

MWJV

LOOE HARBOUR FLOOD DEFENCE AND REGENERATION SCHEME

Information to Support a Request for an EIA Screening Opinion under Schedule 3 of the Harbours Act 1964





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1 INTRODUCTION

- 1.1.1. WSP have been instructed by MWJV on behalf of Cornwall Council (the 'Applicant') to prepare information to support a request for EIA Screening from the Marine Management Organisation (MMO) under paragraph 3 of Schedule 3 of the Harbours Act 1964 for the proposed new coastal defence infrastructure at Looe Harbour (the 'Proposed Development').
- 1.1.2. It is proposed to submit a Harbour Revision order (HRO) to construct tidal defence barriers, supporting structures and control room, flood wall and associated access gates, construction of a breakwater, an extension to the Banjo Pier breakwater, public realm improvements, construction of piled, fixed moorings, construction of a cut-off wall and the construction of a walkway linking Looe to an existing coastal path.



2 SITE LOCATION AND SURROUNDING AREA

2.1 LOCATION AND EXISTING LAND USE

- 2.1.1. The Proposed Development is located within the town of Looe, Cornwall, as shown in Figure 1 Site Location Plan outlining the Indicative Development Boundary (the 'Site'). Looe is a small coastal town in south west Cornwall and an active fishing port. The town centres around a small harbour with a steep-sided valley. The River Looe flows through this valley dissecting East and West Looe flowing into Looe Bay. Looe is located 32km west of Plymouth and 11km south of Liskeard.
- 2.1.2. The existing use of the Site comprises:
 - North-east section of the Site: this is bordered by Buller Street, a quayside location which houses a number of shop frontages. Beyond this is Looe's main urban centre. The north east of the Site also contains Royal National Lifeboat Institution (RNLI) Looe Lifeboat Station and East Looe Beach;
 - South section of the Site: to the south-east is the mouth of the Looe River and existing Looe
 Harbour, beyond which lies Looe Bay. To the south west the land rises steeply to meet
 Hannafore Road and the South West Coast Path with a number of residential properties beyond
 this which overlook the town;
 - North-west section of the Site: to the north-west of the Site is West Looe, a residential area with a number of small shops that links to East Looe via the A387 which crosses the Looe River; and
 - North section of the Site: to the north of the Site are the outskirts of Looe with a number of residential dwellings overlooking the town and river. The confluence of the East and West Looe River is also to the north of the Site.

2.2 SURROUNDING AREA AND EMERGING DEVELOPMENT CONTEXT

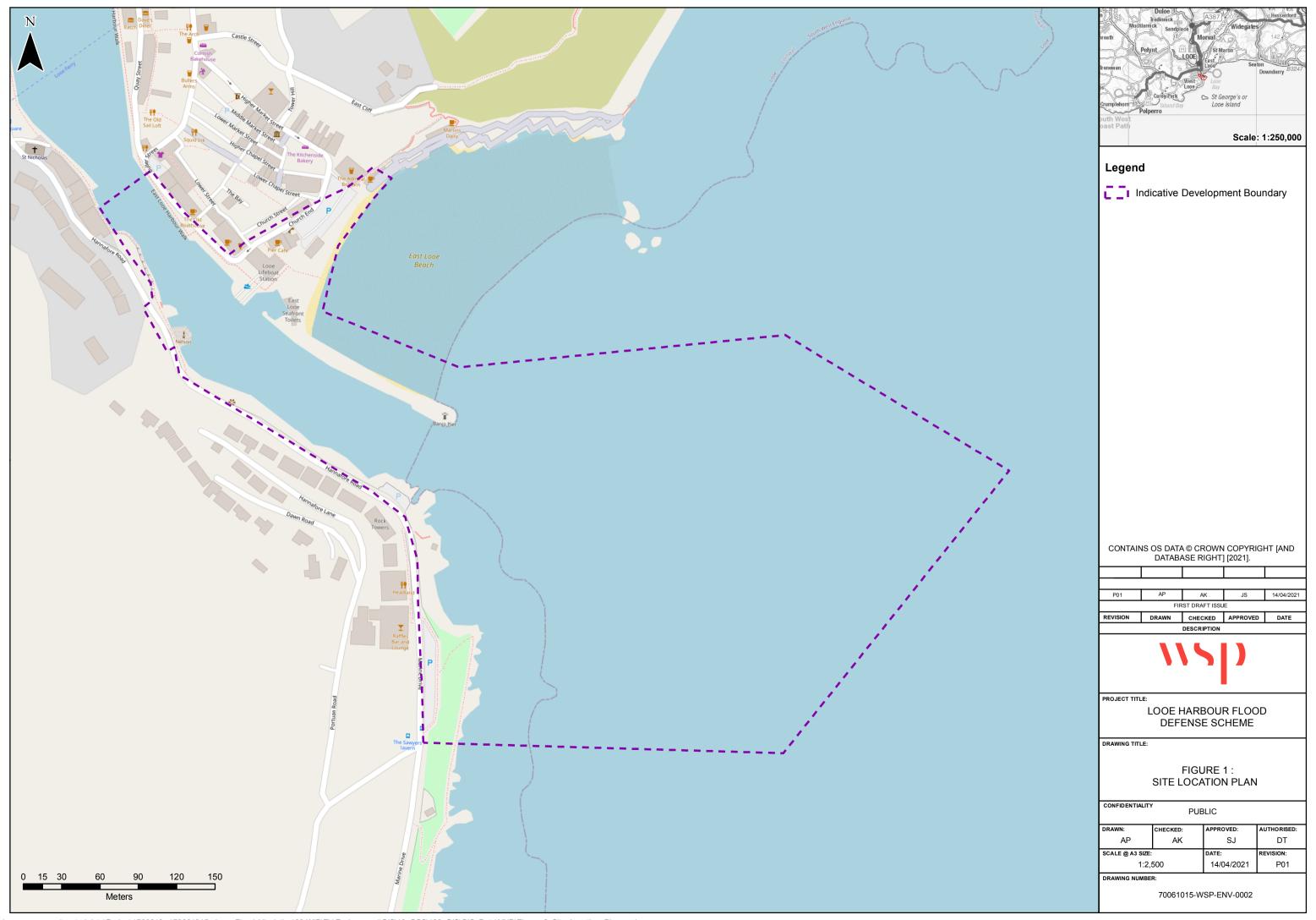
2.2.1. There are six projects that are proposed to come forward within 2km of the Site as summarised in **Table 2-1** and shown on **Figure 2 – Committed Developments**.

