Former Carless Oil Terminal, Old Kilpatrick
Proposed Marine Fabrication Complex
EIA Non-Technical Summary
March 2019
For Malin Group Properties Ltd

Scottish Marine Technology Park

pba peterbrett now part of Stantec

Document Control Sheet

Project Name: **Former Carless Oil Refinery**

Project Ref: **38605**

Report Title: **Environmental Impact Assessment Report: Non-technical Summary**

Date: **March 2019**

	Name	Position	Signature	Date
Prepared by:	Technical Authors as listed in **Appendix 1.2**			Aug 2018 – March 2019
Reviewed by:	Duncan Smart Mark Johnston	Principal Planner Senior Associate	DS MJ	Feb / March 2019
Approved by:	Douglas McDonald	Director - Scotland	DMcD	8th March 2019
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

Contents

Figures

Tables

1 Introduction

1.1 Introduction

1.1.1 This document is the Non-Technical Summary (NTS) of an Environmental Impact Assessment (EIA) Report that has been prepared by Peter Brett Associates, now part of Stantec (PBA) to accompany applications for detailed planning permission and a marine licence in respect of the erection and operation of a marine fabrication complex ('the proposed development') on the western part of the former Carless Oil Terminal site, Old Kilpatrick ('the site').

1.1.2 The EIA Report has been co-ordinated by PBA on behalf of the Applicant, with input from technical assessment specialists as detailed in **Section 1.3.**

1.2 The EIA, ES and Related Documents

1.2.1 The NTS provides a summary using non-technical language of the findings of an Environmental Impact Assessment (EIA) undertaken for the proposed development. It has been prepared under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations') and is based on an EIA Scoping Opinion ref PreAPP17/113 adopted by West Dunbartonshire Council in March 2018.

1.2.2 Running concurrently with the design process, the EIA has sought to:

- Identify the likely environmental effects of the proposed development;
- Define appropriate design and construction measures and good practice to mitigate likely significant adverse environmental effects and maximise opportunities for environmental enhancements resulting from the construction and operation of the proposed development; and
- Determine the level and significance in the context of the TCPA EIA Regulations of the likely residual environmental effects from the proposed development remaining after all proposed mitigation and enhancement measures have been taken into account.

1.2.3 The ES comprises the following volumes:

- **Volume 1 – Main Text**;
- **Volume 2 – Appendices**; and,
- **Non-Technical Summary**.

1.2.4 The other principal documents submitted with the planning application include:

- Planning and Marine Licence Application Drawings;
- ePlanning Application Forms and Landownership Certificate;
- Marine Licence (Construction Projects) Application Form;
- Design & Access Statement;
- Transport Assessment;
- Flood Risk Assessment;
- Pre-Application Consultation Reports (planning and marine licence); and,
- Planning Statement.

1.3 Project Team

1.3.1 The organisations involved in the preparation of the ES and the undertaking of individual topic assessments are listed below:

- PBA – Project Management, EIA Co-ordination, Planning, Ecology, Hydrology & Flood Risk, Traffic & Transport, Noise & Vibration, Geo-environmental, Socio-economics, Air Quality and Risk Management;
- APBmer Ltd - Marine Environmental Lead (Ecology & Geomorphology);
- CgMs Heritage Ltd – Cultural Heritage Lead; and,
- Land Use Consultants (LUC) Ltd – Landscape and Visual Lead.

1.3.2 In accordance with the EIA Regulations, a statement detailing the relevant qualifications and expertise of the individual members of the EIA project team is provided in **Appendix - 1.1 in Volume 2** - Technical Appendices of the EIA Report.

1.3.3 The EIA project team has also been supported by GD Lodge Ltd as Project Architect, Arch Henderson Ltd as Marine Engineering Lead and PBA as Terrestrial Engineering (Civil & Structural) Lead.

2 Site and Surrounding Area

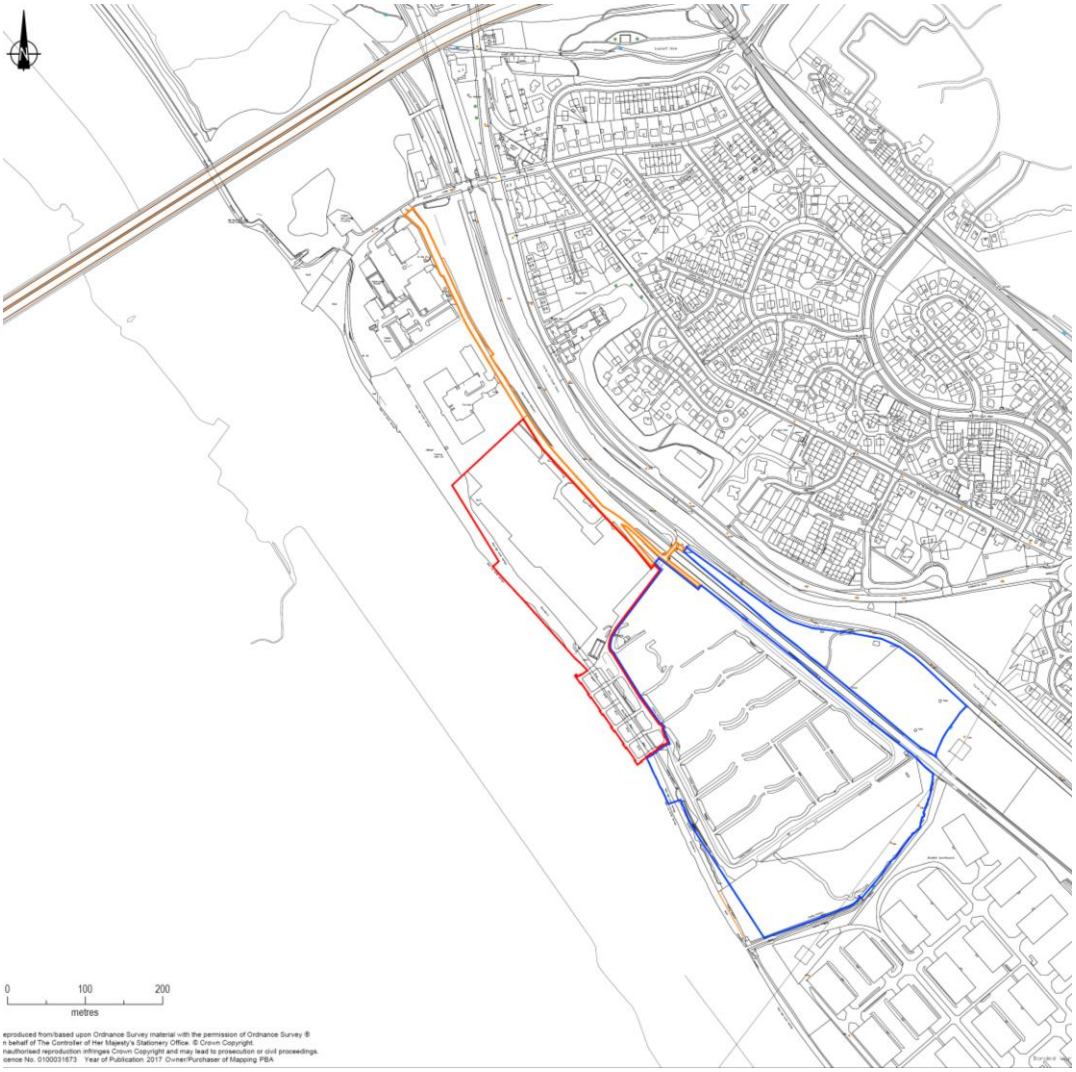
2.1 The Site

Site Location, Context and Access

2.1.1 The site forms the western part of the Applicant's landholding at the former Carless Oil Terminal (referred to as 'the wider Carless landholding'). The site extends to approximately 4.88ha[1] and is located on the north bank of the River Clyde, upstream and east of the Erskine Bridge.

2.1.2 The site has a single point of access from Erskine Ferry Road immediately north west of the site, which in turn links to the A814 Dumbarton Road. Erskine Ferry Road crosses the Forth and Clyde Canal to meet the A814 Dumbarton Road at a 4-way signalised junction. This road carries traffic from Bowling in the west towards Clydebank and on to Glasgow. The road runs parallel with the Forth & Clyde Canal and has street lighting, footways and bus stops close to the junction serving movements both east and west.

Figure 2.1 - Site Location Plan



[1] The site area was originally stated as 4.67ha within the Carless EIA Scoping Report (October 2017) and has been subject to refinement through the design process. The small increase in site area has arisen from clarification of the Applicant's landownership boundary at the northern edge of the site and due to refinements in the working area needed to construct the proposed heavy lift quay at the existing jetties.

Site Use and History

2.1.3 The site was used as a Ministry of Defence strategic fuel depot in the first half of the 20th Century and suffered extensive bomb damage during the Second Word War. The site was then used as an oil storage terminal before being decommissioned in 1992. Decommissioning and surface structure demolition works were then undertaken, although jetties protruding into the River Clyde, partial oil storage structures, areas of reinforced concrete hardstanding and extensive made ground remain on site.

2.1.4 In 2017, the site was acquired by Malin Group Properties Ltd (the Applicant) with the intention of developing a marine fabrication complex to accommodate their growing fabrication business. In this regard, the site benefits from industrial land allocations and includes a set of concrete jetties protruding from the foreshore into the River Clyde which can be converted into a modern industrial quay (the proposed development includes the erection of a heavy lift quay in this location).

Environmental Characteristics

2.1.5 The site is the western part of the wider Carless landholding (see below). As a former oil terminal and refinery, the site presently comprises scrubland and rough vegetation, interspersed with reinforced concrete hardstanding and remnant belowground structures. However, the implementation of the proposed remediation works prior to the construction of the proposed development will result in the removal of vegetation, all concrete hardstanding and any subsurface structures (which represent potential contamination sources or pathways). The majority of the site will therefore be bare earth in the EIA future baseline scenario upon which the impacts of constructing and operating the proposed development will be assessed.

2.1.6 Relevant environmental sensitivities affecting the site and its immediate surroundings are:

- **Contamination** - The site is currently designated as contaminated land under Part IIA of the Environmental Protection Act 1990, with a small area at the east of the site also designated under the same legislation as a Special Site (as a result of the historical presence of an oil refinery within the central area). The primary reason for these designations is the known presence of hydrocarbon contaminants and known pathways for contaminated groundwater to migrate into the River Clyde;
- **Unexploded Ordnance** – Due to the site's previous MOD usage it is known to have been a bombing target during the Second World War and risk assessments indicate a residual risk of unexploded ordnance (Zetica Ltd, April 2013);
- **Ecological Designations** - The site abuts the Inner Clyde SPA, Ramsar Site and SSSI, which are designated at European and national levels for non-breeding birds, in particular for wintering redshank, and for associated habitats. Additionally, the site is bounded to the north by a disused railway corridor which is designated locally by WDC as a Local Nature Conservation Site;
- **Flood Risk** - The site is bounded to the south west by the River Clyde, whilst the SEPA Flood Map (2015) indicates that parts of the site along the River Clyde foreshore have a high likelihood of flooding, as do the banks of the Auchentoshan Burn; and,
- **Neighbouring Land** - The site is bounded to the west by industrial uses including a Logitech manufacturing plant which may be sensitive to external noise and vibration. Bonded whisky warehouses located east of the site are a COMAH Top Tier Site and a HSE Notification Zone surrounds the warehouses. This Zone also covers a strip of land within the site where a High Voltage overhead power line and live electricity substation are present; and,
- **Residential Amenity** - The closest residential dwellings to the site are located approximately 120m north east of the site on Admiralty Grove. These dwellings are separated from the site by the FCC Scheduled Monument and towpath, a tree belt and a disused railway corridor.

