Eden Project International

EDEN PROJECT NORTH, MORECAMBE

Flood Risk Assessment



70083611-WSP-FRM-XX-RP-CO-0001
SEPTEMBER 2021

PUBLIC

REPORT (VERSION 1) PUBLIC

PROJECT NO. 70083611

OUR REF. NO. 70083611-WSP-FRM-XX-RP-CO-0001

DATE: SEPTEMBER 2021

WSP

Mountbatten House
Basing View
Basingstoke, Hampshire
RG21 4HJ

Phone: +44 1256 318 800

Fax: +44 1256 318 700

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft Issue			
Date	September 2021			
Prepared by	J. Denny / J. Hope			
Signature				
Checked by	M. Quinnell			
Signature				
Authorised by	R. Ledger			
Signature				
Project number	70083611			
Report number	70083611-WSP-FRM-XX-RP-CO-0001			
File reference	https://wsponline.sharepoint.com/sites/UK_Project_70083611/Shared Documents/03 - WIP/Flood Risk/03 Reports/FRA/Reviewed/70083611-WSP-FRM-XX-RP-CO-0001.docx			

CONTENTS

1 INTRODUCTION 1

1.1 INTRODUCTION 1
1.2 ADVISORY INFORMATION 1

2 SITE BACKGROUND 2

2.1 SITE DESCRIPTION 2
2.2 DEVELOPMENT PROPOSALS 2
2.3 TOPOGRAPHY 2
2.4 GEOLOGY AND HYDROGEOLOGY 2
2.5 IDENTIFICATION OF EXISTING BODIES OF WATER 3
2.6 EXISTING SEWER AND DRAINAGE INFRASTRUCTURE 3
2.7 EXISTING FLOOD DEFENCES 3

3 POLICY AND CONSULTATION 5

3.1 CONSULTATION 5
3.2 POLICY AND GUIDANCE 6

4 SEQUENTIAL AND EXCEPTION TEST SUMMARY 7

4.1 INTRODUCTION 7
4.2 VULNERABILITY CLASSIFICATION 7
4.3 FLOOD ZONE DEFINITION 7
4.4 COMPATIBILITY TEST 7
4.5 MORECAMBE AREA ACTION PLAN 7

5 CLIMATE CHANGE 9

5.1 REVIEW OF CLIMATE CHANGE GUIDANCE 9
5.2 IMPACT OF CLIMATE CHANGE ON THE DEVELOPMENT 9

6 OVERVIEW OF FLOOD RISK 10

6.1 DEFINITION OF FLOOD HAZARD 10
6.2 FLOODING FROM COASTAL AND TIDAL SOURCES 10
6.3 FLOODING FROM FLUVIAL SOURCES 10
6.4 FLOODING FROM PLUVIAL/OVERLAND FLOW SOURCES 10
6.5 FLOODING FROM GROUNDWATER SOURCES 10
6.6 FLOODING FROM SEWER AND DRAINAGE INFRASTRUCTURE 11
6.7 FLOODING FROM ARTIFICIAL SOURCES 11

7 HYDRAULIC MODELLING OVERVIEW 12

8 DRAINAGE STRATEGY 13

8.1 SURFACE WATER DRAINAGE STRATEGY 13
8.2 FOUL WATER DRAINAGE STRATEGY 13
8.3 SUDS MAINTENANCE 13

9 FLOOD RISK MITIGATION MEASURES 17

9.1 INTRODUCTION 17
9.2 MITIGATION MEASURES 17
9.3 SAFE ACCESS AND EGRESS 18

10 CONCLUSIONS 19

10.1 CONCLUSIONS 19

TABLES

Table 3-1 – Summary of Correspondence 5

Table 4-1 - Flood risk and vulnerability and flood zone compatibility (PPG Table 3) 7

Table 5-1 – Sea level allowances for each epoch in mm for each year (North West) 9

Table 8-1 - Operation and Maintenance Schedule (extracted from Table 16.1, 17.1, 20.15 and 12.5 of the SuDS Manual) 14

APPENDICES

APPENDIX A: SITE LOCATION AND PROPOSED DEVELOPMENT PLANS

APPENDIX B: TOPOGRAPHIC PLAN AND SURVEY

APPENDIX C: BGS MAPPING

APPENDIX D: FLOOD MAP PACK

APPENDIX E: CORRESPONDENCE EMAILS

APPENDIX E.1: THE ENVIRONMENT AGENCY

APPENDIX E.2: LANCASHIRE COUNTY COUNCIL

APPENDIX E.3: LANCASTER CITY COUNCIL

APPENDIX E.4: UNITED UTILITIES

APPENDIX F: ENVIRONMENT AGENCY MAPPING

1 INTRODUCTION

1.1 INTRODUCTION

1.1.1. Eden Project International Limited ('EPIL') has commissioned WSP to undertake a Flood Risk Assessment (FRA) in support of the redevelopment of previously developed land known as 'the Central Promenade Regeneration Site', located to the north of Marine Road Central, Morecambe, Lancashire (the 'site').

1.1.2. This FRA has been produced in line with the requirements of the National Planning Policy Framework (NPPF), the Environment Agency's Standing Advice, and the site-specific flood risk assessment checklist given in the Flood Risk and Coastal Change Planning Practice Guidance (PPG).

1.1.3. The aim of this FRA is to support a full planning application for the redevelopment of the Application Site. It has been produced in consultation with Lancashire County Council as the Lead Local Flood Authority (LLFA), Lancaster City Council, the Environment Agency and United Utilities as the Water Undertaker.

1.1.4. The FRA investigates flood risk at and near to the site and establishes the mitigation measures required, where necessary, to ensure the sustainability and safety of the proposed development over its lifetime. This includes the presentation of a surface water drainage strategy which has been prepared by Buro Happold Limited for the site. Climate change allowances have been adopted in accordance with the design lifetime of the proposed development (50 years).

1.1.5. Hydraulic modelling is also currently being undertaken for the site, using output data from the Environment Agency's coastal model and will be submitted in due course, along with an update to this FRA.

1.2 ADVISORY INFORMATION

1.2.1. Third party data / reports have not been validated by WSP and have been relied on as supplied and are assumed to be fit for purpose.

1.2.2. WSP has prepared this report in accordance with the instructions of our client, EPIL, for their sole and specific use relating solely to the above site. Any person who uses any information contained herein does so at their own risk and shall hold WSP harmless in any event.

1.2.3. Whilst this report was prepared using the reasonable skill and care ordinarily exercised by engineers practicing under similar circumstances and reasonable checks have been made on data sources and the accuracy of the data, WSP accepts no liability in relation to the report should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP. In any event, WSP shall not be liable for any loss or damages arising under or in connection to the use of this report.

2 SITE BACKGROUND

2.1 SITE DESCRIPTION

2.1.1. The site is located to the north of Marine Road Central, Morecambe, Lancashire. The Ordnance Survey grid reference for the Application Site is SD 42913, 64487 and the nearest postcode is LA4 4NJ. The site covers an approximate area of 4.58 ha and is currently a brownfield site with hardstanding and parking areas. Refer to Drawing No. 3611-LOC-001 in Appendix A for the Site Location Plan.

2.2 DEVELOPMENT PROPOSALS

2.2.1. Proposals at the site are for the demolition of existing buildings and the proposed construction of major mixed leisure development in association with the Eden Project (including use classes E, F1 and F2) comprising the erection of four connecting buildings, outdoor event space (including live music performances), public realm and landscaping works, cycle parking, energy pods, and associated infrastructure and engineering operations. Refer to Appendix A for the proposed development plans.

2.3 TOPOGRAPHY

2.3.1. Survey Operations Limited completed a topographic survey in August 2019. The survey indicates that the site has an average level of approximately 7.5m AOD[1]. A minimum existing ground level of approximately 4.5m AOD near the centre of the Application Site is associated with the area that makes up the former Bubbles complex (bathing pool). A maximum level of 10.4m AOD is located near the northern site boundary. Levels on the survey have not been independently verified by WSP. Refer to the topographic survey in Appendix B.

2.3.2. The Environment Agency LiDAR 1m Digital Terrain Model (DTM) levels generally agree with those recorded in the topographic survey. Refer to Drawing No. 3611-TOP-001 in Appendix B.

2.4 GEOLOGY AND HYDROGEOLOGY

2.4.1. British Geological Survey (BGS) 1:50,000 scale On-shore Digital Mapping shows the site to be underlain by bedrock of the Millstone Grit Group (mudstone, siltstone and sandstone). An extract of the BGS bedrock geology mapping is provided on Drawing No. 3611-BGS-001 in Appendix C for reference.

2.4.2. The superficial deposits at the site consist of Bank Deposits (sediment and shell) and Tidal Flat Deposits (clay and silt). An extract of the BGS superficial geology mapping is provided on Drawing No. 3611-BGS-002 in Appendix C for reference.

2.4.3. Historic BGS borehole record SD46SW382 is from within the site boundary and indicates medium dense brown angular to rounded fine to course gravel with much slightly silty fine to coarse sand to

[1] AOD – Above Ordnance Datum

a depth of 3.7m before becoming very sandy gravel to a depth of 4.5m. Water was not encountered within the borehole, which was dug to a depth of 8m.

2.4.4. DEFRA's Magic Map shows the Millstone Grit Group to be classified as a Secondary A Aquifer. These are '*permeable layers capable of supporting water bodies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers.'* The superficial deposits of Bank Deposits are classified as a Secondary B Aquifer. These are '*lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering*'. The Tidal Flat deposits are classified as an Unproductive Aquifer. These are rocks with essentially no groundwater.

2.4.5. The Flood Map Pack, included in Appendix D for reference, indicates there are no groundwater Source Protection Zones within 500m of the site.

2.5 IDENTIFICATION OF EXISTING BODIES OF WATER

2.5.1. The site is located immediately to the south of Morecambe Bay which is protected by approximately 20m of rock revetments and a sea defence wall.

2.5.2. There are no surface watercourses located within 250m of the site however there are known to be two culverted watercourses that flow beneath the site. One of these, the Winter Gardens Culvert is understood to take surface water runoff from Morecambe to the south and discharge it into the bay. Both culverted watercourses are shown on Survey Operations Limited Drawings Nos. 21D107/001 to 002 in Appendix B and also referred to below.

2.6 EXISTING SEWER AND DRAINAGE INFRASTRUCTURE

2.6.1. The site is classified as previously developed land (brownfield), currently assumed to be draining via existing drains and two soakaways associated with the previous Bubbles Leisure Complex development.

2.6.2. United Utilities has provided asset records to Buro Happold which show that an existing 1,200mm diameter (reducing to a 900mm diameter) surface water sewer crosses the site, and outfalls into Morecambe Bay. Copies of these plans are provided in Appendix E for reference.

2.6.3. Lancaster City Council has provided historic information to Buro Happold (refer to Appendix E for reference) which shows two soakaway manholes located in the rock armour, to the north of the site, and have confirmed that they serve the current site.

2.6.4. United Utilities records show that there are no foul or combined sewer present within the site. The nearest combined sewer is located within Marine Road Central to the south of the site. However, due to the historic use of the site as the Bubbles Leisure Complex, it is assumed that there is a foul water drain from the site which connects into the combined sewer detailed above.

2.7 EXISTING FLOOD DEFENCES

2.7.1. The Environment Agency's Flood Map for Planning indicates that the site does not benefit from any formal flood defences.

2.7.2. However, the North West England and North Wales Shoreline Management Plan 2 shows the presence of coastal defences (groynes / breakwaters) along the sea frontage in Morecambe (sub-unit 11c 6.2). Lancaster City Council has also confirmed that the site is located behind and adjacent to their coastal defence assets in the form of rock armour protection to the north and a stone jetty

structure to the west. The primary defences are in place to protect from coastal erosion and flooding. A secondary flood defence wall, as shown on the topographical survey included in Appendix B is set back from the primary defence and serves a wave reflection function.

2.7.3. Lancaster City Council has confirmed that the defences protecting the site are in excellent condition and provide a high level of wave protection and tidal inundation prevention.

3 POLICY AND CONSULTATION

3.1 CONSULTATION

3.1.1. Consultation has been undertaken with the following regulatory bodies and third parties during the preparation of this FRA:

- The Environment Agency;
- Lancashire County Council;
- Lancaster City Council;
- United Utilities.

3.1.2. A summary of the pre-application correspondence undertaken with the flood risk stakeholders identified above is given in Table 3-1 with full copies provided in Appendix E for reference.

Table 3-1 – Summary of Correspondence

Stakeholder	Response
The Environment Agency	The Environment Agency holds records of historic flooding within the vicinity of the Application Site. The most recent record of flooding is from 2002. The Environment Agency confirmed the Application Site is located within Flood Zone 1, 2 and 3 and the likelihood of flooding from the sea varies up to a greater than 0.5% chance of flooding each year in relation to Flood Zone 3. The Environment Agency were able to provide tidal data taken from the Lancashire Tidal ABD study produced in 2014. The climate change scenarios have been updated and sea levels increased. Only the output data is available for the update. A meeting was held on the 11th August 2021 to discuss the approach with respect to the hydraulic modelling and it was accepted that results of the modelling and details of mitigation would be provided after the application is made. This FRA will also be updated at that time.
Lancashire County Council	Lancashire County Council confirmed a recommendation of an 8m by-law distance from the top of bank of an existing watercourse or culvert. Lancashire County Council holds no information for the existing flood defence infrastructure and culverted watercourse which crosses the site.
Lancaster City Council	Lancaster City Council holds no records of flooding on the site itself. Lancaster City Council confirmed the type, location, crest level and condition of flood defence assets owned by the Council in the area around the site. Lancaster City Council state the proposals of setting the proposed development at 4.5m to mimic the existing topography and surrounding it with external levels set above the design levels, sound reasonable, however advised the inclusion of some form of pumping

	arrangements for the removal of any surface water or overtopping.
United Utilities	United Utilities confirmed that they hold a record of sewer flooding in relation to the site.

3.2 POLICY AND GUIDANCE

3.2.1. The report has been informed by, and refers where appropriate to, the following documents and policies:

- The Water Resources Act, (1991);
- Land Drainage Act, (1994);
- The Environment Act, (1995);
- Anti-Pollution Works Regulations, (1999);
- Water Framework Directive, (2000);
- The Water Act, (2003);
- Groundwater Daughter Directive (2006/188/EC), (2006);
- The Flood Risk Regulations, (2009);
- The Groundwater (England and Wales) Regulations, (2009);
- Flood and Water Management Act, (2010);
- National Planning Policy Framework, Ministry of Housing, Communities & Local Government (2021);
- Non-Statutory Technical Standards for Sustainable Drainage Systems, DEFRA (2015);
- The SuDs Manual (CIRIA C753), CIRIA (2015);
- Morecambe Area Action Plan, Lancaster City Council (2014);
- Lancaster City Council Level 1 Strategic Flood Risk Assessment, JBA Consulting (2017);
- Lancashire and Blackpool Local Flood Management Strategy, Lancashire County Council & Blackpool Council (2013);
- Surface Water Drainage and Flood Risk Management and Watercourses Planning Advisory Note, Lancaster City Council (2015)
- North West England and North Wales Shoreline Management Plan SMP2, Halcrow Group (2011);
- North West River Basin Management Plan, The Environment Agency (2009); and,
- Kent Leven Catchment Flood Management Plan, The Environment Agency (2009).

4 SEQUENTIAL AND EXCEPTION TEST SUMMARY

4.1 INTRODUCTION

4.1.1. The purpose of the NPPF Sequential Test is to ensure that land use planning takes due regards of flood risks, to ensure that areas at low or no risk of flooding are developed in preference to areas at higher risk.

4.2 VULNERABILITY CLASSIFICATION

4.2.1. Vulnerability classifications are defined within Table 3 of the PPG Flood Risk and Coastal Change. The purpose of the vulnerability classification is to identify appropriate land use activities relative to the level of flood risk.

4.2.2. Within Table 2 (Flood Risk Vulnerability Classification) of the NPPF Planning Practice Guidance, the proposed development is classified as 'Less Vulnerable' as it provides assembly and leisure uses.

4.3 FLOOD ZONE DEFINITION

4.3.1. According to the Environment Agency's Flood Map for Planning, the proposed development is located within Flood Zone 1, 2 and 3.

4.4 COMPATIBILITY TEST

4.4.1. The Flood Risk and Coastal Change PPG identified different land use vulnerabilities that are appropriate within each of the Flood Maps for Planning flood risk classification, see **Table 4-1**.

Table 4-1 - Flood risk and vulnerability and flood zone compatibility (PPG Table 3)

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
Zone 2	Development is appropriate	Exception test required	Development is appropriate	Development is appropriate	Development is appropriate
Zone 3A	Exception test required	Development should not be permitted	Exception test required	Development is appropriate	Development is appropriate
Zone 3B	Exception test required	Development should not be permitted	Development should not be permitted	Development should not be permitted	Development is appropriate

4.5 MORECAMBE AREA ACTION PLAN

4.5.1. Lancaster City Council published the Morecambe Area Action Plan (MAAP) in 2014 in which the proposed site is identified as Development Opportunity site, DO2 – Strategic Leisure (Seafront Headland, Central Headland). The site is also identified on Morecambe's Local Plan as DO2 – Strategic Leisure.

4.5.2. The proposed development is understood to comply with the requirements of MAAP Spatial Policy 3 (SP3) and MAAP Policy DO2 and as such it is considered that the proposals satisfy the Sequential

Test. This FRA demonstrates that the development and its users will be protected from the risk of flooding now and over the course of its design life.

5 CLIMATE CHANGE

5.1 REVIEW OF CLIMATE CHANGE GUIDANCE

5.1.1. The lifespan of the development is proposed to be 50 years. According to the Environment Agency, the contingency allowances for climate change that are potentially applicable to the proposed development are given below:

- Surface Water (peak rainfall intensity):
  - Upper End – 40% by 2115; and,
  - Central – 20% by 2115.

5.1.2. The allowance adopted for the design of the proposed surface water drainage strategy is discussed in the following sub-sections.

- Coastal (sea level rise)

Table 5-1 – Sea level allowances for each epoch in mm for each year (North West)

Allowance	2000 to 2035 (mm)	2036 to 2065 (mm)	2066 to 2095 (mm)	2096 to 2125 (mm)	Cumulative rise 2000 to 2125 (m)
Higher Central	4.5	7.3	10	11.2	1.01
Upper End	5.7	9.9	14.2	16.3	1.41

5.2 IMPACT OF CLIMATE CHANGE ON THE DEVELOPMENT

5.2.1. Surface water flood risk is generally expected to increase in the future as a consequence of climate change and the expected increase in extreme rainfall events. In order to take account of the latest climate change guidance, the proposed surface water drainage strategy has been designed to cater for the 1% (1 in 100) Annual Exceedance Probability (AEP) event, including a 40% climate change allowance.

5.2.2. Coastal and tidal flood risk is generally expected to increase in the future as a consequence of climate change and the expected increase in sea levels and offshore windspeed and extreme wave heights.

6 OVERVIEW OF FLOOD RISK

6.1 DEFINITION OF FLOOD HAZARD

6.1.1. The following section provides an overview of flood risk at the site, along with an assessment of flood risk to and arising from the proposed development. An assessment has been undertaken for each source that could affect the proposed development in accordance with the NPPF Flood Risk and Coastal Change PPG.

6.2 FLOODING FROM COASTAL AND TIDAL SOURCES

6.2.1. Tidal flooding occurs when sea levels rise above the level of the land or beyond the operational level of flood defences.

6.2.2. The Environment Agency's Flood Map for Planning reproduced on Drawing No. 3611-EA-001 in Appendix F shows that the site lies within Flood Zone 1, 2 and 3. The annual probability of flooding from sea to land in Flood Zone 1 is less than 0.1%. For Flood Zone 2, the annual probability of flooding is between 0.1% and 0.5% for seas. The annual probability of flooding from rivers / seas to land in Flood Zone 3 is greater than 3.3%.

6.3 FLOODING FROM FLUVIAL SOURCES

6.3.1. Fluvial flooding occurs when flows within a watercourse exceed the capacity of the channel causing out of bank flows.

6.3.2. The site is not in proximity to a fluvial watercourse and is therefore not at risk of fluvial flooding.

6.4 FLOODING FROM PLUVIAL/OVERLAND FLOW SOURCES

6.4.1. During extreme storms ground may become saturated and, in addition blocked sewers may not be able to accommodate overland flows that arise from such conditions. This may lead to surface water flooding.

6.4.2. The Environment Agency's Risk of Flooding from Surface Water Mapping, reproduced on Drawing No. 3611-EA-002 in Appendix F, indicates that the main risk of flooding from surface water is 'very low'. Areas at very low risk of surface water flooding have an annual probability of flooding of less than 0.1%.

6.4.3. There are several smaller areas of medium and low risk of surface water, however these are localised and likely to be associated with the low-lying areas on the site. Areas at a low risk of surface water flooding have an annual probability of between 0.1% and 1%. Medium risk areas have an annual probability of surface water flooding ranging from 0.1% to 3.3%.

6.5 FLOODING FROM GROUNDWATER SOURCES

6.5.1. Groundwater flooding occurs when water stored below ground reaches the surface. It is commonly associated with porous underlying geology, such as chalk, sand and gravels.

6.5.2. Borehole records on the BGS GeoIndex website indicate that borehole SD46SW382, which was bored onsite, indicated medium dense brown angular to surrounded fine to course gravel with much slightly silty fine to coarse sand to a depth of 3.7m before becoming very sandy gravel to a depth of 4.5m. Water was not encountered within the borehole, which was dug to a depth of 8m.

6.5.3. Lancashire County Council's LFRMS makes no reference to any historic flood events from this source. WSP is also unaware of any historic flood events to the site as a result of groundwater flooding.

6.6 FLOODING FROM SEWER AND DRAINAGE INFRASTRUCTURE

6.6.1. United Utilities have provided asset records to Buro Happold Limited which show that an existing 1,200mm diameter (reducing to a 900mm diameter) surface water sewer crosses the site, with an outfall into Morecambe Bay north of the site. The records show that there are no foul or combined sewers present within the site. The nearest combined sewer is located within Marine Road Central. However, due to the historic use of the site as the Bubbles complex, it is assumed that there was a foul sewer from the site which connected into the combined sewer detailed above.

6.6.2. United Utilities has confirmed that they hold a record of sewer flooding in the vicinity of the site however no details have been provided relating to the date, scale of event, reason or exact location.

6.7 FLOODING FROM ARTIFICIAL SOURCES

6.7.1. The Environment Agency's Flood Risk from Reservoirs Mapping, reproduced on Drawing No. 3611-EA-003 in Appendix F, indicates that the site does not lie within the extreme inundation areas of any reservoirs.

6.7.2. Similarly, as there are no canals or other artificial water storage facilities on, nearby or proposed at the site, the risk from these sources to and from the proposed development is negligible.

7 HYDRAULIC MODELLING OVERVIEW

7.1.1. In order to understand the risk of coastal flooding to the site as well as the impacts of the proposed development on coastal flood risk, WSP is carrying out hydraulic modelling to support and inform the FRA for the site. The modelling is being undertaken using TuFLOW, an industry recognised hydraulic modelling package.

7.1.2. Pre-application consultation with the Environment Agency confirmed that a coastal model (including wave modelling, an overtopping assessment and a flood inundation model) was developed as part of the Environment Agency's Lancashire Tidal Study, produced by JBA in 2014, and that the development site is included within the model extents.

7.1.3. The tidal model was updated in 2020, however, it is understood that the updated model only considered an increase in still sea water levels and did not provide an update to the wave modelling or overtopping assessment carried out in 2014. The Environment Agency's 2014 model considers a 2115 climate change scenario, which is above the design life of the development (50 years), therefore application of the wave modelling outputs from the 2014 model will be a conservative approach to assessing coastal flood risk at the site.

7.1.4. An update to the wave overtopping assessment will be carried out based on the latest site topographical data and the TuFLOW model will be revised to include the results of the updated overtopping assessment and latest topographical data. Both the baseline and post development scenarios will be modelled to assess the risks to and arising from the development and determine potential mitigation measures to ensure flood risk is not increased on or off site.

7.1.5. The models will be run for the following return periods:

- 5% AEP;
- 1% AEP;
- 0.5% AEP; and,
- 0.1% AEP.

7.1.6. The impact of a breach scenario will also be assessed as part of the hydraulic modelling.

7.1.7. Part of the mitigation currently proposed for the development includes flood gates at two service entrances to the north of the complex which will protect the ground floor and lower levels in the event of tidal flooding. The proposed development will also benefit from existing defences including the primary defences (rock revetment) and secondary defences (low profile wall) encircling the former Bubbles complex. Further mitigation may be required, however this will be confirmed on completion of the modelling.

8 DRAINAGE STRATEGY

8.1 SURFACE WATER DRAINAGE STRATEGY

8.1.1. A surface water drainage strategy (SWDS) has been prepared by Buro Happold Limited for the proposed development and is detailed in Report No. WMHP-TG-SRWG1-RP-HI-0504 Rev. P02 dated August 2020. The key elements of the SWDS are outlined below:

- A blue roof system is envisaged to capture rainfall from the roof areas of the main 'shells' and this will be retained for reuse.
- Surface water captured in the public realm area will be conveyed where possible to the proposed SuDS features including detention ponds, enhanced swale and rain gardens.
- There are two options presented for surface water disposal which require further investigation. Both options will be designed to accommodate the 1% AEP + 40% climate change scenario.
    - The first option is to reuse two existing soakaways to the north of the site, into which discharge rates will be restricted by the incoming pipework.
    - The second option is to discharge surface water to the existing culvert crossing the site. The discharge rate will be limited to the estimated greenfield runoff rate. A below ground storage tank will be required for this option due to the additional volume required to be stored.

8.2 FOUL WATER DRAINAGE STRATEGY

8.2.1. In terms of the Foul Water Drainage Strategy (FWDS), United Utilities has confirmed that foul flows from the site will be allowed to drain into the public foul water / combined sewer system and that a proposed foul connection with a maximum pass forward flow of 5 l/s is acceptable in principle.

8.2.2. Further liaison with United Utilities will be required as the design progresses, and the foul flow rate is refined, however, this should be confirmed at detailed design stage.

8.3 SUDS MAINTENANCE

8.3.1. All SuDS features within the Proposed Development are to remain in private ownership with maintenance undertaken by a private maintenance company.

