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New Islay Vessel Enabling Works - Colonsay Outline Construction Environmental Management Plan (Construction at Ferry Terminal)

August 2023

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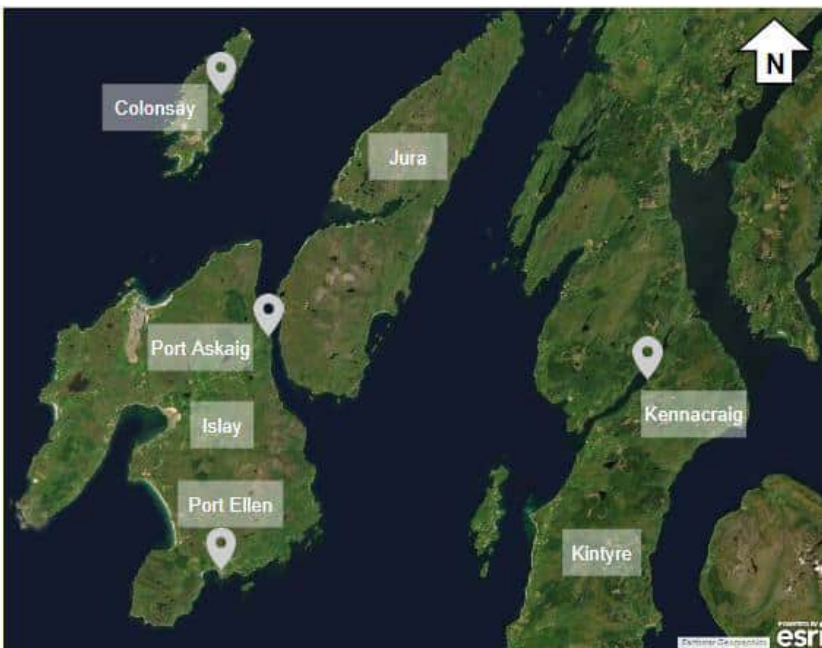
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1 Introduction

1.1 Project Background

Caledonian Maritime Assets Limited (CMAL) seek to undertake upgrade works at the four terminals (Port Ellen, Kennacraig, Port Askaig and Colonsay (shown in Figure 1-1) on the Islay route prior to the introduction of new vessels, which are planned to be operational around mid-2024.

Figure 1-1 Terminals on the Islay Ferry Service



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The new vessels are planned to have a larger beam, length, draught and displacement than the current vessels that serve the route, as well as having a hybrid diesel-electric propulsion system. Enabling works to the four terminals are therefore necessary to safely and reliably berth, moor, load and unload the vessels at all four ports together with shore power for charging the vessels at Port Ellen, Kennacraig and Port Askaig.

The focus of this outline Construction Environmental Management Plan (CEMP) is the New Islay Vessel Enabling Works at Colonsay Ferry Terminal, which would comprise upgrading existing assets (replacement of bollards and fenders), introduction of new gangways and toe protection around existing timber piles, and dredging works to accommodate new vessels with deeper draught and higher displacement.

It should be noted that for the purposes of this outline CEMP and to aid the application for marine licences for construction projects and dredging and sea disposal, two outline CEMPs have been developed. As the application for marine licences will be applied for separately, with the marine licence application for dredging and sea disposal likely to be submitted a few months after, due to the requirement to obtain further sampling data. This outline CEMP considers all activities with the exception to dredging works.

The activities not included within this outline CEMP (dredging) will be covered within a separate outline CEMP (Colonsay Outline Construction Environmental Management Plan (Dredging and Sea Disposal)).

Further details are outlined in Section 2.

1.2 Location

The location of the New Islay Vessel Port Enabling Works at Colonsay Ferry Terminal are the east coast of the island of Colonsay in Scalasaig, the Inner Hebrides, Scotland. The existing Colonsay Ferry Terminal is centred at NGR NR 39600 94100 and is located within the small village of Scalasaig (see Appendix B, Map 1). The village comprises a small residential community and local shops/businesses.

1.3 Purpose of the Outline Construction Environmental Management Plan

The purpose of this outline CEMP is to provide details of the various site-specific environmental control measures that will be implemented to avoid, minimise or mitigate effects on the environment and surrounding area during construction of the New Islay Vessel Enabling Works at Colonsay Ferry Terminal (Construction at Ferry Terminal), hereafter referred to as the 'Proposed Development'. The CEMP accompanies the marine licence application submission and draws together environmental assessment work undertaken during the design of the Proposed Development.

This outline CEMP has been prepared in advance of appointment of the Principal Contractor and will be adopted and expanded upon into a detailed CEMP by the Principal Contractor in advance of the work commencing on site and when full construction details are known.

The aim of the CEMP is to:

- Define environmental roles and responsibilities during construction;
- Detail the environmental monitoring, reporting and reviewing procedures that will be adhered to during construction;
- Detail the required environmental permits, licences and consents; and
- Set out the site-specific environmental mitigation and control requirements that will be adhered to during construction, to limit the impact of the construction phase of the Proposed Development on the environment.

1.4 Structure of the Outline Construction Environmental Management Plan

The following structure has been adopted for this CEMP:

- Section 1 – Introduction;
- Section 2 – Proposed Development;
- Section 3 – Roles and Responsibilities;
- Section 4 – Training and Induction;
- Section 5 – Environmental Auditing and Monitoring;
- Section 6 – Environmental Reporting;
- Section 7 – Consultation and Communication;
- Section 8 – Pollution Prevention Control; and
- Section 9 – Environmental Mitigation.

1.5 Change Control

This CEMP is a live document that the Principal Contractor will review and update prior to the start of construction, where required. It is not expected that the CEMP will need major revisions following commencement of construction. However, if changes are required due to exceptional circumstances, the Principal Contractor's change control process will be followed to record documentation revision requests and their final approval status. The revised CEMP and changes will be communicated to personnel on site in line with Section 7 Consultation and Communication.

2 Proposed Development

2.1 Proposed Development

The Proposed Development would upgrade the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. The new vessel will moor to the existing bollards positioned at the roundhead, along the existing pier and on both the inner and outer lifting dolphins. The works to accommodate this new type of vessel would comprise the following proposed modifications and alterations:

- **Replacement of existing fenders with new;**
- **Replacement of two bollards at the roundhead from T Head bollards to mushroom bollards;**
- **Provision of gangways which are to be at least 17m long;**
- **Installation of existing pile toe protection, in the form of concrete filled steel collars with dowels into rock;**
- Dredging to 5.5m below Chart Datum (CD) in order to maintain at least 1 metre of underkeel clearance. The dredged area would be approximately 4120m² and volume 6000m³.

Further details of the Proposed Development are shown in the Proposed Development Drawings in Appendix A.

Works below the mean high water springs (MHWS) include:

- installation of toe protection; and
- dredging works.

It should be noted that for the purposes of the outline CEMP and to aid the application for marine licences for construction projects and dredging and sea disposal, two outline CEMPs have been developed. As the application for marine licences will be applied for separately, with the marine licence application for dredging and sea disposal likely to be submitted a few months after, due to the requirement to obtain further sampling data. This outline CEMP considers all activities (see those activities in bold) with the exception to dredging works.

The activities not included within this outline CEMP (dredging) will be covered within a separate outline CEMP (Colonsay Outline Construction Environmental Management Plan (Dredging and Sea Disposal)).

2.2 Site Operations

2.2.1 Construction Method

Replacement of fenders, bollards and provision of gangways

A total of ten fenders are to be removed from the roundhead and replaced with new. As with the existing fenders, the new ones may be located partially in the intertidal zone. Replacement bollards would be installed within the existing roundhead. The provision of gangways would be installed within the existing pier structure and would accommodate passenger embarkation and disembarkation from ferries. Crane, construction operatives and any other equipment (e.g. welding machines where required) will be supported on the existing structure (jetty deck) for access to the fenders.

The existing fenders will be slung, and their weight taken by the crane positioned on the deck/barge. The operative will unbolt the existing fender and it will be lifted out of position. The

crane will offer the new fender to position, and the operative will bolt the fender into the support structure behind. Materials will comprise fenders (rubber fenders, UHMW-PE panels and stainless steel fixings) and, where required, steel brackets and beams for connection to the existing structure.

Toe protection

The proposed dredging has the potential to undermine the toes of some of the pier support piles and fender piles. As such toe protection around existing timber piles is required. A potential method of protecting the toes of the piles is to place structural collars around the toes of the piles with dowels into the bedrock below the piles or concrete mattress to replace the overburden on the pile toe. The collar protections would likely be installed prior to any dredging close to the piles.

The installation method for steel collars is likely to be as follows:

- Works for the collars would be carried out by divers;
- Removal of seabed material locally around the pile until sound bedrock is exposed;
- Bedrock is to be prepared to accommodate the steel collar which would act as a permanent formwork and the installation of dowel bars;
- The void between the existing pile and the steel collar would be infilled with concrete; and

The installation method for concrete mattress is likely to be as follows:

- Works for the mattress would be carried out by divers;
- Removal of seabed material locally around the pile to anticipated dredge level;
- Fabric formwork is to be positioned around the pile to replicate the lost overburden due to dredging;
- The diver in the water will zip together two adjacent mattress formworks before either are filled;
- Once the formwork is positioned and sealed, filling then commences by pumping the concrete from above water through filling tubes; and

2.2.2 Working Hours

Standard working hours for non-dredging activities will be between 08:00-1800 Monday to Friday and 08:00-13:00 Saturday. No works will be undertaken on Sunday.

2.2.3 Deliveries and Transportation of Materials, Plant and Equipment to Site

Deliveries including the transport of materials, plant, and equipment to the development site will only take place during the following hours:

- 07:00 to 18:00 on Monday to Friday; and
- No deliveries on Saturdays, Sundays or Bank Holidays and local Public Holidays to reduce disruption to local road networks.

Site access will typically be via road, i.e. wagon haulage. However, it is possible that some material may be transported by sea, e.g. by barge or ship.

Construction transport is expected to use local roads within the vicinity and it is anticipated that one delivery per week during the construction works would be required.

2.2.4 Storage of Materials

Materials to be used on site would likely be stored within the hardstanding of a temporary site compound, located at NGR NR 39400 94100 within the existing harbour area. Storage of

materials will be segregated in designated areas within the compound. Following contract award this would be further determined by the Principal Contractor.

2.2.5 Programme

It is anticipated that construction would start during August 2023 and would last approximately 12 -18 months dependent on weather conditions and planned downtime. Note this construction period is not continuous and avoids winter working and includes construction works around the ferry terminal would take approximately 20 weeks. It is anticipated that dredging works (included as part of a separate CEMP) would take place from August to September 2024 (approximately 8 weeks in total).

3 Roles and Responsibilities

3.1 Introduction

To ensure that environmental standards are maintained throughout the construction works, it is necessary that every person working on the site is aware of their responsibilities. Specific roles and responsibilities have been set out below. The Principal Contractor will have overall responsibility for implementation of the CEMP and will ensure that the provisions and commitments set out within the CEMP, including permits, licences, consents and associated mitigation measures that apply to the site work are adhered to.

3.2 Client

The Client shall provide general oversight and strategic direction to the works. Client representation on site relevant to the implementation of the CEMP would include a Project Manager (PM) and an Environmental Project Manager to ensure delivery of the commitments set out in the CEMP. They will liaise with the Key Principal Contractor roles as described below. The phasing in the works will result in changes in the parties responsible for these roles.

3.3 Principal Contractor

The Principal Contractor shall execute the work and would have direct responsibility for updating and implementing the CEMP. The Principal Contractor would ensure that all members of the Project Team, including sub-contractors, comply with the procedures set out in the CEMP. The Principal Contractor would also ensure that all persons working on site area provided with sufficient training, supervision and instruction to fulfil this requirement.

The Principal Contractor shall ensure that all persons allocated specific environmental responsibilities area notified of their appointment and confirm that their responsibilities area clearly understood.

3.3.1 Principal Contractor's – Site Agent

The Site Agent's environmental management responsibilities will include but are not limited to:

- Ensure that all personnel have received and understood the site induction;
- Undertake suitable checks to confirm that personnel are suitably qualified and have undertaken appropriate environmental training to cover tasks to be carried out in compliance with the CEMP;
- Sign off relevant work permit forms for staff;
- Undertake regular inspections at the site. This will include daily considerations of weather conditions, with reference to the three-day weather forecast in order to ensure that appropriate mitigation measures are in place to manage weather challenges;
- Report any public complaint matters to the Principal Contractor PM as soon as practicable, completing the complaints log;
- Ensure that environmental incidents are reported to the Client Project Manager within 30 minutes for further communication to all relevant parties;
- If the Client Project Manager or Environmental Project Manager cannot be contacted, the Principal Contractor's Site Agent must notify the Client within 30 minutes by telephone;
- Ensure that any such events are subsequently reported via the Principal Contractor's incident reporting system;

- Undertake investigations into environmental incidents or near misses to determine the root/direct cause and present the findings, recommendations and lessons learnt;
- Oversee site works, alongside the Principal Contractor's Environmental Manager, with a view to eliminating/reducing the environmental impact of the works and raising any environmental concerns with the Principal Contractor's Environmental Manager;
- Ensure Toolbox Talks are carried out and recorded on relevant environmental topics;
- Carry out environmental checks keeping records as appropriate;
- Ensure that environmental emergency plans are prepared by Principal Contractor's Environmental Manager and tested;
- Ensure that the risk assessments for control of substances hazardous to health regulations (COSHH), noise and environmental risk are prepared by the Principal Contractor's Environmental Manager and effectively monitored, reviewed, and communicated on site,
- Managing the preparation and implementation of method statements;
- Ensure that the Principal Contractor's Environmental Manager reviews all method statements and that relevant environmental protocols are incorporated and appended;
- Regular weekly survey to monitor environmental/ecological sensitivities at the site;
- Ensure the period and frequency of environmental monitoring, reflects higher risk areas and conditions – such as silt run off and changing weather. These high-risk areas will be monitored on a daily basis when higher risk activities.
- Produce environmental emergency plans and conduct monthly checks to ensure that they are effective by means of emergency drills;
- Inspect the site to ensure effective implementation/operation of any environmental mitigation measures, including inspections of construction activities in close proximity to sensitive environmental receptors;
- Review/comment on site Risk Assessments and Method Statements (RAMS) as necessary with respect to environmental impacts and controls;
- Provide weekly report on environmental works on site, inclusive of programme updates;
- Assist with investigations into environmental incidents or near misses to determine the root/direct cause and present the findings, recommendations and lessons learnt; and
- Ensure the required audits and inspections are completed as per Section 5 of the CEMP.

3.3.2 Principal Contractor's – Project Manager (PM)

The Principal Contractor's PM will:

- Facilitate dissemination of specific environmental requirements to the Project Team;
- Oversee the implementation and review of environmental procedures throughout the project. Monitor the environmental performance of the project through maintaining an overview of incidents, inspections and audits;
- Ensure that environmental reviews are undertaken as part of regular project meetings;
- Implement and maintain a project communications strategy to manage project public relations and complaints;
- Review environmental matters with the Client Project Manager on a regular basis and as per project requirements;
- Stop works, if necessary, should an environmental incident occur;
- Ensure that arrangements for liaison with respective regulatory bodies on all environmental issues is appropriate and maintained; and
- Ensure that all environmental incidents are reported to the Client in accordance with the detailed reporting requirements (Client Project Manager or Environmental Project Manager)

within 30 minutes of the Contractor being notified) and the respective regulatory bodies (where required) as soon as possible.

3.3.3 Principal Contractor's Environmental Manager

The Principal Contractor's Environmental Manager will work with the Principal Contractor's PM on environmental matters.

Key responsibilities and duties include:

- Implement, review and update the Construction Environmental Management Plan (in conjunction with the Project Team) in accordance with marine licence conditions, Client requirements, Contractor's procedures, licence/ consent requirements and current legislation;
- Ensure that specific environmental management plans are implemented for: pollution, water, site waste, ecology, marine biosecurity, archaeology, noise and air quality management ;
- Lead the implementation of environmental mitigation particularly management of noise and vibration impacts during construction;
- Regularly provide training and Tool Box Talks for site staff to make sure that all personnel work strictly in accordance with the environmental requirements defined in consents/licenses and CEMP;
- Ensure that all appropriate consents and licences are in place prior to work starting on site;
- To be a key interface point for the Client Environmental Project Manager;
- Monitor and report on site environmental performance including key performance indicators;
- Engage and manage specialist sub-contractors/consultants;
- Manage and update the environmental programme, with site surveys, mitigation measures, and monitoring;
- Investigate and report on environmental incidents;
- Approve the closure of any environmental corrective actions and non-compliance from audits/inspections;
- Provide the necessary updates and reports to the project team and Client Environmental Project Manager;
- Interface with Contractor's site staff and subcontracted companies on environmental issues; and
- Check environmental control measures have been effectively implemented.

3.3.4 Principal Contractor's Environmental Clerk of Works

The Principal Contractor's Environmental Clerk of Works will work with the Principal Contractor's PM and Environmental Manager on environmental matters, particularly those relating to specialist knowledge such as ecology and biosecurity.

Key responsibilities and duties include:

- Ensure that specific environmental management plans are implemented e.g. the marine biosecurity plan;
- Regularly provide training and Tool Box Talks for site staff to make sure that all personnel work strictly in accordance with the environmental requirements defined in consents/licenses and CEMP;
- Investigate and report on environmental incidents;
- Approve the closure of any environmental corrective actions and non-compliance from audits/inspections;

- Provide the necessary updates and reports to the project team and Client Environmental Project Manager; and
- Check environmental control measures have been effectively implemented.

4 Training and Induction

4.1 Site Induction

All personnel involved in construction of the Proposed Development will receive environmental awareness training. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental constraints and mitigation and consequences of departures from these procedures.

All documentation relating to the environmental management of the Proposed Development will be kept within the Principal Contractor's site office. As part of the site audit, checks will be made to ensure that appropriate documentation is being held and maintained on site. On completion of the Proposed Development, the final versions of the CEMP and all other documents that record environmental risks, best practice examples, mitigation measures, commitments, environmental incidents, and other relevant information will be provided for inclusion in the project file.

4.2 Environmental Training

The risk of adverse environmental effects can be minimised through training and awareness. A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Principal Contractor and a register of completed training will be kept by the Principal Contractor's Site Agent including the dates on which all personnel undertook environmental training.

The purpose of environmental training is to ensure that all site personnel have the knowledge to successfully implement the environmental requirements of the Proposed Development. In order to ensure the CEMP is implemented on site, the following environmental training will be carried out.

- Emergency response training;
- Induction, which would include all environmental aspects of the site such as waste management, working in or near water bodies, surface water pollution and control, ecology, dust management, noise management, sediment management, archaeology, waste management, and emergency preparedness and response;
- Environmental awareness including 'Toolbox talks' will be carried out, by the Principal Contractor's Environmental Manager, at a minimum of one per week appropriate to the construction works being carried out at that time and also to all existing and new persons carrying out work on site (site personnel, sub-contractors and any other visitors). Toolbox talks are required as part of the European Protected Species licence for otter and marine mammals, noise and marine biosecurity. Training would cover as a minimum:
 - Legal responsibilities;
 - Noise reduction and abatement;
 - Dust abatement;
 - Water management/pollution control / sedimentation;
 - Waste management;
 - Discovery of archaeological remains;
 - Local terrestrial and marine ecology;
 - Biosecurity;
 - Spill management/emergency preparedness and response;

- Management and storage of materials, fuel, lubricants and oils;
- Good housekeeping requirements;
- Communication with the public; and
- Individuals' responsibilities.
- Environmental bulletins/legalisation briefings/best practice briefings will be used to brief all those carrying out work on site (site personnel, subcontractors and visitors);
- Task specific training e.g. IOSH Working with Environmental Responsibilities, IOSH Managing Environmental Responsibilities, Site Water Management, Use of Pollution Prevention Equipment, Sediment Management, Noise Management, will be provided for specific personnel with environmental responsibilities e.g. surface water management for site supervisors/managers; and
- Project specific information, including relevant elements of the CEMP and the marine licence conditions would be delivered to all site staff by the Principal Contractor's Environmental Manager.

5 Environmental Auditing and Monitoring

5.1 Inspections

Routine inspections to check that environmental control measures are in place would be undertaken by the Principal Contractor’s Environmental Manager, who will produce inspection reports. Inspections will be carried out weekly, or more frequently, depending on the work activity.

Daily inspections will be made by the Principal Contractor’s Site Agent during each shift and any environmental problems or risks that are identified would be actioned as soon as is reasonably practicable. Any issues arising from the daily inspections will be notified to the Principal Contractor’s Environmental Manager, by email or phone if the Principal Contractor’s Environmental Manager is not on site.

Environmental monthly inspections and quarterly audits shall be carried out by the Principal Contractor’s Environmental Manager to check compliance with the CEMP and any specific environmental licence conditions. Findings of the inspection/audits shall be recorded and reported by the Project Team during progress meetings.

5.2 Auditing

An internal audit schedule would be prepared. This would include audits of the CEMP and audits of the sub-contractor and supplier’s environmental performance by the Principal Contractor’s Environmental Manager. Table 5-1 sets out the scope of environmental audits.

Table 5-1 Scope of Environmental Audit

Monitoring Area	Audit Element
Environmental Documentation	CEMP copy kept on site and available to all relevant employees
	Changes made in accordance with change management procedures
	All contractor environmental policies up to date
	Site inductions include relevant elements of the CEMP
Waste Management	Waste correctly separated and stored in suitable, designated containers
	Site kept litter free
	Duty of care assessments carried out on all waste contractors
	Waste Transfer Notes (WTN) received for all controlled waste transfers
	Appropriate European Waste Codes (EWC) quoted on all WTNs
	Waste Electronic and Electrical Equipment (WEEE) waste disposed of appropriately
	Recycling maximised
	Evidence of licences and exemptions, licencing control measures followed
	Appropriate storage and disposal of special/hazardous waste in accordance with waste management licences exemptions and legal requirements
	Monthly waste audits undertaken in line with the Site Waste Management Plan and any recommendations implemented
	All potential impacts of specific earthworks activities mitigated including dewatering operations during soil strip/top soil strip, storage of soils and reinstatement
	Drainage systems, including foul drainage, inspected at regular intervals
	Water flush volumes minimised where relevant
	Water use monitored during construction

Monitoring Area	Audit Element
Pollution Prevention and Management	Discharges from site drainage to surface water environment clear (not silty)
	Material storage areas appropriately designated and utilised
	Vehicles parked in designated area of hard standing
	COSHH stored will be secure and appropriately ventilated
	Tank sites on impermeable surface and at least 10m from water courses
	Fully stocked Emergency Response Trailer/Spill Kits available on site, in vehicles and close to high risk activities
	Use of plant nappies for plant when not in use
	Plant and equipment kept in a good state of repair
	Mobile fuel storage/refuelling areas 10m from water courses or surface water drainage
Ecological Management	Evidence of appropriate ecology briefings carried out when relevant
	Works undertaken in accordance with the ecological mitigation plan
	Works undertaken in accordance with the marine biosecurity plan
	Otter checks carried out in advance of works
	Marine mammal observation checks carried out just prior works
	Environmentally sensitive areas clearly demarcated
Noise Management	Evidence of working hours undertaken in accordance with the noise management plan
	Evidence of regular communication with local residents
	Plant and machinery in good state of repair
	Contractor's compound area noise, fumes and dust controlled
	Noisy operations timed to avoid impact on sensitive receptors and appropriately controlled
	Plant and machinery switched off when not in use
Environmental Emergency Response	Incident response plan briefed and available to all relevant personnel
	Spill kits available at all areas of the site
	Environmental incidents reported to the employer within the required time period
	SEPA notified of any emergency incidents
	Incidents appropriately recorded, including lessons learned
	Emergency response drill held with appropriate frequency
Management of Communication and Training	Environmental training records stored appropriately, including record of CEMP briefings
	Any changes to working hours which have been agreed with Argyll and Bute Council will be communicated to local residents in advance of the works taking place

6 Environmental Reporting

6.1 Key Performance Indicators and Objectives

The Principal Contractor will set Environmental Performance Indicators in order to continuously improve environmental performance on site. They will be based on each environmental topic considered within the CEMP and will be reviewed, and revised, if necessary, on a monthly basis. Procedures, monitoring requirements and key performance indicators will be measured against achievable targets and will include objectives to:

- Ensure construction activities are carried out in accordance with any Mitigation Measures, any Licences/Consents and the additional measures detailed within the CEMP;
- Provision of mandatory environmental inductions, toolbox talks and awareness to all project personnel ensuring that all staff involved in the Proposed Development are made aware of the potential impact to the environment;
- Reduce, re-use and recycle materials and reducing the amount of material sent to landfill in accordance with the Site Waste Management Plan; and
- Reduce energy consumption e.g. by switching off all unnecessary equipment and using energy efficient equipment where possible (lighting).

6.2 Reporting

The Principal Contractor will prepare environmental reports summarising progress made during construction and the findings of inspections, audits and other regular monitoring as set out in Table 6-1 below.

Table 6-1 Environmental Reporting

Activity	Frequency	Responsibility
Key Environmental Issues	Monthly	Principal Contractor's Environmental Manager
Summary of progress made during construction		
Findings of inspections		
Findings of audit		
Findings of regular monitoring		
Review of CEMP	Monthly	Principal Contractor's Environmental Manager / Project Manager
Results of the internal monitoring environmental audit		
Non-conformance audits		
Achievements of environmental audits		
Records of complaints and concerns of relevant external agencies and parties		
Means for improving performance		

6.3 CEMP Review

The Principal Contractor's Project Manager and Principal Contractor's Environmental Manager will review the CEMP every month following commencement of the construction activities, and should the need arise, regarding:

- Results of the internal monitoring/environmental audits;
- Non-conformance audits;
- Achievements of environmental audits;
- Records of complaints and concerns of relevant external agencies and parties; and
- Means for improving performance.

Any changes/revisions to the CEMP shall be communicated to relevant members of the site team to ensure agreed changes are implemented on site.

7 Consultation and Communication

7.1 Internal Communication

Internal communications on environmental matters will be undertaken through briefings to site personnel, use of notice boards on site, tool box talks, inductions etc. Information will include but not limited to information provided in Table 7-1.

Table 7-1 Internal Communications

Briefing	Detail	To be carried out by	Frequency
Site Inductions	For all personnel attending site, which must be carried out on the first attendance to the site prior to any work commencing. Any further inductions will be carried out at the discretion of the Contractor.	Principal Contract's Project Manager / Site Agent	As required
Team briefs	For all personnel undertaking works at the site	Principal Contract's Project Manager / Site Agent	Daily
Risk Assessment / Method Statement briefings	Undertaken for each job task for all personnel undertaking works at the site.	Principal Contract's Project Manager / Site Agent	As required
Environmental Toolbox Talks	Environmental practices for all site personnel on a weekly basis or more frequently as required.	Principal Contractor's Environmental Manager	Weekly/As required
Periodic stand down events	Site briefing	Principal Contract's Project Manager / Site Agent	As required

7.2 Meetings and Records

Environmental issues relevant to the Proposed Development will be discussed during weekly Site Progress Meetings attended by the Principal Contractor's Site Agent and Principal Contractor's Environmental Manager. Environmental performance will also be discussed at regular meetings. This will include dissemination of the findings of audits, reports and other inspections.

7.3 Public Communication

The Client shall ensure that the public is kept informed of operations that may have an effect upon them. This may involve letter drops and meetings to keep local residents up to date with progress with the Proposed Development and any new operations that are to be carried out. The Principal Contractor's Site Agent will provide details of contacts within the project team for the public to contact, should any issues arise.

7.4 Consultation Feedback

Feedback from consultation with Statutory Stakeholders received to date have been considered within the proposed mitigation and control measures in this CEMP.

8 Pollution Prevention Control

8.1 Water Management Plan

The following sections describe environmental control measures that will be put in place to prevent pollution of the water environment during construction. Good practice guidance ¹ (e.g. CIRIA guidance C584 - Coastal and Marine Environmental Site Guide) will be followed to ensure controls are in place to avoid adverse effects.

8.1.1 Potential Pollution Sources, Release Scenarios and Preventative Measures

Based on a review of the construction activities an assessment of potential pollutant sources, release scenarios and prevention measures have been developed. These are set out in Table 8-1.

Table 8-1 Potential Pollution Sources, Release Scenarios and Preventative measures

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
Concrete	<ul style="list-style-type: none"> Release of contaminated concrete to the environment 	<p>The following measures will be required to prevent discharges of cementitious materials and alkaline wastewaters to the surface water drainage system, subsoil and groundwater or directly to local watercourses and the marine environment:</p> <ul style="list-style-type: none"> Marine grade, non-toxic compounds and materials will be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment. Risk assessments for wet concreting will be completed by the Principal Contractor prior to works being carried out; Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment; There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment; and Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility.
Welfare facilities	<ul style="list-style-type: none"> Release of untreated waste to the environment 	<p>Effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works.</p>
Fuel, Oil and Chemicals	<ul style="list-style-type: none"> Failure of fuel, oil and chemical storage facilities; Theft and vandalism; and 	<p>The following pollution prevention measures will be required:</p> <ul style="list-style-type: none"> Adherence to all Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs); Good housekeeping during construction including the use of drip trays underneath plant and pumps, and the

¹ Engineering in the Water Environment, Good Practice Guide – Temporary Construction Methods” by SEPA

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
	<ul style="list-style-type: none"> Leaks and spills from construction vehicles 	<p>inspection of all plant for fuel and oil leaks before being accepted for delivery into the construction site;</p> <ul style="list-style-type: none"> Re-fuelling points will be located away from water bodies (>10m), in line with SEPA guidelines; All fuel tanks and oil drums will be bunded with impervious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater. Bunds will be constructed in accordance with PPG 2. Any valve, filter, sight gauge, vent pipe or other ancillary equipment must be kept within the bund when not in use. No drainage valve may be fitted to the bund for the purpose of draining out rainwater; All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody; All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills caused by over fuelling; Oil absorbers and grab packs will be available on all vehicles and further materials, including booms; Spill kits will be available on all plant / machinery and centrally in each area. Drip trays will be placed at the point where oils/fuels are transferred from one container to another. An Environmental Emergency Response Plan will be prepared by the Principal Contractor prior to construction. This will be issued as a tool box talk and kept in site offices for consultation. The storage of materials in the construction compound and work sites will be controlled in a such a manner to ensure that materials are not damaged prior to use either through vehicle or people movements or through exposure to the elements. The storage and activities involving the use of materials, chemicals and oils shall also be inspected daily to ensure all relevant controls are in place and effective in preventing pollution of the water environment. All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring.
	<ul style="list-style-type: none"> Materials stored on site being blown/washes away 	<p>All building, and construction materials will be stored at designated locations within the site compound, this will be marked up on a site environmental plan that will be posted on the site office wall. All storage will be established, implemented and maintained according to best practice as set out in current GPPs/PPGs with regard to containment at source. Spill kits will be located within the site compound and be clearly signed.</p> <p>Stockpiles of materials will be positioned at least 10m away from sensitive receptors where possible and suitable measures implemented to prevent runoff and dispersion if left for any length of time. Any powders will be stored in sealed bags or silos prior to use. Dust suppression measures to be used where required.</p>

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
		Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day.

8.1.2 General Pollution Prevention Measures

General pollution prevention measures which will be implemented include:

- Pollution prevention measures will be adhered to during works to avoid pollution/run-off of any material into the harbour. These will include current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance.
- All staff will undergo toolbox talks regarding pollution prevention.
- The Principal Contractor will set-up a monitoring and response programme to determine the effectiveness of measures applied to control water movement in and around the site. This shall include undertaking and recording visual inspections of waterbodies, any steps taken to control surface water, any scientific analysis of water samples and any communications with regulatory authorities.
- The Principal Contractor's Site Agent shall undertake a site walkover on a daily basis and make notes on anything affecting the water environment. These inspections will be recorded in the site-specific environmental diary.
- Daily and weekly operators check/inspections will be undertaken by the Principal Contractor's Environmental Manager.
- All site personnel shall be encouraged to identify potential pollution or hydrological problems or concerns and report them to the Principal Contractor's Environmental Manager. The cause of any pollution incident will be investigated, and measures or corrective actions put in place in order to prevent its reoccurrence.
- The Principal Contractor will monitor licence/consent requirements for compliance, i.e. implement regular inspections of controls to monitor for colour changes, oil, and suspended solid load. This will be recorded at least twice daily on either a site-specific inspection sheet or the site diary. If a breach of consent is identified, work will be stopped immediately.
- All applicable vessels that travel to the site from outside of UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate.
- All vessels will also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.
- All vessels will ensure compliance with standard marine vessel policies, such as the Convention for the Prevention of Collisions at Sea (COLREGs) (International Maritime Organisation (IMO), 1972), International Convention for the Prevention of Pollution from Ships (MARPOL)(IMO, 1997), and the Convention of the Prevention of Marine Pollution by Dumping of Wastes and other matter (IMO, 1996).

8.1.3 Water Supply

During construction, temporary water supply for Principal Contractor's welfare facilities will be provided within the CDM compound e from a nearby water supply. The Principal Contractor will apply to Scottish Water for a temporary water supply and any temporary water supply pipeline will be contained on-site and removed by the Principal Contractor when completed.

8.2 Site Waste Management Plan

The purpose of a Site Waste Management Plan (SWMP) is to ensure that waste is managed in a structured and auditable manner to minimise the generation of waste and maximise the reuse of materials. In addition, it ensures that the waste produced during the construction phase is dealt with in accordance with the relevant requirements of Scottish legislation, as well as any other requirements specified by the relevant regulatory authorities.

8.2.1 Types and Predicted Volume of Waste

The main activities that will lead to waste being generated are:

- Wastes arising from construction and replacement of assets; and
- Wastes arising from plant maintenance

8.2.2 Waste Storage

All waste materials will be handled and disposed of in compliance with waste management legislation. All storage of waste will be established, implemented, and maintained according to best practice as set out in current GPPs/PPGs² with regard to containment at source.

A waste management storage area will be designated by the Principal Contractor to facilitate the segregation of waste prior to removal from the site for final disposal at appropriately licenced facilities and this will be shown on the site environmental plan. This area will be delineated and separate from where new material is stored with recycling and waste bins kept clean and clearly marked in order to avoid cross-contamination of materials.

Any special (hazardous) wastes requiring remediation or removal will be kept separate from other construction waste materials in order to avoid further contamination and will be classified in accordance with the Waste (Scotland) Regulations 2012. They will be stored in separate containers that are appropriately labelled. In accordance with the Landfill (Scotland) Regulations (as amended) mixing inert, non-hazardous and special wastes will not be permitted.

Site offices and canteens will also generate waste, much of which are recyclable. Separate waste bins will be available in the site offices to facilitate collection of recyclables such as paper, cardboard, aluminium cans and plastic bottles. Site Operatives will be regularly reminded of the office/ canteen waste recycling procedures and bins will be labelled to assist in their correct usage.

Any other waste storage requirements will be agreed with the Principal Contractor's Environmental Manager.

8.2.3 Waste Controls and Handling

Transfers of non-hazardous waste will be accompanied by a waste transfer note (WTN). The Principal Contractor's Environmental Manager will ensure these are checked and include the

² Including GPP1, GPP2, PPG3, GPP5, PPG6, GPP8, GPP13, GPP21, GPP22 and GPP26

necessary information e.g. a written description of the waste and appropriate EWC code(s), in line with Duty of Care responsibility as correct coding on its own is not sufficient to adequately describe the waste. A clear written description is also necessary to ensure safe onward management of the waste. The Principal Contractor's Environmental Manager will ensure the WTN includes:

- A description of the waste;
- Any processes the waste has been through;
- How the waste is contained or packaged;
- The quantity of the waste;
- The place, date and time of transfer;
- The name and address of both parties;
- Details of the permit, license or exemption of the person receiving the waste;
- The appropriate European Waste Catalogue (EWC) code for waste; and
- The Standard Industry Code of the business.

Only registered carriers of waste will be employed for transport purposes and copies of all waste management permits, licences, and exemptions will be obtained and held on site prior to any movement of waste taking place. For all waste transfers, the Principal Contractor will obtain a copy of the receipt, or a copy of the invoice, from the authorised disposal site as proof that the waste reached the proposed destination.

All controlled waste transfer notes will be filed on site for a minimum of two years and hazardous waste transfer notes for a minimum of three years. Each consignment of waste taken from the site will be subject to documentation to ensure full traceability of the material to its final destination.

8.2.4 Waste Exemptions and Licensing

The Principal Contractor will ensure that a register of waste management licence (WML) and waste management exemptions (WME) is created and maintained in line with SEPA regulatory and duty of care requirements. This information will be sought from all waste carriers and if relevant any subcontractors.

8.2.5 Waste Monitoring and Reporting

The Principal Contractor's Environmental Manager will record all waste removed from the site using an appropriate management tool and the following information will be provided:

- The identity of the person removing the waste;
- The waste carrier registration number of the waste carrier;
- A copy of, or reference to, the written description of the waste;
- The site that the waste is being taken to; and
- Whether it is a permitted or exempt site must also be recorded.

9 Environmental Mitigation

9.1 Environmental Setting and Key Constraints

The following environmental appraisals and assessments were undertaken prior to the production of this outline CEMP.

- Colonsay Enabling Works Otter Survey Report (Mott MacDonald, 2022).
- Colonsay Otter European Protected Species Licence Application: Licence Application and Otter Species Protection Plan (Mott MacDonald, 2022)
- EIA Screening Report (note this screened out a statutory EIA).
- Habitats Regulations Appraisal (HRA).
- Enabling Works Colonsay Underwater noise modelling report (105612-MMD-00-ZZ-RP-O-0006-S2-P01-NIV Enabling Works Colonsay Underwater Noise Assessment)
- New Islay Vessel Enabling Works Colonsay Dredge Dispersion Modelling Report (105612-MMD-CO-ZZ-RP-O-0007-S2-P01-New Islay Vessel Enabling Works Colonsay Dredge Dispersion Modelling Report)

The following sections summarise the key environmental constraints which must be considered within this CEMP.

9.1.1 Ecology

9.1.1.1 Designated Sites

The Proposed Development boundary is directly within the footprint of Inner Hebrides and the Minches Special Area of Conservation (SAC). This SAC been designated to protect harbour porpoise on the west coast of Scotland (Map 1, Appendix B).

9.1.1.2 Species and Habitats

The primary habitats within the footprint of the Proposed Development boundary is littoral rock and other hard substrata, infralittoral coarse sediments, coastal waters and constructed hard surfaces around the port.

A data search and literature review identified a number of species records within the Proposed Development boundary. Protected species recorded include:

- Harbour Porpoise; and
- Bottle-nosed Dolphin.

In addition, a review of Hague et al (2020)³ and recent sightings reported by the Hebridean Whale and Dolphin Trust indicate the following protected species also use the waters around the Proposed Development boundary:

- Short-Beaked Dolphin;
- Minke Whale;
- Grey Seal;
- Harbour Seal; and

³ Hague, E.L., Sinclair, R.R. and Sparling, C.E., 2020. Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters Scottish Marine and Freshwater Science Vol 11 No 12. [online] Scottish Marine and Freshwater Science, <https://doi.org/10.7489/12330-1>

- Basking Sharks.

Further species are known to transit through the wider area around that may be affected by the works

9.1.1.3 Otter

[Redacted]

9.1.1.4 Priority Marine Features

A desktop review was conducted for Priority Marine Feature (PMF) habitats and species within 10km of the Proposed Development. PMFs that have the potential to be at risk from the types of proposed construction activities for Proposed Development have been detailed in Table 9-1 below. The PMFs are sequenced with the most vulnerable features⁴ first, then according to distance from their closest recordings to the works as well as their sensitivities to impacts.

⁴ Scottish Government. Priority Marine Features. The 11 most vulnerable PMFs are: blue mussel beds, cold water coral reefs, fan mussel aggregations, flame shell beds, horse mussel beds, maerl beds, maerl or coarse shell gravel with burrowing sea cucumbers, native oysters, northern sea fan and sponge communities, seagrass beds, serpulid aggregations. Accessed on 16 March 2023. <https://www.gov.scot/policies/marine-environment/priority-marine-features/>

Table 9-1 Summary of PMF Habitats around Colonsay Ferry Terminal

Priority Marine Feature	Number of recordings	Distance from the closest recording to the works	Mobility ⁽¹⁾	Sensitivity to Work-related Impact
Seagrass bed	1	7km southwest	Sedentary	High Sensitivity: <ul style="list-style-type: none"> ● Siltation changes (high & low) ● Water clarity changes Medium Sensitivity: <ul style="list-style-type: none"> ● Water flow (tidal current) changes ● Wave exposure changes ● Introduction or spread of non-indigenous species & translocations (competition) Sensitive: <ul style="list-style-type: none"> ● Synthetic compound contamination ● Non-synthetic compound contamination
Burrowed mud	3	3.2km southwest	Sedentary	Sensitive: <ul style="list-style-type: none"> ● Synthetic compound contamination ● Non-synthetic compound contamination

Note: (1) Reference: Tyler-Walters, H., James, B., Carruthers, M. (eds.), Wilding, C., Durkin, O., Lacey, C., Philpott, E., Adams, L., Chaniotis, P.D., Wilkes, P.T.V., Seeley, R., Neilly, M., Dargie, J. & Crawford-Avis, O.T. 2016. Descriptions of Scottish Priority Marine Features (PMFs). Scottish Natural Heritage Commissioned Report No. 406.

9.1.2 Air Quality, Noise and Vibration and People

There are no declared AQMAs within the Argyll and Bute Council area. The Proposed Development is not within a noise management area.

The nearest receptors to the Proposed Development boundary are located approximately 200-300m north and west. This includes the art gallery, the Pantry Store to the west, Colonsay General Store and residential properties to the north just off the B8087, and users of the ferry terminal and sea.

9.1.3 Water Environment

The Proposed Development is located within an area where each year there is a 10% chance of flooding from coastal sources. There is no specific likelihood of river flooding identified for this area but as the SEPA maps do not include estimates of flooding from watercourses with catchments under 3 km² in area, there could still be localised effects from flooding in some places. There is no specific likelihood of surface water flooding identified for this area but there could still be localised effects from flooding in some places. The Proposed Development is partially within the footprint of Colonsay groundwater (ID: 150496) which is monitored and classified by SEPA as good overall. The Proposed Development is located within the footprint of Colonsay coastal water body (ID: 200053) which is 308.6 km² in area and monitored and classified by SEPA as good overall.

9.1.4 Cultural Heritage

There are six Listed Buildings and one Scheduled Monument within 1km of the Proposed Development boundary. Additionally, there are twelve terrestrial non-designated heritage assets and one maritime non-designated asset within 500m of the Proposed Development boundary (see Map 1, Appendix B).

The closest assets include:

- Scalasaig Harbour, Port Na Feamainn (Listed Building - Category C, approximately 100m west of the Proposed Development boundary);
- Colonsay, Scalasaig, Scalasaig Harbour (ID: 161285) (terrestrial non-designated asset, within the footprint of the Proposed Development boundary); and
- Unknown, Port an Obain, Shipwreck (ID: 119193) (maritime non-designated asset, approximately 170m east of the Proposed Development boundary).

9.1.5 Landscape

The Proposed Development and onshore areas are within Landscape Character Type 49: Island Mixed Farmland. The nearest visual receptors to the Proposed Development boundary are located approximately 200-300m north and west. This includes the art gallery, the Pantry Store to the west, Colonsay General Store and residential properties to the north just off the B8087 and users of the ferry terminal and sea.

9.2 Relevant Legislative Requirements

All construction work will be carried out in compliance with the relevant requirements of UK environmental law, which includes but is not limited to the following:

- Marine (Scotland) Act 2010;
- Marine and Coastal Access Act 2009;
- Environmental Protection Act 1990;
- The Water Environment and Water Services (Scotland) Act 2003;
- The Water Environment (Controlled Activities) (Scotland) Regulations (2011) and amendment regulations (2013), more commonly known as the Controlled Activity Regulations (CAR);
- The Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013;
- Groundwater Regulations 1998;
- The Flood Risk Management (Scotland) Act 2009;
- Nature Conservation (Scotland) Act 2004;
- Nature Conservation (Scotland) Act 2004 (as amended);
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended In Scotland);
- Wildlife and Countryside Act 1981 (as amended);
- Land Reform (Scotland) Act 2003;
- Ancient Monuments and Archaeological Areas Act (AMAAA) 1979;
- The Environmental Protection (Duty of Care) (Scotland) Regulations 2014;
- The Waste (Scotland) Regulations 2012;
- The Waste Management Licensing Amendment (Scotland) Regulations 2011;
- Air Quality Standards (Scotland) Regulations 2010 as amended;
- The Water Environment (Oil Storage) (Scotland) Regulations 2006; and
- Environmental Noise (Scotland) Regulations 2006.

The Principal Contractor will be responsible for complying with all legislative requirements as well as any other requirements specified by the relevant regulatory authorities including Marine Scotland, NatureScot, SEPA and Argyll and Bute Council.

9.3 Consents and Permissions Required

The Proposed Development will require consents/licences from various regulatory bodies in advance of construction activities including:

- Marine Licence for Construction Projects
- Marine Licence for Dredging and Sea Disposal;
- European Protected Species (EPS) Licence for Otter (note this licence was granted (Licence Number 218152);
- EPS Licence for Marine Mammals
- Basking Shark Licence; and
- Marine noise registry application draft (see application number 3379 and 3380).

Copies of legal consents, permits assents and licenses of exemptions obtained will be held in the site environmental file by the Principal Contractor's Environmental Manager.

9.4 Environmental Management

The Principal Contractor's Environmental Manager will prepare and maintain an Environmental Risk Register (ERR) which will cover the Principal Contractor's compliance with legal requirements, project environmental commitments and potential aspects of works to cause significant environmental impact. The risk register will be reviewed and updated both prior to and during construction.

At this stage, environmental management plans and mitigation measures have been provided for the following environmental topics given the environmental constraints on site, shown in Section 9.1. These plans will be further expanded upon and developed in more once the Principal Contractor has been appointed, and developed to ensure the methodology statements are in line with these plans.

9.5 Ecology Mitigation Plan

[Redacted]

9.5.1.1 Requirements for EPS Licence for Works Affecting Otter

- Prior to the commencement of the vessel enabling works, a review of the EPS mitigation licence (Otter) (Appendix C.1.1.3), including Species Protection Plan (Appendix C.1.1.1) will be undertaken. Where appropriate, this will be informed both by the final design (e.g. capturing any minor amendments) and an updated Pre-Works Otter Checking Survey, as outlined in Section 9.5.2.
- Upon completion of the licensable works, a licence return form will be completed and submitted to NatureScot within four weeks. This is a statutory requirement and a licence condition of the EPS licence.

[Redacted]

[Redacted]

9.5.2 Birds

9.5.2.1 Visual Disturbance

To minimise any visual disturbance to designated species that may be present in the area during works the following will be undertaken:

- Where deemed appropriate (through risk assessment), physical barriers will be erected around terrestrial activities that are expected to generate particularly high noise levels (which lowers receptor threshold to visual disturbance) or large amount of movement to provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening;
- The use of sensitive lighting when working during hours of darkness will be implemented to reduce light spill onto marine habitats (such as directional lighting, hoods and cowls); and
- Toolbox talks given to all workers to advise on how best to minimise disturbance.

9.5.2.2 Vessel Strike

To minimise risk of vessel strike and airborne noise impacts on birds the following mitigation measures will be implemented:

- Where birds are observed to be rafting⁵ the vessel shall avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so.
- Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so.

⁵ Rafting is a behaviour where birds sit, often in groups, on the water close to their colony or nests.

- See measures under Section 9.8 construction noise management plan to minimise airborne noise.

9.5.3 Marine Mammals and Basking Sharks

9.5.3.1 Underwater Noise and Vibration

To minimise underwater noise and vibration the following mitigation will be implemented:

- All equipment will be maintained to a high standard to minimise noise and vibration generated during the works. They will also be switched off when not in use to minimise noise and reduce air pollution.
- Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for marine mammal for 30 minutes in good daylight conditions (Beaufort Sea state 3 or less) by suitably trained (JNCC methods) and dedicated observers.
- Passive acoustic monitoring shall also be used to aid monitoring of the mitigation zones for vocalising species.
- Should marine mammals be observed, the start of operations will should be delayed until 20 minutes after the last sighting of a marine mammal within the buffer zone.
- Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration. In the case of Cardox, detonations will be conducted with sequential delays between detonations to minimise shockwaves.
- The Scottish Marine Wildlife Watching Code (SMWWC)⁶ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities.
- No rock breaking works shall take place from dusk to dawn nor in poor weather conditions (i.e. greater Beaufort sea state 3 and less than 500m visibility)..

9.5.3.2 Vessel Strike

To reduce incidental collisions occurring between marine mammals and reduce effects of propeller cavitation, the following mitigation is proposed:

- Vessels in transit and manoeuvring in coastal waters during construction will be within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance⁷.
- The SMWWC⁶ will be adhered to, measures include:
 - All vessels and equipment will be well maintained and be inspected prior to use to minimise unnecessary noise.
 - Should a marine mammal be encountered whilst underway outside of noise emitting operations, the vessel shall avoid sudden unpredictable changes in speed, direction and engine noise.
 - The vessel shall seek to maintain a minimum of 100m separation unless directly approached whereupon the vessel shall maintain a steady speed and course whilst not presenting propellers to the approaching animal.

⁶ NatureScot, 2016 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

⁷ Maritime and Coastguard Agency, May 2014. Active marine guidance notes (MGNs) [Online] Available at: [Active marine guidance notes \(MGNs\) - GOV.UK \(www.gov.uk\)](#)

- The use of a suitable Code of Conduct, such as the WiSe Scheme⁸; primarily for wildlife watching however, outlines measures for vessel operation around marine wildlife and will be considered for use as mitigation for any collision risk posed to marine mammals during construction works and transit.

9.5.3.3 Pollution Event

To avoid potential pollution events the mitigation measures outlined in Section 8.

9.5.3.4 Introduction/spread of INNS

The works have the potential to introduce and/or spread INNS to the site. In order to mitigate for the introduction and/or spread of INNS during the construction of the Proposed Development, certain biosecurity protocols need to be adhered to. These include the following:

- Pre-construction walkover surveys to look for presence of existing INNS across the accessible areas of the Proposed Development will be undertaken. If identified, these areas will be made aware to site workers and suitable buffers set up around them to avoid potential spread through the site.
- Toolbox talks will be held with site workers to raise the awareness of how to avoid, deal with and identify INNS (if present).
- Production of a marine biosecurity plan (Section 9.6) which would include measures to reduce/eliminate the risk of introducing or spreading INNS on site. The Principal Contractor's Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific Marine Biosecurity Plan. Measures include the following:
 - Sections of the plant that would come into direct contact with the intertidal area (track/wheels) will be thoroughly cleaned before and after use to avoid the spread of any INNS (e.g. wheel washing facilities will be provided).
 - Where possible, existing material will be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material will be bespoke. If this is not possible, it will be ensured that brought in material hasn't been utilised in the marine environment previously. Again, if this is not possible, material brought in will be screened for INNS ahead of its use on site.

9.6 Marine Biosecurity Plan

9.6.1 Overview

This outline of the Marine Biosecurity Plan is produced with biosecurity risks initially assessed and control measures suggested. The Principal Contractor's Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific Marine Biosecurity Plan. The plan will be based on construction method statement for considering more specific details, such as all vessel types, on-site equipment, site activities and tasks. The plan will aim to manage marine biosecurity on site operations to reduce the likelihood of introducing non-native species (NNS), and to determine when the control measures will be applied.

According to guidance⁹, the Marine Biosecurity Plan will contain:

⁸ See [Home | The WiSe Scheme](#)

⁹ Payne, R.D., Cook, E.J. and Macleod, A. (2014). Marine Biosecurity Planning – Guidance for producing site and operation-based plans for preventing the introduction of non-native species. Report by SRSL Ltd. in conjunction with Robin Payne to the Firth of Clyde Forum and Scottish Natural Heritage 39 pp. https://www.webarchive.org.uk/wayback/archive/20210929132843mp_/https://www.nature.scot/sites/default/files/2019-02/Marine%20Biosecurity%20Planning.pdf

- Site Name or Description of Operation
- Site/Operation Location:
- Plan period
- Biosecurity Manager or ECoW (to be appointed by the Principal Contractor) who will be the main point of contact relating to NNS, undertake biosecurity inspection, surveillance, recording, and update this plan as required
- Site features affecting biosecurity (brief description of salinity, submerged structures and non-native species known to be present)
- Vessel types using the site/involved in the operation
- Site activities which have a significant risk of introducing or spreading NNS
- Biosecurity Control Measures – instructions for staff/contractors/site users (Who, What Where, When)
- Site surveillance and reporting procedure
- Action/Contingency Plan (Action, Responsibility, Location of Equipment)
- Location of biosecurity logbook
- Biosecurity Plan Review Date

9.6.2 Legislation

9.6.2.1 International Convention for the Control and Management of Ships' Ballast Water and Sediments

All applicable vessels that travel to the site from outwith UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments.

Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan.

All ships will also have to carry a ballast water record book and an international ballast water management certificate.