2.1.7 These environmental sensitivities have directly informed the assessment of likely environmental effects from the construction and operation of the proposed development as presented in the EIA.

2.2 The Surrounding Area

The Wider Carless Landholding

2.2.1 **Figure 2.1 – Site Location Plan** shows both the location of the site and of neighbouring land within the control of the Applicant, namely the wider Carless landholding which the site forms part of. The wider Carless landholding extends to approximately 17.7ha and comprises two distinct parcels of land joined by a right of servitude over a connecting over-bridge:

- A small northern parcel adjacent to the Forth and Clyde Canal (FCC) towpath; and,
- A larger southern parcel bounded by a disused railway corridor to the north and the River Clyde to the south.

2.2.2 The site for the purposes of this EIA is located within the western part of the southern parcel of land only. The remainder of the southern parcel of land (i.e. land immediately east of the site) includes redundant concrete basins containing standing water. A small strip of land within this eastern area includes a High Voltage overhead power line and a live electricity substation.

2.2.3 As with the site, the wider Carless landholding is subject to a residual risk of unexploded ordnance and is currently designated as contaminated land under Part IIA of the Environmental Protection Act 1990, with a small area at the east also designated under the same legislation as a Special Site (as a result of the historical presence of an oil refinery within the central area). The primary reason for these designations is the known presence of hydrocarbon contaminants and known pathways for contaminated groundwater to migrate into the River Clyde.

2.2.4 The wider Carless landholding is bounded to the south east by the Auchentoshan Burn, the banks of which are indicated on the SEPA Flood Map to be at high risk of flooding. Beyond this to the east are bonded whisky warehouses, which are a COMAH Top Tier Site.

The Wider Surrounding Area

2.2.5 The closest residential dwellings are located approximately 120m northeast of the site on Admiralty Grove. These dwellings are separated from the site by the FCC Scheduled Monument and towpath, a tree belt and a disused railway corridor which is designated by WDC as a Local Nature Conservation Site (LNCS). This LNCS bisects, but is located outwith, the wider Carless landholding.

2.2.6 The Inner Clyde Estuary Water Body Information Sheet (SEPA, 2014) notes that the stretch of the River Clyde adjacent to the site is heavily modified and has moderate ecological potential, with key pressures on the waterbody stemming from sewage disposal, aircraft transport and dredging rather than from development activities.

2.3 Cumulative Development

2.3.1 There are 4 other developments in the area which have been taken into account in the preparation of the EIA. Three of them are approved developments and the 4th is the remediation of the application site and is therefore relevant as discussed in the future baseline scenarios within the ES. **Table 2.1** below identifies approved developments which have been considered in this EIA.

Table 2.1: Relevant Approved Developments

Planning Application Reference	OS Grid Reference	Overview
DC18/122		Golden Jubilee Hospital: Erection of single storey & two storey extension to existing hospital & associated works.
DC18/230		Golden Jubilee Hospital: Placement of a CAT Laboratory Mobile Unit).
DC16/012		Erection of maritime survival training facility

Baseline Evolution

2.3.2 Whilst the TCPA EIA Regulations only require existing and approved developments to be considered in this EIA, it is also prudent to consider other relevant proposals at planning application stage which, in the event that they are consented in due course, could interact with the construction or operation of the proposed development. The only identified relevant proposed development is planning application DC18/245 for the proposed remediation works within the wider Carless landholding. This is considered to be of relevance as whilst all works within the site will need to be completed prior to the commencement of construction for the proposed development, remediation works (including monitoring and extraction of hydrocarbons from existing boreholes) elsewhere within the wider Carless landholding may be ongoing at this point. This could result in remediation and construction activities occurring simultaneously, giving rise to potential cumulative effects.

Marine Development

2.3.3 In addition, the marine ecology chapter lists three further marine projects which have the potential to impact on marine ecology receptors:

- Clyde Waterfront Renfrew Riverside (CWRR) development: Planning consent was granted for the development in November 2018 with construction expected to start at the end of 2019. The waterfront regeneration project includes the construction of a bridge crossing the river. Marine works for the bridge element of the project include channel piling and dredging for a layby berthing structure (The Glasgow City Region City Deal, 2018).
- Dumbarton Waterfront: Proposed housing developments including a seawall upgrade at the Sandpoint Marina site and works to stabilise the basin and harbour walls at Castle Street.
- Esso Bowling and Scott's Yard: Redevelopment of the area to increase business and industry opportunities. This includes works under planning application DC18/013 (for voluntary remediation works) to reinforce the Clyde riverbank.

2.3.4 The cumulative effects of these developments are discussed in the Marine Ecology Chapter only.

3 The Proposed Development

3.1 Overview

3.1.1 The proposed development comprises the erection and operation of a marine fabrication complex at the site, including:

- Fabrication building (3,300m^2 Class 5 floorspace);
- Ancillary office accommodation (714m^2 Class 4 floorspace);
- Yard areas for materials delivery, fabrication and storage;
- A new heavy lift quay providing access to River Clyde (subject to additional marine licence from MS-LOT);
- Associated access road and road upgrades from Erskine Ferry Road into the site;
- Security gatehouse, perimeter fencing and lighting;
- Staff car parking (provision of 80 spaces);
- Associated landscaping, including a landscape buffer to River Clyde and the existing Logitech building;
- Services, utilities and drainage infrastructure, including a substation

3.1.2 The key physical elements of the proposed development are shown on **Figure 3.1 – Site Layout Plan**.

3.2 Key Physical Characteristics

Demolition and Site Clearance

3.2.1 As noted in **Chapter 2 – The Site and Surrounding Area**, the majority of the site will be cleared in advance of the construction of the proposed development through the undertaking of the proposed remediation works (presently subject to planning application DC18/245). Any vegetation or structures (surface or subsurface) remaining within the site following remediation will also be cleared at the start of the construction process to allow for piling works and the subsequent erection of new buildings, structures and hardstanding.

Proposed Site Layout

3.2.2 The site layout has been designed to accommodate the work flow through the facility, with raw materials being delivered from the west yard to and from the fabrication shed. Completed or partially completed vessels and equipment will then be transferred to the east yard for finishing as required and for transportation by river or road. The location of ancillary accommodation has been designed to account for this proposed work flow through the site.

Figure 3.1 – Proposed Site Layout

3.2.3 Access to the site will be taken from Erskine Ferry Road, which will be upgraded in the vicinity of the site to create an access road suitable for the travel needs associated with the proposed development and any future phases.

3.2.4 Site levels will generally be raised, and the required minimum floor level of buildings will be set at 5.27 m above OS datum to meet the needs of the 1 in 200-year flood risk.

3.2.5 The entirety of the proposed development will be secured by a 2.6 m perimeter security fence, which will incorporate sliding gates to provide access from the east yard to the heavy lift quay.

3.2.6 Additionally, the proposed layout is designed to facilitate the proposed development and allow for future expansion of the facility. Expansions is expected to occur both as a direct extension of the proposed buildings and in later phases of development at Carless on other lands within the applicant's control. As such, the enclosed plans show indicative locations for extension of the fabrication hall and construction of an output hall. To allow for this potential future expansion, the fabrication hall is centrally located within the site, and ancillary accommodation, proposed car parking, perimeter fencing and access roads haven also been located to allow for future phases of development.

Buildings

3.2.7 The proposed development is centred upon the erection of two buildings to house industrial and associated office activities, providing total useable floorspace of approximately 4,014m^2.

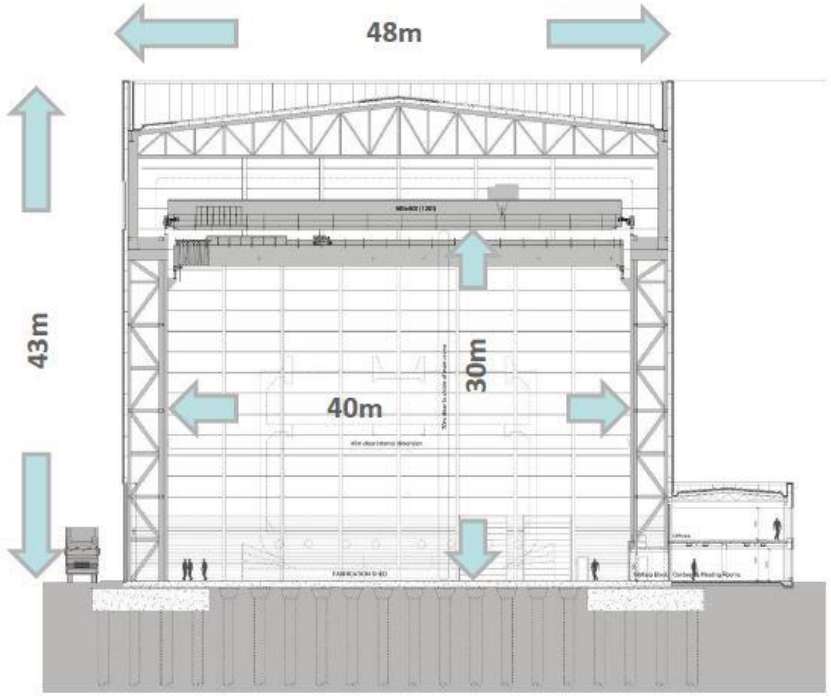
Fabrication Building

3.2.8 The Marine Fabrication Building will be the focal point of the proposed development. The scale of the Marine Fabrication Building is dictated by the processes that will occur in the space (the design, fabrication and maintenance of large marine engineering products and vessels). To accommodate these processes a clear working area of 60 m x 40 m is required, whilst a clear height of 30 m below two heavy duty process cranes is also required. These operational requirements result in the building envelope of the Marine Fabrication Building totalling 68 m x 48 m x 43 m.

3.2.9 In tandem with creating a building of this scale comes an opportunity to create a landmark structure in the locale and an obvious indicator of the presence of the Scottish Marine Technology Park. The design rational is discussed in full in the accompanying Design & Access Statement, however in summary the Marine Fabrication Building will be a unique, iconic building, that is a departure from a typical industrial shed.

3.2.10 The Marine Fabrication Building will be the initial phase of development and it will set a benchmark for future phases in terms of form, appearance, materials and build quality.

Figure 3.2 – Section through fabrication building and ancillary accommodation



Section through Fabrication Hall

3.2.11 Ancillary accommodation for the main fabrication building is located in a two-storey ‘hub’ formed along full length of the north-east façade of the building. This space will include the main public entrance, office space, a staff canteen and a workshop area.