8.3.2. The general maintenance regime of the proposed system should be in accordance with manufacturer's recommendations, and subject to agreement with the LLFA.

8.3.3. Regular inspection and maintenance is required to ensure the effective long-term operation of SuDS; these requirements are detailed in the SuDS Manual CIRIA 753. An extract is provided within Table 8-1.

Table 8-1 - Operation and Maintenance Schedule (extracted from Table 16.1, 17.1, 20.15 and 12.5 of the SuDS Manual)

SuDS Feature	Maintenance Schedule	Required Action	Typical Frequency
Basin	Regular Maintenance	Remove litter and debris	Monthly
		Cut grass – for spillways and access routes.	Monthly (during growing season), or as required
		Cut grass – meadow grass in and around basin.	Half yearly (spring – before nesting season, and autumn)
		Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
		Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
		Inspect banksides, structures, pipework etc for evidence of physical damage.	Monthly
		Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
		Check any penstocks and other mechanical devices.	Annually
		Tidy all dead growth before start of growing season.	Annually
		Remove sediment from inlets, outlet and forebay	Annually or as required
		Manage wetland plants in outlet pool – where provided.	Annually (as set out in Chapter 23 of The SuDS Manual)
	Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions if required.	As required
		Prune and trim any trees and remove cuttings.	Every 2 years, or as required
		Remove sediment from inlets, outlets, forebay and main basin when required.	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
	Remedial Actions	Repair erosion or other damage by reseeding or re-turfing.	As required
		Realignment of rip-rap.	As required
		Repair/rehabilitation of inlets, outlets and overflows.	As required
		Re-level uneven surfaces and reinstate design levels.	As required

Swale	Regular Maintenance	Remove litter and debris.	Monthly or as required
		Cut grass – to retain grass height within specified design range.	Monthly (during growing season) or as required
		Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
		Inspection of inlets, outlets and overflows for blockages, clear if required.	Monthly
		Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours.	Monthly, or when required
		Inspection of vegetation coverage.	Monthly for 6 months, quarterly for 2 years and then every 6 months
		Inspection of inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Every 6 months
	Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions if required.	As required or if base soil is exposed over 10% or more of the swale treatment area
	Remedial Actions	Repair erosion or other damage by re-turfing or reseeding.	As required
		Re-level uneven surfaces and reinstate design levels.	As required
		Scarify and spike topsoil layer to improve infiltration performance. Break up silt deposits and prevent compaction of the soil surface.	As required
		Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip.	As required
		Remove and dispose of oils or petrol residues using safe standard practises.	As required
Permeable Paving	Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduced frequency as required based on site specific observations of clogging.
	Occasional Maintenance	Stabilise ad mow contributing and adjacent areas.	As required
		Removal of weeds or management using glyphosphate applied directly into the weeds	As required
	Remedial Actions	Remediate any landscaping which has been raised to within 50mm of the level of the paving.	As required
		Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or	As required

		a hazard to users and replace lost jointing material.	
		Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required
Green/Blue Roof	Regular Inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems, membranes and roof structure for proper operation, integrity of waterproofing structural stability.	Annually and after severe storms
		Inspect soil substrate for evidence of erosion channels and identify any sediment sources.	Annually and after severe storms
		Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system.	Annually and after severe storms
		Inspect underside of roof for evidence of leakage.	Annually and after severe storms
	Regular Maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth.	Six monthly or as required
		Replace any dead plants as required.	Monthly for first year and then annually (in autumn)
		Remove fallen leaves and debris, nuisance and invasive vegetation, including weeds.	Six monthly or as required
		Manage vegetation through pruning or mowing, clippings should be removed.	Six monthly or as required
	Remedial Actions	If erosion channels identified these should be stabilised with extra soil substrate similar to the original material.	As required
		If drain inlet has settle, cracked or moved, investigate and repair as appropriate.	As required
Inlets, outlets and connections	Regular Maintenance	Litter and debris removal.	Monthly
		Grass cut 1m around structure at 50mm where necessary.	Monthly
		Remove silt from forebays, aprons or other structures if present.	Monthly or as required
		Inspect and clear inlets, outlets, control structures and overflows.	Monthly or as required
	Occasional Maintenance	Removal of tree or shrub growth with 5m.	As required

9 FLOOD RISK MITIGATION MEASURES

9.1 INTRODUCTION

9.1.1. Following a review of the flood risks to and arising from the site, the following section discusses the mitigation measures necessary to ensure the proposed development remains safe over its lifetime and does not exacerbate flood risk to neighbouring properties. Note that the final suite of measures will be confirmed on completion of the hydraulic modelling presently being carried out and agreed with the relevant stakeholders.

9.1.2. The risk posed to the proposed development, and of the proposed development exacerbating risk within the catchment, from fluvial sources, sewer & drainage infrastructure, groundwater sources and artificial sources are assessed to be low to negligible. Therefore, no measures are considered necessary to mitigate the risk associated with these sources. The focus of this section is therefore on the mitigation measures required to address the coastal/tidal flood risk and pluvial flood risk.

9.2 MITIGATION MEASURES

COASTAL/TIDAL FLOOD RISK MANAGEMENT

9.2.1. Flood gates are currently proposed as part of the mitigation for the site for two service entrances to the north of the complex to protect the ground flood and lower levels of the building in the event of tidal flooding. Other mitigation may be required and will be confirmed on completion of the modelling.

9.2.2. As the site is at risk of tidal flooding a Flood Management Plan will be required to be in place to manage the safety of users of the development during a flood event. This should include a list of flood warning types and an evacuation plan, as well as details of the operation and maintenance schedule of the flood mitigation measures such as the flood gates. Other information within the Flood Management Plan is likely to include the following:

- Signage around the site and within the buildings;
- Evacuation routes;
- Assembly points;
- Flood Steward / Warden responsibilities;
- Communications;
- Public Safety; and,
- Other organisations

9.2.3. A pump system will be installed in the basement areas to deal with the residual risk of tidal flooding and this system will also deal with any surface water exceedance events that reach the lower site areas.

PLUVIAL/OVERLAND FLOW FLOOD RISK MANAGEMENT

9.2.4. The proposed surface water drainage strategy, produced by Buro Happold (Report No. WMHP-TG-SRWG1-RP-HI-0504 Rev. P02), demonstrates that the proposed development can be drained using SuDS techniques for events up to the 1% annual probability storm event, including a 40% allowance for climate change.

9.2.5. External levels will be designed to direct exceedance flows away from buildings to mitigate the risk of surface water flooding during storm events in excess of the design of the proposed drainage strategy.

9.2.6. As mentioned above a pump system will be installed in the lower level of the development to deal with any surface water exceedance events that reach the lower site areas.

9.3 SAFE ACCESS AND EGRESS

9.3.1. Safe access and egress for pedestrians will be provided via existing footpaths onsite which link to Marine Road Central. Service vehicles will use the existing promenade to access the site, however this route may be impassable during a flood event and therefore will need to be closed prior to such an event. Signs should be installed to inform users of the development.

10 CONCLUSIONS

10.1 CONCLUSIONS

10.1.1. This FRA has been prepared on behalf of EPIL in support of the redevelopment of the site known as the 'Central Promenade Regeneration Site', located to the north of Marine Road Central, Morecambe, Lancashire. The site comprises approximately 4.58ha of previously developed land (brownfield).

10.1.2. Comprehensive pre-application consultation was undertaken with key flood risk stakeholders as part of this assessment including the Environment Agency, Lancashire County Council, Lancaster City Council and United Utilities.

10.1.3. Proposals at the site are for the demolition of existing buildings and the proposed construction of major mixed leisure development in association with the Eden Project (including use classes E, F1 and F2) comprising the erection of four connecting buildings, outdoor event space (including live music performances), public realm and landscaping works, cycle parking, energy pods, associated infrastructure and engineering operations.

10.1.4. The Environment Agency's Flood Map for Planning shows that the site lies within Flood Zone 1, 2 and 3. The annual probability of flooding from sea to land in Flood Zone 1 is less than 0.1%. For Flood Zone 2, the annual probability of flooding is between 0.1% and 0.5% for seas. The annual probability of flooding from rivers / seas to land in Flood Zone 3 is greater than 3.3%.

10.1.5. The Environment Agency's Risk of Flooding from Surface Water Mapping indicates that the main risk of flooding from surface water is 'very low'. Areas at very low risk of surface water flooding have an annual probability of flooding of less than 0.1%.

10.1.6. There are several smaller areas of medium and low risk of surface water, however these are localised and likely to be associated with the low-lying areas on the site. Areas at a low risk of surface water flooding have an annual probability of between 0.1% and 1%. Medium risk areas have an annual probability of surface water flooding ranging from 0.1% to 3.3%.

10.1.7. United Utilities has confirmed that they hold a record of sewer flooding in the vicinity of the site however no details have been provided relating to the date, scale of event, reason or exact location.

10.1.8. In order to understand the risk of coastal flooding to the site as well as the impacts of the proposed development on coastal flood risk, WSP is carrying out hydraulic modelling to support and inform the FRA for the site. The modelling is being undertaken using TuFLOW, an industry recognised hydraulic modelling package.

10.1.9. An update to the wave overtopping assessment will be carried out based on the latest site topographical data and the TuFLOW model will be revised to include the results of the updated overtopping assessment and latest topographical data. Both the baseline and post development scenarios will be modelled to assess the risks to and arising from the development and determine potential mitigation measures.

10.1.10. The aim of the flood modelling is to ensure that the development will be safe from flood risk over the course of its design lifetime and does not increase flood risk onsite or to off site areas.

10.1.11. Part of the mitigation currently proposed for the development includes flood gates at two service entries to the north of the shell complex which will protect the ground floor and lower levels in the

event of tidal flooding. Other mitigation may be required and will be confirmed on completion of the modelling.

10.1.12. A Flood Management Plan will be required to be in place to manage the safety of users of the development during a flood event. This should include, amongst other items, a list of flood warning types and an evacuation plan, as well as details of the operation and maintenance schedule of the flood mitigation measures such as the flood gates.

10.1.13. To manage surface water runoff generated at the proposed site a surface water drainage strategy has been developed by Buro Happold Limited which includes SuDS basins, swales and blue roofs. Two options are currently proposed; one of which is to discharge runoff via the site vis two existing soakaways, the second of which is to discharge runoff to the existing culvert that runs below the site and outfalls into Morecambe Bay to the north. Both options are subject to further investigation before agreeing the preferred option with the LLFA.

10.1.14. The strategy would ensure that the Proposed Development can be drained using SuDS techniques for all events up to the 1% annual probability storm event, including an allowance for climate change.

10.1.15. In terms of the Foul Water Drainage Strategy (FWDS), United Utilities has confirmed that foul flows from the site will be allowed to drain into the public foul water / combined sewer system and that a proposed foul connection with a maximum pass forward flow of 5 l/s is acceptable in principle.

10.1.16. Further liaison with United Utilities will be required as the design progresses, and the foul flow rate is refined, however, this will be confirmed at detailed design stage.

10.1.17. Lancaster City Council published the Morecambe Area Action Plan (MAAP) in 2014 in which the proposed site is identified as Development Opportunity site, DO2 – Strategic Leisure (Seafront Headland, Central Headland). The site is also identified on Morecambe's Local Plan as DO2 – Strategic Leisure.

10.1.18. The proposed development is understood to comply with the requirements of MAAP Spatial Policy 3 (SP3) and MAAP Policy DO2 and as such it is considered that the proposals satisfy the Sequential Test. This FRA demonstrates that the development and its users will be protected from the risk of flooding now and over the course of its design life.

Appendix A

SITE LOCATION AND PROPOSED DEVELOPMENT PLANS

Public

342750
343000
343250
464750
464500
464250

N

Shell
Bed Flat

A589

Tourist Info

B5321

NORTHUMBERLAND STREET

WEST VIEW ROAD

BACK CRES

STREET

SKIPTON STREET

PO

VICTORIA STREET

NEW STREET

UNION STREET

EDWARD STREET

CENTR

0 50 100 150 200 m

KEY:

Site Boundary

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
SITE LOCATION PLAN

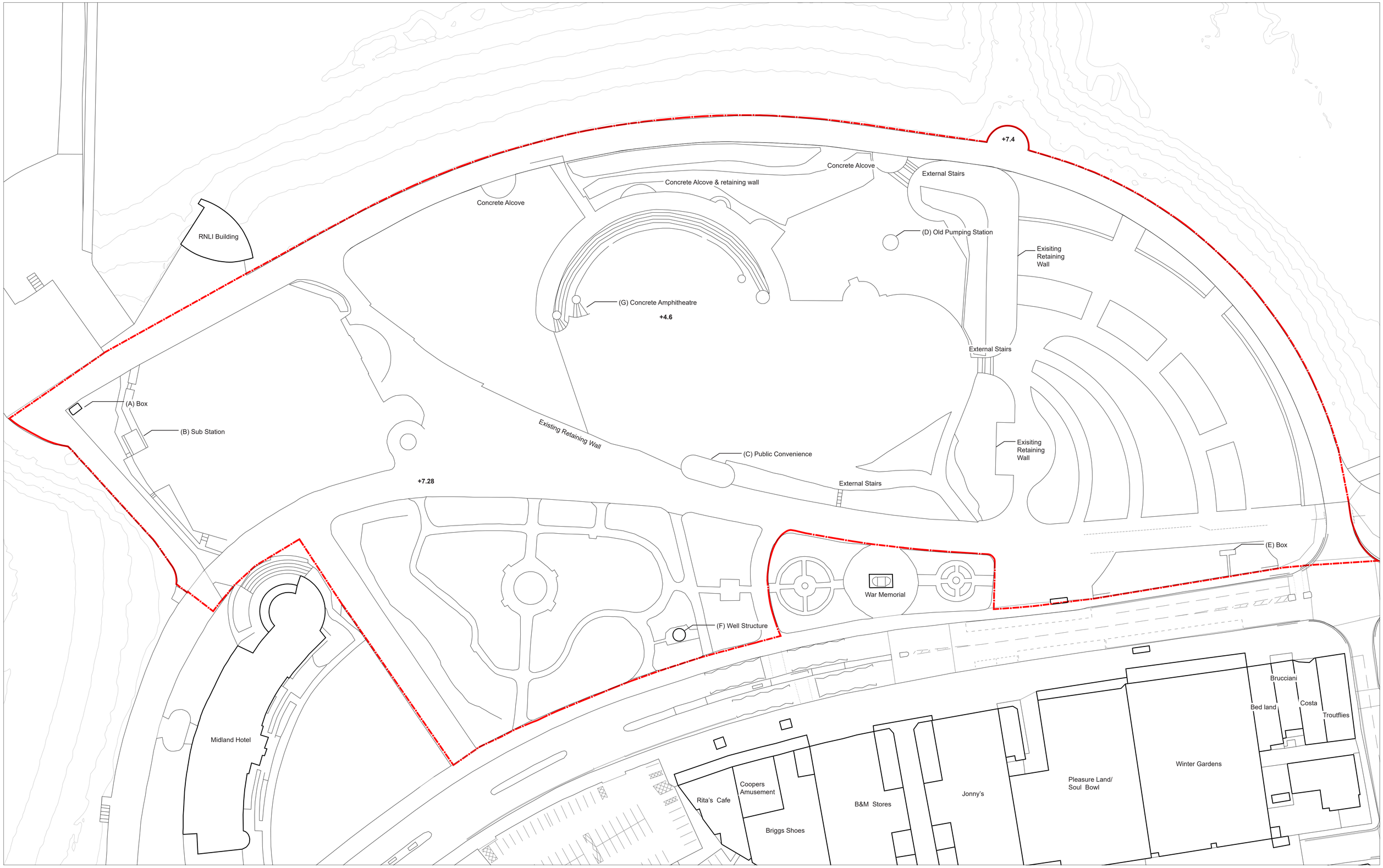
DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-LOC-001.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-LOC-001	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:14:49 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\LOC\3611-LOC-001.qgz



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user's sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

Proposed Development Boundary

Boundary lines drawn to site survey information.

CLIENT
Eden Project International Ltd.

CONSULTANTS
(Multiple Disciplines) Engineer
Buro Happold

Landscape Designers
TEP

Structural Engineer
Schlaich Bergermann Partner

Planning Consultants
WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	**OMG**	**30.07.21**	**Draft 1 for Coordination**
1	**OF**	**27.08.21**	**Issue for Planning**

KEY PLAN

NORTH

0 50m

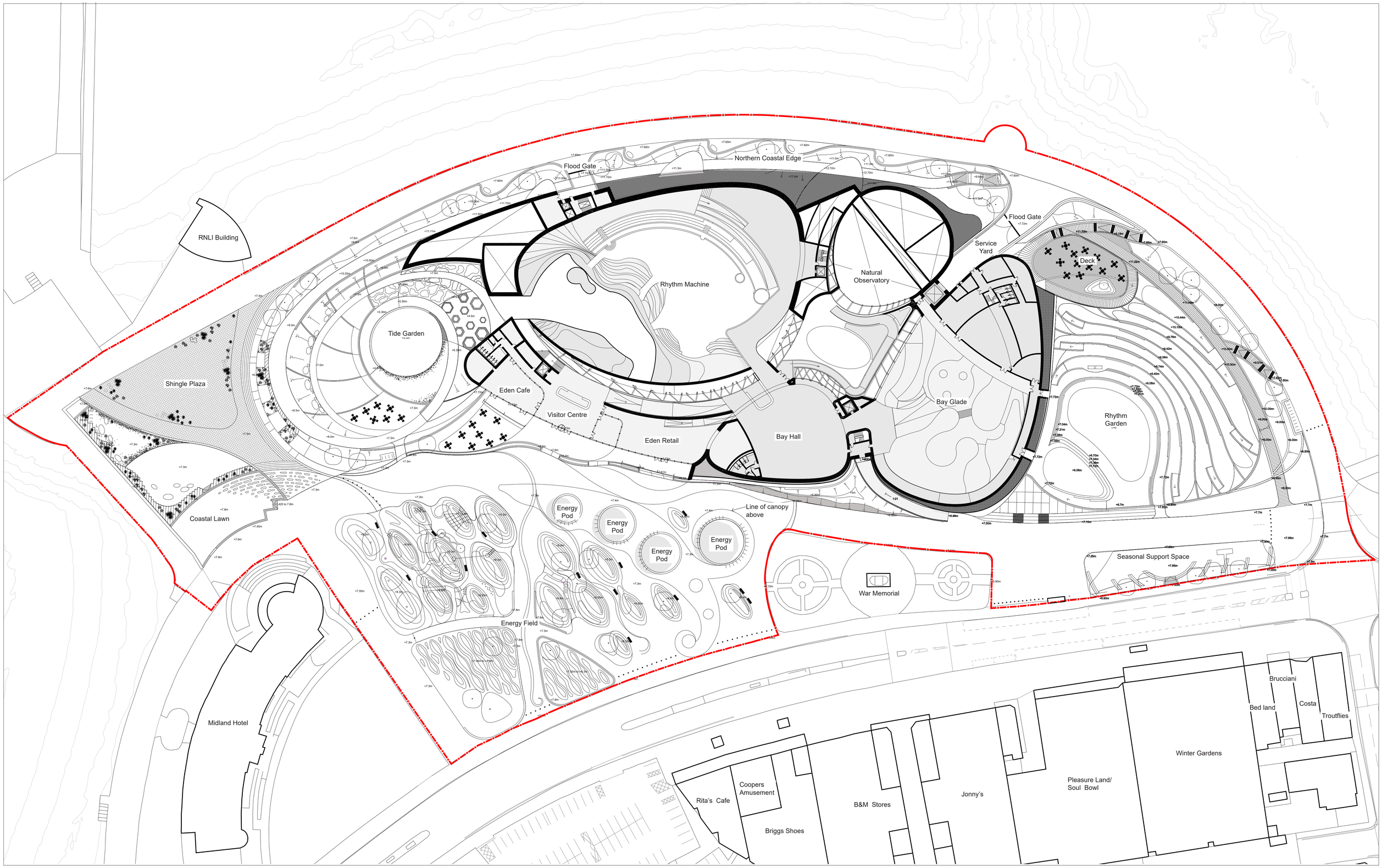
DRAWING TITLE
Existing Site Plan

SCALE
1:500 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	**AB**	**JB**	**27.08.21**	**1**

DRAWING NO.
A01 1002



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user s sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

Proposed Development Boundary

Boundary lines drawn to site survey information.

KEY EXPERIENTIAL SPACES

Above the Bay - Experiential zone integrating immersive large scale exhibits and live planting
Bay Glade - Horticultural exhibition space containing an indoor landscape in perpetual spring
Below the Bay - Theatrical 'black box' experiential zone
Four Seasons Gardens - External landscaped courtyard at the centre of the venue
Natural Observatory - Gallery space for engaging the public across verious scientific research and educational programmes
Rhythm Garden - Flexible outdoor open space designed to host concerts and activities
Rhythm Machine - Enisclosed experiential zone containing Above and Below the Bay
Seasonal Programming - An adaptable gallery space for changing & travelling exhibitions and events
Sensory Burrows - A sereis of immersive black box spaces set within the Below the Bay zone
The Bay Hall - Orientation and flexible exhibition space able to host large installations
Tide Garden - A sheltered, outdoor garden with a shallow pool; a place to relax, play & explore

CLIENT
Eden Project International Ltd.

CONSULTANTS

(Multiple Disciplines) Engineer
Buro Happold

Landscape Designers
TEP

Structural Engineer
Schlaich Bergermann Partner

Planning Consultants
WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
-	OMG	04.05.21	**Issue for Information**
0	OMG	25.06.21	**Draft for Information**
1	OMG	28.06.21	**Draft for Information**
2	OMG	30.07.21	**Draft 1 for Coordination**
3	OF	13.08.21	**Draft 2 for Coordination**
4	OF	27.08.21	**Issue for Planning**

KEY PLAN

NORTH 0 50m

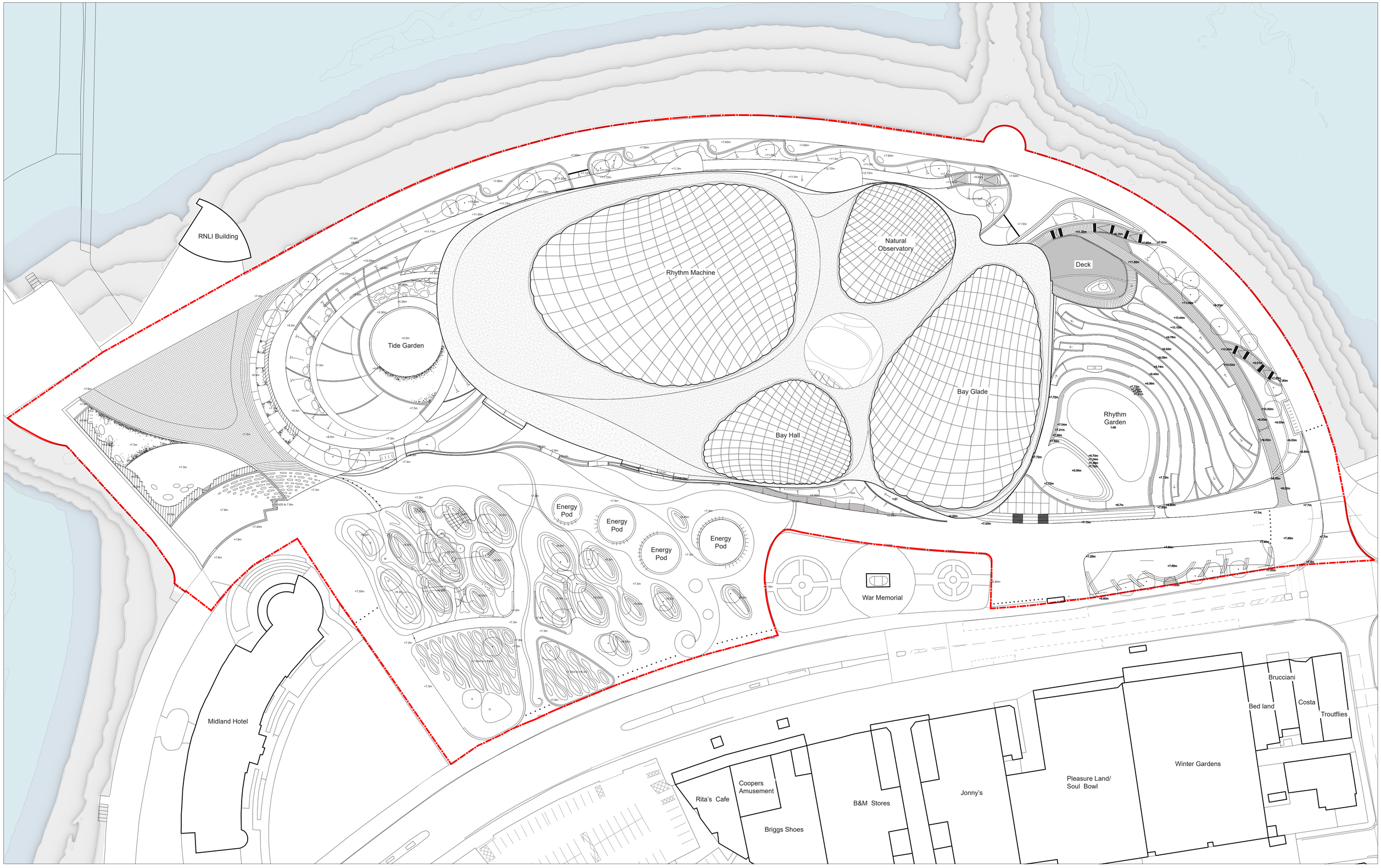
DRAWING TITLE
Proposed Site Plan

SCALE
1:500 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	**AB**	**JB**	**27.08.21**	**4**

DRAWING NO.
A02 1002



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user's sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

Proposed Development Boundary

Boundary lines drawn to site survey information.