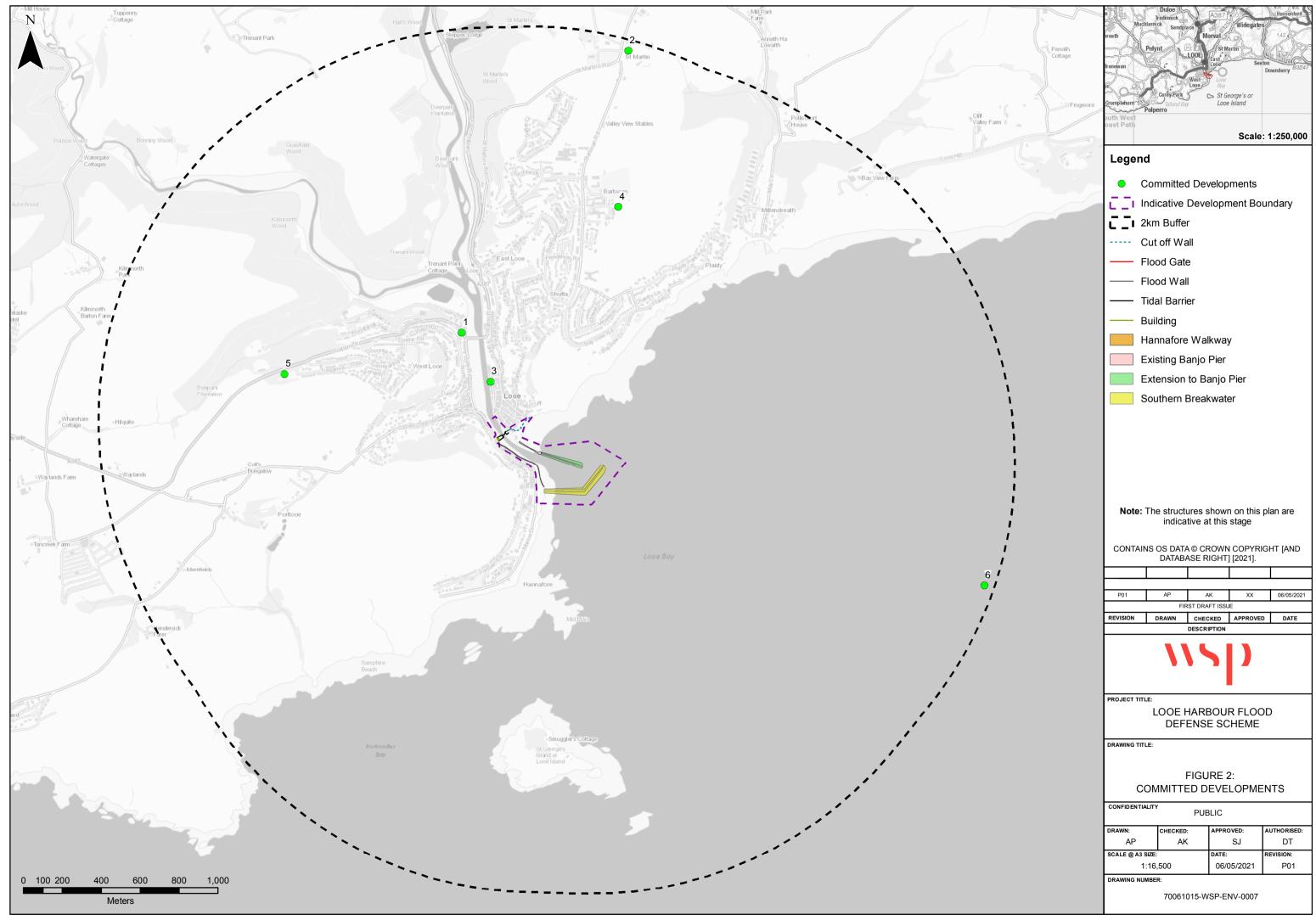
Table 2-1 – Upcoming Projects within 2km of the Site

Number on Figure 2	Application Reference	Description
1	PA20/08375	EIA Screening opinion for multi-use trail between Looe and Liskeard
2	PA20/09904	Western Power Distribution (WPD) are looking to refurbish a part of the electricity network in order to improve the system in the locality of St Martins Looe. WPD are looking to run a third wire between pole 45LLR1 and 45LLR3 and refurbish this piece of network with new poles and fittings.
3	PA12/03135	Change of use from fish processing unit to a mixed use as a cafe (A3), retail outlet (A1) and takeaway service (A5) for the sale of crab related products to include outside seating area and alterations to fenestration on west elevation.



Number on Figure 2	Application Reference	Description
4	PA15/00352	Construction of affordable led housing scheme comprising 10 dwellings (6 affordable and 4 open market). Revised scheme to PA14/07210 withdrawn on 10/09/14
5	PA19/03162/PREAPP	Pre application advice for the construction of 9 dwellings (3 x affordable units for sale, 3 x affordable units for rent and 3 x open market dwellings) together with an extension to Tregarrick Road and open amenity space
6	MLA/2019/00109	The national network of regional coastal monitoring programmes of England (NNRCMP) consists of 6 regional programmes who monitor coastal processes in support of coastal management and research. The programme is funded by Defra, through the Environment Agency. The programme is currently funded until March 2021, but this will be extended in 5/6 year phases beyond this time. As such, the end date for the project has been selected as the end of the next phase, which is scheduled for March 2026. The buoys are serviced at 6 monthly intervals.







3 THE PROPOSED DEVELOPMENT

3.1 NEED FOR AND OBJECTIVES OF THE PROPOSED DEVELOPMENT

- 3.1.1. Looe is already the most frequently flooded coastal town in the UK, and over the next 50 years, sea levels are predicted to rise by more than half a metre as a result of climate change, increasing the frequency, depth and extent of tidal flooding. As a result of the increased frequency of flooding events, key infrastructure within the town is becoming under increasing threat including the harbour, health centre, the police and fire stations, main food stores, local shops and cafés and the fish market, as well as key transport links such as the A387 and the railway.
- 3.1.2. The objectives of the Proposed Development are as follows:
 - Protect Looe town and the harbour from frequent and severe flooding and damage over the next
 100 years, giving time for the community to adapt to a changing climate;
 - Enhance the overall environmental integrity of designated sites and water bodies;
 - Work in partnership to promote economic growth in East Cornwall by:
 - Protecting key transport links (rail, road and cycle hub); and
 - Protect and enhance the marine and visitor economy.