Other Structures

Gate House

3.2.12 A masonry built gatehouse is proposed in the North east Corner of the site. This structure will be a security control room and will contain office accommodation welfare facilities for the gate

staff. Visitors and deliveries will be required to sign in and out at this gatehouse, before passing through the secure fence into the site.

Sub-station and compound

3.2.13 A new substation is proposed on the eastern edge of the site adjacent to the proposed access road. The substation will be within the secure compound but will be accessible externally by Scottish Power for maintenance purposes. The proposed substation has been sized to supply this phase of development and further sub stations or an expansion of this one will be required in the future to supply other phases of development.

Cycle Shelter

3.2.14 A cycle shelter for employees' bicycles is to be provided adjacent to the substation, it will be contained within the secure perimeter of the site. The shelter has an indicated capacity of 20 bicycles.

Security Fence and Lighting

3.2.15 The existing security fencing around the site is expected to remain in place during the construction period to prevent unauthorised access to the site.

3.2.16 The proposed development also includes security measures specific to the nature of the proposed development. Further details regarding the specification and design of this fencing will be confirmed once a supplier has been confirmed. It can however be confirmed at this stage that security fencing is required to be 2.6 m in height and a suitable military grade specification.

3.2.17 The proposed lighting layout is shown on the enclosed site layout plan prepared by GD Lodge. The Lighting is generally placed at 8 m where it is attached to the building, on 6 m columns for lighting the car park and on 12 m columns elsewhere to light the yard areas. The lighting layouts and lux levels have been developed in consultation with the project ecologists and is directional, designed to minimise overspill to sensitive ecological designations and neighbouring properties. Lighting is to be used during operational hours which are not envisaged to be restricted, however it is not anticipated that these will be 24/7, and lights will be switched off when not needed. The lighting strategy is appended to the terrestrial ecology section of the EIA (Chapter 9).

Jetty

3.2.18 Existing jetty structures will be rebuilt to provide a heavy lift quay. Malin Group have an operational need to be able to lift vessels and equipment into and out of the Clyde, or on and off vessels that may tie-up at the quay. The presence of the existing jetties was a key element of the decision to locate at Carless and purchase the site. A rebuilt quay will provide a solid crane platform suitable for access by mobile heavy lift cranes. It is not currently proposed to install any permanent cranes at the quayside. As part of this proposed development the first two cells only will be rebuilt. The construction sequence and finished design is described in the drawings provided by Arch Henderson.

3.2.19 Please note that these drawings are being provided for information purposes only. The proposed works at the quayside and within the River Clyde will be subject to separate application(s) for a Marine License being made simultaneously to the Scottish Ministers via MS-LOT. However the enclosed EIA does include an assessment of the environmental impact of the proposed heavy-lift quay.

Access and Parking

3.2.20 Access and egress for all construction traffic, staff and visitors will be via Erskine Ferry Road. It is anticipated that once operational, staff and visitors will have a range of travel options to the site, including bus provision (notably along Dumbarton Road), rail provision (including Dalmuir and Old Kilpatrick railway stations) and active travel provision (particularly via the FCC).

3.2.21 The proposed development will provide 80 car parking spaces, a minimum of four of which will be disabled parking bays. A covered cycle shelter is proposed outside the main pedestrian entrance to the building, within the secure fenced-compound area of the site.

3.2.22 Established public transport provision includes bus stops on Dumbarton Road within 500 m walking distance and train provision at nearby Dalmuir and Old Kilpatrick rail stations, all of which offer connectivity to the public transport network serving Glasgow and the west.

3.2.23 In respect of active travel, both pedestrian and cycle access is available from Erskine Ferry Road. Future phases of the Scottish Marine Technology Park will incorporate connectivity to the existing blue and green network and the FCC designed at improving active travel linkages to and from the site.

Drainage Infrastructure

3.2.24 The proposed foul drainage layout network will comprise of a gravity closed pipe system located in the roads, verges and open spaces on-site. Long term, foul flows from the proposed development are proposed to connect into the existing Scottish Water Combined Sewer located to the east of the site boundary via a Scottish Water adopted pumping station upon completion of future phases. Initially, it is proposed that foul water from the development is connected to a private package Sewage Treatment Plant (STP) (e.g. Klargester BF BioDisc) for treatment of effluent, prior to consented discharge to the River Clyde, through a CAR Simple Licence.

3.3 Key Operational Characteristics

3.3.1 Once constructed, the proposed development will operate as a marine fabrication complex for the Applicant. Malin Fabrications Ltd (a sister company of the Applicant) presently operate from leased premises in Renfrew and, following the completion of the proposed development, the company will move to their operations to the site. Discussions are actively ongoing with third party marine engineering and industrial companies regarding complementary development options of the remainder of the wider Carless landholding.

3.3.2 Once operational the key characteristics of the development will be those normally associated with industrial development. The would include:

- Movement of people, cars, bicycles etc to, from and within the development;
- Movement of goods vehicles in and out of the site making deliveries;
- Noise, associated with the fabrication activities;
- Permanent landscape change arising from the construction of structures where there presently are none.

Proposed Construction Works, Programme and Management Arrangements

3.3.3 At this pre-consent stage it is anticipated that construction will take approximately 2 years (post remediation works within the site). Within this period the key construction activities are likely to include:

- Vegetation clearance, earthworks and soil preparation to prepare areas of the site for construction activities;
- Piling works;
- Construction of infrastructure including internal access routes, drainage pipes and SUDS swales;
- Construction of fabrication and office building shells and cladding;
- Erection of heavy lift quay;
- Installation of hardstanding in yard and car park areas;

- Erection of permanent gantry and jib cranes within fabrication building;
- Internal fit-out of fabrication and office buildings including fixtures, fitting and building services; and,
- Landscaping and road surfacing.

3.3.4 A Construction Environmental Management Plan (CEMP) will be implemented to reduce the risk of any likely significant adverse effects on environmental receptors as a result of construction activities and to minimise disturbance to the local residents.

3.4 Consideration of Alternatives

3.4.1 In 2017, the wider Carless landholding (including the site of the proposed development) was acquired by Malin Group Properties Ltd (the Applicant) with the intention of developing a marine fabrication complex on the western part to accommodate their growing fabrication business. In this regard, the site benefits from industrial land allocations and includes a set of concrete jetties protruding from the foreshore into the River Clyde. In this context, the consideration of alternative uses for the site is not relevant

3.4.2 Within the bounds of these key parameters, the reasonable alternatives considered in relation to the proposed development were

- Location of the fabrication hall further to the north, taking it away from the River Clyde and the adjacent SPA. This was rejected as the building interfered with the delivery and movement of products into and out of the site. It also compromised the ability to provide for future expansion of the building.
- Increased building area of up to 5,760m^2 reflecting an overall fabrication building length of c.120m. his was rejected on the basis that such a building is unlikely to be needed in the immediate term and might be many years before it was required. The proposed building has been designed to be extendable should projects requiring a bigger building come forward.
- Addition of a further building to allow finishing and fit out of vessels outside of the main fabrication hall. This was rejected for budgetary reasons in this first phase of development.
- Construction of the new heavy lift quay in the two most western cells of the existing jetties. This was rejected for reasons relating to constructability and ease of access during construction of other elements of the proposals. It furthermore would have resulted in a development that abutted the SPA. The proposals are removed from the SPA.
- Consideration of various building design options including elevational treatment and materials. The current designs were felt to be the most appropriate for a building this size and in this location as noted in the Design & Access Statement.

3.4.3 The approach adopted to the design of the proposed development is discussed fully within the submitted **Design and Access** Statement (GD Lodge, 2019). In summary working with the constraints of the site and seeking to preserve the key environmentally sensitive areas, the proposed layout is considered to present the best balance of development on this allocated site.

4 Assessment Methods

4.1 Introduction

4.1.1 The TCPA EIA Regulations emphasise that EIA is a process rather than output and involves the following stages:

- **Assessment work** culminating in the preparation of an ES in accordance with information requirements prescribed by the EIA Regulations;
- **Public consultation on the application for planning permission, the ES and any other** relevant information. Consultation may be iterative rather than only occurring once in the EIA process;
- **Examination** by the relevant authority of the information presented in the ES and other relevant information including that received through the consultation; and
- The authority coming to a **reasoned conclusion** on the residual significant effects of the proposed development on the environment, prior to the determination of any related consenting application.

4.1.2 The EIA process therefore encompasses all stages of considering environmental issues associated with projects, from initial identification of relevant issues through to assessing the residual significance of **predicted** environmental effects and securing required mitigation. This ensures that all required mitigation is subsequently carried out in the implementation of projects. EIA therefore directly influences the design, construction, operation and, where relevant, decommissioning, of proposed projects, as well as providing information to decision makers.

4.2 The Need for EIA

4.2.1 Having regard to the nature of the proposed development and known environmental sensitivities within and surrounding the site, the Applicant is of the view that EIA is appropriately provided in relation to the planning application for the proposed development. Consequently, the proposed development is an EIA Development under Regulation 6(c) of the TCPA EIA Regulations by virtue of the submission of this EIA Report to accompany a planning application for the proposed development.

4.2.2 An EIA screening request was submitted by the Applicant to the Scottish Ministers (Marine Scotland) on 15th September 2017 specifically in respect of the proposed marine works forming part of the proposed development. The Scottish Ministers subsequently adopted a formal negative EIA Screening Opinion on 20th December 2017 to confirm that the proposed marine works are not likely to result in significant environmental effects and thus do not themselves constitute EIA Development, such that the MW EIA Regulations are not directly applicable to the proposed development.

4.2.3 The MW EIA screening request submitted to the Scottish Ministers considered the proposed erection and operation of a heavy lift quay comprising up to 2,400m^2 of reinforced concrete within the footprint of existing (derelict) jetties protruding from the site into the River Clyde. At the time of submission, the proposed design involved the creation of a solid structure quay through impervious sheet piling and the development of temporary bunds to allow construction outwards from the foreshore. As detailed in **Chapter 3 – The Proposed Development,** the design has subsequently evolved and now comprises the erection of a suspended deck supported by piled columns, without the need to create temporary construction bunds. As the footprint of the proposed heavy lift quay remains the same, the characteristics of the proposed marine works remains broadly similar with no change in associated likely environmental effects, and as the proposed marine works still fall within category 10(m) of the MW EIA Regulations as cited within the Applicant's MW EIA screening request, the negative EIA Screening Opinion issued by the Scottish Ministers on 20th December 2017 is considered to remain valid.

4.3 Scope of the EIA

4.3.1 To confirm the Applicant's intention to undertake a voluntary EIA and obtain clarity on the required scope of this EIA, a formal EIA Scoping Report (PBA, October 2017) was submitted to WDC as the relevant local planning authority on 14th October 2017. Subsequently, WDC adopted a formal EIA Scoping Opinion (PREAPP17/113) on 14th March 2018 to define the required scope of the EIA; this is provided in full in **Appendix 4.1 of the technical appendices to the ES**. This Scoping Opinion draws upon EIA scoping consultation responses provided by relevant consultees including SEPA, SNH, Historic Environment Scotland, WDC (internal service departments), Clydeport and Marine Scotland.

