: Stone wall and other stone work- BL1, Scrub - WS1 and Improved agricultural grassland -GA1.

Tables 7.1 and 7.2 detail the preconstruction surveys required and the mitigation measures proposed to protect the receptor in the sequence namely Donegal Bay SPA and Erne Estuary / Finner Dunes pNHA
Particular care must be taken in the area close to the SPA and within designated habitats to ensure that disturbance is kept to a minimum.

All personnel from the site manager to engineers, foremen, plant operatives, subcontractors' tradesmen and labourers will have a part play in preventing environmental impacts during construction. All site staff will be trained and made aware of the potential impact of their activities and will be equipped with knowledge of how to eliminate or reduce that impact, Best practice will be implemented throughout the construction process so as to minimise any pollution run-off into the existing watercourse.

5.1 Invasive Species and Bio Security

Planting, dispersing, or allowing/causing the dispersal, spread or growth of certain non- native plant species is controlled under Article 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011; and refers to plant or animal species listed on the Third Schedule of those regulations. When importing materials from outside a site there is always a risk of importing unwanted elements such as seed or spores from invasive plants for example, Japanese knotweed or Rhododendron.

Measures will be taken to ensure imported material is clear of contaminants and comes from a known reliable source, by using certified suppliers, requesting information on origin, carrying out visual Inspection, obtaining source certification, and independent laboratory testing if there is any suspicion of contamination.

The accidental spread of non-native invasive plant species as a result of construction works has the potential to impact upon terrestrial habitats within and immediately adjacent to the proposed development boundary; potentially affecting plant species composition, diversity and abundance over the long-term.

5.2 Potential Effects of Pollution

Donegal generally experiences a high annual rainfall within the Republic of Ireland. This is an important pollution consideration for construction works as rainfall combined with construction activities increases the risk of pollution and potential damage to the water environment.

Rainfall and associated surface water run-off during construction works can mobilise and transport pollutants such as sediment, oils, chemicals and other building materials into the water environment causing harm to plants and animals. Heavy rainfall can also flood excavations and other work areas which subsequently require draining or dewatering.

Pollution from sediment and other pollutants can come from a number of sources within construction sites.

Potential sources of pollution from construction sites:

Run-off from exposed ground and material stockpiles.
Run-off from roads and haul routes.
Plant washing/washing areas.

Fuel and chemical storage/refuelling areas.

Leaking and vandalised equipment.
Dust and emissions may arise from delivering material and other goods to the site and storing material on the site.

Effects of pollution:

Sediment pollution can smother important habitats.

Pollution from fuels and other chemicals can have a variety of effects on water ecology and can lead to fish and invertebrates being killed, and bird plumage being affected.

Cement pollution of waters results in high alkalinity and raises pH, which can be toxic to aquatic life.

Most pollution incidents are avoidable and the risk of pollution and damage to the water environment can be reduced by careful planning.

Using the Source - Pathway - Receptor model, if one of these parameters is eliminated from the sequence then the risk is removed. In this case the source is construction phase including

the soils, sediments and pollutants associated with it. The pathway for transporting emissions from the development site is via storm/surface water runoff both during construction and operation. If this pathway is eliminated then this risk is reduced significantly. Other pollutants that could enter the system via percolation through soils or groundwater would require careful site management, in particular hydrocarbon, fuel, chemicals and any other hazardous materials on site.

Physical disturbance of the site during site preparation and building also requires care and attention to minimize and remove effects on ecological receptors.

5.3 Potential effects of Noise and disturbance

There is a high level of activity and noise on a construction site. Sources include noise and activity from excavation machinery, increased human activity during construction processes and increased heavy traffic to and from site. This can cause temporary displacement of species from the area.

5.4 Potential effects of Lighting

Bright construction lights can sometimes inadvertently attract birds to the area and can disorientate them causing them to stray from their normal routes. The introduction of artificial lighting may reduce the suitability of the site for foraging and commuting bats. Bats are light-sensitive species; some are more susceptible than others.

5.5 Dune protection

Sand dunes are hills of wind-blown sand that have become progressively more stabilised by a cover of vegetation. In general, most sites display a progression through strandline, foredunes, mobile dunes and fixed dunes. Where the sandy substrate is decalcified, fixed dunes may give way to dune heath. Wet hollows, or dune slacks, occur where the dunes have been eroded down to the level of the water table. Transitional communities can occur between dune habitats and they may also form mosaics with each other. Dune systems are in a constant state of change and maintaining this natural dynamism is essential to ensure that all of the habitats present at a site achieve favourable conservation condition.