KEY EXPERIENTIAL SPACES

Above the Bay - Experiential zone integrating immersive large scale exhibits and live planting
Bay Glade - Horticultural exhibition space containing an indoor landscape in perpetual spring
Below the Bay - Theatrical 'black box' experiential zone
Four Seasons Gardens - External landscaped courtyard at the centre of the venue
Natural Observatory - Gallery space for engaging the public across verious scientific research and educational programmes
Rhythm Garden - Flexible outdoor open space designed to host concerts and activities
Rhythm Machine - Ensclosed experiential zone containing Above and Below the Bay
Seasonal Programming - An adaptable gallery space for changing & travelling exhibitions and events
Sensory Burrows - A sereis of immersive black box spaces set within the Below the Bay zone
The Bay Hall - Orientation and flexible exhibition space able to host large installations
Tide Garden - A sheltered, outdoor garden with a shallow pool; a place to relax, play & explore

CLIENT
Eden Project International Ltd.

PROJECT NAME
Eden Project North

CONSULTANTS

(Multiple Disciplines) Engineer
Buro Happold

Landscape Designers
TEP

Structural Engineer
Schlaich Bergermann Partner

Planning Consultants
WSP

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	**OMG**	**25.06.21**	**Draft for Information**
1	**OMG**	**28.06.21**	**Draft for Information**
2	**OMG**	**30.07.21**	**Draft 1 for Coordination**
3	**OF**	**13.08.21**	**Draft 2 for Coordination**
4	**OF**	**27.08.21**	**Issue for Planning**

KEY PLAN

NORTH

0 50m

DRAWING TITLE
Proposed Site Layout

SCALE
1:500 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	**AB**	**JB**	**27.08.21**	**4**

DRAWING NO.
A02 1003



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277 — 57 Clerkenwell Road,
www.grimshaw.global — London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user s sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

Proposed Development Boundary

Boundary lines drawn to site survey information.

Ticket Line

Controlled Perimeter

Available for permissive access all year

CLIENT
Eden Project International Ltd.

CONSULTANTS
(Multiple Disciplines) Engineer — Buro Happold
Landscape Designers — TEP
Structural Engineer — Schlaich Bergermann Partner
Planning Consultants — WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	OMG	25.06.21	Draft for Information
1	OMG	28.06.21	Draft for Information
2	**OF**	**13.08.21**	**Draft 2 for Information**
3	**OF**	**27.08.21**	**Issue for Planning**

KEY PLAN

NORTH 0 50m

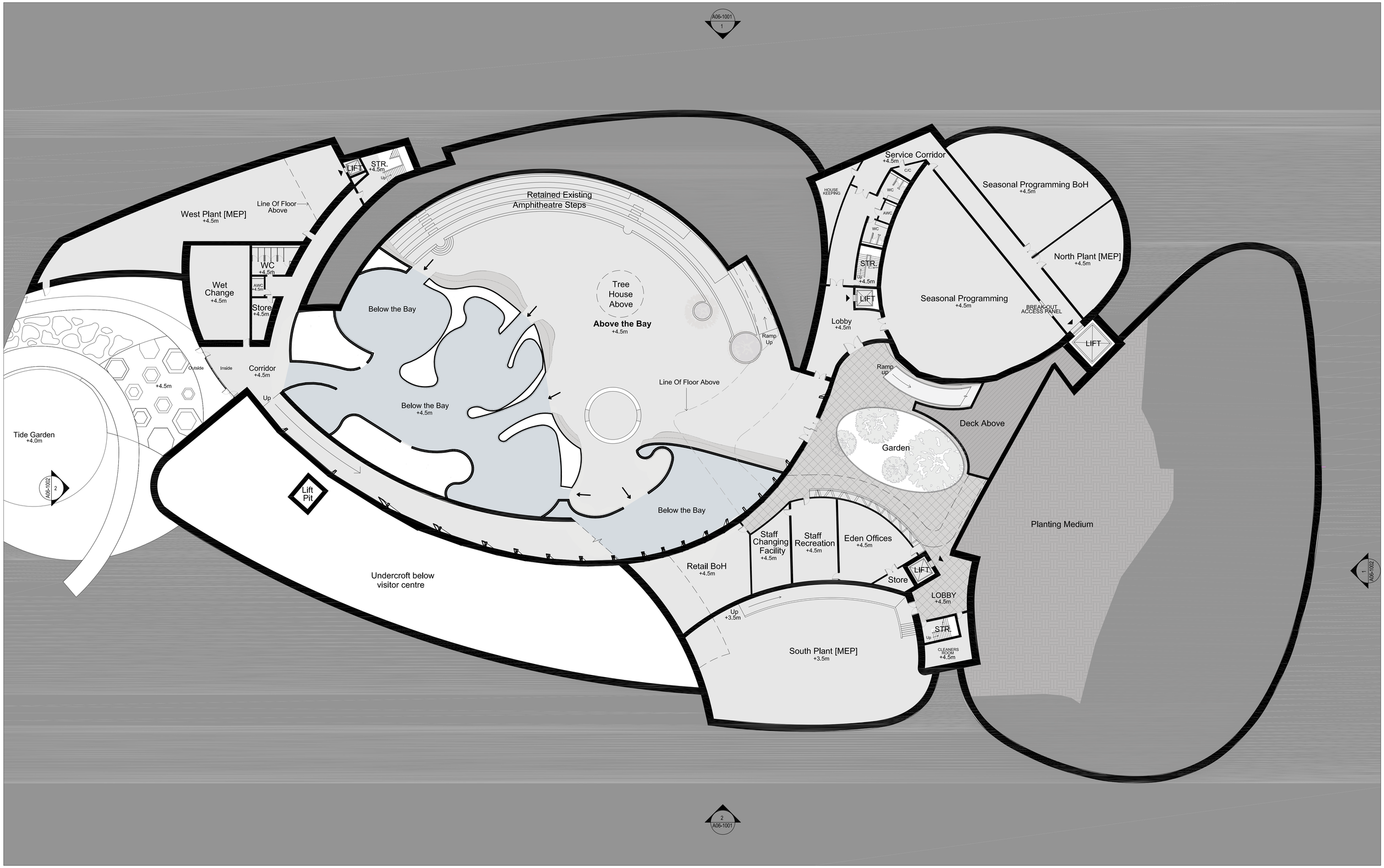
DRAWING TITLE
Site Access Plan

SCALE
1:500 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	CR	JB	**27.08.21**	**3**

DRAWING NO.
A02 1005



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user's sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

ACRONYMS/ABBREVIATIONS

AOD - Above Ordnance Datum
BOH - Back Of House(venue support space)
C/C - Cleaners Cupboard
HV - High Voltage Transformer Room
MEP - Mechanical, Electrical & Plumbing
STR - Stairs
VC - Vertical Circulation

KEY EXPERIENTIAL SPACES

Above the Bay - Experiential zone integrating immersive large scale exhibits and live planting
Bay Glade - Horticultural exhibition space containing an indoor landscape in perpetual spring
Below the Bay - Theatrical 'black box' experiential zone
Four Seasons Gardens - External landscaped courtyard at the centre of the venue
Natural Observatory - Gallery space for engaging the public across serious scientific research and educational programmes
Rhythm Garden - Flexible outdoor open space designed to host concerts and activities
Rhythm Machine - Ensclosed experiential zone containing Above and Below the Bay
Seasonal Programming - An adaptable gallery space for changing & travelling exhibitions and events
Sensory Burrows - A sereis of immersive black box spaces set within the Below the Bay zone
The Bay Hall - Orientation and flexible exhibition space able to host large installations
Tide Garden - A sheltered, outdoor garden with a shallow pool; a place to relax, play & explore

CLIENT
Eden Project International Ltd.

CONSULTANTS
(Multiple Disciplines) Engineer
Buro Happold

Landscape Designers
TEP

Structural Engineer
Schlaich Bergermann Partner

Planning Consultants
WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	OMG	25.06.21	**Draft for Information**
1	OF	30.07.21	**Draft 1 for Coordination**
2	OF	06.08.21	**Draft 1 Addendum**
3	OF	13.08.21	**Draft 2 for Coordination**
4	OF	27.08.21	**Issue for Planning**

KEY PLAN

NORTH

0 25m

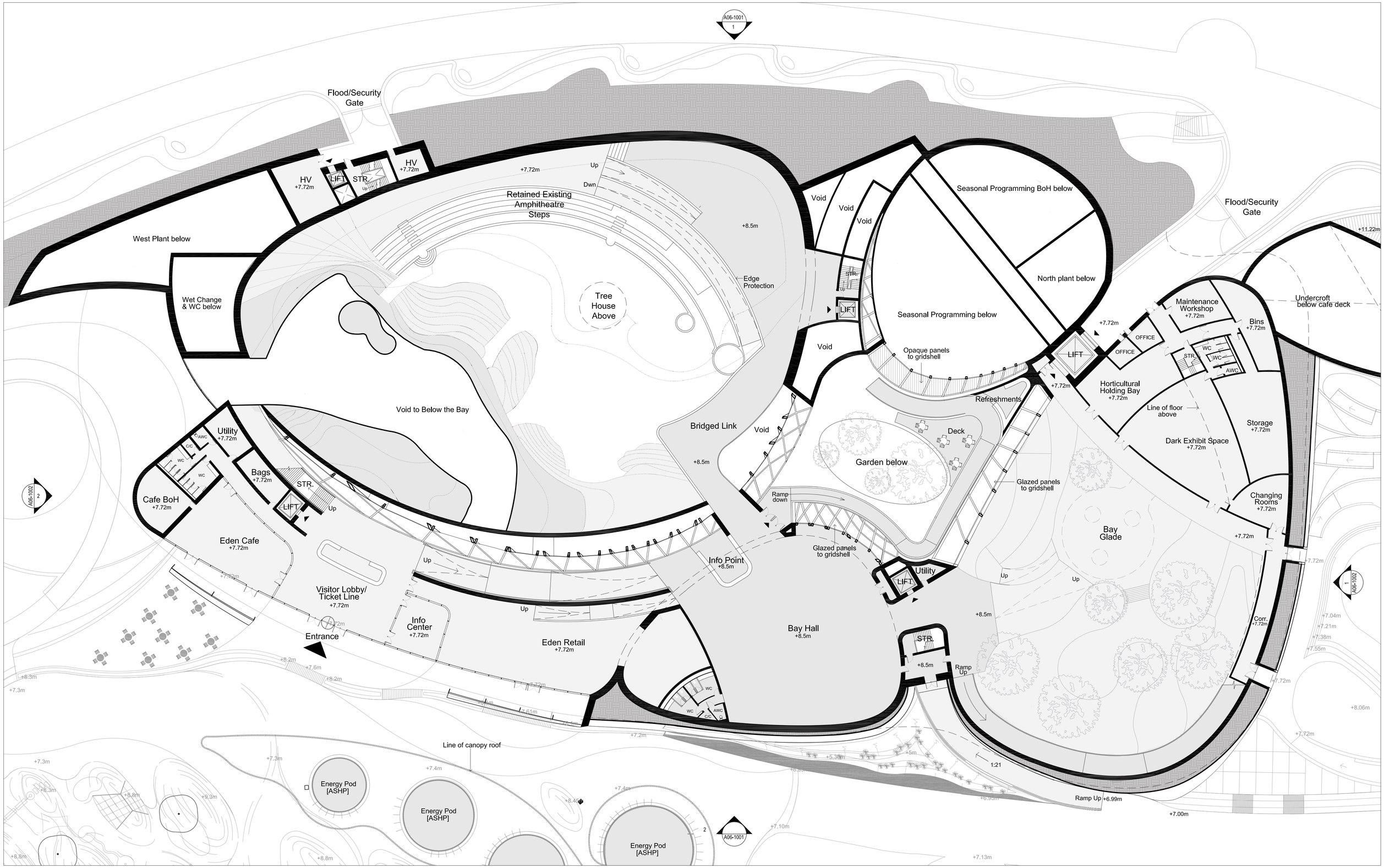
DRAWING TITLE
Lower Ground Level (+3.5M & +4.5m) Plan

SCALE
1:250 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	**AB**	**JB**	**27.08.21**	**4**

DRAWING NO.
A03 1001



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user's sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

ACRONYMS/ABBREVIATIONS

AOD - Above Ordnance Datum
BOH - Back Of House(venue support space)
C/C - Cleaners Cupboard
HV - High Voltage Transformer Room
MEP - Mechanical, Electrical & Plumbing
STR - Stairs
VC - Vertical Circulation

KEY EXPERIENTIAL SPACES

Above the Bay - Experiential zone integrating immersive large scale exhibits and live planting
Bay Glade - Horticultural exhibition space containing an indoor landscape in perpetual spring
Below the Bay - Theatrical 'black box' experiential zone
Four Seasons Gardens - External landscaped courtyard at the centre of the venue
Natural Observatory - Gallery space for engaging the public across verious scientific research and educational programmes
Rhythm Garden - Flexible outdoor open space designed to host concerts and activities
Rhythm Machine - Ensclosed experiential zone containing Above and Below the Bay
Seasonal Programming - An adaptable gallery space for changing & travelling exhibitions and events
Sensory Burrows - A sereis of immersive black box spaces set within the Below the Bay zone
The Bay Hall - Orientation and flexible exhibition space able to host large installations
Tide Garden - A sheltered, outdoor garden with a shallow pool; a place to relax, play & explore

CLIENT
Eden Project International Ltd.

CONSULTANTS
(Multiple Disciplines) Engineer
Buro Happold
Landscape Designers
TEP
Structural Engineer
Schlaich Bergermann Partner
Planning Consultants
WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	OMG	25.06.21	**Draft for Information**
1	OMG	28.06.21	**Draft for Information**
2	OF	30.07.21	**Draft 1 for Coordination**
3	OF	06.08.21	**Draft 1 Addendum**
4	OF	13.08.21	**Draft 2 for Coordination**
5	OF	27.08.21	**Issue For Planning**

KEY PLAN

NORTH
0
25m

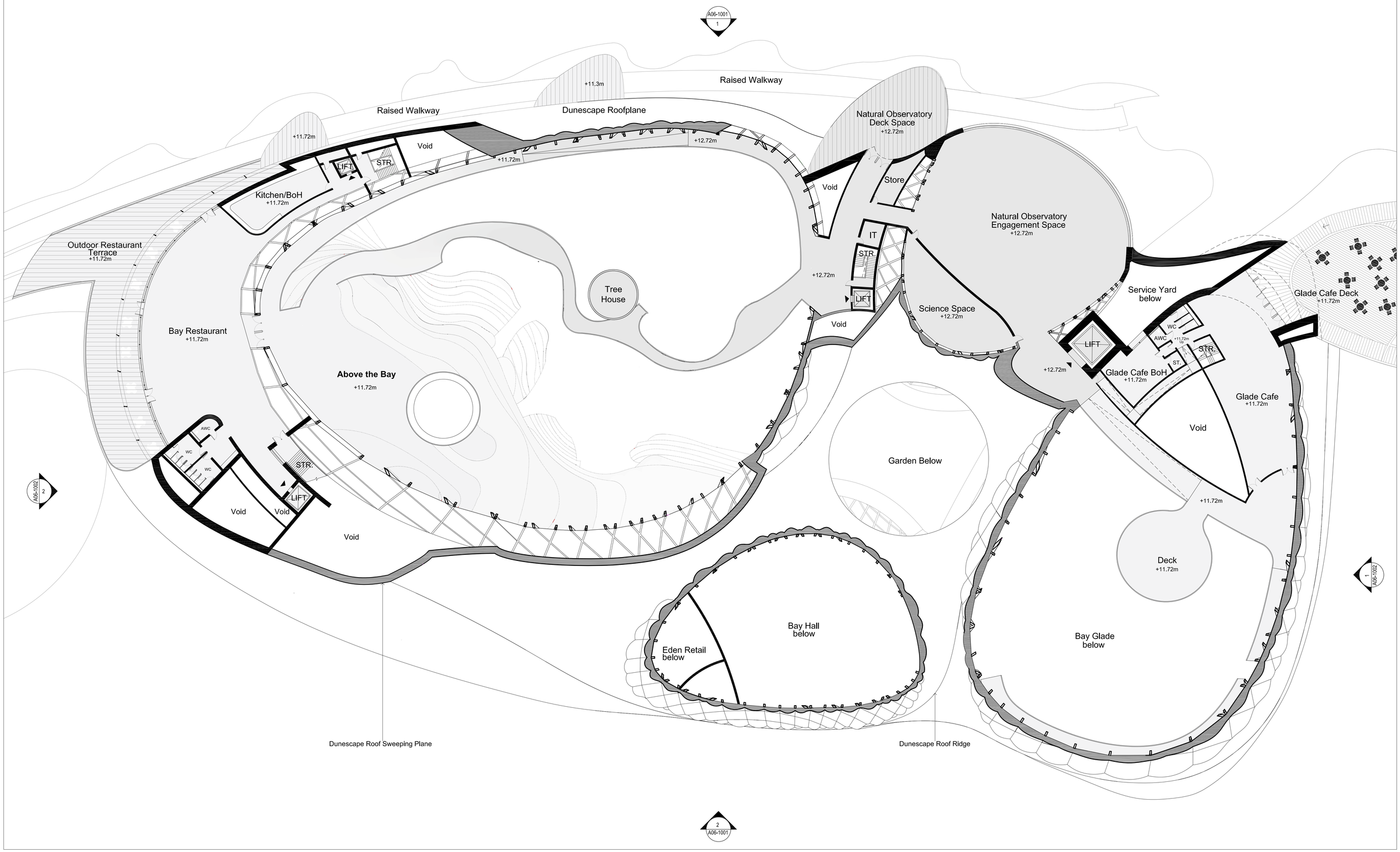
DRAWING TITLE
Ground Level (+7.72/+8.5m) Plan

SCALE
1:250 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	**CR**	**JB**	**27.08.21**	**5**

DRAWING NO.
A03 1002



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP

T +44 20 7291 4277
www.grimshaw.global

57 Clerkenwell Road,
London, EC1M 5NG, UK

INTELLECTUAL PROPERTY

© Copyright Grimshaw Architects. Unless otherwise agreed in writing, all rights to use this document are subject to payment in full of all Grimshaw charges. This document may only be used for the express purpose and project for which it has been created and delivered, as notified in writing by Grimshaw. This document may not be otherwise used, or copied. Any unauthorised use of this document is at the user's sole risk and without limiting Grimshaw's rights the user releases and indemnifies Grimshaw from and against all loss so arising.

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with grimshaw and specialist specifications. Drawings to be read in conjunction with m&e, structural, fire and acoustic information.

OS Copyright Acknowledgement.
Reproduced by permission of Ordnance Survey, © Crown Copyright 2019. All rights reserved. Licence number 100022432

ACRONYMS/ABBREVIATIONS

AOD - Above Ordnance Datum
BOH - Back Of House(venue support space)
C/C - Cleaners Cupboard
HV - High Voltage Transformer Room
MEP - Mechanical, Electrical & Plumbing
STR - Stairs
VC - Vertical Circulation

KEY EXPERIENTIAL SPACES

Above the Bay - Experiential zone integrating immersive large scale exhibits and live planting
Bay Glade - Horticultural exhibition space containing an indoor landscape in perpetual spring
Below the Bay - Theatrical 'black box' experiential zone
Four Seasons Gardens - External landscaped courtyard at the centre of the venue
Natural Observatory - Gallery space for engaging the public across verious scientific research and educational programmes
Rhythm Garden - Flexible outdoor open space designed to host concerts and activities
Rhythm Machine - Ensclosed experiential zone containing Above and Below the Bay
Seasonal Programming - An adaptable gallery space for changing & travelling exhibitions and events
Sensory Burrows - A sereis of immersive black box spaces set within the Below the Bay zone
The Bay Hall - Orientation and flexible exhibition space able to host large installations
Tide Garden - A sheltered, outdoor garden with a shallow pool; a place to relax, play & explore

CLIENT
Eden Project International Ltd.

CONSULTANTS
(Multiple Disciplines) Engineer
Buro Happold

Landscape Designers
TEP

Structural Engineer
Schlaich Bergermann Partner

Planning Consultants
WSP

PROJECT NAME
Eden Project North

PROJECT NO.
17162

ADDRESS
Marine Road Central
Morecambe
LA4 4BU

REV	BY	DATE	DESCRIPTION
0	OMG	25.06.21	Draft for Information
1	OF	03.08.21	Draft 1 for Coordination
2	OF	06.08.21	Draft 1 Addendum
3	OF	13.08.21	Draft 2 for Coordination
4	OF	27.08.21	Issue For Planning

KEY PLAN

NORTH

0 25m

DRAWING TITLE
First Floor Level (+11.72/12.72) Plan

SCALE
1:250 @A1

STATUS
For Planning

DRW	CH	APPR	DRW DATE	REV
OF	CR	JB	27.08.21	4

DRAWING NO.
A03 1003

Appendix B

TOPOGRAPHIC PLAN AND SURVEY

Public

342750
343000
343250
464750
464500
464250

N

KEY:

Site Boundary

Existing Ground Levels (mAOD)

- ≤0
- 0-2
- 2-4
- 4-6
- 6-8
- >8

0 50 100 150 200 m

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:

FOR INFORMATION ONLY

wsp

Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:

EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:

-

PROJECT:

EDEN PROJECT NORTH

TITLE:

LIDAR DTM DERIVED TOPOGRAPHY

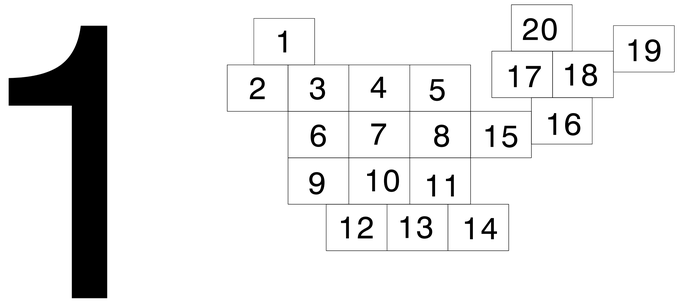
DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-TOP-001.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-TOP-001	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:16:55 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\TOP\3611-TOP-001.qgz



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid. All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.13	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
S05	342947.85	464218.64	7.70
S06	343055.18	464261.45	6.12
S07	342981.52	464313.38	7.09
S08	342908.53	464395.09	7.35
S09	342867.39	464495.34	7.89
S10	342758.24	464502.29	7.33
S11	342892.15	464548.93	7.55
S12	343291.37	464209.12	5.95
S13	343174.94	464243.46	6.43
S14	343115.22	464179.64	6.63
S15	343080.52	464181.77	6.75
S16	343042.07	464154.19	6.84
S17	342991.75	464182.90	7.51
S18	342901.57	464187.77	8.40
S19	342855.21	464203.09	8.25
S20	342865.83	464348.00	7.36
S21	343598.92	464715.65	7.44
S22	343537.98	464715.20	7.47
S23	342777.95	464496.02	7.28
S24	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AB)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BB..... Bellcote Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BWTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHM..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SoL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Spotlight Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	SW..... Stone Wall
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESI..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TNC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BH,IC etc)
GWB..... Gabion	UTS..... Unable to Survey
HIP..... Hex Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GSV..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WSV..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

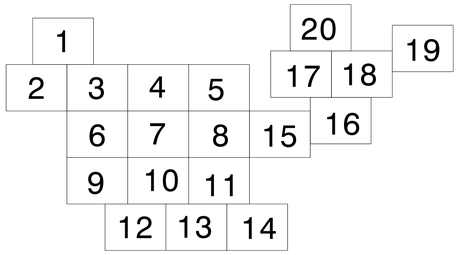
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 1 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/001

2



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the
OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Eastings	Northings	Heights
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
50A10	343200.99	464186.79	6.41
50A5	343157.23	464416.96	7.12
50A6	342977.81	464253.76	7.42
50A7	342807.81	464250.18	7.59
50A8	342770.49	464239.16	7.87
50A9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464356.09	7.38
J06	342908.53	464395.09	7.35
J07	342867.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcote Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BWTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/J..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CNY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SoL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPR..... Springing Level
DC..... Drainage Channel	SWTR..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECI..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Timber Manhole
ETL..... Electricity Transmission Line	TMC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of tree)	U/G..... Underground
H..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMK..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HGE..... Hedging	WM..... Water Meter
HV..... Height	WO..... Work Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (mains)

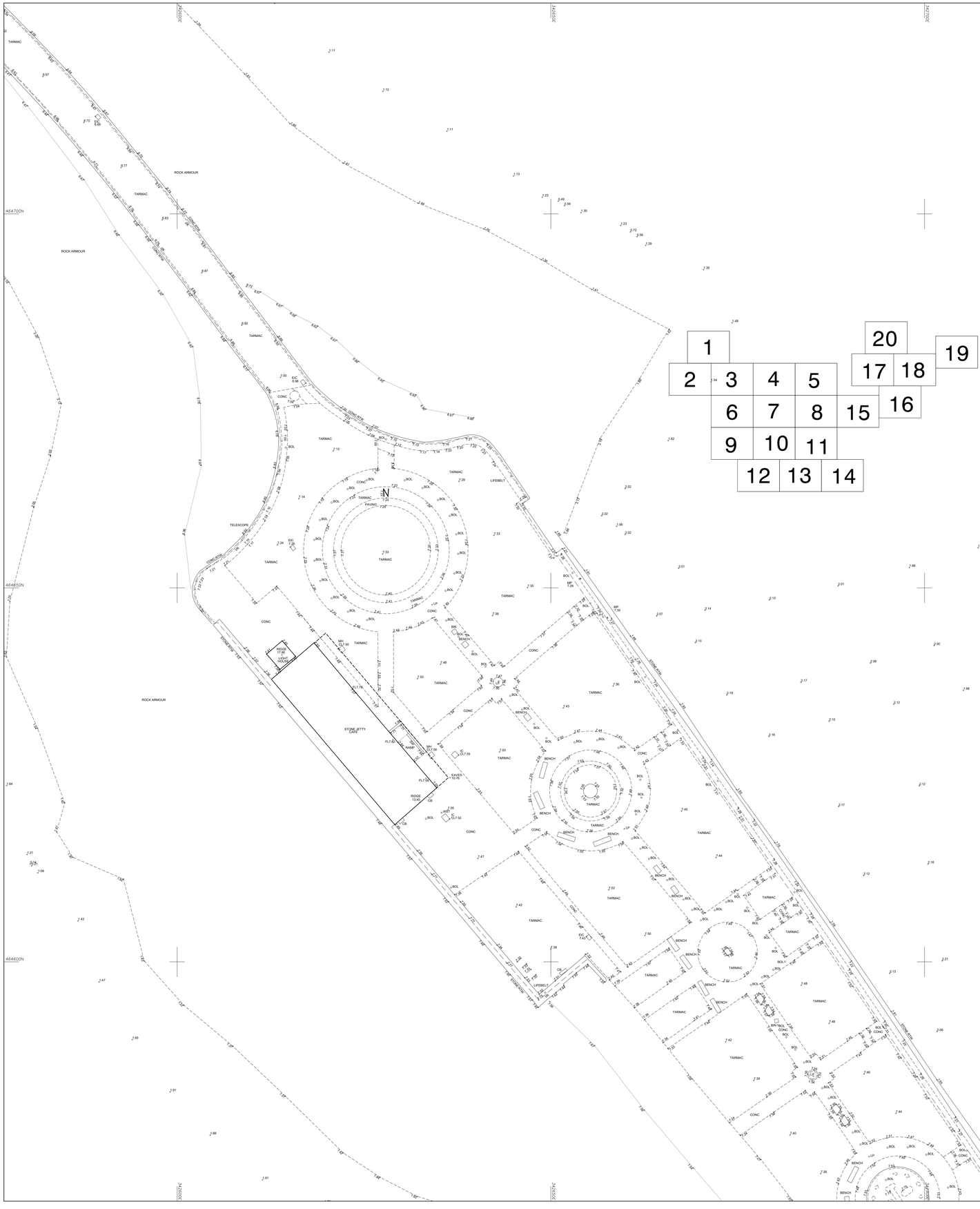
Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 2 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/002