3.2 PROPOSED DEVELOPMENT BENEFITS TO LOOF HARBOUR

- 3.2.1. The infrastructure outlined as part of the Proposed Development would provide benefits to the condition of the existing harbour as follows:
 - Reduced risk of flooding and storm damage to the harbour and its assets including:
 - The harbour walls, which presently suffer storm damage and have on occasion collapsed;
 - Looe Harbour Commissions Office;
 - Looe Harbour Commissions Workshop;
 - · Harbour walls and moorings;
 - Fish market;
 - Fishermen's store;
 - Sardine Factory;
 - Quayside Centre (open air market, and welfare facilities for visiting boats);
 - Pennyland Walkway;
 - Numerous other properties in East and West Looe; and
 - Vessels whilst on winter moorings (both below and above the bridge) Minor damage is frequent. However, a number of vessels sustained significant damage in previous recent storms.
 - Improved access and refuge for vessels:
 - Access for day tripping boats and ferries operating from the harbour over a greater tidal range and complaint with the equalities act;
 - Reduced wave action in the harbour entrance (navigation through which can be challenging in east/south easterly conditions);
 - A larger area for safe refuge of vessels accessible over a greater range of the tide.
 - Reduced loss of income as a result of flood events:



- The car parks within Looe (Lower Quay, Buller Quay & West Looe Quay) provide the main income source for all Harbour Operations. Reduced flood events would mean that tenants of the reserved parking spaces on Lower Quay would no longer have to be moved to the main car park, which is not only inconvenient, but also means they take up spaces that are then not generating pay and display income for the Harbour;
- The parking spaces along West Looe Quay in the event of a flood cannot be used until the waters subside, which also results in a loss of pay and display income; and
- The fuel dispensing facility for vessels in the Harbour is located on Lower Quay in the flood zone which cannot be used in a storm event;
- The Harbour has a number of tenanted properties along East and West Looe Quay, ranging
 from fishermen's stores to retail outlets that the community depends on. A large proportion of
 the retail units are regularly flooded and are forced to close whilst the 'mopping up' process is
 undertaken. Access to stores is not available until flood waters have receded.
- Improved health and safety of Harbour staff:
 - During a storm event, Harbour staff will be on site dealing with incidents. Although fully trained
 to deal with such events, the project would negate the need to be on site so often, whilst
 mitigating the risk of dealing with the event;
 - The Harbour works with local emergency services to provide a safe landing site for any
 incidents that happen on the water. This can be incredibly difficult at times, due to the fact that
 the Harbour is tidal. A 24/7 accessible landing stage would greatly improve this problem and
 ensure that care was administered to critically ill or injured patients in a timely manner; and
 - Although the tank and surrounding area is double bunded and meets current legislation, more robust provisions will be needed to meet storm surges and rising sea levels;
 - Sheltered launching for the RNLI Lifeboat and small boats at Little Beach.

3.3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.3.1. The Proposed Development will include:

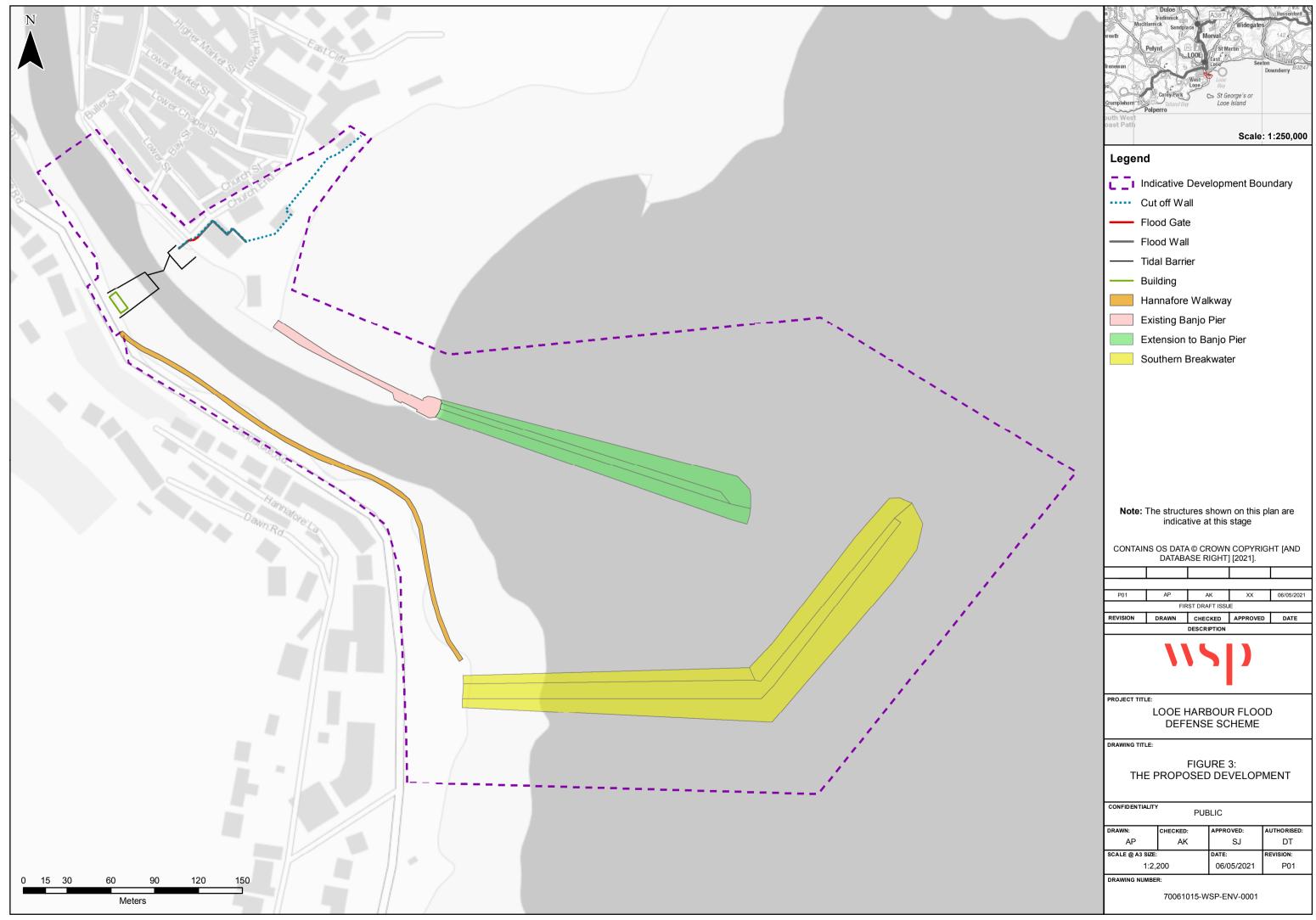
- Construction of the Southern Breakwater to protect the Tidal Barrier from storm waves, provide shelter for boats when the barriers are closed and during construction of the tidal defence;
- Extension to Banjo Pier with a pontoon for pedestrian access on its inner face, with similar protective functions as the Southern Breakwater, to provide improved access for ferry and tripping boats, and provide facilities for landing fish during construction of the tidal defence;
- Construction of the Tidal Barrier, supporting structures and control room; (noting that the position
 of the control building may change to East Looe, and could include modification to the RNLI
 building, the toilet block, or a new standalone structure);
- Construction of the Cut-off Wall landward of East Looe Beach to prevent seepage flows during storm surges and provide a foundation for a future splash wall to prevent flooding from wave overtopping;
- Construction of the Hannafore Walkway along the western foreshore, better connecting the town
 to the coastal path, avoiding the narrow single carriageway. The structure will be a raised
 walkway and will likely require piling during its construction;
- Public realm improvements in East Looe and along Banjo Pier to create a clear route for pedestrians to the Extension to Banjo Pier;



- Construction of piled (fixed) moorings within the breakwater to provide temporary mooring of vessels when the barriers are closed;
- Parking and access; and
- Temporary works areas potentially located within car parks within Looe (subject to landowner agreement).
- 3.3.2. An overview of the Proposed Development is also provided in **Figure 3 The Proposed Development**.