The vegetation on dunes is an essential feature in maintaining stability of the dune system. Damage to this vegetation caused by beach users treading a common path is sufficient to cause extensive instability over a large area due to the creation of vulnerable erosion routes. This loss of sand reduces the overall mass of the beach and sand dune system which acts as a buffer to the sea. Pedestrian traffic resulting in the trampling of vegetation is the most widespread form of damage to dune systems caused by human activities. Sand dunes that are subjected to unmanaged access can experience severe vegetation damage followed by soil and sediment erosion.

6.0 Construction Management Phase on Site Works

It is the contractor's responsibility to follow the most up to date guidance and site management practices.
A full suite of mitigation measures can be seen in tables 7.1 and 7.2.

6.1 Site Management During Construction Works

Works will be overseen by a qualified engineer/ architect and an ecological clerk of works will be appointed.

All mitigation measures will be incorporated into method statements of the appointed contractor.

Screening and ecological protection measures will be installed and sensitive habitats cordoned off and signposted, training will be provided by the ecological clerk of works.

Signage will be erected at access points to the site stating 'construction work ahead' and containing site safety rules.

A competent signaller (banksman) will be available for duration of the works to guide machinery and deliveries.

A common sense approach will be taken. Works will not proceed during heavy rain events.

All personnel from the site manager to engineers, foremen, plant operatives, subcontractors' tradesmen and labourers will have a part play in preventing environmental impacts during construction. All site staff will be trained and made aware of the potential impact of their activities and will be equipped with knowledge of how to eliminate or reduce that impact. Good practice procedures will be implemented throughout the construction process so as to minimise any pollution run-off into the existing watercourse.

6.2 Prevention of introduction or spread of Invasive Alien Plant Species (IAPS) and biosecurity measures

IAPS were not recorded at Tullan Strand however the following has been included in the event they occur in the intervening period.

IAPS can spread by the re-growth of cut plant fragments or root material. If a plant is broken up or disturbed during site clearance or other earthworks, it can readily re-grow in new areas where material is transported to. The spread of IAPS to uninfested areas would increase the future cost and effort required to control the species.

All stands of IAPS will be eradicated prior to construction works taking place.
The following measures will be implemented across the proposed development site during construction prior to, during and after the management of invasive species:

- Prior to any works taking place, specific training will be given to all relevant site personnel to ensure they are aware of the location of IAPS on site, the impacts of the species and associated risks.

- Posters outlining the key features of IAPS will be displayed in communal areas on-site to ensure all site personnel are aware of this species and the associated risks.
- Any plant or machines to be used in the project area will be washed down at a designated offsite location prior to mobilising. All machinery, equipment, footwear should be inspected for attached plant material before entering or leaving. If found, it should be removed before entering the area, and disposed of carefully and should not be discarded in or around the site.
- When importing materials from outside a site there is always a risk of importing unwanted elements such as seed or spores from invasive plants for example, Japanese knotweed or Rhododendron. Measures will be taken to ensure imported material is clear of contaminants and comes from a known reliable source, by using certified suppliers, requesting information on origin, carrying out visual Inspection, obtaining source certification, and independent laboratory testing if there is any suspicion of contamination.
- It is recommended that the contractor obtains documentation from suppliers that the material is free from Japanese knotweed and other invasive species.
- No new materials will be stored adjacent to stands of IAPS on site.
- All IAPS affected areas will be clearly demarcated by fencing/tape, prior to and during construction, to avoid any disturbance and to exclude access by plant and machinery. Signs will be erected on fencing to inform contractors of any risks posed. Stockpiles of soil that are or may be contaminated with IAPS must be clearly marked.
- Designated control measures will be implemented at the earliest possible stage to reduce the risk of spread of IAPS.
- To reduce the risk of material transfer appropriate controls on the movement of machinery, soils and materials in the infected area will be enforced, i.e. by implementing strict and appropriate biosecurity measures on site.
- A systematic approach will be taken in the removal and control of IAPS, ensuring that the use of tracked machinery is limited in infested areas and vehicles and equipment are cleaned before moving around the site. All vehicles and equipment that have been used in IAPS control operations must be thoroughly cleaned and checked before they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment. These measures will minimise the risk of introducing or reintroducing contaminated materials, seeds or plant fragments into areas that is already treated or developed.
- Excavated infested soils will be transported (if required) in vehicles that are deemed to be biosecure (i.e. sealed so that no soil can escape) shall be used to transport contaminated soil and all must be thoroughly pressure-washed in a designated wash-down area before exiting the infested area
- Designated and clearly marked cleaning and/or disinfection stations will be strategically placed within the work site for use by staff, vehicles and machinery. All potentially contaminated wash material will be securely contained and disposed with the other IAPS material, or to a licensed facility, if required.
- Following control of IAPS, subsequent disturbance of the soil may give rise to a flush of seedling germination or revitalised rhizome growth. To avoid this, bare soil should be mulched (covered with a natural or synthetic barrier, such as wood chip, straw, geo-textile, or other appropriate material) and planted at the earliest opportunity with

appropriate native replacement vegetation to stabilize the soil and deter subsequent re-invasion.