4.3.2 In accordance with Regulation 5(3) of the TCPA EIA Regulations, this EIA Report is based on the EIA Scoping Opinion and includes the information which the Applicant considers to be reasonable required for reaching a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. Any material departures from the EIA Scoping Opinion are robustly justified within the appropriate technical assessment chapter of this EIA Report. As with the MW EIA Scoping Opinion, the evolution of the design of the proposed marine works forming part of the proposed development is not considered to affect the validity of the EIA Scoping Opinion adopted by WDC.

4.4 Consultation

4.4.1 In addition to formally requesting WDC to adopt an EIA Scoping Opinion in respect of the proposed development, additional consultation has been undertaken to provide information, discuss assessment methods and findings, and to agree mitigation measures and design responses. Consultation has been undertaken with stakeholders including (NB this is not an exhaustive list):

- West Dunbartonshire Council Roads Department;
- West Dunbartonshire Council Environmental Pollution Group;
- West of Scotland Archaeological Service;
- Scottish Canals;
- Scottish Natural Heritage;
- Scottish Environment Protection Agency (planning, flood risk and contaminated land teams); and,
- Scottish Water.

4.4.2 A programme of community engagement has also been undertaken, as detailed within the statutory **Pre-Application Consultation Reports** submitted in support of the planning and marine licence applications for the proposed development.

4.5 EIA Methodology

Establishing Baseline Conditions and Baseline Evolution

4.5.1 Each environmental topic has been subject to investigation and assessment to identify and evaluate likely significant environmental effects. The survey and assessment methodologies deployed were based on recognised best practice and guidance relevant to each topic area, details of which are provided within relevant technical assessment ES chapters (**Chapters 6 – 16**).

4.5.2 In overall terms:

4.5.3 A review of environmental baseline conditions at the site and in the surrounding area was carried out to identify sensitive receptors with the potential to be affected by the construction or operation of the proposed development. These sensitive receptors were then carried forward to

the impact assessments presented in **Sections X.6 – X.8** of the technical assessments presented in **Chapters 6 – 16 i**n **Volume 1 – Main Text** of the ES;

4.5.4 The likely effects of the construction and operational phase of the proposed development were then characterised, taking account of impact duration and all proposed embedded mitigation, to identify the predicted magnitude of change on each sensitive receptor;

4.5.5 The approach to assigning significance to predicted environmental effects is not itself detailed within the EIA Regulations, meaning that it is necessary to develop effect significance thresholds to underpin the assessments reported in **Volume 1** of the ES. These effect level and significance thresholds are defined on a topic specific basis within the technical assessments presented in chapters **6 – 16** of Volume 1 – Main Text, taking account of relevant regulations, guidance, standards, the advice and views of consultees, and expert judgement. All thresholds were based on the generic criteria set out in **Table 4.1** below.

Table 4.1 – Generic Significance Criteria

	Level of Effect	Criteria
Significant	Substantial	These effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of national or regional importance. A change at a district scale site or feature may also enter this category.
	Major	These effects are likely to be important considerations at a local or district scale and may become key factors in the decision-making process.
	Moderate	These effects, while important at a local scale, are not anticipated to be key decision-making issues.
Not significant	Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
	Negligible or No Effect	Either no effect or effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. Such effects should not be considered by the decision-maker.

4.5.6 Effects that are described as ‘’substantial’, ‘major’ or ‘moderate’ are determined to be significant, whereas effects that are described as ‘minor’ or ‘negligible’ are determined to be not significant.

Mitigation and Enhancement

4.5.7 In line with EIA best practice, the iterative EIA, planning and design processes for the proposed development have been undertaken in tandem, with close dialogue maintained between the Applicant, EIA project team, project architect and other advisers. This has allowed an overarching suite of mitigation measures and commitments to be incorporated into the proposed development from the outset, in order to both address potentially adverse effects and enhance its environmental performance. These are termed embedded mitigation measures.

4.5.8 Where necessary further mitigation has been identified in the EIA process and is listed in the Schedule of Mitigation at the end of Volume 1 of the ES.

Residual Effects

4.5.9 Residual effects are the environmental effects that will remain after the incorporation of both embedded and additional mitigation measures. It is the level of these residual effects which should be considered when assessing the significance of the proposed development, rather than the unmitigated effects as unmitigated effects will not occur. For example, whilst the proposed development may affect protected species, appropriate mitigation has been identified to ensure that significant effects on such species do not occur.

5 Likely Significant Effects

5.1 Overview

5.1.1 The detailed technical assessments provided in **Chapters 6 – 16** in **Volume 1 – Main Text** of the EIA Report identify the following likely significant residual effects from the construction and operation of the proposed development. In all cases, the technical assessments are based on the characteristics of the site and surrounding area and the key parameters of the proposed development detailed in **Chapter 2 – Site and Surrounding Area** and **Chapter 3 – The Proposed Development** of **Volume 1 – Main Text** respectively.

5.1.2 Taking account of all proposed mitigation and enhancement measures, the only residual significant effects (beneficial or adverse) which are considered likely to arise from the proposed development are.

Transport (EIA Report Volume 1 - Chapter 11)

Construction Phase

- Traffic effects on Road Users of the Unnamed Private Road and Erskine Ferry Road (including Bridge) and NCN Crossing: **Moderate Adverse** and Short Term.

Operational Phase

- Traffic effects on Road Users of the Unnamed Private Road and Erskine Ferry Road (including Bridge) and NCN Crossing: **Moderate Adverse** and Long Term.

Landscape and Visual (EIA Report Volume 1 - Chapter 14)

Operational Phase

- Landscape and visual effects experienced at Mountblow and from the South Bank of the River Clyde (Viewpoints 4 and 5 as representative locations) as a result of the proposed development are **Moderate and Adverse Long-term effects.**

Socio-economics (EIA Report Volume 1 - Chapter 12)

Construction Phase

- Net additional employment: **Moderate Beneficial** and Short Term effect.
- New Economic activity: **Moderate Beneficial** and Short Term effect

Operational Phase

- Net additional employment: **Minor Beneficial** and Long Term effect; and
- Net additional economic activity: **Moderate Beneficial** and Long Term effects from new economic activity;
- Regeneration and Resilience: **Moderate Beneficial** and Long Term effects in terms of regeneration and enhancing resilience through expansion of the business base;

5.1.3 The assessments presented in **Chapters 6 - 16** in **Volume 1 – Main Text** conclude proposed construction activities and the subsequent operation of the proposed development are also likely to result in a range of other beneficial and adverse effects, each of which would be not significant in the context of the EIA Regulations. **Sections 5.1 – 5.11** below provide a non-technical summary of each of these technical assessments. **Sections 5.12** and **5.13** then summarise the assessments provided in **Chapters 17 and 18** of the **EIA Report – Volume 1** regarding:

- Likely impact interactions and synergistic effects from the proposed development; and,

- Likely risks arising from the vulnerability of the proposed development to major accidents and disasters.

5.1 Ground Conditions

5.1.1 **Chapter 6 – Ground Conditions** provides an assessment of the likely effects of the proposed development on terrestrial ground conditions, considering the geology, hydrogeology and ground stability within and in the immediate vicinity of the site. The assessment also provides details of the geological conditions and the presence of potentially contaminated land and hazardous materials.

5.1.2 The site's former land use included a harbour associated with an offsite ship works, and latterly an oil terminal and fuel depot operated, including up to 20 large cylindrical fuel storage tanks which were situated immediately to the east of the site associated. In 2003 the site was identified as Contaminated Land according to Part IIA of the Environmental Protection Act 1990 and latterly the south west of the site was designated a Special Site by WDC. An intrusive site investigation was undertaken at the site and the immediate land to the east (the wider Carless landholdings) to build on several previous historical site investigations to inform the requirement and approach to the remediation and development of the site.

5.1.3 The following baseline conditions have been identified through this assessment:

- Ground conditions – comprise Made Ground, overlying Alluvial Tidal Flat deposits, Alluvial Raised Beach Deposits, and Devensian Glacial Till. Bedrock was not encountered in previous investigations.
- Water environment – the site lies on the Clydebank Groundwater body (bedrock aquifer of Good status) and the Clydebank Sand and Gravel (superficial aquifer of Good status). The River Clyde flows south east to north west past the site and the Auchentoshan Burn is situated to the south east.
- Ecological systems - there are three ecologically important resources bordering the south east of the site. The intertidal areas and salt marsh are within the Inner Clyde Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Ramsar site. The sites are designated for non-breeding birds.
- Contamination – The site investigation has identified sources of potentially mobile oily free product (hydrocarbon), a legacy of the site's former use and an oil terminal and fuel depot. The hydrocarbon product is floating on top of groundwater or situated in the soils. Asbestos contamination is present in the made ground material and soils.
- Ground stability - the soft, loose made ground and underlying soft tidal flat deposits are not considered a suitable bearing stratum and will be prone to settlement under the weight and loading of structures. Buried structures may also pose a stability/settlement risk.

5.1.4 Embedded mitigation will be undertaken through the implementation of a Construction Environmental Management Plan (CEMP) which will set out procedures to protect environmental receptors and minimise of the impacts on humans and the environment during the construction phase of the development.

5.1.5 Additional mitigation will be required and will include further site investigation to obtain a better understanding of the ground conditions by at the river side of the jetty structure. It is understood that further investigations will also be undertaken by the Applicant offsite adjacent to the Auchentoshan Burn to evaluate the potential for disturbance of contamination.

5.1.6 Construction workers and site visitors have the potential to come into direct contact with contaminated soils during the construction phase, presenting a Minor Adverse effect. Post-remediation, following the removal of hydrocarbon saturated soils, it is anticipated that the potential effect on the shallow groundwater receptor will be Minor Adverse. No other residual effects have been identified due to the embedded mitigation inherent within the design and additional mitigation discussed in **Sections 6.5** and **6.8** respectively.

5.2 Marine Geomorphology

5.2.1 **Chapter 7 – Ground Conditions** provides an assessment of the likely effects of the proposed development, and in particular from the proposed marine works, on marine geology and geomorphology. The assessment is supported by a holistic W**ater Framework Directive (WFD) Assessment** provided in **Appendix 7.2** within **Volume 2 – Technical Appendices**.

Baseline Conditions

5.2.2 Heavy modification of the Clyde Estuary from human activity has occurred over the last 250 years. Downstream from Glasgow City Centre, the present banks of the river are formed by a variety of quay walls, wharves, revetments and slipways which date to previous and current industrial activity. Depths are regularly maintained to a minimum of 7.5 mCD in the navigation channel. The average annual maintenance dredging commitment of the River Clyde in the 1990's was *circa* 272,000 m^3. The Clyde Estuary can be classed as mesotidal (2-4 m range). Peak flow speeds generally reach a maximum of *circa* 1 m/s during spring tides and *circa* 0.5 m/s during neap tides in the local area.