9.6.2.2 Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011

Section 14 of the Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011 made significant amendments to the law in Scotland and strengthened the legal requirement for everyone to take all reasonable steps to ensure biosecurity. This legislation is about prevention rather than cure and contains the following relevant offences:

- Releasing an animal to a place outwith its native range
- Otherwise causing an animal outwith the control of any person to be at a place outwith its native range
- Otherwise causing a plant to grow in the wild at a place outwith its native range

9.6.2.3 The Merchant Shipping (Anti-fouling Systems) Regulations 2009

The Merchant Shipping (Anti-fouling Systems) Regulations 2009 prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.

The Regulations provide powers for the Maritime Coastguard Agency to issue an International Anti-fouling System Certificate to ships of 400gt or above and every ship which is certified to carry 15 or more persons.

9.6.3 Non-native Species Known to be Present

According to the marine NNS assessment data from 2018 by Marine Scotland¹⁰, there are three verified high-impact NNS records in the Argyll region, as listed below:

- Leathery sea squirt (*Styela clava*)
- Common cord-grass (*Spartina anglica*)
- Carpet sea squirt (*Didemnum vexillum*)

There are also two verified records of “medium, low and unknown impact NNS” in the Argyll marine region which are wireweed (*Sargassum muticum*) and Pacific oyster (*Magallana gigas*).

Other marine invasive NNS that are widespread and well established in Scotland¹¹ are listed below:

- Green sea-fingers (*Codium fragile subsp. fragile*)
- Red alga (*Heterosiphonia japonica*)
- Acorn barnacle (*Austrominius modestus*)
- Japanese skeleton shrimp (*Caprella mutica*)
- Orange tipped sea squirt (*Corella eumyota*)
- Orange ripple bryozoan (*Schizoporella japonica*)

9.6.4 Risk Factors for Vessel Types Involved in the Construction

The risk of introducing NNS by vessel is considered as high. Slow moving construction barges, equipment or stock arriving at a construction site from another water body could be covered in bio-fouling or containing additional algae/animals. Construction vessels/ barges are one of the vessel types with greater biosecurity risk as they are more likely to have fouling and NNS such as algae, barnacles and sea squirts settling on their hull and anchors.

9.6.5 Initial Identification of Biosecurity Risk

Site activities which may have a significant risk of introducing or spreading NNS are outlined below.

Overall construction

- Use of construction barges and slow moving vessels, and possibly vessels from locations outside local water body – bio-fouling and NNS settling on hull, tug and anchor

Toe protection

- Removal of seabed material potentially causing movement of materials containing NNS
- Upon completion of toe collar installation, the new steel surfaces in the water provide structures that favour NNS settlement, increasing risk of NNS introduction and establishment.

¹⁰ The Scottish Government (2023). Non-native species. https://marine.gov.scot/sma/sites/default/files/sma2020_-_non-native_species_-_healthy_and_biologically_diverse.pdf. Accessed 17th March 2023.

¹¹ NatureScot (2023). <https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/marine-non-native-species>. Accessed 17th March 2023.

The Biosecurity Manager or ECoW will consider splitting each of these activities into tasks for updating risk assessment and control measures when there are more details available from the construction method statement.

9.6.6 Biosecurity Risk Assessment

The risk assessment for the biosecurity risk initially identified in Section 9.6.4 is outlined in Table 9.1. This assessment is undertaken in a precautionary manner as it relies on the best available information on site operations for the Proposed Development which is provided in **Section 2** of this CEMP.

9.6.7 Development of Control Measures and Control Points

Typical control measures for the initially identified biosecurity risks are suggested and listed below. The critical control point, i.e., if control measures are most effectively applied at this stage, will be considered by the Biosecurity Manager or ECoW when the detailed construction method statements are available.

The suggested control measures are also incorporated into Table 9.1 for the relevant biosecurity risks.

Table 9.2: Critical Control Points and Control Measures

Task (site activity for this initial plan)	Initial Risk Assessment – Significant?	Justification	Critical Control Point	Control Measure	Who
Use of construction barges and slow moving vessels	Yes	Overall, it is likely that high impact NNS settled as bio-fouling will be introduced to the waters of the site area.	Yes	<ul style="list-style-type: none"> ● Removal of NNS at source: Inspection of vessels (external hull/ tug/ anchor), ballast water and sediment in the tanks immediately prior to entering the waterbody of site, and before leaving the site. ● All vessels used on site will ensure they have a copy of their Bio-fouling Management Plan on board with clear information outlining efforts to reduce bio-fouling of the vessel, e.g. through anti-fouling treatments or use of biocides. ● Routine inspections of vessels and equipment for NNS and biosecurity measures taken if NNS found. ● Checking logs of last inspection of hull and ensuring relatively recent records are kept. ● Anchors for vessels used on site will be cleaned when opportunity arises. 	Site Agent and site staff
Toe protection – installation of steel collars	Yes	Increasing risk of NNS introduction and establishment on the new steel surfaces in the water	Yes	<ul style="list-style-type: none"> ● Possible measures for preventing NNS and removing bio-fouling, for example, use of non-toxic anti-fouling paints to prevent NNS¹², and treatment of NNS present by wrapping around the toe pile collar to remove NNS¹³. 	Site staff
Toe protection – installation of concrete mattress	No	Disturbance to the seabed and possible spread of NNS are not anticipated to be significant as the removal of seabed material is localised around the pile.	No	None	None

¹² GB Non-native Species Secretariat (2023). https://www.nonnativespecies.org/assets/Document-repository/Marine_Engineering_Biosecurity_Solutions.pdf. Accessed 10th February 2023.

¹³ Cook, E.J., Payne, R.D. & Macleod, A. 2014. Marine biosecurity planning – Identification of best practice: A review. Scottish Natural Heritage Commissioned Report No. 748.

9.6.8 Development of Biosecurity Action Plan

An initial Biosecurity action plan is provided in Table 9.2 that sets out the person/party responsible for carrying out the control measure, the details of action including any materials needed, and when the control measure will be applied.

Table 9.3: Biosecurity Action Plan

When	How	Who
At entry of construction vessels and barges	<ul style="list-style-type: none"> ● Check the copy of Bio-fouling Management Plan on board of each vessel and barge ● Inspect the vessels (external hull/ tug/ anchor), ballast water and sediment in the tanks prior to entering 	Site Agent
Use of construction vessels and barges on site throughout the construction phase	<ul style="list-style-type: none"> ● Routinely inspect vessels and equipment for NNS and biosecurity measures taken if NNS found ● Regularly check logs of last inspection of hull and ensuring relatively recent records are kept 	Site Agent
	<ul style="list-style-type: none"> ● Clean the anchors for vessels and barges whenever necessary and opportunity arises 	Site staff
Toe protection	Implementing anti-fouling treatment for piles as instructed	Site staff

9.6.9 Communication and Reporting Responsibilities

In the event of a potential NNS contamination, it will be immediately reported to either the Environmental Manager or Biosecurity Manager / ECoW. The ECoW will be trained in the identification of NNS. Relevant identification sheets can be found on the Great Britain Non-Native Species Secretariat Website¹⁴. In the event of an emergency, the following procedures will be followed:

- The ECoW must determine if the species reported is a NNS, if necessary, Scotland’s Environmental and Rural Services (SEARS) will be contacted immediately at this stage if identification needs confirmation. A sample will be collected, placed in plastic bag and sent to the nearest SEARS location.
- If the NNS is confirmed by the ECoW/SEARS it must be reported to Marine Scotland Licensing Operations Team and Marine Scotland -Science immediately.
- The ECoW will inform other water-users and vessel operators. A construction marine coordinator, if any, will be contacted.
- A record of the findings will be logged and include:
 - The scientific and or common name of the species
 - Location of the find with an accurate grid reference or GPS coordinates
 - How it was found (e.g. attached to equipment)
 - Date
 - Name of individual who identified the NNS and who confirmed the identification (e.g. ECoW)
 - Photographs of the NNS and surrounding area; and
 - Approximate numbers and or area of NNS recorded.
- In the event of a high impact species:
 - Immediate containment measures will be initiated, including restricted vessel movements (to be coordinated by the construction marine coordinator, if any)

¹⁴ Great Britain Non-Native Species Secretariat Identification Sheets: <https://www.nonnativespecies.org/non-native-species/id-sheets/>

- Wider surveys of vessels and structures will be undertaken
- In the event of NNS being found, the Environmental Manager will seek further advice from NatureScot

9.7 Construction Noise Management Plan

This Construction Noise Management Plan (CNMP) describes the procedures to control and minimise noise impacts during the construction phase. Noise may cause a statutory nuisance under Section 79 of the Environmental Protection Act 1990. Local Authorities have the power to stop construction activities, or limit working hours for the use of noisy plant and equipment where a nuisance has been reported.

Given the distances between the site and the nearest residential receptors it is considered unlikely that construction noise would have a significant impact on residential receptors.

The impact on sensitive receptors within the vicinity of the Proposed Development can be controlled when undertaken in accordance with good practice as set out in BS 5228 Parts 1 and 2 as described in the following sections.

9.7.1 Working Hours

Standard working hours for non-dredging activities will be restricted to the hours between 08:00-1800 Monday to Friday and 08:00-13:00 Saturday. No works will be undertaken on Sunday.

9.7.2 Best Practicable Means

Best Practicable Means (BPM) are defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990 as those measures which are:

“reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications”.

BPM will be applied to all construction works and will follow the general guidance contained within the British Standard 5228 ‘Code of practice for Noise and Vibration Control on Construction and Open Sites’ (2009) together with the specific requirements of this CNMP.

Noise from construction processes will be controlled and limited where identified as likely to cause nuisance. Noise-emitting plant will be managed on site, and activities will be programmed and timed sensitively to minimise impact on Noise Sensitive Receptors (NSRs) receptors (human and ecological receptors) over the proposed working period. See Section 9.7.3 to 9.7.6 below for further details

All plant and equipment used will comply with the noise limits quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument 2001/1701.

Plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors. The use of barriers to absorb and/or deflect noise away from noise sensitive areas will be employed where appropriate. Where a temporary acoustic barrier is to be used, the barrier material will have a mass per unit area exceeding 7 kg/m² in accordance with the recommendations of BS 5228 – Part 1:2009. For example, plywood panels with a minimum thickness of 13 mm. This will be large enough to obscure the source of noise from the affected NSR and as close as possible to the source taking into account, where appropriate, aspects such as access, electrical and fire requirements, and inlet and exhaust air flows.

All plant, equipment and noise control measures applied to plant and equipment will be monitored by the Principal Contractor’s Environmental Manager, maintained in good efficient

working order and operated such that noise emissions are minimised. Plant, equipment or items fitted with noise control equipment found to be defective will not be operated until it is repaired.

Vehicles and mechanical plant employed during the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and will be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.

Machines in intermittent use will be shut down or throttled down to a minimum during periods between works. Static noise emitting equipment operating continuously will be housed within suitable acoustic enclosure.

9.7.3 Noise Control Measures

The Principal Contractor will comply with the recommendations set out in BS 5228-1:2009 and in particular with the following noise requirements:

- Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting birds in the local area;
- Avoid unnecessary revving of engines and switch of equipment when not required;
- Ensure site speed limits are adhered to;
- Use rubber linings in, for example, chutes and dumpers to reduce impact noise;
- Minimise drop height of materials;
- Agreement of HGV routes with Argyll and Bute Council through the development of a construction traffic management plan;
- Vehicles use smart reversing alarms;
- Quiet equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance;
- Screens or fencing will be located as near to the source as reasonably practical;
- Fixed plant will be located as far as reasonably practical away from noise sensitive receptors;
- Any plant which has directional noise propagation will be orientated away from NSRs;
- Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area;
- Maintain all equipment so that loose panels and cover plates do not cause unnecessary noise;
- Keep good relations with the local community and ensure advanced warning is given when any significant noisy activity is undertaken
- Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels to provide screening attenuation. Noise barriers are most effective if located close to the noise source or close to the receptor. Care will be taken to optimise the position of any barriers proposed where practicable.

9.7.4 Site area;

All construction work activities will be undertaken within the designated operational site boundaries; including areas designed to accommodate stockpiles and haul routes.

9.7.5 Reversing

The contractor will manage the noise from reversing alarms by means of the following:

- a) The site layout will be designed to limit and where reasonably practicable, avoid the need for the reversing of vehicles
- b) A banksman will be utilised to avoid the use of reversing alarms
- c) Reversing alarms incorporating one or more of the features listed below or any other comparable system will be used: highly directional sounders, broad band signals, self-adjusting output sounders, flashing warning lights

Reversing alarms will be set to the minimum output noise level required for health and safety compliance.

9.7.6 Training

All site personnel will receive training appropriate to the nature of their roles and responsibility; the training will include specific information in relation to noise and vibration management. If their work activities are assessed as being particularly noise/vibration emission prone, all staff will receive induction training that will incorporate environmental awareness training, plus specific training in relation to noise and vibration. On site toolbox training will enable site workers to understand how their actions will interact with the environment and potentially impact upon sensitive receptors close to their work areas.

9.8 Air Quality Management Plan

This Air Quality Management Plan sets out measures to control dust emissions that may affect local air quality. Construction works have the potential to affect local air quality through emissions from plant and vehicle operations and to generate dust, particularly during dry weather and strong winds. Good site management is essential to control emissions and respond to weather conditions.

9.8.1 Construction Management and Mitigation Measures

Proactive measures that prevent dust from becoming airborne are the most effective mitigation tools for dust management, along with pre-planning to locate dust generating activities as far as possible from receptors.

The following measures will be implemented during construction to manage the generation of dust:

- Stockpiles of materials will be positioned at least 10m away from sensitive receptors where possible and suitable measures implemented to prevent runoff and dispersion if left for any length of time. Any powders will be stored in sealed bags or silos prior to use. Dust suppression measures to be used where required.
- All vehicles and machinery will be switched off when not in use to minimise noise and reduce air pollution.
- Dust generating activities will be located away from sensitive receptors (human and ecological receptors);
- Adequate supplies of water, sourced by the Principal Contractor, will be available at all times for the dust suppression units that will be operated at times of dust nuisance;
- Stockpiles of dust prone materials will be sprayed in periods of dry weather;
- Hand operated or vehicle mounted spray equipment will be used to spray stockpiles of materials, overburden, access tracks and other sources of dust as required;

- Dust suppression techniques will be used expediently, a fine spray will be used to avoid runoff and over-spraying will be avoided;
- Spraying units will be available and in good working order at all times;
- Standby bowsers will be available to be used will the main units be out of service, and as supplementary units in periods of dry weather;
- A 10mph site speed restriction will be observed at all times;
- Material drop heights will be minimised;
- Wheel wash facilities will be located on site, within the construction compound, to be utilised;
- Dust monitoring will be undertaken by the Principal Contractor's Environmental Manager to evaluate the effectiveness of dust suppression measures and to aid the improvement of dust management on site;
- Should dust suppression measures prove inadequate, operations will cease until additional mitigation measures are taken or conditions improve; and
- Adequate supplies of water will be made available at all times for the dust suppression units.

All personnel on site will be aware of the need to control dust emissions and be pro-active in the prevention of airborne dust. During periods of dry weather or extensive dust generating activities the Principal Contractor's Environmental Manager will deliver a toolbox talk to all site personnel.

9.9 Archaeology

9.9.1 Archaeological Mitigation Scheme and Protocol for Archaeological Discoveries

Historic Environment Scotland recommended that an Archaeological Mitigation Scheme and Protocol for Archaeological Discoveries for construction is developed, to take account for potential impacts on undesignated archaeological remains. This will be developed by the Principal Contractor in advance of the work commencing on site and when full construction details are known. Appendix A Proposed Development Drawings.

9.10 Navigation Risk Assessment/Vessel Management Plan

Colonsay is a Statutory Harbour, for which the Statutory Harbour Authority is Caledonian Maritime Assets Ltd. (CMAL). CMAL's Harbour Master has responsibility for safe navigation within the harbour limits. Colonsay harbour is operated in full compliance with the Port Marine Safety Code, and members of the CMAL Board undertake the role of "duty holder" under the code. The harbour is operated by CalMac Ferries Ltd. (CFL). As the proposed development is located within an operational harbour, the following measures have been specified and will be implemented by the Principal Contractor to manage navigational risks and manage vessels during the construction of the works:

- The Principal Contractor shall comply with specific constraints and special requirements in relation to Caledonian Maritime Assets Ltd, CalMac Ferries Limited (CFL) and Statutory Bodies. The works shall be carried out in accordance with all statutory requirements or regulations of the Client, or any other competent authority.
- The Principal Contractor shall maintain safe access along, around and through the structures.
- The Principal Contractor shall liaise with CFL's relevant Port Manager / Port Supervisor regarding ferry operations. The Principal Contractor shall liaise with the Terminal Operator and Project Manager at a mutually agreed time daily to update on progress and any changes to the planned works and activities within the harbour.
- Unless an area has been provided to the Principal Contractor for sole use, the Principal Contractor shall provide unhindered access to port and ferry operators staff to facilitate ferry operations. The normal operation of the ferry terminal shall continue during the contract

period and the Principal Contractor shall ensure that the normal operation of the ferry terminal is not affected or disrupted by the Works, unless specifically allowed for within this contract.

- The Principal Contractor shall use current published timetables for planning purposes. The Principal Contractor shall liaise with the relevant Port Manager / Port Supervisor to identify deviation from published timetables.
- The Proposed Development Boundary includes areas where the Principal Contractor will have full access and ferry operational areas where access will be limited to timed periods in accordance with the permit system.
- The Principal Contractor shall not block or otherwise impede full operation of the ferry terminal at any time.
- The Principal Contractor is required to stop work and ensure that all shared areas are cleared of personnel and in a fit state for operation of the ferry service at least 30 minutes before scheduled arrival of each ferry. The Principal Contractor may restart work after departure of the ferry.
- The Principal Contractor shall comply with the directions of the Project Manager (as advised by CFL Port Manager / Port Supervisor) in relation to deployment or movement of equipment, whether floating or land based, within the harbour.
- Subject to adequate notice and approval the Principal Contractor shall be permitted a small number of Scheduled Closures and Possessions to complete the Works. Scheduled Closures and Possessions are formal procedures to limit access and suspend ferry operations in an area to permit the Principal Contractor to carry out their activities safely.
- Should the Principal Contractor's floating equipment require an anchor spread then it shall be contained entirely within the Proposed Development Boundary. The location of anchors shall be agreed with the Project Manager (who shall liaise with the Operator). Where the Principal Contractor's equipment and/or methods require an anchor spread, the Principal Contractor shall be required to drop anchors to allow the passage of other vessels using the harbour.

All floating plant shall be appropriately lit and marked, VHF radio shall be provided and appropriate Notices to Mariners shall be issued.

A. Proposed Development Drawings

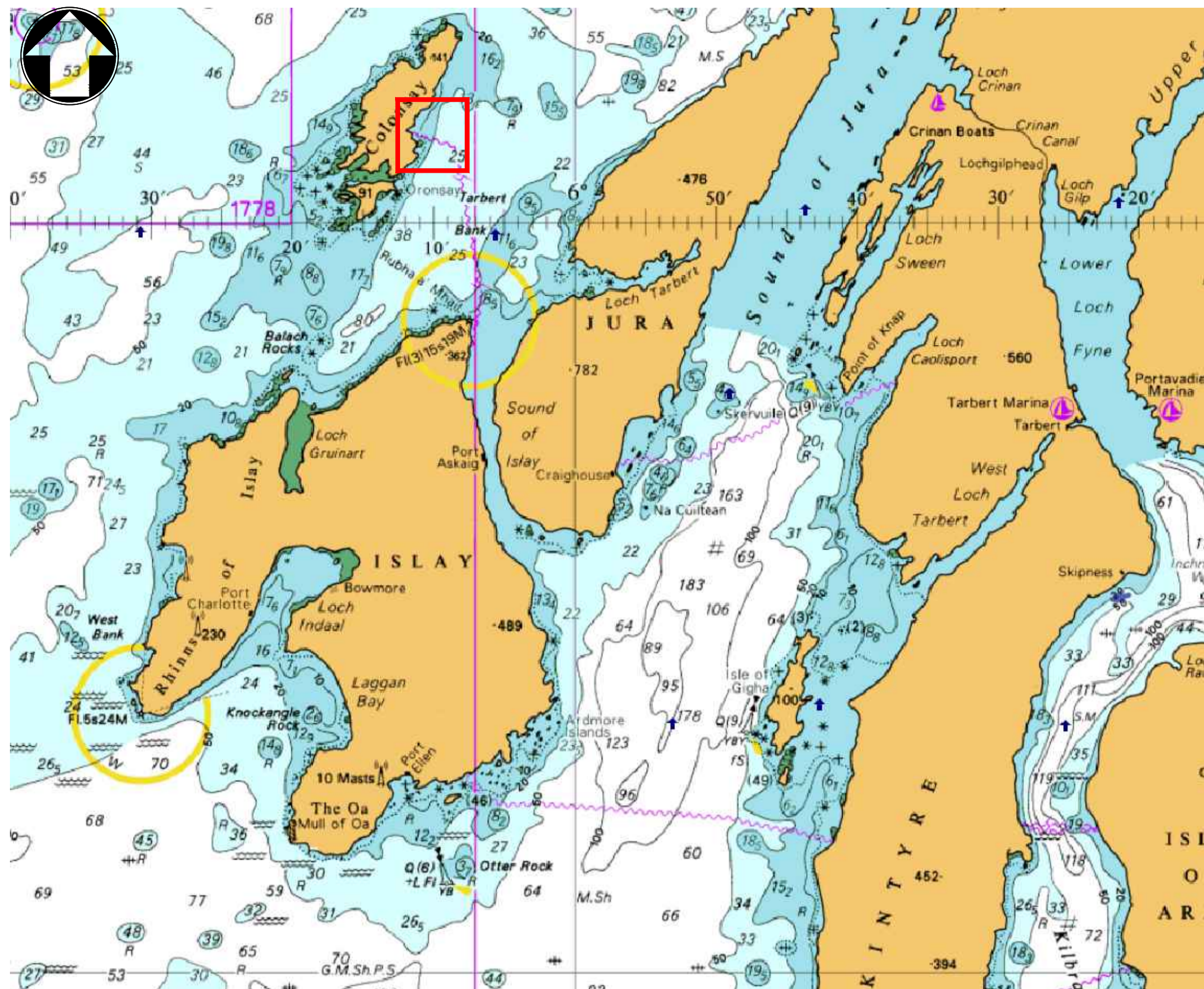


Figure 1 - Islay Admiralty Chart
Scale NTS

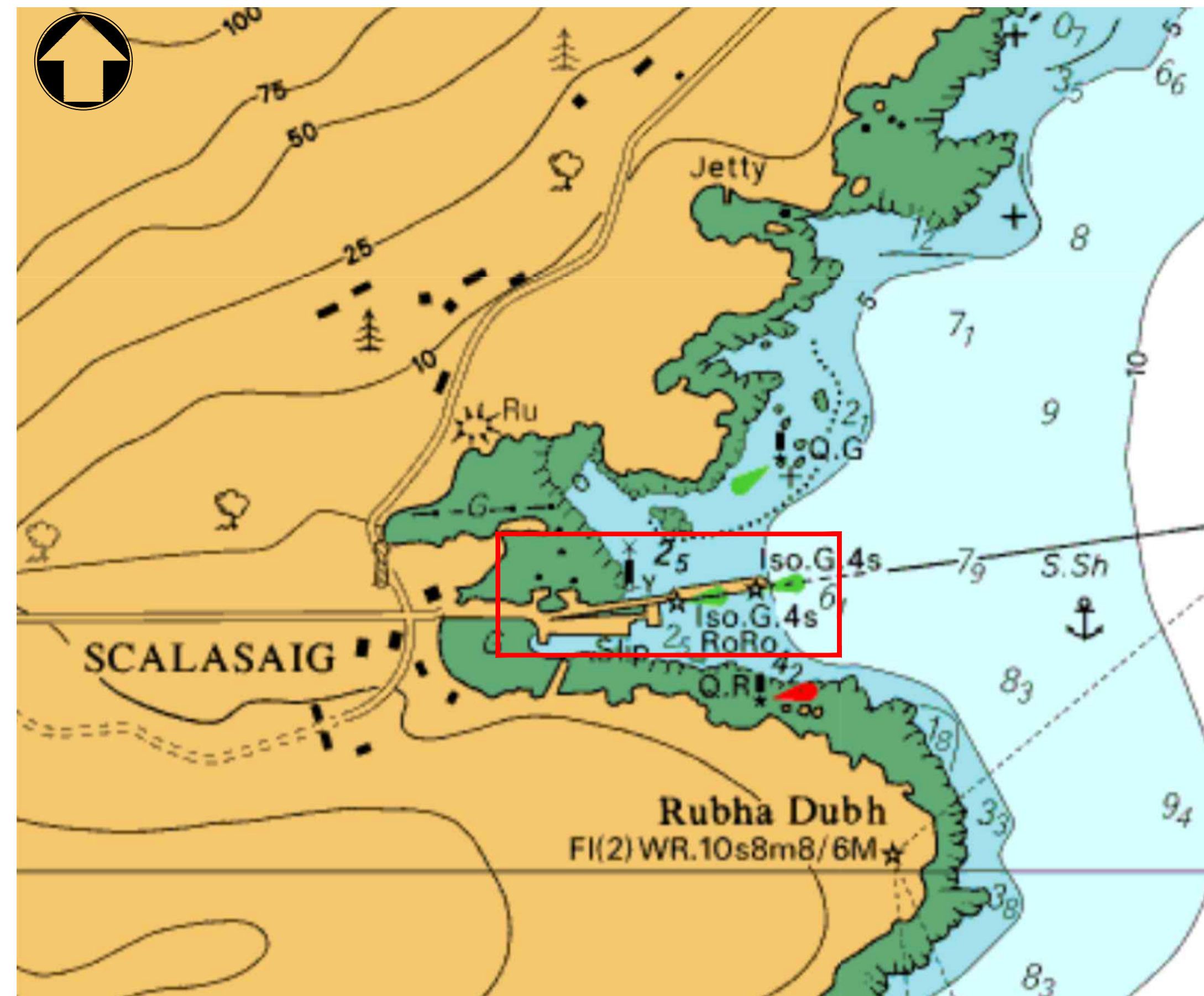


Figure 2 - Colonsay Admiralty Chart
Scale NTS

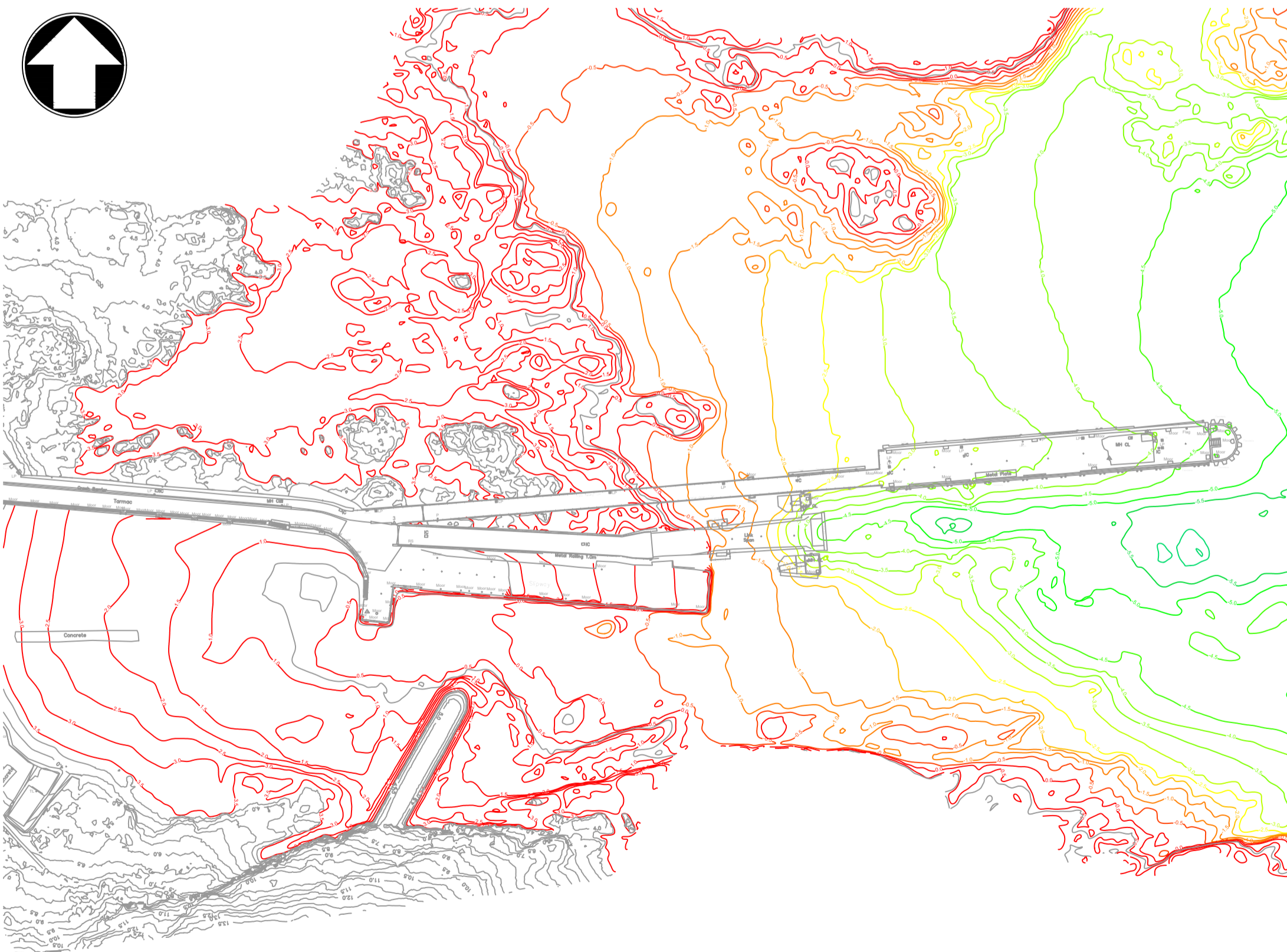


Figure 3 - Colonsay Location Layout
Scale 1:1000

New Islay Vessel Port Enabling Works - Colonsay

Drawing Title	Drawing Reference
Introductions - (0010)	
Location Plan & Drawing list	105612-MMD-CO-ZZ-DR-C-0010
Background - (0100)	
Exploratory Hole Location Plan	105612-MMD-CO-ZZ-DR-C-0100
Dredging Sampling Plan	105612-MMD-CO-ZZ-DR-C-0101
Bathymetric Survey	105612-MMD-CO-ZZ-DR-C-0110
Topographical Survey	105612-MMD-CO-ZZ-DR-C-0120
Existing Services	105612-MMD-CO-ZZ-DR-C-0130
Boundaries and Interfaces	105612-MMD-CO-ZZ-DR-C-0140
Harbour Limits	105612-MMD-CO-ZZ-DR-C-0141
Existing Structures	105612-MMD-CO-ZZ-DR-C-0150
Demolition - (0200)	
General Arrangement Demolition	105612-MMD-CO-ZZ-DR-C-0200
Civil General - (1000)	
General Arrangement & Setting Out	105612-MMD-CO-ZZ-DR-C-1000
General Arrangement Construction Sequence	105612-MMD-CO-ZZ-DR-C-1020
Dredging - (1100)	
Dredging Plan	105612-MMD-CO-ZZ-DR-C-1100
Quay Furniture - (3000)	
Quay Furniture General Arrangement	105612-MMD-CO-ZZ-DR-C-3000
Roundhead Fenders - (3100)	
Fender Type A	105612-MMD-CO-ZZ-DR-C-3150
Fender Type B	105612-MMD-CO-ZZ-DR-C-3151
Fender Type C	105612-MMD-CO-ZZ-DR-C-3152
Mooring - (3200)	
Bollard Details	105612-MMD-CO-ZZ-DR-C-3210
Collars - (4100)	
Collar Location Plan	105612-MMD-CO-ZZ-DR-C-4100
Collar Details & Section Type A	105612-MMD-CO-ZZ-DR-C-4110
Collar Details & Section Type B	105612-MMD-CO-ZZ-DR-C-4120

Collar Details & Section Type C	105612-MMD-CO-ZZ-DR-C-4130
Collar Details & Section Type D	105612-MMD-CO-ZZ-DR-C-4140

- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetrical information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.

Key to symbols

Reference drawings

C01	17.03.2023	JB	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd


Status Stamp
TENDER

MOTT MACDONALD

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Glasgow, G2 5LD
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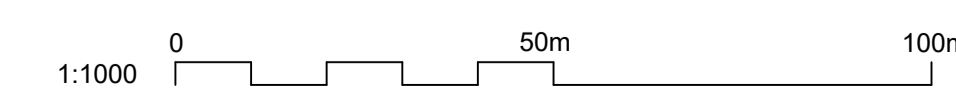
T +44 (0)141 222 4500
F +44 (0)141 221 2048
W mottmac.com

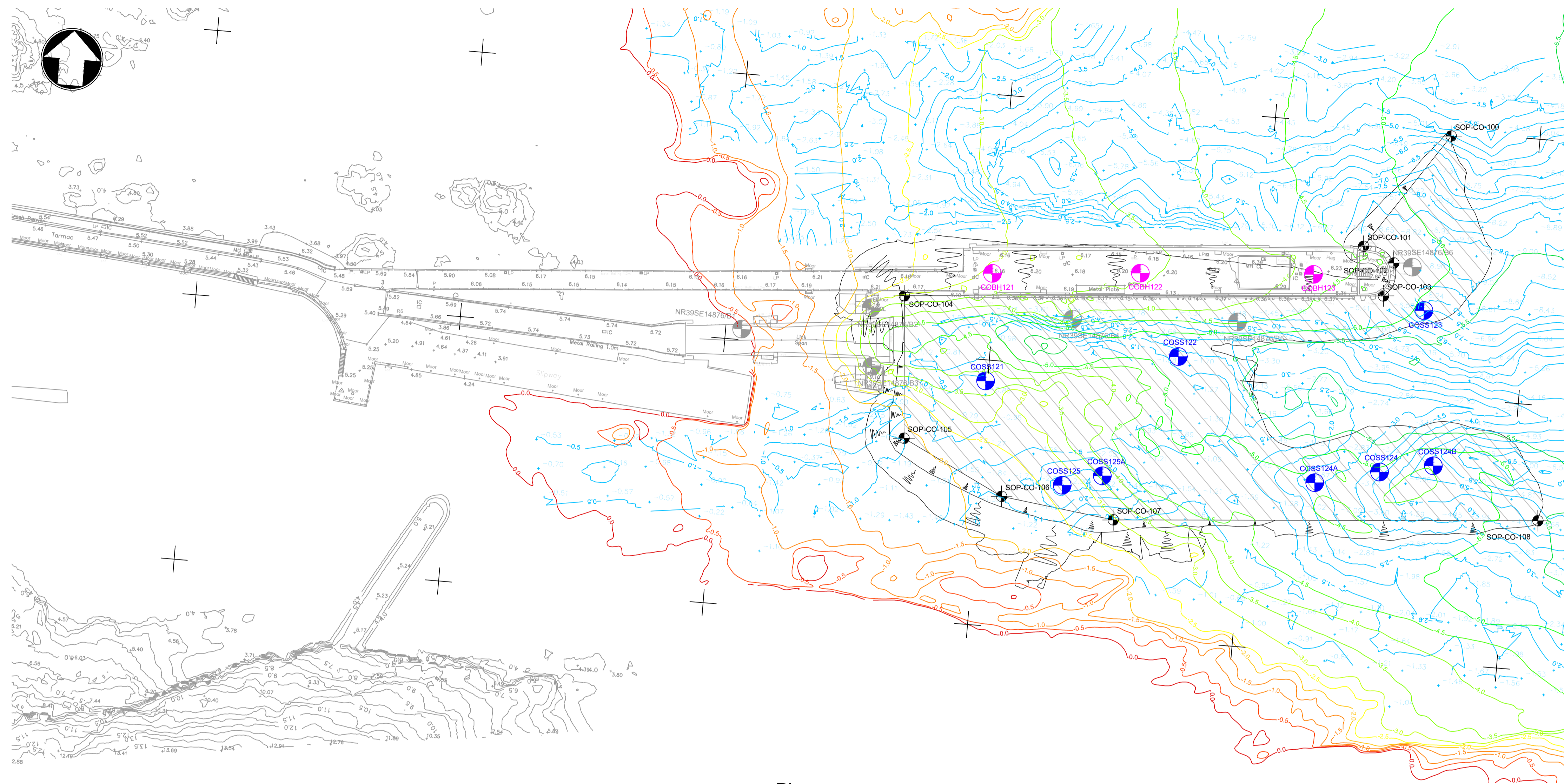
Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ



Title
**New Islay Vessel Port Enabling Works
Colonsay
Location Plan and Drawing List**

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612	Scale at A1	As Shown	Security	STD
Suitability Description	Authorised and Accepted			Suit. Code	A1
Drawing Number	105612-MMD-CO-ZZ-DR-C-0010			Rev	C01





Plan
Scale 1:500

Dredge depth (CD)	Dredge Pocket Plan Area (m ²)	Dredge Slope Plan Area (m ²)	Dredge Volume (m ³)	Dredge Volume Marine Deposits (m ³)	Dredge Volume Rock (m ³)
-5.5m	4121	1787	5851	3970	1881

Dredging Setting Out		
Setting Out Point	Easting	Northing
SOP-CO-100	139733.2678	694149.2260
SOP-CO-101	139718.5230	694127.1660
SOP-CO-102	139724.4523	694124.4944
SOP-CO-103	139723.0165	694118.1515
SOP-CO-104	139633.0474	694110.7711
SOP-CO-105	139635.1879	694083.9936
SOP-CO-106	139654.4042	694074.5897
SOP-CO-107	139675.7454	694071.8987
SOP-CO-108	139755.4875	694078.2883

LAND BASED BOREHOLE LOCATION				
Name	Scheduled Depth (m)	Eastings	Northings	Comments
COBH121	12	139649.23	694116.34	
COBH122	12	139677.02	694118.67	
COBH123	12	139709.55	694121.12	

SEABED SAMPLING LOCATION (Vibrocore)						
Name	Scheduled Depth (m)	Eastings	Northings	Termination Depth (m)	Ground Conditions Encountered	Comments
COSS121	8	139649.61	694096.02	0.1	0.0m-0.1m Grey fine to coarse SAND.	Terminated on practical refusal. Possibly rockhead. Position attempted twice. 0 samples collected
COSS122	8	139685.44	694103.59	0.8	0m-0.35m Dark grey silty organic SAND 0.35m-0.8m Grey slightly fine to coarse GRAVEL.	Terminated on practical refusal. 2 samples collected
COSS123	8	139730.83	694116.03	1.35	0m-0.9m Dark grey silty organic SAND 0.9m - 1.35m Grey slightly sandy coarse GRAVEL.	Terminated on practical refusal. 3 samples collected
COSS124	1	139725	694085	TBC	TBC	Additional sampling location to be completed.
COSS124A	1	139713	694082	TBC	TBC	Additional optional VC locations to be undertaken only if COSS124 is not successful.
COSS124B	1	139735	694087	TBC	TBC	Additional optional VC locations to be undertaken only if COSS124 is not successful.
COSS125	2	139666	694078	TBC	TBC	Additional sampling location to be completed.
COSS125A	2	139673	694080	TBC	TBC	Additional optional VC locations to be undertaken only if COSS125 is not successful.

- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetric information provided
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.

Key to symbols

- Area to be Dredged to -5.5m C.D.
- 5.5m C.D. Dredge Area Setting Out Point

Bathymetric Contours (2022 Survey):

- 0.0m C.D. Contour
- 0.5m C.D. Contour
- 1.0m C.D. Contour
- 1.5m C.D. Contour
- 2.0m C.D. Contour
- 2.5m C.D. Contour
- 3.0m C.D. Contour
- 3.5m C.D. Contour
- 4.0m C.D. Contour
- 4.5m C.D. Contour
- 5.0m C.D. Contour
- 5.5m C.D. Contour
- 6.0m C.D. Contour

- As-Built Land Based Borehole Location
- Seabed Sampling Location (Vibrocore)
- Approximate Historical Exploratory Hole Locations
- Sub Base Profile Thickness
- Sub Base Profile Thickness Contour

Key Reference Information

External Drawings:
Topographical Survey
Reference: AB351_CD
Date of Survey: 29.11.2022
Bathymetric Survey
Reference: AB351_CD
Date of Survey: 29.11.2022

C01	17.03.2023	CC	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd


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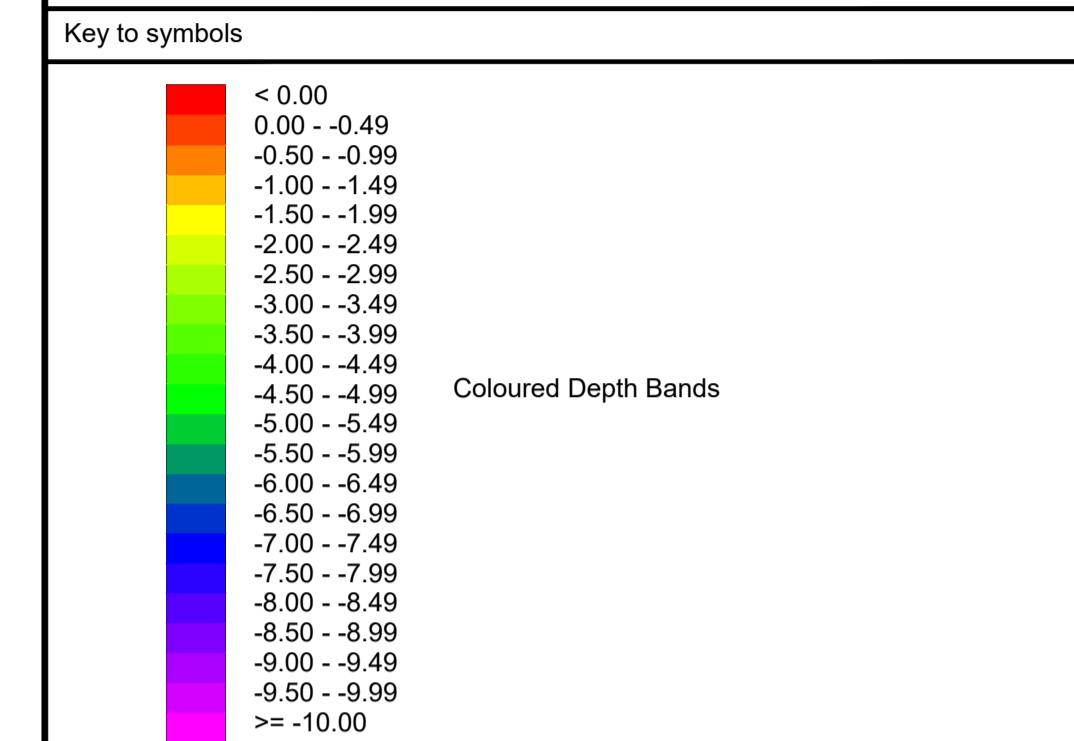
Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ



Title
New Islay Vessel Port Enabling Works
Colonsay
Dredging Sampling Plan

Designed	K. Wells	KW	Eng check	K. Wells	KW
Drawn	C. Campbell	CC	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C.Ohl	CO
MMD Project Number	105612	Scale at A1	1:500	Security	STD
Suitability Description	Authorised and Accepted			Suit. Code	A1
Drawing Number	105612-MMD-CO-ZZ-DR-C-0101			Rev	C01

- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
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 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.



Reference drawings

Topographic & Multibeam Bathymetric Survey
 Reference: A6351_CD_Scalasaig
 Date of Survey: 29.09.2022

C01	17.03.2023	LM	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

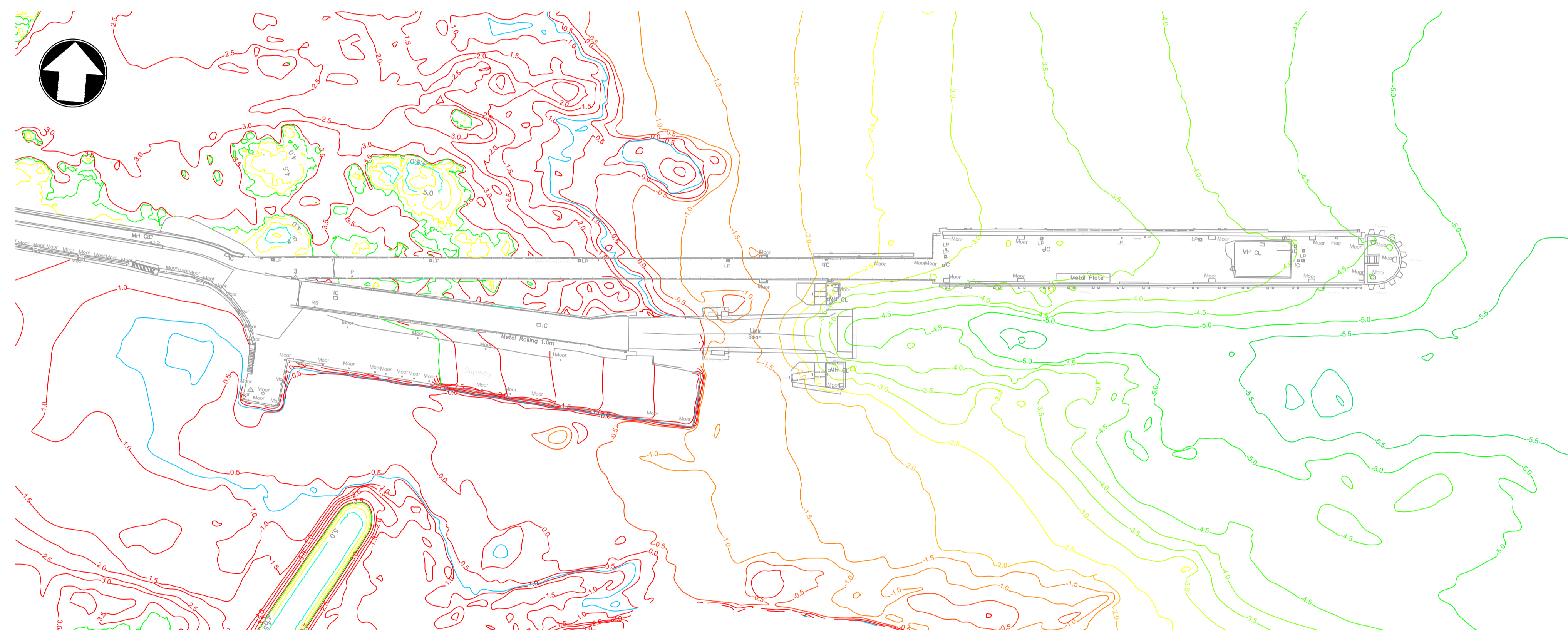
Status Stamp **TENDER**

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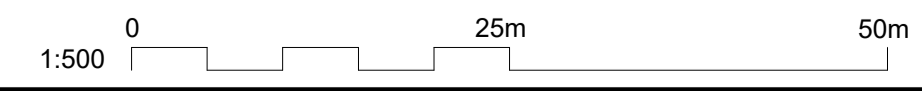
Client
Caledonian Maritime Assets Limited
 Municipal Buildings
 Fore Street
 Port Glasgow
 PA14 5EQ

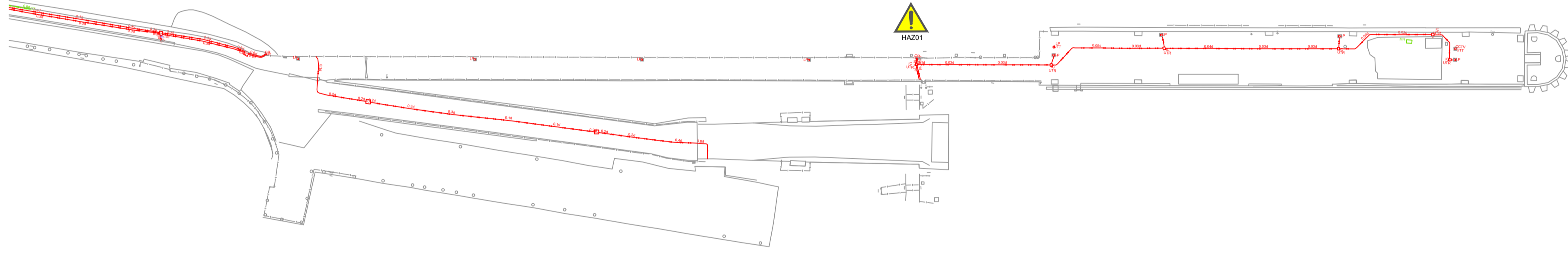
Title
New Islay Vessel Port Enabling Works
 Colonsay
 Bathymetric Survey

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	L. Marini	LM	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612		Scale at A1	1:500	
Suitability Description	Authorised and Accepted				Security STD
Drawing Number	105612-MMD-CO-ZZ-DR-C-0110				Rev C01



Plan
 Scale 1:500





Plan
Scale 1:500

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
	Hazard Elimination & Risk Reduction has been undertaken and recorded where appropriate, in accordance with the requirements of "The Construction (Design and Management) Regulations 2015" and the associated "Industry Guidance for Designers". In addition to the hazards/risks normally associated with the types of work detailed on this drawing, please note the following:
CONSTRUCTION:	HAZ01 - Services may not have been identified in survey
OPERATIONS:	N/A

- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise. DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetrical information provided
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Refer to Aspect survey drawing A8351_CD for further details on the accuracy & limitations of the survey

Key to symbols

LEGEND	
Surface Water Drainage	SD-B1
Foul Water Drainage	FD-B1
Combined Water Drainage	CD-B1
Mains Water	W-B1
Electricity Cable	E-B1
Low Voltage Electricity Cable	LV-B1
High Voltage Electricity Cable	HV-B1
Street Lighting Cable	SL-B1
Traffic Control Cable	TC-B1
Gas	GAS-B1
Empty Utility Duct	ED-B1
Cable TV	CTV-B1
BT Cable	BT-B1
Fibre Optic	FO-B1
Telecomms	T-B1
Unknown Utility	U-B1
Unknown GPR Trace	GPR-B1
Survey Extents	
Chamber Extents	

Reference drawings

Utility Mapping Survey File
Reference: A8351_Scalasaig Pier
Date of Survey: 29.09.2022

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	LM	Tender Issue	BR	CO


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Client

Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ



Title

New Islay Vessel Port Enabling Works
Colonsay
Existing Services

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	L. Marini	LM	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612	Scale at A1	1:500	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-0130				Rev
					C01