- When the treatment and eradication programme has been implemented regular monitoring of the site, over a number of years, is required and maintenance contractors must remain vigilant in their management of the site to prevent the establishment and spread of IAPS and to protect native biodiversity.
- Areas that have been treated in the past will be mapped and marked out on site.

6.3 Pollution control measures

NPWS will be contacted prior to any works in or near the SPA and pNHA take place.

Water protection bunds to ensure cement laden water or accidental spill will be contained in a managed fashion so that it can be collected and removed safely from the environment.

The storage and use of cement-based material such as concrete in this area is to be carefully controlled and all operatives are to be inducted into the safe storage / usage methods and so as to minimise any accidental spillage into the adjoining environment.

6.4 Noise and disturbance measures

The construction site will be screened to ensure no visual disturbance.

Construction activity on site will not be permanent and activity levels will vary greatly during the construction period. Disturbance events are therefore temporary in nature.

All construction activities that have the potential to generate excessive noise or vibration shall be carried out during permitted hours.

6.5 Lighting measures during construction

The building site will be screened to reduce the possibility of effects. While many lighting solutions are possible, the following will be implemented:
Lighting will be directional toward the site and will be kept to the minimum required for health and safety. Lighting on trees, hedges, shrubs and wildlife corridors such as stone walls will be avoided.

6.6 Dune management measures

The existing beach access will be used while the new access route is built, and pedestrians will be prohibited using fencing from entering the dune system during works The primary area of potential impact on the environment during the construction phase will be during the construction of works area 3, being the accessible footpath, boardwalk and emergency vehicle roadway adjoining Donegal Bay SPA.

Works in this area will require additional mitigation measures including water protection bunds to ensure cement laden water or accidental spill will be contained in a managed fashion so that it can be collected and removed safely from the environment.

The storage and use of cement based material such as concrete in this area is to be carefully controlled and all operatives are to be inducted into the safe storage / usage methods and so as to minimise any accidental and spillage into the adjoining environment.

Works to provide the bridge over the stream and the raised walkway will primarily be prefabricated off site and brought and fitted on site to minimise disruption.

Works will be done by hand. No tracked machinery will be used in the dune system. If this is unavoidable matting should be placed along the route for the machines to protect them as much as possible.

Any damaged areas will be reinstated and planted with dune grass/marram as appropriate. Strict biosecurity measures are required.

Once all works are complete, including the split hazel fencing along the top of the dunes to stop people/horses walking through them, the existing access route will be blocked off and decommissioned.

6.7 Disturbance of birds

Works on the path and boardwalk will take place during the winter months to avoid disturbing nesting birds. This is of particular relevance to the path above the cliff area, which is above a sand martin nesting site, and the dune area which is Meadow pipit territory. If works in the summer season is unavoidable a breeding bird survey will be undertaken to determine if active nests are present (see pre construction survey table).

6.8 Site access management during construction works

All site access during the construction works and the access to site offices and facilities and off street car parking area will be from Tullan Strand Road. Work vehicles will not park on the public roadway or car parking bays.

The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not occur during peak traffic flows or run concurrently with other deliveries/activities.

To reduce impacts on local communities and residents adjacent to the site, it is proposed that:

The contractor will liaise with the management of other construction projects and the local authority to co-ordinate deliveries.

The contractor will schedule deliveries in such a way that construction activities and deliveries activities do not occur during peak traffic flows or run concurrently e.g., avoid pouring of concrete on the same day as material deliveries to avoid conflict;

HGV deliveries to the development site will be suspended on the days of any major events that have the potential to cause larger than normal traffic volumes

The contractor will interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as festivals or surfing competitions.

Construction activities will be undertaken on a six-day working week, with deliveries being restricted to 10:00-18:00 on weekdays and 10:00-14:00 on Saturdays.

6.9 Excavation and Disposal of Inert Earth Material

It is proposed that all excavated material from the site will be reused within the landscaping of the site and within the mounding which is proposed to visually hide the car parking area.