3

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
50A10	343200.99	464186.79	6.41
50A5	343157.23	464416.96	7.12
50A6	343114.44	464210.50	6.27
50A7	342857.81	464250.19	7.59
50A8	342770.49	464239.16	7.81
50A9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342928.53	464361.27	7.35
J06	342928.53	464395.09	7.35
J07	342867.39	464495.31	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BC..... Bellcote Beacon	MH..... Multi-Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom CC	O/P..... Open Paling
BWTM..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CE..... Cable Exit	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (suspectified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
EGP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..... Electricity Sub Station	TFR..... Taken From Records
FL..... Eaves Level	TIE..... Anchor Point (Beets/Poles)
FLB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TRE..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	UC..... Under Construction
GT..... (Girth of tree)	UG..... Underground
G..... Gulley	UTL..... Unable to Life (BH,IC etc)
GNB..... Gabion	UTS..... Unable to Survey
GOP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/B..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

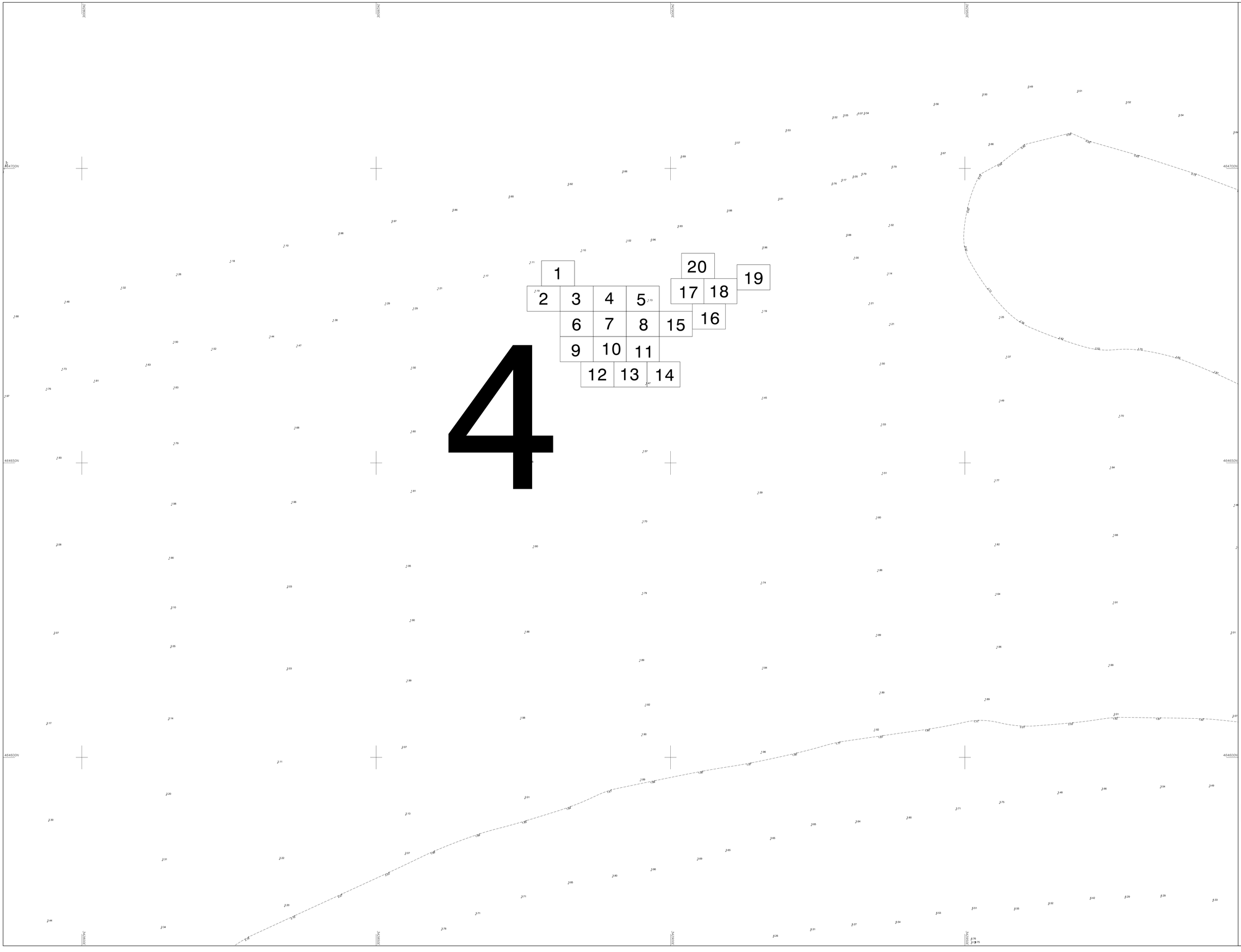
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 3 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/003



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:

The survey is plotted on a plane local Grid. Orientation to National Grid.

All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	342891.37	464209.12	5.95
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.73	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
50A10	343200.99	464186.79	6.41
50A5	343157.23	464416.96	7.12
50A6	343111.22	464417.77	7.58
50A7	342857.81	464250.16	7.59
50A8	342770.49	464239.16	7.81
50A9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464357.29	7.35
J06	342926.53	464395.09	7.30
J07	342867.39	464495.31	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	342891.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.73	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bollvbe Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHM..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Spotsgrig Level
DC..... Drainage Channel	SRTR..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFM..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TMC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of Tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BH,IC etc)
GWB..... Gabion	UTS..... Unable to Survey
GUP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/M..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

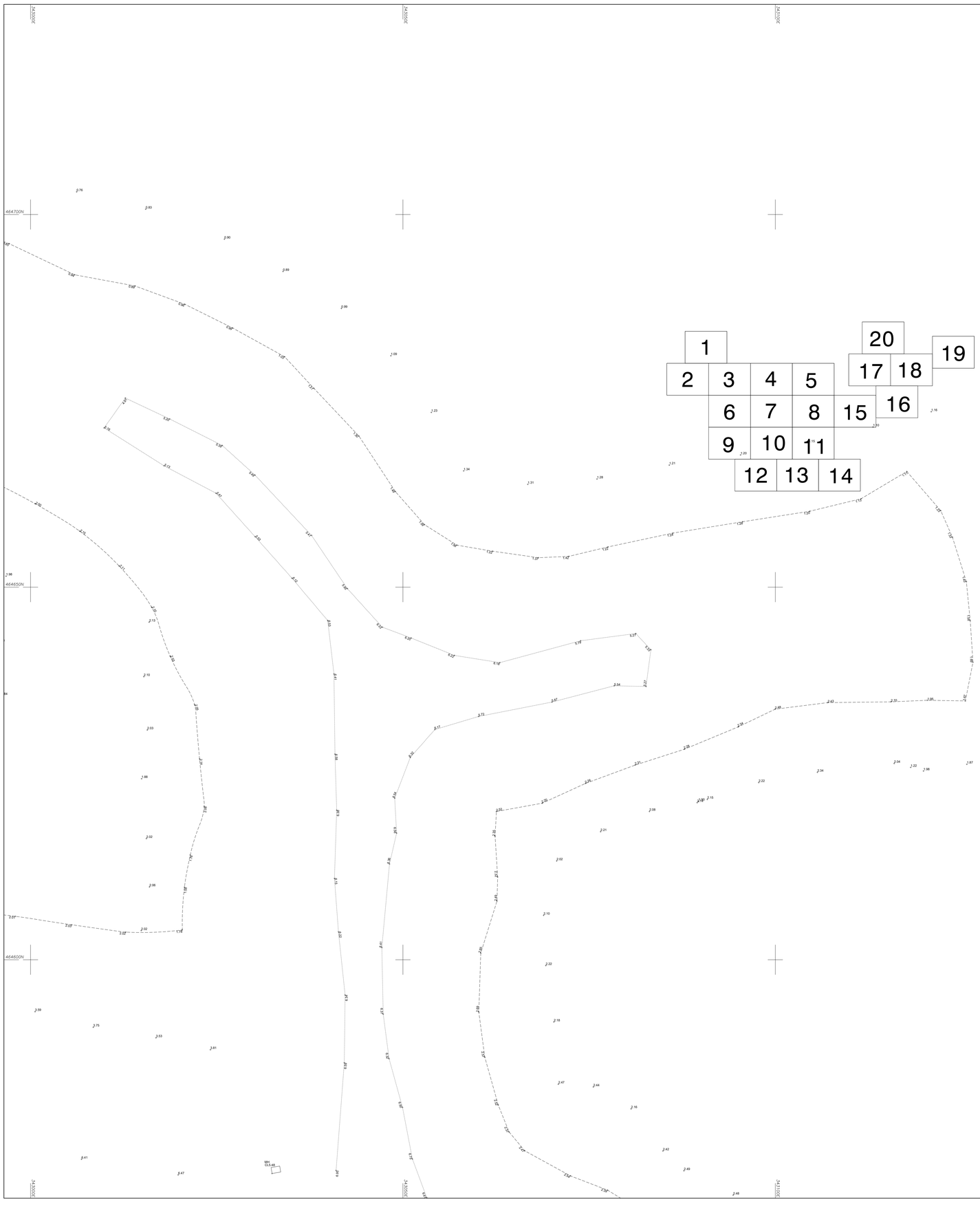
Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk — www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 4 of 20

Scale(s) 1:200	Surveyor SO
Date Aug 19	Drawn DIF
Job Number 19E214	Checked TP

Sheet Size & Drg Number & Revision
A0 19E214/004



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:

The survey is plotted on a plane local Grid. Orientation to National Grid.

All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	342973.81	464239.16	7.81
SOA7	342807.81	464250.18	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J.01	342981.81	464253.76	7.42
J.02	342947.85	464218.61	7.70
J.03	343055.18	464261.45	6.12
J.04	342981.52	464313.38	7.09
J.05	342928.53	464355.27	7.35
J.06	342928.53	464395.09	7.38
J.07	342867.39	464495.34	7.89
J.08	342758.24	464502.29	7.33
J.09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AB)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellisha Beacon	ML..... Multi-Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom CC	O/P..... Open Paling
BWTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHM..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECI..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TMC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	UC..... Under Construction
GT.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Life (BH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMK..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/B..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

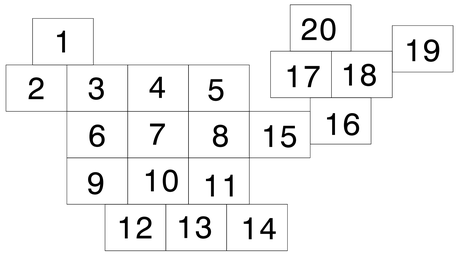
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 5 of 20

Scale(s) 1:200	Surveyor SO
Date Aug 19	Drawn DIF
Job Number 19E214	Checked TP

Sheet Size & Drg Number & Revision
A0 19E214/005

6



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.13
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	8.41
SOA5	343157.23	464416.96	7.12
SOA6	342977.81	464425.76	7.42
SOA7	342807.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16
JO1	342981.81	464253.76	7.42
JO2	342947.85	464218.61	7.70
JO3	343055.18	464261.45	6.12
JO4	342981.52	464313.38	7.09
JO5	342928.53	464356.08	7.35
JO6	342908.53	464395.69	7.38
JO7	342857.39	464495.34	7.89
JO8	342758.24	464502.29	7.33
JO9	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.13
MF17	343479.23	464504.63	8.47
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AM)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellisha Beacon	ML..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MAR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPR..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	SW..... Stone Wall
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Rents/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Tunnel Manhole
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GY.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAB..... Gabion	UTB..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMK..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WSV..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

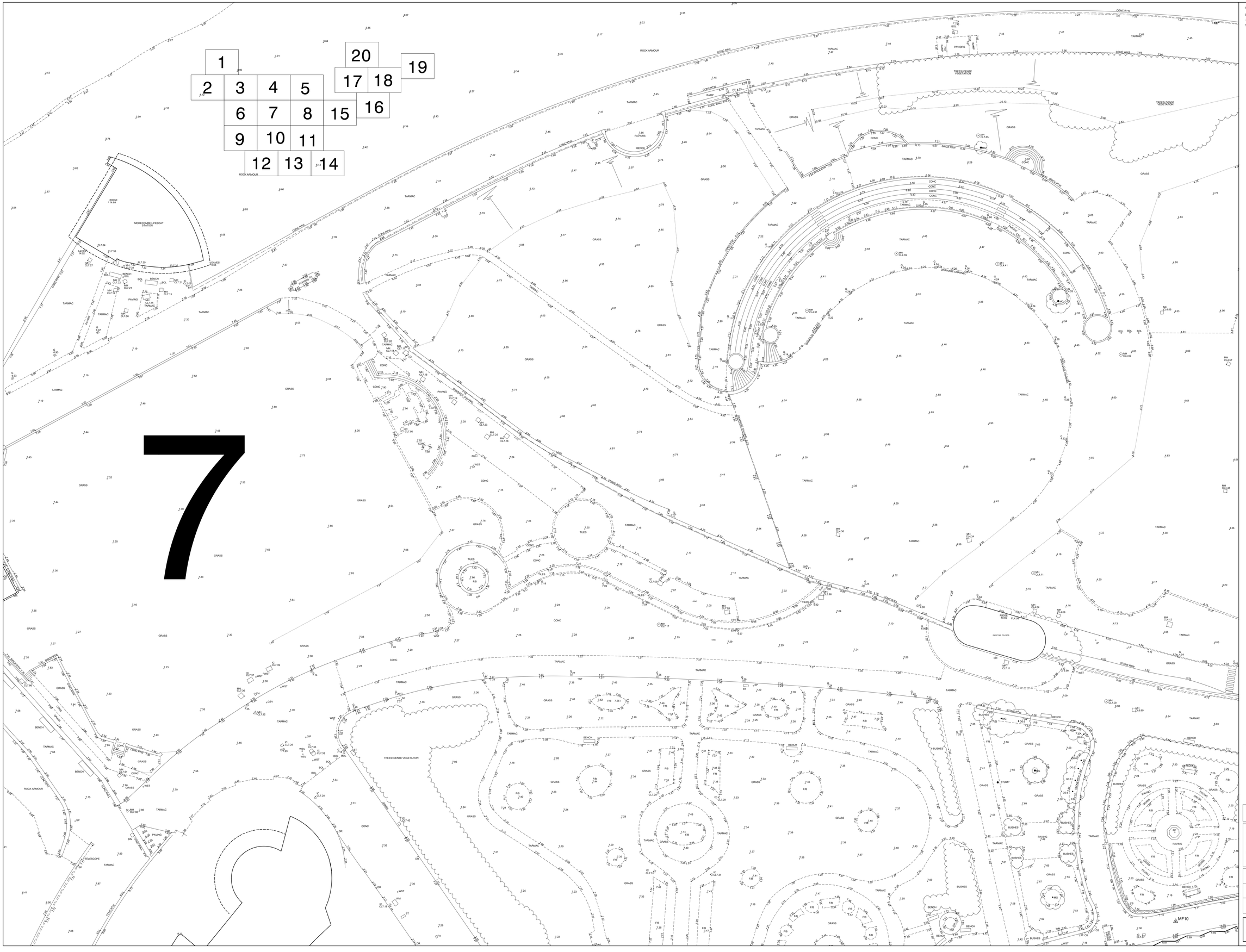
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk - www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 6 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/006



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	8.41
SOA5	343157.23	464416.96	7.12
SOA6	343127.81	464475.19	7.59
SOA7	342807.81	464250.19	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342928.55	464308.34	7.38
J06	342928.55	464395.00	7.35
J07	342867.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343277.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AA)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcha Beacon	MB..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit Tv	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sailing
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECO..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Token Free Records
EL..... Eaves Level	TIE..... Another Point (Wants/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GY.*..... Gyrth (if tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GWA..... Gabion	UTS..... Unable to Survey
HZP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMA..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

SurveY OPERATIONS

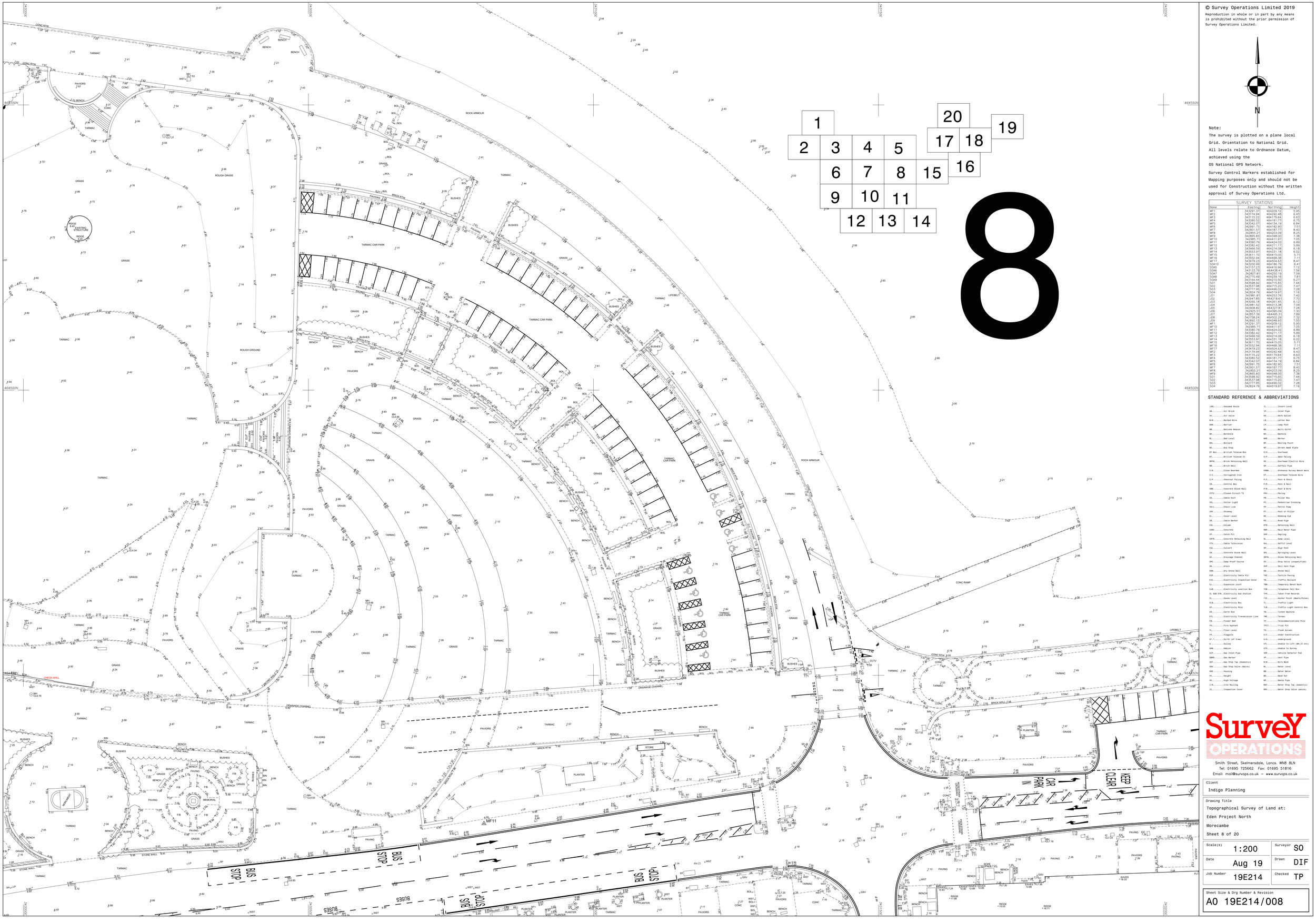
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 7 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/007



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.38	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SGA10	343200.99	464186.79	6.41
SGA5	343157.23	464416.96	7.12
SGA6	342991.75	464182.90	7.51
SGA7	342807.81	464250.19	7.59
SGA8	342770.49	464239.16	7.81
SGA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	343577.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464355.31	7.35
J06	342928.53	464395.09	7.38
J07	342867.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.38	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	343577.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AU)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/H..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BC..... Bollvbe Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BWTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CL..... Cellar Light	PC..... Pedestrian Crossing
CM..... Chain Link	PP..... Petrol Pump
CNY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CW..... Cable Marker	RS..... Road Sign
CYL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTN..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTN..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Rents/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Tunnel Manhole
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GY.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAS..... Gas Valve	UTO..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
H..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WSV..... Water Stop Tap (domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (mains)

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

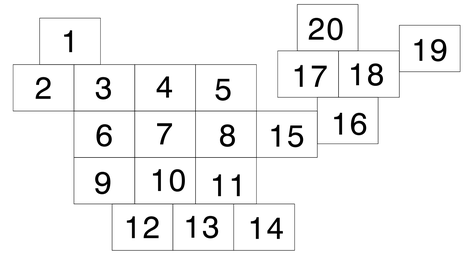
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 8 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/008

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.



9



Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Eastings	Northings	Heights
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	342977.81	464253.76	7.42
SOA7	342807.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464356.69	7.35
J06	342908.53	464395.09	7.38
J07	342867.39	464495.31	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AM)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcrie Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Reading Eye
CM..... Cable Marker	RS..... Road Sign
CO..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
FL..... Eaves Level	TIE..... Anchor Point (Beets/Poles)
FLB..... Electricity Box	TL..... Traffic Light
FP..... Electricity Pole	TLB..... Traffic Light Control Box
EX..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TNC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	UC..... Under Construction
GT.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMK..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/B..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

464400N
464350N
464300N
464250N
CONC KERB
CONC/TARMAC
TARMAC
CONC/GRASS
CONC/KERB
CONC/BRICK
CONC/GRASS/TARMAC
CONC/GRASS/KERB
CONC/GRASS/BRICK
CONC/TARMAC
CONC/BRICK/TARMAC
CONC/KERB/TARMAC
CONC/GRASS/TARMAC
CONC/TARMAC/KERB
CONC/TARMAC/BRICK
CONC/BRICK/KERB
CONC/KERB/BRICK
CONC/GRASS/KERB/BRICK
CONC/TARMAC/KERB/BRICK
CONC/GRASS/TARMAC/KERB
CONC/GRASS/TARMAC/BRICK
CONC/GRASS/TARMAC/KERB/BRICK
CONC/TARMAC/KERB/BRICK/GRASS
CONC/GRASS/KERB/BRICK/TARMAC
CONC/GRASS/TARMAC/KERB/BRICK
CONC/TARMAC/KERB/BRICK/GRASS

10

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	8.41
SOA5	343157.23	464416.96	7.12
SOA6	343128.84	464417.51	7.59
SOA7	342807.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	343028.53	464355.07	7.38
J06	342928.53	464395.09	7.35
J07	342857.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	I|..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BC..... Bollobe Beacon	ML..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mercury Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CL..... Cellar Light	PC..... Pedestrian Crossing
CH..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sign Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SWTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Rents/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TW..... Tunnel Manhole
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (MH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GSV..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WSV..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

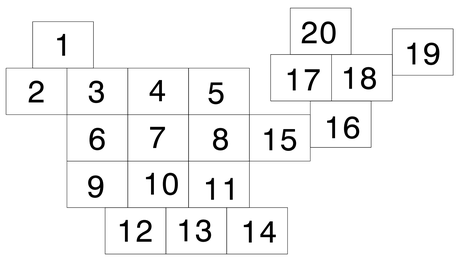
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk - www.survops.co.uk