5.2.3 The Glasgow area has been significantly affected by its industrial past. Subsurface coal mining, shipbuilding, chemical and engineering industries have all left their mark in the catchment of the River Clyde. The proposed marine works are located within the Clyde Estuary - Inner (inc Cart) transitional water body, a heavily modified water body (HMWB) which is currently (2017) has an overall moderate status. Parameters currently failing to achieve (at least) good status include dissolved oxygen (moderate), chromium (fail) and morphology (poor). Sediment quality in the vicinity of the proposed marine works is considered to be poor, with significant hydrocarbon contamination present.

Assessment of Likely Effects

5.2.4 The key impact pathways on marine geomorphology receptors during construction relate to potential water quality changes as a result of the release of sediment contaminants. Water quality effects were assessed as Moderate given that overall levels of sediment contamination (particularly hydrocarbons) is considered to be high and even a small amount of seabed sediment disturbance is likely to cause a localised elevation in oil contamination. Potential reductions in dissolved oxygen concentration, due to the generation of any small suspended sediment plume during piling, were assessed as Negligible to Minor as these changes will be small-scale and highly localised.

5.2.5 The key impact pathways on marine geomorphology receptors during operation relate to hydrodynamics (flow rate) and the sediment transport regime. The effects are anticipated to be of limited spatial extent, with both pathways assessed as Minor.

Mitigation and Enhancement

5.2.6 To reduce potential water quality impacts to sensitive receptors, a marine site investigation and subsequent remediation works, together with an unexploded ordnance risk assessment, will be undertaken prior to the construction of the proposed marine works.

Residual Effects

5.2.7 Changes in water quality during construction were assessed as Moderate. However, with the mitigation measures outlined above, residual impacts for this pathway have been assessed as Minor. All other pathways were assessed as Negligible to Minor and not requiring mitigation.

5.3 Hydrology & Flood Risk

5.3.1 **Chapter 8 – Hydrology and Flood Risk** provides an assessment of the likely effects of the proposed development on the water environment, which includes fluvial and tidal hydrology, including flood risk, surface water, drainage and water supplies. The assessment has been

informed by a Flood Risk Assessment and Drainage and SuDS Strategy for the proposed development, provided as **Appendix 8.2 and 8.3** within **Volume 2 - Technical Appendices** respectively.

Methodology

5.3.2 The principal aspects considered within this assessment are:

- Flood risk and the impact on the development, including baseline hydraulic modelling;
- Foul and surface water management;
- Pollution prevention, and
- The impact of engineering activities on the water Environment.

Baseline Conditions

5.3.3 The River Clyde forms the southern boundary of the site, which is tidally influenced along the reach adjacent to the site and is the principal watercourse in the area. The water body's current overall status (2016) is classified as 'Moderate' ecological potential.

5.3.4 The Forth and Clyde Canal is located approximately 40m directly north of the site. The water body's current overall status (2016) is classified as 'Moderate' ecological potential.

5.3.5 There are no Scottish Water sewers located within the phase 1 development boundary.

5.3.6 Sands and gravels were typically encountered within shallow superficial deposits, underlying Made Ground (where present) in bands interspersed with clays and silts. Sands were typically described as silty, clayey or gravelly and fine to coarse. Typically, bands of sands and gravels were encountered at depths of between approximately 1.5 – 4m through to 8-15m.

5.3.7 Silts were typically encountered within shallow superficial deposits, underlying Made Ground (if present) between depths of approximately 4m to 10mbgl.

5.3.8 Natural clays were encountered across the site in bands within the shallow superficial deposits of sands, silts, gravels and cobbles at depths of less than 10mbgl

5.3.9 A 1 D hydraulic modelling exercise was undertaken, covering a 23km reach of the River Clyde, with the upstream extent being approximately 3.5km upstream of the site boundary and the downstream extent located at Greenock.

5.3.10 A baseline 1 in 200-year event has been determined using the same joint probability scenarios as identified as worst case in the 2005 study:

- $TIDE_{200}$ and Q_2, and
- $TIDE_{MHWS}$ and Q_{200}

5.3.11 A review of SEPA's online Flood Risk Map indicates that the site is not shown to be at risk of fluvial flooding.

5.3.12 The SEPA indicative online Flood Map indicates that relatively small isolated areas to the north of the site are considered as being at a 'medium likelihood' and 'low likelihood' of surface water flooding.

5.3.13 Owing to the nature of hydraulic connectivity between the groundwater aquifer and the River Clyde, it is assumed that any likelihood of coastal flooding that could occur will be exacerbated by groundwater flooding. As coastal flooding is considered to hold *medium likelihood* of flooding within the site, groundwater flooding is considered to carry the same likelihood.

5.3.14 The nature of the remediation works will involve excavation of materials, to allow extraction of pollutants for treatment, and excavation to allow formation of surface water management SuDS features. Excavated materials will be stored on site in temporary stockpiles. Following completion of the remediation works, site levels and surface water management features will be restored to their pre-remediation grade.

5.3.15 Future baseline conditions are expected to replicate the current baseline conditions, as the completed remediation strategy will restore levels to the existing grade.

Proposed Mitigation/ Enhancement

5.3.16 A collection of embedded and further mitigation measures has been proposed to avoid, prevent and minimise the likely significant effects on the water environment, including:

- All proposed development will be located out with the functional floodplain as identified in the Flood Risk Assessment through land raising, with the finished floor level being 600mm above (freeboard allowance) the 1 in 200 year + climate change event;
- Compensatory storage will be provided to mitigate the loss of floodplain through land raising;
- Use of construction phase SuDS;
- Permanent surface water drainage and SuDS to ensure sufficient treatment of surface waters prior to discharge from the development;
- Developing and adhering to a Construction Environmental Management Plan (CEMP) including a Pollution Prevention Plan (PPP) and Controlled Activities Regulations (CAR) Licence, which will include monitoring of the site activities to ensure compliance;
- A buffer strip for construction activities within a 5m margin adjacent to watercourses, and
- Adherence to national relevant guidance, legislation and good practice in construction methods.

Residual Effects

5.3.17 Taking account of further mitigation and enhancement measures, all likely residual construction phase effects on flood risk and water quality reduce to Moderate or lower levels and would therefore be considered Not significant in the context of EIA Regulations. Operational phase residual effects would also be Not significant as any risks to water quality, flooding, site users and potable water supply will be managed by the proposed on-site surface water drainage system including appropriate SuDS features, impermeable hardstandings and barrier protection to services.

5.4 Terrestrial Ecology

5.4.1 **Chapter 9 – Terrestrial Ecology** provides an assessment of the likely effects of the proposed development on sensitive ecological receptors within the site and the surrounding area. This assessment has been undertaken in line with the Guidelines for Ecological Impact Assessment issued by the Chartered Institute of Ecology and Environmental Management (the CIEEM Guidelines).

Baseline conditions

5.4.2 A series of surveys were undertaken to establish the ecological baseline conditions at the site and to identify potential sensitivities at the site. The baseline ecological conditions are the site were as follows:

- The proposed development site is dominated by bare ground considered to be of negligible nature conservation value. A number of protected/ notable species were identified to use the site and its surroundings. Overwintering birds and otters on site were identified as potentially being ecologically significant at the site.
- Terrestrial habitat surveys within the wider Carless landholding revealed a mosaic of early successional woodland, scrub and more open vegetation communities typical of recolonising brownfield sites. Habitats were dominated by relatively early successional woodland, and the swamp habitats which had colonised the holding tanks in the land in the

south-east (i.e. outside the proposed development site itself). These were not considered to be wide spread and common habitats, therefore were not considered to be significant.

- A number of statutory and non-statutory designated sites for nature conservation were identified within 2km of the site.

5.4.3 The baseline study identified the following ecological features. The potential impacts of the proposed development were assessed:

- Inner Clyde Special Protection Area (SPA), Ramsar (wintering redshank population)
- Inner Clyde SSSI (non SPA/Ramsar features) (wintering birds and saltmarsh habitats)
- Disused Railway Line & Erskine Ferry Road LNCS
- The Saltings LNR
- Overwintering birds in Terrestrial Habitats On Site - Non-SPA/ SSSI Species
- Otter

Mitigation and enhancement

5.4.4 A number of mitigation measures have been incorporated into the design, construction and operational phases of the proposed development to avoid significant adverse environmental effects on sensitive ecological receptors. These cover the following main themes:

- Protection of ecologically sensitive features;
- Ecological Clerk of Works (ECoW) and Environmental Monitoring throughout construction;
- Pollution Prevention;
- Construction Environmental Management Plan, including Species Specific Management Plans;
- Sensitive Lighting Strategy;
- Landscape and Ecological Management Plan; and
- Incorporation of sensitive timing and adaptation of working methods to minimise disturbance to wildlife.

Residual effects

5.4.5 Taking account of all proposed mitigation and enhancement measures, no significant residual ecological effects were identified by the ecological assessment process in relation to the proposed construction and operations at the site.

5.5 Marine Ecology

5.5.1 **Chapter 10 – Marine Ecology** provides an assessment of the likely effects of the proposed development on marine ecological receptors. The following marine ecology receptors have been considered as part of the assessment:

- Nature conservation protected habitats and species;
- Benthic habitats and species (including non-native species);
- Fish species; and
- Marine mammals.

5.5.2 The proposed development requires to be authorised through planning permission granted by WDC and a marine licence from the Scottish Ministers, and therefore that both terrestrial and marine spatial planning policies are applicable. To facilitate the marine ecology impact assessment process a standard analysis methodology has been applied. The impact assessment assesses whether important marine geomorphological features will be subject to

impacts (positive or negative), the characterisation of these impacts (extent, magnitude, duration, reversibility, timing and frequency) and their effects in the absence of mitigation. An assessment has then been undertaken of the significance of the residual ecological effects of the project (after mitigation), including cumulative effects.

Baseline Conditions

5.5.3 The site is located immediately adjacent to the Inner Clyde SPA and Inner Clyde Ramsar, both of which are designated for non-breeding Redshank. The site is also located immediately adjacent to the Inner Clyde Site of SSSI which is designated for saltmarsh features as well as a range of waterbird species.

5.5.4 Project specific marine ecology survey work found the foreshore to be predominately characterised by boulders, cobbles, gravel and artificial hard structures (such as quay walls and berth structures). The benthic assemblage recorded was characterised by a range of commonly occurring estuarine species characteristic of the brackish conditions present along this section of the River Clyde.

5.5.5 The River Clyde supports a range of marine and estuarine fish species including flounder, sea bass, mullet, gobies and three-spined sticklebacks, as well as diadromous migratory species including Atlantic salmon, sea trout, sea lamprey, river lamprey and European eel.

5.5.6 With respect to marine mammals, grey seal and common (harbour) seal have been frequently recorded in the vicinity of the proposed marine works with harbour porpoise also recorded in the River Clyde.

Assessment of Likely Effects

5.5.7 The key impact pathways on marine ecology receptors during construction relate to potential water quality changes on fish as a result of the release of sediment contaminants and underwater noise on fish and marine mammals. Water quality effects on fish were assessed as **Minor to Moderate Adverse (i.e. significant)** given that overall level of oil based sediment contamination is considered to be high and even a small amount of seabed sediment disturbance is likely to cause localised elevated oil contaminant levels. Underwater noise effects on marine mammals and fish were assessed as **Minor to Major Adverse** (depending on the species) due to the potential for injury effects near to the proposed marine works and strong behavioural reactions at greater distances.