3.4 CONSTRUCTION OF THE PROPOSED DEVELOPMENT

- 3.4.1. The construction programme for the Proposed Development is anticipated to start in 2024, spanning 24 months with construction works ceasing in 2026.
- 3.4.2. The following elements will be constructed during the first summer season, these include:
 - Construction of a breakwater (approximately 50m wide at its widest point and approximately 400m length) to the south (hereafter referred to as 'the Southern Breakwater') to protect the tidal defence barriers from storm wave and provide shelter for boats when the barriers are closed (and during construction of the tidal defence works); This may include:
 - working from a jack-up barge,
 - · piling (including impact driving),
 - dredging (to prepare the foundation of the structures),
 - placement of rock armour and / or concrete armour units, and
 - placement of concrete caisson units that would be floated into place.
 - An extension to the Banjo Pier breakwater (approximately 25m in width at its widest point and approximately 220m in length, hereafter referred to as 'Extension to Banjo Pier') with a pontoon for pedestrian access on its inner face. It will have similar protective functions as the Southern Breakwater, provide access / berthing for ferry and day-tripping boats, and provide facilities for landing fish during construction of the tidal defence works; The works may include:
 - working from a jack-up barge,
 - piling (including impact driving),
 - dredging (to prepare the foundation of the structures),
 - placement of rock armour and / or concrete armour units,
 - placement of concrete caisson units that would be floated into place, and
 - repairs / strengthening to Banjo Pier will be undertaken where required (the scope of this is still being determined).
 - Parking and access; and
 - Temporary works areas potentially located within car parks within Looe (subject to landowner agreement).
- 3.4.3. Following the completion of the above infrastructure, the following elements will be constructed:
 - Construction of tidal defence barriers (hereafter referred to as 'Tidal Barrier') with a navigable opening of up to 30m, its supporting structures and a control room; This may include working from a jack-up barge, construction of a temporary cofferdam, piling (including impact driving) and dredging (to prepare the foundation of the structures). The Tidal Barrier would be a steel gate /





gates, the supporting structures would be either steel sheet piles or concrete caisson units. The gates will be designed to allow minimal impact on fluvial and tidal flows, however during construction there is likely to be some temporary works required to manage flows and bypass the working areas.

- Public realm improvements in East Looe and along Banjo Pier to create a clear route that will allow pedestrians access to the extended Banjo Pier.
- Construction of piled (fixed) moorings within the Southern Breakwater to allow the mooring of vessels when the Tidal Barrier is closed; This may involve the use of impact driving.
- Construction of a cut-off wall landward of East Looe Beach (approximately 180m in length and up to 24m in depth below ground), hereafter referred to as 'the Cut-off Wall') to prevent seepage flows during storm surges and provide a foundation for a future splash wall to prevent flooding from wave overtopping; this is likely to be piled and may involve the use of impact driving.
- Construction of flood wall with associated gates for access (approximately 1.5m high and 25m in length) to link the tidal barrier to high ground east of the RNLI building.
- Construction of Hannafore Walkway along the western foreshore (approximately 340m in length, 9m above mean sea level and 3m in width), better connecting the Town to the coastal path and thus avoiding the narrow single carriageway. This may involve the use of impact driving to construct a series of piles to support the elevated walkway.
- 3.4.4. The location of the temporary works area is still being determined but available spaces identified to date include nearby car parks. The temporary works area would be used to provide welfare and office facilities for construction workers and temporary storage laydown areas.
- 3.4.5. It is anticipated that the majority of materials would be brought in via barge with the Southern Breakwater and Banjo Pier extension constructed by jack up barge. The Tidal Barrier would be constructed within a cofferdam arrangement. It is assumed that the majority of marine construction works will be undertaken during the summer season to avoid the impact of winter storms.
- 3.4.6. Looe Harbour is not currently dredged, it is not anticipating that dredging will be required during operation, however, it is likely that some small-scale dredging over a period of approximately three months would be required within the footprint of the Extension to Banjo Pier, Tidal Barrier and the Southern Breakwater structures to prepare the seabed. As a worst-case scenario, it has therefore been assumed throughout this EIA Screening Request that dredging will be required for construction of the Proposed Development with a licensed disposal site to be determined at a later stage.

PARKING AND ACCESS

3.4.7. Details on parking and access arrangements are being development and will be considered during the detailed design stage. Parking is most likely to be located within temporary works areas as discussed above.

EMPLOYMENT

3.4.8. It is anticipated that construction of the Proposed Development will generate some jobs, however it is likely that these will be specialist jobs.



VEHICLE AND VESSEL NUMBERS

Vehicles

- 3.4.9. The Proposed Development would create vehicle trips during the construction phase, however these would be minimised as far as practicable, as the onshore construction areas would be difficult to access. The vehicle trips would be limited to:
 - Transport to and from work; and
 - Associated with the external storage areas and movement of goods.

Vessels

- 3.4.10. The Proposed Development would result in an increase in construction related vessel traffic associated with the following:
 - Transport of materials to and from Site;
 - Assistance in construction of infrastructure elements (e.g. for the construction of the Hannafore Walkway, a barge with a crane may be required)

WASTE AND EMISSIONS

3.4.11. Small amounts of waste would be generated as a result of construction works. Waste would be managed in accordance with relevant legislation and best practice in line with the Resources and Waste Strategy for England^{1.}

3.5 OPERATION OF THE PROPOSED DEVELOPMENT

DESIGN LIFE

- 3.5.1. In order to reduce environmental effects, it is likely an adaptive approach will be taken. This kind of approach allows the Proposed Development to evolve based on needs and as information comes to light. This is a good way of accommodating unknown factors that can crop up during a project and by embracing the ability to modify the project plans allows flexible mindset and the re-evaluation of decisions and results throughout the project.
- 3.5.2. The Tidal Barrier, Extension to Banjo Pier and Southern Breakwater would be built to a level to protect Looe from flooding for 50 years with the foundations built with a design life of 100 years so that the design, including the height of structures, could be adapted when the risk is increased.
- 3.5.3. The approach has the advantage of:
 - Reducing height of defences in the short term, minimising the effect on seascape and townscape, including Looe's built heritage, when higher structures are not yet required;
 - Allowing the Proposed Development to take advantage of low carbon materials/construction techniques in the future, while minimising the amount of emissions in construction (and embodied carbon in materials and transport);

¹ Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (2018). Resources and Waste Strategy for England. [Online] Available at: https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england. [Accessed June 2021].