It is not proposed to dispose of any material off site, however if this becomes the case then all material will be disposed to a licenced facility and the haul routes will be agreed with the local authority roads engineers in advance and dockets to prove delivery to the licenced facility will be provided to the contractor as proof of safe disposal.

6.10 Material Storage on Site

The proposed compound location is a dedicated area of hard standing (see Fig 3.3). The compound will be developed for the safe storage of materials, including a bunded refuelling station, drip trays, impermeable sheeting and spill kits.
The project supervisor construction stage will be responsible for the day-to-day management of the material and fuel storage area.

All hazardous materials will be stored in a locked container and access will be restricted.

6.11 Stormwater & Foul water Management System

Storm water from the site will discharge via an oil & grit interceptor into a constructed soakaway and percolation area in the adjoining lands, which are all in the ownership of Donegal County Council.

As there is no existing foul water drainage system adjoining the site and the overall proposal is to construct an Irish Water collection tank and pumping station to pump to discharge into the Irish Water mains public sewer at Tullan Strand, it is proposed that the staff facilities during the construction phase will be via Portaloo's which will be collected and discharged into the public sewerage system on a regular basis.

6.12 Traffic Congestion

The work areas are located in an area popular with tourists and water sports enthusiasts and can be extremely busy during most periods of the year but particularly during the summer months.

There are also a number of detached private dwelling houses which access the public road in an area to which works will be carried out.

Prior engagement with residents

Prior to commencement of the works the contractor will liaise with impacted residents to ensure an agreement is reached to (1) ensure free and unobstructed access to the residents' homes at all times during the works and (2) minimise any disruption to the residents during the works.

Provision of off-street Site Parking

A temporary dedicated and secured site car park is to be provided within the site to provide for parking of all contractor staff and other vehicles associated with the works off the public road

Construction Traffic Management Plan

The contractor will put in place a traffic management plan to ensure that traffic associated with the works will have minimum impact on the general flow of traffic on the public road and in the car parking area and works will be phased so as to minimise disruption during busy periods or planned festivals or competitions.

The traffic plan will be agreed with the local roads engineer and will be reviewed on a regular basis to ensure its successful operation particularly in advance of planned busy periods.

Site signage will clearly identify routes for construction traffic and banks man would be available at the entrance and exit to the site during delivery periods.

6.13 Monitoring requirements

Site management and staff will be monitored continuously to ensure erosion, sediment and dune management controls are working effectively.

7.0 Mitigation Measures

The project has been designed in cognisance of the pNHA and SPA adjacent to the site.
NPWS will be contacted prior to commencement of works.
A full suite of site specific mitigation measures are detailed in tables 7.1 and 7.2.
NOTE MITIGATION FOR ALL ECOLOGICAL AND NATURA 2000 aspects have been included in the table to ensure continuity across the project.
The location of the facility and car park is located outside the Natura 2000 network. The boardwalk crosses a small section of dune habitat in the pNHA and leads onto Tullan Strand and adjacent to Donegal Bay SPA.

Preconstruction survey	**Location**	**Survey objective**	**Survey timing/seasonality**	**Licence required for survey?**	**Specification for surveyors**
Nesting Birds Only necessary if works cannot be avoided March - Aug inclusive	Dunes, agricultural land and any stone walls marked for removal	Determine if nests present. Set up exclusion zones. Apply for licence for removal of nests if required.	March - August inclusive (where no nests present works must proceed within 72 hours otherwise re-survey required).	Yes, if nests are to be removed.	Ferguson Lees *et al*., 2011
Other fauna	Any burrows or nests are present within the project footprint	Monitor and check for activity prior to works in order to avoid injuring or killing animals or young.	All year	No	Qualified ecologist

Table 7.1 Preconstruction surveys

Source	Pathway	Receptor	Mitigation Measure
Site management	Construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat	NPWS will be contacted prior to commencement. Site access and management. Works will be overseen by a qualified engineer/ architect and an eological clerk of works will be appointed. All mitigation measures will be incorporated into method statements of the appointed contractor. Training will be provided to all staff Site will be strictly monitored. All works must adhere to best practice including those for Pollution Prevention (PPGs), and should conform to the Guidelines on protection of fisheries during construction works in and adjacent to waters, Inland Fisheries Ireland (2016), with particular reference to chapter 7, and A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning.
Biosecurity			
Importation of Invasive species	Importing materials	Donegal Bay SPA Waterbirds Wetland/Marine habitat Foraging grounds Dune Habitats	In order to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the appointed Contractor will ensure biosecurity measures are implemented throughout the construction phase to ensure the introduction and translocation of invasive species is prevented. When importing materials from outside a site there is always a risk of importing unwanted elements such as seed or spores from invasive plants for example, Japanese knotweed or Rhododendron. Measures will be taken to ensure imported material is clear of contaminants and comes from a known reliable source, by using certified suppliers, requesting information on origin, carrying out visual Inspection,