5.5.8 The key impact pathways on marine ecology receptors during operation relate to potential benthic habitat and species loss and change as a result of the footprint of the development and the potential spread of non-native species. Benthic habitat and species loss (as a result of the placement of piles) and change (as a result of shading effects) were both assessed as **Negligible Adverse** due to the highly localised nature of the footprint and low importance of the assemblages occurring in the area. The potential spread of non-native species was also assessed as **Negligible Adverse** through following best management practices and adhering to a Marine Biosecurity Plan.

Mitigation and enhancement

5.5.9 During the construction phase it is proposed that marine remediation works are undertaken before any construction activity commences to reduce potential water quality impacts to fish species.

5.5.10 In order to reduce potential underwater noise impacts as a result of piling activity it is proposed that seasonal piling restrictions are applied to reduce overlap with the key sensitivity periods for migratory Atlantic salmon. In addition, the use of soft start procedures and daylight only working will be implemented to reduce potential noise impacts to fish and marine mammals.

Residual effects

5.5.11 Water quality changes on fish during construction and underwater noise impacts on fish and marine mammals during construction were assessed as Minor to Major Adverse. However, with the mitigation measures outlined above, residual impacts for these pathways have been assessed as Minor Adverse (i.e. not significant). All other pathways were assessed as Negligible Adverse and not requiring mitigation.

5.6 Transport & Access

5.6.1 **Chapter 11 – Transport and Access** provides an assessment of the likely effects of the proposed development on traffic, transport and access. The assessment builds upon a Transport Assessment provided in **Appendix 7.2**. The Transport Assessment contains a more detailed analysis of predicted changes in traffic flows and travel patterns resulting from the proposed development.

5.6.2 In accordance with relevant policy requirements and guidelines, the assessment identifies and examines the sensitivity of receptors comprising the users of key links within the local road network surrounding the site. With the adoption of a Construction Traffic Management Plan (CTMP) as part of a wider Construction Environmental Management Plan (CEMP), the assessment concludes that the construction phase of the proposed development is not likely to result in any significant effects on identified receptors.

5.6.3 To identify likely operational traffic effects from the proposed development on the identified receptors, consideration was given to the predicted percentage change in traffic flows on selected links within the local road network. Other factors including the existing level of base flows and whether the proposed development would have any road safety implications were also taken account of in order to determine the level and thus EIA significance of likely operational phase effects.

5.6.4 The assessment concludes that predicted increases in peak traffic flows of up to 2% on the A814 Dumbarton Road, 2% on Barclay Street and 18% on the Unnamed Private Road and Erskine Ferry Road (including Bridge and NCN crossing) during operation. Only the Unnamed Private Road and Erskine Ferry Road (including Bridge and NCN crossing) have a significant residual EIA significance.

5.6.5 The predicted Moderate Adverse level of effect on the unnamed private road and Erskine Ferry Road results only from a high percentage change terms to low baseline flows. Furthermore, the technical assessments presented in **Appendix 11.2 – TA** and the Junction Capacity Assessment appended to the TA demonstrate that the predicted increase in traffic flow would not adversely affect the functioning of the unnamed private road and Erskine Ferry Road as providing a single access route to both the site and adjacent industrial premises. On this basis, no further mitigation is considered to be required in order to address the likely adverse effects identified in **Section 11.7** within **Volume 1 – Main Text**.

5.7 Air Quality

5.7.1 **Chapter 12 – Air Quality** provides an assessment of the likely effects of the proposed development on local air quality. The assessment was undertaken in accordance with guidance from the Institute of Air Quality Management (IAQM) and national and local policy, including Proposed Policy DS4 – Air Quality set out within the West Dunbartonshire LDP Proposed Plan 2015 and Proposed Policy ENV8 – Air, Light and Noise Pollution within the West Dunbartonshire LDP2 Proposed Plan (2018).

5.7.2 The air quality effects associated with the construction and operation phases of the proposed development have been assessed. The chapter described the existing baseline air quality close to the proposed development, and assessed the impact of the construction and operation of the development on local air quality. The main air pollutants of concern related to construction are dust and fine particulate matter (PM_{10}), and for road traffic they are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$).

5.7.3 The site does lie not within an Air Quality Management Area (AQMA). Measured Nitrogen Dioxide (NO_2) concentrations at monitoring locations representative of the site have been below the annual mean objective between 2013 and 2017. Background concentrations for the site are also below the objectives for NO_2, and particulates (PM_{10} and $PM_{2.5}$).

5.7.4 The construction phase assessment has identified appropriate mitigation to employ against construction dust impacts. Construction phase effects are judged to be not significant when the identified mitigation measures are applied through a Construction Environmental Management Plan (CEMP) for the site.

5.7.5 The increase in traffic as a result of the development has been compared against criteria contained within the IAQM guidance on land use planning and development control and the Highways Agency's Design Manual for Roads and Bridges. The assessment has demonstrated that road traffic associated with the development will be below the criteria for a further assessment to be considered necessary. The effect of road traffic emissions on human health and ecological receptors is therefore not significant and no further direct mitigation is required. Notwithstanding this, a Travel Plan will be developed and implemented during the operational phase of the proposed development to promote sustainable travel choices by staff and visitors to the site. This will reduce the number of single-occupancy car journeys made to and from the site.

5.7.6 Overall, the operational air quality effects of the proposed development are judged to be not significant within the context of the TCPA EIA Regulations.

5.8 Noise & Vibration

5.8.1 **Chapter 13 – Noise and Vibrations** provides an assessment of the likely noise and vibration effects of the proposed development on the sound and vibration climate at noise sensitive receptors around the site. To inform the assessment, an environmental sound survey was conducted on the 27th June to the 28th June 2018.

5.8.2 Noise arising from construction of the proposed development was assessed to determine the impact on existing receptors. Construction noise from the Proposed Development is anticipated to have a negligible effect on existing receptors in the area around the Site, with mitigation in place. Construction vibration effect is anticipated to be not significant on the Logitech facilities, with mitigation in place.

5.8.3 Traffic flows from the proposed development have been assessed to determine the impact on the existing road network and the potential increase of road traffic noise on existing receptors. The level of impact that traffic noise generated by the proposed development would have on existing receptors is deemed to be negligible.

5.8.4 An assessment in general accordance with BS4142:2014 has been undertaken to determine the likely impact associated with the operation and plant noise from the Proposed Development.

5.8.5 The assessment demonstrates that noise associated with the operation of the Proposed Development is unlikely to significantly affect nearby noise sensitive receptors.

5.9 Landscape & Visual

5.9.1 **Chapter 14 – LVIA** provides an assessment of the likely landscape and visual effects of the proposed development. The LVIA has been carried out by experienced Chartered landscape architects (CMLI), in accordance with appropriate industry standard guidance and in accordance with a tried and tested methodology. It has been informed by consultation with statutory consultees, desktop analysis and site survey.

5.9.2 Landscape and visual receptors were identified, and scoped out of the assessment where it was considered unlikely that significant effects would occur. Potential landscape receptors include the physical fabric of the site and landscape of the adopted Study Area, citing published landscape character assessment information. Potential visual receptors include residents, recreational visitors and road users, across the Study Area, and representative viewpoints were agreed with statutory consultees to illustrate the likely change in views and visual amenity which would be experienced by a range of these receptors.

5.9.3 The baseline for potential receptors has been described in terms of the current condition and consideration has also been given to the future evolution of the baseline, with specific reference to the proposed remediation of the site which is subject to a separate planning application and which once implemented would establish the future baseline against which the assessment has been considered. Judgements in relation to the value and susceptibility of receptors have been made, in order to establish the overall sensitivity of the receptors.

5.9.4 The proposed development, including any embedded mitigation, has been considered and used to describe the potential magnitude of change which may result for both landscape and visual receptors. Considered in combination with the judgements of sensitivity, the magnitude of change has been determined to identify the level of landscape of visual effect using a scale of negligible, minor, moderate and major. For the purposes of the assessment, potential effects of moderate and major are considered to be significant in the context of the TCPA EIA Regulations.

5.9.5 Potential effects upon the five LCTs assessed within the Study Area would range from negligible to minor. There would therefore be no significant effects upon these landscape receptors. The landscape of **The Site** itself would experience a **Moderate** (significant) level of landscape effect, which would be neutral, as the site undergoes the transition from the post-remediation phase brownfield industrial site to the marine fabrication facility with associated landscaping proposals.

5.9.6 Three settlements, Mountblow, Old Kilpatrick and Erskine, were considered in the assessment. It is judged that from residential areas of **Mountblow** in closest proximity to the site, and which occupy an elevated or open position, there is the potential for **Moderate** (significant) adverse visual effects to occur locally. Views from the settlements of Old Kilpatrick and Erskine would experience a Minor (not significant) level of visual effect and effects are judged to be adverse.

5.9.7 Several recreational routes were identified and views from these routes assessed. Potential effects on views from the Forth and Clyde Canal/NCN 7, Core Path 87 in the Kilpatrick Hills and the majority of other Core Paths within the Study Area would experience a Minor (not significant) level of visual effect on views. From the Core Paths EI/1 and EI/5, which provide access along the south bank of the River Clyde, **Moderate** (significant) visual effects are predicted from sections of these routes in closest proximity to the site. These are illustrated by the representative viewpoints **Viewpoint 4: Cycle route north of the Erskine Bridge Hotel** and **Viewpoint 5: Erskine Beach** which would experience a **Moderate** (significant) adverse level of visual effect, and effects are judged to be adverse.

5.9.8 Users of main roads within the Study Area were considered as potential visual receptors. In all cases it was determined that the potential level of visual effect on views experienced from these routes would be Minor (not significant), and effects are judged to be adverse.

5.9.9 The assessment identifies a small number of significant landscape and visual effects which would arise from the introduction of the proposed development. The potential for further mitigation measures to reduce the assessed significant effects has been considered, however, no practicable means of reducing the scale and mass of the fabrication shed (which is principal element which gives rise to these effects) has been identified. The residual effects therefore remain unchanged from those described above.

5.10 Cultural Heritage

5.10.1 **Chapter 15 – Cultural Heritage** provides an assessment of the likely effects of the proposed development upon cultural heritage assets. Specifically, it considers the effects relating to the setting of designated heritage assets (Scheduled Monuments, Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields and Conservation Areas).

5.10.2 In line with current national and local policy it has sought to identify heritage assets that may be affected and their importance in order to inform the planning process and to allow any necessary mitigation measures to be developed. Potential effects are restricted to setting effects and in line with relevant guidance, the assessment has identified heritage assets that might be affected by the proposed development through a desk study using the Zone of Theoretical Visibility and site visits. This study considered all designated heritage assets within 1km of the proposed development and nationally important designated assets within 5km. Potentially significant effects were identified in relation to three assets: the Antonine Wall, which is a World Heritage Site, the scheduled Forth and Clyde Canal and the Category B-listed Ferry Lodge. Their setting

has been described and its contribution to their heritage significance identified. Finally, the change in setting resulting from the proposed development and the consequent change in the asset's heritage significance has been assessed. This assessment is supported by visualisations where appropriate. Whilst the proposed development will result in perceptible change in the setting of all three, it was concluded that this would not affect the heritage significance of the Antonine Wall and the Forth and Clyde Canal, resulting in a negligible effect, whilst it would result in a minor adverse effect in respect of Ferry Lodge. These effects are not significant in the terms of the EIA Regulations and no mitigation measures are proposed in relation to them.