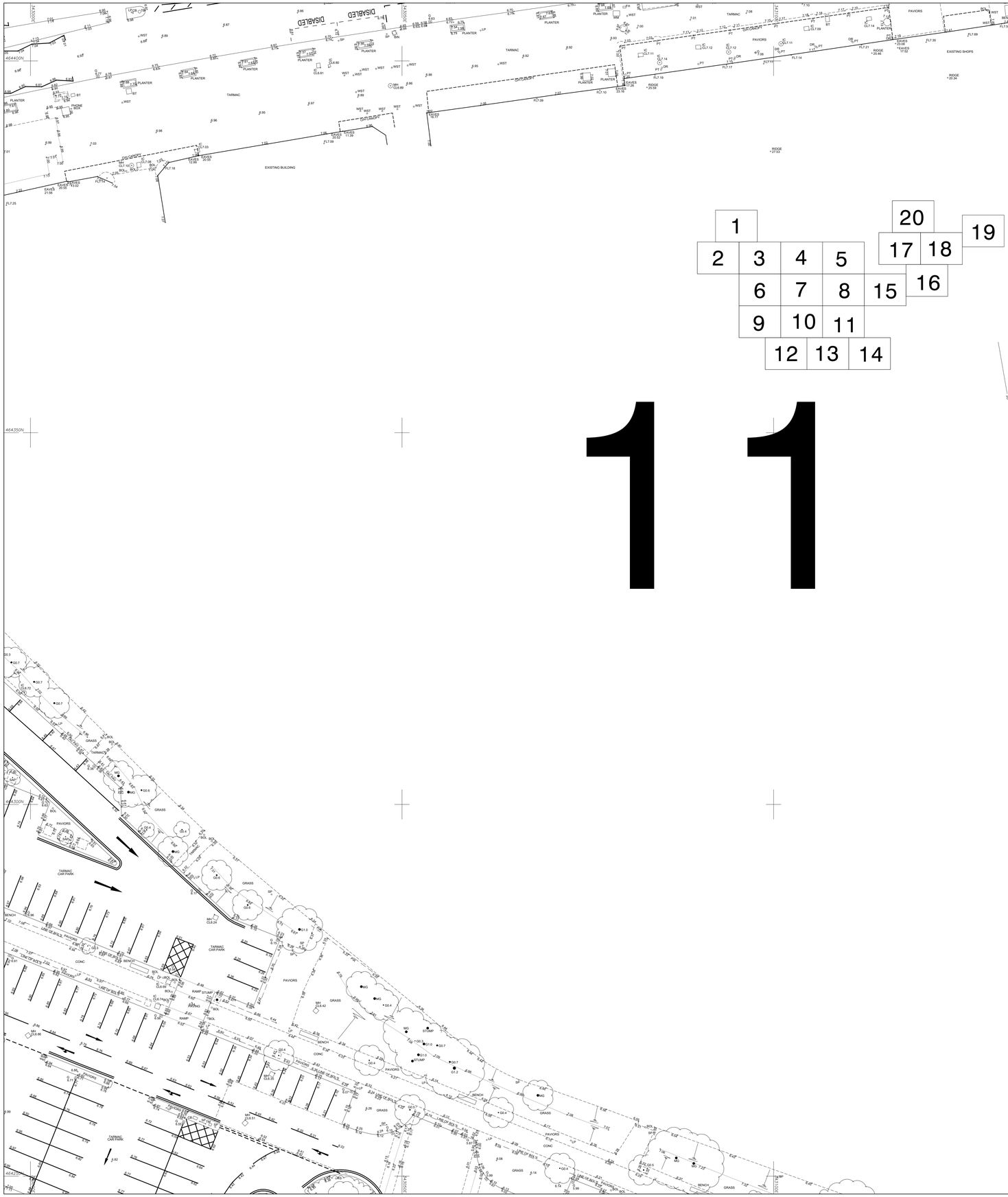
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 10 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/010





© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
50A10	343200.99	464186.79	8.41
50A5	343157.23	464416.96	7.12
50A6	343128.48	464371.71	7.59
50A7	342857.81	464250.19	7.59
50A8	342770.49	464239.16	7.81
50A9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
S05	342891.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342928.53	464356.07	7.35
J06	342928.53	464395.09	7.38
J07	342867.39	464495.31	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(ASL).....Assumed Route	IL.....Invert Level
AB.....Air Brick	IP.....Inlet Pipe
AV.....Air Valve	KO.....Kerb Outlet
B/W.....Barbed Wire	LB.....Letter Box
BAR.....Barrier	LP.....Lamp Post
BE.....Bellcha Beacon	MG.....Multi Girth
BH.....Borehole	MH.....Manhole
BL.....Bed Level	MKR.....Marker
BOL.....Bollard	MP.....Marking Point
BS.....Bus Stop	NP.....Street Name Plate
BT Box.....British Telecom Box	O/H.....Overhead
BT.....British Telecom IC	O/P.....Open Paling
BWTR.....Brick Retaining Wall	OE.....Overhead Electric Wire
BW.....Brick Wall	OF.....Outfall Pipe
C/B.....Close Boarded	OSBM.....Ordnance Survey Bench Mark
C/I.....Corrugated Iron	OT.....Overhead Telecom Wire
C/P.....Chestnut Paling	P/C.....Post & Chain
CB.....Control Box	P/R.....Post & Rail
CBW.....Concrete Block Wall	P/W.....Post & Wire
CCTV.....Closed Circuit TV	PAV.....Paving
CD.....Cable Duct	PB.....Pillar Box
CEL.....Cellar Light	PC.....Pedestrian Crossing
CHL.....Chain Link	PP.....Petrol Pump
CHY.....Chimney	PT.....Post or Pillar
CL.....Cover Level	RE.....Rodding Eye
CW.....Cable Marker	RS.....Road Sign
CYL.....Column	RTW.....Retaining Wall
CONC.....Concrete	RWP.....Rain Water Pipe
CP.....Catch Pit	SAP.....Sapling
CRTW.....Concrete Retaining Wall	SL.....Sump Level
CTV.....Cable Television	SOF.....Soffit Level
CUL.....Culvert	SP.....Sign Post
CW.....Concrete Block Wall	SPL.....Springing Level
DC.....Drainage Channel	SRTW.....Stone Retaining Wall
DPC.....Damp Proof Course	SV.....Stop Valve (unspecified)
DR.....Drain	SVP.....Soil Vent Pipe
DSW.....Dry Stone Wall	SW.....Stone Wall
ESP.....Electricity Cable Pit	TAC.....Tactile Paving
ESC.....Electricity Inspection Cover	TB.....Traffic Bollard
EJ.....Expansion Joint	TBM.....Temporary Bench Mark
EJB.....Electricity Junction Box	TCB.....Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR.....Taken From Records
EL.....Eaves Level	TIE.....Anchor Point (Wants/Poles)
ELB.....Electricity Box	TL.....Traffic Light
EP.....Electricity Pole	TLB.....Traffic Light Control Box
ER.....Earth Rod	TM.....Ticket Machine
ETL.....Electricity Transmission Line	TWC.....Tarmac
FB.....Flower Bed	TP.....Telecommunications Pole
FH.....Fire Hydrant	TPIT.....Trial Pit
FL.....Floor Level	TS.....Trash Screen
FP.....Flagpole	U/C.....Under Construction
GY.*.....Girth (if tree)	U/G.....Underground
G.....Gulley	UTL.....Unable to Lift (BM,IC etc)
GAB.....Gabion	UTS.....Unable to Survey
GIP.....Gas Inlet Pipe	VDP.....Vehicle Detector Pad
GMR.....Gas Marker	VP.....Vent Pipe
GST.....Gas Stop Tap (Domestic)	W/N.....Wire Mesh
GSV.....Gas Stop Valve (Mains)	WL.....Water Level
HSE.....Housing	WM.....Water Meter
HT.....Height	WO.....Wash Out
HV.....High Voltage	WP.....Waste Pipe
I/R.....Iron Railing	WST.....Water Stop Tap (Domestic)
IC.....Inspection Cover	WSV.....Water Stop Valve (Mains)

Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk - www.survops.co.uk

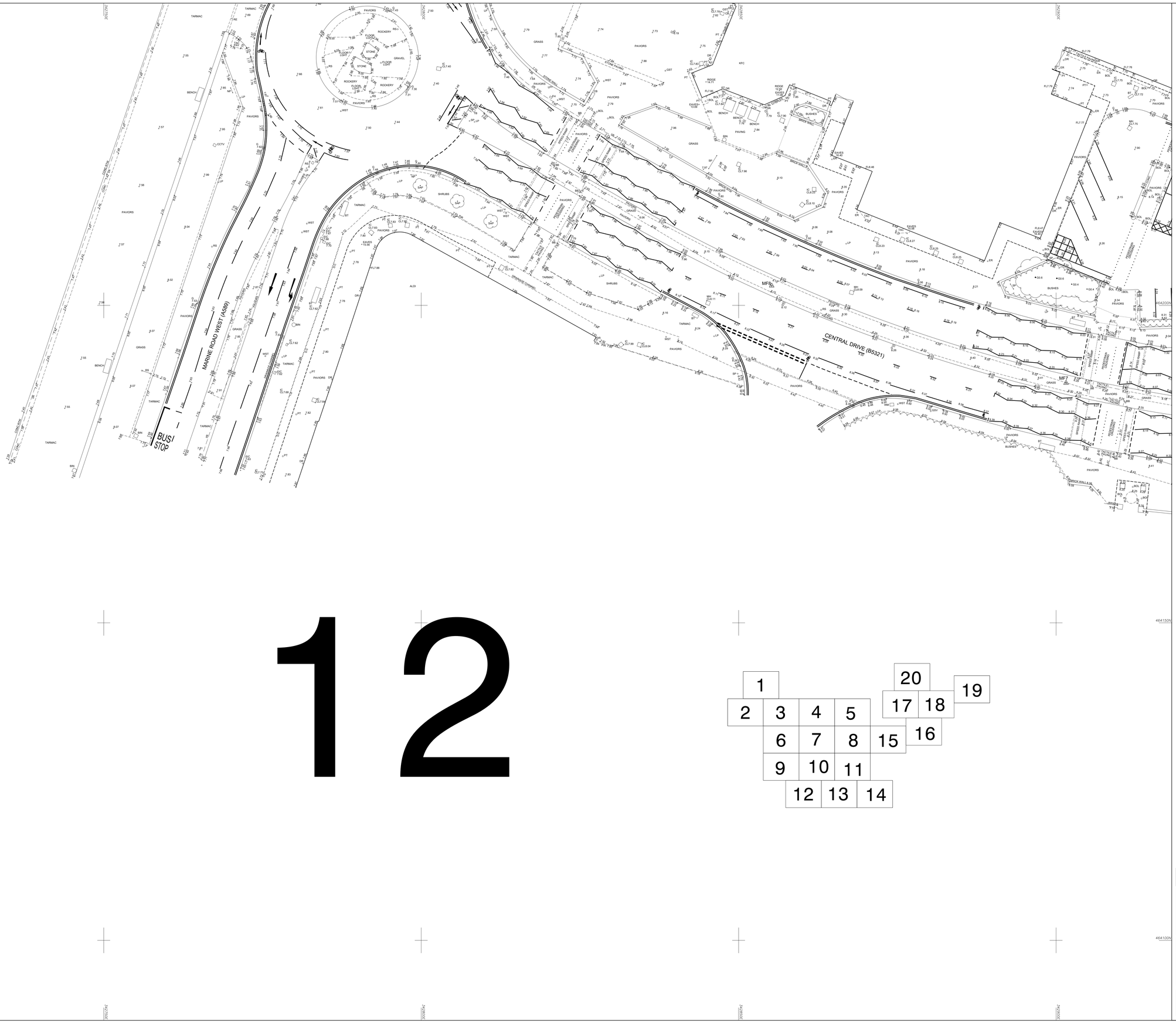
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 11 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/011

11



12

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.66	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342855.83	464348.00	7.36
MF10	342985.73	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.36	7.11
MF17	343479.23	464504.63	8.47
SS01	343598.92	464715.20	7.44
SS02	343557.98	464496.02	7.28
SS03	342777.95	464419.97	7.16
SS04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcha Beacon	ML..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CA..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHV..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECO..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Wants/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TMC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GCP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMK..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/M..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 12 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/012



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the
OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	345291.37	464209.12	5.95
MF2	345174.54	464240.56	6.43
MF3	345115.22	464179.64	6.63
MF4	345186.50	464254.77	6.75
MF5	345042.07	464154.19	6.84
MF6	345080.52	464181.77	6.84
MF7	345261.57	464187.90	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.73	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF18	343115.22	464179.64	6.63
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF6	343042.07	464154.19	6.84
MF8	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.60	7.44
S02	343557.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
S05	342824.79	464519.97	7.16
S06	342824.79	464519.97	7.16
S07	342824.79	464519.97	7.16
S08	342824.79	464519.97	7.16
S09	342824.79	464519.97	7.16
S10	342824.79	464519.97	7.16
S11	342824.79	464519.97	7.16
S12	342824.79	464519.97	7.16
S13	342824.79	464519.97	7.16
S14	342824.79	464519.97	7.16
S15	342824.79	464519.97	7.16
S16	342824.79	464519.97	7.16
S17	342824.79	464519.97	7.16
S18	342824.79	464519.97	7.16
S19	342824.79	464519.97	7.16
S20	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AU)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bollvia Beacon	MO..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	NKR..... Marker
BOL..... Bollard	OP..... Observing Point
BS..... Bus Stop	SP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom SC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	UP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PF..... Petrol Pump
CHY..... Chimney	PT..... Post Or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	MWP..... Main Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Masts/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
G*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GSP..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
Ht..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

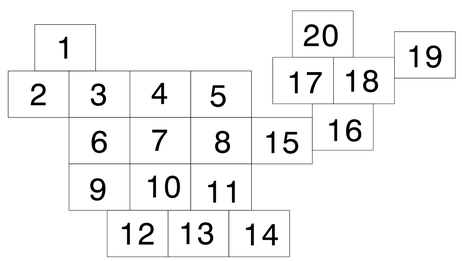
Client
Indigo Planning

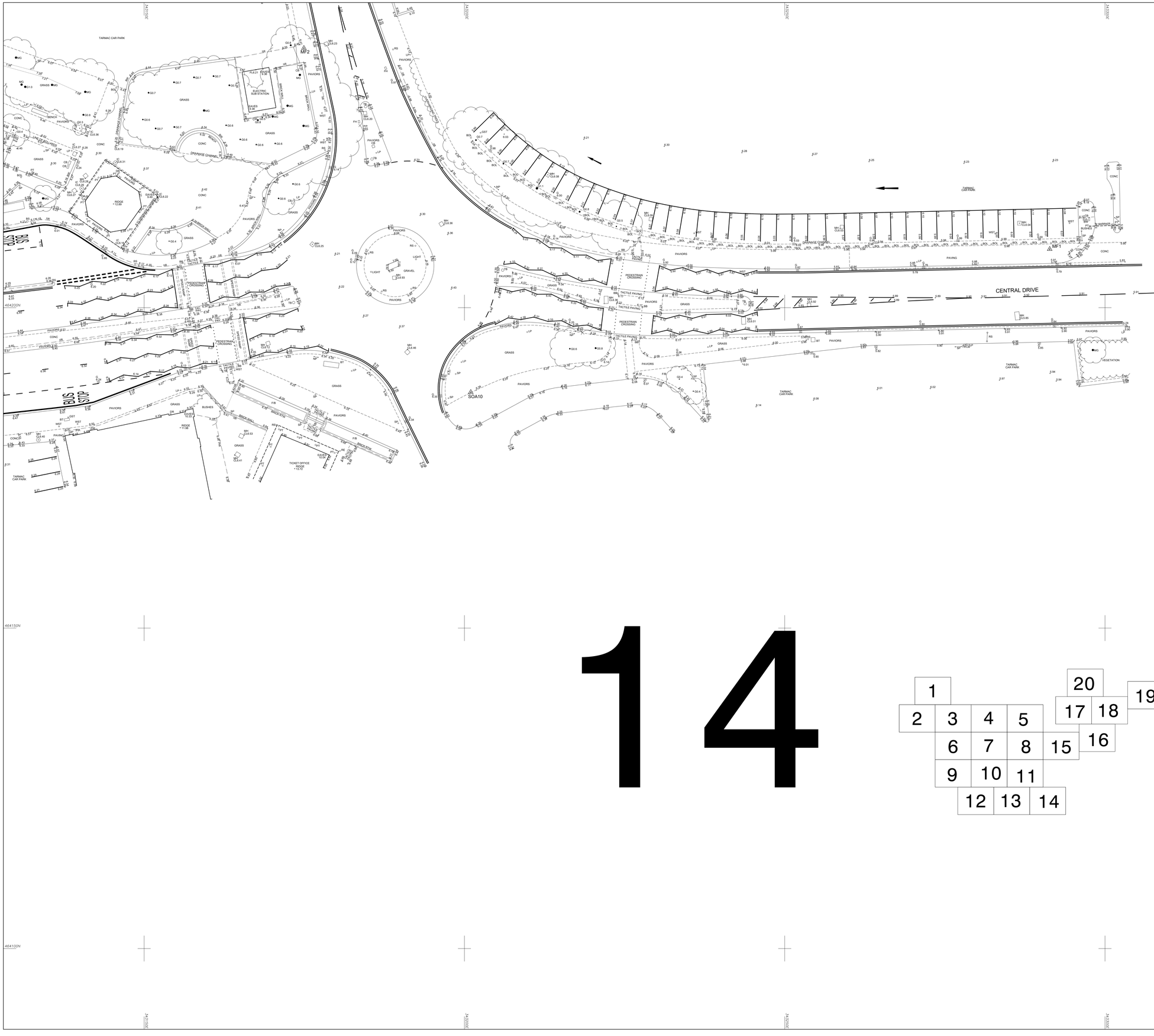
Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 13 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/013

13





14

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Eastings	Northings	Heights
MF1	343291.37	464209.12	5.95
MF2	343174.94	464240.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464166.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	343211.84	464417.71	7.59
SOA7	342807.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
S05	342947.85	464218.64	7.70
J01	342981.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.36	7.09
J05	342908.53	464365.07	7.35
J06	342908.53	464395.09	7.35
J07	342857.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464240.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcha Beacon	MH..... Multi Girth
BH..... Borehole	MM..... Manhole
BL..... Bed Level	MRK..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHM..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Modding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SoL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Spotging Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of Tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (MH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GOT..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

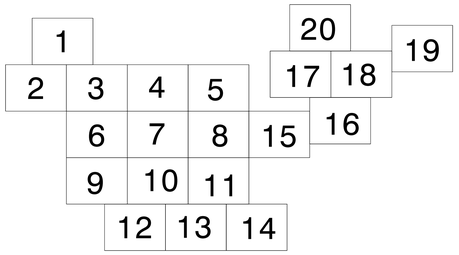
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 14 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/014



15

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.38
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	342973.81	464415.76	7.58
SOA7	342857.81	464250.19	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343524.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464335.27	7.38
J06	342928.53	464395.09	7.35
J07	342867.39	464495.31	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF1	343291.37	464209.12	5.95
MF2	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343524.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AM)..... Assumed Route	(I)..... Invert Level
AB..... Air Brick	(P)..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/M..... Marked Mire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BC..... Bollvia Beacon	MH..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom CC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
CI..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CE..... Cable Exit	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CH/L..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SPI..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	TBM..... Temporary Bench Mark
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..... Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Wants/Pole)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TW..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
G/..... North (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Life (BH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GCP..... Gas Cntct Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/B..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

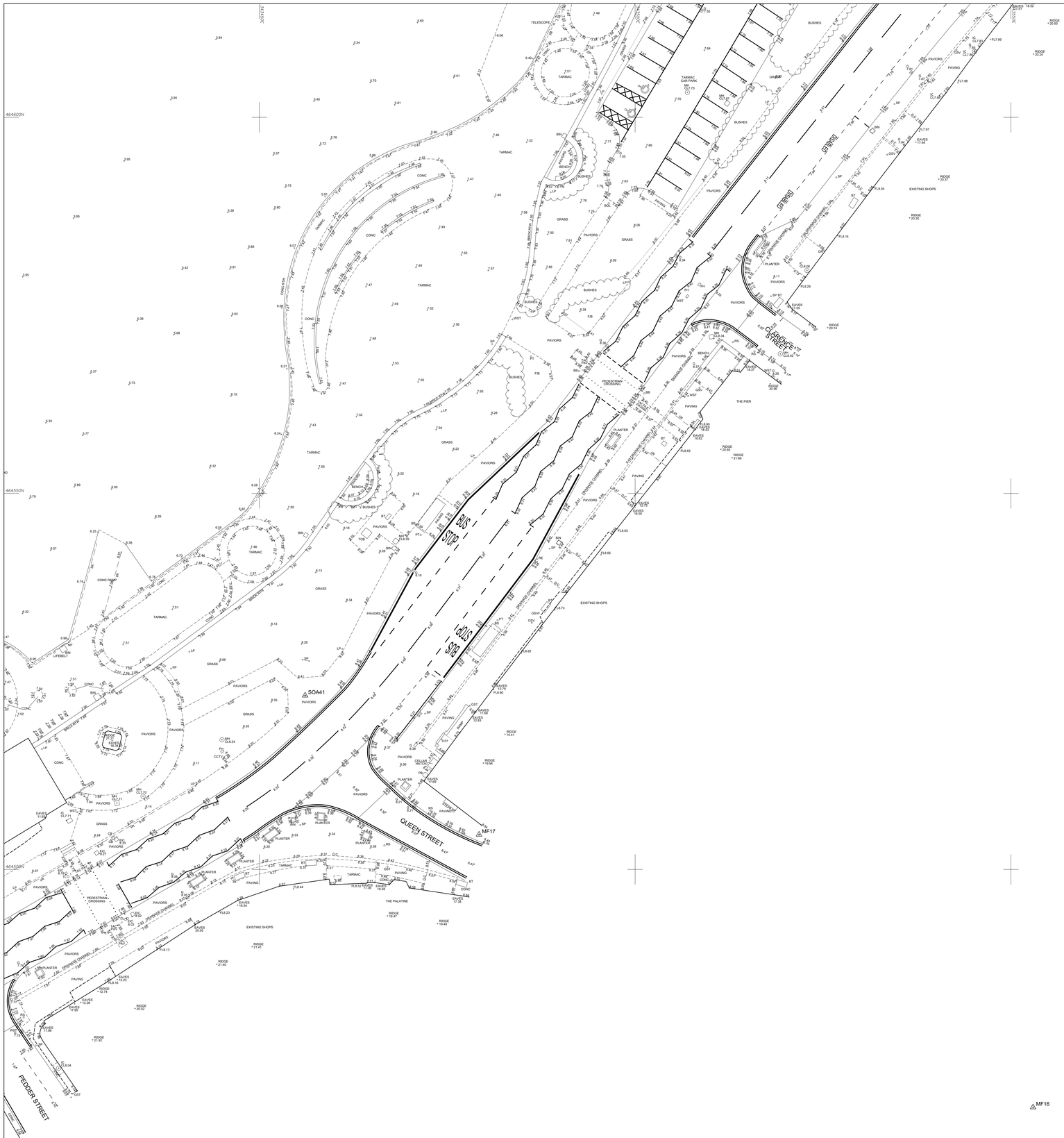
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

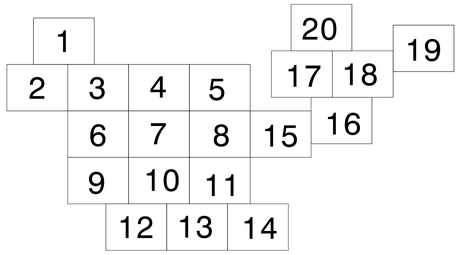
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 15 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/015





16

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Existing	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464240.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	342973.81	464417.21	7.59
SOA7	342857.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
SOA1	342824.79	464519.97	7.16
SOA2	342855.21	464203.09	8.25
SOA3	342865.83	464348.00	7.36
SOA4	342901.57	464187.77	8.40
SOA41	342991.75	464182.90	7.51
SOA42	343042.07	464154.19	6.84
SOA43	343080.52	464181.77	6.75
SOA44	343115.22	464179.64	6.63
SOA45	343174.94	464240.46	6.43
SOA46	343291.37	464209.12	5.95
SOA47	343382.42	464211.17	5.89
SOA48	343466.59	464214.08	6.18
SOA49	343553.97	464331.18	6.02
SOA50	343611.70	464415.05	5.71
SOA51	343552.94	464468.38	7.11
SOA52	343479.23	464504.63	8.47

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Route	(I)..... Invert Level
AB..... Air Brick	(P)..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellota Beacon	MG..... Multi-Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom CC	O/P..... Open Paling
BWTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ESP..... Electricity Cable Pit	TAC..... Tactile Paving
ESC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..... Electricity Sub Station	TFR..... Taken From Records
FL..... Eaves Level	TIE..... Anchor Point (Waste/Poles)
FLB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TMC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
G/..... (birth of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Life (BH,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GCP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/N..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

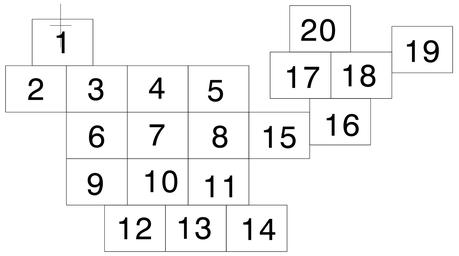
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 16 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/016



17

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	342291.37	464209.12	5.95
MF2	343174.94	464240.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SS01	343557.98	464715.20	7.47
SS02	343777.95	464496.02	7.28
SS03	343824.79	464519.97	7.16
SS04	343598.92	464715.65	7.44
SS05	343557.98	464715.20	7.47
SS06	343777.95	464496.02	7.28
SS07	343824.79	464519.97	7.16
SS08	343598.94	464468.38	7.59
SS09	342770.49	464239.16	7.87
SS10	343164.44	464210.50	6.27
SS11	343598.92	464715.65	7.44
SS12	343557.98	464715.20	7.47
SS13	343777.95	464496.02	7.28
SS14	343824.79	464519.97	7.16
SS15	343598.94	464468.38	7.59
SS16	342770.49	464239.16	7.87
SS17	343164.44	464210.50	6.27
SS18	343598.92	464715.65	7.44
SS19	343557.98	464715.20	7.47
SS20	343777.95	464496.02	7.28
SS21	343824.79	464519.97	7.16
SS22	343598.94	464468.38	7.59
SS23	342770.49	464239.16	7.87
SS24	343164.44	464210.50	6.27
SS25	343598.92	464715.65	7.44
SS26	343557.98	464715.20	7.47
SS27	343777.95	464496.02	7.28
SS28	343824.79	464519.97	7.16
SS29	343598.94	464468.38	7.59
SS30	342770.49	464239.16	7.87
SS31	343164.44	464210.50	6.27
SS32	343598.92	464715.65	7.44
SS33	343557.98	464715.20	7.47
SS34	343777.95	464496.02	7.28
SS35	343824.79	464519.97	7.16
SS36	343598.94	464468.38	7.59
SS37	342770.49	464239.16	7.87
SS38	343164.44	464210.50	6.27

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/M..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcha Beacon	MG..... Multi-Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BWTR..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SoL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SWTR..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of Tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (MH,IC etc)
GWB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GSV..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WSV..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