			obtaining source certification, and independent laboratory testing if there is any suspicion of contamination. Any plant or machines to be used in the project area will be washed down at a designated offsite location prior to mobilising. All machinery, equipment, footwear should be inspected for attached plant material before entering or leaving. If found, it should be removed before entering the area, and disposed of carefully and should not be discarded in or around the site
Construction	Habitat degradation or loss	Donegal Bay SPA Waterbirds Wetland/Marine habitat Foraging grounds Dune Habitats	NPWS will be contacted prior to any works taking place within the SPA/ pNHA. Construction workers will be made aware of the sensitivities in the area and the dune area will be fenced off as much as is practical during works. Works in the dunes should be done by hand as much as is practicable. Tracked machinery should not be used in the dune system. Split hazel fencing will be erected around the edge of the dunes, to encourage recovery and to guide pedestrians into the access path. The access path and split hazel fencing will control visitor and activity provider movements in and around the site and will deter users from tramping through the dune system by providing them with a direct, safe and accessible route. Any damaged areas will be reinstated and planted with Dune grasses as appropriate. A clear sign showing the exit from the beach will be erected. Information and education panels will be erected around the project area explaining dune systems, the biodiversity associated with them and their coastal protection benefits
Construction	Visual	Donegal Bay SPA -Waterbirds	Temporary visual screening structure will be erected during the period of construction. This structure should be approximately 2.4 meters in height and will screen views of the majority of activity with the construction site. The screening will run all along the boundary of the Project site.

			It will be built out of timber and will be designed to last for the duration of the construction period. On completion of the Project it will be dismantled.
Construction/Operation	Visual	Donegal Bay SPA - Waterbirds	Earth mounds to be planted around the perimeter of the facility car park to screen it from view and to provide a soft buffer between the facility and any foraging birds.
Silt fencing	Runoff	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Silt fences will be constructed using a permeable filter fabric Hy- Tex Terrastop Premium silt fence or similar, and installed as per manufacturers guidelines. Silt fencing to be strictly monitored for tears or breaches especially after periods of wet weather. Sandbags: Sand to use washed non-calcareous sand (washing to occur off site.
Settlement lagoon	Runoff from installation	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Works will be carried out in dry weather. Silt fencing will be established around the site for the lagoons. The lagoons will be dug out and lined with an impermeable layer, the excavated earth will be used to create a bund around the silt lagoon.
Compound	Run off and spills	Donegal Bay SPA Waterbirds Wetland/Marine habitat	The proposed compound location is a dedicated area of hard standing .The compound will be developed for the safe storage of materials, including a bunded refuelling station, drip trays, impermeable sheeting and spill kits. Silt fencing will be established around the compound area.
Haulage routes, vehicles and construction traffic	Run off from construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Designated routes and parking areas are proposed. Speed limit of 15km p/hr. Vehicles carrying loose soil, aggregate and workings will be sheeted at all times. Appropriately designed vehicles for materials handling will be used. All construction plant and equipment will be maintained in good working order and not left running when not in use.

			Regular inspection and cleaning of local roads and site boundaries to check for dust deposits, and removal as required. All machines shall be suitably maintained to ensure that emissions of engine-generated pollutants shall be kept to a minimum in accordance with 'Measures Against the Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be Installed in Non-Road Mobile Machinery' (2002/88/EC) and 'Emissions of Pollutants from Diesel Engines' (2005/21/EC). A self contained wheel wash will be used and contaminated water collected.
Clearing of vegetation **Construction near nesting sites**	Damage to habitat, habitat loss, injury, mortality	Nesting habitat – Birds	There will be no hedgerow cutting required, however works along the road in the scrub area, and behind / in the dunes may disturb nesting birds If it is not possible to adhere to the Wildlife act restrictions a preconstruction survey will be undertaken by a suitably qualified ecologist prior to removal of vegetation (this should include earthworks as some birds may nest in grass or scrub within the site. The site above known sand martin sites should not be disturbed during nesting season.) Where surveys determine no nests are present, works must proceed within 72 hours or further surveys will be required. If a nest is found, it should be clearly marked and a buffer zone established around it, and left until fledglings have left. Alternatively if the nest has to be removed a derogation licence will be required from NPWS.
Site preparation topsoil removal materials handling and levelling	Run off from construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Prior to construction: Biosecurity to be implemented. Erosion control is the first line of defence followed by sedimentation controls. The site substrate will be stabilised around the boundary to