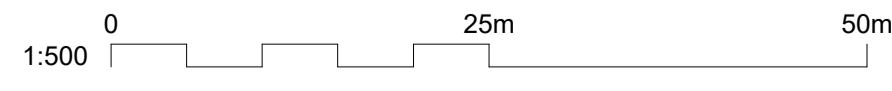




Image 1
Roundhead



Image 2
Roundhead



Image 3
South face of Pier



Image 4
Approach Pier



Image 14
Slipway



Image 13
Approach Pier



Image 12
South Lifting Dolphins

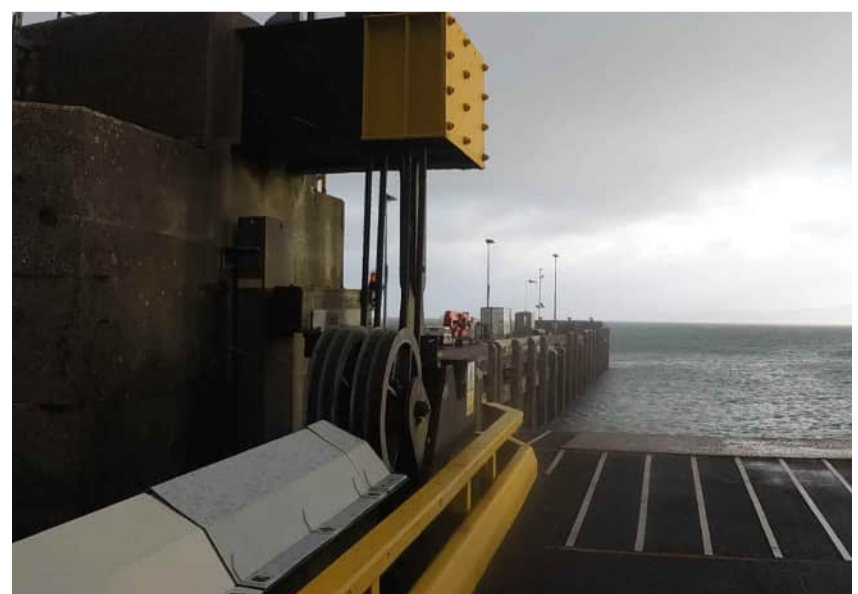


Image 11
Linkspan Winch



Image 10
Pier



Image 9
Pier



Image 5
North Lifting Dolphin and Pier



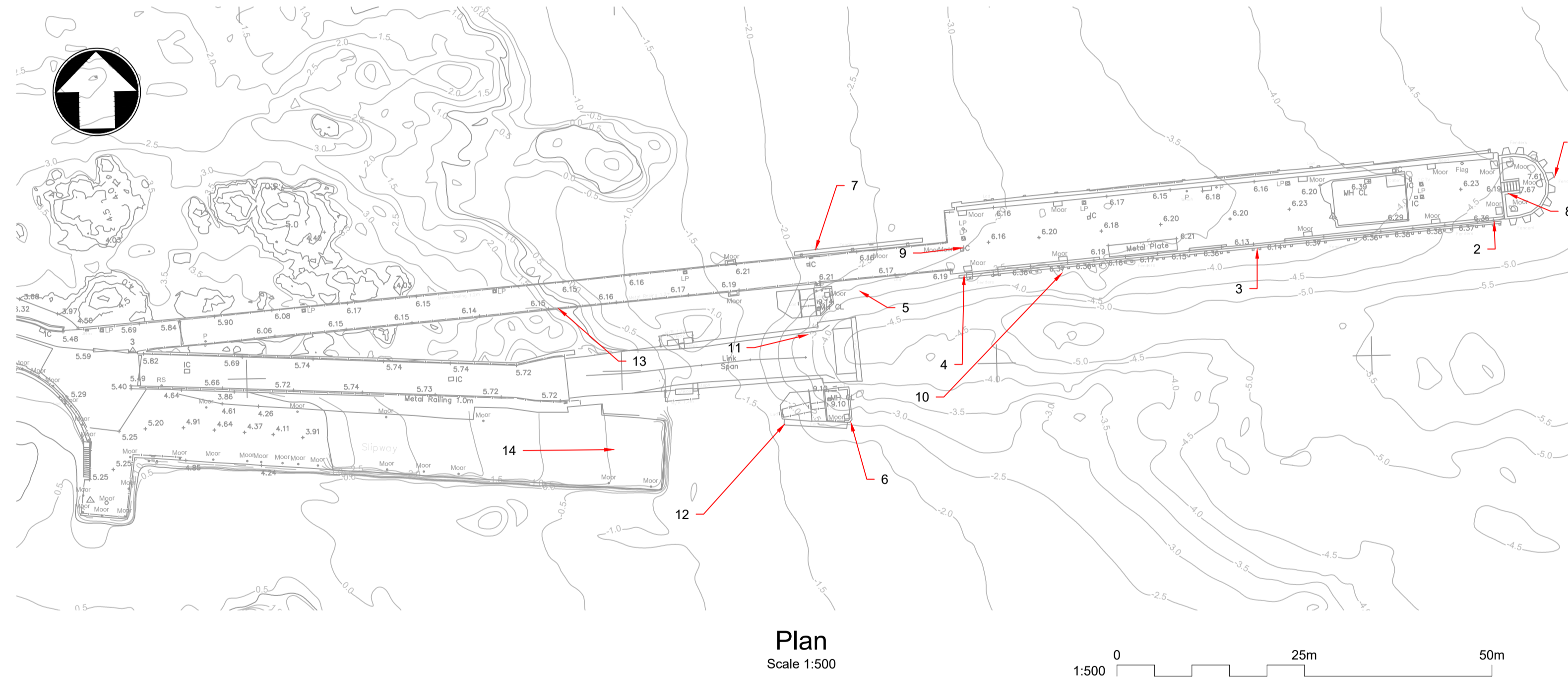
Image 6
South Lifting
Dolphin



Image 7
Wave screen on Approach Pier



Image 8
Pier



- Notes
- Arrows indicate direction of corresponding photograph.
 - Photographs taken January 2022

Key to symbols

Reference drawings

Topographical & Multibeam Bathymetric Survey
Reference: A6351_CD Scalasaig
Date of Survey: 29.09.2022

P01	17.03.2023	LM	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

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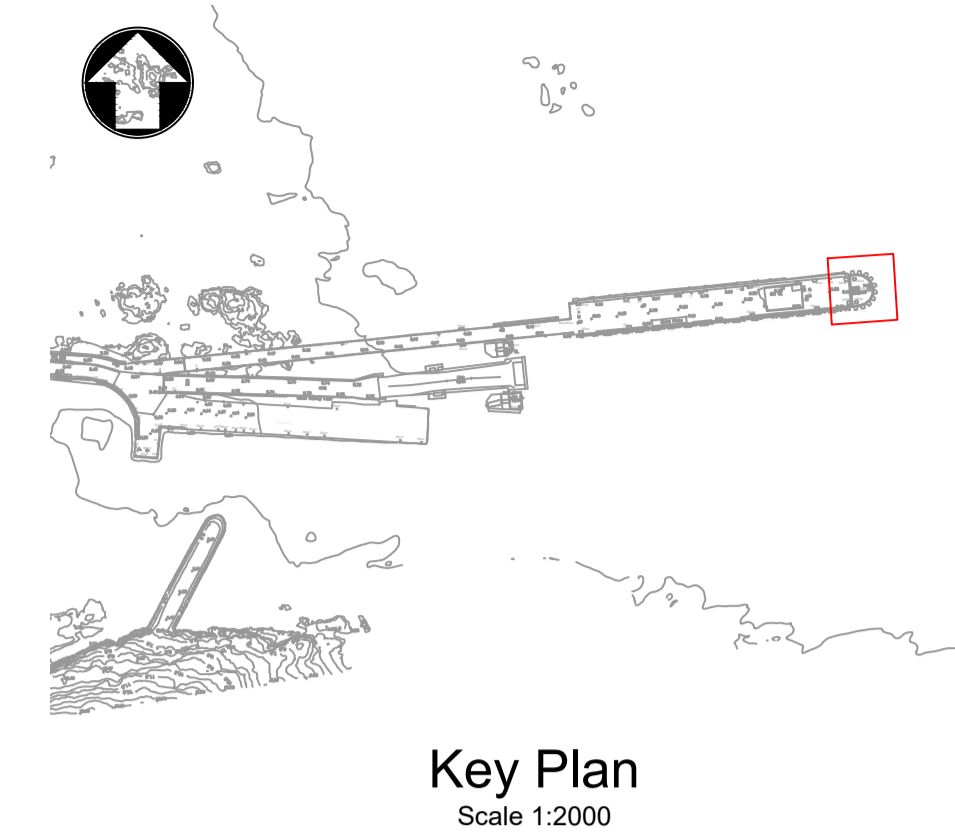
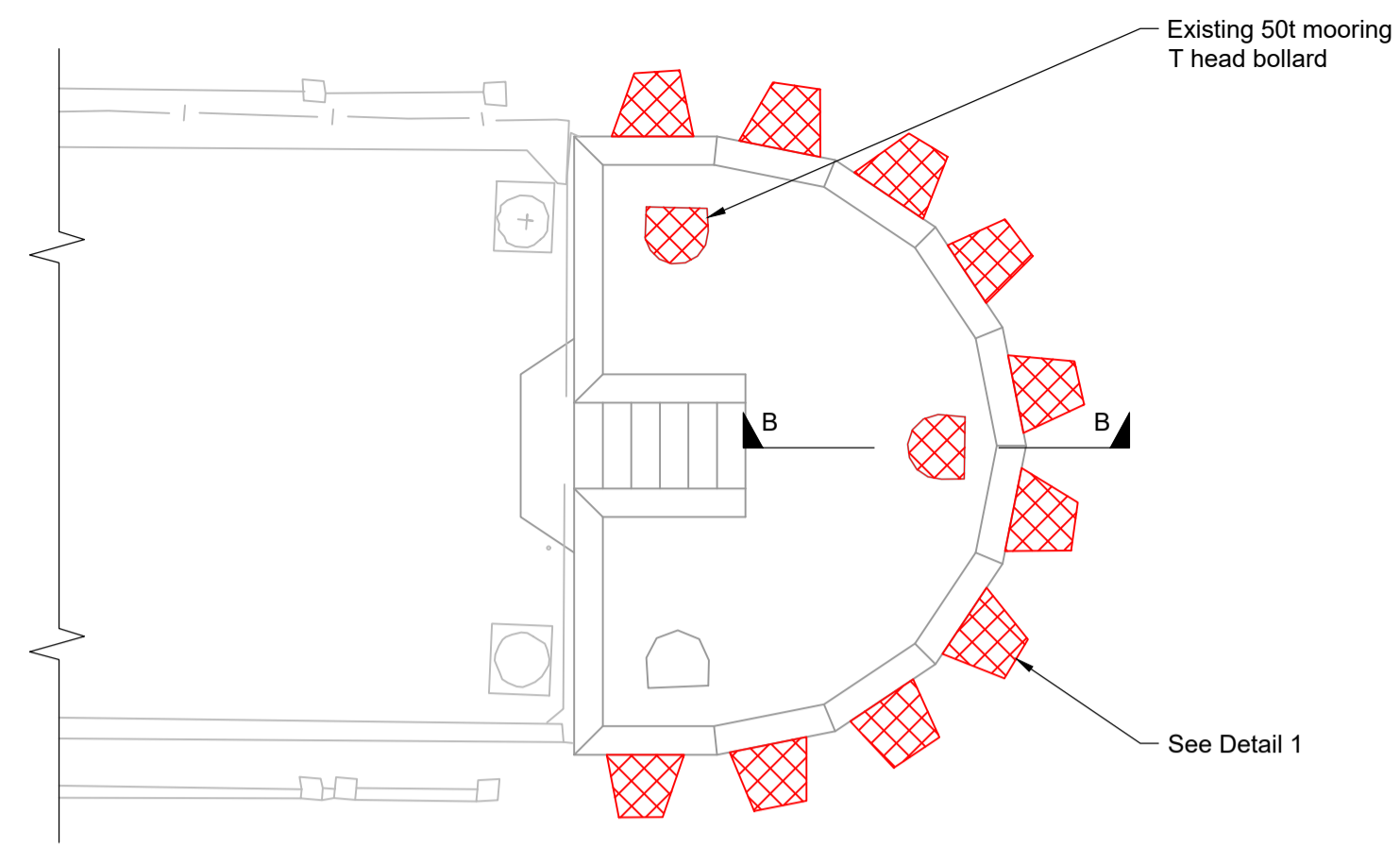
Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ



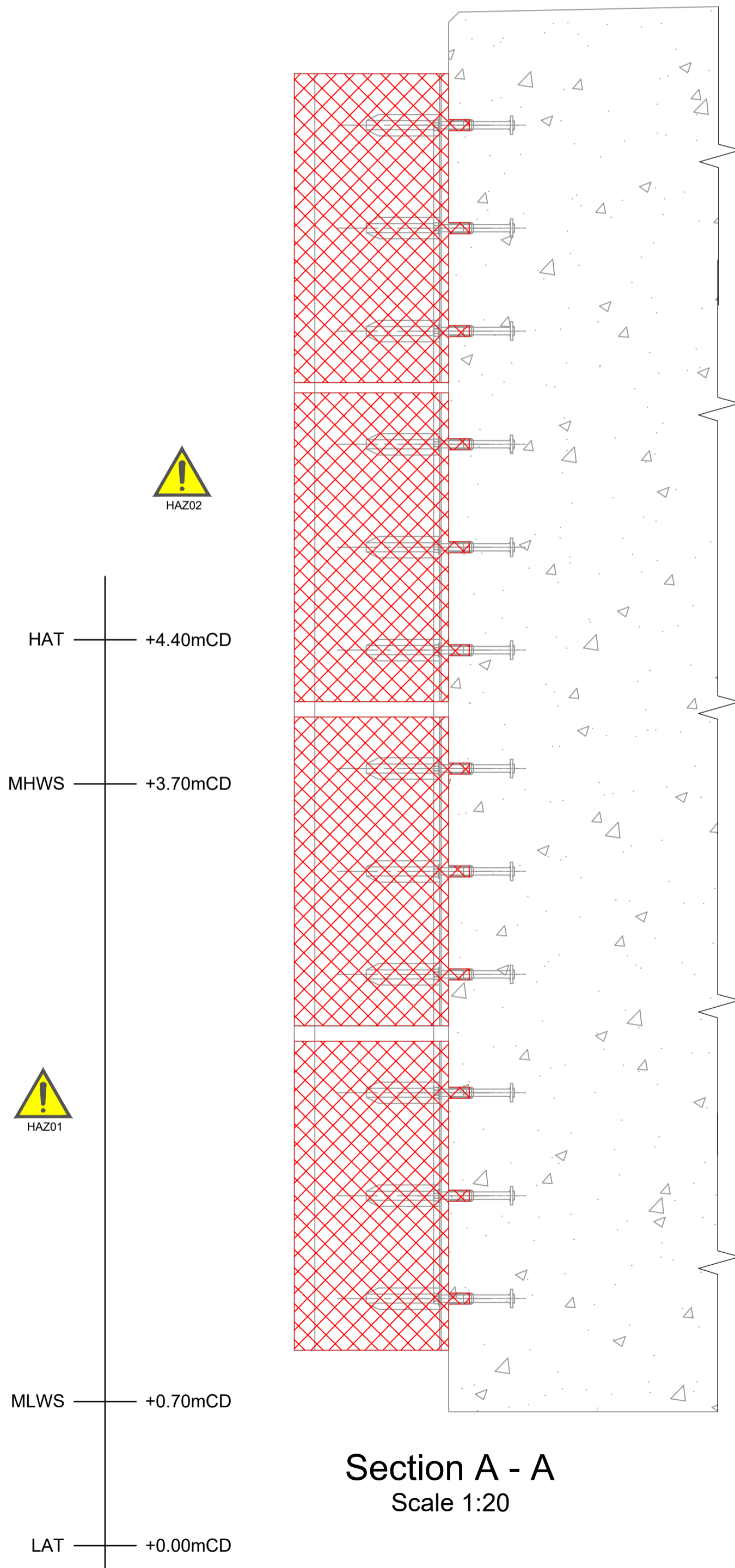
Title
New Islay Vessel Port Enabling Works
Colonsay
Existing Structures

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted			Suit. Code	A1
Drawing Number	105612-MMD-CO-ZZ-DR-C-0150			Rev	C01

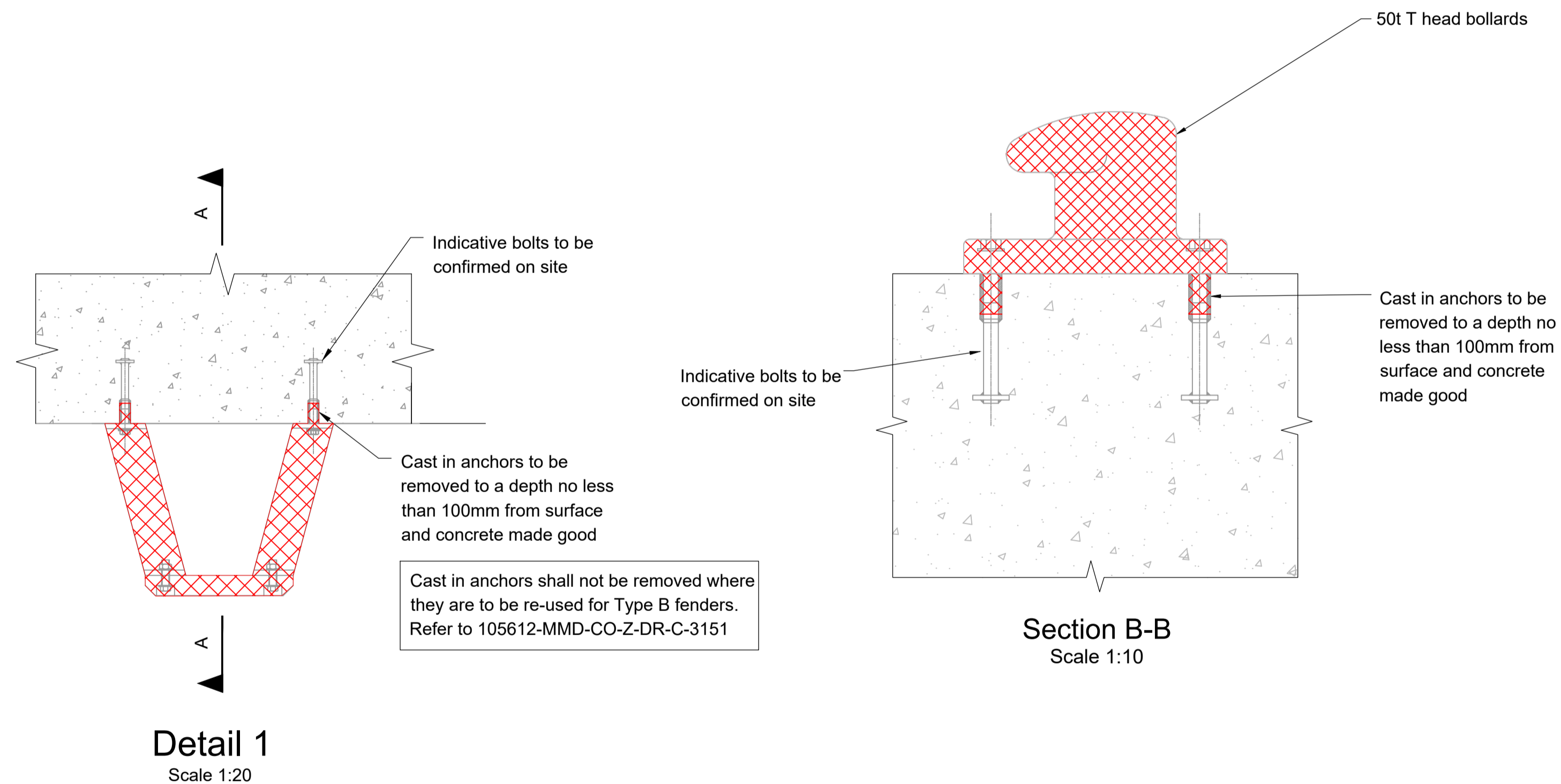
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
	Hazard Elimination & Risk Reduction has been undertaken and recorded where appropriate, in accordance with the requirements of "The Construction (Design and Management) Regulations 2015" and the associated "Industry Guidance for Designers" In addition to the hazards/risks normally associated with the types of work detailed on this drawing, please note the following:
CONSTRUCTION:	01 - N/A
OPERATIONS:	02 - N/A
MAINTENANCE:	03 - N/A
DEMOLITION:	HAZ01 - Submerged structures / tidal working HAZ02 - Demolition material shall be contained to avoid entering watercourse
FUTURE ANTICIPATED WORK:	05 - N/A



Plan
Scale 1:100

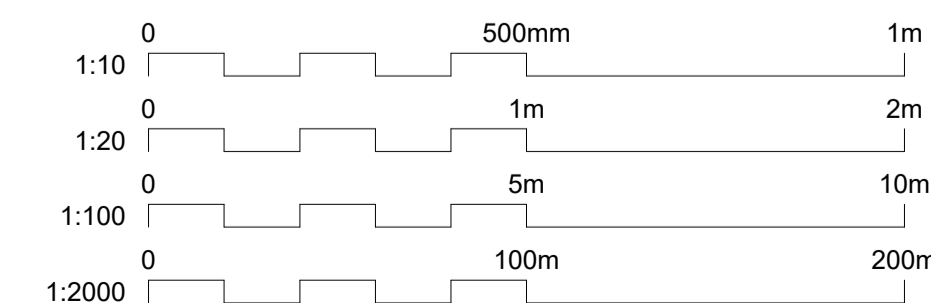


Section A - A
Scale 1:20



Detail 1
Scale 1:20

Section B-B
Scale 1:10



- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
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 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisk are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(")-ZZ-0011, where (") denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Minor or localised demolition has not been shown for clarity.
 - Demolition to be undertaken in accordance with the specification and all licenses.

Key to symbols

	Extent of Demolition
--	----------------------

Reference drawings


Topographical & Multibeam Bathymetric Survey
Reference: A8351_CD Scalasaig
Date of Survey: 29.09.2022

P01	17.03.2023	CC	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

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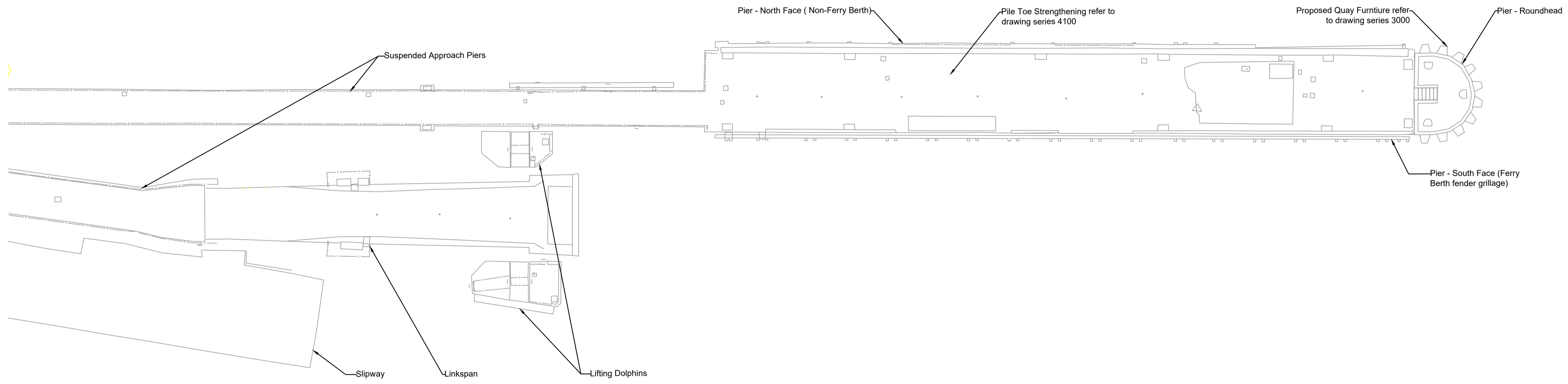
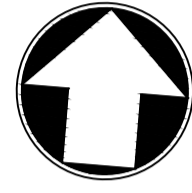
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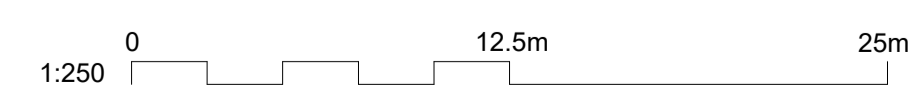


Title
New Islay Vessel Port Enabling Works
Colonsay
General Arrangement Demolition

Designed	F. Hogg	FH	Eng check	B. Radcliffe	BAR
Drawn	C. Campbell	CC	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612	Scale at A1	1:100	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-0200				Rev
					P04



Plan
Scale 1:250



- Notes
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 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.

Key to symbols

Reference drawings

Topographical & Multibeam Bathymetric Survey
Reference: A6351_CD Scalasaig
Date of Survey: 29.09.2022

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	LM	Tender Issue	BR	CO

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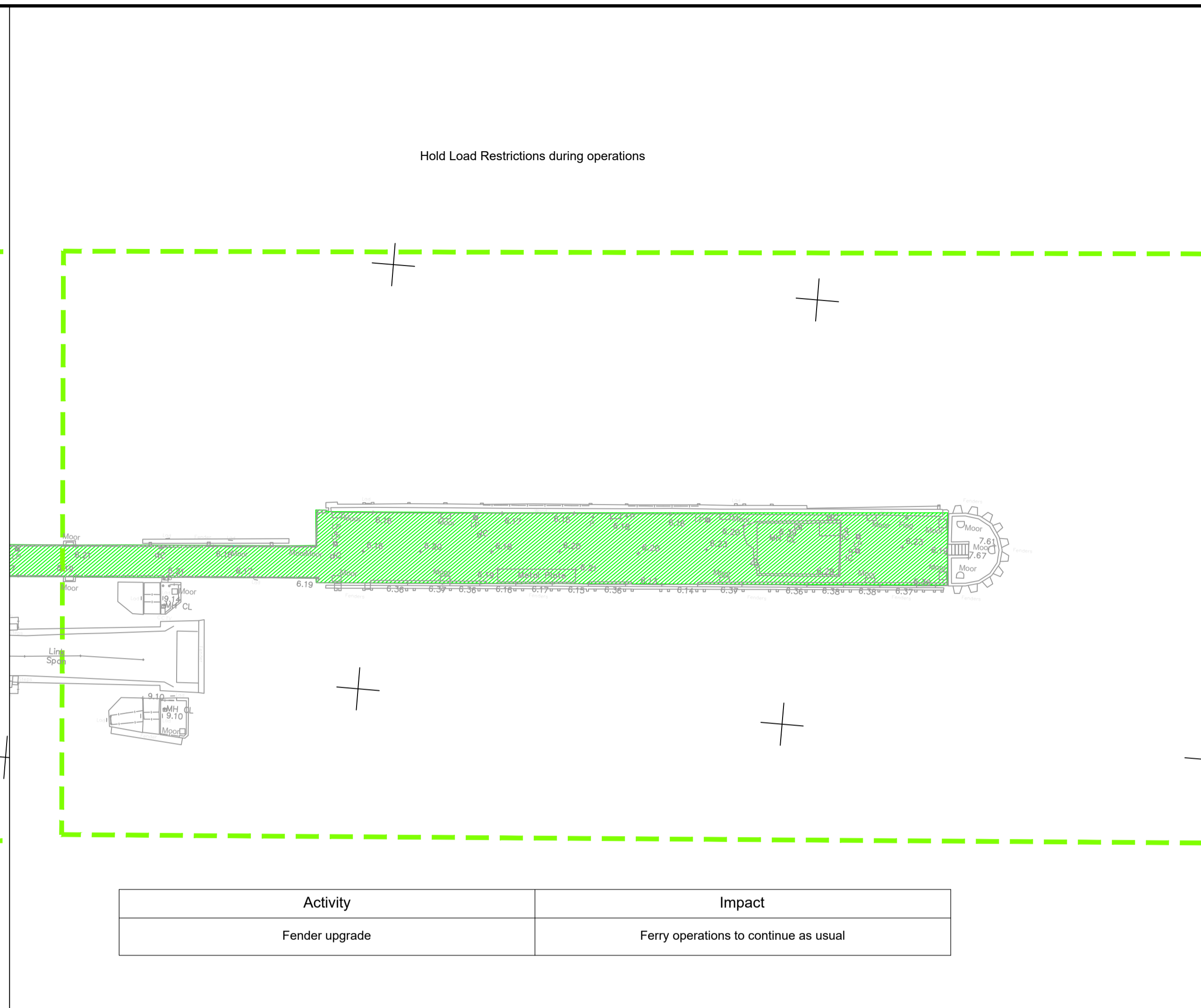
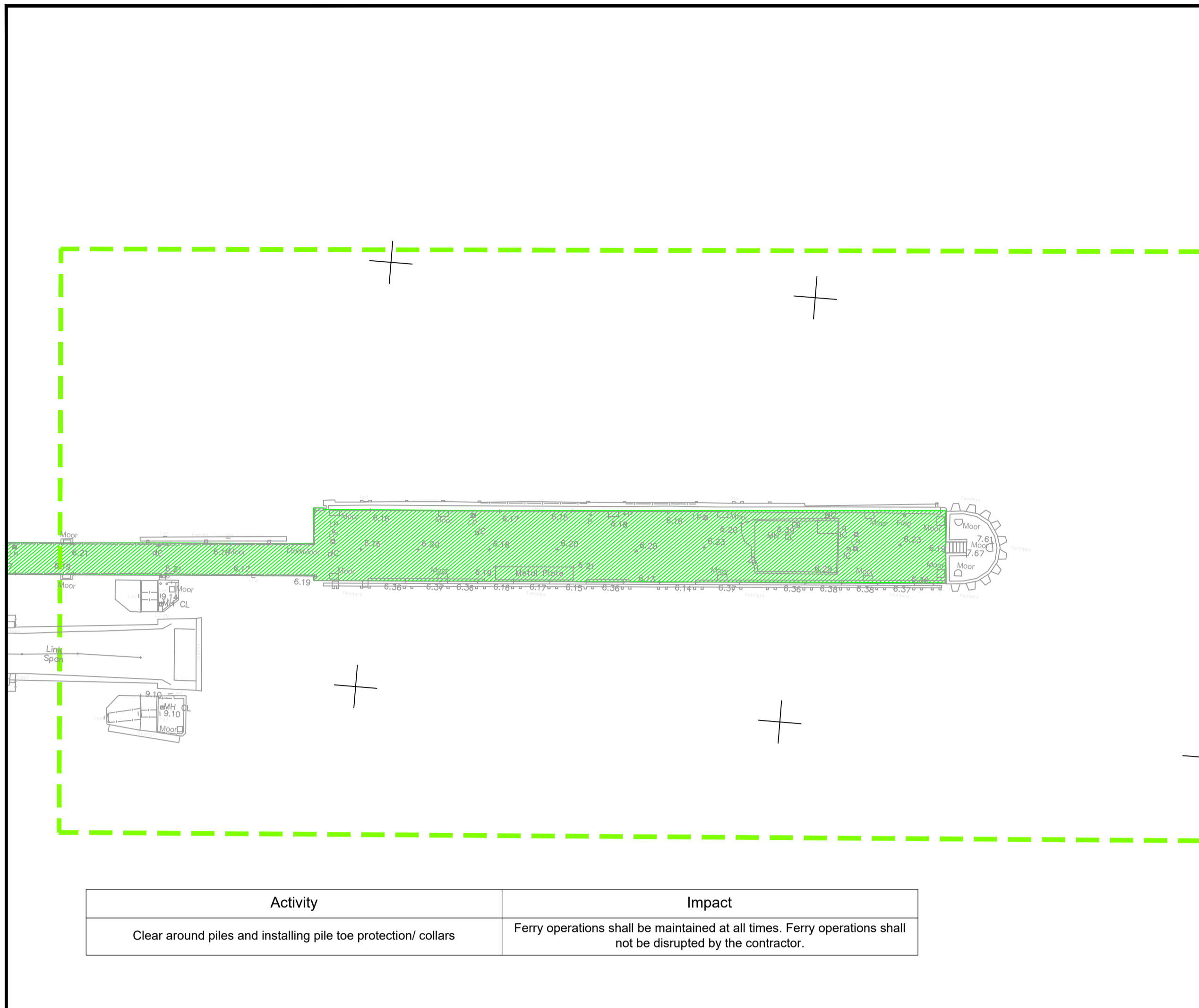
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

Title

**New Islay Vessel Port Enabling Works
Colonsay
General Arrangement
& Setting Out**

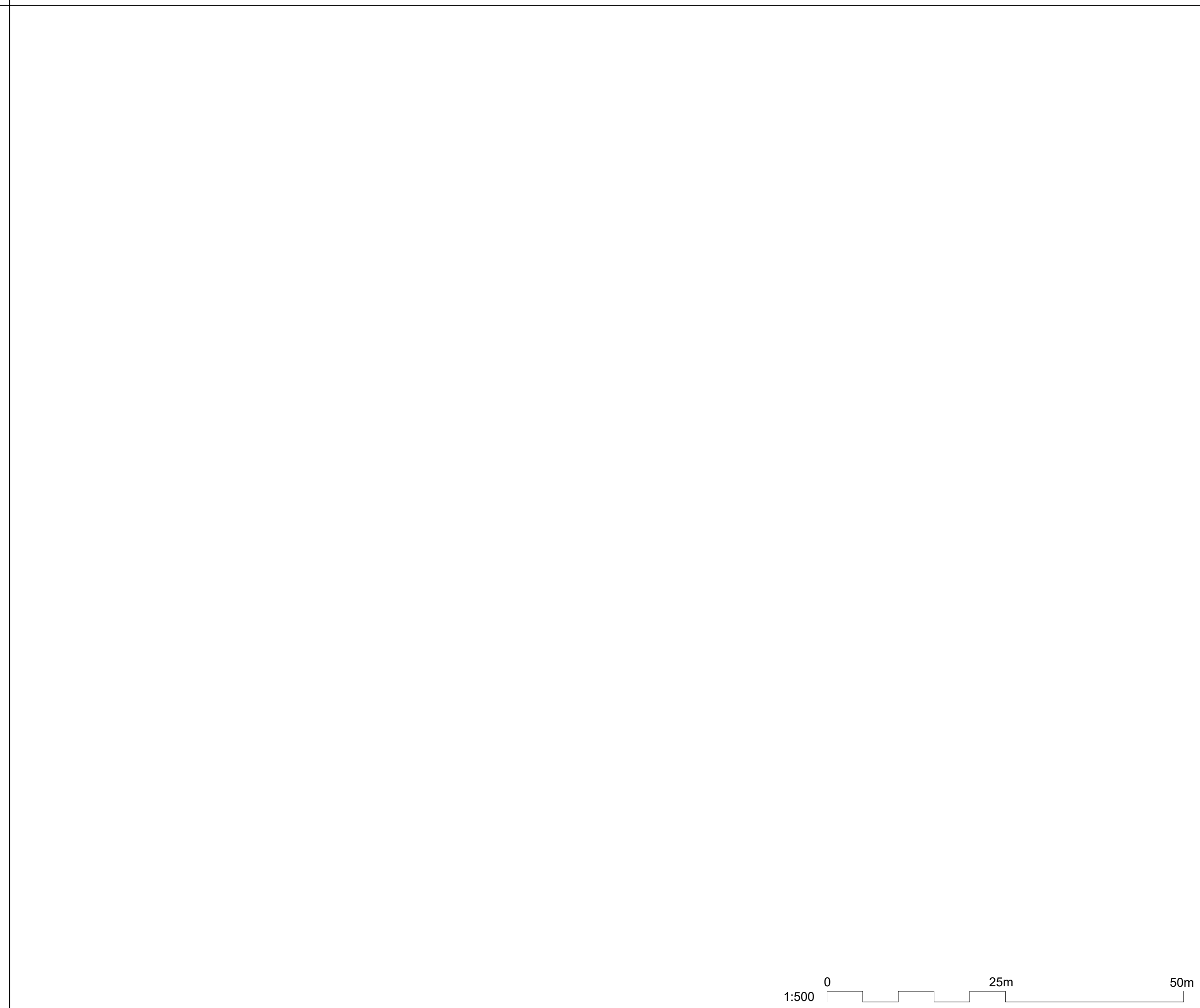
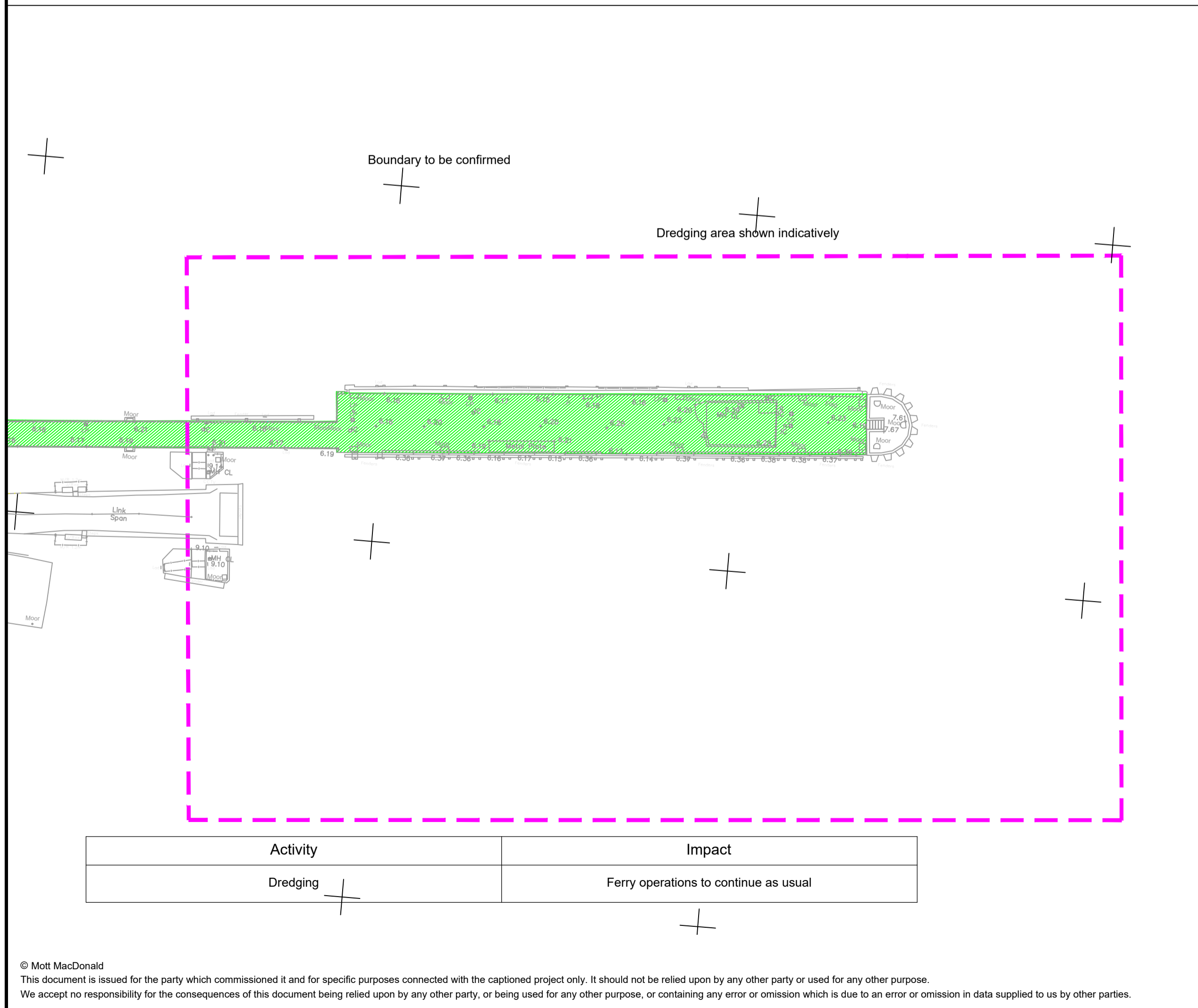
Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612	Scale at A1	1:250	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-1000				Rev
					C01

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Activity	Impact
Clear around piles and installing pile toe protection/ collars	Ferry operations shall be maintained at all times. Ferry operations shall not be disrupted by the contractor.

Activity	Impact
Fender upgrade	Ferry operations to continue as usual



Activity	Impact
Dredging	Ferry operations to continue as usual

- Notes
- These drawings are indicative only and are subject to design development.
 - All dimensions in millimetres unless noted otherwise.
 - All bathymetric levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - All topographical levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetric information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - For general notes refer to drawing 105612-MMD-(")-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - This drawing shall be read in conjunction with the scope.
 - The Project Manager shall be notified immediately of any discrepancy encountered on site.
 - Unless noted otherwise access for ferry operations shall be maintained at all times. Ferry operations shall not be disrupted by the contractor.

Key to symbols

- DA - Dredging Area*
- CW - Contractors Working Area 1*
- SC - Contractors Site Compound & Materials Storage
- Local Access to be Maintained Throughout Works
- Pedestrian and Vehicle Access for Ferry Operations to be Maintained Clear

CONSTRUCTION SEQUENCE SHOWN IS PROPOSED IN ORDER TO MINIMISE DOWNTIME OF THE BERTH. CONTRACTOR MAY PROPOSE ALTERNATIVE SEQUENCE FOR REVIEW BY EMPLOYER

Reference drawings

Topographical & Multibeam Bathymetric Survey
Reference: A6351_CD_Scalasaig
Date of Survey: 29.09.2022

C01	17.03.2023	JB	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

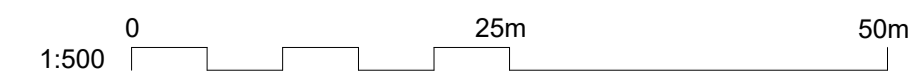
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

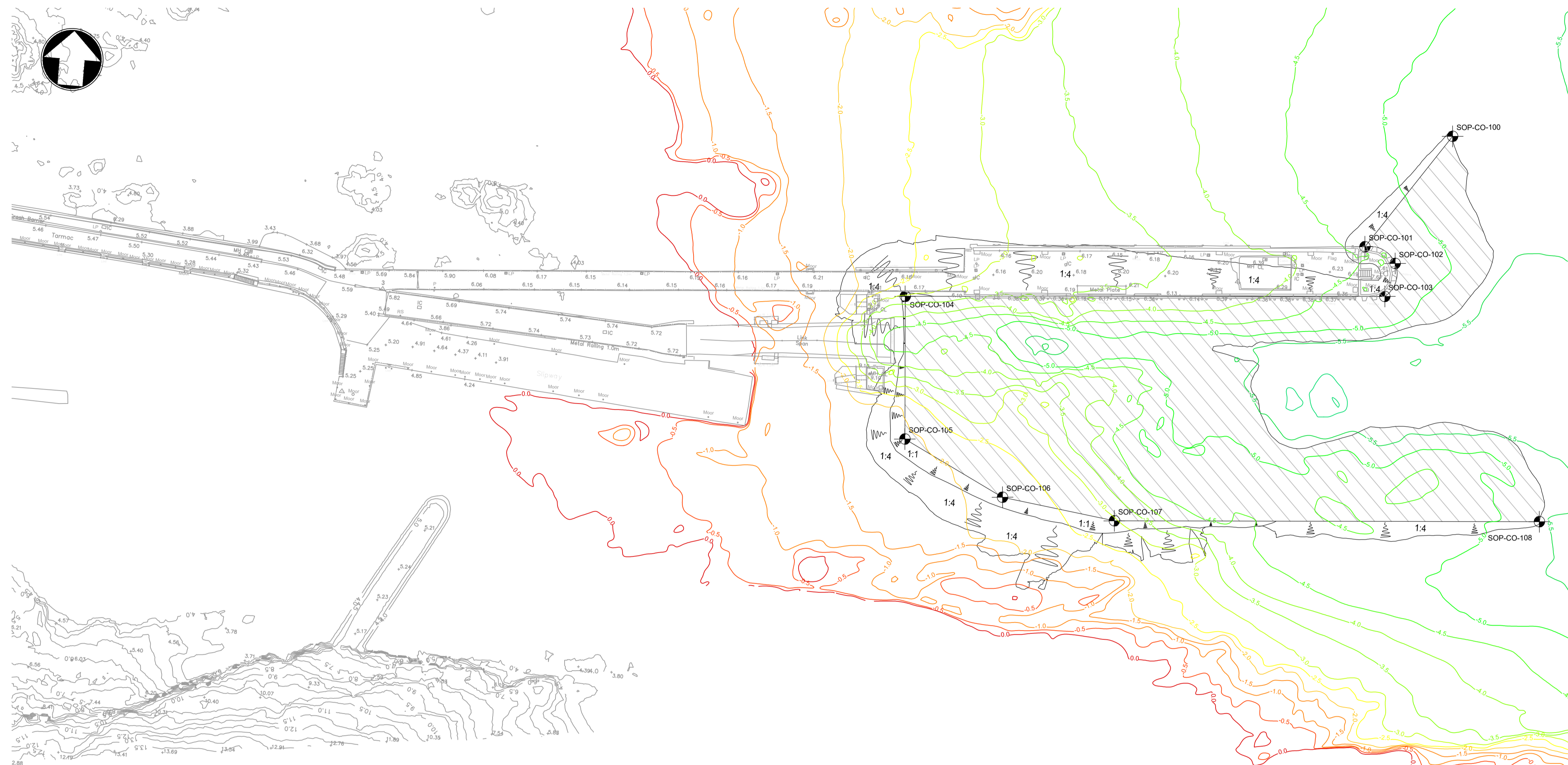


Title

New Islay Vessel Port Enabling Works
Colonsay
General Arrangement
Construction Sequence

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohi	CO
MMD Project Number	105612		Scale at A1	1:500	
Suitability Description	Authorised and Accepted				Security Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-1020				Rev
					STD
					A1
					C01





Plan
Scale 1:500

Design Dredge Level (CD)	Approx. Dredge Pocket Plan Area (m ²)	Approx. Dredge Slope Plan Area (m ²)	Approx. Dredge Volume (m ³)	Approx. Dredge Volume Marine Deposits (m ³)	Approx. Dredge Volume Rock (m ³)
-5.5m	4100	1800	5900	4000	1900

Dredging Setting Out		
Setting Out Point	Easting	Northing
SOP-CO-100	139733.2678	694149.2260
SOP-CO-101	139718.5230	694127.1660
SOP-CO-102	139724.4523	694124.4944
SOP-CO-103	139723.0165	694118.1515
SOP-CO-104	139633.0474	694110.7711
SOP-CO-105	139635.1879	694083.9936
SOP-CO-106	139654.4042	694074.5897
SOP-CO-107	139675.7454	694071.8987
SOP-CO-108	139755.4875	694078.2883



- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetric information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011 (**) denotes field 3 Volume or system varies per project site CO, KE & PA.
 - Refer to Aspect survey drawing AB351_CD for further details on the accuracy & limitations of the survey.
 - Dredging shall be completed in accordance with the specification, refer to spec for details.
 - Dredge Volumes are estimates, contractor shall make own assessment.
 - Volumes & areas based on Surveys. Refer to specification for dredging tolerance.

- Key to symbols
- Area to be Dredged to -5.5m C.D. (Dredge Pocket)
 - 5.5m C.D. Dredge Area Setting Out Point
- Bathymetric Contours (2022 Survey):
- 0.0 - 0.0m C.D. Contour
 - 0.5 - -0.5m C.D. Contour
 - 1.0 - -1.0m C.D. Contour
 - 1.5 - -1.5m C.D. Contour
 - 2.0 - -2.0m C.D. Contour
 - 2.5 - -2.5m C.D. Contour
 - 3.0 - -3.0m C.D. Contour
 - 3.5 - -3.5m C.D. Contour
 - 4.0 - -4.0m C.D. Contour
 - 4.5 - -4.5m C.D. Contour
 - 5.0 - -5.0m C.D. Contour
 - 5.5 - -5.5m C.D. Contour
 - 6.0 - -6.0m C.D. Contour

Key Reference Information

External Drawings:
Topographical Survey
Reference: AB351_CD
Date of Survey: 29.11.2022
Bathymetric Survey
Reference: AB351_CD
Date of Survey: 29.11.2022

P01	17.03.2023	LM	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

Status Stamp
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Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ



Title
New Islay Vessel Port Enabling Works
Port Ellen
Dredging Plan

Designed	M. Kirkpatrick	MK	Eng check	M. Kirkpatrick	MK
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C.Ohl	CO
MMD Project Number	105612	Scale at A1	1:500	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-1100				Rev
					C01

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Hazard Elimination & Risk Reduction has been undertaken and recorded where appropriate, in accordance with the requirements of "The Construction (Design and Management) Regulations 2015" and the associated "Industry Guidance for Designers" In addition to the hazards/risks normally associated with the types of work detailed on this drawing, please note the following:

CONSTRUCTION:
 HAZ01 - Interface with other port users (i.e access required)
 HAZ02 - Weight Restrictions on Existing Quay tbc
 HAZ03 - Live Port & Operations
 HAZ04 - Public accessible areas
 HAZ05 - Ferry to operate and continue during enabling works
 HAZ06 - Mooring lines impact construction activities
 HAZ07 - Submerged structures / tidal working

OPERATIONS:
 N/A

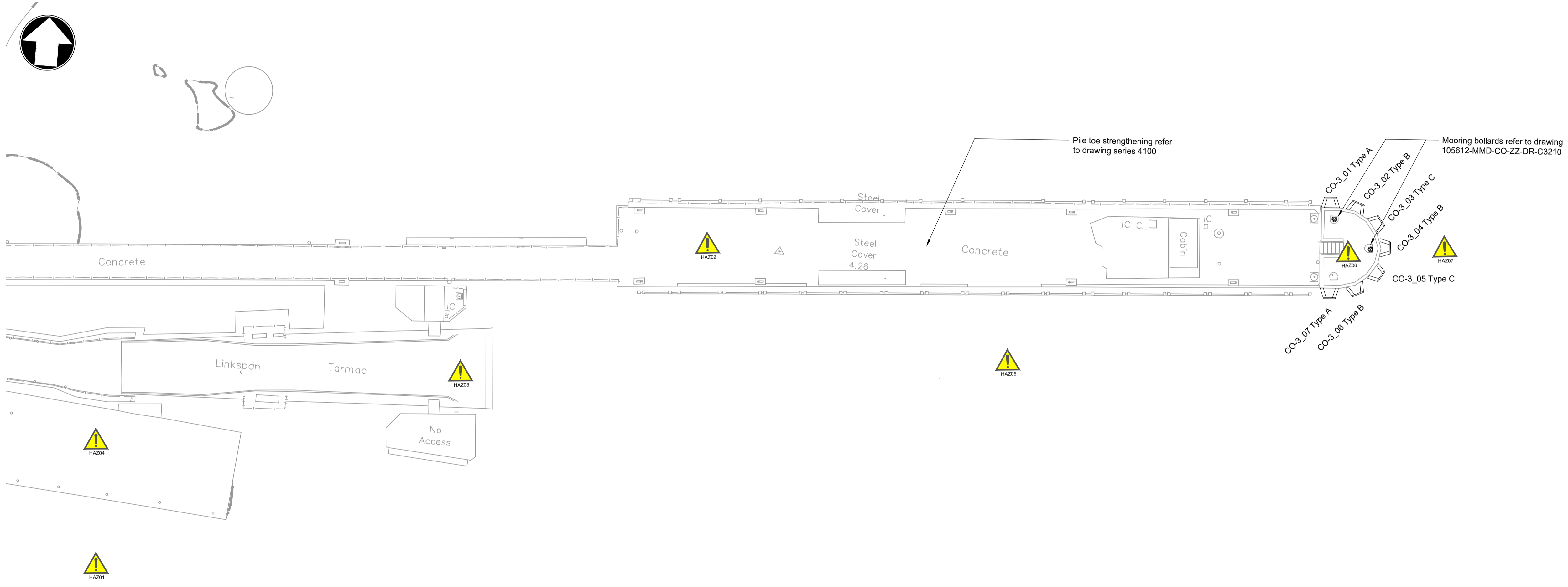
- Notes**
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetric information provided
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.