- Reducing the cost of the Proposed Development (in economic terms) in the short term; and
- Allowing the timing and scale of future construction and design to benefit from improvements in climate science.
- 3.5.4. The design life of the relevant structures would be as follows:
 - Civils (Southern Breakwater, Extension to Banjo Pier gate piers, Cut Off Wall and Flood Wall) approximately 100 years;
 - The main Tidal Barrier structure and Hannafore Walkway would be 50 years before major refurbishment or replacement; and
 - The mechanical and electrical equipment would be approximately 20 years between major refurbishment or replacement.
- 3.5.5. This report is based on the design life of structures being 50 years.

BARRIER OPERATION

- 3.5.6. The Tidal Barrier will operate when there is a flood warning and a risk of tidal flooding and based on estimates of current flood frequency that could be between 10-20 times per annum. In the event of a flood warning, the barrier will close on the flood (incoming) tide. The indicative period of closure is anticipated to be up to 3 hrs which is used within this EIA Screening Request.
- 3.5.7. Sufficient headroom will be allowed between the level at which the barrier is closed and the allowable top water level in the harbour, so as to prevent fluvial flooding upstream of the barrier. The barrier, hydraulic pumps and electrical panelling will be powered from the Grid, however a backup generator will be installed and regularly tested so that the Tidal Barrier can still be operated in an emergency situation. The barrier will open on the ebb (outgoing) tide, once the tide level has equalised with the (lower) water level in the harbour. The duration of time it takes to close the Tidal Barrier would be approximately 30 minutes. It is not intended that the Tidal Barrier impounds water within the harbour.

HARBOUR USAGE

- 3.5.8. The Extension to Banjo Pier will be utilised by local ferry services, and day tripping boats, to improve links with the wider South East Cornwall area and enable services to operate over a wider tidal range.
- 3.5.9. When the Tidal Barrier is closed, the area within the Southern Breakwater and Extension to Banjo Pier will be utilised by boats including commercial fishermen to shelter within before entering the harbour. During these periods, boats will be berthed against Banjo Pier and the Southern Breakwater, and permanently fixed moorings (for example mooring piles) may also be utilised within the sheltered area to accommodate smaller vessels who do not require a vertical quay face.
- 3.5.10. It is anticipated that there will be no informal anchorage or swinging moorings within the refuge area.



4 ASPECTS OF THE ENVIRONMENT LIKELY TO BE SIGNIFICANTLY AFFECTED

4.1 HISTORIC ENVIRONMENT

- 4.1.1. There are four designated heritage assets within the Site including Looe Conservation Area, Grade II Listed Piers and Quays, Garde II Listed Watch Tower Studio and former Lifeboat Shed and Grade II Listed K6 telephone kiosk adjacent to the Watch Tower. Within 1km of the Site there are a further 103 statutory designated heritage assets. There are no World Heritage Sites, protected wrecks, registered parks and gardens or registered battlefields within 1km of the Site. There is one non-designated heritage asset within the Site, a post medieval documentary evidence for a defensive wall and a possible fish cellar. There is one non-designated wreck within the Site and there is known evidence of prehistoric activity within 500m of the Site. There is the potential for unrecorded archaeological remains, both terrestrial and marine, to survive within the Site.
- 4.1.2. There is the potential for the following significant effects during the construction phase:
 - Permanent loss, truncation and/or disturbance to known or possible buried archaeological remains due to construction activities;
 - Permanent loss, truncation and/or disturbance to known or possible marine archaeological remains due to construction activities; and
 - Permanent change to designated built heritage assets.
- 4.1.3. During operation there is the potential for the following significant effects:
 - Permanent changes to the setting of designated above ground heritage assets as a result of visual effects. This potential effect is based on the nature of the development, the location and setting of the asset in relation to the Proposed Development and from the initial site walkover; and
 - Permanent benefits of flood defence on the historic environment as a result of the Proposed Development, in particular built heritage within Looe.

4.2 SEASCAPE, LANDSCAPE AND VISUAL

4.2.1. The Cornwall Area of Outstanding Natural Beauty (AONB) is located 880m from the Site. The Site falls within the Looe and Seaton Valleys Area of Great Landscape Value (AGLV). The South West Coast Path is located within the Site and there is a network of Public Rights of Way (PRoW) and National Cycle Routes in proximity to the Site. The Site falls within Marine Character Area 49: South Cornwall Coastal Waters and Estuaries², National Character Area 152: Cornish Killas³ and

² MMO. (2014). Seascape assessment for the South Marine Plan Areas: technical report. [Online]. Available at: <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/488992/Seascape_assesment for the South inshore and offshore marine plans MMO 1037 final report.pdf [Accessed June 2021]
³ Natural England. (2014). NCA Profile: 152 Cornish Killas (NE547). [Online]. Available at: http://publications.naturalengland.org.uk/publication/6654414139949056 [Accessed June 2021]



Landscape Character Area (LCA) 22: South East Cornwall Plateau⁴ and immediately adjacent to LCA 23: Looe Valley Rivers. There are a variety of visual receptors that experience views of the Site including residential properties, open space users, users of the road network, users of PRoW, visitors to Looe Island and users of Looe Harbour.

- 4.2.2. There is the potential for the following significant effects during the construction phase:
 - Changes in Site character and the local seascape/landscape/townscape character;
 - Change in character on the South West Coast Path;
 - Temporary loss of public access to Banjo Pier;
 - Change in character and visual amenity of the local transport network, PRoW and coastal routes;
 and
 - Change in visual amenity from Looe Harbour, East Looe Beach, Looe Island and residential areas with views of the Site.
- 4.2.3. There is the potential for the following significant effects during the operational phase:
 - Change in site character and the local seascape / landscape / townscape character;
 - Change in character on the South West Coast Path;
 - Changes to the character and visual amenity of Banjo Pier;
 - Change in character and visual amenity of the local transport network, including PRoW and coastal routes;
 - Change in visual amenity from Looe Harbour, Banjo Pier and East Looe Beach and Looe Island;
 and
 - Change in visual amenity from residential areas with views towards the Site.