			prevent any surface run off. This will be done by retaining existing vegetation as 5m buffer around the site. Silt fencing will then be installed. During excavation material will be loaded directly into a tipping lorry for removal for use or storage as appropriate. There will not be any soil removal from the site, all soil will be reused and stockpiled if required in the construction compound. Disturbed soils will be stabilised as soon as practicable, either temporarily or permanently as required, e.g. sowing, impermeable mats. Excavation works will not be carried out during or following heavy rainfall. Dewatering of excavations shall be avoided where possible. If required, this will be achieved by pumping excess water to settlement tank at the construction site, where the water will be retained for a sufficient length of time to allow particles to settle, before discharge to the drainage system for treatment.
Materials storage, stockpiling.	Run off from construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Stockpiles of materials will be located in a designated area in the compound. Surface areas of stockpiles will be kept to a minimum to reduce area of surfaces exposed to wind pickup. Where appropriate, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas. Stockpiles will be covered during periods of heavy rainfall e.g. impermeable mats (plastic sheeting). During dry or windy weather, material stockpiles and exposed surfaces will be covered. Silt fencing will be established at the toe of stockpiles and around the compound area.
Completions and landscaping	Run off from construction site	Donegal Bay SPA	Disturbed soils will be stabilised as soon as practicable by sowing.

		Waterbirds Wetland/Marine habitat	Silt fencing will remain until soils are stabilised.
Excavation to install drains	Run off from construction site.	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Large excavation works to be done in dry weather. Excavated material to be loaded onto lorries/dumper truck for immediate reuse or stockpiling in designated area. Drains to be protected with geotextile bund, fixed with sandbags to prevent surface water runoff into the openings. During utility and drainage works, silt traps will be created using sandbags when connecting to the facility infrastructure to ensure no sediment is released down the pipes. Any sediment will be removed manually and relocated on site.
Contaminated water	Run off from construction site. Pollution.	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Existing drains will be closed to facilitate construction. Storm water drains will be created and directed to settlement lagoon/tank and released as required in a controlled manner. Settlement lagoons/tanks will be used to treat water; this will be appropriately sized and designed to cope with a 1 in 10 year storm event of 14hour duration. If dewatering is required the water will be pumped to the settlement lagoon to allow sediment to settle before water is reused or discharged. The vehicle wash proposed will be connected to the settlement lagoon/tank where water will be treated prior to release. All drain inlets that could receive storm water and runoff (outside the site perimeter) from the site will be protected using drain covers, and maintained. During construction the site will be serviced by portaloos. These will be serviced regularly by a licensed contractor. Staff will monitor the system, to ensure water discharges meet the baseline levels. Ongoing monitoring may indicate the need for additional sediment controls. Location, quantity

			and method of installation will be agreed in consultation with the site manager and statutory agencies as required.
Contamination from hazardous materials - oils, fuels, chemicals	Run off from construction site, spills and leaks. Pollution.	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Refuelling of plant/machinery will be undertaken in designated areas on an impermeable surface within the compound area Refuelling will always be carried out in a controlled manner with absorbent materials available to clean up any spillages. All machinery/equipment will be well serviced and in good working condition. Machinery/equipment will be inspected daily for leaks of hydrocarbons. Any faulty machinery/equipment will be repaired/replaced immediately. A bunded storage area will be located in a designated area within the compound and will be provided for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous materials. If any oil or fuel is stored in the area, it will be kept in a bunded area (providing 110% capacity of the largest stored unit). Chemicals will have individual separate bunds and storage areas. Associated waste materials will be transported by registered carriers, and disposed of to appropriately licensed sites. Drip trays will be supplied for static machinery. Spill kits will contain 10 terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent contamination of groundwater. Procedures will be set in place to respond to any emergency incidents which may occur on the Site. All appropriate staff will be trained and made aware of the pollution and spill contingency procedures set in place. In the event of an incident the NPWS, and the Environment Protection Agency will be notified immediately.
Concrete	Run off from construction site.	Donegal Bay SPA	Pouring concrete will not be carried out during periods of heavy rainfall.