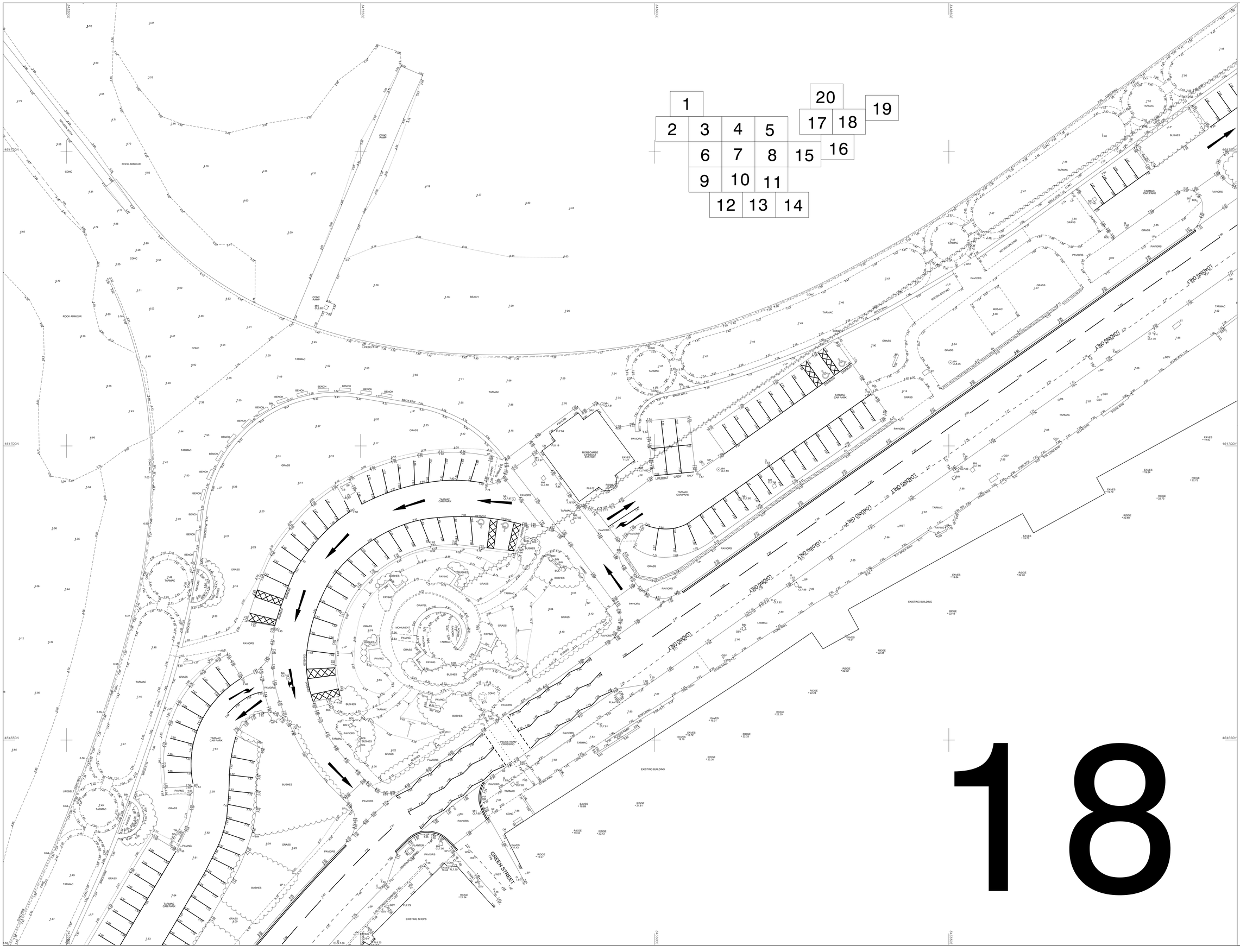
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk — www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 17 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/017



© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.48	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.73	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464156.79	5.41
SOA5	343157.23	464416.96	7.12
SOA6	342973.81	464417.77	7.59
SOA7	342807.81	464256.19	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	343528.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342928.53	464359.27	7.35
J06	342928.53	464395.09	7.38
J07	342867.39	464495.34	7.89
J08	342756.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.73	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343557.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(ASL).....Assumed Route	IL.....Invert Level
AB.....Air Brick	IP.....Inlet Pipe
AV.....Air Valve	KO.....Kerb Outlet
B(M).....Marked Bore	LB.....Letter Box
BAR.....Barrier	LP.....Lamp Post
BC.....Bollvia Beacon	MS.....Multi-Girth
BH.....Borehole	MH.....Manhole
BL.....Bed Level	MKR.....Marker
BOL.....Bollard	MP.....Mooring Point
BS.....Bus Stop	NP.....Street Name Plate
BT Box.....British Telecom Box	O/H.....Overhead
BT.....British Telecom IC	O/P.....Open Paling
BWTR.....Brick Retaining Wall	OE.....Overhead Electric Wire
BW.....Brick Wall	OF.....Oil(+) Pipe
C/B.....Close Boarded	OSBM.....Ordnance Survey Bench Mark
C/I.....Corrugated Iron	OT.....Overhead Telecom Wire
C/P.....Chestnut Paling	P/C.....Post & Chain
CB.....Control Box	P/R.....Post & Rail
CBW.....Concrete Block Wall	P/W.....Post & Wire
CCTV.....Closed Circuit TV	PAV.....Paving
CD.....Cable Duct	PB.....Pillar Box
CEL.....Cellar Light	PC.....Pedestrian Crossing
CHL.....Chain Link	PP.....Petrol Pump
CHY.....Chimney	PT.....Post or Pillar
CL.....Cover Level	RE.....Rodding Eye
CW.....Cable Marker	RS.....Road Sign
CYL.....Column	RTW.....Retaining Wall
CONC.....Concrete	RWP.....Rain Water Pipe
CP.....Catch Pit	SAP.....Sapling
CWTR.....Concrete Retaining Wall	SL.....Sump Level
CTV.....Cable Television	SOL.....Soffit Level
CUL.....Culvert	SP.....Sign Post
CW.....Concrete Block Wall	SPR.....Springing Level
DC.....Drainage Channel	SWTR.....Stone Retaining Wall
DPC.....Damp Proof Course	SV.....Stop Valve (unspecified)
DR.....Drain	SVP.....Soil Vent Pipe
DRW.....Dry Stone Wall	SW.....Stone Wall
ECP.....Electricity Cable Pit	TAC.....Tactile Paving
ECI.....Electricity Inspection Cover	TB.....Traffic Bollard
EJ.....Expansion Joint	TBM.....Temporary Bench Mark
EJB.....Electricity Junction Box	TCB.....Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR.....Taken From Records
EL.....Eaves Level	TIE.....Anchor Point (Boats/Poles)
ELB.....Electricity Box	TL.....Traffic Light
EP.....Electricity Pole	TLB.....Traffic Light Control Box
ER.....Earth Rod	TR.....Ticket Machine
ETL.....Electricity Transmission Line	TWC.....Tarmac
FB.....Flower Bed	TP.....Telecommunications Pole
FH.....Fire Hydrant	TPIT.....Trial Pit
FL.....Floor Level	TS.....Trash Screen
FP.....Flagpole	U/C.....Under Construction
G(*.....Girth (of tree)	U/G.....Underground
G.....Gulley	UTL.....Unable to Lift (BM,IC etc)
GAB.....Gabion	UTS.....Unable to Survey
GIP.....Gas Inlet Pipe	VDP.....Vehicle Detector Pad
GBAR.....Gas Marker	VP.....Vent Pipe
GST.....Gas Stop Tap (Domestic)	W/M.....Wire Mesh
GSV.....Gas Stop Valve (Mains)	WL.....Water Level
HSE.....Housing	WB.....Water Meter
HT.....Height	WO.....Work Out
HV.....High Voltage	WP.....Waste Pipe
I/R.....Iron Railing	WST.....Water Stop Tap (Domestic)
IC.....Inspection Cover	WSV.....Water Stop Valve (Mains)

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

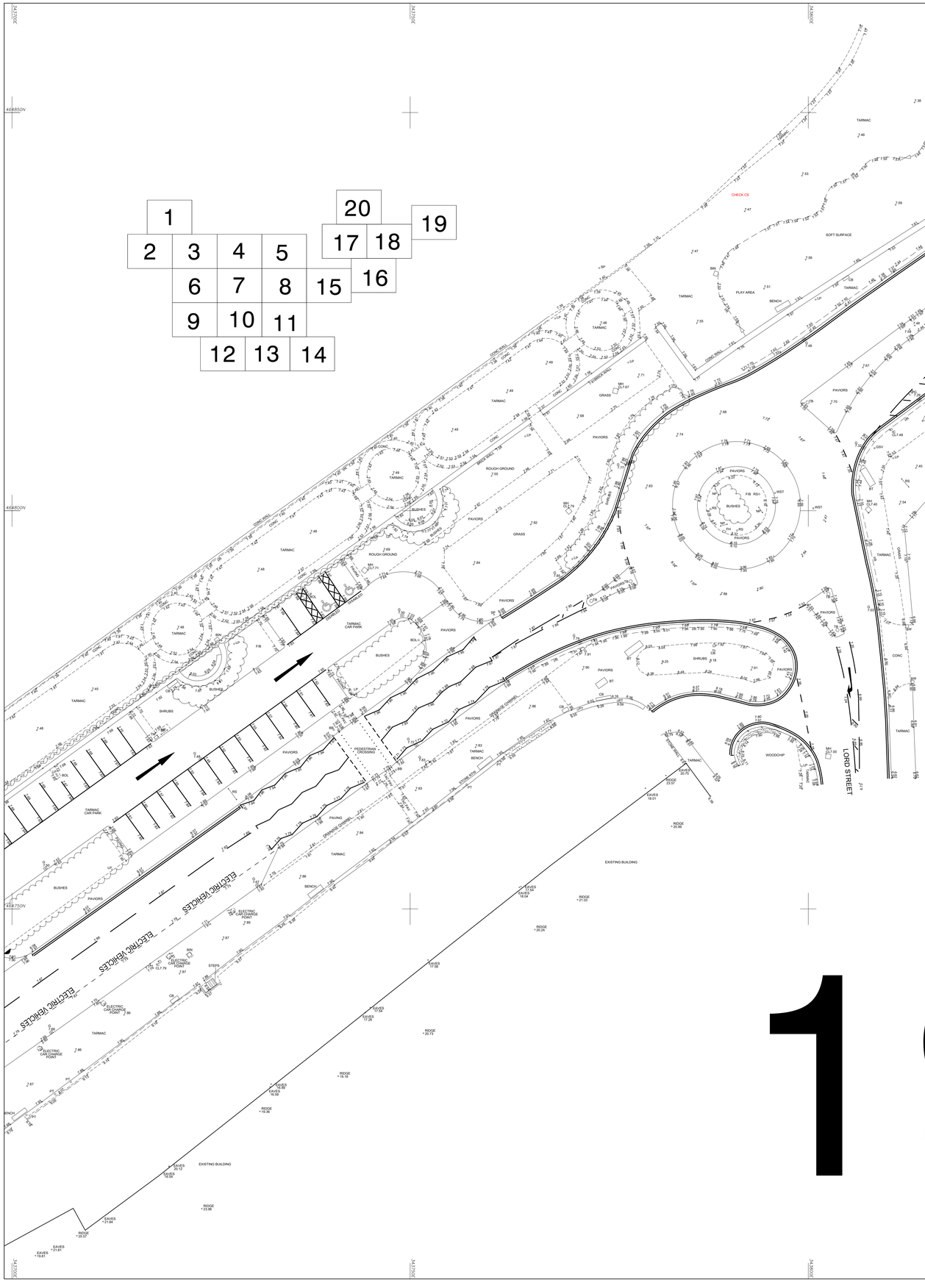
Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 18 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/018

18



19

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

None	Easting	Northing	Height
MF1	343291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
50A10	343200.99	464186.79	6.41
50A5	343157.23	464416.96	7.12
50A6	342973.81	464417.31	7.59
50A7	342857.81	464250.16	7.59
50A8	342770.49	464239.16	7.81
50A9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.61	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342928.53	464371.27	7.35
J06	342928.53	464395.09	7.38
J07	342867.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	343291.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343362.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.21	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	343777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed Node	(I)..... Invert Level
AB..... Air Brick	(P)..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcha Beacon	ML..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MAR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OP..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CL..... Cellar Light	PC..... Pedestrian Crossing
CH/..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CW..... Cable Marker	RS..... Road Sign
CS..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Soda Level
CTV..... Cable Television	SOL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SWTR..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
ECC..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Masts/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Tunnel Manhole
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GY.*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GWA..... Gabion	UTS..... Unable to Survey
GSP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GWM..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

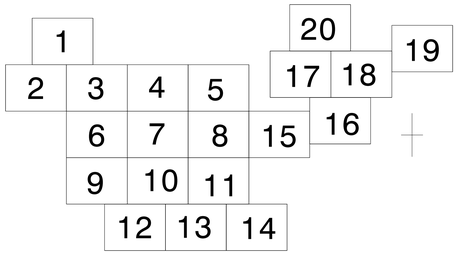
SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk - www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 19 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/019



20

© Survey Operations Limited 2019
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

Note:

The survey is plotted on a plane local Grid. Orientation to National Grid.

All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS

Name	Easting	Northing	Height
MF1	342291.37	464209.12	5.95
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.23	464203.09	8.25
MF9	342865.83	464348.00	7.36
MF10	342985.71	464411.97	7.05
MF11	343080.79	464424.02	6.89
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
SOA10	343200.99	464186.79	6.41
SOA5	343157.23	464416.96	7.12
SOA6	342977.81	464417.71	7.59
SOA7	342807.81	464250.16	7.59
SOA8	342770.49	464239.16	7.81
SOA9	343164.44	464210.50	6.27
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16
J01	342981.81	464253.76	7.42
J02	342947.85	464218.64	7.70
J03	343055.18	464261.45	6.12
J04	342981.52	464313.38	7.09
J05	342908.53	464336.09	7.38
J06	342928.53	464395.69	7.35
J07	342867.39	464495.34	7.89
J08	342758.24	464502.29	7.33
J09	342892.15	464548.93	7.55
MF1	342391.37	464209.12	5.95
MF10	342985.71	464411.97	7.05
MF12	343382.42	464211.17	5.89
MF13	343466.59	464214.08	6.18
MF14	343553.97	464331.18	6.02
MF15	343611.70	464415.05	5.71
MF16	343552.94	464468.38	7.11
MF17	343479.23	464504.63	8.47
MF2	343174.94	464243.46	6.43
MF3	343115.22	464179.64	6.63
MF4	343080.52	464181.77	6.75
MF5	343042.07	464154.19	6.84
MF6	342991.75	464182.90	7.51
MF7	342901.57	464187.77	8.40
MF8	342855.23	464203.09	8.25
MF9	342865.83	464348.00	7.36
S01	343598.92	464715.65	7.44
S02	343537.98	464715.20	7.47
S03	342777.95	464496.02	7.28
S04	342824.79	464519.97	7.16

STANDARD REFERENCE & ABBREVIATIONS

(AM)..... Assumed Route	IL..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BE..... Bellcote Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Point
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom IC	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OE..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSBM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHM..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	RWP..... Rain Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SoL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Spotlight Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DRW..... Dry Stone Wall	SW..... Stone Wall
ECP..... Electricity Cable Pit	TAC..... Tactile Paving
EIC..... Electricity Inspection Cover	TB..... Traffic Bollard
Ex..... Expansion Joint	TBM..... Temporary Bench Mark
EJB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STN.. Electricity Sub Station	TFR..... Taken From Records
EL..... Eaves Level	TIE..... Anchor Point (Boats/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TWC..... Tarmac
FB..... Flower Bed	TP..... Telecommunications Pole
FH..... Fire Hydrant	TRT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GT..... Girth (of Tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (MH,IC etc)
GWB..... Gabion	UTS..... Unable to Survey
GUP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GST..... Gas Stop Tap (Domestic)	W/M..... Wire Mesh
GSV..... Gas Stop Valve (Mains)	WL..... Water Level
HSE..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (Domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (Mains)

Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Indigo Planning

Drawing Title
Topographical Survey of Land at:
Eden Project North
Morecambe
Sheet 20 of 20

Scale(s)	1:200	Surveyor	SO
Date	Aug 19	Drawn	DIF
Job Number	19E214	Checked	TP

Sheet Size & Drg Number & Revision
A0 19E214/020

© Survey Operations Limited 2020
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:

The survey is plotted on a plane local Grid. Orientation to National Grid.

All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

All drainage information must be verified with local authority records before use.

All drainage information added from CCTV survey.

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk — www.survops.co.uk

Client: Buro Happold Limited

Drawing Title: CCTV Drainage Survey of Land at:
Marine Road Central
Morecambe

Scale(s)	1:200	Surveyor	SO
Date	JUL 21	Drawn	IT
Job Number	21D107	Checked	SO

Sheet Size & Drg Number & Revision: A0 21D107/001



© Survey Operations Limited 2020
Reproduction in whole or in part by any means is prohibited without the prior permission of Survey Operations Limited.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.
Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

All drainage information must be verified with local authority records before use.

All drainage information added from CCTV survey.

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Buro Happold Limited

Drawing Title
CCTV Drainage Survey of Land at:
Marine Road Central
Morecambe

Scale(s)	1:200	Surveyor	SO
Date	JUL 21	Drawn	IT
Job Number	21D107	Checked	SO

Sheet Size & Drg Number & Revision
A0 21D107/002

Appendix C

BGS MAPPING

Public

342750
343000
343250
464750
464500
464250
N
Shell
Bed Flat
A589
Tourist Info
B5321
NORTHUMBERLAND STREET
WEST VIEW ROAD
BACK CRES
STREET
SKIPTON STREET
PO
VICTORIA STREET
NEW STREET
UNION STREET
EDWARD STREET
CENTR
0 50 100 150 200 m

KEY:

Site Boundary

BGS Bedrock

Millstone Grit Group
- Mudstone, Siltstone And Sandstone

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
BRITISH GEOLOGICAL SURVEY - BEDROCK

DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-BGS-001.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-BGS-001	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:19:18 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\BGS\3611-BGS-001.qgz

342750
343000
343250
464750
464500
464250
N
Shell
Bed Flat
Tourist Info
A589
B5321
NORTHUMBERLAND STREET
WEST VIEW ROAD
BACK CRES
SKIPTON STREET
PO
VICTORIA STREET
NEW STREET
UNION STREET
EDWARD STREET
CENTR
0 50 100 150 200 m

KEY:

- Site Boundary

BGS Superficial

- Bank Deposits - Sediment, Shell
- Storm Beach Deposits - Gravel
- Till, Devensian - Diamicton
- Glaciofluvial Deposits, Devensian - Sand And Gravel
- Tidal Flat Deposits - Clay And Silt

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
BRITISH GEOLOGICAL SURVEY - SUPERFICIAL DEPOSITS

DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-BGS-002.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-BGS-002	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

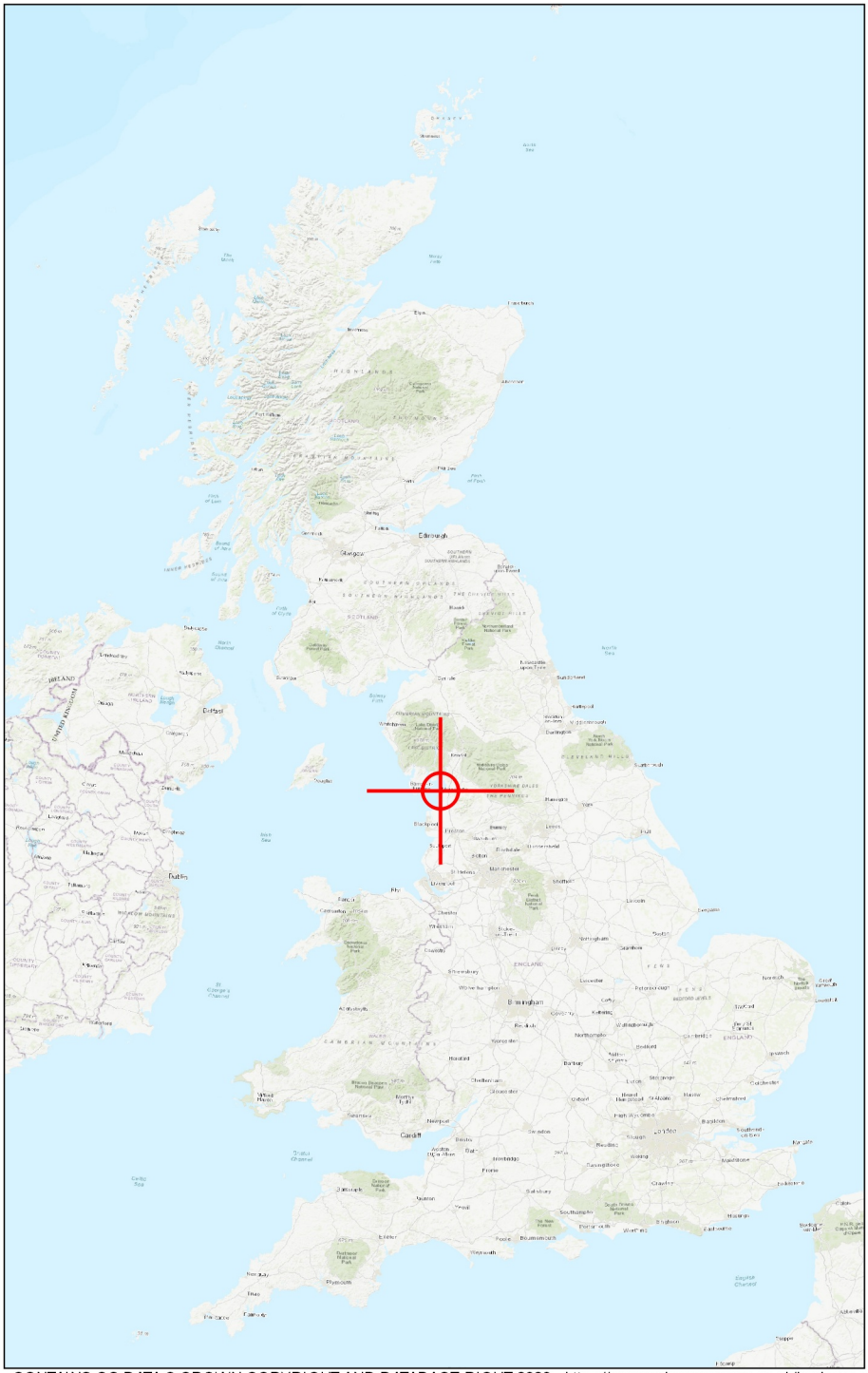
Created by: UKJED006 - 2021-08-24 10:20:25 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\BGS\3611-BGS-002.qgz

Appendix D

FLOOD MAP PACK

Public

FLOOD RISK PACK



Client:
EDEN PROJECT INTERNATIONAL LIMITED

Project Reference:
70083611 - Eden Project North

Site Reference:
70083611 - EDEN PROJECT NORTH

Site Location
342956, 464481

Site Area:
4.58 hectares

Map Scale:
1:5000

CONTENTS:

Page 1 - Site Location

Page 2 - Flood Map for Planning

Page 3 - Risk of Flooding from Rivers and the Sea

Page 4 - Risk of Flooding from Surface Water

Page 5 - Risk of Flooding from Reservoirs

Page 6 - Risk of Flooding from Multiple Sources

Page 7 - Historic Flood Map

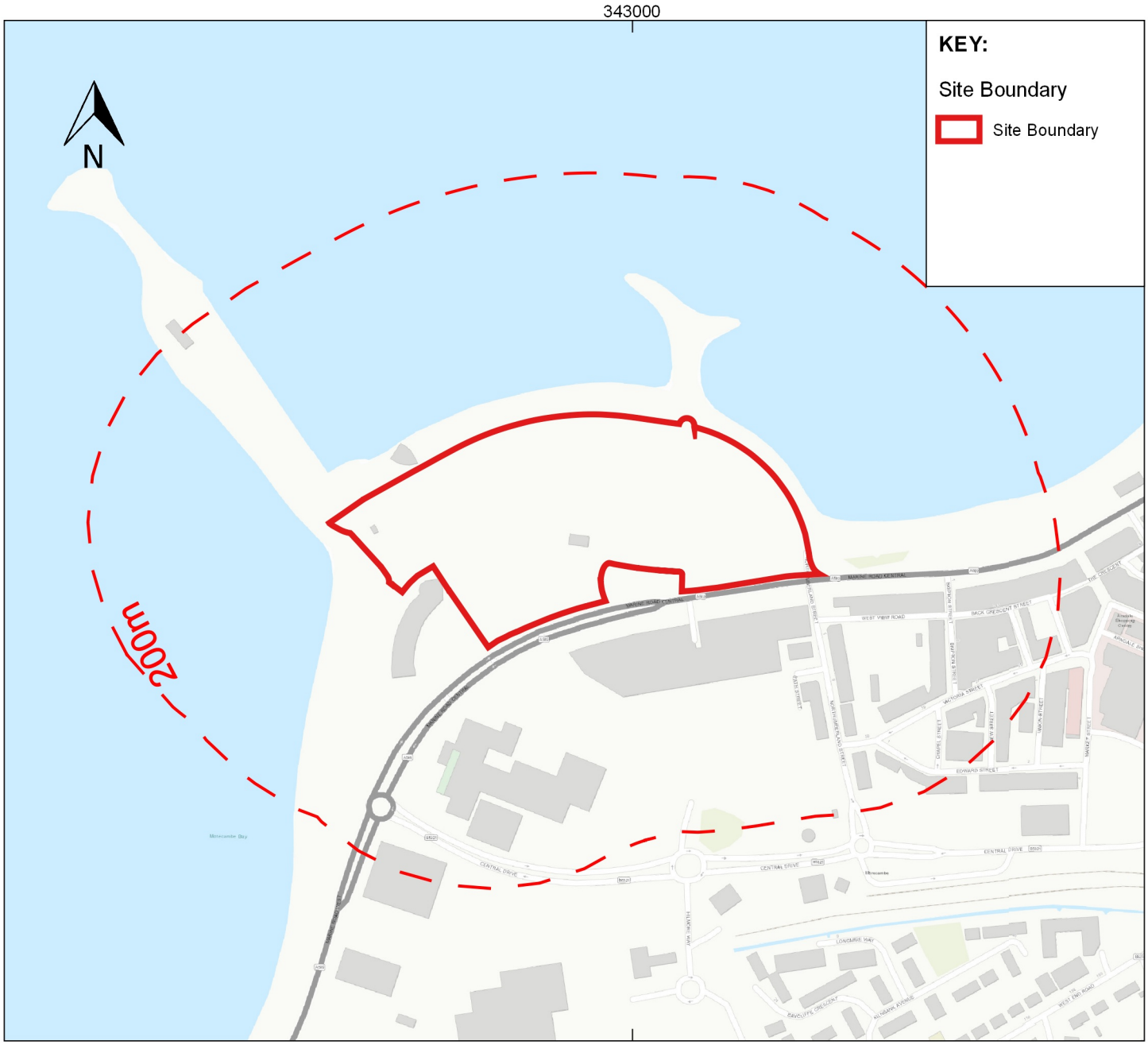
Page 8 - Source Protection Zones

Page 9 - Aquifer Designation

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020 - http://www.bgs.ac.uk/help/terms_of_use.html