Key to symbols

Reference drawings

Topographical Survey
 Reference: A8351_CD Scalasaig Topographic & Multibeam Bathymetric Survey
 Date of Survey: 29.09.22

Bathymetric Survey
 Reference: A8351_CD Scalasaig Topographic & Multibeam Bathymetric Survey
 Date of Survey: 29.09.22



Plan
 Scale 1:250

Fenders		
Number	Type	Drawing Reference
CO-3_1 Type A	CO-3	105612-MMD-CO-ZZ-DR-C-3150
CO-3_2 Type B	CO-3	105612-MMD-CO-ZZ-DR-C-3151
CO-3_3 Type C	CO-3	105612-MMD-CO-ZZ-DR-C-3152
CO-3_4 Type B	CO-3	105612-MMD-CO-ZZ-DR-C-3151
CO-3_5 Type C	CO-3	105612-MMD-CO-ZZ-DR-C-3152
CO-3_6 Type B	CO-3	105612-MMD-CO-ZZ-DR-C-3151
CO-3_7 Type A	CO-3	105612-MMD-CO-ZZ-DR-C-3150

C01	17.03.2023	LM	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

Status Stamp

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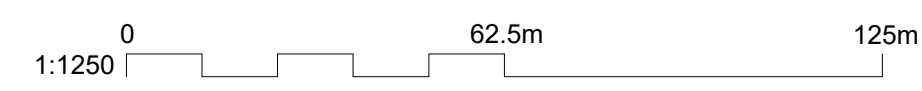
Client

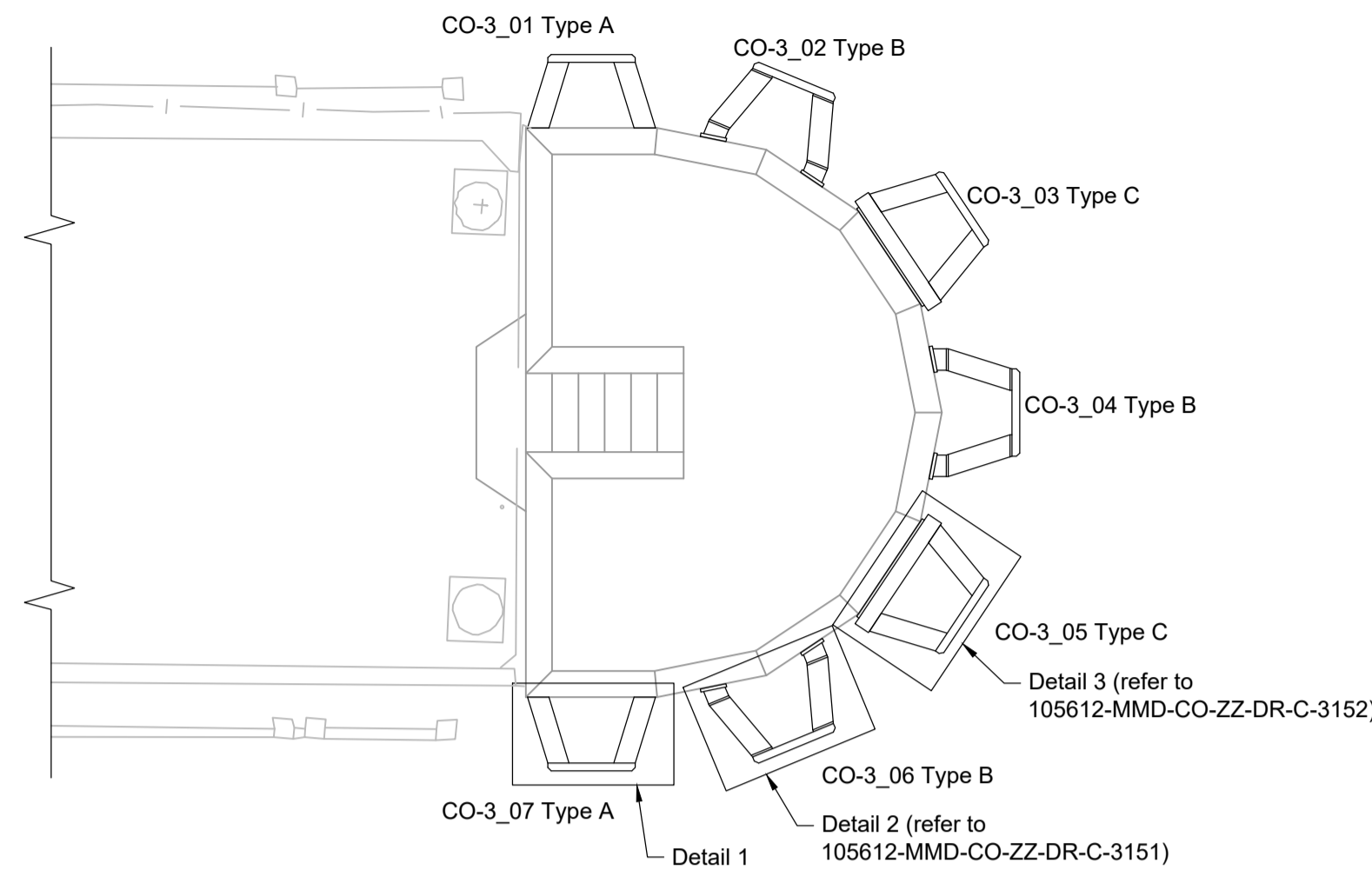
Caledonian Maritime Assets Limited
 Municipal Buildings
 Fore Street
 Port Glasgow
 PA14 5EQ

Title

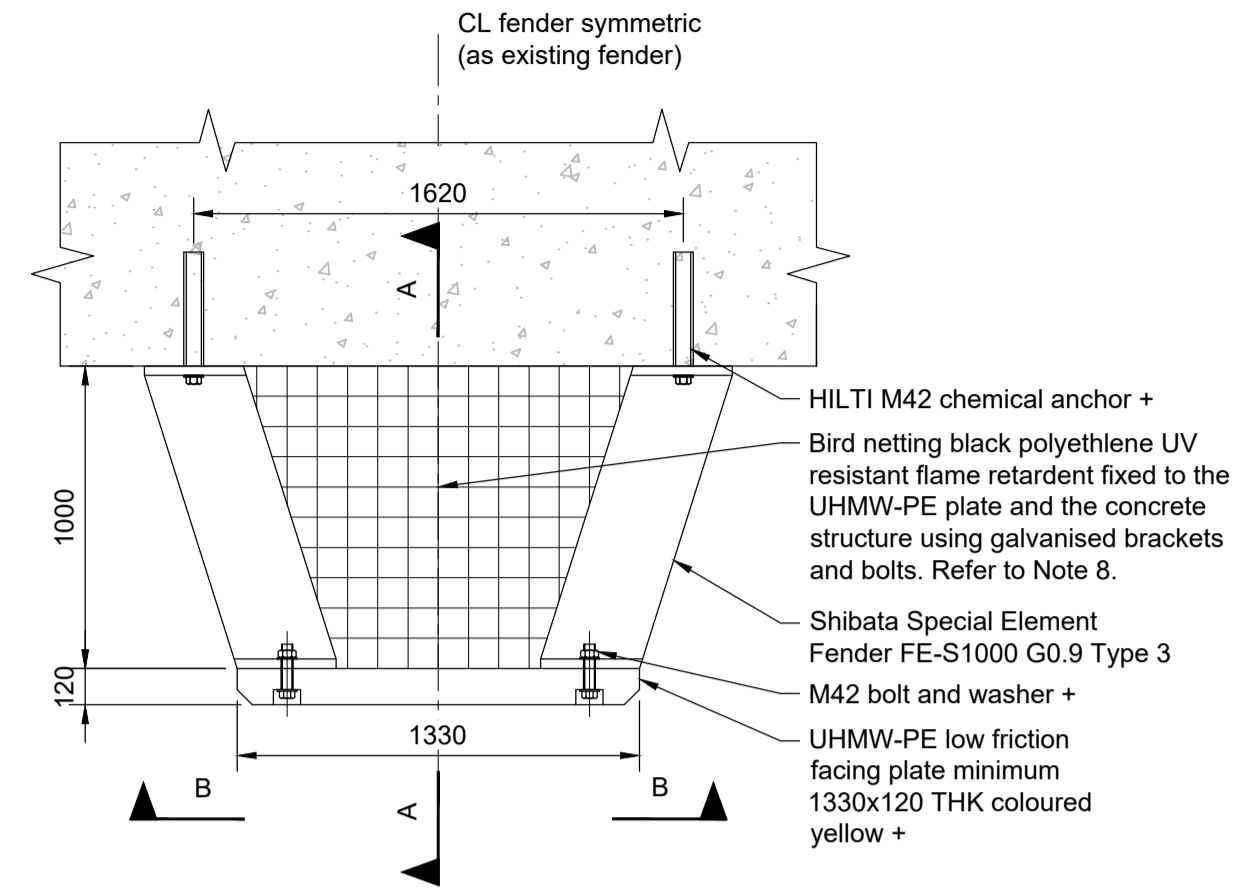
New Islay Vessel Port Enabling Works
Colonsay
Proposed Quay Furniture
General Arrangement

Designed	C. Flower	CF	Eng check	F. Hogg	FH
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	1:250	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-3000				Rev
					C01

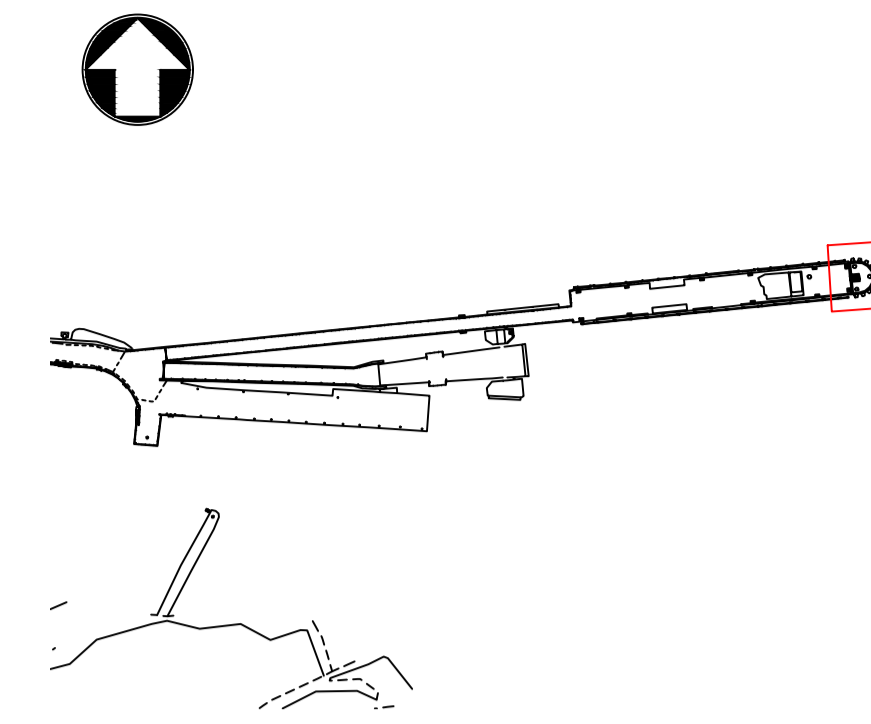




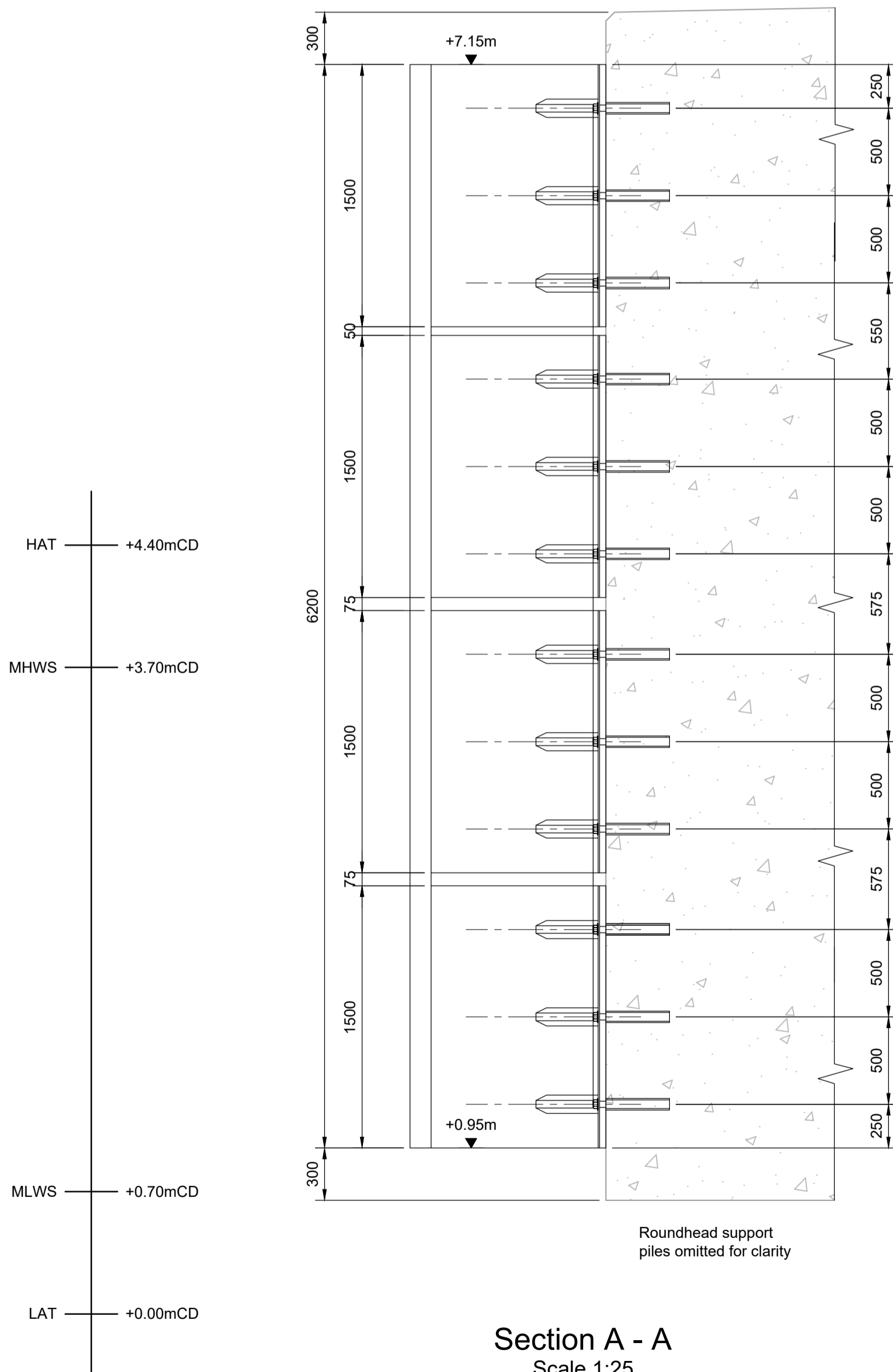
Plan
Scale 1:100



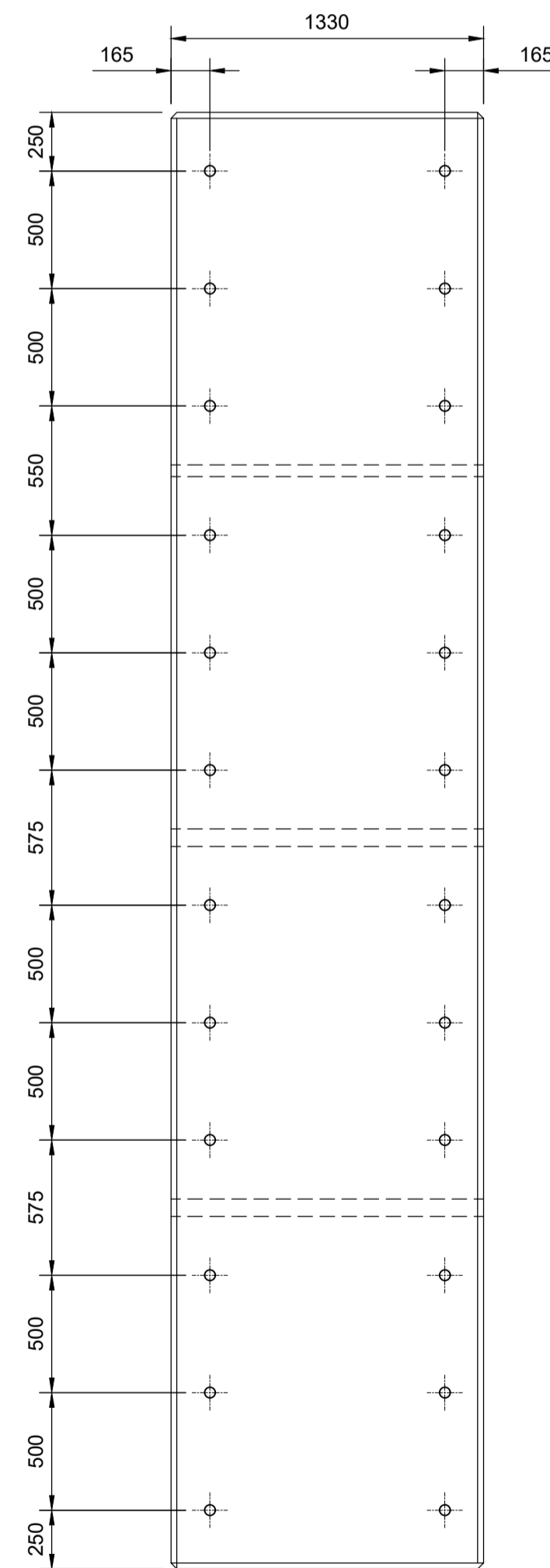
Detail 1
Fender Type A
Scale 1:25



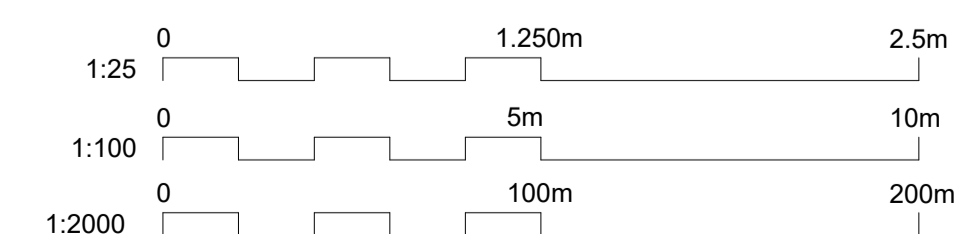
Key Plan
Scale 1:2000



Section A - A
Scale 1:25



Elevation B-B
Scale 1:25



- Notes
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetrical information provided
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Bird netting shall be as per existing on fenders, designed, supplied and installed by Eco Environmental Services Ltd. www.ecold.net. Refer to drawing 105612-MMD-00-ZZ-DR-C-3100.
 - New fenders to be supplied complete with all fixings (bolts, washers etc.) unless noted otherwise.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with fender manufacturers recommendations.
 - All steelwork to be S355 J2 unless noted otherwise.
 - Notes followed by * denote dimensions that the Contractor shall verify.
 - All steelwork to be painted in accordance with the specification.

Key to symbols

	Concrete
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Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	RG	Tender Issue	FH	CO

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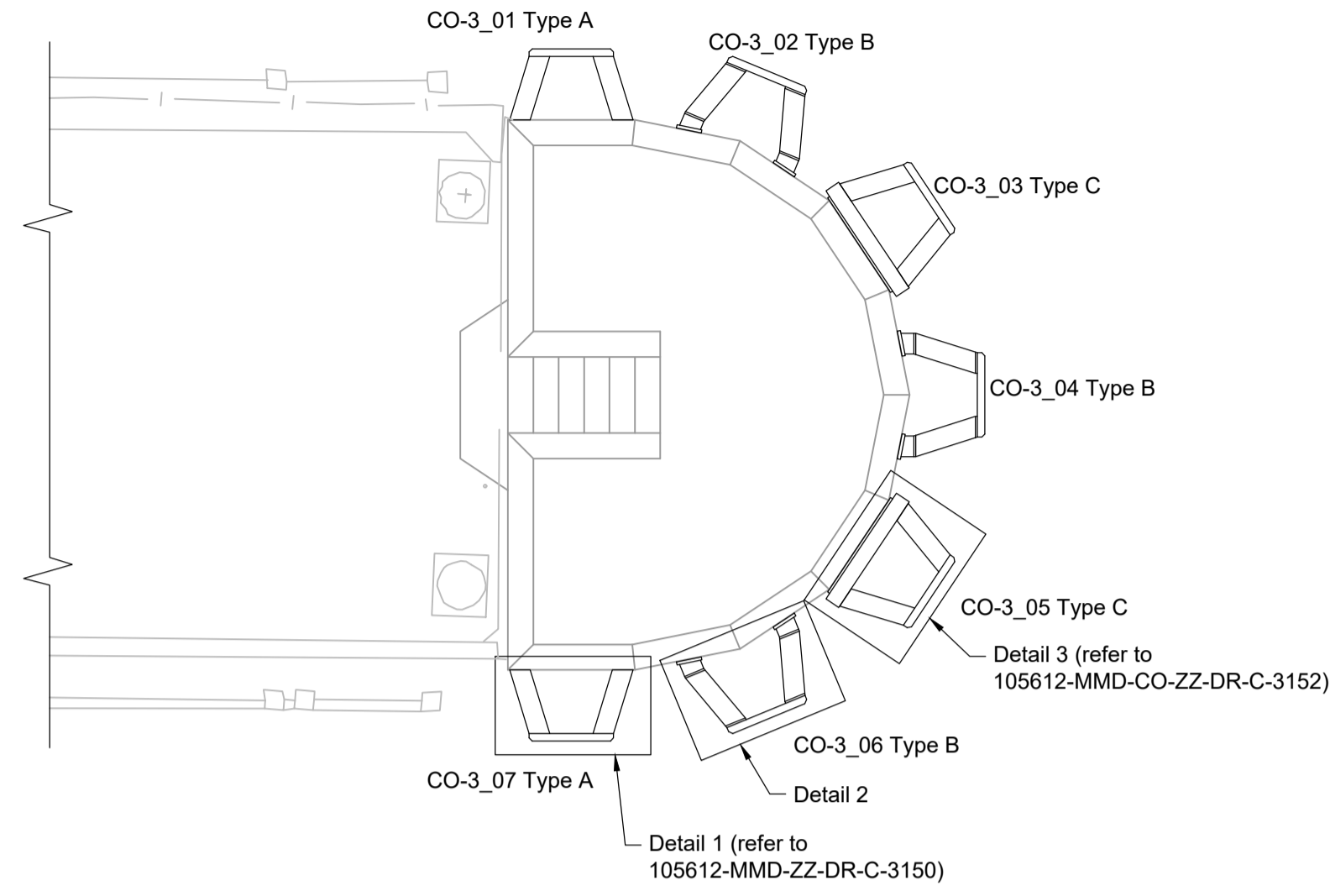
Client

Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

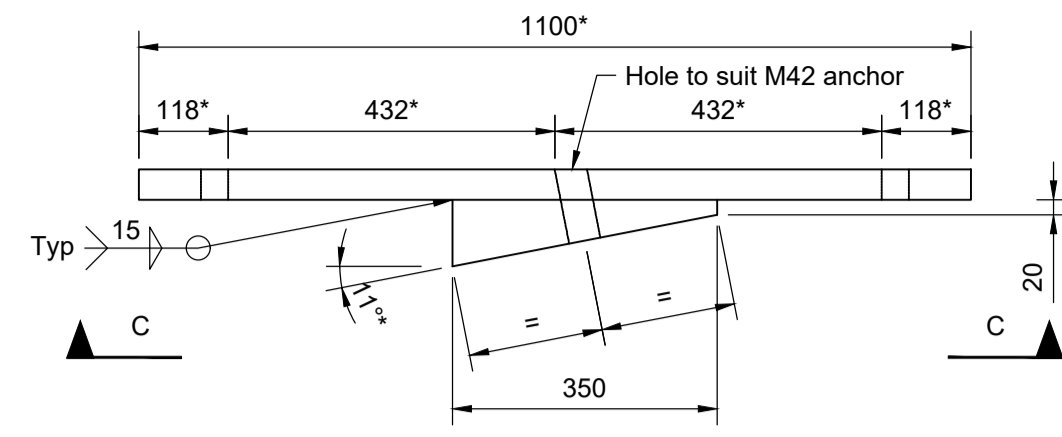
Title

New Islay Vessel Port Enabling Works
Colonsay
Roundhead Fenders
Fender Type A

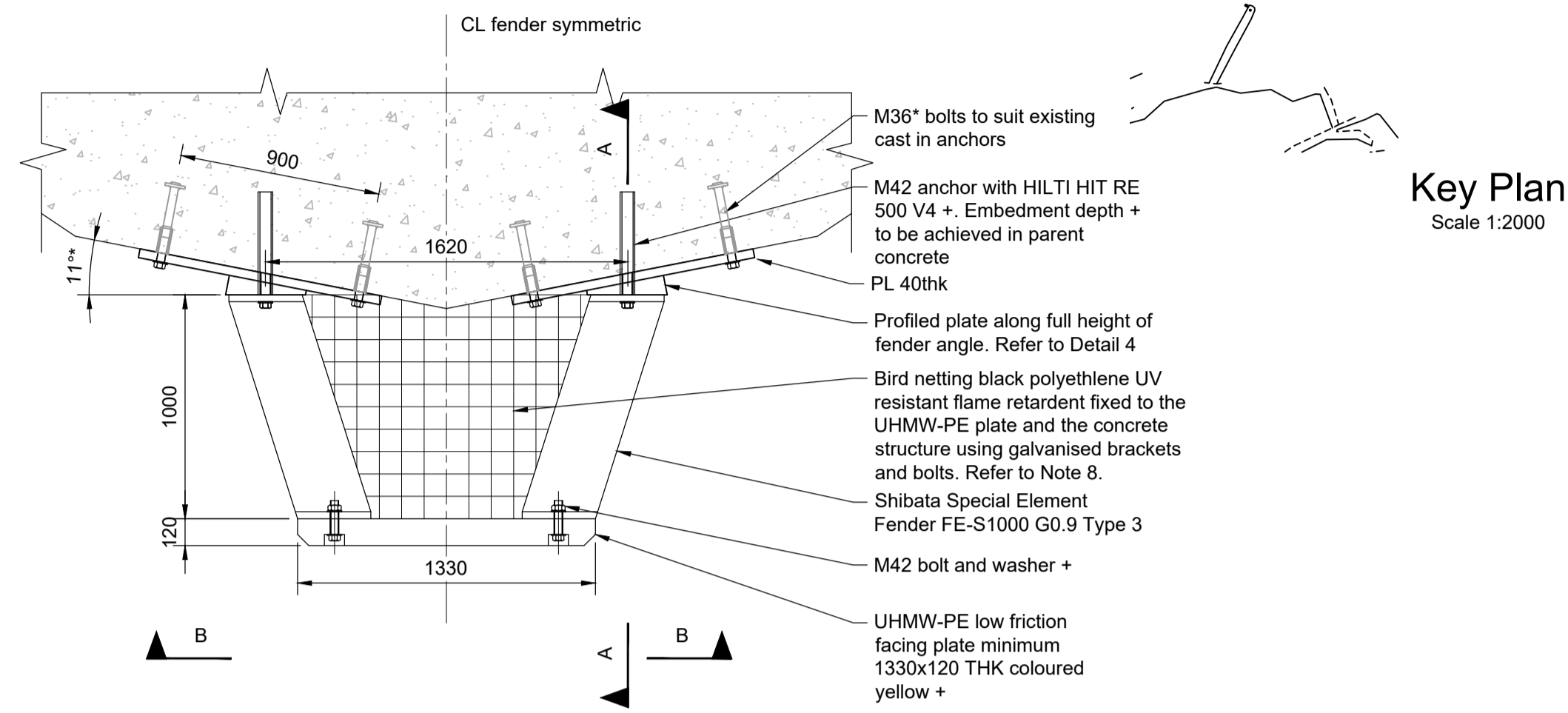
Designed	C. Flower	CF	Eng check	F. Hogg	FH
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-3150				Rev
					C01



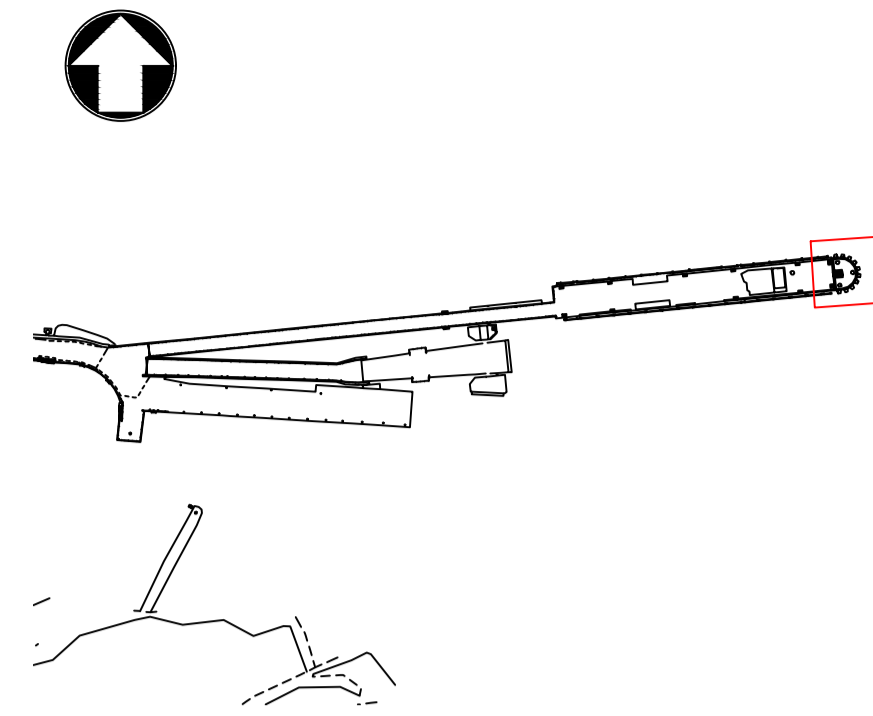
Plan
Scale 1:100



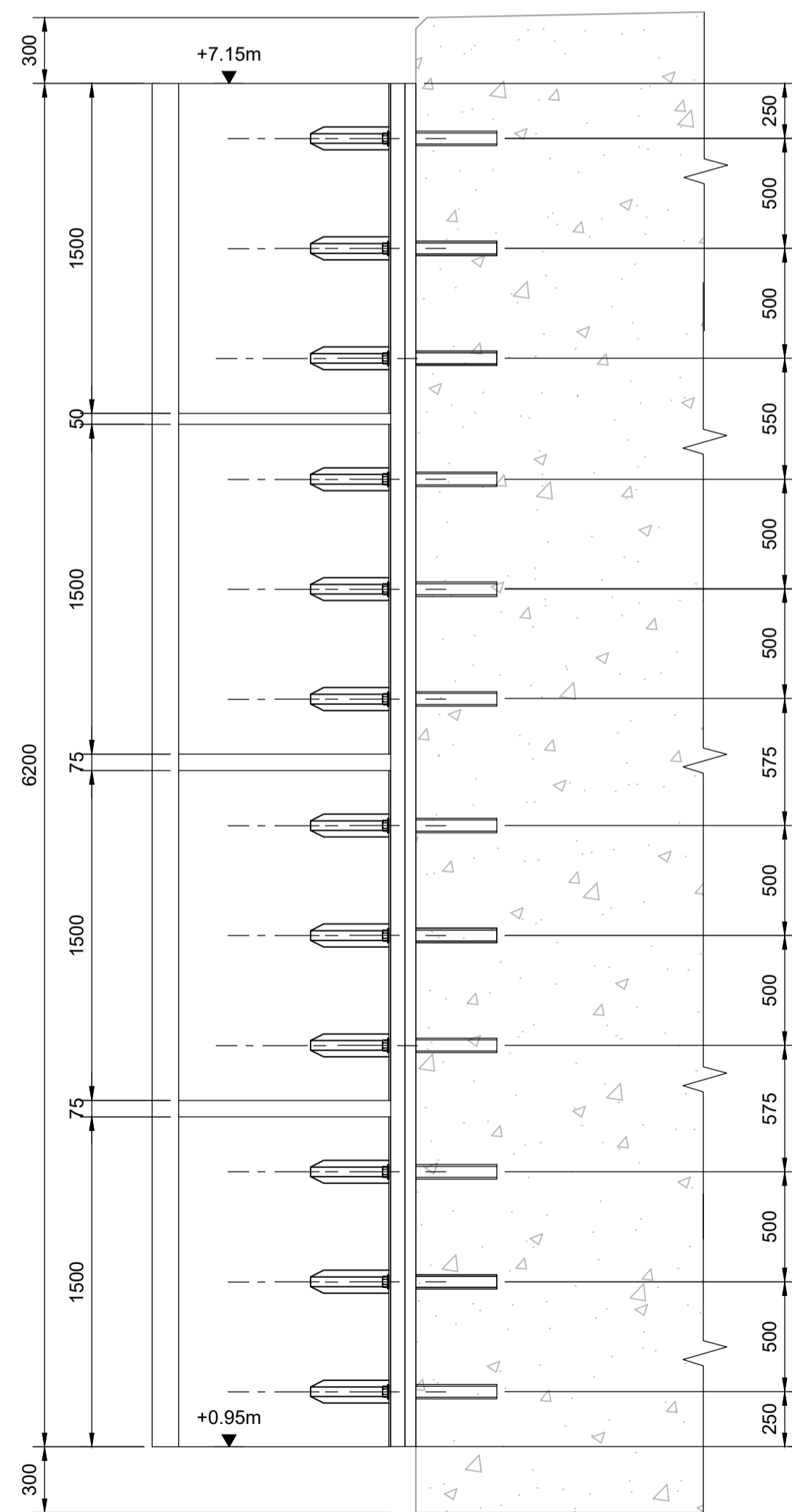
Detail 4
(3No. thus, 3No. mirrored)
Scale 1:10



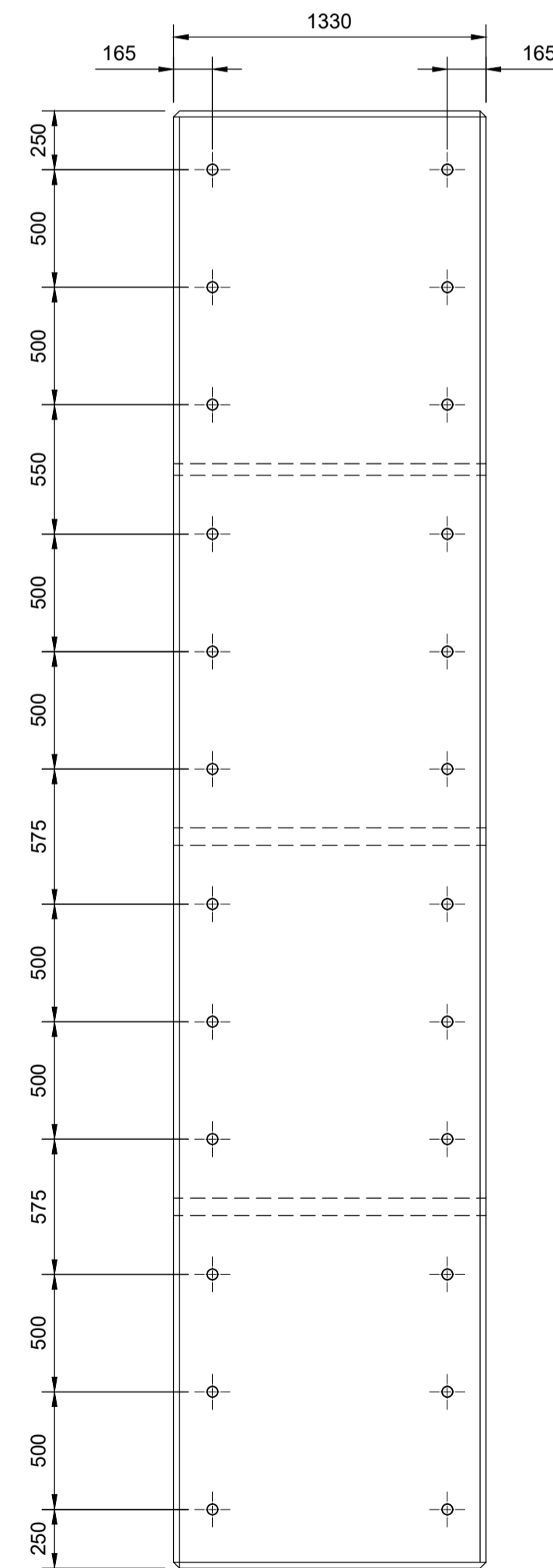
Detail 2
Fender Type B
Scale 1:25



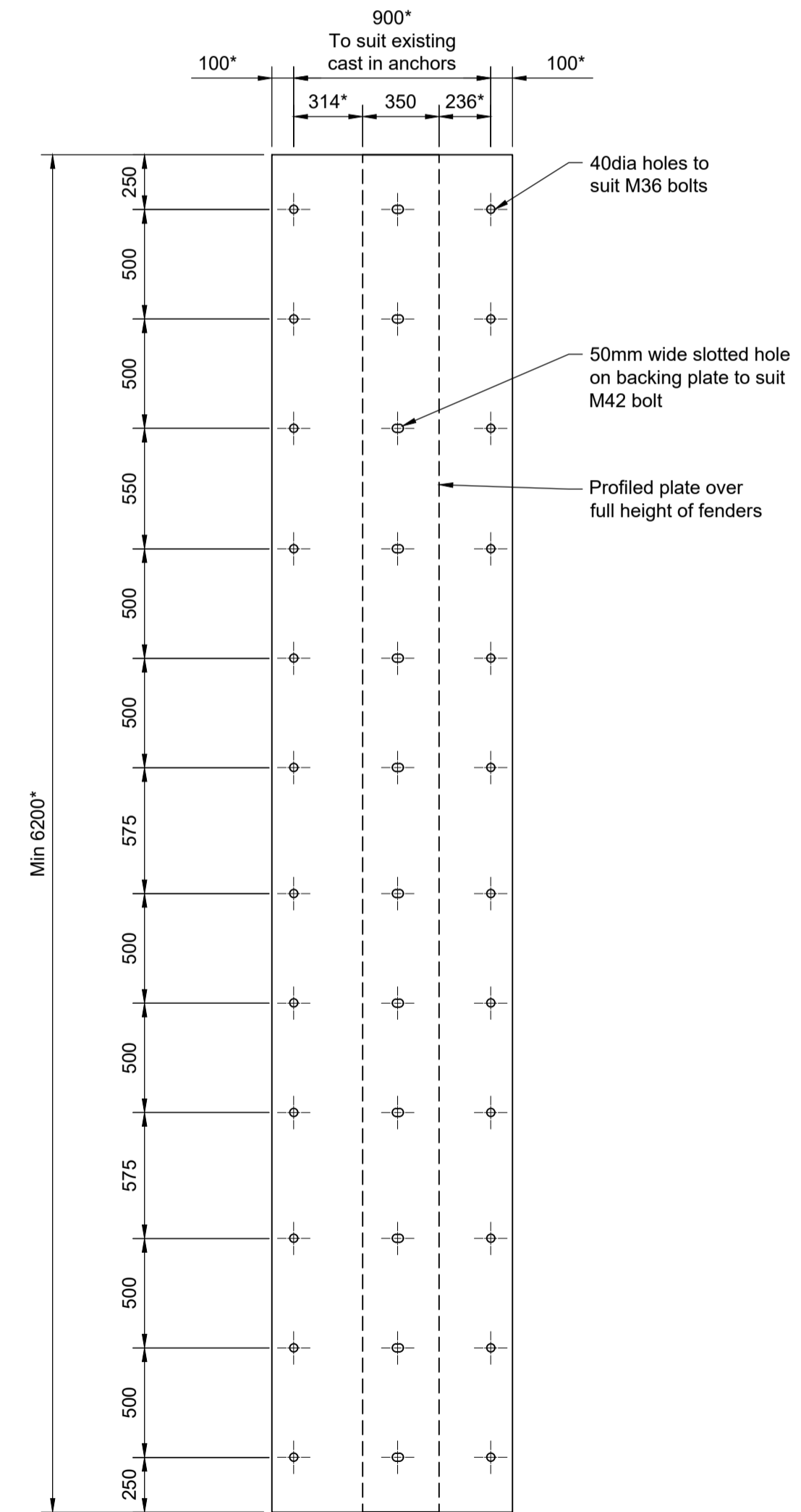
Key Plan
Scale 1:2000



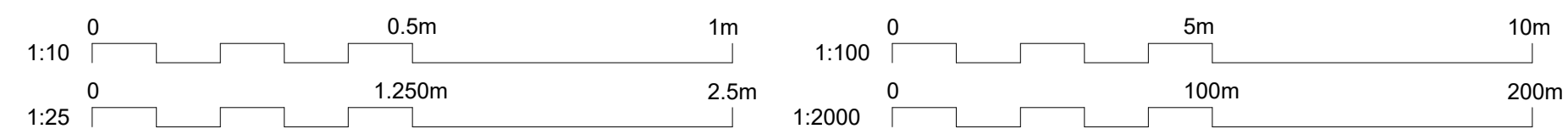
Section A - A
Scale 1:25



Elevation B-B
Scale 1:25



Elevation C-C
(3No. thus, 3No. mirrored)
Scale 1:25



- Notes
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 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Bird netting shall be as per existing on fenders, designed, supplied and installed by Eco Environmental Services Ltd. www.ecoltd.net. Refer to drawing 105612-MMD-00-ZZ-DR-C-3100.
 - New fenders to be supplied complete with all fixings (bolts, washers etc.) unless noted otherwise.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with fender manufacturers recommendations.
 - All steelwork to be S355 J2 unless noted otherwise.
 - Notes followed by * denote dimensions that the Contractor shall verify.
 - All steelwork to be painted in accordance with the specification.

Key to symbols

	Concrete
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Reference drawings

C01	17.03.2023	RG	Tender Issue	FH	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd

Status Stamp
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Client
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Municipal Buildings
Fore Street
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PA14 5EQ

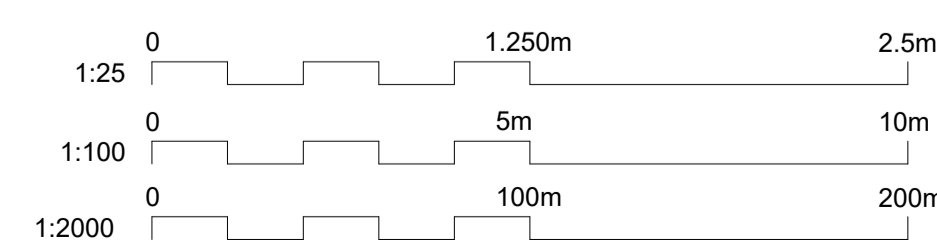
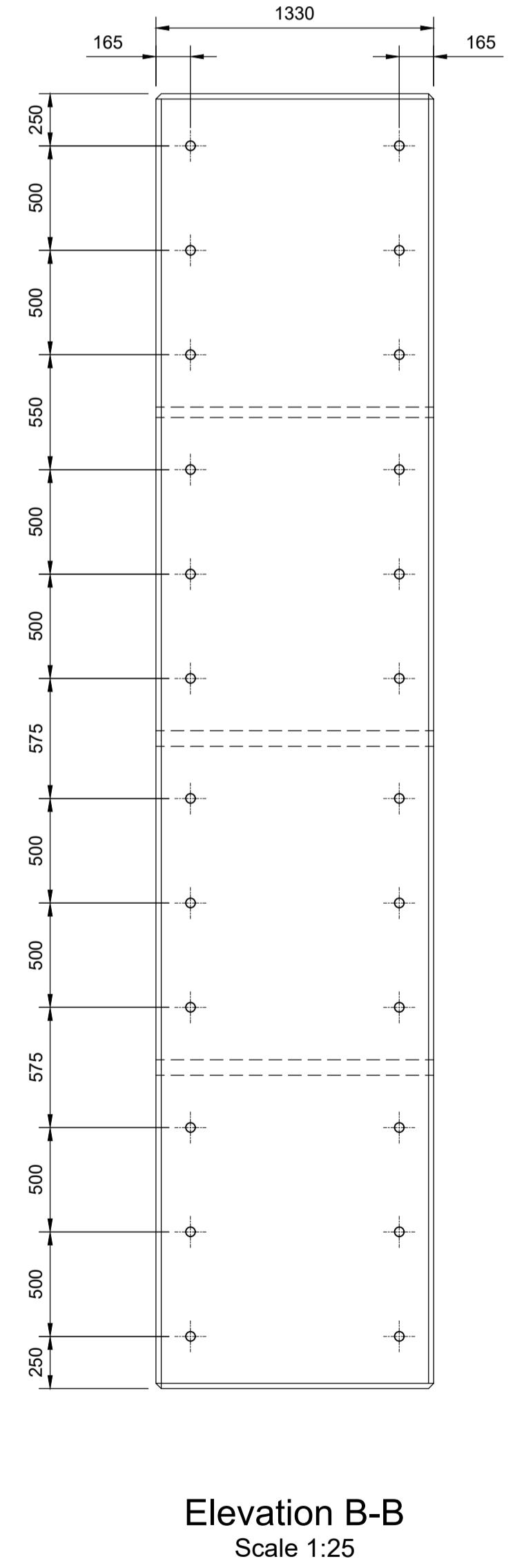
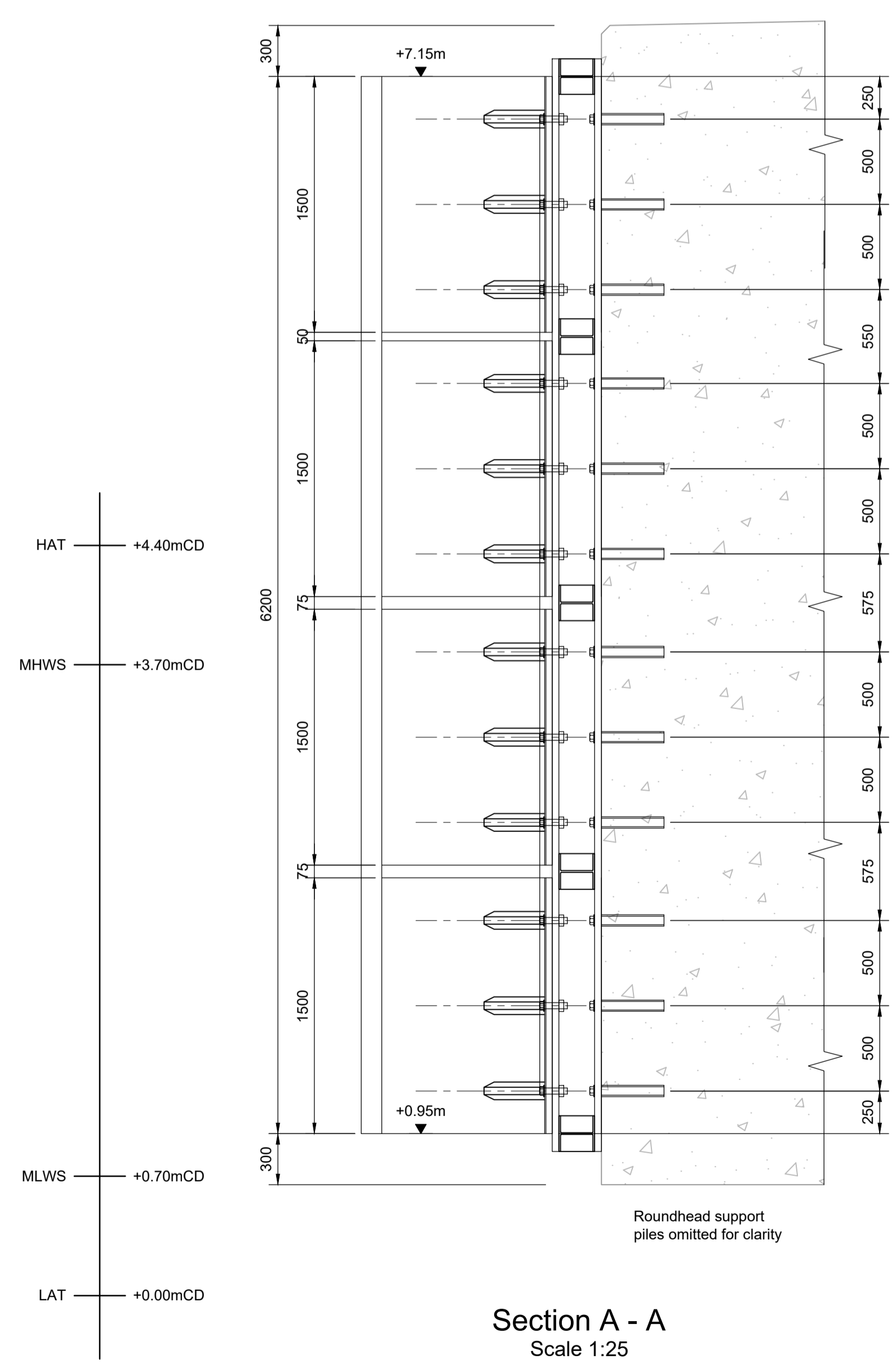
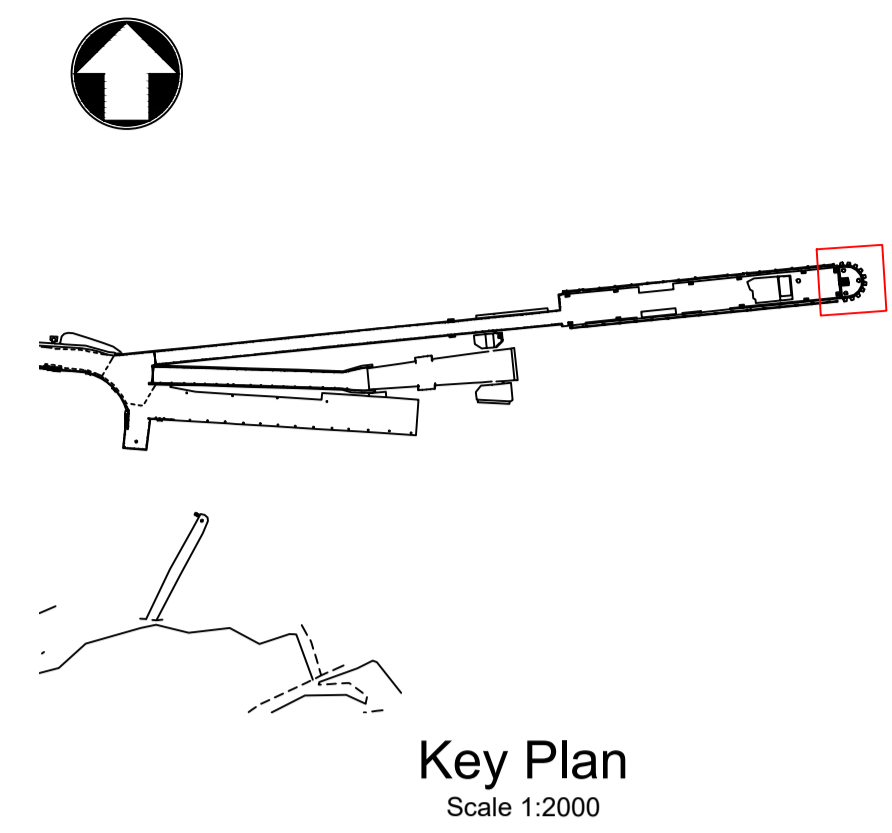
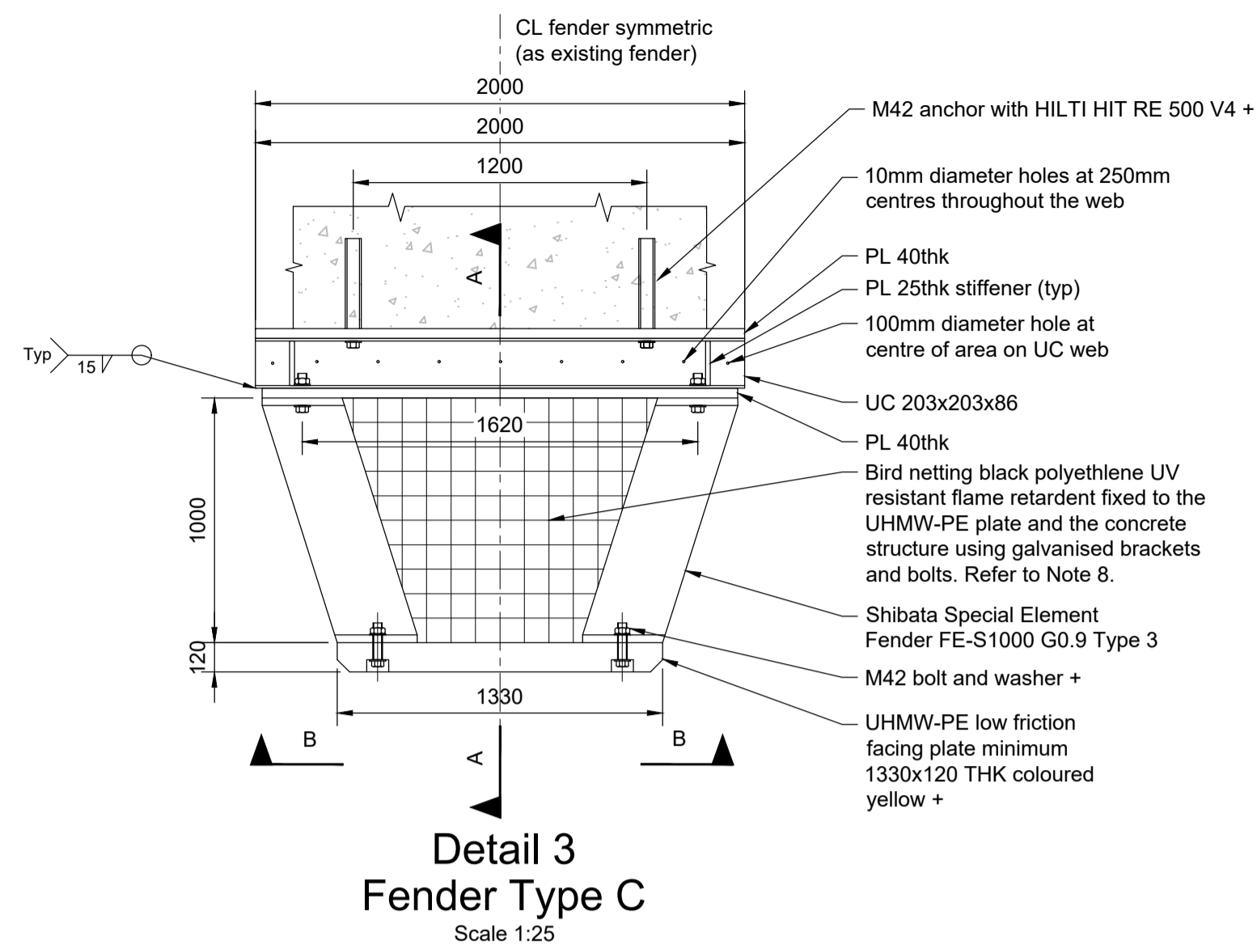
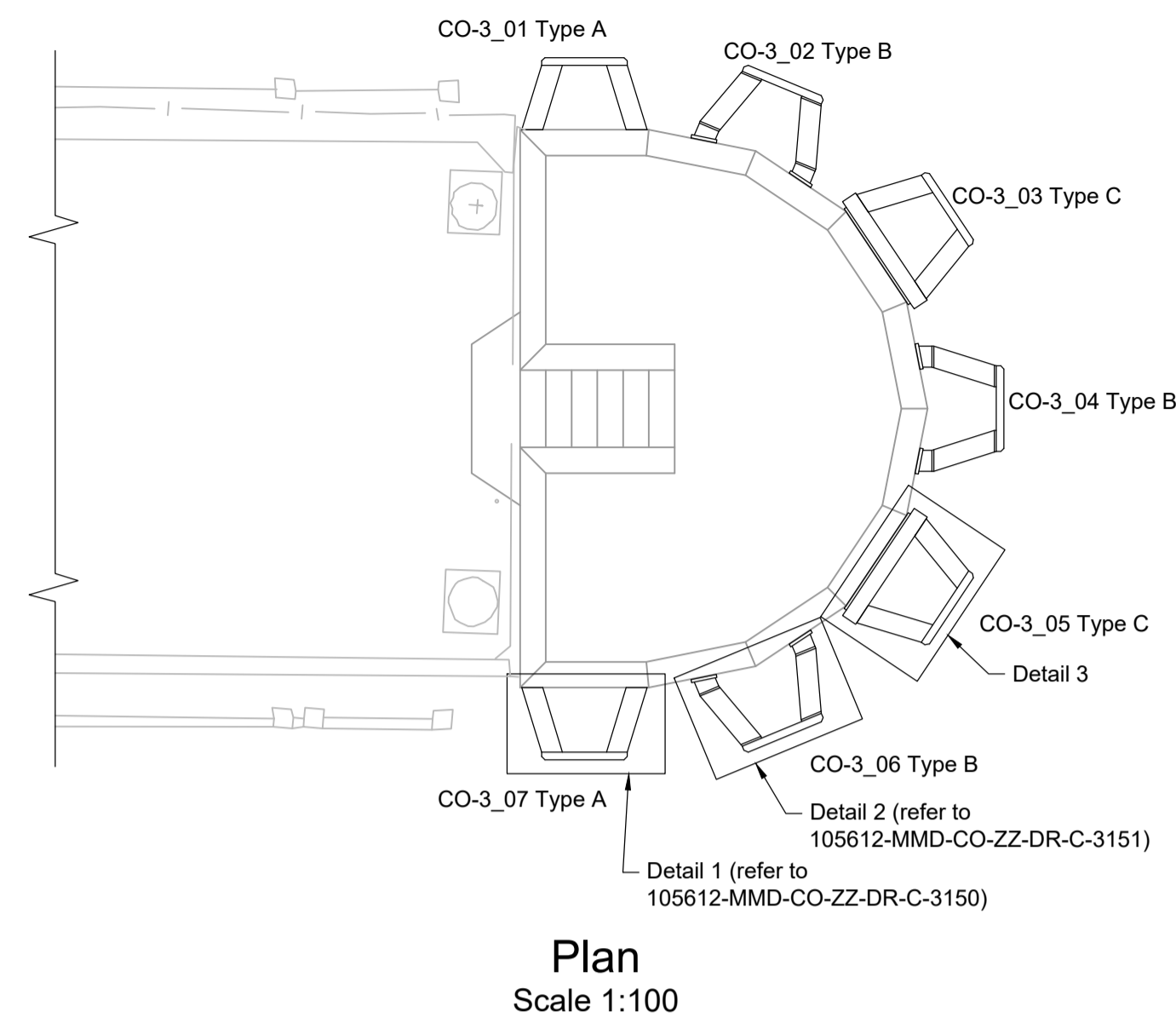
Title
New Islay Vessel Port Enabling Works
Colonsay
Roundhead Fenders
Fender Type B

Designed	C. Flower	CF	Eng check	F. Hogg	FH
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO

MMD Project Number 105612	Scale at A1 As Shown	Security STD
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Suitability Description
Authorised and Accepted

Drawing Number 105612-MMD-CO-ZZ-DR-C-3151	Suit. Code A1	Rev C01
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- Notes
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 - The Client accepts no liability for the accuracy of the topographical & bathymetrical information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Bird netting shall be as per existing on fenders, designed, supplied and installed by Eco Environmental Services Ltd. www.ecold.net. Refer to drawing 105612-MMD-00-ZZ-DR-C-3100.
 - New fenders to be supplied complete with all fixings (bolts, washers etc.) unless noted otherwise.
 - Dimensions followed by an asterisk are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with fender manufacturers recommendations.
 - All steelwork to be S355 J2 unless noted otherwise.
 - Notes followed by * denote dimensions that the Contractor shall verify.
 - All steelwork to be painted in accordance with the specification.