	Pollution.	Waterbirds Wetland/Marine habitat	Premix concrete lorries will deliver all concrete to site, which will be pumped directly into the required area. Vehicles will leave immediately after delivery. Strictly no washing of concrete premix lorries will be permitted on site.
Dirty vehicles and equipment	Run off from construction site. Pollution.	Donegal Bay SPA Waterbirds Wetland/Marine habitat	A designated area will be allocated for the washing of vehicles and other equipment; the dirty water from same will be contained and redirected to the settlement unit.
Waste management	Construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat Coastal habitats	Waste will be removed from the site and disposed of by an approved waste contractor in accordance with prevailing waste management regulations. On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish and temporary erections or works of any kind will be removed from the site
Completions and landscaping	Run off from construction site	Donegal Bay SPA Waterbirds Wetland/Marine habitat Coastal habitats	Disturbed soils will be stabilised as soon as practicable by sowing. Silt fencing will remain until soils are stabilised.
Construction site/excavations	Damage to foraging habitat, habitat loss, disturbance, displacement injury, mortality	Terrestrial Habitat –,- mammlas	All construction pits and trenches will be covered outside of construction hours to avoid animals becoming trapped within and injured and/or killed. Machinery and equipment should be made safe, or cordoned off with temporary fencing at the end of the working day. Screening as proposed for Waterbirds, will offer protection for all mobile fauna in the area.
Construction of boardwalk	Damage to dune habitats	Annex I habitats	No tracked machinery should be used in the dune system. If this is unavoidable matting should be placed along the

			route for the machines to protect them as much as possible. Any damaged areas will be reinstated and planted as appropriate in consultation with NPWS.
Construction of path and boardwalk	Noise and disturbance loss of breeding habitat	Breeding birds	Works on the path, access road and boardwalk will take place during the winter months to avoid disturbing nesting birds. This is of particular relevance to the path above the cliff area, which is above a sand martin nesting site, and the dune area which is Meadow pipit territory. If works in the summer season is unavoidable a breeding bird survey will be undertaken to determine if active nests are present. (See pre construction survey table).
Emergency Event	Run off from construction site, Spills, damage to equipment	Donegal Bay SPA Waterbirds Wetland/Marine habitat	All operatives pre, during and post construction will be made fully aware of the environmental sensitivities in the area and the procedures to follow in the event of an emergency or pollution incident. If an emergency event should arise (e.g. an extreme weather event), with the capability of generating additional erosion and sediment laden runoff the necessary equipment required in responding to this event will be stored on site. Staff will be trained in the use and application of these temporary emergency measures which may involve: Impermeable matting, silt fences, mulching and portable settlement tanks. In the event of an incident the NPWS and the Environment Protection Agency will be notified immediately.
Operation			
Surface water runoff/wastewater	Run off from site Malfunction of waste water treatment facilities	Donegal Bay SPA Waterbirds Wetland/Marine habitat	Hydrocarbon/ silt interceptors will be maintained and a service agreement will be in place to provide this service. Surface water requiring treatment will pass through hydrocarbon /grit interceptors prior to discharge to ground. These are fitted with alarms in case of malfunction. Grey water and waste water will be pumped to the existing treatment facility. The pumping facility will have a back up

			and alarm system to alert operators of any malfunction.
Lighting	Habitat loss and fragmentation due to artificial lighting	Donegal Bay SPA Waterbirds, Other Birds and Bats	There will be no additional lighting along the path and boardwalk. Direct lighting on trees, hedges shrubs, wildlife corridors such as stone walls must be avoided. All lights should lack UV elements. Low-pressure sodium lights will be used in preference to high pressure sodium lights or mercury lamps. If mercury lamps are to be used, ultraviolet (UV) filters will be fitted. Directional lighting – that is, lighting only at the intensity and direction it is needed will be used throughout, to direct light spill away from habitat. Height of lighting columns in new car park –Height of light masts will be minimised; masts will be below 3 m high. Duration of lighting – Lights should only be on when in use or for health and safety purposes. The use of timers and sensors are ways of controlling this. Motion sensitive lighting where appropriate will be used.
Visitor management	Damage to Habitat	Dune system and SPA	During construction the existing access will be used during works and will only be closed off once all dune protection works have been completed. The dune area around the new path and boardwalk will be fenced with split hazel fencing to deter movement from the path through the dunes. The fencing will extend along the path to the boardwalk and extend along the dunes at the beach to encourage visitors to use one route only. The exit from the beach must be clearly marked. Damaged areas of dune will be planted (where in the remit of DCC and in consultation with NPWS). Consultation with activity providers at Tullan strand will aim to reduce potential impacts on the dune system and the wider Tullan area. Providers to be engaged and informed of the ecological constraints at the site and a code of conduct agreement reached.