Created by: UKJED006 - 2021-08-24 10:44:42
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

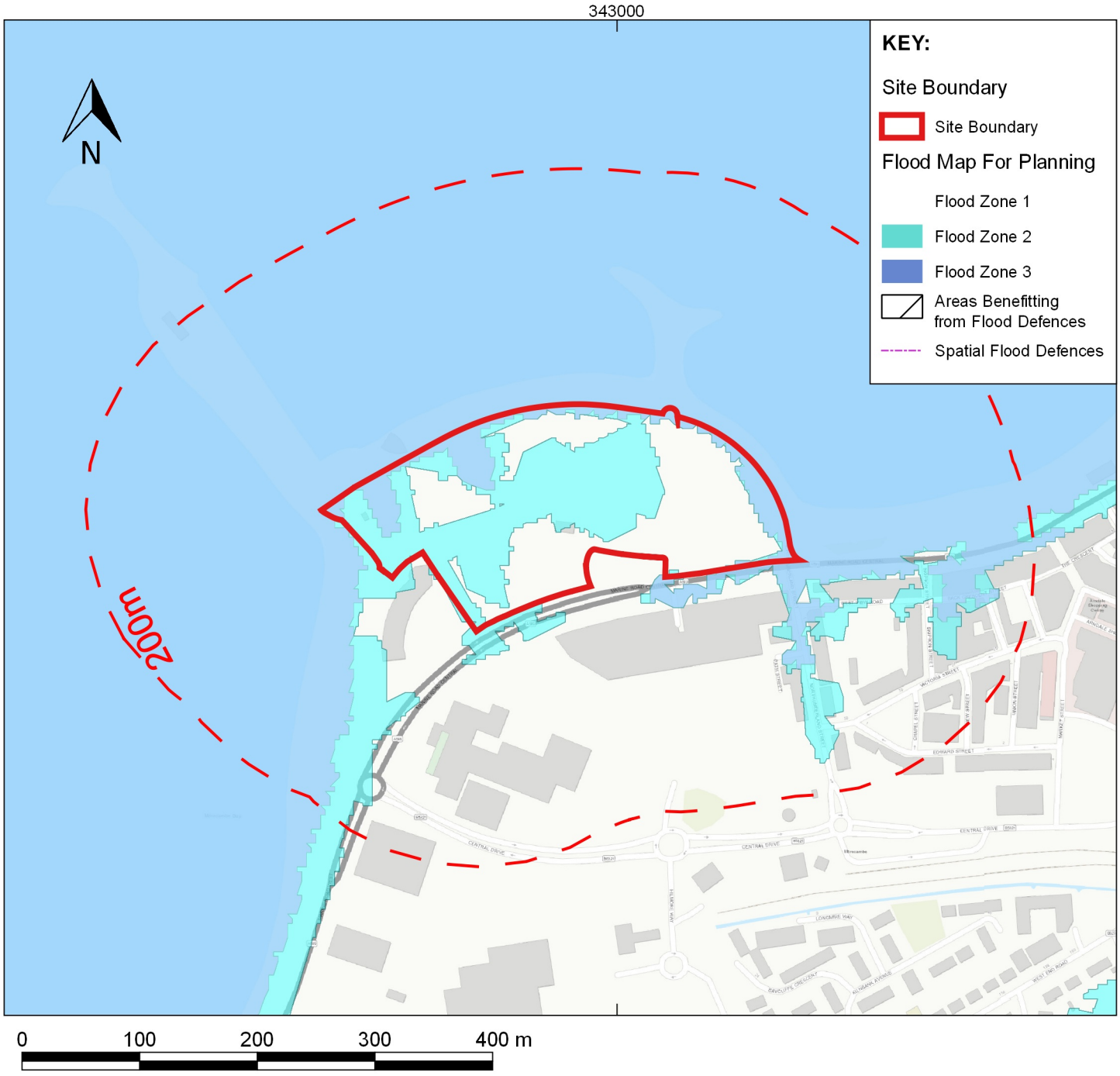
SITE LOCATION



CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:44:56
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY FLOOD MAP FOR PLANNING



Flood zone maps are modelled using local and national river and sea data. This information provides an indication of the likelihood of flooding and is intended for planning use only.

Flood Zone 1 - Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3).

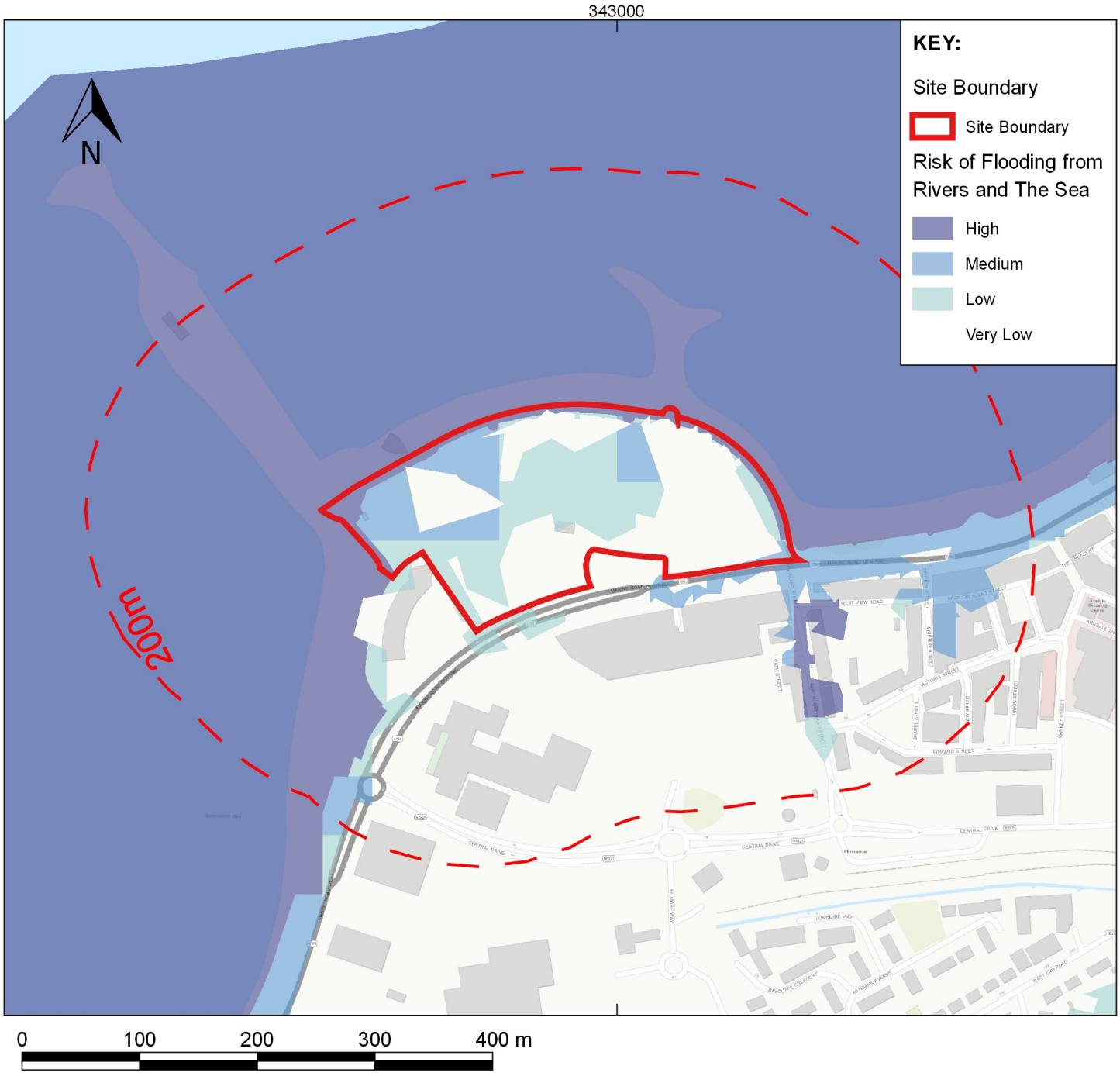
Flood Zone 2 - Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)

Flood Zone 3 - Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:45:11
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY RISK OF FLOODING FROM RIVERS AND THE SEA



High risk means that each year this area has a chance of flooding of greater than 3.3%.

Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%.

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.

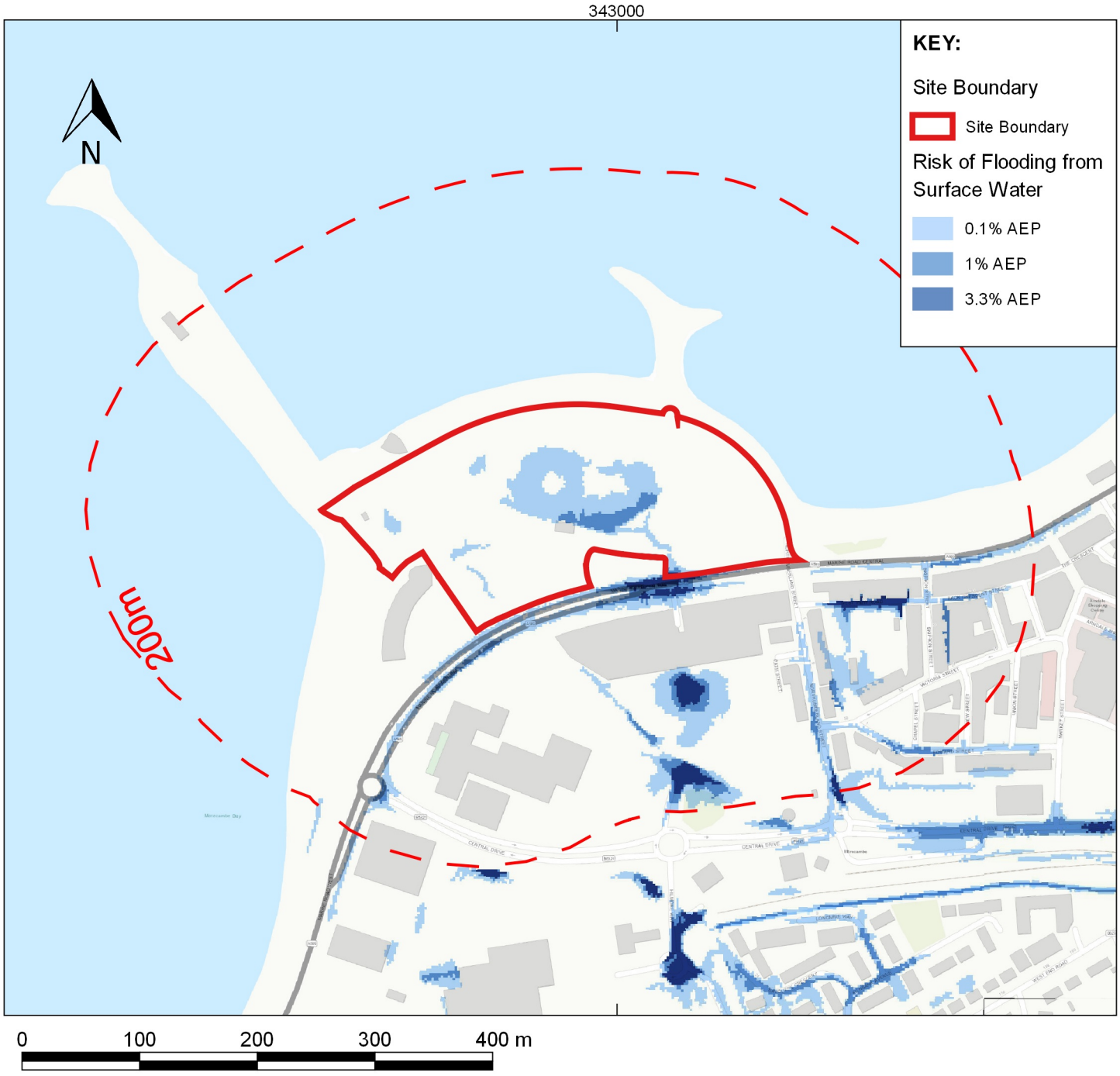
Very low risk means that each year this area has a chance of flooding of less than 0.1%.

This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:45:20
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY RISK OF FLOODING FROM SURFACE WATER



High risk means that each year this area has a chance of flooding of greater than 3.3%.

Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%.

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.

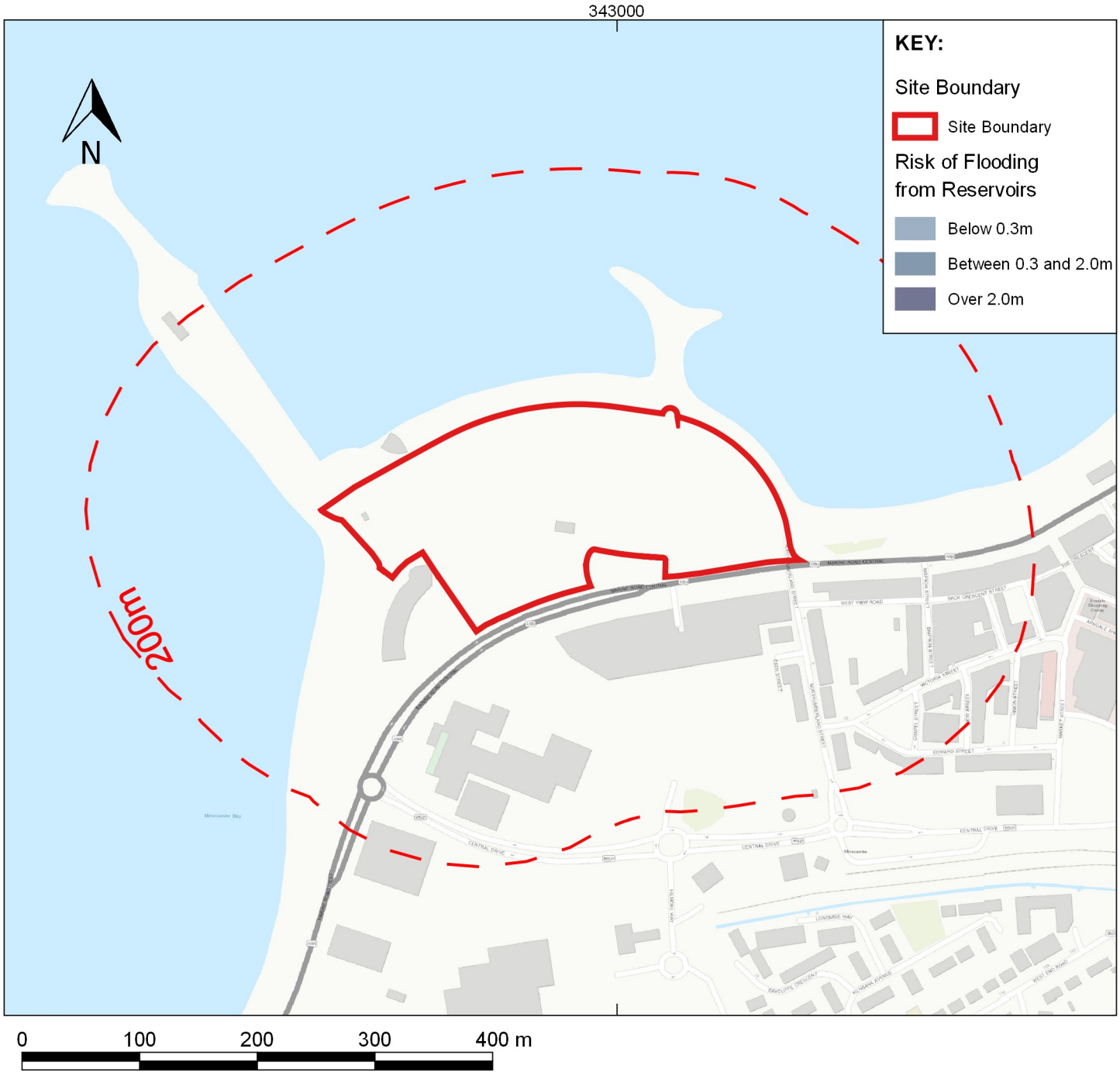
Very low risk means that each year this area has a chance of flooding of less than 0.1%.

Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:45:33
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY RISK OF FLOODING FROM RESERVOIRS



If a location is at risk, flooding from reservoirs is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925.

An area is considered at risk if peoples' lives could be threatened by an uncontrolled release of water from a reservoir.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:45:41
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

WSP UK Limited | Registered address: WSP House, 70 Chancery Lane, London WC2A 1AF
Registered in England and Wales No. 01383511

ENVIRONMENT AGENCY RISK OF FLOODING FROM MULTIPLE SOURCES



High risk means that each year this area has a chance of flooding of greater than 3.3%.

Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%.

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.

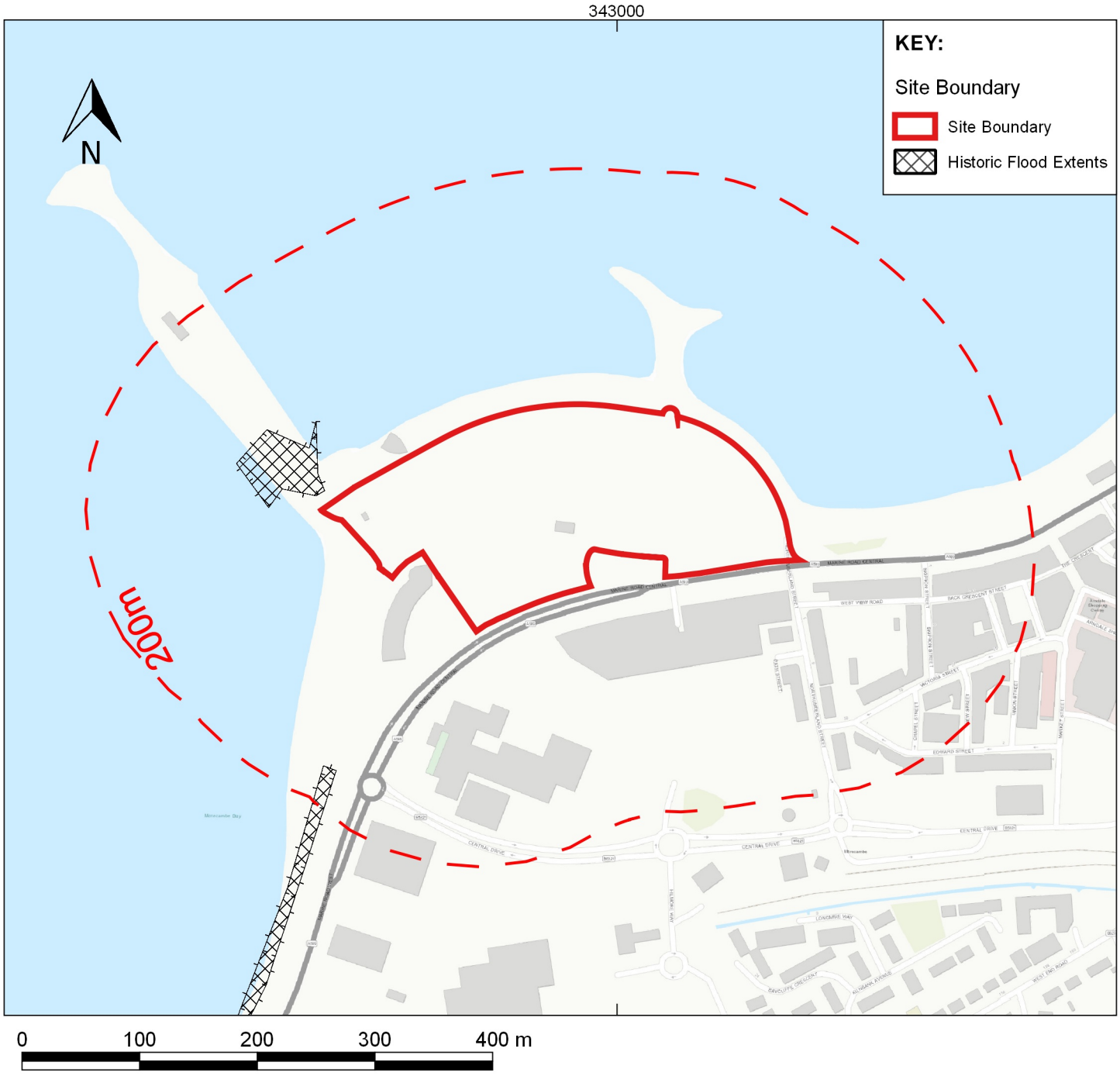
Very low risk means that each year this area has a chance of flooding of less than 0.1%.

This dataset is not suitable for identifying whether an individual property will flood. The Risk of Flooding from Multiple Sources (RoFMS) information is a national scale assessment. It gives an indication of what areas of land may be at risk of flooding from more than one source. This first version of the assessment considers flooding from rivers, the sea and surface water.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:45:56
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY HISTORIC FLOOD MAP



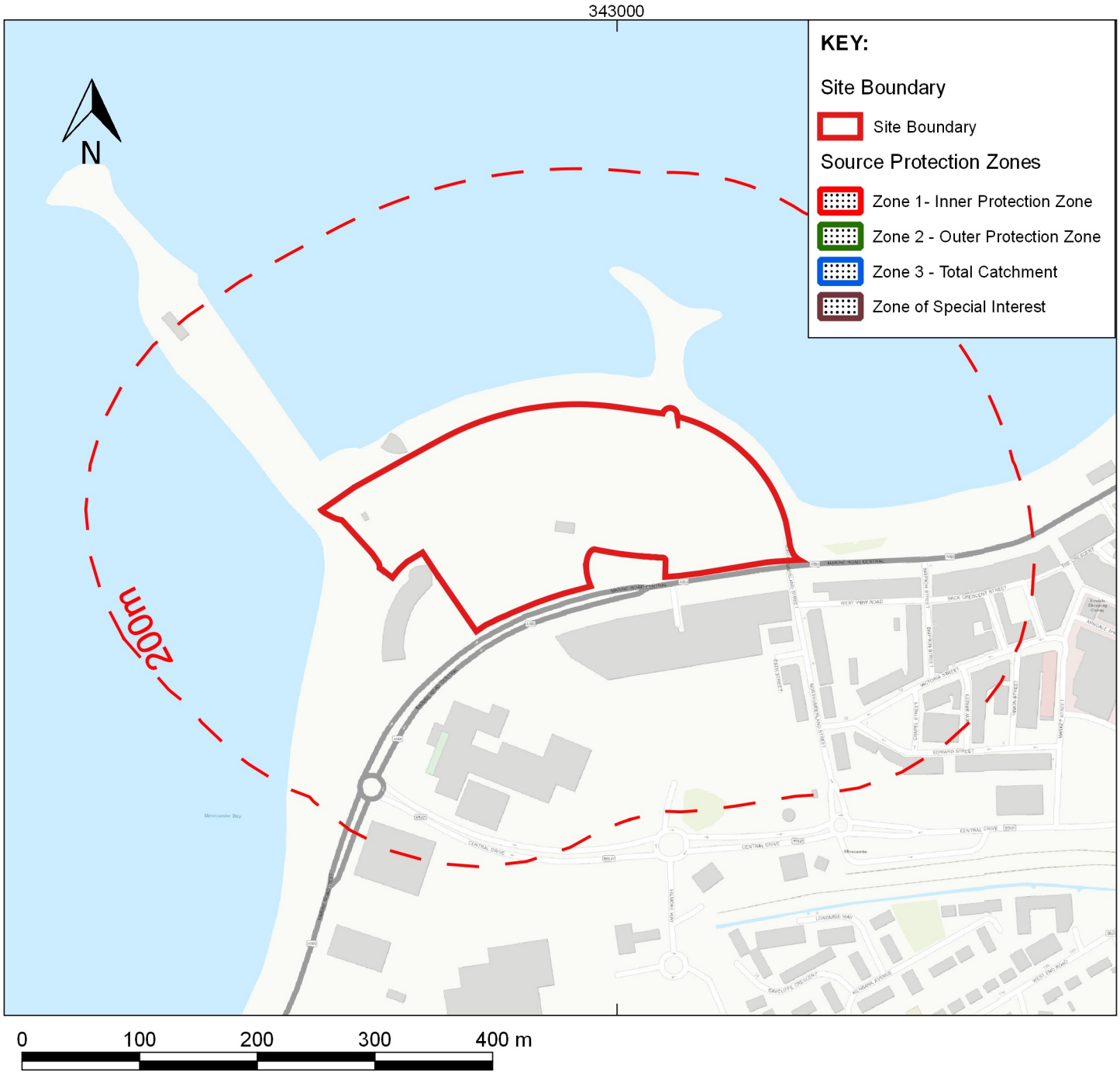
The Historic Flood Map is a GIS layer showing the maximum extent of all individual Recorded Flood Outlines from river, the sea and groundwater springs and shows areas of land that have previously been subject to flooding in England. Records began in 1946 when predecessor bodies to the Environment Agency started collecting detailed information about flooding incidents, although limited details may be held about flooding incidents prior to this date.