5.11 Socio-Economics

5.11.1 **Chapter 16 – Socio-economics** provides an assessment of the likely socio-economic effects of the construction and operation of the proposed development.

5.11.2 Taking account of the relevant additionality factors, the assessment examines likely socio-economic effects from the proposed development on the labour market and key business sectors. The assessment has been informed by detailed baseline analysis of the West Dunbartonshire labour market and business demographics.

5.11.3 The assessment examines likely socio-economic effects in relation to:

- Direct, indirect and induced employment/labour market effects;
- Direct and indirect effects on relevant business sectors (construction and marine engineering);

16.12.4 Taking account of both the sensitivity of identified receptors and the magnitude of predicted socio-economic effects, the assessment concludes that the proposed development is likely to result in the following residual effects:

Construction Phase

- Net additional employment: The creation of 119 net additional FTE jobs in the Local Study Area**,** resulting in a **Moderate Beneficial** and Short Term effects on net additional employment;
- New economic activity: **Moderate Beneficial** and Short Term effects on net additional economic activity.

Operational Phase

- Net additional employment: The creation or support of 78 net additional jobs during the operational phase represent a **Minor Beneficial** and Long Term effects in the labour market;
- Net additional economic activity: **Moderate Beneficial** and Long Term effects from new economic activity;
- Regeneration and Resilience: **Moderate Beneficial** and Long Term effects in terms of regeneration and enhancing resilience through expansion of the business base; and,
- Operational Expenditure (Direct and supply chain): **Unknown Beneficial** and Long Term effects on marine engineering and supply chain.

5.11.4 The assessment therefore concludes that the proposed development would result in likely significant socio-economic effects, with respect to EIA regulations, in relation to net additional employment; key business sectors (construction and marine engineering); local economic development; regeneration and resilience; and operational expenditure. In all cases, predicted likely effects on the population would be beneficial in nature.

5.12 Risk Management

5.12.1 **Chapter 17 – Risk Management** provides a proportionate assessment of likely risks and associated significant environmental effects arising from the vulnerability of the proposed development to major accidents and disasters. The assessment concludes that no risks likely to give rise to **residual** significant adverse effects have been identified and that appropriate management measures have been proposed (as embedded or further mitigation) to address any environmental or major accident risks arising from the proposed development.

5.13 Environmental Interactions

5.13.1 **Chapter 18 – Environmental Interactions** builds upon the individual technical assessments presented in **Chapters 6 – 16** and the assessment of likely environmental and major accident and disaster risks presented in **Chapter 17** to provide an assessment of likely impact interactions and synergistic effects from the construction and operation of the proposed development. The assessment concludes that whilst individual direct or indirect effects on aspects of amenity are considered likely, these effects would not generate synergistic effects, i.e. individual amenity effects would not affect the amenity of the same receptor in multiple ways. On this basis it can be concluded that the proposed development would not give rise to overall amenity effects of a level likely to be either overbearing or significant in the context of the EIA Regulations. No monitoring of potential amenity effects is therefore considered necessary.

6 Mitigation and Monitoring Requirements

6.1.1 **Chapter 19** of the EIA Report provides a consolidated schedule of all mitigation and enhancement measures proposed to avoid significant adverse effects and enhance beneficial effects from the proposed development. It is reproduced in full here as the measures are reported in summary form and in nontechnical language. The chapter is provided to assist the planning authority in securing the proposed mitigation measures and any monitoring arrangements relating to significant adverse effects within any planning permission granted for the proposed development, as required by the EIA Regulations.

6.2 Proposed Mitigation Measures

6.2.1 **Table 6.1** below summarises all mitigation and enhancement measures committed to by the Applicant for the construction and operational phases of the proposed development.

6.2.2 To allow WDC and the Scottish Ministers (Marine Scotland) to secure the mitigation and enhancement measures relevant to the element of the proposed development within their respective jurisdictions (i.e. all proposed development down to MLWS and up to MHWS respectively), **Table 6.1** identifies separately the measures proposed for the whole proposed development and those which apply solely to the proposed marine works (N.B. relevant measures applying to the whole proposed development also apply by default to the proposed marine works).

6.2.3 The proposed implementation of relevant mitigation measures through conditions attached to any planning permission and marine licence granted will secure their undertaking by the Applicant and ultimately provide an enforcement mechanism should this be required.

Table 6.1 – Summary of Proposed Mitigation Measures

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
Geo-Environmental / Contamination	<u>Proposed Development</u> 1. Verification that specific areas of land above MHWS level where construction activities and subsequent operational uses are proposed has been made suitable for the future intended use through prior remediation works before the commencement of such activities (Section 6.6 refers). 2. Site investigation (SI) to be undertaken on land proposed to accommodate compensatory flood storage within the wider Carless landholding (land within the Applicant's control) (Section 6.8 refers). 3. Following SI, any remediation necessary to make the proposed flood compensatory storage area suitable for the intended use to be implemented and verified prior to construction (Section 6.8 refers). 4. Development and implementation of **Ground Improvement Method Statement**, taking account post-remediation site conditions (Section 6.8 refers). 5. Risk Assessments and Method Statements (RAMS) for undertaking work on contaminated land to be prepared prior to the commencement of construction and thereafter implemented (including through use of appropriate personal protective equipment (PPE) construction workers (Section 6.6 refers).	YES	NO
	<u>Proposed Marine Works Only</u> 6. Marine SI to be undertaken within the footprint of the proposed marine works for geo-technical and geo-environmental purposes (Section 7.8 refers). 7. Following marine SI, any remediation works necessary to reduce levels of sediment contamination, limit contamination dispersal into the water column and to make the footprint of the proposed marine works suitable for future intended use (as a heavy lift quay) to be implemented and verified prior to construction of the proposed marine works (Section 7.8 refers).	YES	YES

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
Design Features	Proposed Development 8. Adoption of Mitigation Hierarchy and Key Ecological Mitigation Parameters defined in Section 9.6 to avoid adverse effects on Inner Clyde SPA, SSSI and Ramsar Site qualifying and special interests (Section 9.6 refers). 9. Development in accordance with **Appendix 6.4 – Ground Investigation Report (Geotechnical)**, including use of suitable and safe piling techniques (Section 6.6 refers); 10. Development in accordance with submitted **planning and marine licence application drawings** (Section 3 refers). In consequence: i. Provision of large ground slab, concrete hard standing and landscaping within the proposed development (Section 6.6 refers). ii. No buildings within the functional floodplain and finished floor levels of buildings to be below the T200+cc Q2+cc, peak flood level with a 600mm freeboard allowance (Section 8.6 refers). iii. Screening of building plant behind large buildings to reduce noise (Section 13.8 refers). 11. Development and implementation of **Detailed Drainage Plan** in accordance with **Appendix 8.3 – SuDS and Drainage Strategy**, including: i. Foul discharges to River Clyde in accordance with WAT-RM-03 (Section 8.6 refers). ii. Surface water drainage to be designed using SuDS principles such that a level of treatment will be provided prior to discharge of surface waters to the River Clyde (Section 8.6 refers). iii. Provision of proposed BioDisc package waste water treatment plant in accordance with identified specification (Section 8.8 refers). 12. Provision of adequate compensatory flood storage on suitable land within the wider Carless landholding (under the control of the Applicant) (Section 8.8 refers). 13. Provision of landscape design features as detailed within **submitted Design and Access Statement** (Section 14.6 refers). 14. Use of limited palette of high-quality materials on external facades (Section 14.6 refers).	YES	YES – measures 10, 11, 16 and 17 only

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	15. Development and implementation **of Landscape and Ecology Management Plan (LEMP)**, including: i. Retention and enhancement of existing mature and semi-mature woodland vegetation along western and southern site boundaries (Section 14.6 refers). ii. New planting and re-shaping of existing tree/vegetation belt at the southern site boundary to enhance green network (Section 14.8 refers). 16. Development and implementation of Lighting Strategy in accordance with **Appendix 9.3 – Lighting Design Technical Note** (Section 9.6 refers). 17. Avoidance of direct effects on Inner Clyde SPA, SSSI and Ramsar Site through use of jetty cells 3 & 4 and adjacent land for proposed heavy lift quay (Sections 7.6 and 10.6 refer). 18. Installation of gas protection measures on proposed buildings unless gas and vapour monitoring (post site remediation) determines no requirement for such measures (Section 6.6 refers).		
	<u>Proposed Marine Works Only</u> 19. Minimisation of proposed marine works footprint, not exceeding 2,400m^2 (Section 7.6 refers).	NO	YES
Construction Phase Pollution Prevention Measures	<u>Proposed Development</u> 20. Development and implementation of **Construction Environmental Management Plan (CEMP)**, to include: i. Procedures and methods to manage and extract any encountered residual contamination (Section 6.6 refers). ii. Phasing plans, working methods and physical controls to segregate construction and remediation activities (Section 6.6 refers). iii. Phasing plans, working methods and physical controls to minimise noise and vibration effects to adjacent site users (Section 13.6 refers). iv. Contractor management (Section 3 refers). v. Materials storage (Section 3 refers). vi. Construction traffic and parking management (Section 11.6 refers).	YES	YES – measures 20 – 24 only

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	vii. Construction dust mitigation measures as specified in IAQM Guidance (Section 12.6 refers). viii. Measures and procedures to manage sources of potential pollution from fuel and other chemical spillages, concrete contamination, sediments, silts, grits and other pollutants (Section 8.6 refers). ix. Oil storage in accordance with General Binding Rules (GBRs) 26, 27, and 28 (Section 8.8. refers). x. Chemical and hazardous substances storage procedures (Section 8.8 refers). xi. Deployment of spill kits and drip trays for any refuelling activities (Section 8.8 refers). xii. Regular inspection and maintenance of vehicles, tanks and bunds to be undertaken (Section 8.8 refers). xiii. Welfare facilities to include closed-system toilets, with disposal of foul drainage by tanker to a suitable off-site facility (Section 8.8 refers). 21. Adherence to all Controlled Activities Regulations (CAR) Licence requirements (to be authorised by SEPA) and associated Pollution Prevention Plan (PPP) (Section 8.6 refers). 22. Development and implementation of **Construction Drainage Plan** in accordance with **Appendix 8.3 – SuDS and Drainage Strategy**, including: i. Diversion of clean runoff from vegetated areas and offsite around construction areas to avoid mixing with sediment laden water (Section 8.8 refers). ii. Deployment, maintenance and regulation inspection of construction phase SuDs, containment systems and suitable treatment or settlement facilities in accordance with CAR Licence, PPP, WAT-SG-75 and relevant CIRIA guidance (CIRIA 2001) to prevent release of sediments and pollutants to the water environment (Section 8.8 refers). iii. Equipment to be washed in areas specifically designed to contain wet concrete and wash water. Wash water to then be disposed of to suitable authorised off-site facility (Section 8.8 refers). iv. Construction access tracks to incorporate appropriate drainage including ditches, camber to shed water to the road channel, frequent cross drains		