4.3 BIODIVERSITY

- 4.3.1. There is one European statutory designated site within 10km of the Site (Polruan to Polperro Special Area of Conservation (SAC)) and one national statutory designated site within 2km of the Site (Kilminorth Woods Local Nature Reserve). Other sites which could be functionally linked to the Site include the Plymouth Sounds and Estuaries SAC, Fal and Helford SAC and Tamar Estuaries Complex Special Protection Area (SPA). A total of eight terrestrial non-statutory nature conservation sites are located within 2km of the Site. Habitats of Principal Importance including Maritime cliff and slope and ancient woodland were identified within 2km of the Site. There is the potential for the following protected and notable terrestrial species to be present within the Site: bats, otter, breeding and wintering birds, reptiles, invertebrates and plants.
- 4.3.2. The Site is located within the Whitsand and Looe Bay MCZ and contains Annex 1⁵ reef habitats. Furthermore Looe Bay is known to support seals and cetacean species and contain a variety of

⁵ Habitats listed under Annex I of the Habitats Directive (92/43/EEC1)

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⁴ Diacono Associates & White Consultants. (2007). Cornwall and the Isles of Scilly Landscape Character Assessment. [Online]. Available at: https://www.scilly.gov.uk/sites/default/files/planning-apps/Historic%20Landscape%20Character%20Assessment%20Final%20Report%202005.pdf [Accessed June 2021]



habitats littoral and subtidal habitats. Migratory fish are also known to utilise the West Looe River including European eel, Atlantic salmon, brown/sea trout, brook lamprey, bullhead and flounder.

- 4.3.3. During construction there is the potential for the following significant effects:
 - Land-take and seabed disturbance resulting in habitat loss;
 - Direct mortality;
 - Pollution and changes to hydrology;
 - Direct and indirect disturbance to protected species;
 - Disturbance and injury from underwater noise;
 - Reduced feeding success of visual species;
 - Vessel strikes;
 - Delays and disturbance to migratory fish; and
 - Reduced commercial fisheries landings.
- 4.3.4. During operation there is the potential for the following significant effects:
 - Changes in hydrology and coastal dynamics;
 - Disturbance of protected and notable species;
 - Delays and disturbance to migratory fish;
 - Loss or disturbance to shoreline habitats; and
 - Commercial fisheries disruption.

4.4 WATER

- 4.4.1. The Proposed Development is located in an area that is at high risk of tidal flooding (greater than 1 in 200 annual probability of tidal flooding) and at Low risk from fluvial flooding and surface water flooding⁶. The superficial and bedrock deposits are designated as a Secondary A Aquifer. There are no Source Protection Zones and groundwater abstraction licences within 1km of the Site. The Proposed Development is located within the Looe Estuary transitional Water Framework Directive (WFD) water body (GB520804806300)⁷; and Plymouth Coast coastal WFD water body (GB620806110003)⁸.
- 4.4.2. During construction there is the potential for the following significant effects:
 - Changes in tidal, fluvial and surface water flooding risk;
 - Direct impacts or changes to groundwater aquifers and groundwater supported private water supplies
 - Disturbance of sediments and increased turbidity;
 - Alteration to the mixing of water
 - Disturbance to intertidal habitats

⁶ Environment Agency. (2021). Flood Map for Planning. [Online] Available at: https://flood-map-for-planning.service.gov.uk/ [Accessed June 2021]

⁷ Environment Agency. (2021). Catchment Data Explorer – Looe Estuary. [Online]. Available at: https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3262 [Accessed June 2021] ⁸ Environment Agency. (2021). Catchment Data Explorer – Plymouth Coast. [Online]. Available at: https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3365 [Accessed June 2021]



- Increased pollution
- Introduction of sediment pathways and pollutants into the water column
- Impacts to aquatic ecology
- Changes to tidal current speeds and local wave climate
- Disturbance of contaminated sediments
- 4.4.3. During operation there is the potential for the following significant effects:
 - Changes in tidal, fluvial and surface water flooding risk;
 - Direct impacts or changes to groundwater aquifers and groundwater supported private water supplies
 - Groundwater flood risk;
 - Alteration to flow dynamics;
 - Change in tidal and saline extends;
 - Changes to fish migration;
 - Direct loss of habitat;
 - Changes to water quality;
 - Increase in shading of the aquatic environment;
 - Impacts to bathing water quality;
 - Change to coastal process dynamics (wave height, scour, tidal velocity, wave energy and sediment supply);
 - Change in pollutant pathways; and
 - Accumulation of polluted water upstream.

4.5 LAND AND SOILS

- 4.5.1. Made ground is likely to be present associated with construction of roads, pavements, buildings and other structural elements. The Site is underlain by superficial deposits including Marine Beach Deposits (MBD), Tidal River and Creek Deposits and Head Deposits⁹. Bedrock geology beneath the Site is dominated by Devonian lithologies. The soils on Site primarily comprise of freely draining slightly acidic loamy soils. There are no mineral safeguarding areas within 5km of the Site. There is the potential for Unexploded Ordnance (UXO) to be present on Site based on Looe's history as a strategic WWII target. Potential contaminative sources on Site include made ground, a military practice area and possible boat maintenance area.
- 4.5.2. During construction there is the potential for the following significant effects:
 - Impacts to human health by disturbance of soils and exposure to contamination;
 - Exposure and mobilisation of contaminants directly or indirectly impacting surface and groundwater; and
 - Impacts to soil quality via compaction, sealing and/or introduction of new contaminants.
- 4.5.3. During operation there is the potential for the following significant effects:

⁹ British Geological Survey (n.d.). Online Geolndex. [Online]. Available at: https://www.bgs.ac.uk/map-viewers/geoindex-onshore/ [Accessed June 2021].



- Exposure and mobilisation from contaminants during maintenance;
- Impacts to controlled waters from uncontrolled spillages from mechanical and electrical equipment associated with the Tidal Barrier; and
- Impact to soil/bedrock aguifers from preferential pathways due to piling structures.

4.6 CLIMATE

- 4.6.1. The region¹⁰ experiences greater annual precipitation compared to the UK average¹¹ and has experienced extreme precipitation most recently in October 2020. The region experiences greater annual average temperatures that the UK. South West England is one of the more exposed areas in the UK with the highest wind speeds on average. The coastline around the Site is naturally vulnerable to sea level rise with the mean sea level increased by approximately 178mm between 1962 and 2020¹².
- 4.6.2. During both construction and operational phases there is the potential for significant effects to tidal defence components, infrastructure, pedestrian components ancillary components and end users.