			Water activities to remain at established locations, and should not be permitted to spread ad hoc along the length of the beach, this will protect foraging and roosting areas. Information and Education panels will be installed at several locations to encourage the dissemination of information about the ecological value and sensitivities of the dune system, Waterbirds and other ecological features at Tullan strand.
Operation	Damage to Habitat	Dune system	**Maintenance** Ongoing maintenance of the boardwalk and fencing must be done following the same methods as construction. The maintenance of suitable sand binding vegetation to support the natural dune building and repair processes to prevent erosion damage is an ongoing effort. This also involves the control of problem plants, to eliminate any potential invasive species before they become widespread.

Table 7.2 Mitigation measures Tullan Strand

8.0 Emergency Procedures

An emergency plan will be established and held on site, within the safety plan for the site. This plan will include mitigation measures should emergencies arise during the construction works and will include for the following:

Pollution incidents:
Spillages
Failure of temporary works
Vandalism
Fire damage
Extreme weather events- heavy rainfall, flooding, severe frost and snow.

An emergency response plan will be put in place on the site with the procedure for dealing with emergencies and this procedure shall be communicated to all staff at site induction.

Site staff responsible for taking actions on emergencies will be aware of their responsibilities, trained using equipment such as spill control equipment and shut off valves.

See Appendix 1 for Draft Emergency Plan.

Report prepared by;

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9.0 References & sources of further information

The CEMP has been developed using the following guidance (list not exhaustive)

BPGCS005: Oil Storage Guidelines.

BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2.

CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al., 2001).

CIRIA C692: Environmental Good Practice on Site, (Audus *et al*. 2010).

CIRIA Guidance C741 "Environmental Good Practice on Site"

CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical Guidance (Murnane et al. 2006a).

Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016).

Scottish Environment Protection Agency. 2009 Engineering and The Water Environment Good Practice Guide, Temporary Construction Methods.

BRE (1991) Soakaway Design (revised 2003) Digest 365.

Environment agency, SEPA and environmental and heritage service pollution prevention guidelines.

PPG 2: Above ground or oil storage

tanks. PPG 5: Works and maintenance in water

Appendix 1 Draft Emergency Procedures

The main priority is to avoid sediment release, spillages and emergency situations. This should be achieved through minimising the risk of erosion, sedimentation, runoff and spillage at source through management of materials on site and avoiding the use of polluting materials where possible. Where the use of polluting materials is unavoidable, then suitable containment in a sensible location is essential.

In addition, pathways for pollution to escape will be removed and/or easily intercepted. This can be achieved through isolating polluting materials from drainage infrastructure and ensuring that there are appropriate methods for intervention and containment e.g. Spill kits and drain covers.

If an emergency event should arise (e.g. an extreme weather event), with the capability of generating additional erosion and sediment laden runoff, the necessary equipment required for responding to this event will be stored on site. Staff will be trained in the use and application of these temporary emergency measures which may involve: Impermeable matting, silt fences, use of mulch.

Spill kits will be clearly marked and sign-posted, sited close to the area where materials are stored and handled. All staff will be trained in the use of spill kits and the correct disposal of used spill control material. Spill kits may include absorbent granules, drain covers and shovels.

The spill kits should be subject to periodic inspection to ensure they contain appropriate equipment in sufficient quantities.

In the event a spill occurs, the following actions will be taken:

- Stop the source of the spill by up righting the container, blocking leaks (using compound in spill kit) or shutting off valves;
- Inform foreman immediately;
- Block access to all local drains using spill containment materials, booms or drain blockers.
- Clean up spill using spill clean-up materials;
- If the spill has entered the drainage system, a watercourse, or an area of porous ground/non- hard standing and the site are dealing with the incident themselves it must be reported to Environmental Agency and the Site Manager immediately; and
- In the event of major or complicated spills, the Site Manager will assess the incident and if appropriate request a specialist spill contractor to attend the Site.
- Any spillage should be recorded and investigated. Appropriate corrective and preventive actions should be implemented and recorded to reduce the likelihood of such events reoccurring.

Phone numbers for the Local Authority and the relevant statutory agencies can be found below:

- Donegal County Council 074 91 53900
- Fire Brigade 999 OR 112

- Inland Regional Fisheries Ballyshannon 071 98 51435
- NPWS District Conservation Officer 071 966 6709
- EPA (Monaghan) 047 77600