Key to symbols

	Concrete
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Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	RG	Tender Issue	FH	CO

Status Stamp
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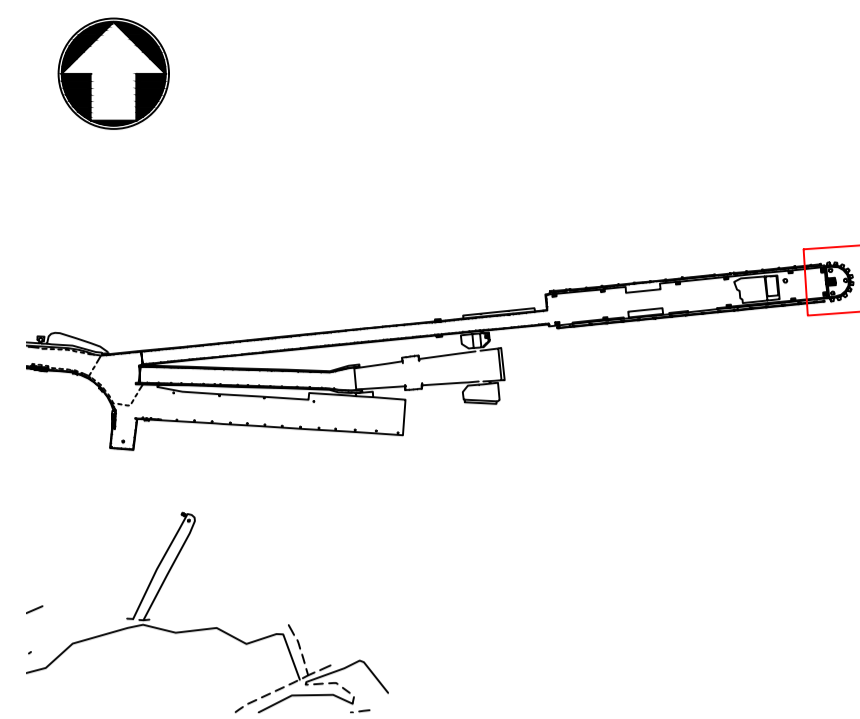
St Vincent Plaza
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Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

Title
New Islay Vessel Port Enabling Works
Colonsay
Roundhead Fenders
Fender Type C

Designed	C. Flower	CF	Eng check	F. Hogg	FH
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-3152				Rev
					C01



Key Plan
Scale 1:2000

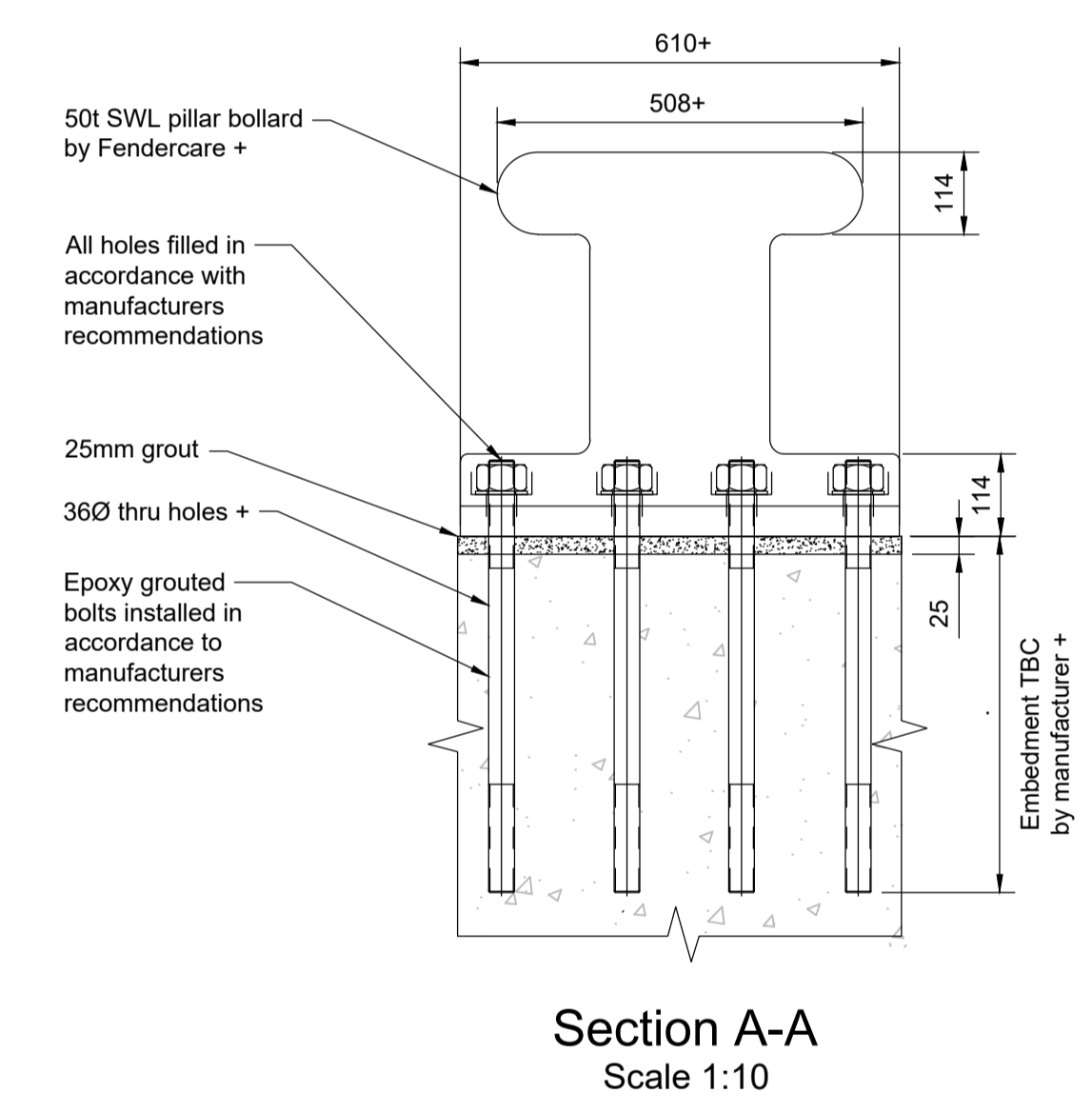
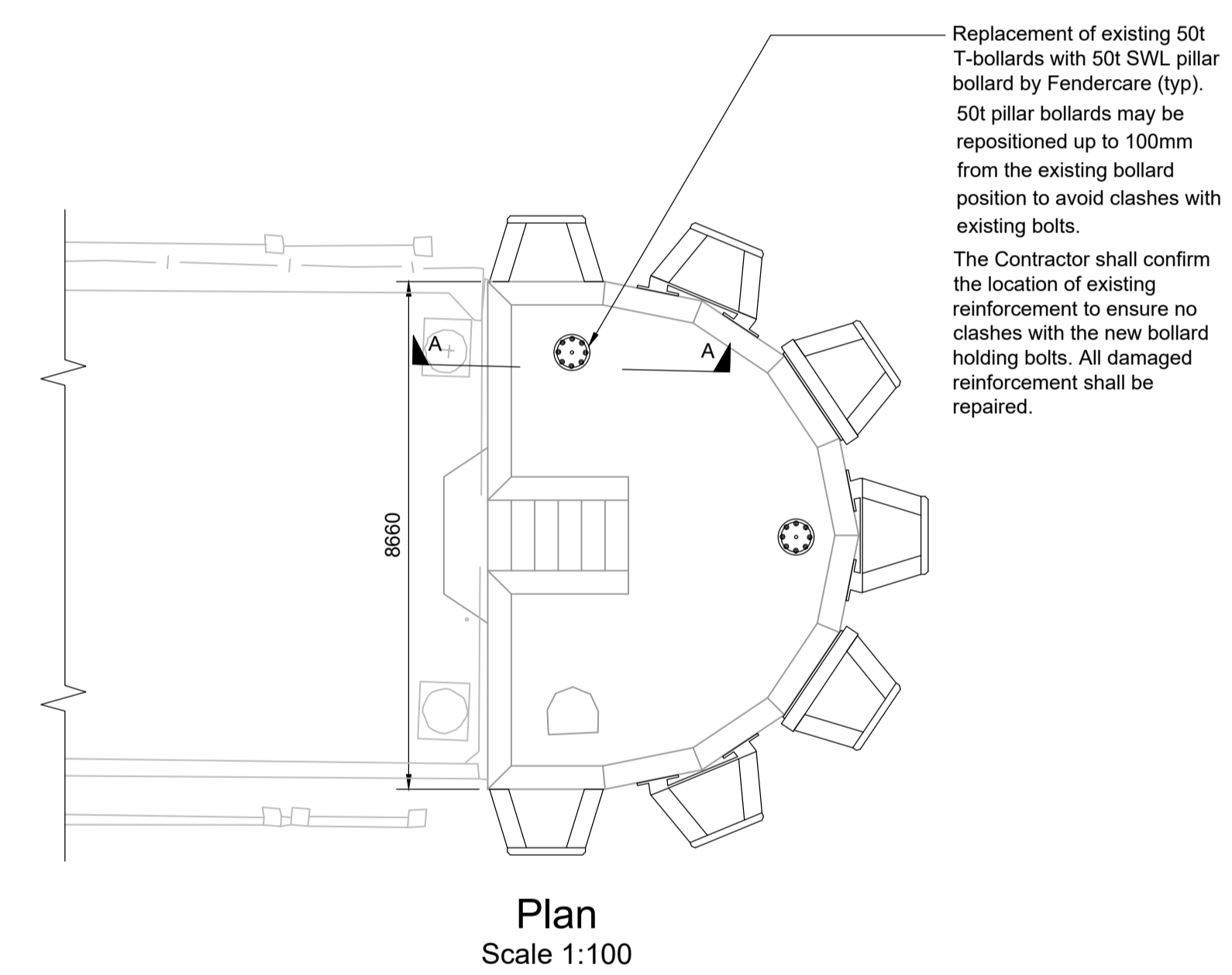
- Notes
- All chainages are in metres.
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 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Netting to be fitted to the top of all fenders in accordance with the specification.
 - New fenders to be supplied complete with all fixings (bolts, washers etc.) unless noted otherwise.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with fender manufacturers recommendations.
 - All steelwork to be S355 J2 unless noted otherwise.
 - Notes followed by * denote dimensions that the Contractor shall verify.
 - All steelwork to be painted in accordance with the specification.
 - For general notes refer to drawing 105612-MMD-(*)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.

Key to symbols

	Concrete
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Reference drawings

C01	17.03.2023	RG	Tender Issue	BR	CO
Rev	Date	Drawn	Description	Ch'k'd	App'd



Status Stamp

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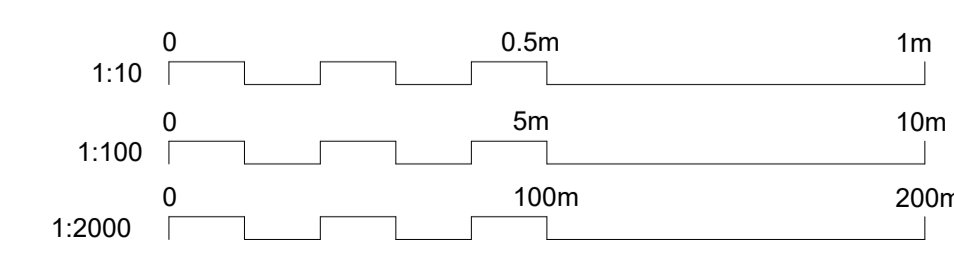
Client

Caledonian Maritime Assets Limited
 Municipal Buildings
 Fore Street
 Port Glasgow
 PA14 5EQ

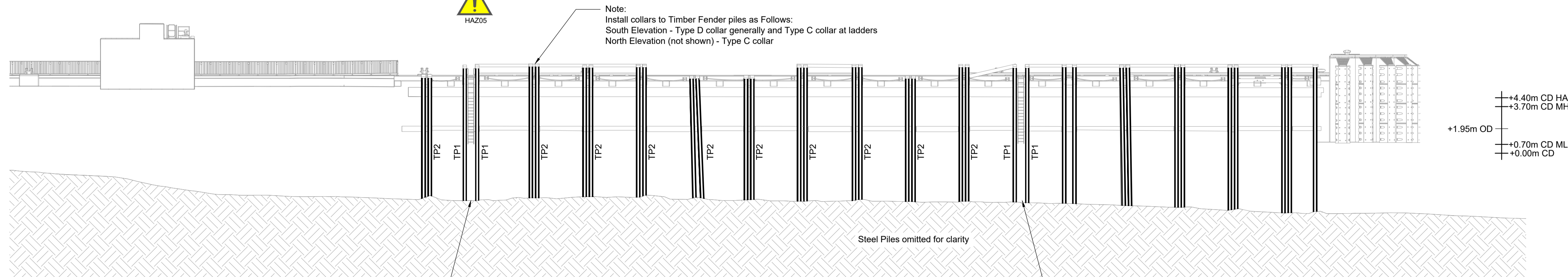
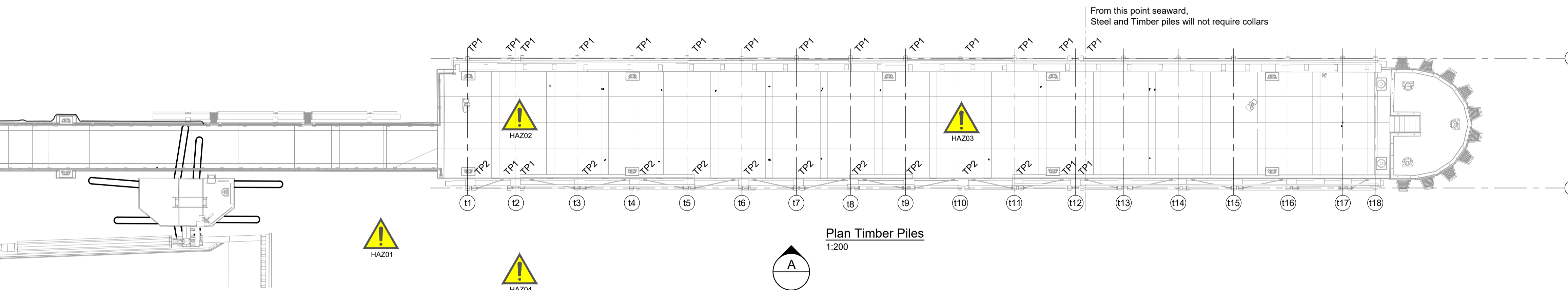
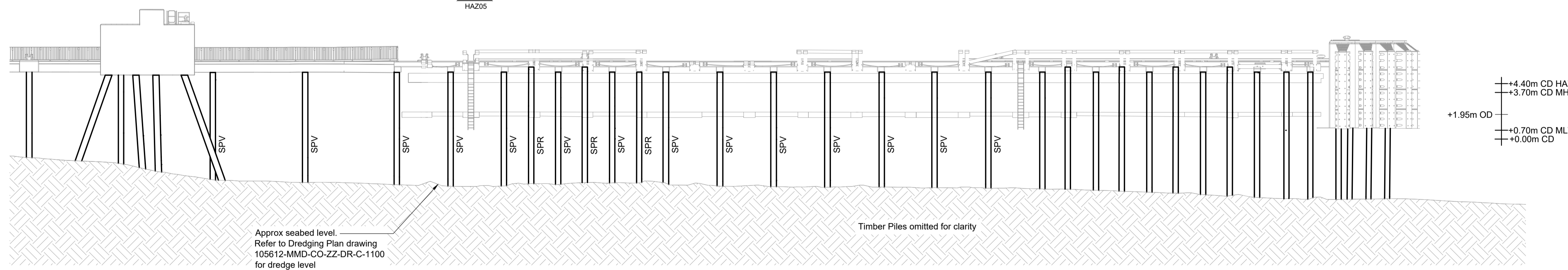
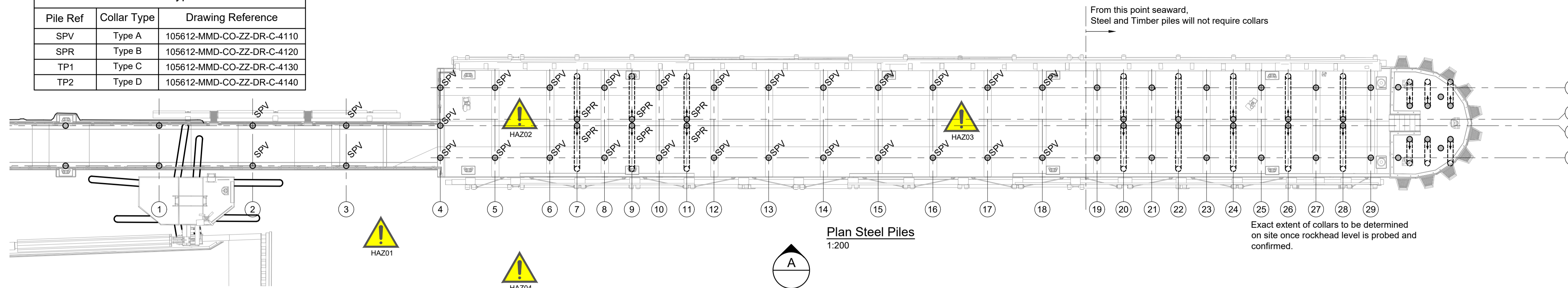
Title

New Islay Vessel Port Enabling Works
 Colonsay
 Mooring Bollard

Designed	B. Radcliffe	BAR	Eng check	F. Hogg	FH
Drawn	R. Gatheral	RG	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-3210				Rev
					C01



Pile Type		
Pile Ref	Collar Type	Drawing Reference
SPV	Type A	105612-MMD-CO-ZZ-DR-C-4110
SPR	Type B	105612-MMD-CO-ZZ-DR-C-4120
TP1	Type C	105612-MMD-CO-ZZ-DR-C-4130
TP2	Type D	105612-MMD-CO-ZZ-DR-C-4140



- Notes
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 - Notes followed by * denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-CO-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.

Key to symbols

○	SPV - Vertical Pile
⊙	SPR - Raker Pile position with arrow denoting the rake direction
⊕	TP1 - Timber Fender Pile single
⊖	TP2 - Timber Fender Pile double

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Hazard Elimination & Risk Reduction has been undertaken and recorded where appropriate, in accordance with the requirements of "The Construction (Design and Management) Regulations 2015" and the associated "Industry Guidance for Designers" In addition to the hazards/risks normally associated with the types of work detailed on this drawing, please note the following:

- CONSTRUCTION:**
- HAZ01 - Do not rock dredge at piles in a way which will undermine their support. Rock excavation should not encroach within 500mm of the face of any piles.
 - HAZ02 - Do no dredge material away from more than 2-N piles at a time, without installing collars and allowing these to cure for 24 hours.
 - HAZ03 - Public access required to pier throughout construction works as ferry service will still be operating.
 - HAZ04 - Vessels mooring against pier whilst works are ongoing. Divers must not be working whilst vessels are operating at this pier. Works to be carefully sequenced to avoid ferry operating times.
 - HAZ05 - Environmental protection zone.

OPERATIONS:

02 - N/A

MAINTENANCE:

03 - N/A

DEMOLITION:

04 - N/A

FUTURE ANTICIPATED WORK:

05 - N/A

Reference Drawings

Collar Details & Section Type A	105612-MMD-PA-ZZ-DR-C-4110
Collar Details & Section Type B	105612-MMD-PA-ZZ-DR-C-4120
Collar Details & Section Type C	105612-MMD-PA-ZZ-DR-C-4130
Collar Details & Section Type D	105612-MMD-PA-ZZ-DR-C-4140

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	GM	Tender Issue	BR	CO

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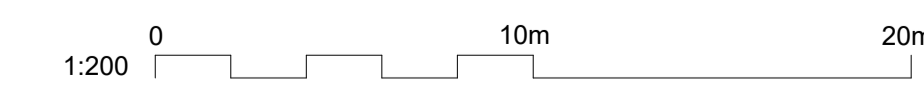
Client

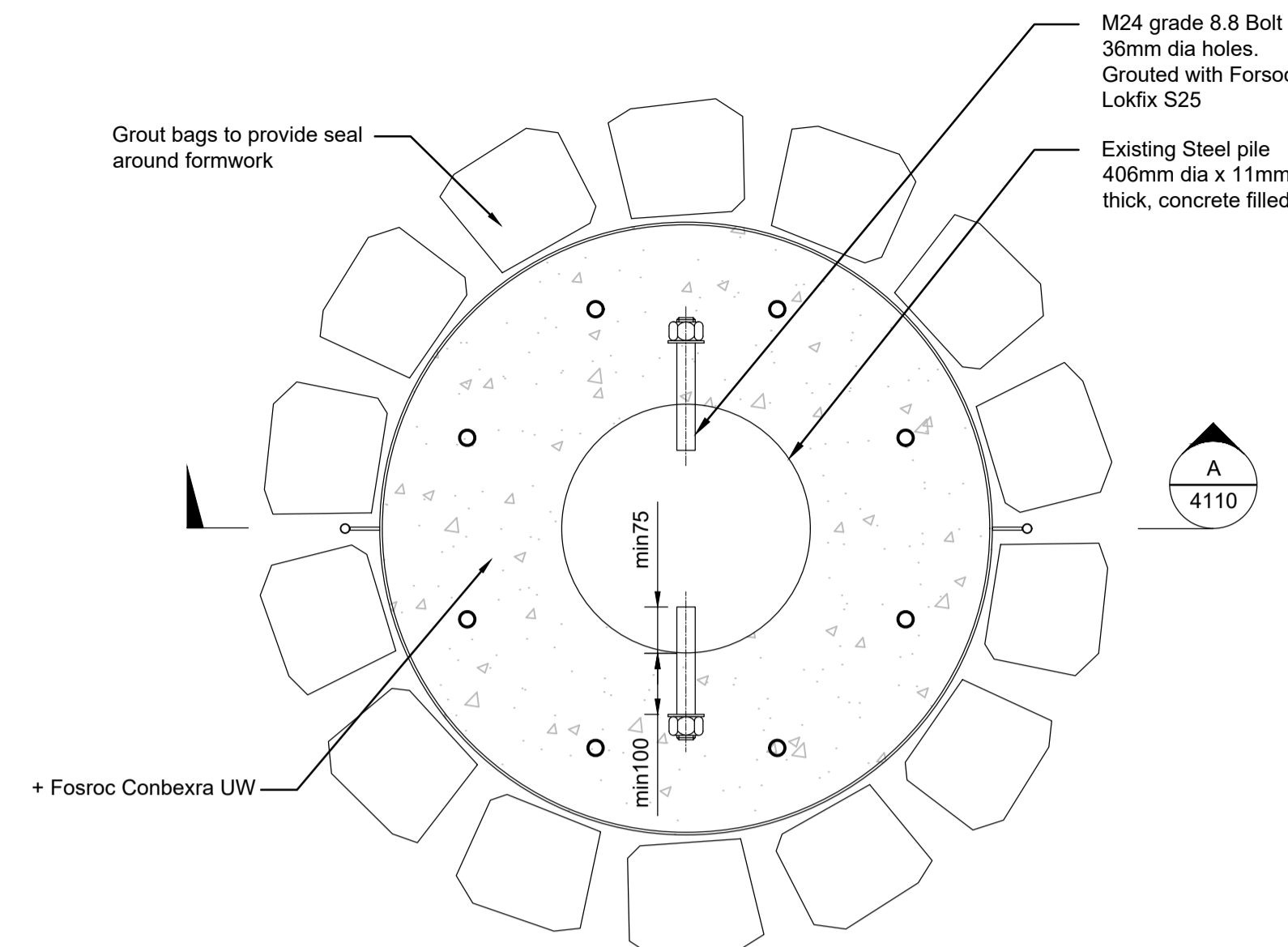
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

Title

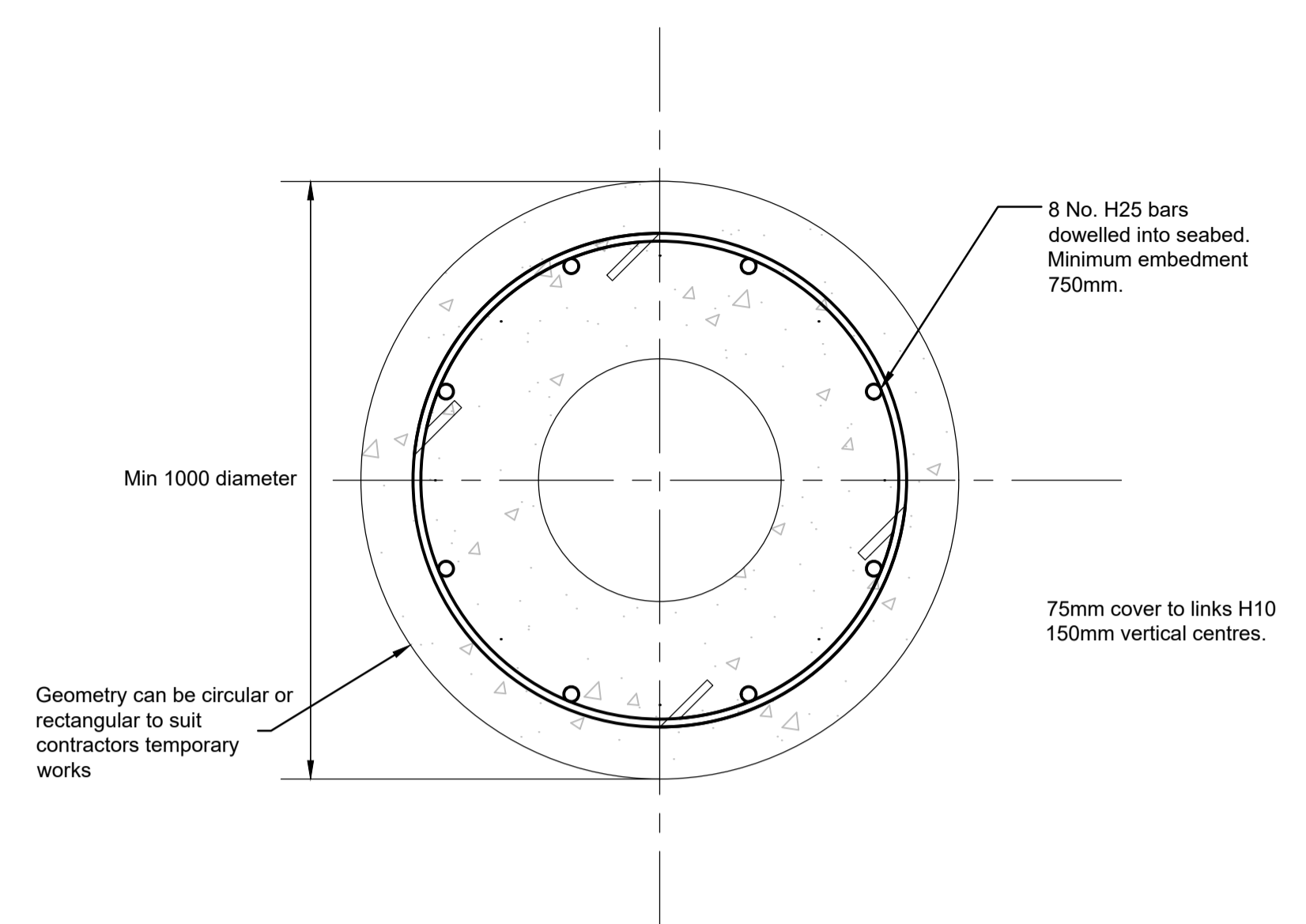
New Islay Vessel Port Enabling Works
Colonsay
Collar Location Plan & Elevation

Designed	R. Crewe	RC	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	B. Radcliffe	BR	Approved	C. Ohi	CO
MMD Project Number	105612	Scale at A1	1:200	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-4100				Rev
					C01

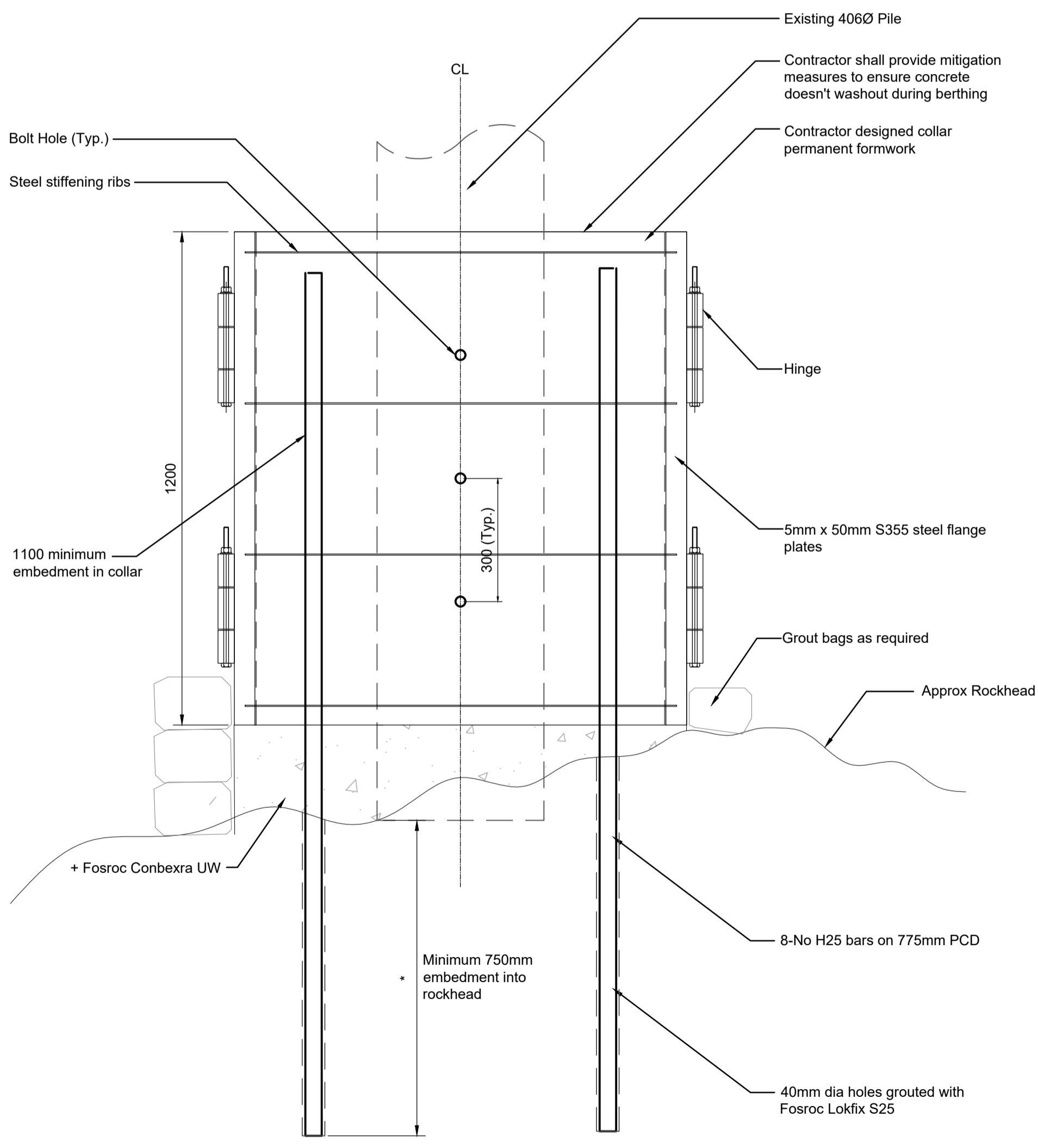




Plan
Scale 1:10



Plan on Rebar
Scale 1:10



Section A-A
Scale 1:10

- Notes**
- All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
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 - The Client accepts no liability for the accuracy of the topographical & bathymetrical information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - Dimensions followed by an asterisks are to be confirmed by the contractor on site.
 - Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
 - For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
 - Collar formwork shown indicatively only - this is to be contractor designed. Formwork may be steel or concrete, temporary or permanent. This collar may also be rectangular. The outer dimension of concrete is to be 1000mm. The outer dimension of any permanent formwork should be maximum 1200mm.
 - Steel dowels into rockhead to be high strength rebar with minimum yield strength of 500MPa.
 - Minimum 75mm concrete cover to all reinforcement.
 - Concrete to be Fosroc Conbexra UW+.
 - Grout used to fix H24 steel dowels into seabed and M24 bolts to pile shall be Fosroc Lokfix S25+.
 - Dowels should be drilled vertically into the seabed. To ensure verticality, a template jig could be used by the contractor.
 - Bolts to be grade 8.8
 - For construction sequence refer to 105612-MMD-CO-ZZ-DR-C-4140

Key to symbols

Reference drawings

- 105612-MMD-CO-ZZ-DR-C-4120 Collar Details & Section Type B
- 105612-MMD-CO-ZZ-DR-C-4130 Collar Details & Section Type C
- 105612-MMD-CO-ZZ-DR-C-4140 Collar Details & Section Type D

Rev	Date	Drawn	Description	Ch'k'd	App'd
C01	17.03.2023	GM	Tender Issue	RC	CO


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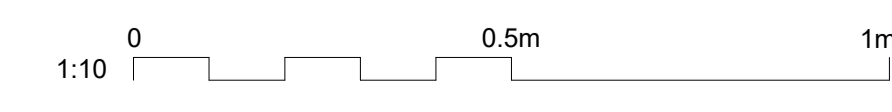
Client
Caledonian Maritime Assets Limited
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

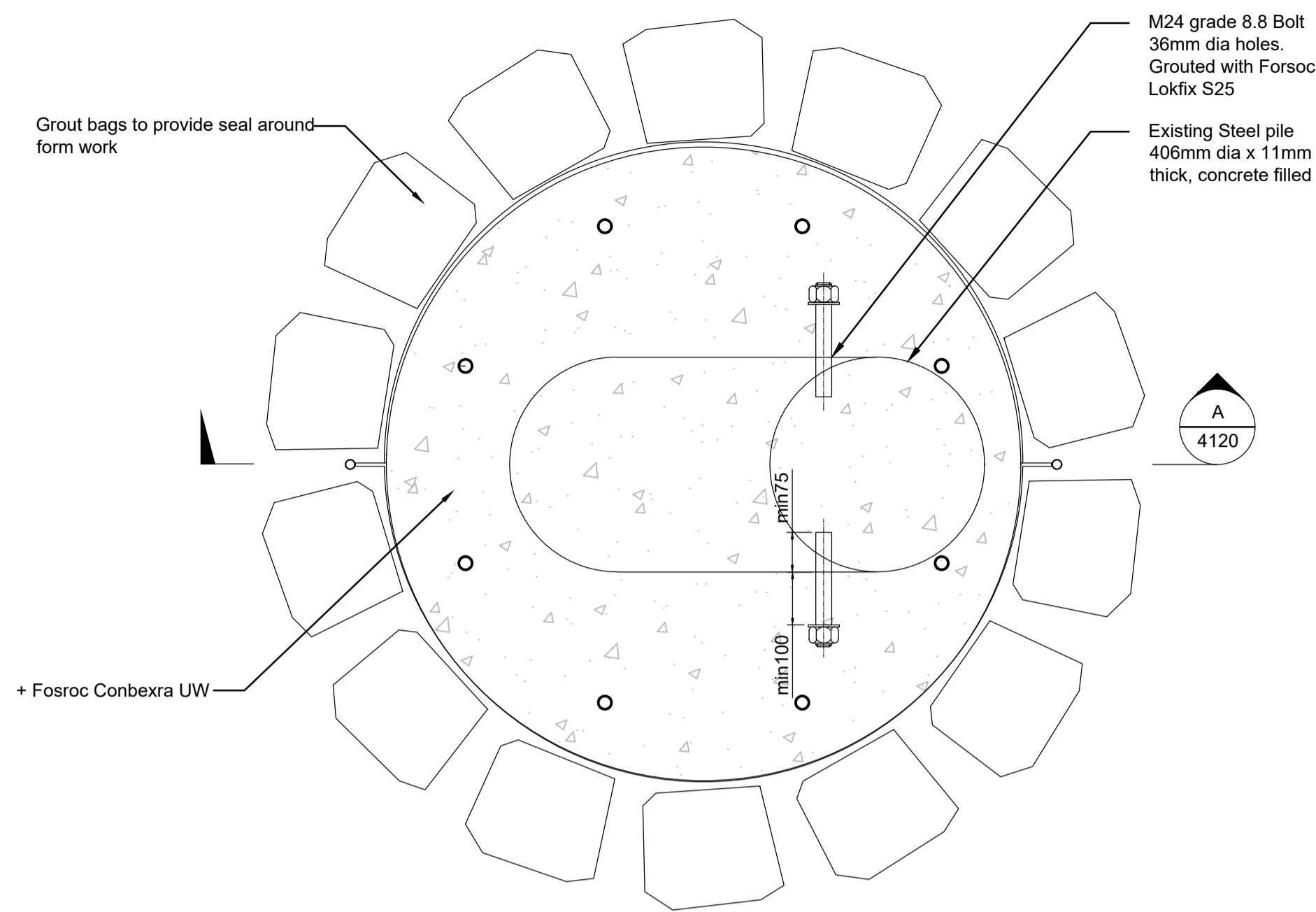


Title
New Islay Vessel Port Enabling Works
Colonsay
Collar Details & Section Type A

Designed	R. Crewe	RC	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	B. Radcliffe	BR	Approved	C. Ohi	CO

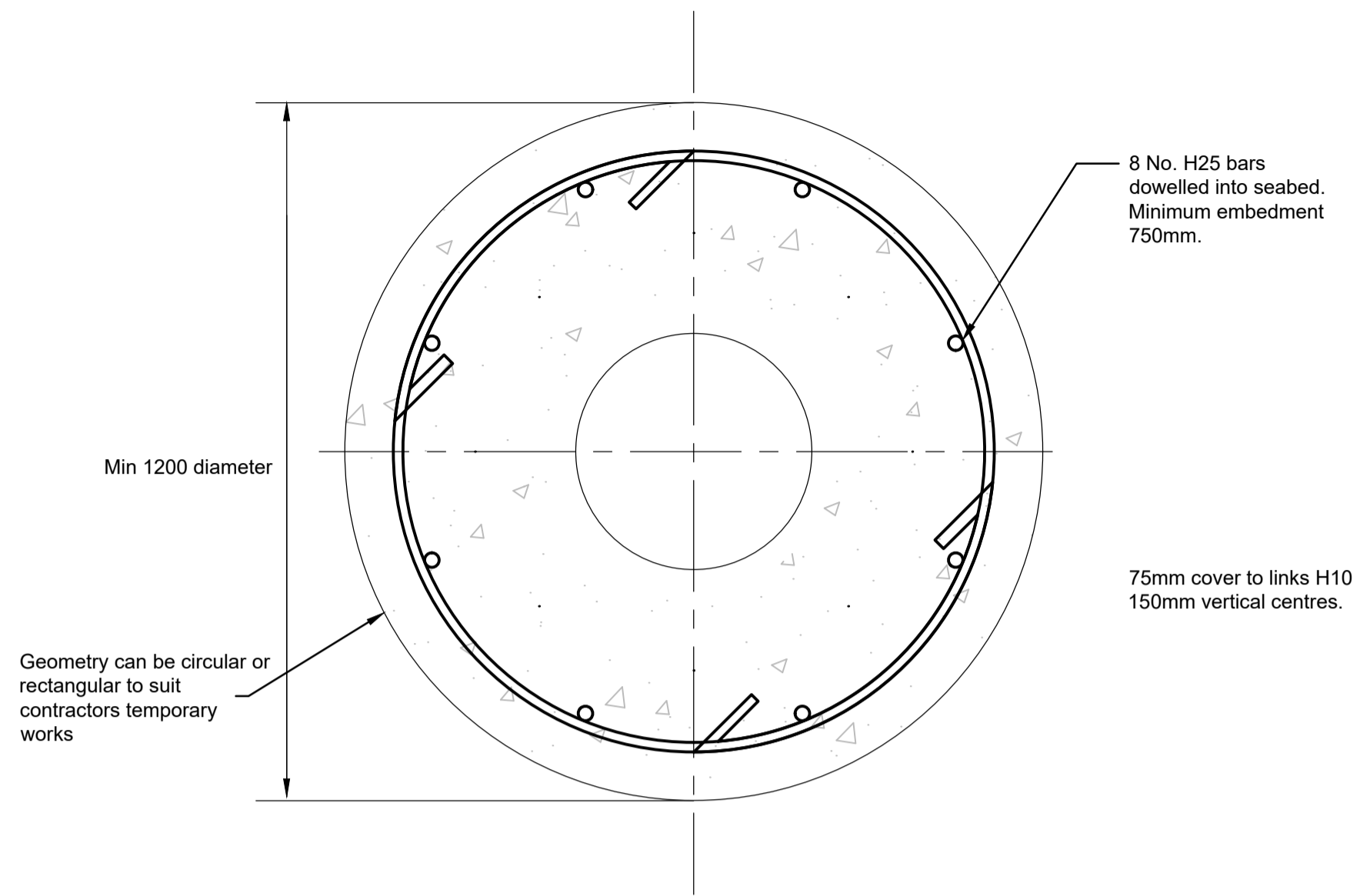
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105612	As Indicated	STD
Suitability Description	Suit. Code	
Authorised and Accepted	A1	
Drawing Number	Rev	
105612-MMD-CO-ZZ-DR-C-4110	C01	





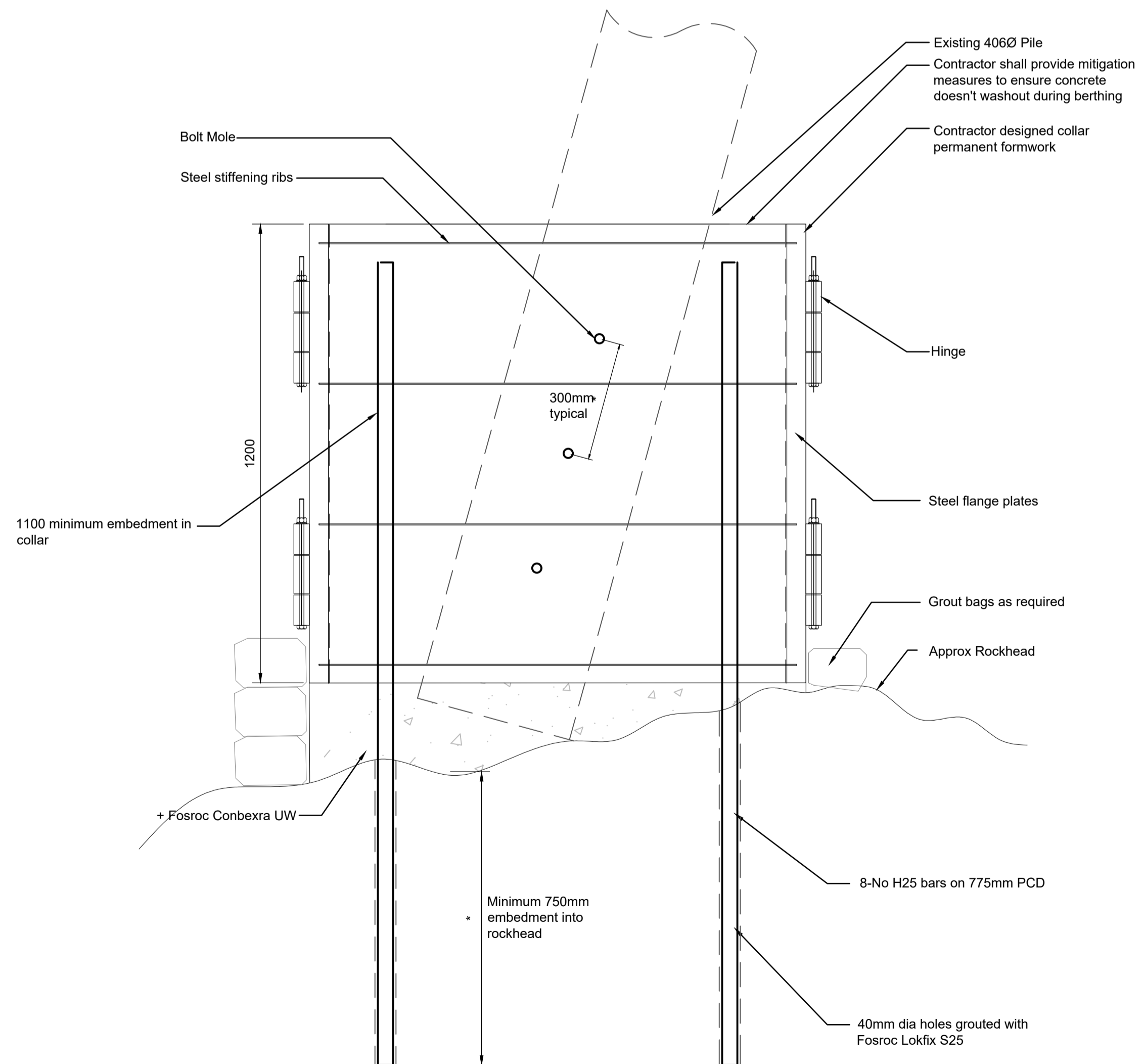
Plan

Scale 1:10



Plan on Rebar

Scale 1:10



Section A-A

Scale 1:10



Notes

1. All chainages are in metres.
2. All dimensions in millimetres unless noted otherwise.
3. All levels in metres relative to Chart Datum (mCD) unless noted otherwise.
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8. Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
9. For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
10. Formwork may be steel or concrete, temporary or permanent. This collar may also be rectangular. The outer dimension of concrete is to be 1200mm. The outer dimension of any permanent formwork should be maximum 1400mm.
11. Steel dowels into rockhead to be high strength rebar with minimum yield strength of 500MPa.
12. Minimum 75mm concrete cover to all reinforcement.
13. Concrete to be Fosroc Conbexra UW+.
14. Grout used to fix H24 steel dowels into seabed and M24 bolts into pile shall be Fosroc Lokfix S25+.
15. Dowels should be drilled vertically into the seabed. To ensure verticality, a template jig could be used by the contractor.
16. Bolts to be grade 8.8
17. For construction sequence refer to 105612-MMD-CO-ZZ-DR-C-4140

Key to symbols

Reference drawings

- 105612-MMD-CO-ZZ-DR-C-4110 Collar Details & Section Type A
- 105612-MMD-CO-ZZ-DR-C-4130 Collar Details & Section Type C
- 105612-MMD-CO-ZZ-DR-C-4140 Collar Details & Section Type D