4.7 GREENHOUSE GAS EMISSIONS

- 4.7.1. Greenhouse Gas (GHG) emissions occur constantly and widely as a result of natural and human activity including land use, land use change, energy consumption and industrial processes. Cornwall had a total of 2,690.9 kt of CO₂ emissions in 2018 across all emission sources, while the UK had a total of 344,824.3 kt of CO₂ emissions in the same period¹³. The operation and management of existing assets under the baseline is expected to be minimal. Any maintenance or repair works required may require materials which will have embodied emissions associated with them and the installation of these materials will result in emissions die to the transport of these materials and the use of plant and machinery to install them. These emissions are however expected to be small.
- 4.7.2. During construction there is the potential for the following significant effects:
 - Manufacture and transport of raw materials to suppliers;
 - Transport of materials to Site:
 - Plant and equipment used during construction; and
 - Transport of waste.
- 4.7.3. During operation there is the potential for the following significant effects:
 - Replacement and refurbishment over the lifespan of the Proposed Development;
 - Land use, land use change and forestry; and

Met Office (2020). UK regional climates. [Online] Available at https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/south-west-england-climate---met-office.pdf [Accessed June 2021]

¹¹ Met Office (2020). UK climate averages. [Online] Available at https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcr37upbm [Accessed June 2021]

data/uk-climate-averages/gcr37upbm [Accessed June 2021]

12 Permanent Service for Mean Sea Level (PSMSL) (2020), Devonport. [Online] Available at https://www.psmsl.org/data/obtaining/stations/982.php [Accessed June 2021].

¹³ Department for Business, Energy and Industrial Strategy. (2020). UK local and regional CO₂ emissions. [Online]. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018 [Accessed June 2021]



Operational energy use associated with the Tidal Barrier.

4.8 NAVIGATION

- 4.8.1. Looe harbour is most exposed during winds from the east to the south, southerly and easterly winds produce swell in the harbour and harbour entrance providing challenging conditions for vessels, particularly at night when visibility is restricted by lighting inland. There are multiple moorings and slipways with various vessels operating within Looe Harbour including commercial fishing vessels, small passenger vessels, RNLI Lifeboats and recreational vessels.
- 4.8.2. During construction there is the potential for the following significant effects:
 - Construction vessels and narrowing of river channel increasing ship collision risk;
 - New temporary or permanent structures increasing ship contact risk;
 - Mooring gear failure due to excessive wash from increased vessel activity increasing mooring breakout risk; and
 - Construction increasing foundering / swamping risk to other vessels.
- 4.8.3. During operation, there is the potential for the following significant effects:
 - Operation of a narrowed channel (resulting from the gate infrastructure) increasing collision risk
 - New permanent infrastructure (Tidal Barrier infrastructure) increasing ship contact risk;
 - Local bathymetry changes as a result of the Tidal Barrier, increasing ship grounding risk;
 - Additional pontoon mooring and the extension of Banjo Pier increasing mooring breakout risk;
 and
 - Change in foundering / swamping risk as a result of the Southern Breakwater

4.9 AIR QUALITY

- 4.9.1. Air quality within Cornwall is generally very good, with notable hotspots where air quality fails to meet air quality objectives for the UK. There are no AQMA's within or in close proximity to the Site, the nearest is Tideford AQMA, located 11km from the Site. During summer months Looe experiences and influx of visitors which can lead to congestion on the narrow road network. Current air quality conditions are unknown, however conditions are anticipated to be significantly below the national air quality objectives. Sensitive receptors identified include properties along the A387, Polperro Road, Station Road, the B3253, Quay Road and Hannafore Road. Dwellings and businesses within 350m of the Proposed Development may be sensitive to dust. There are no schools or hospitals within 350m of the Proposed Development. St. Martins Ancient Woodland is located within 100m of the Site.
- 4.9.2. During construction there is the potential for the following significant effects:
 - Low risk of direct and indirect health impacts from construction vehicle emissions, marine vessels and other vehicle movements;
 - Low risk of direct and indirect health impacts to residential receptors within Looe from dust emissions;
 - Low risk of direct and indirect health impacts due to increased pollutants (PM₁₀/_{2.5} and NO²); and
 - Increases in nitrogen and ammonia deposition through increased traffic and emissions on St Martin's Wood.
- 4.9.3. There are no likely significant effects upon receptors anticipated during the operational phase.



NOISE AND VIBRATION 4.10

- 4.10.1. There are no Noise Action Planning Important Areas (NIA)¹⁴ within 300m of the Site. Existing noise and vibration sources will be identified through baseline noise surveys.
- 4.10.2. During construction, there is the potential for the following significant effects:
 - Potential for significant noise and vibration effects from construction activities due to the proximity of sensitive receptors and the duration of the works;
- 4.10.3. There are no likely significant effects upon receptors anticipated during the operational phase

4.11 TRAFFIC AND TRANSPORT

- 4.11.1. Sensitive receptors include the A387, Fore Street, Higher Market Street, Church End, Buller Street, Quay Road, Hannafore Road and Marine Drive. No bus routes run within Looe town centre due to the narrow nature of the existing road network through the town, however service 72 runs along Quay Road and Hannafore Road. A small section of National Cycle Network Route 2 runs from West Looe car park along Ridgeway and Kilminorth Woods and connects to Footpath 616/7/1. There are no other PRoW.
- 4.11.2. During construction, there is the potential for the following significant effects:
 - Increases in driver stress and delay associated with construction traffic and worker vehicles reducing capacity on local road network and car parking;
 - Changes to pedestrian and cycle amenity due to the location of the Proposed Development in Looe town centre;
 - Impacts to accidents and safety risk based on construction worker travel and construction compounds;
 - Impacts to public transport due to construction works affecting local bus route and proximity of works to Looe Railway Station.
- 4.11.3. There are no likely significant effects upon receptors during the operational phase.

4.12 POPULATION AND HEALTH

4.12.1. In 2011, there were 5,112 usual residents living in Looe Parish¹⁵. In regards to the Index of Multiple Deprivation (IMD)¹⁶, Looe sits within the following Lower Layer Super Output Areas: Cornwall 037B, Cornwall 037C, and Cornwall 037D. Cornwall 037B and Cornwall 037D are both amongst the 40% most deprived neighbourhoods in the country. Cornwall 037C is amongst the 30% most deprived neighbourhoods nationally. A total of 57.1% of Looe's population is economically active with main

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¹⁴ Defra (2017) Strategic Noise Mapping. [Online] Available at: https://www.gov.uk/government/publications/strategic- noise-mapping-2019 [Accessed June 2021].

¹⁵ Office for National Statistics (2021). 2011 Census [Online] Available at: https://www.ons.gov.uk/census/2011census [Accessed Jun 2021]

¹⁶ Ministry of Housing, Communities and Local Government. (2019). English Indices of Deprivation. [Online] Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 [Accessed June 2021]



job sectors being Accommodation and food services, followed by wholesale, retail and motor repairs and health and social work¹⁷. The health of Looe residents is variable compared to the South West region and England. Life expectancy in Looe is 80 years for males and 83 for females 18. Health and wellbeing levels in Looe are generally lower than regional and national. Recreation and tourism is important to Looe with the tourism industry worth around £47.8million to the local economy and the East Looe river provide multiple recreational opportunities.