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	and grips/ offlets. Trackside drainage to be routed to the construction SuDS measures prior to discharge to the water environment (Section 8.8 refers) 23. Adoption of specific management measures for short-term storage and testing of any suspected contaminated material encounter (post remediation) (Section 8.8 refers). 24. Construction site management and activities to be sited and undertaken in accordance with relevant guidance within BS5228-1:2009+A1:2014 to minimise noise and vibration effects to ecological receptors and adjacent site users (Section 13.6 refers). 25. Concrete and mortar preparation to be sited on impermeable areas at least 10m away from watercourses or surface water drains (Section 8.8 refers). 26. Use of oil separator if required due to high risk of fuel/ oil contamination (Section 8.8 refers). 27. Development and implementation of **Soil Management Plan**, including procedures for: i. Areas stripped of hardstanding, earth and vegetation to be kept to a minimum at any one time (Section 8.8 refers). ii. Soil loss and erosion to be minimised through careful storage, reinstatement and landscaping (Section 8.8 refers). iii. Soil stockpiles to be placed in areas of minimal risk of slippage or erosion from drainage, not located within 20m of the River Clyde (Section 8.8 refers). 28. Excavations to be undertaken and managed in accordance with CAR General Binding Rule 11, including: i. Drainage or pumping from excavations to be minimised through design. Temporary cut-off drains to be installed, if required, to prevent surface water runoff entering excavations (Section 8.8 refers). ii. Excavations to be left open for minimum period required for undertaking construction works to avoid ingress of water, minimise erosion and the need for de-watering (Section 8.8 refers). iii. Any water pumped out of excavations to be treated by passing through SuDS prior to discharge to the water environment (Section 8.8 refers).		

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	iv. Mechanical silt traps to be deployed where runoff contains significant amounts of silt which may overwhelm conventional SuDS features (Section 8.8 refers).		
Construction Phase Ecological Mitigation Measures (additional to Pollution Prevention)	<u>Proposed Development</u> 29. Development and implementation of **Bird Hazard Management Plan** (to safeguard aviation interests), including monitoring of standing water, earthworks, re-instatement of grass verges, species numbers and spacing of trees and shrubs (Section 9.6 refers). 30. Appointment of Ecological Clerk of Works (EcOW), with attendance on-site to supervise construction activities likely to generate ecological disturbance effects (Section 9.6 refers). 31. EcOW to carry out pre-site clearance checks where site clearance (vegetation clearance) is required during the bird breeding season (March-August inclusive) (Section 9.6 refers). 32. Provision of Temporary Visual Screening: A physical barrier along the southern boundary of the working area (e.g. mesh or fabric screen on Heras fencing, wooden hoarding or similar) will provide a visual screen against visual and noise disturbance from the construction works to the SPA, where these take place the site during the winter months (September-March inclusive). 33. EcOW to undertake regular monitoring of CEMP implementation and management of any required pre-construction or updated ecological surveys as required to monitor activity of protected or otherwise notable species (Section 9.6 refers). 34. Where possible, clearance of suitable nesting habitat to be timed to take place in autumn and winter in order to avoid the nesting season (March to September inclusive). This will include enabling vegetation clearance works in advance of commencement of the construction works, wherever possible (Section 9.6 refers). 35. Any clearance works carried out during the nesting season to be completed under an Ecological Watching Brief with EcOW pre-commencement surveys and supervision. Any nests are identified to be retained in-situ within an appropriate buffer (Section 9.6 refers). 36. Trenches and excavations to be covered at the end of each working day, or to include ramps, and stored pipes to be capped (or stored vertically), to prevent	YES	YES – measures 30, 32, 36, 38 and 39 only

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	entrapment of animals. During longer periods of site shut down, trenches and excavations to be infilled or covered (Section 9.6 refers). 37. Bright construction lighting to be avoided during September-March inclusive, overnight, around dusk/dawn and in the direction of adjacent Local Nature Conservation Site (Section 9.6 refers). 38. Site speed limit of 15 mph to be enforced for all construction traffic (Section 9.6 refers). 39. European Protected Special (EPS) licence for otter disturbance to be obtained from SNH and thereafter implemented, including through pre-construction surveys and avoidance of foreshore construction activity at dawn/dusk and during hours of darkness (Section 9.8 refers). <u>Proposed Marine Works Only</u> 40. Development and implementation of **Marine Piling Method Statement**, including: i. Use of vibro piling where practicable (Section 10.6 refers). ii. Marine piling works restricted to daylight hours (where practicable) and to between mid-November and April (Section 10.8 refers). iii. Use of soft start piling techniques (Section 10.8 refers).		
Construction Phase Other Mitigation Measures	<u>Proposed Development</u> 41. Construction activities to be carried out in full compliance with appropriate health and safety legislation, guidance documents and approved codes of practice published by the Health and Safety Executive (HSE) (Section 6.6 refers). 42. Watching brief to be maintained during construction for large and significant quantities of visible asbestos and asbestos containing materials (ACMs) in subsurface. If encountered, work to be paused pending further assessment (Section 6.6 refers) 43. Unexploded ordnance risk assessment to be undertaken prior to construction of the proposed marine works, with subsequent specialist supervision of the works if required (Section 7.8 refers). 44. Development and implementation of **Construction Traffic Management Plan (CTMP)**, to include: i. Construction traffic routing, site access/deliveries, parking, contractor management, parking, fuels and materials storage, standard dust and noise	YES	YES – measures 40 - 42 only

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	suppression techniques, and standard pollution prevention and control techniques (Section 11.6 refers). ii. Measures to minimise traffic disruption and amenity effects adjacent site owners and road users. Particular consideration to be afforded to maintaining continuity of access and minimising traffic disruption along the un-named private road which connects the site with Erskine Ferry Road (Section 11.6 refers). iii. Staff parking and plant/materials storage to be accommodated on suitable land within the site or the wider Carless landholding (adjacent land within the control of the Applicant) (Section 11.6 refers).		
Operational Phase Pollution Prevention Management Measures	<u>Proposed Development</u> 45. Surface water drainage and (permanent) SuDS facilities to be managed in accordance with CAR licence and associated PPP (Section 8.6 refers). 46. Surface water drainage and SuDS facilities to be subject to regular inspection and maintenance in accordance with **Appendix 8.3 – SuDS and Drainage Strategy** (Section 8.8 refers). 47. BioDisc package waste water treatment plant to be operated in accordance with design specification and subject to regular inspection and maintenance in accordance with **Appendix 8.3 – SuDS and Drainage Strategy** (Section 8.8 refers). 48. Development and implementation of procedures to minimise and address accidental spillages from land or buildings in accordance with established industry guidance and protocols (Section 7.6 refers). <u>Proposed Marine Works Only</u> 49. Development and implementation of procedures to minimise and address accidental spillages from vessels in accordance with established industry guidance and protocols (Section 7.6 refers).	NO (subject to CAR Licence)	No (subject to CAR Licence)
Operational Phase Other Mitigation Measures	<u>Proposed Marine Works Only</u> 50. Vessel launches to be subject to pre-launch resting otter surveys and undertaken during daylight hours where practicable (Section 9.6 refers).	YES – measures 49 – 51 only	YES – measures 49 and 51 only

Mitigation / Enhancement Measure Type	Proposed Measures	Planning Conditions Required?	Marine Licence Conditions Required?
	51. Development and implementation of a Travel Plan to promote sustainable travel choices by staff and visitors to the site (Sections 11.6 and 12.6 refer). 52. Operational Emergency Preparedness and Management Plan to be developed, maintained and subject to regular review by the Applicant (Section 17 refers). 53. The Applicant will make reasonable endeavours to support the retention of existing employees moving from their current facility to the new site (Section 16.6 refers).		
Potential Enhancement Measures	<u>Proposed Development</u> 54. Consideration could be given by WDC to linking the traffic signal operations with the bridge operations such that the traffic lights stop traffic when the bridge is opened (Section 11.8 refers). 55. Consideration could be given by WDC to changing the priority markings and instating give-way lines at the exit from the Recycling Centre (Section 11.8 refers). 56. Where possible, construction material to be sourced locally to support local supply chain businesses (Section 16.6 refers).	NO	NO

6.3 Management Plans

6.3.1 As highlighted in bold within **Table 6.1** above, many of the proposed mitigation and enhancement measures will be developed and implemented through a suite of management plans and method statements:

- Ground Improvement Method Statement;
- Construction Drainage Plan
- Detailed Drainage Strategy;
- Landscape and Ecology Management Plan (LEMP);
- Construction Environmental Management Plan (CEMP);
- Soil Management Plan;
- Bird Hazard Management Plan;
- Marine Piling Method Statement;
- Construction Traffic Management Plan (CTMP);
- Travel Plan; and,
- Operational Emergency Preparedness and Management Plan.

6.3.2 It is expected that conditions may be attached to any planning permission and marine licence granted for the proposed development requiring these plans and statements to be submitted by the Applicant, approved by the relevant competent authority (WDC or the Scottish Ministers (Marine Scotland) and thereafter implemented during the construction and operational phases of the proposed development as appropriate.

6.3.3 To allow for a potential need to vary the individual measures or procedures detailed in these management plans and statements after their approval (for example, to address potential changes in site conditions or environmental sensitivities which are presently unforeseen, but which may emerge during the construction process), a suitable worded variation clause should be included in all relevant planning and marine licence conditions. Subject to written consent from WDC and/or the Scottish Ministers (Marine Scotland) as appropriate, this would enable the management plans to be varied after their initial approval and thereafter for the revised management plans to be implemented.

6.4 Proposed Monitoring Arrangements

6.4.1 For the reasons detailed in **Section X.10** of the technical assessments presented in **Chapters 6 – 16**, no monitoring is considered to be proportionate or required specifically in relation to the likely residual effects of the proposed development.

6.4.2 More widely, the Applicant has already committed to undertaking monitoring of boreholes at the periphery of the site (and on the wider Carless landholding) through planning application DC18/245 for the proposed remediation works. Boreholes in these locations will continue to be monitored to confirm the absence of hydrocarbon free product migrating to the River Clyde. It is provisionally envisaged that monitoring will take place every 2 months for 2 years with the ongoing frequency and duration to be evaluated at that stage as required.

6.4.3 In the event that the hanging wall barrier element of the proposed remediation works (under planning application DC18/245) requires to be installed, new monitoring and extraction boreholes will be required on the northern land-side whilst wells and pumps will require operation and maintenance. It is provisionally envisaged that monitoring, extraction and maintenance would take place every 2 months for 2 years. with the ongoing frequency and duration to be evaluated at that stage as required.

6.4.4 For the avoidance of doubt, whilst borehole monitoring would be undertaken in tandem with the construction and operation of the proposed development, this borehole monitoring will be secured through any planning permission granted for the proposed remediation works and does therefore not need to be secured through any planning permission or marine licence application granted for the proposed development.

Scottish Marine Technology Park

pba peterbrett now part of Stantec