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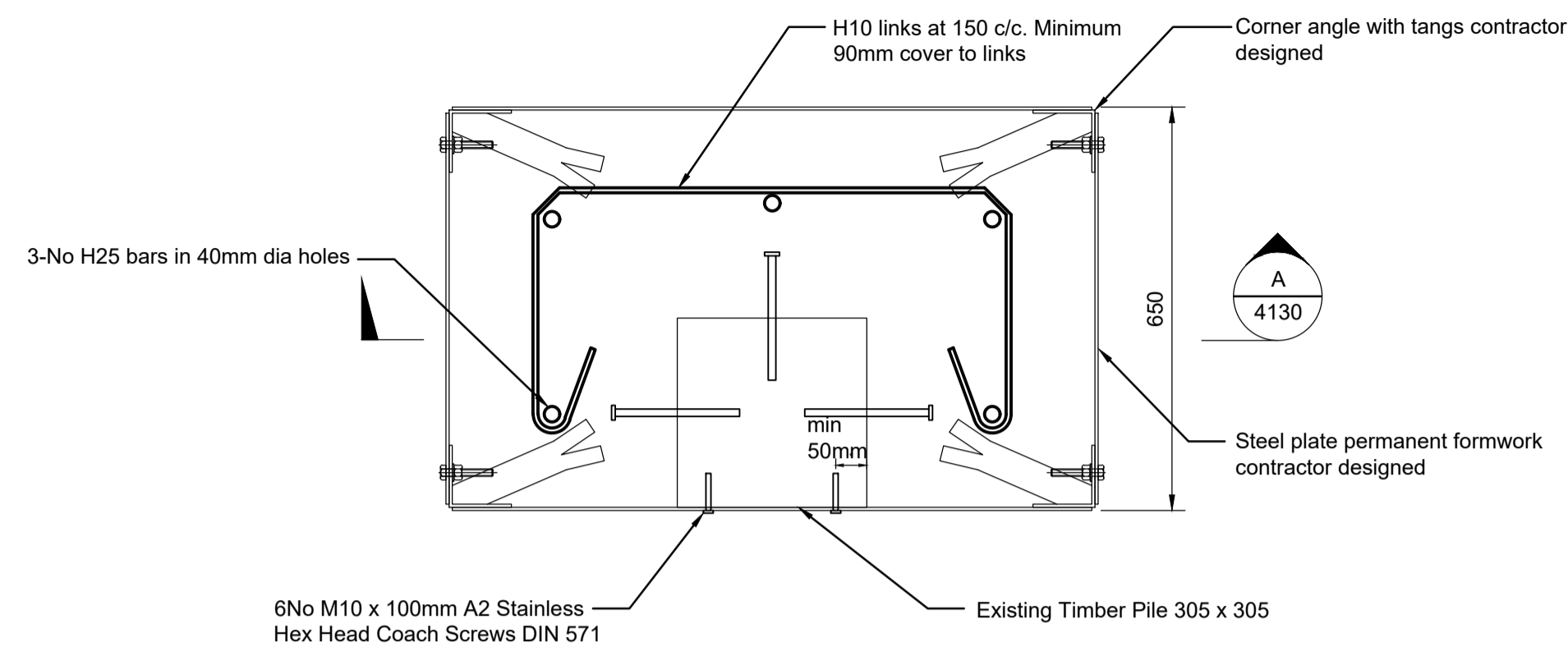
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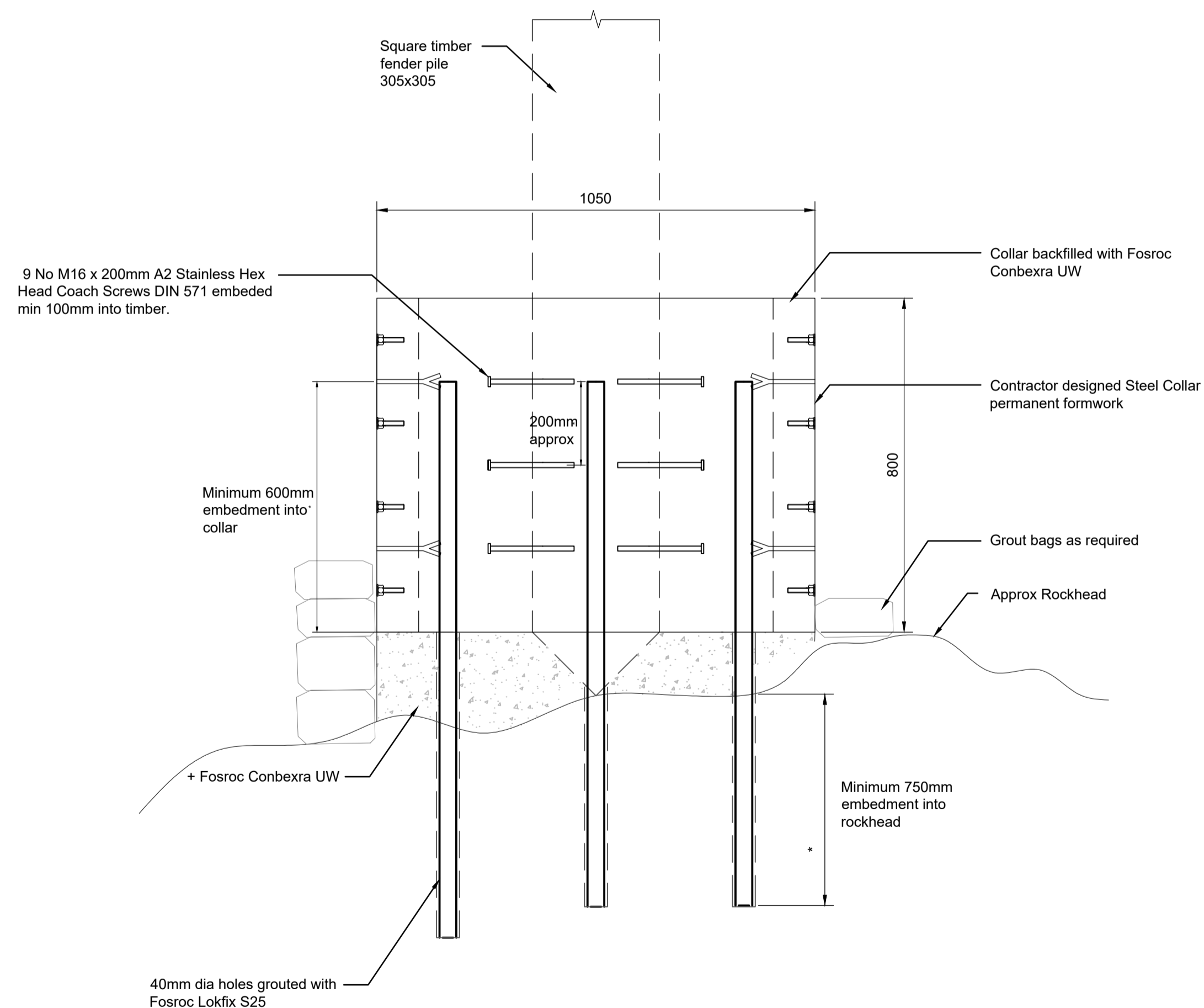
New Islay Vessel Port Enabling Works
Colonsay
Collar Details & Section Type B

Designed	R. Crewe	RC	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	B. Radcliffe	BR	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-4120				Rev
					C01



Plan

Scale 1:10



Section A-A

Scale 1:10

Notes

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8. Notes followed by + denote items that are to be in accordance with manufacturers recommendations.
9. For general notes refer to drawing 105612-MMD-(**)-ZZ-0011, where (**) denotes field 3 volume or system for the applicable project site CO, KE & PA.
10. Cap plate detail similar to that shown in drawing 105612-MMD-CO-ZZ-DR-C-4110 shall be used to prevent grout washout.
11. Steel dowels into rockhead to be high strength rebar with minimum yield strength 500MPa.
12. Minimum 75mm concrete cover to all reinforcement.
13. Concrete to be Fosroc Conbexra UW.
14. Grout used to fix H25 steel dowels into 40mm diameter holes in seabed to be Fosroc Lokfix S25.
15. Bolts to be grade 8.8
16. For construction sequence refer to 105612-MMD-CO-ZZ-DR-C-4140

Key to symbols

Reference drawings

- 105612-MMD-CO-ZZ-DR-C-4110 Collar Details & Section Type A
- 105612-MMD-CO-ZZ-DR-C-4120 Collar Details & Section Type B
- 105612-MMD-CO-ZZ-DR-C-4140 Collar Details & Section Type D

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C01	17.03.2023	GM	Tender Issue	RC	CO

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Title

New Islay Vessel Port Enabling Works
Colonsay
Collar Details & Section Type C

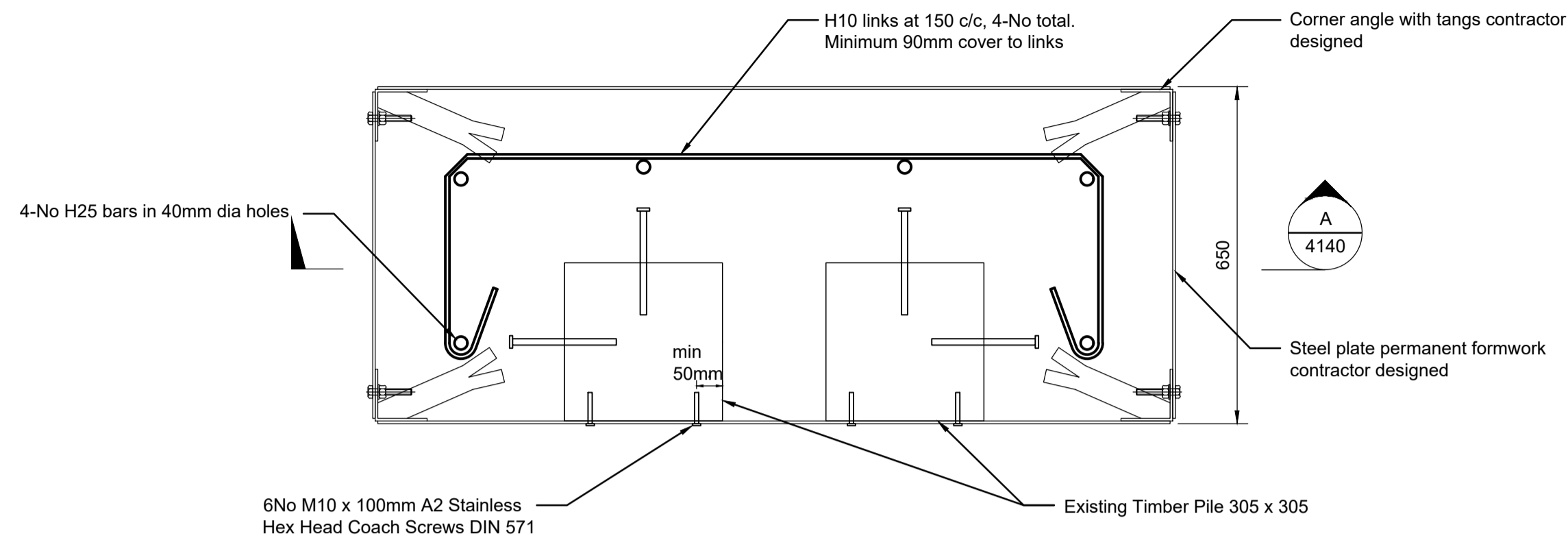
Designed	R. Crewe	RC	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	B. Radcliffe	BR	Approved	C. Ohl	CO

MMD Project Number	Scale at A1	Security
105612	As Indicated	STD

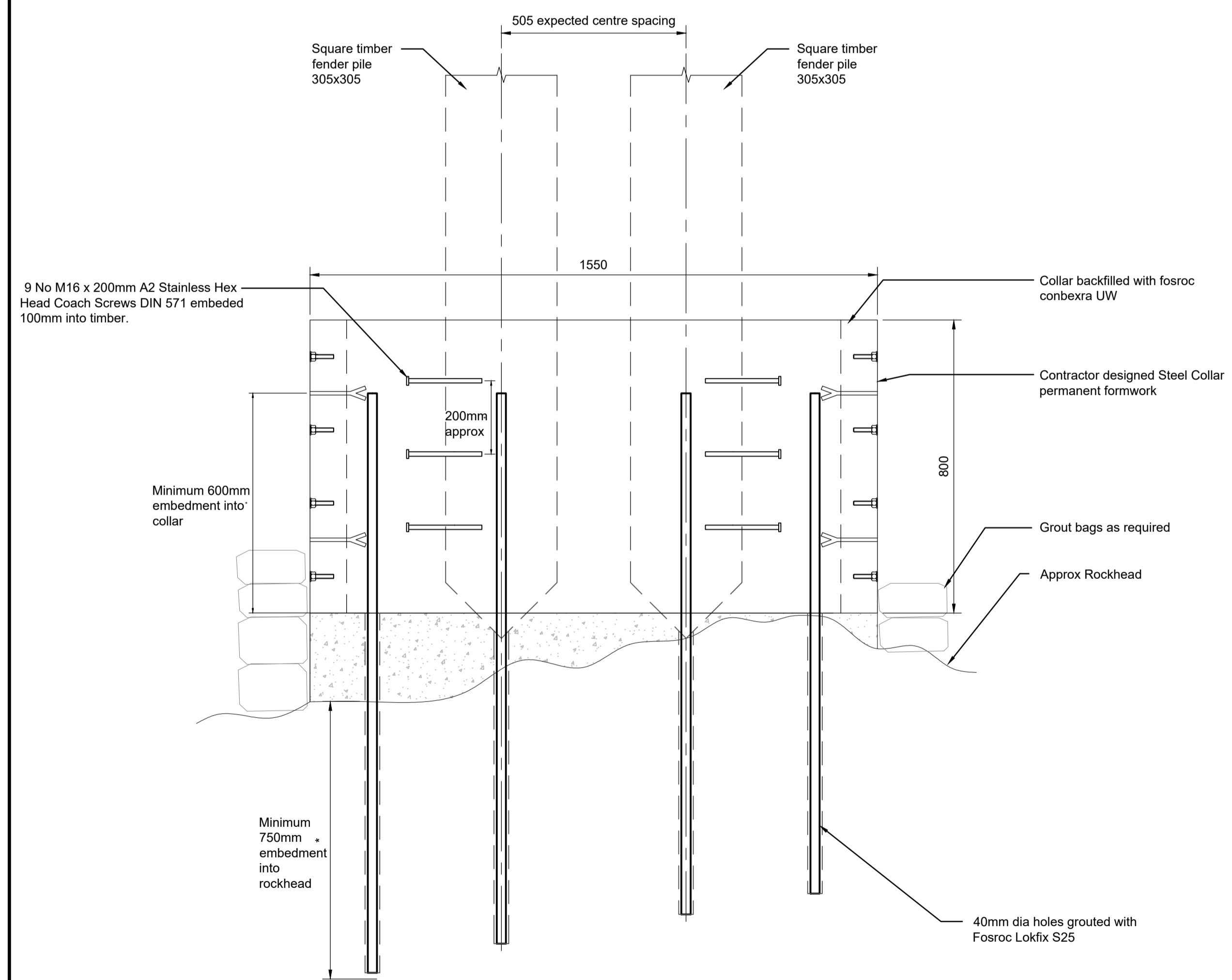
Suitability Description	Suit. Code
Authorised and Accepted	A1

Drawing Number	Rev
105612-MMD-CO-ZZ-DR-C-4130	C01





Plan
Scale 1:10



Section A-A
Scale 1:10

CONSTRUCTION SEQUENCE

1. Divers to locally remove material from seabed around piles. No more than 1 pile or pair of piles shall have material removed at any given time. Works shall commence from approach pier to roundhead.

Note: Rock dredging may be required towards approach structure to achieve -5.5m CD dredge pocket. Rock must not be removed from the base of steel piles or timber fender piles. Rock excavation should not encroach within 500mm of the face of any piles.

COLLAR INSTALLATION FOR STEEL AND TIMBER PILES:

2. Once rockhead is exposed around pile base, and no existing collar exists, the collar installation can progress by divers. Drill holes into rockhead surrounding the pile, install dowels and grout in place. Note: Dowels should be drilled vertically into the seabed. To ensure verticality, a template jig could be used by the contractor.
3. For steel piles drilled moles 75mm into pile and grout bolts in place. For timber piles, screws to be installed into pile.
4. Steel rebar links should be installed around vertical steel dowels and tied together to form a cage.
5. Install permanent formwork.
6. Grout bags to be placed around the base of the steel collar to seal gaps between base of collar and uneven seabed.
7. Install grout according to manufacturer's instructions.
8. Install lid on top of formwork to protect against washout due to wave action.
9. Once collars are installed and cured for 24 hours, proceed to expose the next pile.

DREDGING OF WIDER AREA:

10. Once collars are installed in all locations shown on the GA plan, or with the agreement of the Engineer, dredging the wider area to -5.5m CD may begin.

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 11. Steel dowels into rockhead to be high strength rebar with minimum yield strength 500MPa.
 12. Minimum 75mm concrete cover to all reinforcement.
 13. Concrete to be Fosroc Conbexra UW.
 14. Grout used to fix H25 steel dowels into 40mm diameter holes in seabed to be Fosroc Lokfix S25.
 15. Bolts to be grade 8.8
 16. For construction sequence refer to 105612-MMD-CO-ZZ-DR-C-4140

Key to symbols

Reference drawings

- 105612-MMD-CO-ZZ-DR-C-4110 Collar Details & Section Type A
- 105612-MMD-CO-ZZ-DR-C-4120 Collar Details & Section Type B
- 105612-MMD-CO-ZZ-DR-C-4130 Collar Details & Section Type C

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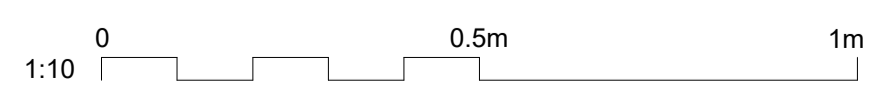
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Title
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Colonsay
Collar Details & Section Type D

Designed	R. Crewe	RC	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	B. Radcliffe	BR	Approved	C. Ohl	CO
MMD Project Number	105612	Scale at A1	As Indicated	Security	STD
Suitability Description	Authorised and Accepted				Suit. Code
Drawing Number	105612-MMD-CO-ZZ-DR-C-4140				Rev
					C01

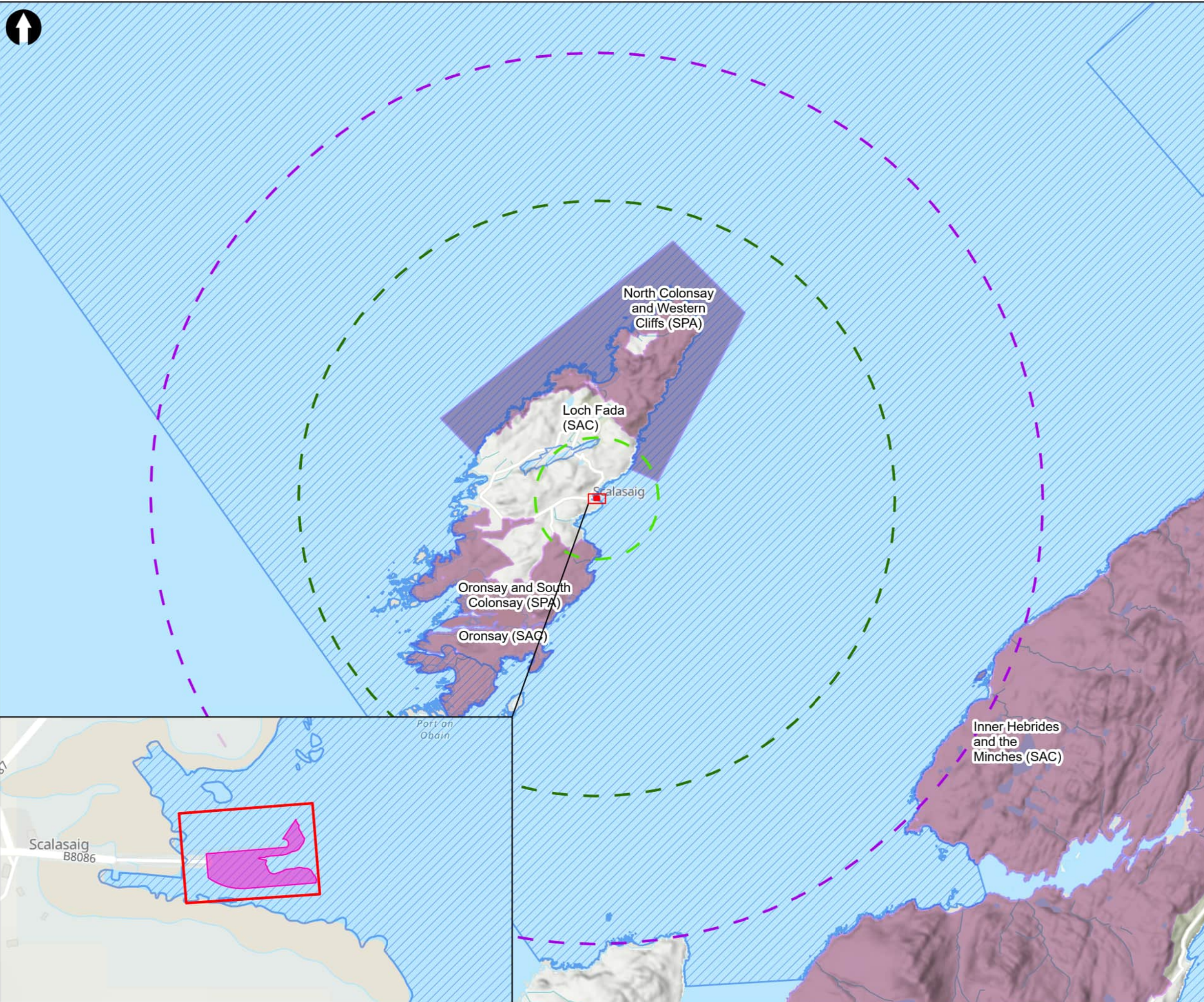


B. Appendix B Environmental Constraints Plans

Map 1 Environmental Constraints Plan

[Redacted]

Map 2 Ecological Constraints Plan



Key to Symbols

- Indicative site boundary
- Dredging area
- 2km buffer - designated site
- 10km buffer - hydrologically connected
- 15km buffer - JNCC pin pile effective deterrence range for cetaceans
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Notes

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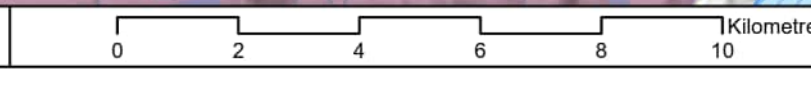
Client



CMAL
Colonsay Marine Assets Ltd
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Title
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Colonsay
Zol and Designated Sites


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Drawn	C Donald	Coordination	I Sartori
GIS Check	T Graham	Approved	M Thompson
Scale at A3	Status	Rev	Security
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Drawing Number
100105612-MMD-00-CY-DR-Y-0009

C. Appendix C Environmental Reports

C.1.1.1 Colonsay Otter Species Protection Plan



New Islay Vessel Port Enabling Works Colonsay

Otter Species Protection Plan

July 2022

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New Islay Vessel Port Enabling Works Colonsay

Otter Species Protection Plan

July 2022

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	25.07.22	H Fisher	C McPake	C McPake	For client comment

Document reference: 100105612100105612 105612-MMD-CO-ZZ-RP-O-003-S2-P01

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1 Introduction

1.1 Overview

A European Protected Species (EPS) Licence is being sought from NatureScot by Mott MacDonald Ltd on behalf of Caledonian Maritime Assets Limited (CMAL) in relation to the disturbance of four European otter (*Lutra lutra*) places of shelter, located at Colonsay Ferry Port, Scalasaig, Argyll and Bute.

The licence application related to Investigatory Works planned for July 2022 and subsequent Vessel Enabling Works, scheduled to be undertaken in 2023/2024. This supporting evidence document presents the findings of the otter survey and a detailed Species Protection Plan which will be adhered to during the both the Investigation and Vessel Enabling Works programmes.

[Redacted]

1.3 Background

The proposed works are to facilitate the new ferry vessels currently under construction for CalMac by the Scottish Government for the Kennacraig to Islay and Colonsay ferry route. The existing infrastructure has been deemed insufficient to sustain the new vessels currently under construction. Therefore, the ferry terminal at Colonsay Ferry Port needs upgraded to update the facilities and infrastructure to accommodate the new vessels prior to their completion. To facilitate this, a series of advance investigatory works have been proposed as to determine geological and structural features of the port.

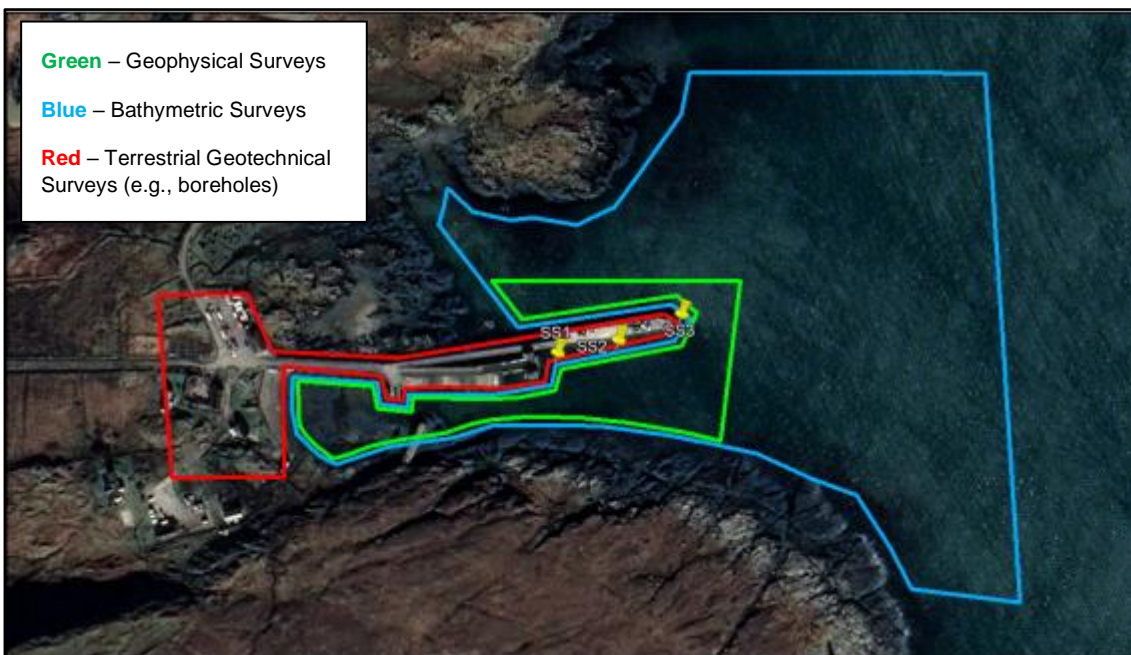
1.4 Overall Planned Works

1.4.1 Investigation Works

In advance and to support the proposed Vessel Enabling Works, a programme of Investigation Works will be undertaken, comprising hydrographic surveys (i.e. geophysical and bathymetric surveys), boreholes and seabed sampling.

Pertinent drawings associated with the planned investigation works are included in **Appendix A**, with a summary drawing showing the extents of investigation works items described included in **Figure 1.2**, below.

Figure 1.2: Investigation Works Survey Extents



Source: Aspect Land + Hydrographic Surveys, 2022.

1.4.1.1 Geophysical Surveys

The planned geophysical surveys comprise a Sub-Bottom Profiler (SBP) survey to determine the subsea geological strata and any hazards to the proposed vessel enabling works. The SBP survey will cover an area of approximately 35,900 m² around the existing ferry Port/pier extending eastward, as shown in **Figure 1.2**, above. The results of the survey are intended to provide supporting information for further consent applications and identify the requirement for further geotechnical ground investigations activities (where required), together with inform the subsequent design and construction activities associated with the Vessel Enabling Works.

In order to suitably classify the subsurface geology with sufficient resolution, Aspect Land & Hydrographic Surveys Ltd (ALHS) has recommended using an Applied Acoustics AA201 Boomer Plate with CSP-L 100j power supply, which has a peak-to-peak Sound Pressure Level (SPL) of up to 212 dB re 1 µPa at 1m across a 2 kHz to 25kHz frequency range. This will be deployed on a 10m line across the survey area.

Survey works are planned to be conducted by ALHS using a small coastal survey vessel, categorised as a Marine and Coastguard Agency (MCA) CAT II or CATIII sized vessel survey vessels. Due to the limited size of the investigation area, this survey is anticipated to take **3 days** survey effort in favourable weather conditions.

1.4.1.2 Bathymetric Surveys

The planned survey will comprise a Multibeam Bathymetric (MB) Survey with an aim to provide 100% coverage of the seabed and achieve total ensonification (to fill with sound) of the survey area. The MB survey will cover an area of approximately 21,500m² shown in **Figure 1.2**. As with the aforementioned Geophysical Surveys (*Section 1.3.1.1*), the results of the bathymetric surveys will identify the requirement for further geotechnical investigations, together with inform subsequent design and construction activities associated with the Vessel Enabling Works.

ALHS has recommended a R2Sonic 2024 wideband (200kHz / 400kHz) system will be utilised as part of these investigation works.

Survey works are planned to be conducted by (ALHS) using a MCA CAT II or CATIII survey vessels, as noted above, which is a small coastal vessels. Due to the limited size of the investigation survey area, this survey is anticipated to take **2 days** exclusive of weather.

1.4.1.3 Boreholes Ground Investigation

The planned investigation works will include three (3 no.) over-water cantilevered soils and rotary cored boreholes, to retrieve soil samples and rock cores. All boreholes are located in the immediate vicinity of the pier. The location of boreholes are shown in Drawing:105612-MMD-CO-ZZ-DR-C-0100 in **Appendix A**. Details including the location and scheduled maximum depth of each borehole is shown in **Table 1.1.**, below. It is noted, the 'Scheduled Depths' are provisional target depths based on preliminary ground model assumptions, and where obstructions are encountered, the full depth may not be achieved. Access to each borehole location will utilise existing areas of hardstanding along the pier. The duration of the boreholes is expected to take a maximum 6 – 9 days. However this can be highly variable depending on factors such as ground conditions and rig breakdowns.

Table 1.1: Borehole Locations and Schedule Depth

Borehole ID	Easting	Northing	Scheduled Depth (meters)
COBH121	139643	694112	12
COBH122	139678	694115	12
COBH123	139707	694117	12

Source: MML, 2022.

1.4.1.4 Seabed Sampling

As part of the investigation works, seabed sampling of substrate material will be undertaken. This will comprise three (3 no.) vibrocore samples of superficial deposits of representative, high-quality seabed materials. The planned seabed sample locations will be accessed via a small coastal survey vessel (as described above), with vibrocore sampling equipment deployed from the boat to the seabed. The collection of samples will extend to a maximum depth of 8m below

seabed level. The location of seabed samples is shown in Drawing: 105612-MMD-COZZ-DR-C-0100 in **Appendix A**, and summarised in **Table 1.2**, below. It is noted, all seabed sampling is to be undertaken in accordance with Marine Scotland Pre-dredging Guidance¹. The duration of the seabed samples is expected to take between 1 – 2 days. However this can be highly variable depending on factors such as ground conditions and rig breakdowns.

Table 1.2: Seabed Planned Sampling Locations and Scheduled Depths

Borehole ID	Easting	Northing	Scheduled depth (meters)
COSS121	139645	694096	8
COSS122	139687	694102	8
COSS123	139731	694117	8

Source: MML, 2022.

1.4.1.5 Investigation Works Programme

The investigation works are provisionally scheduled to commence on the **1st September 2022 / upon the granting of this licence**, however, this is dependent on the procurement process/ contractors availability, together with receipt of pertinent mitigation/consent licences (e.g. EPS/ Marine licences).

The investigation programme is anticipated to be undertaken during a period of two weeks. . It is assumed that boat docking and boat access will be alongside the current port facilities/jetties and in and around the coastal water surrounding the port.

1.4.2 Vessel Enabling Works

The proposed Vessel Enabling Works final design will be informed by the aforementioned Investigation Works, as described above in **Section 1.4.1**. However, the expected works package is provided below

1.4.2.1 Vessel Enabling Construction Works

The proposed works comprise modifying the existing Ferry Port to accommodate new vessels. The proposed Vessel Enabling Works layout is shown in Drawing: 105612-MMD-CO-ZZ-DR-C-1020, within **Appendix B**, and includes:

- Installation of pile toe protection, in the form of concrete filled steel collars.
- New timber fender piles to be driven. This will be complete using a piling hammer supported by a crane.
- Fender upgrades; including the removal and disposal of existing rubber fender units and replacement with new. Alterations to existing concrete structures required to facilitate (i.e. drilling holes and repairs where necessary).
- Topside works will include removal and disposal of two existing bollards and installation of new provision of new gangways.

¹ Marine Scotland, 2020. The protection of Marine European Protected Species from injury and disturbance. Guidance for Scottish Inshore Waters (July 2020 Version) . [online] Available at: < [Marine European protected species: protection from injury and disturbance - gov.scot \(www.gov.scot\)](http://www.gov.scot)> [Accessed 01 July 2022]

1.4.2.2 Dredging Works

To facilitate the offshore access for larger vessels, dredging of the seabed to the south of the existing period at the Port is required. This will be undertaken in the vicinity of the existing pier, with the anticipated area of dredging works indicatively shown in **Appendix B.**

All dredging works will be carried out from either land-based plant or from a barge. Dredging will be complete using a backhoe dredger with a barge for material storage, with any materials collected during this process appropriately disposed.

1.4.2.3 Contractor Site Compound

To facilitate the enabling works programme, a contractor site compound will be required, and will likely utilise immediate terrestrial areas around the landward areas of the existing piers at the Port.

All pedestrian and vehicle access to the works will be via the existing pier.

1.4.2.4 Vessel Enabling Works Programme

The timeframe of the vessel enabling works will be dependent on the completion of the investigatory works, however the current over-arching timeframe is for the vessel enabling works is to be initiating in January 2023 and progressing until December 2024.

It is assumed that boat docking and boat access will be alongside the current port facilities/jetties and in and around the coastal water surrounding the port.

[Redacted]

[Redacted]

² [Otter](#) | NatureScot (accessed April 2022)

[Redacted]

[Redacted]

[Redacted]

[Redacted]

3 Impact Assessment

3.1 Overview

Otters are a European Protected Species (EPS) afforded protection under Scottish Law under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland). Current legislation protects otters from death or injury, destruction, damage to or obstruction of access to a place of shelter (e.g., holt, hover, couch), and disturbance of otters within a place of shelter.

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

4 Ecological Method Statement

[Redacted]

[Redacted]

[Redacted]

[Redacted]

5 Conclusion

[Redacted]

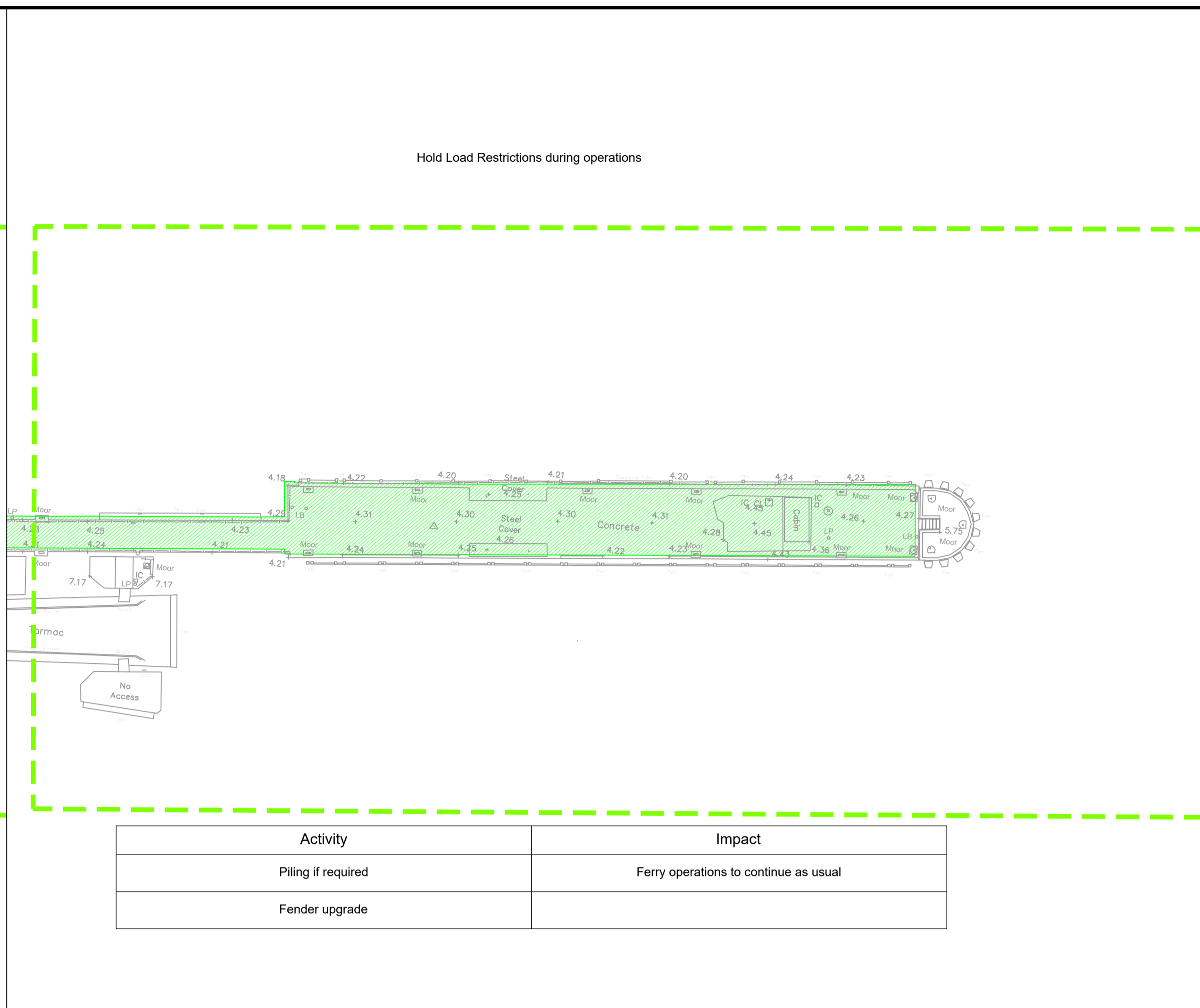
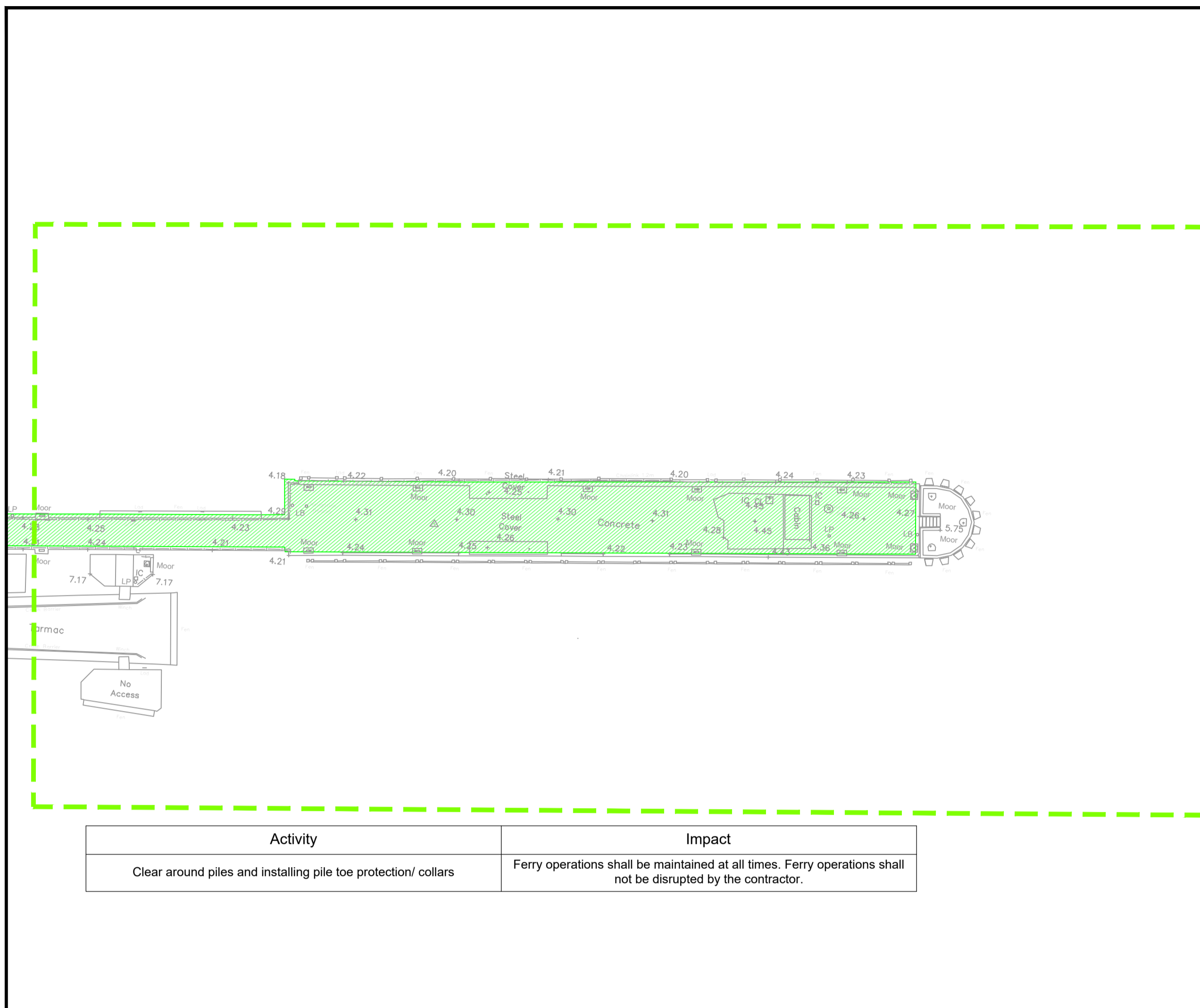
⁸ [Otter | NatureScot](#) (accessed March 2022)

⁹ Otter, ecology behaviour and conservation. (2006)., Kruk., H.

Appendix

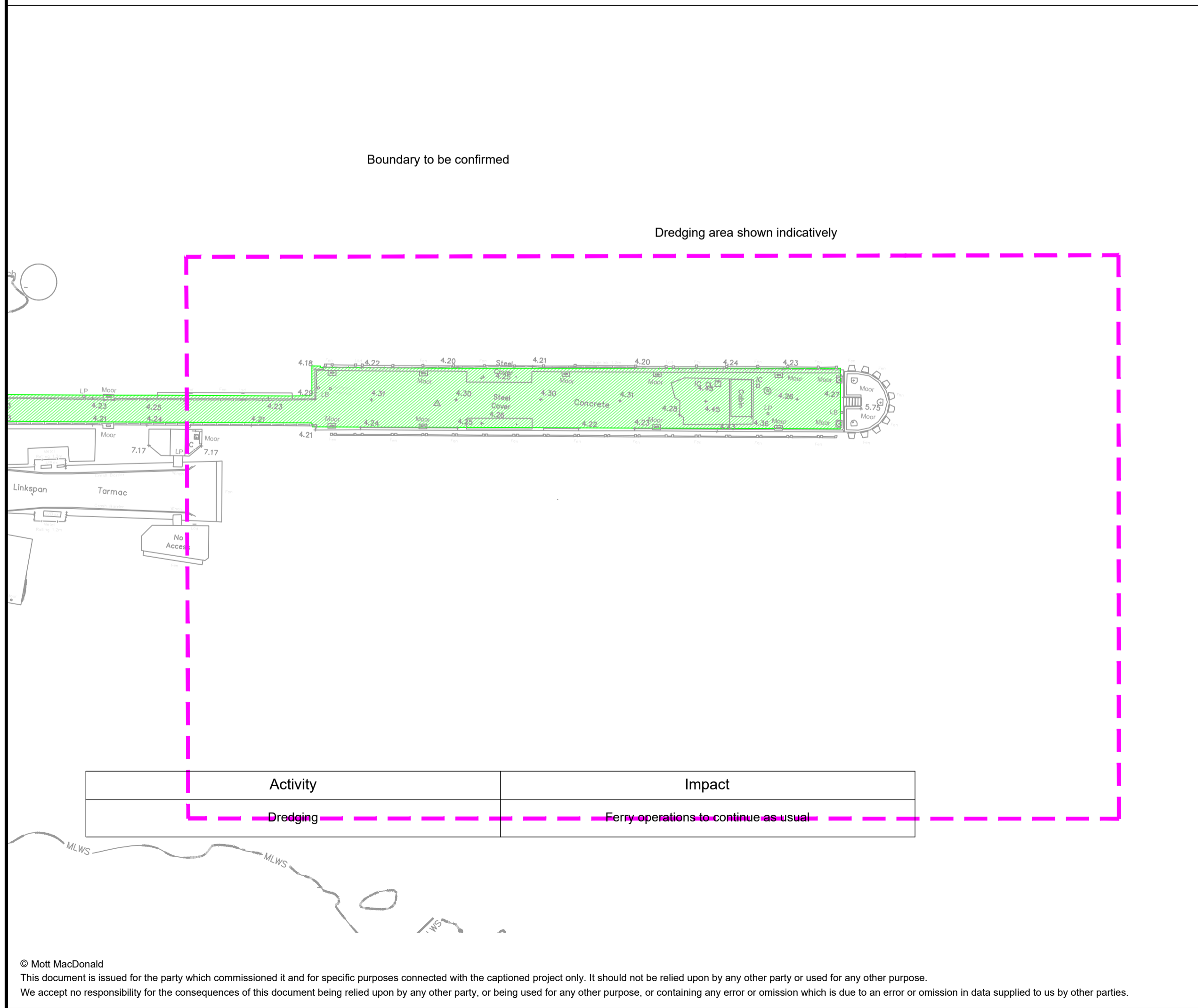
A. Borehole and Seabed Sample Locations

B. Vessel Enabling Works Locations



Activity	Impact
Clear around piles and installing pile toe protection/ collars	Ferry operations shall be maintained at all times. Ferry operations shall not be disrupted by the contractor.

Activity	Impact
Piling if required	Ferry operations to continue as usual
Fender upgrade	



Activity	Impact
Dredging	Ferry operations to continue as usual

- Notes
- These drawings are indicative only and are subject to design development.
 - All chainages are in metres.
 - All dimensions in millimetres unless noted otherwise.
 - All bathymetric levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - All topographical levels in metres relative to Chart Datum (mCD) unless noted otherwise.
 - DO NOT SCALE. Follow written dimensions only.
 - The Client accepts no liability for the accuracy of the topographical & bathymetric information provided.
 - The Contractor shall verify all dimensions, elevations, coordinates, and site conditions prior to execution.
 - For general notes refer to drawing 105612-MMD-XXXXX-0001
 - This drawing shall be read in conjunction with the works information
 - The Project Manager shall be notified immediately of any discrepancy encountered on site.
 - Unless noted otherwise access for ferry operations shall be maintained at all times. Ferry operations shall not be disrupted by the contractor

Key to symbols

- DA - Dredging Area*
- CW - Contractors Working Area 1*
- SC - Contractors Site Compound & Materials Storage
- Local Access to be Maintained Throughout Works
- Pedestrian and Vehicle Access for Ferry Operations to be Maintained Clear

CONSTRUCTION SEQUENCE SHOWN IS PROPOSED IN ORDER TO MINIMISE DOWNTIME OF THE BERTH. CONTRACTOR MAY PROPOSE ALTERNATIVE SEQUENCE FOR REVIEW BY EMPLOYER

Reference drawings

Topographical Survey
Reference: A5390_2014-2015_19
Date of Survey: 11.06.15

Bathymetric Survey
Reference: A5390_2014-2015_19
Date of Survey: 11.06.15

Rev	Date	Drawn	Description	Ch'k'd	App'd
P01	16/06/2022	JB	Preliminary Information	BAR	

Status Stamp **FOR INFORMATION**

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Title
New Islay Vessel Port Enabling Works
Colonsay
General Arrangement
Construction Sequence

Designed	B. Radcliffe	BR	Eng check	B. Radcliffe	BR
Drawn	J. Brown	JB	Coordination	G. Mather	GM
Dwg check	G. Mather	GM	Approved	M. Ross	MR
MMD Project Number	105612	Scale at A1	1:500	Security	STD
Suitability Description	Work in Progress				Suit. Code S0
Drawing Number	105612-MMD-CO-ZZ-DR-C-1020				Rev P01

C. Otter Survey Results Map

[Redacted]



C.1.1.2 Habitats Regulations Appraisal Report

A large teal graphic element on the left side of the page, consisting of a triangle at the top and a trapezoid below it, forming a shape that resembles a stylized 'M' or a mountain peak.

New Islay Port Enabling Works Colonsay

Habitat Regulations Appraisal

April 2023

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New Islay Port Enabling Works Colonsay

Habitat Regulations Appraisal

April 2023

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P01	14/04/23	JH/AJ/RF	MT/GC	JC	For Issue

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Executive summary

Mott MacDonald has been commissioned by Caledonian Maritime Assets Ltd to prepare this Habitats Regulations Appraisal (HRA) report relating to New Islay Vessel Port Enabling Works at Colonsay Ferry Terminal. The aim of the report is to establish any likely impacts from the Proposed Development on European sites within the United Kingdom (UK) National Network of protected sites, nearby protected areas and the marine species that inhabit the waters. This is so that an informed decision can be made by regulating bodies on the Proposed Development and implementation of any suitable mitigation or enhancements where required.

The Proposed Development would upgrade the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works below the mean high water spring involve dredging, and installation of pile toe protection. Other works being undertaken comprise the replacement of fenders and bollards and provision of new gangways.

The Proposed Development is located within the Inner Hebrides and the Minches Special Area of Conservation (SAC), designated for harbour porpoise. Oronsay and South Colonsay Special Protected Area (SPA), North Colonsay and Western Cliffs SPA, Loch Fada SAC and Oronsay SAC were also identified within the zone of influence. Taking into account the type, size and scale of the proposed works, the potential risks include:

- Pollution event
- Changes in turbidity
- Resuspension of contaminants
- Underwater and airborne noise and vibration
- Visual disturbance
- Vessel strike
- Introduction and/or spread of Invasive and Non-Native Species (INNS)
- Generation of construction dust / reduction in air quality

Of these, in the absence of mitigation, the proposed works have the potential to give risk to a Likely Significant Effect (LSE) on the features of all sites listed above, aside from Oronsay SAC which was screened out as it is sufficiently separated from the works and unlikely to be impacted.

This document describes the HRA for the Proposed Development, including both the Stage 1 Screening and the Stage 2 Appropriate Assessment. The Stage 2 Appropriate Assessment also provides the in-combination assessment to understand if the Proposed Development is likely to result in LSE when considered in combination with other plans or projects in the area.

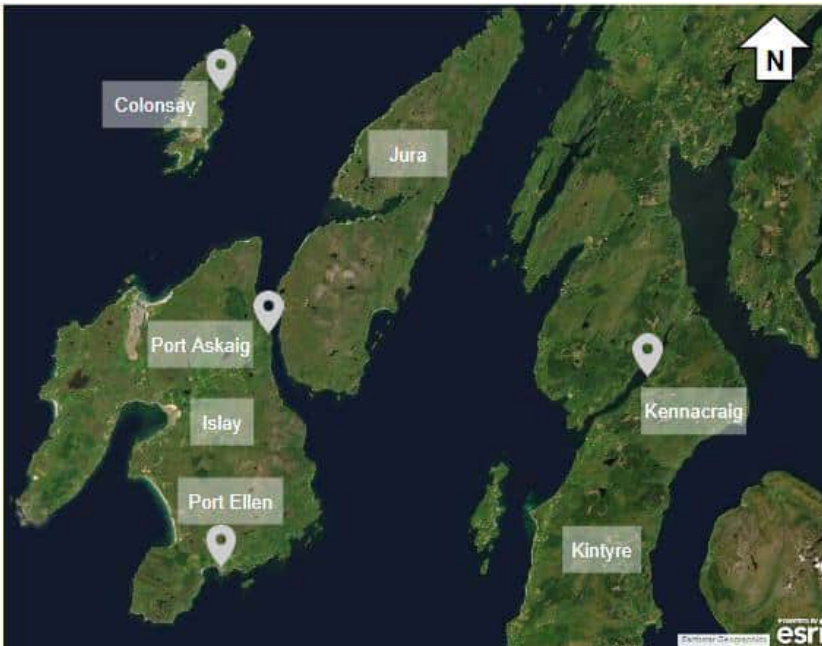
Within the Stage 2 Appropriate Assessment, potential effects on the designated sites were further assessed in context of mitigation measures. It was concluded that when considering mitigation, it is not anticipated for any adverse effect on the integrity of the designated sites and their associated features to occur. No in-combination effects were identified.

1 Introduction

1.1 Project Background

Caledonian Maritime Assets Limited (CMAL) seek to undertake upgrade works at the four terminals (Port Ellen, Kennacraig, Port Askaig and Colonsay (shown in Figure 1.1)) on the Islay route prior to the introduction of new vessels, which are planned to be operational around mid-2024.

Figure 1.1: Terminals on the Islay Ferry Service



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The new vessels are planned to have a larger beam, length, draught and displacement than the current vessels that serve the route, as well as having a hybrid diesel-electric propulsion system. Enabling works to the four terminals are therefore necessary to safely and reliably berth, moor, load and unload the vessels at all four ports together with shore power for charging the vessels at Port Ellen, Kennacraig and Port Askaig.

The focus of this HRA is the New Islay Vessel Port Enabling Works at Colonsay Ferry Terminal, which would comprise upgrading existing assets (replacement of bollards and fenders), introduction of new gangways and toe protection around existing timber piles, and dredging works to accommodate new vessels with deeper draught and higher displacement. Further details are outlined in Section 2. These works will hereafter be referred to as the ‘Proposed Development’.

1.2 Location

Colonsay Ferry Terminal is on the east coast of the island of Colonsay in Scalasaig, the Inner Hebrides, Scotland (centred at NGR NR 39600 94100) and located within the small village of Scalasaig (see Appendix B). The village comprises a small residential community and local shops/businesses.

The terminal currently serves the ferries from the linkspan berth, while there is a fixed ramp slipway to the south of the main berth.

1.3 Purpose of this Document

The purpose of this Habitats Regulations Appraisal (HRA) is to establish whether the Proposed Development will affect the integrity of European sites that are part of the United Kingdom (UK) National Network of protected sites, nearby protected areas and the marine species that inhabit the waters. This is so that an informed decision can be made by regulating bodies on the Proposed Development and implementation of any suitable mitigation or enhancements where required.

This report therefore documents the assessment of the potential for effects of the Proposed Development on designated European sites as required by Regulation 48 of The Conservation (natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. The process followed is described in Appendix A.

2 Proposed Development

2.1 Description of Proposed Development

The Proposed Development would upgrade the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. The new vessel will moor to the existing bollards positioned at the roundhead, along the existing pier and on both the inner and outer lifting dolphins. The works to accommodate this new type of vessel would comprise the following proposed modifications and alterations:

- Replacement of existing fenders with new;
- Replacement of two bollards at the roundhead from T Head bollards to mushroom bollards;
- Provision of gangways which are to be at least 17m long;
- Installation of existing pile toe protection, in the form of concrete filled steel collars with dowels into rock; and
- Dredging to 5.5m below Chart Datum (CD) in order to maintain at least 1 metre of underkeel clearance. The approximate dredged area would be approximately 4120m² and volume 6000m³.

Works below the mean high water springs (MHWS) include:

- Installation of toe protection; and
- Dredging works.