- 4.12.2. During construction, there is the potential for the following significant effects:
 - Impacts to direct employment from the creation of construction jobs;
 - Indirect and induced employment opportunities;
 - Disruption to commercial and emergency use of East Looe River;
 - Impacts to private property and housing from construction noise, dust, traffic and reduced
 - Impacts and disruption to development land and businesses and community land and assets from construction traffic and severance:
 - Impacts to human health from noise pollution, increased traffic and air quality; and
 - Impacts to tourism and recreation through disturbance from increased noise, vibration and dust.
- 4.12.3. During operation, there is the potential for the following significant effects:
 - Indirect and induced employment opportunities;
 - Impacts to private property and housing from flood protection provided by the Proposed Development;
 - Impacts to walkers and cyclists arising from the creation of the Hannafore Walkway;
 - Impacts to development land and businesses from public realm improvements and added flood protection:
 - Impacts to human health resulting from the addition of the Hannafore Walkway and added flood protection; and
 - Impacts to tourism resulting from the addition of the Hannafore Walkway and extension to the Banjo Pier.

4.13 MATERIALS AND WASTE

4.13.1. Existing material use on the Site is considered to be minimal and only require a number of minor products (e.g. lighting, paint and fencing). There are no Minerals Safeguarding Areas or known pear resources or active peat extractions within the Site. The South West region has a general lower than average availability of some construction materials such as concrete blocks and recycled and secondary aggregate. Existing arisings and waste from Site are expected to be limited from routine maintenance or repair works to existing assets such as Banjo pier. The following sensitive receptors

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¹⁷ Nomis. (2021) Labour Market Profiles [Online] Available at: https://www.nomisweb.co.uk/ [Accessed June 2021]

¹⁸ Cornwall County Council. (2018). Cornwall Community and Health Based Profiles [Online] Available at: https://www.cornwall.gov.uk/health-and-social-care/public-health-cornwall/joint-strategic-needs-assessmentisna/community-and-health-based-profiles/ [Accessed June 2021]



have been identified: material resources – consumption impacts on materials immediate and long-term availability and landfill void capacity.

- 4.13.2. During construction, there is the potential for the following significant effects:
 - Consumption of material resources associated with construction; and
 - Disposal and recovery of waste associated with the construction.
- 4.13.3. There are no likely significant effects upon receptors during the operational phase

4.14 MAJOR ACCIDENTS AND DISASTERS

- 4.14.1. A screening exercise has been undertaken to address the potential vulnerability of the proposed Development to major accidents and/or disasters. Based on the screening exercise, the following have the potential to give rise to likely significant effects:
 - Flooding coastal, rivers and streams, surface water and groundwater;
 - Severe weather storms and gales, cold and snow, heatwave, drought;
 - Major transport accidents; and
 - Unexploded ordnance.

4.15 CUMULATIVE EFFECTS

- 4.15.1. As shown in **Table 2-1** and on **Figure 2 Committed Developments**, there are currently six projects that are proposed to come forward within 2km of the Site where there is the potential for cumulative effects. The key potential cumulative effects are considered to be:
 - Road traffic / water-based traffic generation during construction and operation;
 - Effects on landscape character, including built heritage assets and their setting and visual amenity.
- 4.15.2. No transboundary impacts (with other European Countries) are anticipated for the Proposed Development.



5 CONSIDERATION OF THE NEED FOR AN EIA

- 5.1.1. The Proposed Development is likely to require an EIA under two regimes:
 - Town and Country Planning (Environmental Impact Assessment) Regulations 2017¹⁹ (the 'TCP EIA Regulations 2017'); and
 - Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended in 2017) (the 'Marine Works Regulations 2017').
- 5.1.2. The Site of the Proposed Development comprises areas in both the marine and terrestrial jurisdictions and a number of consents are sought which may require EIA:
 - Planning Permission from Cornwall Council;
 - A Marine Licence from the MMO; and
 - A Harbour Revision Order (HRO) from the MMO.
- 5.1.3. In accordance with Schedule 3 of the Harbours Act 1964, the MMO must determine whether an EIA is required in relation to the Proposed Development if it is concluded that the project in question is likely by virtue of its size, nature or location, to have significant effects on the environment.
- 5.1.4. The TCP EIA Regulations 2017 require that, before consent is granted for certain types of development, an EIA must be undertaken to identify any likely significant effects of the development and mitigation, where appropriate. The TCP EIA Regulations 2017 set out the types of development which must be subject to an EIA:
 - Schedule 1 development, which due to the nature of the project, EIA is always required; or
 - Schedule 2 development which is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.
- 5.1.5. In accordance with Regulation 2(1) of the TCP EIA Regulations 2017, "Schedule 2 development" means development of a description mentioned in column 1 of the table in Schedule 2 of the TCP EIA Regulations 2017 where:
 - Any part of that development is to be carried out in or adjacent to a sensitive area; or
 - Any applicable threshold or criterion in the corresponding part of column 2 of that table is respectively exceeded or met in relation to that development.
- 5.1.6. Projects which meet either of these criteria can be 'screened' by the determining authority to determine whether or not EIA is required. When screening Schedule 2 projects, the authority must take account of the selection criteria in Schedule 3 of the 2017 Regulations. Schedule 3 criteria comprise the characteristics of the development, the location of the development, and the types and characteristics of the potential impact.

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¹⁹ HM Government (2017). The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. [Online] Available at: https://www.legislation.gov.uk/uksi/2017/571/contents/made. [Accessed June 2021].



- 5.1.7. The Marine Works Regulations 2017 apply the same criteria as the TCP EIA Regulations 2017 with respect of Schedule 1 and Schedule 2 development respectively²⁰. It is considered that the Proposed Development falls under Schedule 2 of the Regulations, specifically:
 - 10 (g) Construction of harbours and port installations including fishing harbours (unless included in Schedule 1); and
 - 10 (m) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works.
- 5.1.8. Regulation 2(1) of the TCP EIA Regulations 2017, the Marine Works Regulations 2017 and Planning Practice Guidance²¹ define 'sensitive areas' as:
 - Sites of Special Scientific Interest and European Sites;
 - National Parks, the Broads and Areas of Outstanding Natural Beauty; and
 - World Heritage Sites and Scheduled Monuments.
- 5.1.9. The Proposed Development is located within a sensitive area as described above, Whitsand and Looe Bay Marine Conservation Zone (MCZ).

²⁰ These align with Annex I and II of Council Directive 2011/92/EU (as amended).

²¹ Ministry of Housing, Communities and local Government (2020). Guidance – Énvironmental Impact Assessment. [Online]. Available at: https://www.gov.uk/guidance/environmental-impact-assessment#Sensitive-areas [Accessed June 2021]



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