2.2 Construction Operations

2.2.1 Construction Method

2.2.1.1 Replacement of Fenders, Bollards and Provision of Gangways

A total of ten fenders are to be removed from the roundhead and replaced with new. As with the existing fenders, the new ones may be located partially in the intertidal zone. Replacement bollards would be installed within the existing roundhead. The provision of gangways would be installed within the existing pier structure and would accommodate passenger embarkation and disembarkation from ferries. Crane, construction operatives and any other equipment (e.g. welding machines where required) will be supported on the existing structure (jetty deck) for access to the fenders.

The existing fenders will be slung, and their weight taken by the crane positioned on the deck/barge. The operative will unbolt the existing fender and it will be lifted out of position. The crane will offer the new fender to position, and the operative will bolt the fender into the support structure behind. Materials will comprise fenders (rubber fenders, UHMW-PE panels and stainless steel fixings) and, where required, steel brackets and beams for connection to the existing structure.

2.2.1.2 Dredging

Dredging works would be undertaken around Colonsay Ferry Terminal in Scalasaig as shown in Appendix B.

Dredging works would likely be undertaken either by a backhoe dredger only or by a trailer suction hopper dredger working in conjunction with a backhoe dredger (for areas of the structures which are inaccessible by trailer suction hopper). If required, bedrock would be pre-

fractured by drilling and splitting using Cardox (a CO₂ driven hydraulic breaker). Non-explosive blasting methods would be used.

Dredging Process (Backhoe Dredger)

The spuds extend to the seabed and provide lateral resistance and stability for the pontoon (Figure 2.1). The dredged material will be loaded into a split hopper barge (SHB) (Figure 2.2). SHB are self-propelled barges, which transport the dredged material once loaded by the backhoe dredger to the assigned disposal area.

The dredging process consists of:

1. Digging and filling the bucket;
2. Lifting the bucket;
3. Swinging towards the SHB;
4. Emptying the bucket into the SHB;
5. Swinging towards the next digging location;
6. Lowering the bucket;
7. Positioning at the next digging location; and
8. Digging and filling the bucket.

The excavator is located above the dredged face and digs towards itself, in an upward motion, to fill the bucket. With the pontoon positioned in one location, the excavator covers an area along an arc. The arc length depends on the length of the boom and stick.

Dredging Process (Trailer Suction Hopper Dredger)

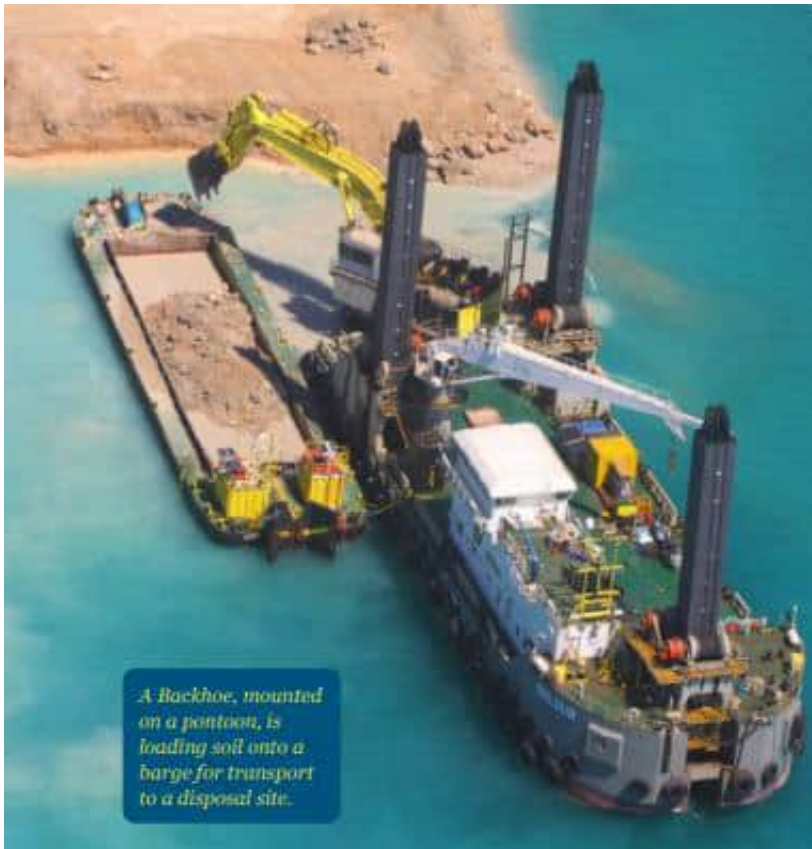
Trailer suction hopper dredgers are equipped with one or two suction pipes ending in drag heads. The drag head moves slowly over the bed collecting the sand like a giant vacuum cleaner. The mixture of sand and water is pumped into the hopper of the dredging vessel. Excess water flows out through so-called overflows. Dredging stops when the maximum hopper capacity is reached.

Figure 2.1: Backhoe Dredger Example



Source: Backhoe Dredging (Sourced at International Association of Dredging Companies, 2016 <https://www.iadc-dredging.com/wp-content/uploads/2016/07/facts-about-backhoe-dredgers.pdf>)

Figure 2.2: Split Hopper Barge Example



Source: Backhoe Dredging onto SHB (graphic sourced at International Association of Dredging Companies, 2016 www.iadc-dredging.com)

Carbon Dioxide Fracturing

Where the rock cannot be dredged, the bedrock may need to be pre-fractured by drilling and splitting using Cardox. These are liquid carbon dioxide filled tubes are inserted into pre-drilled boreholes and energized with a small electrical charge. Carbon dioxide is instantly converted to gas and the pressure increase is discharged at the end of the tube. The rock mass splits along planes of weakness in the rock mass.

Disposal

The transportation of material from the dredged areas to the disposal area is by means of self-propelled SHB. On board the barges, a barge report is completed for each load, specifying date, shift, load number, departure time from dredger and unloading location.

It is anticipated that any disposal at sea would be undertaken at the nearest licenced disposal site. The closest licenced disposal sites are approximately 50km south of the Proposed Development, on the south side of the Island of Islay (Portnahaven - Site ID MA035 south of Port Wemyss). Further details of disposal options which were considered are included in the Best Practicable Environmental Options (BPEO) Report¹.

2.2.1.3 Toe Protection

The proposed dredging has the potential to undermine the toes of some of the pier support piles and fender piles. As such toe protection around existing timber piles would be required. A potential method of protecting the toes of the piles is to place structural collars around the toes of the piles with dowels into the bedrock below the piles or concrete mattress to replace the overburden on the pile toe. The collar protection would likely be installed prior to any dredging close to the piles.

The installation method for steel collars is likely to be as follows:

- Works for the collars would be carried out by divers;
- Removal of seabed material locally around the pile until sound bedrock is exposed;
- Bedrock is to be prepared to accommodate the steel collar which would act as a permanent formwork and the installation of dowel bars; and
- The void between the pile and the steel collar would be infilled with concrete.

The installation method for concrete mattress is likely to be as follows:

- Works for the mattress would be carried out by divers;
- Removal of seabed material locally around the pile to anticipated dredge level;
- Fabric formwork is to be positioned around the pile to replicate the lost overburden due to dredging;
- The diver in the water will zip together two adjacent mattress formworks before either are filled;
- Once the formwork is positioned and sealed, filling then commences by pumping the concrete from above water through filling tubes; and
- A secondary tube is provided to permit air/water to be released from the formwork during filling.

¹ New Islay Vessel Port Enabling Works Colonsay Best Practical Environmental Options (BPEO) Report.
Document reference: 105612-MMD-CO-ZZ-RP-O-0006-S2-P01

2.2.2 Working Hours

Working hours are anticipated to be 24 hours each day, Monday to Sunday to accommodate dredging works and minimise disruption to the existing ferry service by allowing some dredging works to be undertaken overnight. However, rock breaking works will be restricted to the hours between 08:00-1800 Monday to Friday and 08:00-13:00 Saturday. No rock breaking works will be undertaken on Sunday.

2.2.3 Deliveries and Transportation of Materials, Plant and Equipment to Site

Deliveries including the transport of materials, plant, and equipment to the development site will only take place during the following hours:

- 07:00 to 18:00 on Monday to Friday
- No deliveries on Saturdays, Sundays or Bank Holidays and local Public Holidays. To reduce disruptions to local road networks.

Site access will typically be via road, i.e. wagon haulage. However, it is possible that some material may be transported by sea, e.g. by barge or ship.

Construction transport is expected to use local roads within the vicinity and it is anticipated that one delivery per week during the construction works would be required.

2.2.4 Storage of Materials

Materials to be used on site would likely be stored within the hardstanding of a temporary site compound, located at NGR NR 39400 94100 within the existing harbour area. Following contract award this would be further determined by the Contractor.

2.2.5 Programme

It is anticipated that construction would start during August 2023 and would last approximately 12 -18 months dependent on weather conditions and planned downtime.

2.3 Operation and Decommissioning

No new works are planned for the operational phase or plans to decommission the refurbished assets in the future as part of the Proposed Development.

3 Assessment Methodology

3.1 Assessment Methodology

The Proposed Development as detailed in Section 2 has been reviewed following the regulations and process outlined in Appendix A. This information has been reviewed as a desk based assessment to determine whether it is considered that LSE will arise on any designated sites or their associated features which could potentially lead to an adverse effect on the integrity of that site.

3.1.1 Data Evaluation

In undertaking this HRA, relevant information gathered informed the assessment included the identification of:

- Potential effects resulting from the Proposed Development based upon publicly available research of established effects or examples from past construction within industry;
- The Zone of Influence (Zol) of any potential effects. It should be noted that the ZOIs may extend some distance from the site itself and are not confined to activities on or adjacent to the site. To confirm any potential effects, underwater noise and dispersion modelling has been undertaken in to identify the potential scale of construction effects;
- Any Special Protection Areas (SPA)/ Special Areas of Conservation (SAC)/ potential Special Protection Areas (pSPA)/ candidate Special Areas of Conservation (cSAC)/Ramsar sites, including any marine or marine elements of these sites within the potential Zol, and any known areas of land outside the site boundary itself, which plays an important role in supporting the site and its features of interest (functionally linked land);
- The features of interest of the designated site(s) in question;
- The conservation objectives of the designated site, including any site sensitivities given within any supplementary advice, site improvement plan, or equivalent document published by the relevant nature conservation body; and
- Any viable pathways for the Proposed Development to the receptor (designated site itself or functionally linked land).

An underwater noise assessment has been conducted (document reference: 105612-MMD-00-ZZ-RP-O-0006-S2-P01-NIV) and a sediment dispersion model have been conducted (document reference: 105612-MMD-CO-ZZ-RP-O-0007-S2-P01). The underwater noise modelling and sediment dispersion modelling result have been used to identify the scale of construction effects.

3.1.2 Identification of Designated Sites to be Included

The Proposed Development works have the potential to impact on ecological features such as habitats and/or species beyond the confines of the boundary of the Proposed Development itself. A Zone of Influence (Zol) has been used to define the study area for this screening assessment and the potential impacts on designated sites are defined as:

- Areas where there is physical disturbance to designated sites and/or their designated interest features;
- Areas where there will be land take and habitat removal for the works;
- Areas where there is risk of altering the hydrodynamic regime;
- Areas where there is risk of an increase in noise, air and light pollution; and

- Areas where there is a risk of reduction of water quality.

The Zol for the Proposed Development has been defined using guidance provided by Chartered Institute of Ecology and Environmental Management² and has been informed using professional judgement. The Zols used for this assessment and their justification are outlined in Table 3.1 and presented in Appendix B.

Table 3.1: Zone of Influence (Zol) for the Proposed Development

Zol	Type of Site	Justification
2km	Designated sites	All designated sites for the effects of visual disturbance and noise (airborne).
10km	Hydrologically connected sites	Sites designated that are hydrologically connected (two tidal ellipses ³). Distance at which waters normally circulate from the site has been calculated as the average of the two closest tidal excursions. It is considered that this distance covers the potential maximum dispersion in the event that any deleterious substances should enter the water.
15km	Underwater noise propagation (hydrologically connected)	Based on the use of a pin piling structure installation, this is the effective deterrence radius ⁴ for cetaceans as suggested by the JNCC, which is being considered a highly conservative proxy for diving birds. Many of the sources are highly directional but several of these systems can propagate longer distances.

² CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.2. Winchester: Chartered Institute of Ecology and Environmental Management.

³ ABP MER, 2008. Atlas of UK Marine Renewable Energy Resources [Online] Available at: [Explore the ABPmer UK Renewables Atlas \(renewables-atlas.info\)](https://www.abpmer.co.uk/renewables-atlas)

⁴ JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland)

4 Stage 1: Screening

4.1 Designated Sites requiring Assessment

The designated sites identified as being within the Zol (defined in Section 3.1.2) are outlined in Table 4.1 below. These sites are included in the Stage 1 screening.

Table 4.1: Designated sites within the Zol

Designated Site	Approximate Distance and Direction from Proposed Development	Qualifying Features / Descriptions
Inner Hebrides and the Minches SAC	Within footprint of the Proposed Development	Annex II species that are the primary reason for selection of this site: <ul style="list-style-type: none"> Harbour Porpoise (<i>Phocoena phocoena</i>)
Oronsay and South Colonsay SPA	1.4km south	Qualifies under Article 4.1 for supporting the following Annex I species: <ul style="list-style-type: none"> Chough (<i>Phyrrhonorax phyrrhonorax</i>) supporting over 5% of the wintering GB population and 1.2% of the GB breeding population; and Corn Crane (<i>Crex crex</i>) over 1.9% of the GB calling male population.
North Colonsay and Western Cliffs SPA	1.5km north-west	Qualifies under Article 4.1 for supporting the following Annex I species: <ul style="list-style-type: none"> Chough (<i>Phyrrhonorax phyrrhonorax</i>) supporting over 2% of the UK breeding population and 2.6% of its wintering population Qualifies under Article 4.2 for supporting in excess of 20,000 individual seabirds, the site regularly supports 30,000 seabirds including the following species: <ul style="list-style-type: none"> Black-legged kittiwake (<i>Rissa tridactyla</i>), supporting 0.9% of the GB breeding population; and Common guillemot (<i>Uria aalge</i>), supporting 0.9% of the GB breeding population
Loch Fada SAC	1.5km north-east	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: <ul style="list-style-type: none"> Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> Annex II species that are a primary reason for selection of this site: <ul style="list-style-type: none"> Slender naiad (<i>Najas flexilis</i>) Annex II species present as a qualifying feature, but not a primary reason for site selection: <ul style="list-style-type: none"> Otter (<i>Lutra lutra</i>)
Oronsay SAC	5.2km South	Annex I habitats that are a primary reason for selection of this site: <ul style="list-style-type: none"> Machairs (considered to be one of the best areas in the UK)

Source: NatureScot⁵

4.2 Conservation Objectives

The screening for LSE considers the implications of the Proposed Development in view of the Conservation Objectives for the five designated sites screened into the Stage 1 assessment. An

⁵ NatureScot, 2022. Protected Areas [Online] Available at: [SiteLink \(nature.scot\)](https://www.nature.scot/SiteLink) [Accessed November 2022]

overview of the objectives and links to the conservation objectives documents for each designated site are shown in Table 4.2 below.

Table 4.2: Conservation objectives for each designated site within the Zol

Site name	Main objectives
Inner Hebrides and the Minches SAC SiteLink (nature.scot)	<ol style="list-style-type: none"> 1. To ensure that the Inner Hebrides and the Minches SAC continues to make an appropriate contribution to harbour porpoise remaining at Favourable Conservation Status. 2. To ensure for harbour porpoise, within the context of environmental changes, that the integrity of the Inner Hebrides and the Minches SAC is maintained through 2a, 2b and 2c: <ol style="list-style-type: none"> a. Harbour porpoise within the Inner Hebrides and the Minches SAC are not at significant risk from injury or killing. b. The distribution of harbour porpoise throughout the site is maintained by avoiding significant disturbance. c. The condition of supporting habitats and the availability of prey for harbour porpoise are maintained.
Oronsay and South Colonsay SPA SiteLink (nature.scot)	<ol style="list-style-type: none"> 1. To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained. 2. To ensure for the qualifying species (Chough <i>Pyrrhocorax</i> and corncrake <i>Crex crex</i>) that the following are maintained in the long term: <ol style="list-style-type: none"> a. Population of the species as a viable component of the site. b. Distribution of the species within site. c. Distribution and extent of habitats supporting the species. d. Structure, function and supporting processes of habitats supporting the species. e. No significant disturbance of the species.
North Colonsay and Western Cliffs SPA SiteLink (nature.scot)	<ol style="list-style-type: none"> 1. To avoid deterioration of the habitats of the qualifying species (Chough, Guillemot <i>Uria aalge</i>*, Kittiwake <i>Rissa tridactyla</i>* and seabird assemblage) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained. 2. To ensure for the qualifying species that the following are maintained in the long term: <ol style="list-style-type: none"> a. Population of the species as a viable component of the site. b. Distribution of the species within site. c. Distribution and extent of habitats supporting the species. d. Structure, function and supporting processes of habitats supporting the species. e. No significant disturbance of the species. <p>*assemblage qualifier</p>
Loch Fada SAC SiteLink (nature.scot)	<p>Conservation objectives for otter (<i>Lutra lutra</i>) comprise the following:</p> <ol style="list-style-type: none"> 1. Maintain the population of otter as a viable component of the site. 2. Maintain the distribution of otter throughout the site. 3. Maintain the habitats supporting otter within the site and availability of food.
Oronsay SAC SiteLink (nature.scot)	<p>Conservation objectives for machair comprise the following:</p> <ol style="list-style-type: none"> 1. To ensure that the qualifying feature of Oronsay SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status. 2. To ensure that the integrity of Oronsay SAC is maintained by meeting objectives 2a, 2b and 2c for the qualifying feature. <ol style="list-style-type: none"> a. Maintain the extent and distribution of the machair habitat within the site b. Maintain the structure, function and supporting processes of the machair habitat c. Maintain the distribution and viability of typical species of the machair habitat

Accessed: March 2023

4.3 Assessment of Impact Pathways

The Proposed Development is within the Inner Hebrides and the Minches SAC and hydrologically connected to Oronsay and South Colonsay SPA and North Colonsay and Western Cliffs SPA. Loch Fada SAC is located within the Zol and although separated by land from the works, it is designated for otter which may be hydrologically connected. As such, given the highly mobile nature of otter that are likely to travel widely outside of the designated site and potentially use areas connected to the Proposed Development, Loch Fada SAC has been screened into the assessment.

Oronsay SAC, designated for its machairs, is not considered further in this report as it is considered sufficiently separated from the Proposed Development (5.2km) and is unlikely to be impacted by the works.

There are a variety of potential impact pathways and sources of disturbance from the Proposed Development that could affect the four sites screened into the assessment. These are outlined in Table 4.3.

Table 4.3: Activities with the potential to impact on the designated sites

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Construction phase		
Pollution event	Designated species from the following sites: <ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Seabird assemblage of Black-legged kittiwake (<i>Rissa tridactyla</i>) and common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	During construction and in the absence of mitigation, there is the potential for a pollution event to occur. Potential pathways could comprise the use of plant and machinery in and adjacent to the marine environment (fuel spills) and spills of concrete or other hazardous substances. Depending on the size and scale of the spill there is the potential for far-reaching impacts if this was to occur in the marine environment. Impacts from these on designated features could be direct (toxicity) or indirect (death of prey or supporting habitat). Otters are sensitive to marine oil pollution, with mortality of species exposed to spills as a result of ingestion through grooming of the fur resulting in toxicity ⁶ . Common guillemot and kittiwake are also known to be sensitive, particularly as populations have been previously impacted by spills historically ⁷ .
Underwater noise	Designated species from the following sites: <ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) 	Dredging, and rock breaking activities are proposed to take place. This would result in the generation of underwater noise with potential for impact on designated features present. Underwater noise can result in temporary and permanent hearing loss (TTS and PTS) for marine mammals, causing behavioural changes and

⁶ Baker et al., 1981. Otter *L. lutra* mortality and marine oil pollution. Biological conservation, 20(4) pp.311-21

⁷ Martin Heubeck, 2000. Population trends of Kittiwake *Rissa tridactyla*, Black Guillemont *Cepphus grylle* and Common Guillemot *Uria aalge* in Shetland, 1978-98. Atlantic seabirds, 2(3/4), 227–244

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
	<ul style="list-style-type: none"> ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	<p>issues with navigation that can lead to displacement^{8,9}. Guillemot have also been shown to react to underwater noise¹⁰. There could also be indirect impact on fish, larvae and eggs; underwater noise has been shown to adversely affect fish larvae and egg mortality and development¹¹. The conservation and management advice document for the Inner Hebrides and the Minches SAC¹² outlines underwater noise as a threat to harbour porpoise.</p>
Airborne noise and vibration	<p>Designated features from the following sites:</p> <ul style="list-style-type: none"> ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	<p>The designated species listed are considered to be highly mobile and could be present within the Proposed Development area, as a result airborne noise and vibration generated during construction (installation of pile toe reinforcement, replacement of fenders and bollards, dredging) could impact on any designated features that may be present.</p> <p>Noise disturbance events can affect birds and otter directly, by displacing them from key foraging grounds and causing flee responses, and indirectly by reducing food availability. Displacement from preferred feeding areas may have an adverse effect by being energetically expensive to individuals, particularly diving birds, where their feeding activity is already physically strenuous. This can have an impact on energy budgets and survival rate, with the potential to reduce overall population numbers^{13,14}.</p>
Visual disturbance	<ul style="list-style-type: none"> ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	<p>As above for airborne noise disturbance, the designated species listed are considered to be highly mobile and could be present within the Proposed Development area. As a result, visual disturbance during construction resulting from the movement of plant, machinery and personnel could impact on designated bird species and otter both directly and indirectly through displacement and reduction in food availability^{13,14}. Lighting during construction could also have a visual impact, displacing resting/roosting species.</p>

⁸ Thompson, et al. (2013). Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. Environmental Impact Assessment Review, 43, 73-85.

⁹ National Marine Fisheries Service (2018). Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA, US Department of Commerce, NOAA. NOAA.

¹⁰ Hansen et al., 2020. The common murre (*Uria aalge*), an auk seabird, reacts to underwater sound. The Journal of the Acoustical Society of America, 147(6), 4069-4074. <https://doi.org/10.1121/10.0001400>

¹¹ Weilgart, L. (2018). The impact of ocean noise pollution on fish and invertebrates. Report by Oceancare & Dalhousie University. 36page. Available from: https://www.oceancare.org/wp-content/uploads/2017/10/OceanNoise_FishInvertebrates_May2018.pdf.

¹² NatureScot, 2020. Conservation and management advice – Inner Hebrides and the Minches SAC [Online] Available at: [SiteLink \(nature.scot\)](#) Accessed: December 2022

¹³ Waterbird Disturbance and Mitigation Toolkit [Online] Available at: [TIDE toolbox - TIDE tools \(tide-toolbox.eu\)](#)

¹⁴ DMRB, 2001. Nature conservation advice in relation to otters [Online] Available at: [Nature Conservation Advice in Relation to Otters | CIEEM](#)

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Changes to water quality (changes in turbidity)	<p>Designated species from the following sites:</p> <ul style="list-style-type: none"> • Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) • North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) • Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	<p>Marine species, otter and birds that rely of the sea for feeding could be impacted by increases in turbidity during dredging works. Harbour porpoise are able to forage in turbid waters however, indirect impacts of increased turbidity can impact on prey through impacts to eggs, larvae and benthic and infaunal communities that support them¹⁵. Otter utilise tactile sense and vibrissae to detect prey along with sight¹⁶, but as they are predominantly nocturnal sight is not essential however, as above for harbour porpoise, indirect impacts to prey availability could arise. Guillemot and kittiwake¹⁷ rely predominantly on sight to feed however, guillemot may forage at night where they appear to rely on random encounters with prey as opposed to visual detection¹⁸. As a result, direct impacts are anticipated as a result of a reduction in feeding as a result of increased turbidity.</p>
Changes to water quality (resuspension of contaminants)	<p>Designated species from the following sites:</p> <ul style="list-style-type: none"> • Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) • North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) • Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	<p>Marine species, otter and birds that rely on the sea for feeding could be impacted by suspension of potentially contaminated sediments. Historically, harbours have been sinks for contaminants from surrounding industry, comprising metals, tributylins, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and pesticides¹⁹. Impacts resulting from exposure to contaminants could be direct as a result of toxicity and lead to mortality; or indirect, resulting from bioaccumulation from ingesting contaminated prey, or reduction in prey availability. This can be applied to all species listed. There is also some evidence to support that exposure of harbour porpoise to toxic metals can cause immunosuppression²⁰. The conservation and management advice document for the Inner Hebrides and the Minches SAC²¹ outlines contaminants (water quality effects and bioaccumulation) as a threat to harbour porpoise.</p>

¹⁵ Todd *et al.*, 2015. A review of impacts of marine dredging activities on marine mammals. ICES Journal of Marine Science, 72(2), pp.328-340. [Online] Available at: [review of impacts of marine dredging activities on marine mammals | ICES Journal of Marine Science | Oxford Academic \(oup.com\)](#)

¹⁶ Ruff, K.A., 2007. Optimizing the nutrition of captive Eurasian otters (*Lutra lutra*) (Doctoral dissertation, Ph. D. thesis). [Online] Available at: [Ruff Lutra lutra diet study.pdf \(iucnosg.org\)](#)

¹⁷ Suryan *et al.*, 2002. Short-term fluctuations in forage fish availability and the effect on prey selection and brood-rearing in the black-legged kittiwake *Rissa tridactyla*. Marine Ecology Progress Series, 236, pp.273-287. [Online] Available at: [Marine Ecology Progress Series 236:273 \(int-res.com\)](#)

¹⁸ Martin, Graham R.; Wanless, Sarah. 2015. The visual fields of common guillemots *Uria aalge* and Atlantic puffins *Fratercula arctica*: foraging, vigilance and collision vulnerability. *Ibis*, 157 (4). 798-807.

¹⁹ Knott, N.A., Aulbury, J.P., Brown, T.H. and Johnston, E.L., 2009. Contemporary ecological threats from historical pollution sources: impacts of large - scale resuspension of contaminated sediments on sessile invertebrate recruitment. *Journal of Applied Ecology*, 46(4), pp.770-781.

²⁰ Bennett, P.M., Jepson, P.D., Law, R.J., Jones, B.R., Kuiken, T., Baker, J.R., Rogan, E. and Kirkwood, J.K., 2001. Exposure to heavy metals and infectious disease mortality in harbour porpoises from England and Wales. *Environmental pollution*, 112(1), pp.33-40.

²¹ NatureScot, 2020. Conservation and management advice – Inner Hebrides and the Minches SAC [Online] Available at: [SiteLink \(nature.scot\)](#) Accessed: December 2022

Aspect of Project / Impact	Receptors Potentially Impacted	Description of Potential Effect
Physical harm/ vessel strike	Designated species from the following sites: <ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	There is potential for marine mammals and otter to be directly impacted by vessel strike if they are present in the areas of works. Vessel strikes are known to cause mortality in Sea otter (<i>Enhydra lutris</i>) ²² and given the potential for Eurasian otter in the marine environment it is considered a potential impact. Given kittiwake and guillemot have limited fields of vision, although unlikely, there is the potential for vessel strikes during foraging and rafting in the absence of mitigation. The conservation and management advice document for the Inner Hebrides and the Minches SAC ²³ outlines death or injury by collision with various fast moving vessels as a threat to harbour porpoise.
Spread of invasive and non-native species (INNS)	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC <ul style="list-style-type: none"> – Harbour porpoise (<i>Phocoena phocoena</i>) ● North Colonsay and western cliffs SPA <ul style="list-style-type: none"> – Black-legged kittiwake (<i>Rissa tridactyla</i>) – Common guillemot (<i>Uria aalge</i>) ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	The use of machinery, plant, vessels and presence of site workers within the Proposed Development area presents the risk of the introduction and/or spread of INNS. INNS can outcompete native species resulting in a potential indirect effect on designated features through impacts to their prey and supporting habitats.
Generation of construction dust / reduced air quality	<ul style="list-style-type: none"> ● Loch Fada SAC <ul style="list-style-type: none"> – Otter (<i>Lutra lutra</i>) 	It is possible for reductions in air quality (e.g., through generation of construction dust) to impact on designated habitats and species.
Operational Phase		
As outlined above in Section 2.3, the operational phase will not differ from the existing baseline in terms of operation, maintenance or inspection activities. As a result, no assessment of likely LSE is required.		
Decommissioning Phase		
As outlined above in Section 2.3, there are no plans to decommission the refurbished assets in the future as part of the Proposed Development. Therefore, there is no decommissioning phase and no effects from decommissioning are assessed. If this changes in the future, then a separate HRA will need to take place for any decommissioning works.		

²² Ballachey, B.E. and Bodkin, J.L., 2015. Challenges to sea otter recovery and conservation. In Sea otter conservation (pp. 63-96). Academic Press.

²³ NatureScot, 2020. Conservation and management advice – Inner Hebrides and the Minches SAC [Online] Available at: [SiteLink \(nature.scot\)](#) Accessed: December 2022

4.4 Screening for Likely Significant Effects (LSE)

The activities listed as having the potential to result in impacts (see Table 4.3) have been assessed against the designated sites, designated features and associated supporting species or habitat identified within the ZoI (see Table 4.1) to establish whether there is potential for LSE to occur. This screening for LSE is outlined below in Table 4.4. As noted above, only the construction phase is considered in this screening for LSE, as no activities are planned in the operational phase and no decommissioning phase will take place. Any impacts that are identified as having potential LSE on designated features will be taken through to the Stage 2 Appropriate Assessment to establish whether the impacts will affect the integrity of the designated sites.

Table 4.4: Screening for LSE

Designated Site	Designated Feature(s)	Potential Impact	LSE identified (✓ or X)	Justification
Inner Hebrides and the Minches SAC	Harbour porpoise (<i>Phocoena phocoena</i>)	Pollution event	✓	The conservation and management objectives for the site highlights that introduction of contaminants has the potential to impact on harbour porpoise (through bioaccumulation affecting survival and productivity rates). However, any spills from the proposed works are likely to be minor in nature. In the event of more severe spills, there is the potential for direct toxicity to occur to a few individuals; however, it is more likely to result in impacts to health or survival rates, and have an indirect impact through impacts to prey species. It is not likely that any spills associated with these works would be of a nature large enough to greatly impact the wider SAC. However, localised spills could result in adverse effects on a number of individuals of the species.
		Changes in turbidity	✓	Increases in turbidity during dredging works can lead to changes in the behaviour of harbour porpoise and could also impact indirectly on their habitat and prey. Harbour porpoises are considered to have a high metabolic rate and high feeding rates ²⁴ therefore, are dependent on a consistent food source. As a result, impacts to their prey have the potential to significantly affect the population and their distribution.
		Underwater noise	✓	Harbour porpoises are sensitive to underwater noise and rely on sound for foraging, navigation, communication and predator detection. The introduction of noise during construction therefore has the potential to interfere with these behaviours and result in displacement from the site. In addition, loud impulsive sound generated by potential carbox blasting and rock peckering can result in temporary threshold shift (TTS), permanent threshold shift (PTS) and in severe cases, death ^{25,26} . The Proposed Development involves construction within the marine environment and without mitigation in place, this is likely to generate large volumes of underwater noise, which may be impulsive in nature. Indirect impacts could also occur through

²⁴ JNCC, 2019. Harbour Porpoise (*Phocoena phocoena*) Special Area of Conservation: Southern North Sea Conservation Objectives and Advice on Operations [Online] Available at: [Southern North Sea MPA: Conservation Objectives And Advice On Operations \(jncc.gov.uk\)](https://www.jncc.gov.uk/information-and-services/our-work-programs/nature-conservation/special-areas-of-conservation/southern-north-sea-mpa-conservation-objectives-and-advice-on-operations) [Accessed January 2023]

²⁵ Thompson, et al. (2013). Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. Environmental Impact Assessment Review, 43, 73-85.

²⁶ National Marine Fisheries Service (2018). Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA, US Department of Commerce, NOAA. NOAA.

Designated Site	Designated Feature(s)	Potential Impact	LSE identified (✓ or X)	Justification
				impacts to prey species. As mentioned above, harbour porpoise are considered to have a high metabolic rate and high feeding rates ²⁷ therefore dependent on a consistent food source.
		Airborne noise and vibration	X	No impact pathway was identified from airborne noise disturbance on harbour porpoise as airborne noise is minimised when it changes between mediums (air to water).
		Visual disturbance	X	No impact pathway was identified from visual disturbance on harbour porpoise.
		Resuspension of contaminants	✓	Indirect impacts from suspension of contaminants could impact on water and prey quality, reducing food availability and suitable habitat. Also, bioaccumulation resulting from ingestion of contaminated prey could result in mortality or health issues.
		Vessel strike	✓	Direct impacts comprising injury or mortality to harbour porpoise as a result of vessel collision could occur. The frequency of vessel collisions with harbour porpoise is considered to be noticeable at generally local scales relative to harbour porpoise populations, although not the most common cause of mortality ²⁸ .
		Introduction / spread of INNS	✓	It is possible that if INNS were introduced to the works area and mitigation was not in place, some of these may spread throughout the marine and terrestrial environment where they can outcompete native species already established on site. This could lead to changes in ecosystem structure, changing functionality of habitats on site on which designated species are reliant upon. Indirect effects may also arise through affecting the prey of protected species.
		Air quality	X	In the absence of mitigation, it is possible for localised reductions in air quality (e.g. from generation of construction dust) however, this is not anticipated to impact harbour porpoise. No impact pathway has been identified.
Oronsay and south Colonsay SPA	<ul style="list-style-type: none"> Chough (<i>Phyrrhonorax phyrrhonorax</i>) Corncrake (<i>Crex crex</i>) 	Pollution event	X	No impact pathway has been identified from any potential spills as the site is considered sufficiently separated from the works (1.4km). In the event of spills into the marine environment, an impact is considered unlikely given the distance and as the features do not utilise the marine environment for foraging or roosting; corncrake live on dry land, feeding on insects and seeds and chough nest on cliffs and occasionally utilise the intertidal area to forage amongst the strandline (although primarily feed in farmland). As a result, no LSE has been identified.
		Changes in turbidity	X	Given neither designated species is considered marine or relies on the marine environment for food and given the distance of the site from the works; no impact pathway has been identified from changes in turbidity.
		Underwater noise	X	Neither designated species utilise the marine environment for feeding or resting (both are considered terrestrial) and as a result, no impact pathway has been identified.

²⁷ JNCC, 2019. Harbour Porpoise (*Phocoena phocoena*) Special Area of Conservation: Southern North Sea Conservation Objectives and Advice on Operations [Online] Available at: [Southern North Sea MPA: Conservation Objectives And Advice On Operations \(jncc.gov.uk\)](https://www.jncc.gov.uk/information-and-consultation/southern-north-sea-conservation-objectives-and-advice-on-operations) [Accessed January 2023]

²⁸ Schoeman, Patterson-Abrolat and Pln, 2020. A global review of vessel collisions with marine animals [Online] Available at: [Frontiers | A Global Review of Vessel Collisions With Marine Animals \(frontiersin.org\)](https://www.frontiersin.org/journal/article/10.3389/fmars.2020.00001)

Designated Site	Designated Feature(s)	Potential Impact	LSE identified (✓ or X)	Justification
		Airborne noise and vibration	X	There is no functionally linked land connecting the site to the SPA 1.4km away. Additionally, both species are terrestrial, with specific nesting and feeding habitat; for corncrake, lowland pastures and chough, nesting on sea cliffs and feeding on farmland. As a result, the designated species aren't likely to be present within the vicinity of the works and no impact pathway has been identified.
		Visual disturbance	X	As above, given the species listed are considered terrestrial, there is the potential for visual impacts to occur however, therefore, no LSE is anticipated.
		Resuspension of contaminants	X	As above for changes in turbidity, given neither designated species is considered marine, or relies on the marine environment for food and given the distance of the site from the works, no impact pathway has been identified.
		Vessel strike	X	Neither designated species utilise the marine environment for feeding or resting therefore, no impact pathway has been identified from vessel strikes.
		Air quality	X	As above for airborne noise, no impact pathway has been identified therefore no impacts are anticipated from a reduction in air quality.
		Introduction / spread of INNS	X	Given the distance of the site from the works it is considered unlikely that INNS could be introduced/spread to the designated site. INNS can be spread over a greater distance within the marine environment however, as neither species rely on the marine environment for feeding, no impact pathway has been identified.
North Colonsay and western cliffs SPA	<ul style="list-style-type: none"> Seabird assemblage supporting black-legged kittiwake (<i>Rissa tridactyla</i>) and common guillemot (<i>Uria aalge</i>). 	Pollution event	✓	Kittiwake and guillemot are mobile, predominantly feeding offshore and it is possible that despite the Proposed Development being located 1.5km away, these interest features could be present in the area of influence from the works. A pollution event could impact the features of the SPA directly and indirectly. For kittiwake (surface feeders) and guillemot (divers), who feed on fish, shrimp and crustaceans; they could be impacted indirectly through impacts to prey species, reducing food availability. Direct impacts could comprise injury or mortality (e.g. from fuel spills). Guillemot are considered sensitive to oil pollution in both winter and summer (with a Seabird Oil Sensitivity Index (SOSI) of >0.8), kittiwake are considered less sensitive (SOSI of c.0.4). The median sensitivity of seabird concentrations for the area around the works is greatest in February and March when it is considered extremely high and very high respectively ²⁹ . Although it is not considered that the species will be present in large numbers given the distance from the site; there could be individuals present therefore, on a precautionary basis, LSE are identified.
		Changes in turbidity	✓	An increase in turbidity could indirectly impact kittiwake and guillemot through reducing their foraging ability and could also impact indirectly on their prey. As above, although it is not considered that the species will be present in large numbers given the distance from the site; there could be individuals present therefore, on a precautionary basis, LSE are identified.
		Underwater noise	✓	As above, kittiwake and guillemot are mobile, and it is possible that despite the site being located 1.5km away, these interest features could be present in the area of influence from the works. It is possible for works to give

²⁹ HiDef, 2016. Sensitivity of offshore seabird concentrations to oil pollution around the United Kingdom: Report to Oil & Gas UK [Online] Available at: [Sensitivity of offshore seabird concentrations to oil pollution around the United Kingdom: Report to Oil & Gas UK | JNCC Resource Hub](#)

Designated Site	Designated Feature(s)	Potential Impact	LSE identified (✓ or X)	Justification
				rise to underwater noise disturbance on birds during the construction phase, impacting species directly through potential injury and displacement, or indirectly through impacts to prey.
	Airborne noise and vibration		✓	As above, kittiwake and guillemot are highly mobile and could be present in the area of works. Although it is not anticipated that the species will be present in large numbers given the distance from the site; there could be individuals present. Therefore on a precautionary basis, LSE are identified.
	Visual disturbance		✓	As above for airborne noise. It is possible for works to give rise to visual and noise disturbance on birds during the construction phase. Kittiwake are identified as having a low sensitivity to disturbance away from the main colony ³⁰ . Although it is not anticipated that the species will be present in large numbers given the distance from the site; there could be individuals present. Therefore on a precautionary basis, LSE are identified.
	Resuspension of contaminants		✓	Indirect impacts from suspension of contaminants could impact water and prey quality, reducing food availability. Also, bioaccumulation resulting from ingestion of contaminated prey could result in mortality or health issues.
	Introduction / spread of INNS		✓	It is possible that if INNS were introduced to the works area and mitigation was not in place, some of these may spread throughout the marine and terrestrial environment where they can outcompete native species already established on site. This could lead to changes in ecosystem structure, changing functionality of habitats on which designated species are reliant upon. Indirect effects may also arise through affecting the prey of designated species. As a result, it is possible to affect all designated species.
	Air quality		X	Kittiwake and guillemot are mobile however, predominantly feed offshore and given the SPA is located 1.5km from the works and any air quality impacts are anticipated to be localised, no LSE is anticipated to the features of the SPA.
	Vessel strike		✓	As above, the site is 1.5km from the works and given that the bird species are highly mobile, there is the potential for them to be present in the area. Therefore, on a precautionary basis, LSE are identified.
				[Redacted]

³⁰ See review on disturbance during hand seaweed harvesting by Goodship and Furness (2019).

³¹ Mott MacDonald, 2022. New Islay Vessel Port Enabling Works Colonsay. Otter Survey Report. Document reference: 105612-MMD-CO-ZZ-RP-O-0001-S2-P01

Designated Site	Designated Feature(s)	Potential Impact	LSE identified (✓ or X)	Justification
	no impact pathways identified.	Airborne noise and vibration	✓	noise and visual disturbance and although the SAC is located 1.5km from the works, otter could be present in the vicinity of the works.
		Visual disturbance	✓	[Redacted]
		Resuspension of contaminants	✓	Indirect impacts from suspension of contaminants could affect water and prey quality, reducing food availability. Also, bioaccumulation resulting from ingestion of contaminated prey could result in mortality or health issues.
		Vessel strike	✓	Although outside of the SAC, otter have been known to utilise coastal areas and could be present in the waters surrounding the works. Direct impacts comprising injury or mortality could therefore occur to otter as a result of vessel collision.
		Air quality	✓	As above, although outside of the SAC, otter have been known to utilise coastal areas and could be present in the waters surrounding the works and as a result, reductions in air quality from an increase in emissions from vehicular use and dust generation could impact on the species. Although any impacts are likely to be localised, air quality impacts have been screened-in on a precautionary basis therefore, LSE are identified.
		Introduction / spread of INNS	✓	It is possible that if INNS were introduced to the works area and mitigation was not in place, some of these may spread throughout the marine and terrestrial environment where they can outcompete native species already established on site. This could lead to changes in ecosystem structure, changing functionality of habitats on which designated species are reliant upon. Indirect effects may also arise through affecting the prey of designated species. As a result, it is possible to affect all designated species.

4.5 Stage 1 Screening Summary

Overall potential LSE were identified for the following:

- Pollution event
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Changes in turbidity
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Underwater noise
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Airborne noise and vibration
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Visual disturbance
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Resuspension of contaminants
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:

- Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
- Loch Fada SAC
 - Otter (*Lutra lutra*)
- Vessel strike
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Introduction/spread of INNS
 - Inner Hebrides and the Minches SAC
 - Harbour porpoise (*Phocoena phocoena*)
 - North Colonsay and western cliffs SPA:
 - Kittiwake (*Rissa tridactyla*)
 - Guillemot (*Uria aalge*)
 - Loch Fada SAC
 - Otter (*Lutra lutra*)
- Reduction in air quality
 - Loch Fada SAC
 - Otter (*Lutra lutra*)

Despite being able to mitigate for these potential effects, it is a requirement of the HRA process for mitigation to not be taken into consideration during a Stage 1 Screening. Therefore, a Stage 2 Appropriate Assessment is required to outline what mitigation will be adhered to in order to avoid affecting the integrity of the designated sites listed.

5 Stage 2: Appropriate Assessment

The following Sections 5.1 to 5.3 comprise the Stage 2 appropriate assessment and set out the potential effects of the construction phase of the Proposed Development on the integrity of the designated sites. Considerations are made in terms of potential effects of the Proposed Development alone and also in-combination with other plans and projects in the area. The potential effects on site integrity are limited to those sites and receptors identified above in Section 4.5 as experiencing potential LSE.

5.1 Inner Hebrides and the Minches SAC

5.1.1 Pollution Event

The construction works require the use of plant, machinery and vessels, all with associated fuel, concrete and chemical compound use. Due to the use of fuel and likely requirement to refuel certain types of equipment on site, this presents a possibility for pollution events to take place which has the potential to impact on the SACs designated feature, harbour porpoise. In addition, the use of any compounds or concrete utilised for construction also presents a possibility for pollution events to occur.

To avoid potential pollution events and to reduce the magnitude of any event occurring, the following mitigation will be adhered to and will also be specified in the Proposed Development's Construction Environment Management Plan (CEMP):

- Pollution prevention measures specified in current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance will be adhered to during works to avoid pollution/run-off of any material into the marine waters. These will be compiled into a Pollution Prevention Control Plan to provide information on the prevention and management of potential pollution sources into the marine environment associated with the works. This plan will also cover specific measures for marine vessel activities (e.g. dredging) Adherence to the Water Management Plan (detailed in the CEMP).
- Staff will be required to undergo pollution toolbox talks prior to conducting the Works.
- An Environmental Emergency Response Plan will be prepared by the Contractor prior to construction. This will be issued as a tool box talk with copies kept in site offices for consultation and implementation in the event of an emergency.
- Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day.
- Designated refuelling areas will be established, located away from waterbodies (>10m). All fuel tanks and oil drums will be bunded with impervious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater.
- All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills.
- All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody.

- Oil absorbers and grab packs will be available on all vehicles and further materials, including booms.
- Spill kits will be available on all plant / machinery and centrally in each area.
- Drip trays will be placed at the point where oils/fuels are transferred from one container to another.
- All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring
- Marine grade, non-toxic compounds and materials will be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment.
- Regarding the prevention of discharges of cementitious materials and alkaline wastewaters, the following will be implemented:
 - Risk assessments for wet concreting will be completed by the Contractor prior to works being carried out.
 - Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment.
 - There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment.
 - Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility.
- Any effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works.
- All applicable vessels that travel to the site from outside of UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate.
- All vessels will also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.
- All vessels will ensure compliance with standard marine vessel policies, such as the Convention for the Prevention of Collisions at Sea (COLREGs) (International Maritime Organisation (IMO), 1972), International Convention for the Prevention of Pollution from Ships (MARPOL)(IMO, 1997), and the Convention of the Prevention of Marine Pollution by Dumping of Wastes and other matter (IMO, 1996).

Based on the above mitigation being adhered to, it can be concluded that the risk of a pollution event occurring during the works is extremely low and the resulting magnitude from any such

event would be negligible. As a result, pollution events associated with the works are not anticipated to impact the integrity of the Inner Hebrides and the Minches SAC.

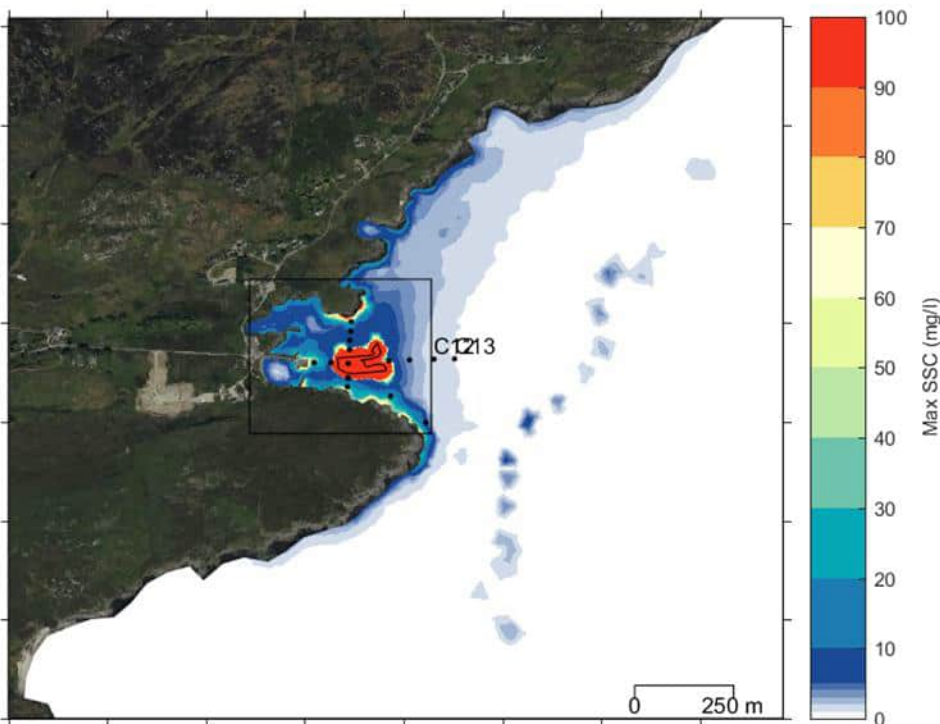
5.1.2 Changes in Turbidity

Sediment modelling has been undertaken³² and as a precautionary approach, the greatest dispersion scenario of dredge operations being undertaken during high winds and under spring tides was modelled. The furthest expanse of the maximum increase in suspended sediments concentrations (SSC) occurring in each spatial cell above background from across the entire dredge period was used as the worst case area of impact to receptors (see Figure 5.1). Note the model may overemphasise concentrations within the dredge boundary as it considers instantaneous addition of the total spilled sediments in a particular spatial cell, which is likely a far worse case than the more gradual release that would occur in reality.

However, it should be noted that the majority of suspended sediments are shown by the model to be short lived as supported by Figure 5.2 below. This figure illustrates the SSC which is exceeded for a total of more than 3 hours during the model simulation (noting that this may be a 3-hour continuous presence or discontinuous periods of presence totalling over 3 hours). For context, a 3-hour exceedance is approximately equivalent to a 99th percentile exceedance over the model simulation period, or a 98th percentile exceedance over the dredge period (see full report³²).

The sediment deposition was also modelled using a precautionary (worst-case) of strong winds and spring tides (Figure 5.3). This shows that any sedimentation is localised predominantly to the immediate area around the dredge works.

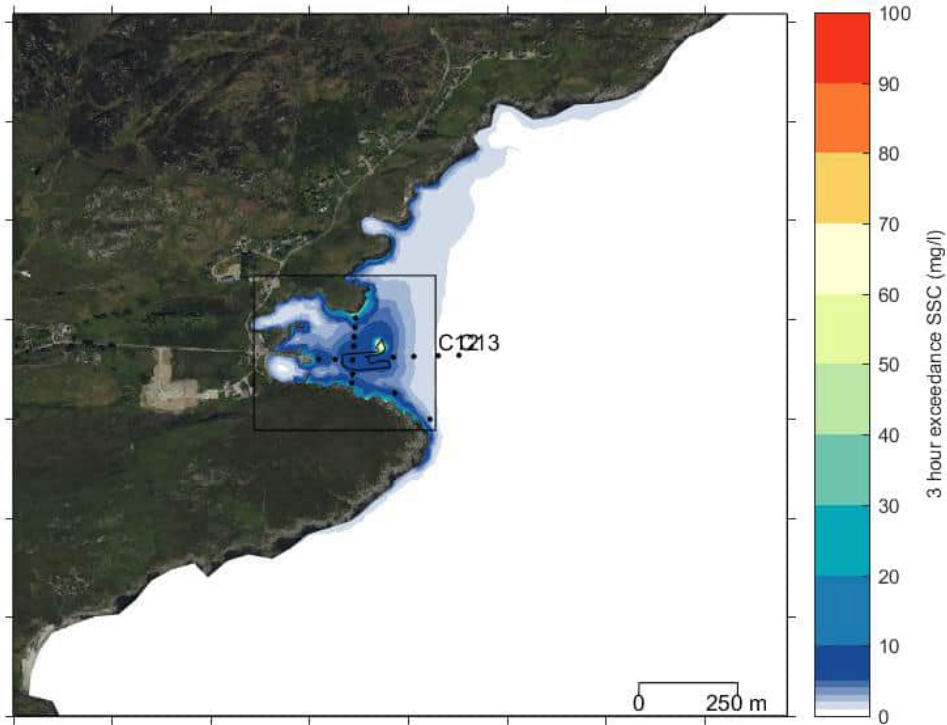
Figure 5.1: Maximum extent of suspended sediments across entire dredge period



³² Mott MacDonald (2023). New Islay Vessel Enabling Works Dredge Dispersion Modelling: Colonsay. Version: March 2023 (Document reference: 105612-MMD-CO-ZZ-RP-O-0007-S2-P01)

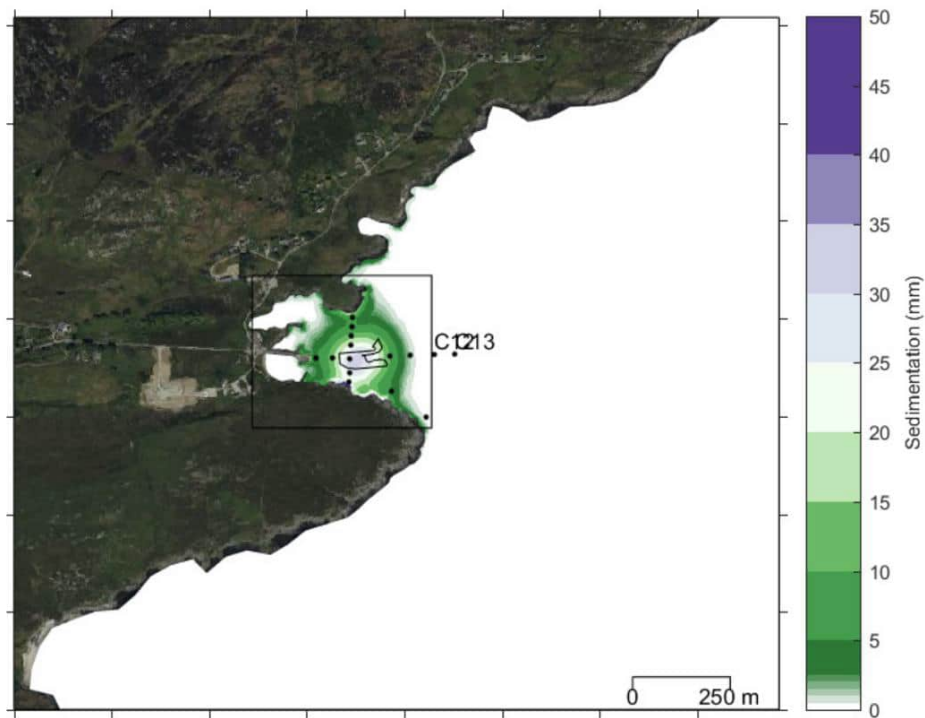
Source: Mott MacDonald (2023). New Islay Vessel Enabling Works Dredge Dispersion Modelling: Colonsay. Version: March 2023 (Document reference: 105612-MMD-CO-ZZ-RP-O-0007-S2-P01)

Figure 5.2: Persistence concentrations above cumulative 3 hours



Source: Mott MacDonald (2023). New Islay Vessel Enabling Works Dredge Dispersion Modelling: Colonsay. Version: March 2023 (Document reference: 105612-MMD-CO-ZZ-RP-O-0007-S2-P01)

Figure 5.3: Sediment deposition under strong winds and spring tides



Source: Mott MacDonald (2023). New Islay Vessel Enabling Works Dredge Dispersion Modelling: Colonsay. Version: March 2023 (Document reference: 105612-MMD-CO-ZZ-RP-O-0007-S2-P01)

The port itself is not considered a hotspot for harbour porpoise and although the inshore areas surrounding the works are considered suitable, records indicate a relatively low number of individuals in the area. As a result, feeding rates of individuals in the vicinity of the works could be temporarily impacted. Disposal of the dredged material will be at a licenced offshore disposal site. It is anticipated that the material would disperse rapidly therefore, any impacts are considered to be short-term. As such, additional mitigation measures are not considered for the dredge works themselves due to the operational safety constraints with maintaining ferry access and the limited scale of effect. However, to reduce the risk of additional turbidity from spills or construction operations, the measures outlined in Section 5.1.1 will be implemented.

As mentioned above, sediment dispersion modelling indicates that the sediment plumes will be localised to the bay with the largest impacts from dredging works occurring within the immediate dredge area itself. Therefore, the works would only impact a small area, would only have short term effects, and sediments would be settling locally. As a result, it is not anticipated that the dredging works will affect a significant number of harbour porpoises or significant number of their prey. Given that any effects are likely to be temporary and short duration in nature, it is considered that with mitigation reducing spills and dredging operating in line with the modelled scenario, there would not be an adverse effect on the integrity of the SAC.

5.1.3 Underwater Noise

Dredging and potential Cardox CO2 fracturing have been identified as activities that will generate underwater and airborne noise during the works. Underwater noise modelling^{33, 34} has been undertaken for the activities that generate both impulsive and continuous sound, which found that the majority of the construction works will generate continuous and impulsive underwater noise as shown in Table 5.1. Harbour porpoise sit within the very high frequency (VHF) hearing group.

Table 5.1: Assessed marine construction works and their type of noise

	Pre-dredging			Dredging	
	Rock pre-drilling	Cardox	Rock peckering	TSHD	Backhoe
Continuous	✓	X	X	✓	✓
Impulsive	X	✓	✓	X	X

TSHD: Trailer Suction Hopper Dredger

Initial noise attenuation calculations indicated that based on a stationery receptor, the largest impact distance resulted from the Cardox CO2 fracturing system on the VHF marine mammal hearing group, with PTS and TTS distances of 650m and 4400m respectively for the cumulative sound exposure level (SELcum). The PTS and TTS distances were reduced to 92m and 630m respectively when considering a receptor that flees directly away from the noise source. Further modelling, taking account of the bathymetry and sediments around the works, with more detailed propagation algorithms, indicated that the distances reduced to a maximum of 490m for PTS and 1500m for TTS to occur where a receptor remains static. Accordingly, when

³³ Mott Macdonald, 2022. Port Colonsay – Underwater Noise Technical Note. Report Reference: 105612-MMD-CO-ZZ-RP-O-1234-S2-P01

³⁴ Mott Macdonald, 2023. Port Colonsay – Underwater Noise Assessment. Report Reference: 105612-MMD-00-ZZ-RP-O-0006-S2-P01-NIV.

considering directly fleeing away receptors these distances reduced to a PTS occurring within 130m and TTS within 710m from the Cardox detonations.

However, it should be considered that the behaviour of marine mammals is likely to change once the works have commenced or may not behave as predicted. Therefore, the true impact would potentially lie somewhere between the directly fleeing away response and remaining stationary to account for things such as direction of travel, hesitation and curiosity. The noise model only takes into account any harm that could occur to receptors as a result of the works and does not include disturbance (such as a reduction in feeding), which is likely to occur over a much wider area.

Based on the above, the following mitigation will be implemented:

- All equipment will be maintained to a high standard to minimise noise and vibration generated during the works. They will also be switched off when not in use to minimise noise and reduce air pollution.
- Toolbox talks for contractors on relevant designated features will take place.
- Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for marine mammals for 30 minutes in good daylight conditions (Beaufort sea state 3 or less) by suitably trained (JNCC methods) and dedicated observers.
- Passive acoustic monitoring shall also be used to aid monitoring of the mitigation zones for vocalising species.
- Should marine mammals be observed, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal within the buffer zone.
- Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration. In the case of Cardox, detonations will be conducted with sequential delays between detonations to minimise shockwaves.
- The Scottish Marine Wildlife Watching Code (SMWWC)³⁵ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities.
- No rock breaking works shall take place from dusk to dawn nor in poor weather conditions (i.e. greater Beaufort sea state 3 and less than 500m visibility).

These measures will be incorporated into a construction noise ecological mitigation plan which will be implemented to cover the impacts on marine mammals. With the implementation of the above mitigation it is considered unlikely that noise and vibration during construction will impact the integrity of the SAC.

5.1.4 Resuspension of Contaminants

Sediment sampling has been undertaken for the Proposed Development however, complete results are not yet available as only two of the three sampling locations were successfully sampled³⁶. The partial result received, including partial recovery from the third station, showed that the majority of samples were below Cefas action trigger level 1. However, two samples from deeper sediment layers were elevated above the action trigger level 1 concentration for chromium (See Table 5.2). Although it should be noted that concentrations were below the

³⁵ NatureScot, 2017 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

³⁶ See Colonsay Best Practicable Environmental Option Assessment Report. Report Ref: 100105612-MMD-CO-ZZ-RP-O-0006-S2-P01, which will be issued with the dredge license application.

effects range low threshold³⁷ so are unlikely to have significant toxicological effect from direct exposure. This is particularly given that only certain valencies are more toxic than others with greatest effects primarily to molluscs and crustacea³⁸; the testing methods required used hydrofluoric extraction for the total metal concentration rather than partial digests originally used in setting the Cefas action trigger levels³⁹; and the sediments will be mixed during dispersal thereby lowering the received concentrations.

Table 5.2: Recorded Action Level 1 exceedances at Colonsay

Borehole ID:	Cefas	COSS122	COSS123
Depth sampled (m CD):	Action Level 1	-5.59	-7.93
Determinands	Units		
Chromium	mg/kg	50	60

Dredged material will be disposed of in a licensed area offshore and modelling indicates sediment disturbance during dredging is localised to the immediate area around the works with limited spreading (See discussion in Section 5.1.2).

To avoid the introduction of contaminants to the environment during construction, pollution prevention best practise measures will be implemented, as above under Section 5.1.1.

As a result, it is unlikely that the resuspension of contaminants will occur and therefore, no impact on the integrity of the SAC is anticipated. However, should further action levels be above action level 1 and ecological toxicity thresholds the following approach will be taken:

- The design will be reviewed to see if there is a way of minimising the amount of sediment removed or operational changes to further limit suspended sediment spread.
- A full closure bucket would be used during dredging activities to minimise spill.
- Discussion with Marine Scotland on additional measures and conditions required will be undertaken.

5.1.5 Vessel Strike

To reduce incidental collisions occurring between marine mammals and reduce effects of propeller cavitation, the following mitigation is proposed:

- Vessels in transit and manoeuvring in coastal waters during construction will be within speeds outlined by Maritime and Coastguard Agency’s (MCAs) legislation and guidance⁴⁰.
- The SMWWC³⁵ will be adhered to, measures include:
 - All vessels and equipment will be well maintained and be inspected prior to use to minimise unnecessary noise.

³⁷ 81 mg/kg according to the effects range low which is commonly used as a threshold of toxicity and as reported originally by Long, E.R., MacDonald, D.D., Smith, S.L. and Calder, F.D., 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environmental Management*, 19. Pg 81-97. Available from <https://link.springer.com/article/10.1007/BF02472006>.

³⁸ Seen [Chromium in freshwater and marine water \(waterquality.gov.au\)](http://www.waterquality.gov.au)

³⁹ See reviews on the action trigger levels by Gov. UK. (2015). High level review of current UK action level (MMO1053) - GOV.UK. <https://www.gov.uk/government/publications/action-levels-1053> and Mason, C., Vivian, C., Griffith, A., Warford, L., Hynes, C., Barber, J., Sheahan, D., Bersuder, P., Bakir, A., & Lonsdale, J. A. (2021). Reviewing the UK’s Action Levels for the Management of Dredged Material. *Geosciences* 2022, Vol. 12, Page 3, 12(1), 3. <https://doi.org/10.3390/GEOSCIENCES12010003>.

⁴⁰ Maritime and Coastguard Agency, May 2014. Active marine guidance notes (MGNs) [Online] Available at: [Active marine guidance notes \(MGNs\) - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

- Should a marine mammal be encountered whilst underway outside of noise emitting operations, the vessel will avoid sudden unpredictable changes in speed, direction and engine noise.
- The vessel shall seek to maintain a minimum of 100m separation unless directly approached whereupon the vessel shall maintain a steady speed and course whilst not presenting propellers to the approaching animal.
- The use of a suitable Code of Conduct, such as the WiSe Scheme⁴¹; primarily for wildlife watching however, outlines measures for vessel operation around marine wildlife and will be considered for use as mitigation for any collision risk posed to marine mammals during construction works and transit.

The above measures would reduce the probability of incidental collisions occurring between marine mammals and working vessels.

As a result of the above, it is considered that the likelihood of a harbour porpoise being affected is low and that no impact on the integrity of the Inner Hebrides and the Minches SAC is anticipated from vessel strikes.

5.1.6 Introduction / Spread of INNS

The works have the potential to introduce and/or spread INNS to the site. In order to mitigate for the introduction and/or spread of INNS during the construction of the Proposed Development, certain biosecurity protocols will be adhered to. These include the following:

- Pre-construction walkover surveys to identify existing INNS across accessible areas the Proposed Development will be undertaken. If identified, the location of the INNS will be communicated to site workers and suitable buffers set up around them to avoid potential spread through the site.
- Toolbox talks will be held with site workers to raise the awareness of how to avoid, deal with and identify INNS (if present).
- Production of a marine biosecurity plan which would include measures to reduce/eliminate the risk of introducing or spreading INNS on site. The Principal Contractor's Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific marine biosecurity plan. Measures include the following:
 - Sections of the plant that would come into direct contact with the intertidal area (track/wheels) will be thoroughly cleaned before and after use to avoid the spread of any INNS (e.g. wheel washing facilities will be provided).
 - Where possible, existing material will be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material will be bespoke. If this is not possible, it will be ensured that brought in material hasn't been utilised in the marine environment previously. Again, if this is not possible, material brought in will be screened for INNS ahead of its use on site.
 - Vessels will comply with relevant ballast water management requirements including where traveling to the site from outwith UK waters the IMO Ballast Water Management (BWM) Convention 2004, which establishes standards and procedures for the management and control of ships' ballast water and sediments. Measures within the ballast water management plan will include detail of vessel specific measures, require vessel to complete a ballast water record book, conduct regular inspection, and where necessary hold an international ballast water management certificate.

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⁴¹ See [Home | The WiSe Scheme](#)

With the implementation of the mitigation stated above, impacts from INNS are not anticipated therefore no impacts are anticipated on the integrity of the SAC.

5.2 North Colonsay and Western Cliffs SPA

5.2.1 Pollution Event

Marine and coastal bird species are mobile, and it is possible that despite the site being located 1.5km away, these interest features could be present in the area of influence from the works. For kittiwake (surface feeders) and guillemot (divers), who feed on fish, shrimp and crustaceans; they could be impacted indirectly through impacts to prey species, reducing food availability. Direct impacts could comprise injury or mortality (e.g. from fuel spills).

To avoid potential pollution events and to reduce the magnitude of any event occurring, mitigation listed under Section 5.1.1 is considered applicable.

As a result of the implementation of the mitigation, no impacts are anticipated to the integrity of the SPA.

5.2.2 Changes in Turbidity

Sediment dispersion modelling has been undertaken (see discussion in Section 5.1.2) which indicates that the sediment plumes will be localised with the largest impacts from dredging works occurring within the immediate dredge area and generally existing for a short duration.

It is anticipated that any foraging rates of the designated species could be temporarily impacted in the vicinity of the works. However, given the distance of the SPA from the works (1.5km away) and their designated species using a broad range of offshore feeding groups, there are likely to be very few individuals affected. Therefore, it is not anticipated that dredging will impact the integrity of the designated site.

5.2.3 Resuspension of Contaminants

Sediment sampling has been undertaken for the works with partial results detailed in Section 5.1.4. Dredged material will be disposed of in a licensed area offshore and modelling indicates sediment disturbance during dredging is localised to the immediate area around the works with limited spreading (see discussion in Section 5.1.2).

To avoid the introduction of contaminants to the environment during construction, pollution prevention best practise will be implemented, as above under Section 5.1.1.

As a result, it is unlikely that the resuspension of contaminants will occur and therefore, no impact on the integrity of the SPA is anticipated.

5.2.4 Underwater Noise

Dredging, and potential Cardox CO₂ fracturing have been identified as activities that will generate underwater and airborne noise during the works. The same mitigation measures on preclearance checks as described in Section 5.1.3 will be followed and applied to actively diving birds where the measure can be made applicable. However, it should be noted that birds may be loafing⁴² and this can be excluded from the preclearance as they would not be exposed to underwater noise.

⁴² Defined as predominantly resting or preening of the surface of the water as may include other behaviours not connected with feeding or breeding. As defined in Weaver, P. 1990. The Bird Watcher's Dictionary (T & AD Poyser), Academic Press, Cambridge, MA.

With the implementation of the above mitigation, it is considered unlikely that underwater noise during construction will impact the integrity of the SPA.

5.2.5 Airborne Noise Disturbance

This SPA is located 1.5km from the works however, both designated features of the SPA (corncrake and chough) are mobile species therefore could be in the area nearby the Proposed Development. As a result, there could be an impact to the species from airborne noise during the works.

On a precautionary basis, the following mitigation is proposed:

- Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting birds in the local area;
- Speed limits will be adhered to, in order to minimise noise;
- Use rubber linings in, for example, chutes and dumpers to reduce impact noise;
- Minimise drop height of materials;
- Vehicles use smart reversing alarms;
- Quiet equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance;
- Screens or fencing will be located as near to the source as reasonably practical;
- Fixed plant will be located as far as reasonably practical away from areas where noise sensitive receptors are likely to congregate;
- Any plant which has directional noise propagation will be orientated away from noise sensitive receptors;
- Maintain all equipment so that loose panels and cover plates do not cause unnecessary noise;
- Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area; and
- Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels to provide screening attenuation. Noise barriers are most effective if located close to the noise source or close to the receptor. Care will be taken to optimise the position of any barriers proposed where practicable.

No impacts to the integrity of the SPA from noise and vibration are anticipated as a result.

5.2.6 Visual disturbance

To minimise any visual disturbance to designated species that may be present in the area during works the following will be undertaken:

- Where deemed appropriate (through risk assessment), physical barriers will be erected around terrestrial activities that are expected to generate particularly high noise levels (which lowers receptor threshold to visual disturbance) or large amount of movement to provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening;
- The use of sensitive lighting when working during hours of darkness will be implemented to reduce light spill onto marine habitats (such as directional lighting, hoods and cowls); and
- Toolbox talks given to all workers to advise on how best to minimise disturbance.

With the implementation of mitigation, no impacts to the integrity of the SPA are anticipated from visual disturbance.

5.2.7 Vessel Strike

The risk of vessel strikes is considered unlikely given the high mobility of features, However, on a precautionary basis, the following mitigation measures are recommended:

- Where birds are observed to be rafting⁴³ the vessel will avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so.
- Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so.

With the implementation of mitigation, no impacts to the integrity of the SPA are anticipated from vessel strike

5.2.8 Introduction / Spread of INNS

Mitigation for the introduction/spread of INNS can be found in Section 5.1.6. With the implementation of mitigation, no impacts to the integrity of the SPA are anticipated from the potential introduction/spread of INNS.

5.3 Loch Fada SAC

5.3.1 Pollution Event

Although outside of the SAC, otter have been known to utilise coastal areas and could be present in the waters surrounding the works as shelters were identified within the Proposed Development area. Given the mobile nature of the species, a pollution event could indirectly impact on prey availability in the coastal environment, reducing food availability.

To avoid potential pollution events and to reduce the magnitude of any event occurring, mitigation listed under Section 5.1.1 is considered applicable to this SAC. With the implementation of mitigation, no impacts to the integrity of the SAC are anticipated from pollution events.

5.3.2 Changes in Turbidity

Sediment dispersion modelling has been undertaken (see discussion in Section 5.1.2) which indicates that the sediment plumes will be localised with the largest impacts from dredging works occurring within the immediate dredge area, and generally existing for a short duration.

To mitigate for any terrestrial sources which could impact on the turbidity, the mitigation in Section 5.1.2 is applicable.

It is anticipated that foraging rates of the designated species could be temporarily impacted in the vicinity of the works. Although a temporary indirect effect is anticipated relating to impacts to the prey of the designated species, it is anticipated that this will be temporary. Given the small area of effect, the short duration of suspended sediments and settlement of sediments locally within the bay, it is not anticipated that the increase in turbidity will affect the integrity of the SAC.

5.3.3 Resuspension of Contaminants

Sediment sampling has been undertaken for the works with partial results detailed in Section 5.14. Dredged material will be disposed of in a licensed area offshore and modelling

⁴³ Rafting is a behaviour where birds sit, often in groups, on the water close to their colony or nests.

indicates sediment disturbance during dredging is localised to the immediate area around the works with limited spreading (see discussion in Section 5.1.2).

To avoid the introduction of contaminants to the environment during construction, pollution prevention best practise will be implemented, as above under Section 5.1.1.

As a result, it is unlikely that the resuspension of contaminants will occur and therefore, no impact on the integrity of the SAC is anticipated.

5.3.4 Underwater Noise

[Redacted]

[Redacted]

5.3.5 Airborne Noise Disturbance

Mitigation as above (Section) for underwater noise disturbance and airborne disturbance for North Colonsay and Western Cliffs SPA (Section 5.2.5) is considered appropriate for this SAC. With the implementation of mitigation, it is not anticipated that there will be an impact on the integrity of the SAC.

5.3.6 Visual Disturbance

The mitigation is considered as above for underwater noise (Section 5.3.4). In addition, any lighting used on site will be directed away from the identified shelters and where possible from the south of the pier onto adjacent shoreline. Where appropriate, lights will have lighting hoods and cowls to avoid any light spillage into surrounding habitats. With the implementation of mitigation, it is not anticipated that there will be an impact on the integrity of the SAC.

5.3.7 Vessel Strike

The risk of vessel strikes is considered unlikely however, on a precautionary basis, the mitigation listed under Section 5.1.5 is considered appropriate for this SAC. In addition:

- All terrestrial vehicles will be limited to a maximum speed of 20mph when using the access road. Boats will be subject to a minimum speed requirement when operating within surrounding water to the Port;
- Prior to the use / removal of any equipment on site, Contractors will undertake a thorough check to ensure no otters are present within working areas; and
- If at any stage an otter is encountered within the working area, all works will be temporarily halted until the otter has naturally dispersed. In particular, this includes temporary suspension of vehicle movements (including boat), particularly within the vicinity of where the otter has been encountered.

As a result, it is considered that the likelihood of an otter being affected is low and that no impact on the integrity on the SAC is anticipated from vessel or vehicle strikes.

5.3.8 Introduction / Spread of INNS

Mitigation for the introduction/spread of INNS can be found in Section 5.1.6. With the implementation of mitigation, no impacts to the integrity of the SAC are anticipated from the potential introduction/spread of INNS.

5.3.9 Reduction in Air Quality

In order to mitigate any impacts from reductions in air quality/ dust generation, the following mitigation will be implemented in addition to those above under Section 5.1.1:

- Stockpiles of materials will be positioned at least 10m away from sensitive receptors where possible and suitable measures implemented to prevent runoff and dispersion if left for any length of time. Any powders will be stored in sealed bags or silos prior to use. Dust suppression measures will be used where required;
- All vehicles and machinery will be switched off when not in use to minimise noise and reduce air pollution;
- Dust generating activities will be located away from sensitive receptors, where possible;
- Adequate supplies of water, sourced by the Contractor, will be available at all times for the dust suppression units that will be operated at times of dust nuisance and operated in line with mitigation measures for pollution events listed in Section 5.1.1;
- Stockpiles of dust prone materials will be sprayed in periods of dry weather;
- Hand operated or vehicle mounted spray equipment will be used to spray stockpiles of materials, overburden, access tracks and other sources of dust as required;
- Dust suppression techniques will be used expediently, a fine spray will be used to avoid runoff and over-spraying will be avoided;
- Spraying units will be available and in good working order at all times;
- Standby bowsers will be available to be used will the main units be out of service, and as supplementary units in periods of dry weather;
- A 10mph site speed restriction will be observed at all times;
- Material drop heights will be minimised;
- Wheel wash facilities will be located on site, within the construction compound, to be utilised;
- Dust monitoring will be undertaken by the Contractor's Environmental Manager to evaluate the effectiveness of dust suppression measures and to aid the improvement of dust management on site; and
- Should dust suppression measures prove inadequate, operations will cease until additional mitigation measures are taken or conditions improve.

With the implementation of these mitigation measures, it is considered that no impact on the integrity on the SAC is anticipated from a reduction of air quality around the Proposed Development.

5.4 Stage 2 Summary

A summary of the potential effect, the designated sites impacted and the proposed mitigation is provided in Table 5.3.

Table 5.3: Summary of Potential Impacts and Mitigation

Potential Effect	Designated Sites Impacted	Mitigation
Pollution event	<ul style="list-style-type: none"> Inner Hebrides and the Minches SAC North Colonsay and western cliffs SPA Loch Fada SAC 	<ul style="list-style-type: none"> A Pollution Prevention Control Plan will be produced and implemented. This will include information on the prevention and management of potential pollution sources into the marine environment associated with the works, including the proposed dredging. Pollution prevention measures will be adhered to during works to avoid pollution/run-off of any material into the harbour. These will include current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance. Adherence to the Water Management Plan (within the CEMP). Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day. An Environmental Emergency Response Plan will be prepared by the Contractor prior to construction. This will be issued as a tool box talk and kept in site offices for consultation.
Change in turbidity	<ul style="list-style-type: none"> Inner Hebrides and the Minches SAC North Colonsay and western cliffs SPA Loch Fada SAC 	<ul style="list-style-type: none"> Designated refuelling areas will be established, located away from waterbodies (>10m). All fuel tanks and oil drums will be bunded with imperious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater. All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills. All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody. Oil absorbers and grab packs will be available on all vehicles and further materials, including booms. Spill kits will be available on all plant / machinery and centrally in each area. Drip trays will be placed at the point where oils/fuels are transferred from one container to another. Requiring staff to undergo pollution toolbox talks prior to completing the required works. All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring. Marine grade, non-toxic compounds and materials will be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment. Regarding the prevention of discharges of cementitious materials and alkaline wastewaters, the following will be implemented:

Potential Effect	Designated Sites Impacted	Mitigation
		<ul style="list-style-type: none"> - Risk assessments for wet concreting will be completed by the Contractor prior to works being carried out. - Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment. - There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment. - Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility. • Any effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works. • All applicable vessels that travel to the site from outside of UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate. • All vessels will also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition or organotin compounds on ships.
Underwater noise	<ul style="list-style-type: none"> • Inner Hebrides and the Minches SAC • North Colonsay and western cliffs SPA • Loch Fada SAC 	<ul style="list-style-type: none"> • All equipment will be maintained to a high standard to minimise noise generated during the works. They will also be switched off when not in use to minimise noise and reduce air pollution. • A construction noise ecological management mitigation plan will also be implemented to cover the impacts from noise. <p>Marine mammals (otter inclusive) and Birds</p> <ul style="list-style-type: none"> • Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources shall be monitored for marine mammals and diving birds for 30 minutes in good daylight conditions (Beaufort Sea state 3 or less) by suitably trained (JNCC methods) and dedicated observers. • Passive acoustic monitoring shall also be used to aid monitoring of the mitigation zones for vocalising marine mammal species. • Should marine mammals or diving birds be observed, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal or diving bird within the buffer zone. Noting that non diving birds (i.e those that are loafing) would not require a delay.

Potential Effect	Designated Sites Impacted	Mitigation
		<ul style="list-style-type: none">• Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration. In the case of cardox, detonations will be conducted with sequential delays between detonations to minimise shockwaves.• The Scottish Marine Wildlife Watching Code (SMWWC)⁴⁴ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities. <p>[Redacted]</p>

⁴⁴ NatureScot, 2016 [Online] Available at: [The Scottish Marine Wildlife Watching Code SMWWC | NatureScot](#)

Potential Effect	Designated Sites Impacted	Mitigation
Airborne noise and vibration	<ul style="list-style-type: none"> North Colonsay and western cliffs SPA Loch Fada SAC 	<p style="text-align: center;">[Redacted]</p> <ul style="list-style-type: none"> Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting birds in the local area. Speed limits will be adhered to. Use rubber linings in, for example, chutes and dumpers to reduce impact noise; Minimise drop height of materials; Agreement of HGV routes with Argyll and Bute Council through the development of a construction traffic management plan; Vehicles use smart reversing alarms; Quiet equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance; Screens or fencing will be located as near to the source as reasonably practical; Fixed plant will be located as far away from noise sensitive receptors as reasonably practical; Any plant which has directional noise propagation will be orientated away from noise sensitive receptors. Maintain all equipment so that loose panels and cover plates do not cause unnecessary noise. Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area. Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels to provide screening attenuation. Noise barriers are most effective if located close to the noise source or close to the receptor. Care will be taken to optimise the position of any barriers proposed where practicable.
Visual disturbance	<ul style="list-style-type: none"> North Colonsay and western cliffs SPA Loch Fada SAC 	<ul style="list-style-type: none"> Where deemed appropriate (through risk assessment), physical barriers will be erected around activities that are expected to generate particularly high noise levels or large amount of movement to provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening. The use of sensitive lighting when working during hours of darkness will be implemented to reduce light spill onto marine habitats (such as directional lighting, hoods and cowls). Toolbox talks given to all workers to advise on how best to minimise disturbance.

Potential Effect	Designated Sites Impacted	Mitigation
		[Redacted]
Resuspension of contaminants	<ul style="list-style-type: none"> Inner Hebrides and the Minches SAC North Colonsay and western cliffs SPA Loch Fada SAC 	<p>Pollution prevention best-practise measures as above under "Pollution event".</p> <p>Should further action levels be above action level 1 and ecological toxicity thresholds the following approach will be taken:</p> <ul style="list-style-type: none"> The design will be reviewed to see if there is a way of minimising the amount of sediment removed or operational changes to further limit suspended sediment spread. Discussion with Marine Scotland on additional measures and conditions required will be undertaken.
Vessel strike	<ul style="list-style-type: none"> Inner Hebrides and the Minches SAC North Colonsay and western cliffs SPA Loch Fada SAC 	<ul style="list-style-type: none"> Vessels in transit and manoeuvring in coastal waters operating will be within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance⁴⁵. The SMWWC³⁵ will be adhered to, measures include: <ul style="list-style-type: none"> All vessels and equipment will be well maintained and be inspected prior to use to minimise unnecessary noise. Should a marine mammal be encountered whilst underway outside of noise emitting operations, the vessel shall avoid sudden unpredictable changes in speed, direction and engine noise. The vessel shall seek to maintain a minimum of 100m separation unless directly approached whereupon the vessel shall maintain a steady speed and course whilst not presenting propellers to the approaching animal. Where birds are observed to be rafting⁴⁶ the vessel shall avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so. Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so. The use of a suitable Code of Conduct, such as the WiSe Scheme⁴⁷; primarily for wildlife watching however, outlines measures for vessel operation around marine wildlife and will be considered for use as mitigation for any collision risk posed to marine mammals during construction works and transit.

⁴⁵ Maritime and Coastguard Agency, May 2014. Active marine guidance notes (MGNs) [Online] Available at: [Active marine guidance notes \(MGNs\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292427/Active_marine_guidance_notes_(MGNs).pdf)

⁴⁶ Rafting is a behaviour where birds sit, often in groups, on the water close to their colony or nests.

⁴⁷ See [Home | The WiSe Scheme](#)

Potential Effect	Designated Sites Impacted	Mitigation
Introduction/ spread of INNS	<ul style="list-style-type: none"> ● Inner Hebrides and the Minches SAC ● Oronsay and south Colonsay SPA ● North Colonsay and western cliffs SPA 	<ul style="list-style-type: none"> ● Pre-construction walkover surveys to look for presence of existing INNS across the Proposed Development area will be undertaken. If identified, these areas will be made aware to site workers and suitable buffers set up around them to avoid potential spread through the site. ● Toolbox talks will be held with site workers to raise the awareness of how to avoid, deal with and identify INNS (if present). ● Production of a marine biosecurity plan which would include measures to reduce/eliminate the risk of introducing or spreading INNS on site. The Contractor's Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific Marine Biosecurity Plan. Measures include the following: <ul style="list-style-type: none"> – Sections of the plant that would come into direct contact with the intertidal area (track/wheels) will be thoroughly cleaned before and after use to avoid the spread of any INNS (e.g. wheel washing facilities will be provided). – Where possible, existing material will be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material will be bespoke. If this is not possible, it will be ensured that brought in material hasn't been utilised in the marine environment previously. Again, if this is not possible, material brought in will be screened for INNS ahead of its use on site.
Reduction in air quality	<ul style="list-style-type: none"> ● Loch Fada SAC 	<ul style="list-style-type: none"> ● Stockpiles of materials will be positioned at least 10m away from sensitive receptors where possible and suitable measures implemented to prevent runoff and dispersion if left for any length of time. Any powders will be stored in sealed bags or silos prior to use. Dust suppression measures to be used where required. ● All vehicles and machinery will be switched off when not in use to minimise noise and reduce air pollution. ● Dust generating activities will be located away from sensitive receptors; ● Adequate supplies of water, sourced by the Contractor, will be available at all times for the dust suppression units that will be operated at times of dust nuisance and operated in line with mitigation measures for pollution events listed above under "Pollution event" row; ● Stockpiles of dust prone materials will be sprayed in periods of dry weather; ● Hand operated or vehicle mounted spray equipment will be used to spray stockpiles of materials, overburden, access tracks and other sources of dust as required; ● Dust suppression techniques will be used expediently, a fine spray will be used to avoid runoff and over-spraying will be avoided; ● Spraying units will be available and in good working order at all times; ● Standby bowsers will be available to be used will the main units be out of service, and as supplementary units in periods of dry weather; ● A 10mph site speed restriction will be observed at all times; ● Material drop heights will be minimised; ● Wheel wash facilities will be located on site, within the construction compound, to be utilised;

Potential Effect	Designated Sites Impacted	Mitigation
		<ul style="list-style-type: none">• Dust monitoring will be undertaken by the Contractor's Environmental Manager to evaluate the effectiveness of dust suppression measures and to aid the improvement of dust management on site;• Should dust suppression measures prove inadequate, operations will cease until additional mitigation measures are taken or conditions improve; units.

5.5 In-combination Assessment

Under the Habitats Regulations, it is a requirement to consider other projects or plans that could present a significant effect on a designated site or feature when considered alone or in-combination with the Proposed Development. Whilst there is no legal definition of what constitutes a plan or project for the Habitats Regulations, National Infrastructure Planning Advice Note 10⁴⁸ advises that the following types of plans/projects should be taken into account:

- Projects under construction;
- Permitted application(s) not yet implemented;
- Submitted application(s) not yet determined;
- All refusals subject to appeal procedures not yet determined;
- Projects equivalent of those the National Infrastructure Programme of Projects which for Scotland are those listed in National Planning Framework 4 programme of projects (Scottish Government, 2023); and
- Projects identified in the relevant local development plan (and any emerging development plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and the degree of uncertainty which may be present.

Additionally, any marine licence application within the Scalasaig area was also included in the assessment.

Following the above criteria, other projects were identified using the Marine Scotland planning portal⁴⁹ for consideration of in-combination effects in this HRA. These comprise two moorings applications, a discharge licence, cable installation and two marine farms. These are screened in Table 5.4. In addition, a further 3 ports will be upgraded/ expanded as part of the New Islay project, these have also been included in the in-combination assessment as works are anticipated to be occurring at similar times.

As a result of the screening exercise, no projects have been identified as having the potential for in-combination effects when considered with the Proposed Development. As a result, no further assessment is made. It should be noted that if the HRA is updated following further design changes, there will be a requirement to review the above in-combination projects to understand if more information is available regarding their timescales and to see if any new projects have been identified.

⁴⁸ Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. [Online] Available at: [Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects | National Infrastructure Planning \(planninginspectorate.gov.uk\)](#) [Accessed January 2023]

⁴⁹ MarineScotland – All applications [Online] Available at: [All applications | Marine Scotland Information](#) [Accessed January 2023]

Table 5.4: Projects screened for in-combination effects

Plan or Project	Approximate Distance from the Works	Description	Screened in (✓) or out (X)	Justification for Decision
Marine Licence – Moorings – Loch Staosnaig, Colonsay (00008797) ⁵⁰	800m south	Application for the installation of 10 moorings for yachts and motorboats up to 13.7m also within the Inner Hebrides and the Minches SAC. The proposed start date stated on the application was March 2022 and the issued licence is valid from the 28 th February 2022 to the 27 th February 2028 however, it is not possible to determine whether installation has been completed.	X	It is not possible to determine whether installation has been undertaken or the start date for installation. However, the works to install moorings are considered relatively small-scale and given they are not anticipated to present a significant effect on their own, it therefore would not have a significant in-combination effect.
Marine Licence – Moorings – Loch Staosnaig, Colonsay (07289) ⁵¹	900m south south-west	A marine licence application was submitted in May 2020 for 10 moorings to be installed in August 2020 however, no details are provided regarding an issued licence and the stage is still showing as 'application'.	X	As above, it is not possible to determine whether installation has been undertaken or the start date for installation and no licence appears to have been issued. However, the works themselves are relatively small-scale and not anticipated to result in a significant effect and as a result, no significant in-combination effect is anticipated.
Marine Licence – Wellboat Discharge – Colonsay, Isle of Colonsay (07002) ⁵²	3km north-east	A marine licence variation application for a wellboat discharge at a fish farm off Colonsay. The existing licence expired in July 2022.	X	It appears that there will be no change from the baseline as the marine licence application is being renewed. As a result, this project has been screened out.
Marine licence – Cable installation, Colonsay to Fionnphort (00009617) ⁵³	4km north	BT are proposing the installation and operation of 16 new telecommunications cables forming part of the Scottish Governments 'Reaching 100%' programme. One of these is proposed from Colonsay to Fionnphort, Mull. The proposed start date of works was in Spring 2022 with completion anticipated in December 2023.	X	If the licence is granted, there is likely to be an overlap between the works and the cable installation project. Additionally, both are within the Inner Hebrides and the Minches SAC designated for Harbour porpoise. The marine environmental appraisal for the cable scheme has implemented a maximum vessel speed of 6 knots and the resulting

⁵⁰ [Marine Licence- Moorings- Loch Staosnaig, Colonsay- 00008797 | Marine Scotland Information](#)

⁵¹ [Marine Licence Variation - Wellboat Discharge - Colonsay, Isle of Colonsay - 07002 | Marine Scotland Information](#)

⁵² [Marine Licence Variation - Wellboat Discharge - Colonsay, Isle of Colonsay - 07002 | Marine Scotland Information](#)

⁵³ [Marine Licence Application - Cable Installation - Colonsay to Fionnphort - 00009617 | Marine Scotland Information](#)

Plan or Project	Approximate Distance from the Works	Description	Screened in (✓) or out (X)	Justification for Decision
Marine Licence - Marine Farm - Colonsay, Isle of Colonsay - 07315⁵⁴	4.5km north-east	Renewal of an existing marine licence for a fish farm. No changes are proposed from the current activities and baseline and the licence has been granted and extends to August 2026.	X	assessment concluded a negligible residual effect on protected sites and species. As a result, it is not considered that there will be an in-combination effect and this project has been screened out of further assessment. In terms of the operational phase there is no effect from the Proposed Development (see Section 2.3) therefore, no operational phase in-combination effects are identified.
New Islay Port Enablement Works Port Askaig	24.8km south	Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following: <ul style="list-style-type: none"> ● Replace three fenders on the roundhead; ● Remedial works to the concrete roundhead structure and adjacent concrete deck, to seal gaps, repair cracking, and replace lost grout; ● New gangways; ● Extend the height of the V fenders and concrete sponsons; ● Replace fenders along quay; ● Installation of mooring aid; and ● Ancillary works to enable the installation of the mooring aid system. Which is likely to include (but may not be limited to): <ul style="list-style-type: none"> – The mobile fuel facility sitting on the finger pier needs to be relocated. – A new 40KW power supplying is to be provided. – The 20t bollard adjacent to the finger pier has to be removed to enable the relocation of the fuel tank. 	X	If this proposal is granted, there will be an overlap in construction program with the Proposed Development. Port Askaig is located outside of the Inner Hebrides and the Minches SAC and most works for this proposal are being undertaken above the MHWS. During construction, the mitigation outlined in Sections 5.1 to 5.3 will be adhered to for the Proposed Development, which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the Port Askaig works ⁵⁵ . It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects. In terms of the operational phase there is no effect from the Proposed Development (see

⁵⁴ [Marine Licence - Marine Farm - Colonsay, Isle of Colonsay - 07315 | Marine Scotland Information](#)

⁵⁵ Mott MacDonald, March 2023. New Islay Port Enablement Works Port Askaig HRA (Document reference: 105612-MMD-PA-ZZ-RP-O-0004-S2-P01).

Plan or Project	Approximate Distance from the Works	Description	Screened in (✓) or out (X)	Justification for Decision
		<ul style="list-style-type: none"> - The lifebuoy post at the rear of the finger pier needs to potentially be relocated. - Trending and ducting for low voltage cabling and Moorex equipment may be required. <p>All works are above the mean high water springs (MHWS) with the exception to upgrading existing fenders and remedial works to concrete structures.</p>		<p>Section 2.3) therefore, no operational phase in-combination effects are identified.</p> <p>As a result, this is screened out of further assessment.</p>
New Islay Port Enablement Works Port Ellen ⁵⁶	49.3km south	<p>Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:</p> <ul style="list-style-type: none"> • Construction of new anchored sheet piled wall Infront of existing linkspan and towards fish quay; • Construction of linkspan bankseat and lifting frames using bored concrete piles; • Installation of new scour protection (concrete fabric formwork mattress filled with pumped concrete); • Upgrades to existing fenders; • Installation of a new linkspan (steelwork - offsite fabrication); • Reinstatement of paving where required; • Installation new vessel shore power; • Dredging to 5.5m or 6m (to facilitate scour protection) below Chart Datum. The approximate area dredged would be approximately 18,200m² and volume 15,710m³; • Shore power; and • New longer gangway. 	X	<p>If this proposal is granted, there will be an overlap in construction program with the Proposed Development, however, this proposal is significantly separated from the Proposed Development and is located outside of the Inner Hebrides and the Minches SAC. During construction, the mitigation outlined in Sections 5.1 to 5.3 will be adhered to for the Proposed Development, which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the Port Ellen works⁵⁷. It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects. In terms of the operational phase there is no effect from the Proposed Development (see Section 2.3) therefore, no operational phase in-combination effects are identified.</p>
New Islay Port Enablement Works Kennacraig ⁵⁸	52.6km south-east	<p>Upgrades to the ferry terminal to facilitate future accommodation of a new vessel with deeper draught and higher displacement. Works primarily consist of the following:</p> <ul style="list-style-type: none"> • Upgrading of existing fenders including breaking concrete at one location; • Construction of toe protection to support secant pile walls; 	X	<p>If this proposal is granted, there will be an overlap in construction program with the Proposed Development, however, this proposal is significantly separated from the Proposed Development and is located outside of the Inner Hebrides and the Minches SAC.</p>

⁵⁶ Screening Opinion - Harbour Refurbishments - Port Ellen, Argyll and Bute | Marine Scotland Information

⁵⁷ Mott MacDonald, March 2023. New Islay Port Enablement Works Port Ellen HRA (Document reference: 105612-MMD-PE-ZZ-RP-O-0004-S2-P01)

Plan or Project	Approximate Distance from the Works	Description	Screened in (✓) or out (X)	Justification for Decision
		<ul style="list-style-type: none"> • Construction of piled wall; • Installation of new vessel shore power and connections; • Modification to the existing fixed ramp within the ferry terminal; • Fabrication and erection of steel grillage at infill pier; • Dredging; • Installation of scour protection; and • A new longer gangway. 		<p>During construction, the mitigation outlined in Sections 5.1 to 5.3 will be adhered to for the Proposed Development , which avoids the occurrence of any adverse effects on the integrity of the designated sites and associated interest features. Mitigation has also been outlined for the works at Kennacraig⁵⁹.</p> <p>It is considered that the mitigation outlined for both is sufficient to rule out any potential in-combination effects from both projects.</p> <p>In terms of the operational phase there is no effect from the Proposed Development (see Section 2.3) therefore, no operational phase in-combination effects are identified.</p>

⁵⁹ Mott MacDonald, March 2023. New Islay Port Enablement Works Kennacraig HRA (Document reference: 105612-MMD-KE-ZZ-RP-O-0005-S2-P01)

6 Summary and Conclusion

Following this HRA, it is considered that the Proposed Development will not have any adverse effect on the overall integrity of the designated sites and their features either alone, or in combination with other projects.

It should be noted that this HRA has been produced based on project information available at the time of writing (March 2023). Therefore, should any aspect of the project change (including construction methodology and programme), then this HRA will be revisited to re-assess potential effects.

Appendices

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A. HRA Process

A.1 HRA Process

The requirement for HRA arises in Scotland under The Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitat Regulations⁶⁰). These regulations were amended in 2019⁶¹ by Scottish Ministers after the UK left the European Union. The amendments transferred designated European Sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) sites), previously within the Natura 2000 network into a UK National Network.

As such existing EU guidance⁶² and preceding case law from the European Court of Justice (ECJ) ^{63 64 65} remains valid as a source of direction and interpretation of the requirements of the legislation, although it should be noted that much case law has now been incorporated into guidance and/or best practice.

Under Regulation 48 of the Habitats Regulations where a plan or project is not directly connected with, or necessary to, the management of a designated site which may give rise to significant effects upon the site, a competent authority must make an assessment of the potential effects on the designated site and its conservation objectives, prior to consent for the plan or project being granted.

The HRA process consists of four stages, each stage being informed by the one preceding, to ensure an iterative and objective assessment. If the conclusion of Stage 1 Screening is that there will be no likely significant effects on any features of a European site, there is no requirement to undertake further stages. Similarly, if the Stage 2 Appropriate Assessment concludes there will be no adverse effect on integrity of the European site, then the assessment is concluded. The HRA stages are summarised below.

A.1.1 Stage 1: Screening

The purpose of Stage 1 Screening is to assess the possible effects of the Proposed Development, alone and in combination with other projects to determine if these will have Likely Significant Effects (LSE) on any designated sites or their interest features.

During this stage, mitigation measures are not taken into consideration when assessing if the Proposed Development will have LSE. These are taken into account during Stage 2. If the assessment identifies that there are no LSE, HRA stages 2 to 4 are not needed, and the report will conclude at the screening stage.

⁶⁰ Or where reserved matters are concerned certain provisions of The Conservation of Habitats and Species Regulations 2017 as amended apply. These reserved matters include activities consented under sections 36 or 37 of the Electricity Act 1989; activities consented under the Pipe-lines Act, 1962; matters related to the exploration for, and exploitation of, deposits of oil and natural gas; and matters related to defence of the realm.

⁶¹ The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019

⁶² Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/CEE (European Communities 2020)

⁶³ Landelijke Vereniging tot Behoud van de Waddenzee case/ Nederlandse Vereniging tot Bescherming van Vogels, European Court of Justice, Case C-127/02 'Waddenzee 2002'

⁶⁴ Sweetman et al v An Bord Pleanala, European Court of Justice, Case C-258/11 'Sweetman 2011'

⁶⁵ People over Wind/Sweetman v Coillte Teorante, European Court of Justice Case C-323/17 'People over Wind 2017'

Information was collected and reviewed in respect of each feature of interest and potential development scales of effect / impact pathways to inform an assessment of any likely significant effects. Key aspects and terms used in this assessment are defined below:

- **Likelihood:** Where an effect was considered to be potentially significant, then the assessment of its occurrence was based on the likelihood of it occurring and not certainty that it would occur. Effects are scoped in unless there was evidence to the contrary demonstrating that they would not occur, e.g., there being no valid pathway, or the absence of the species in that area, at that time.
- **Significance:** The significance of any effect is considered objectively, against the scale and nature of the impact in relation to those of that particular feature or condition and in relation to the extent of that feature or condition over the entire designated site. A significant effect within this assessment is one which, if it occurred, would lead to a decline in the quality or status of the habitats or distribution, abundance, etc. of feature(s) of interest.
- **In combination:** The assessment of in combination effects considers those projects or plans which:
 - Are currently in operation; and
 - Those which are actually proposed – defined by being a valid live planning application, or any referenced with a local development plan where there is a strong likelihood of them being undertaken within a reasonable time period, specified within that plan.

To aid discussion within this report, in-combination effects are discussed at the end of Stage 2 to allow consideration of mitigation measures to be in place when considering other projects or plans.

A.1.2 Stage 2: Appropriate Assessment

If LSE are identified in Stage 1 then a Stage 2 Appropriate Assessment will be undertaken. This assesses the implications of the project on designated sites conservation objectives. The information given must be extensive enough so the competent authority can undertake an Appropriate Assessment. Conservation objectives for the designated site, the conservation status of qualifying features and the potential effects of the project on the designated site must be included. The Stage 2 Appropriate Assessment will also include measures to avoid/mitigate impacts and will outline any residual effects if adverse effects from the project are likely.

A.1.3 Stage 3: Assessment of Alternative Solutions

If avoidance or mitigation measures identified at Stage 2 are insufficient, then alternative methods will be needed to achieve the objective of enabling the larger vessel access. This may include a different methodology.

A.1.4 Stage 4: Imperative Reasons for Overriding Public Interest (IROPI)

In certain cases, there may be no alternative solution that will minimise or avoid impacts on the designated site, the designated site's priority species and/or habitats. In these cases, the outcomes of undertaking the project should consider the environmental or human health/safety benefits that it would bring. Compensatory measures to offset the impact of the project and maintain the integrity of the designated site must be evaluated and implemented prior to works, if IROPI are determined.

The HRA, specifically the detailed appropriate assessment stage, supports a decision by a 'Competent Authority' as to whether a proposed plan or would have an adverse effect on the

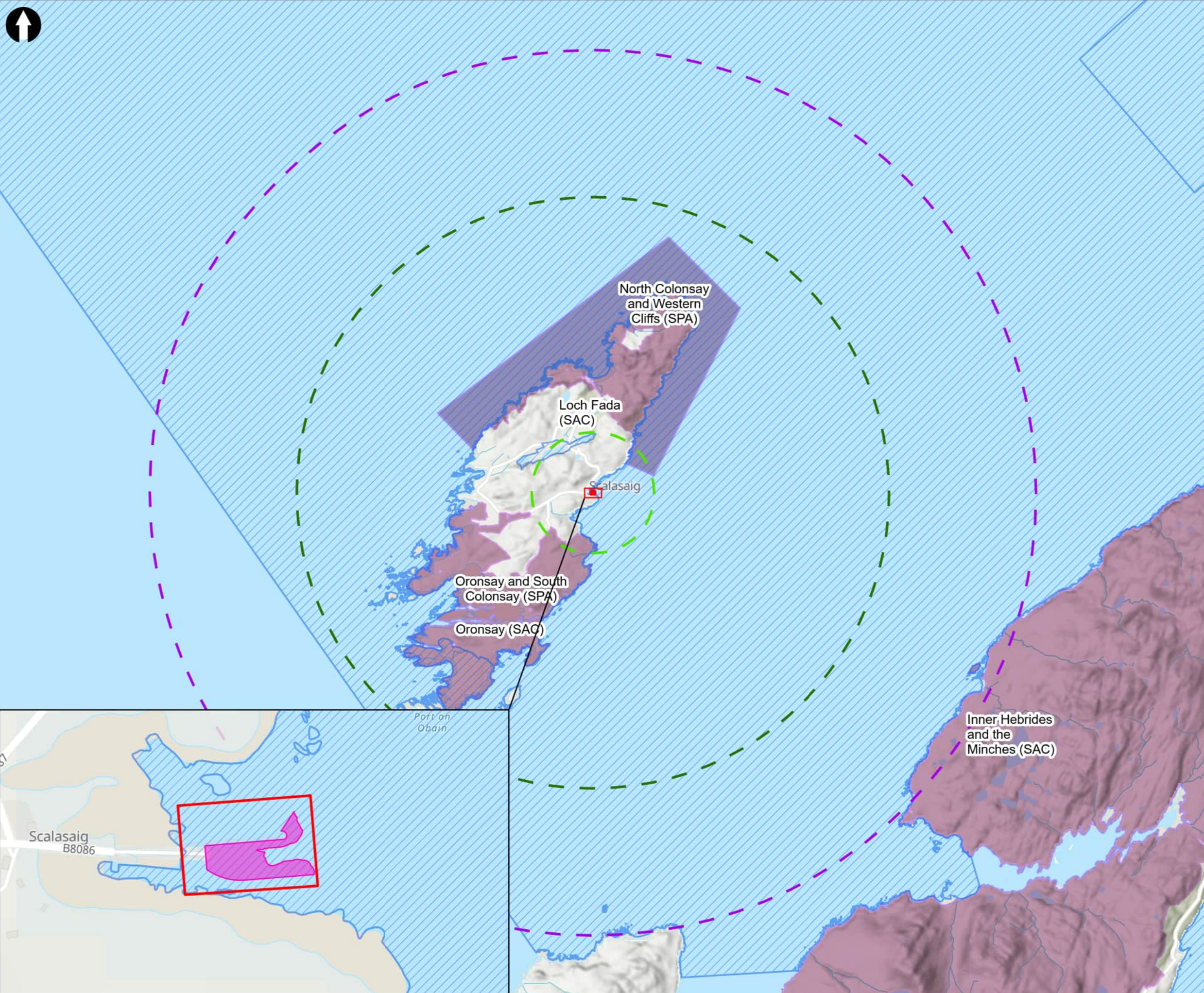
“integrity” of a designated site; ODPM⁶⁶ infers this to mean “the coherence of the site’s ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified”.

The decision is based upon the implications of a project on the conservation objectives of the site. These objectives set out the physical, chemical and biological thresholds, and limits of activity and disturbance, which must be met to maintain integrity. An adverse effect on integrity (AEOI) is likely to be one that results in a deterioration of conservation status with regard to the qualifying feature(s) for which it was designated.

The assessment of effects on designated sites applies a precautionary principle, if any doubt exists as to the effect of projects (considering any necessary mitigation measures), then ‘no adverse effect on integrity’ cannot be concluded. In this situation alternative solutions must be sought. Where feasible alternatives do not exist then the project can only proceed on the basis of IROPI. This must be agreed by the Secretary of State and compensatory measures to offset damage/loss and to maintain the overall coherence of the European Site (including the wider UK National Network it resides in) must be secured and ecologically functional in advance of the damage.

⁶⁶ ODPM, 2005. Government Circular: Biodiversity and Geological Conservation-Statutory Obligations and Their Impact Within the Planning System 1 Office of the Deputy Prime Minister. Office of the Deputy Prime Minister Circular, 06/2005.

B. Designated Sites within the Zol



Key to Symbols

- Indicative site boundary
- Dredging area
- 2km buffer - designated site
- 10km buffer - hydrologically connected
- 15km buffer - JNCC pin pile effective deterrence range for cetaceans
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Notes

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MOTT MACDONALD

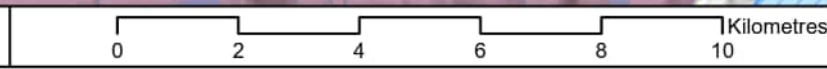
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Title
New Islay Vessel Port Enabling Works
Colonsay
Zol and Designated Sites

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GIS Check	T Graham	Approved	M Thompson
Scale at A3	Status	Rev	Security
1:125,000	INF	01	STD

Drawing Number
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C.1.1.3 European Protected Species Licence (Otter)

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