The absence of coverage by the Historic Flood Map for an area does not mean that the area has never flooded, only that we do not currently have records of flooding in this area. It is also possible that the pattern of flooding in this area has changed and that this area would now flood under different circumstances. The Historic Flood Map will take into account of the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It will include flood extents that may have been affected by overtopping, breaches or blockages. Flooding shown to the land and does not necessarily indicate that properties were flooded internally.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020 - http://apps.environment-agency.gov.uk/legal/35768.aspx

Created by: UKJED006 - 2021-08-24 10:46:04
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY SOURCE PROTECTION ZONES



Inner zone (Zone 1) - Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres;

Outer zone (Zone 2) - Defined by a 400 day travel time from a point below the water table. The previous methodology gave an option to define SPZ2 as the minimum recharge area required to support 25 per cent of the protected yield. This option is no longer available in defining new SPZs and instead this zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction;

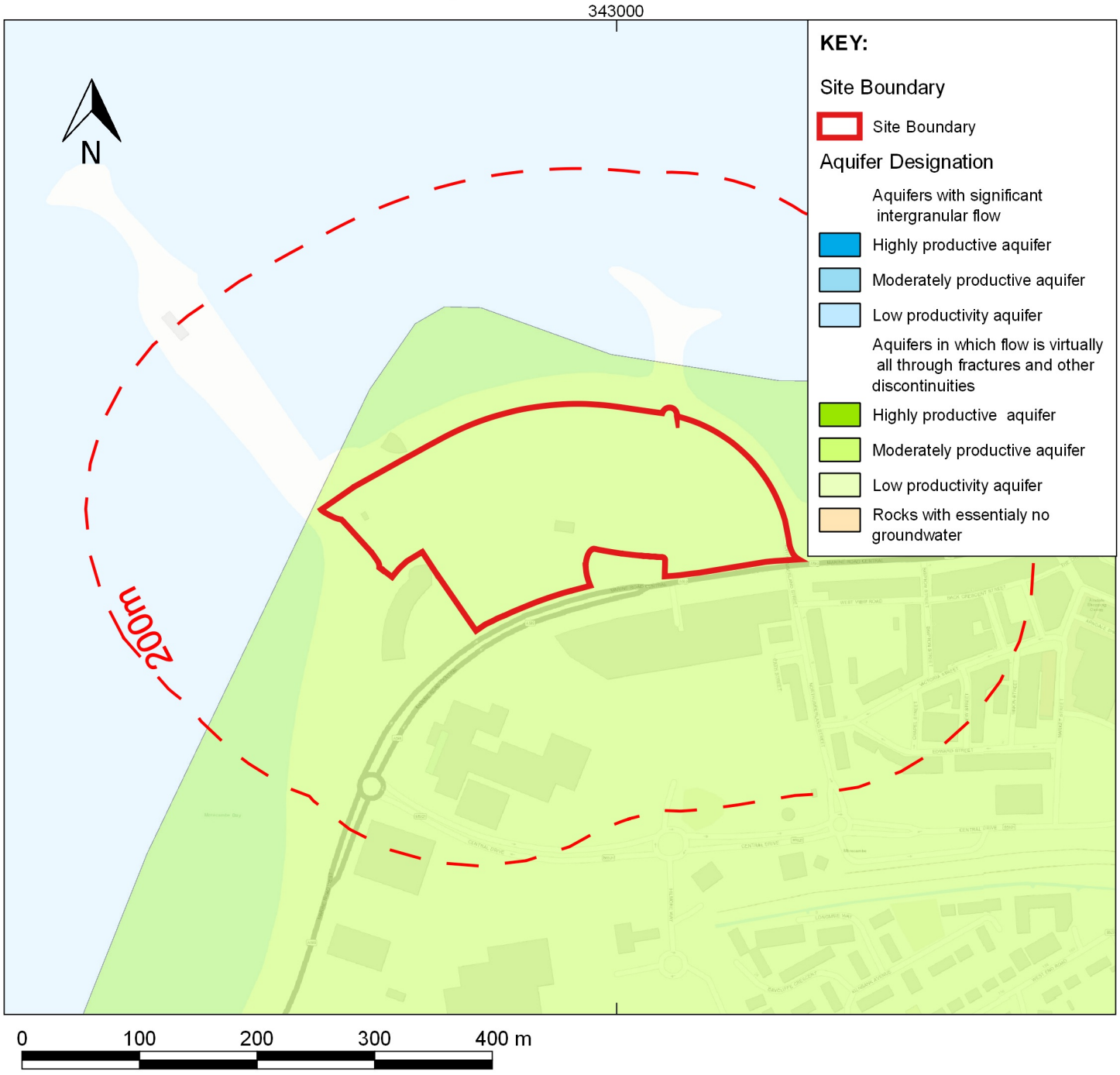
Total catchment (Zone 3) - Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

Special interest (Zone 4) - A fourth zone SPZ4 or 'Zone of Special Interest' was previously defined for some sources. SPZ4 usually represented a surface water catchment which drains into the aquifer feeding the groundwater supply (i.e. catchment draining to a disappearing stream).

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020 - http://www.bgs.ac.uk/help/terms_of_use.html

Created by: UKJED006 - 2021-08-24 10:46:12
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

ENVIRONMENT AGENCY 1:625,000 SCALE AQUIFER DESIGNATION



The hydrogeological map indicates aquifer potential in generalised terms using a threefold division of geological formations:

1. those in which intergranular flow in the saturated zone is dominant
2. those in which flow is controlled by fissures or discontinuities
3. less permeable formations including aquifers concealed at depth beneath covering layers

Highly productive aquifers are distinguished from those that are only of local importance or have no significant groundwater. Within each of these classes the strata are grouped together according to age or lithology.

The 1:625 000 scale data may be used as a guide to the aquifers at a regional or national level, but should not be relied on for local information.

CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020 - https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020 - http://www.bgs.ac.uk/help/terms_of_use.html

Created by: UKJED006 - 2021-08-24 10:46:20
C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\FMP\70083611 - Eden Project North.qgs

Appendix E

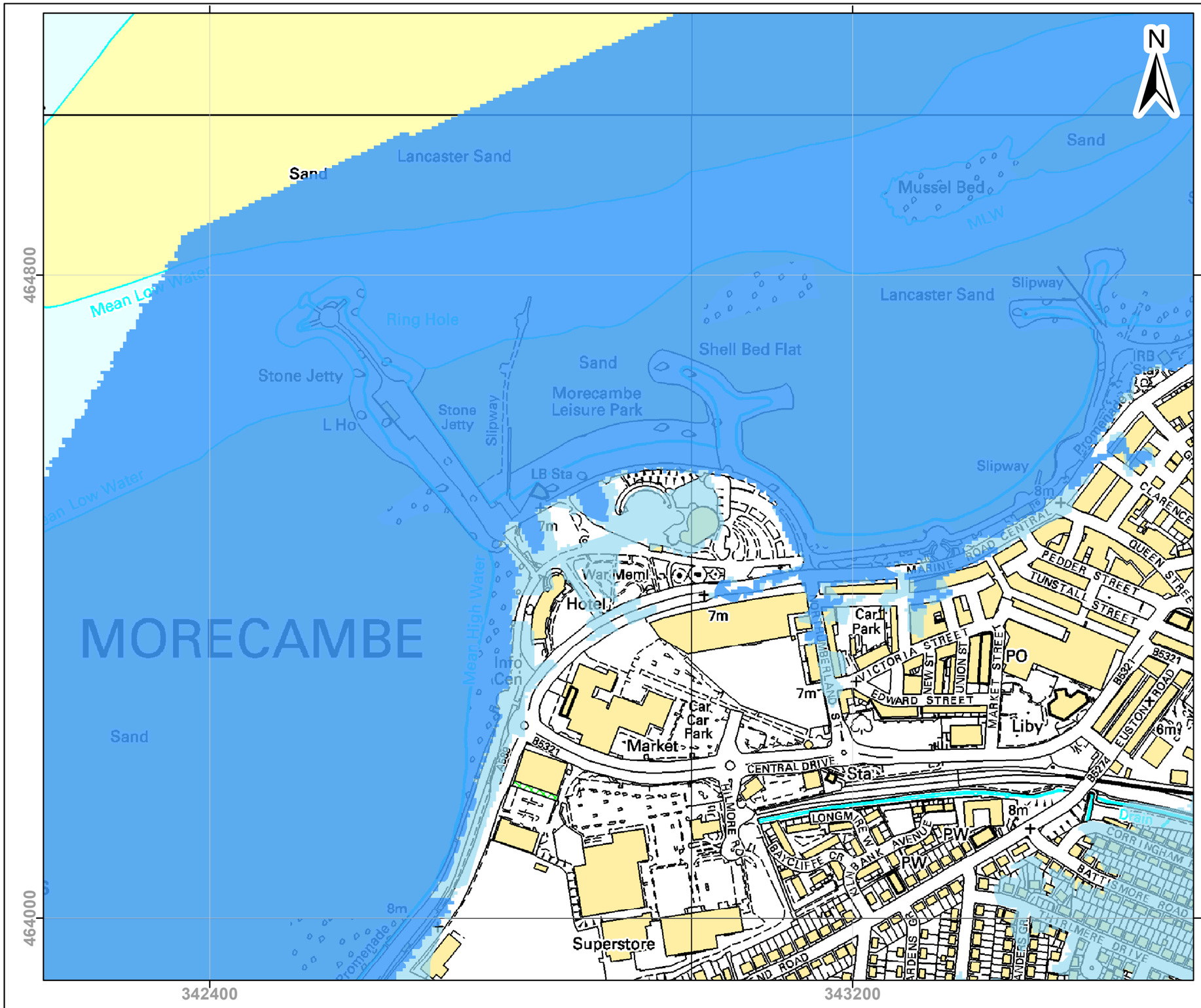
CORRESPONDENCE EMAILS

Public

Appendix E.1

THE ENVIRONMENT AGENCY

Public



Environment Agency

Flood Zones Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

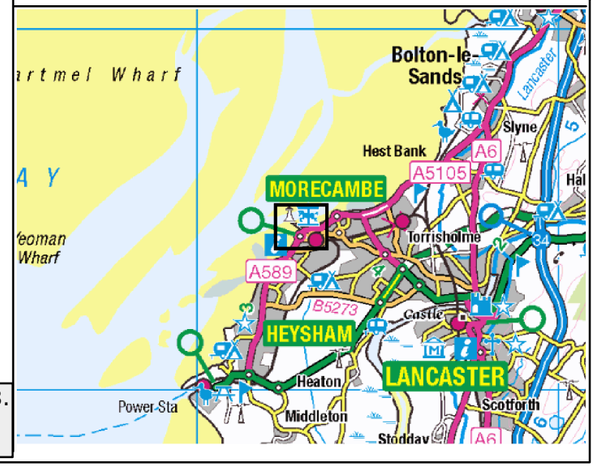
Key

- Areas Benefitting from Defences
- Flood Zone 3
- Flood Zone 2

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Environment Agency

Flood History Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

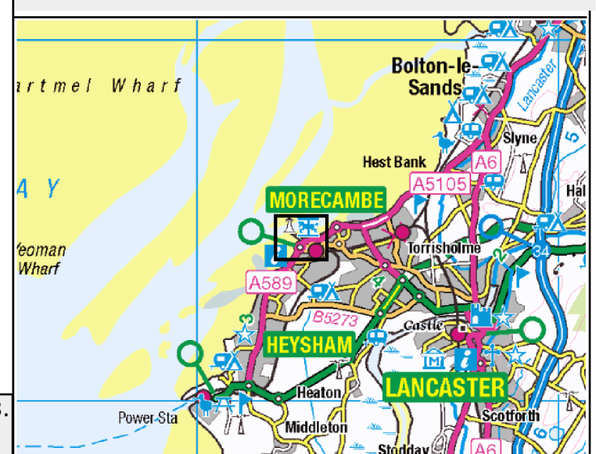
11/11/1977

01/02/2002

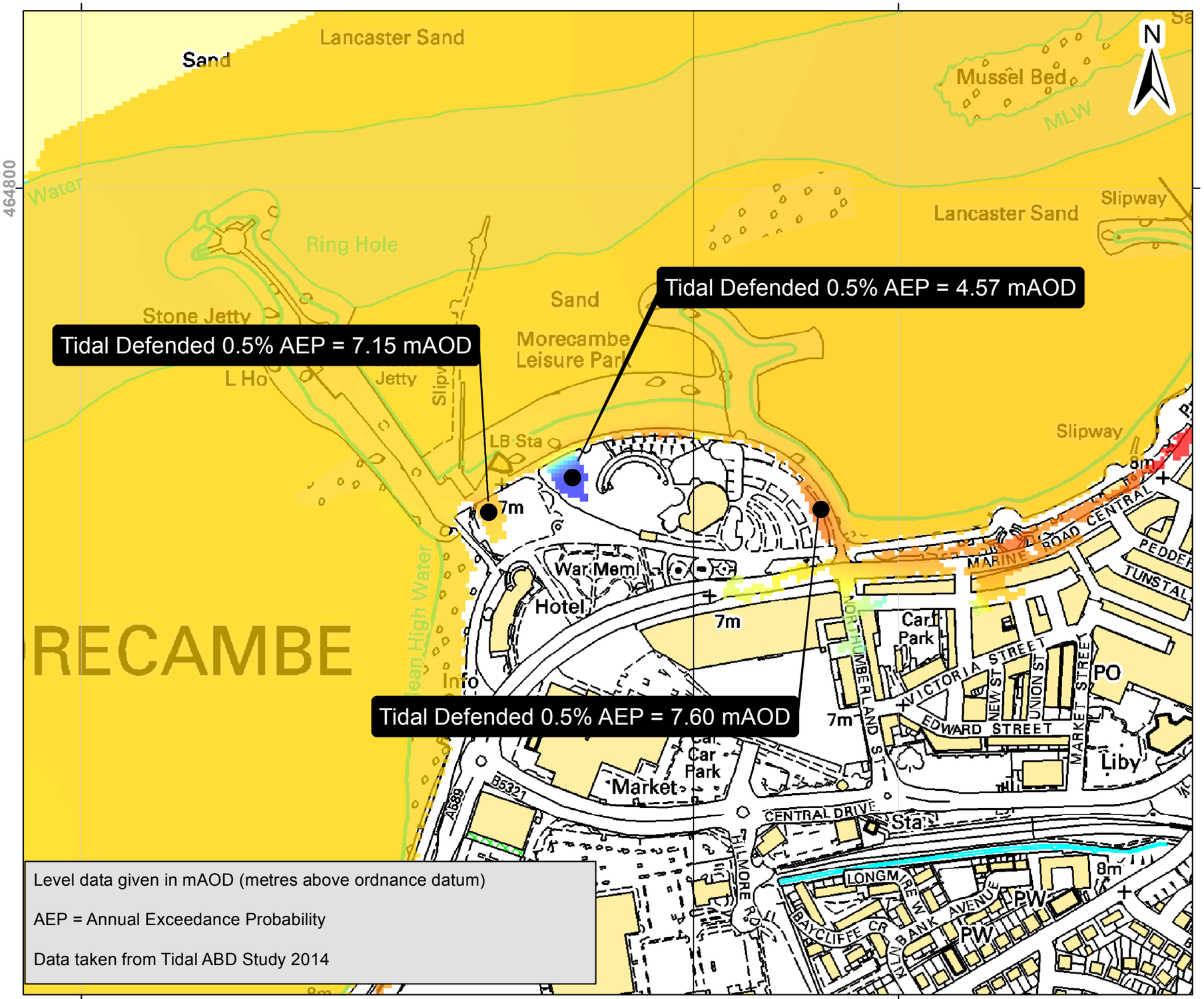
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

Data taken from Tidal ABD Study 2014

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Defended 0.5% annual probability of flooding

mAOD

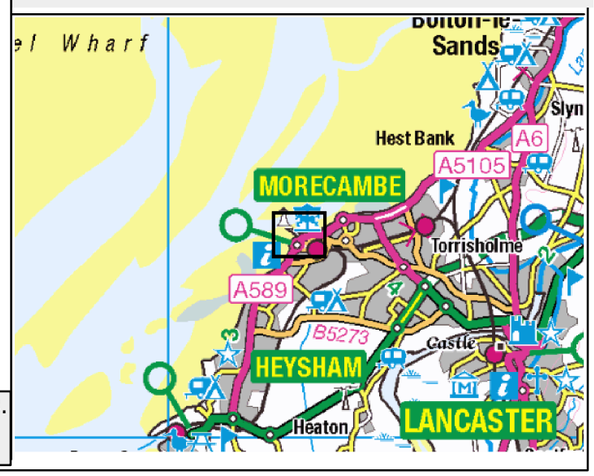
High : 8

Low : 4.5

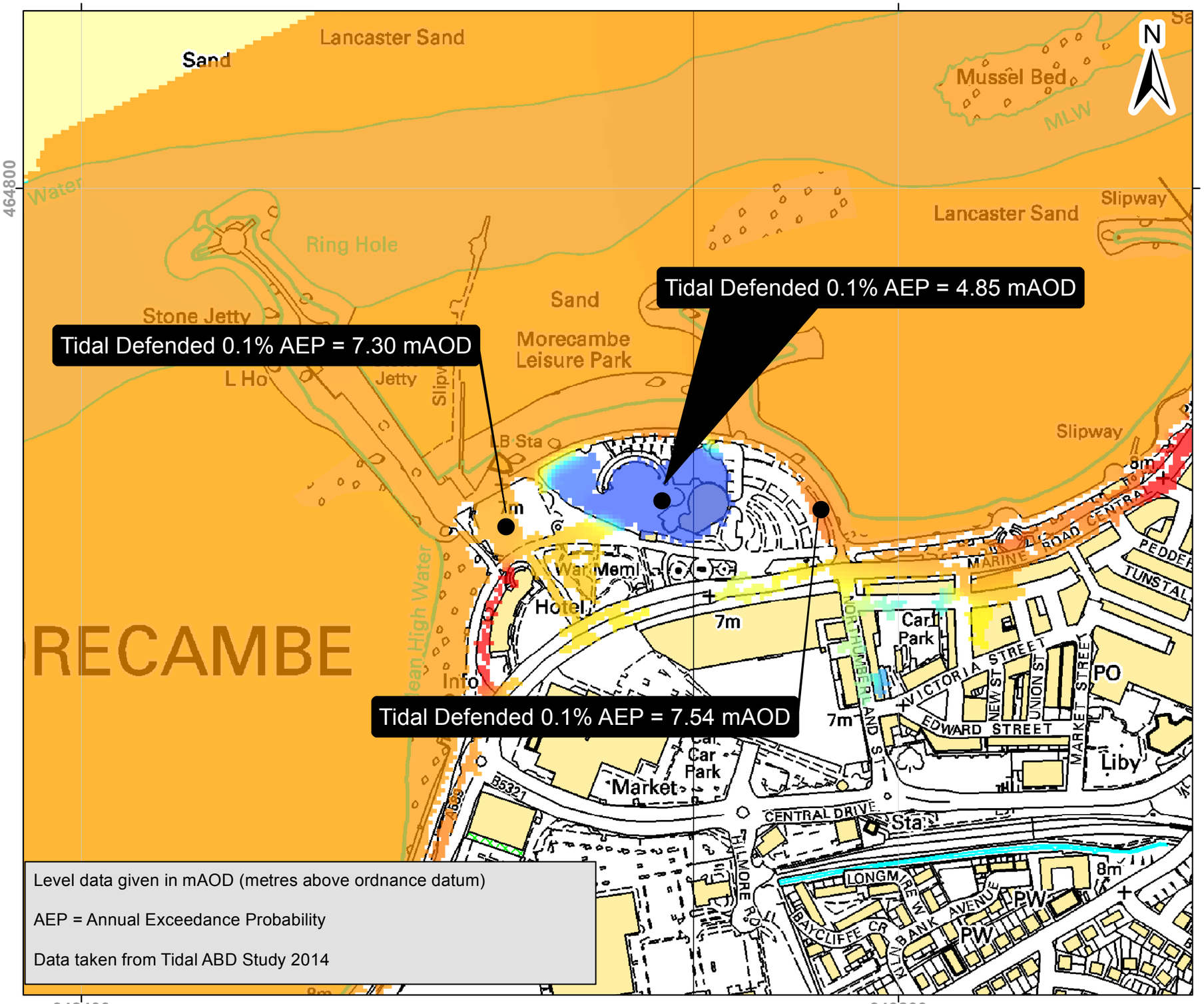
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

Data taken from Tidal ABD Study 2014

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Defended 0.1% annual probability of flooding

mAOD

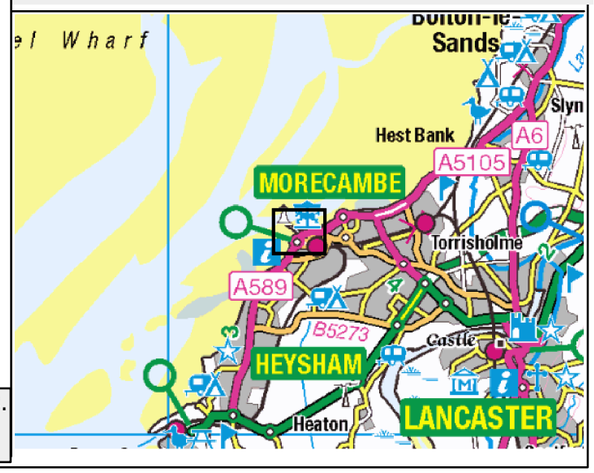
High : 8

Low : 4.5

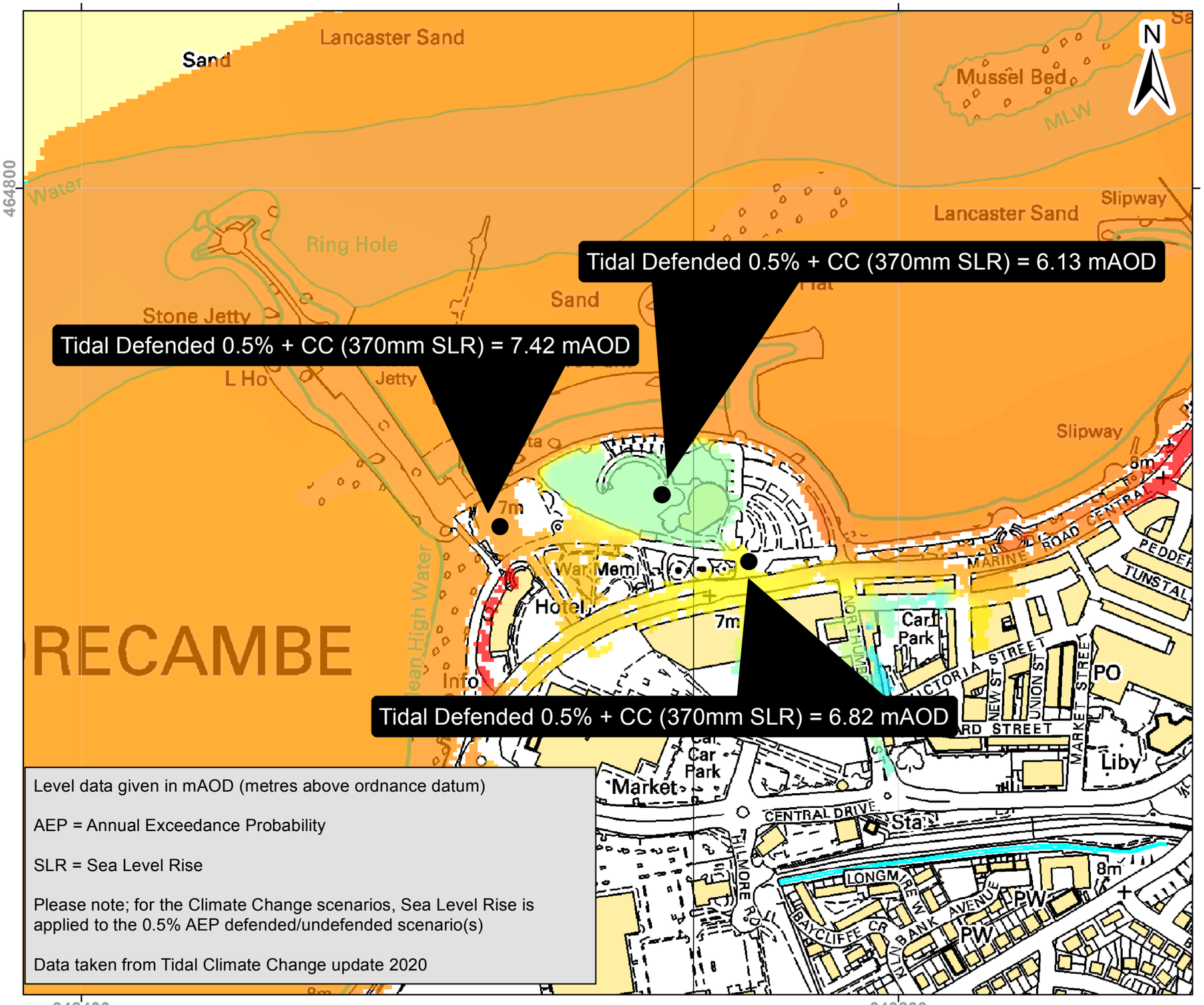
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

SLR = Sea Level Rise

Please note; for the Climate Change scenarios, Sea Level Rise is applied to the 0.5% AEP defended/undefended scenario(s)

Data taken from Tidal Climate Change update 2020

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Defended 0.5% annual probability of flooding + Climate change (+370mm SLR) scenario

mAOD

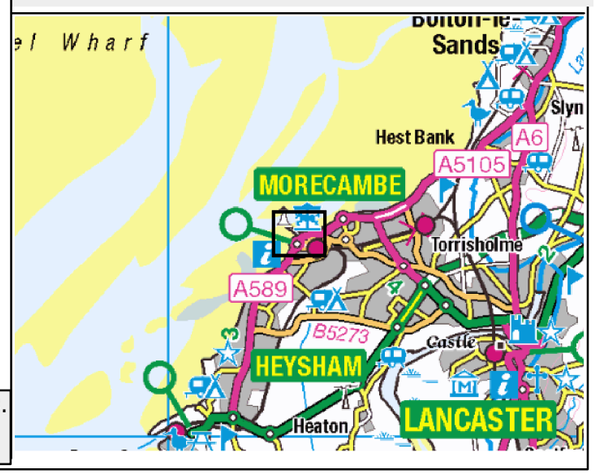
High : 8

Low : 4.5

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Tidal Defended 0.5% + CC (970mm SLR) = 8.04 mAOD

Tidal Defended 0.5% + CC (970mm SLR) = 7.99 mAOD

Tidal Defended 0.5% + CC (970mm SLR) = 7.95 mAOD

464800

342400

343200

Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

SLR = Sea Level Rise

Please note; for the Climate Change scenarios, Sea Level Rise is applied to the 0.5% AEP defended/undefended scenario(s)

Data taken from Tidal Climate Change update 2020

Key

Tidal Defended 0.5% annual probability of flooding + Climate change (+970mm SLR) scenario

mAOD

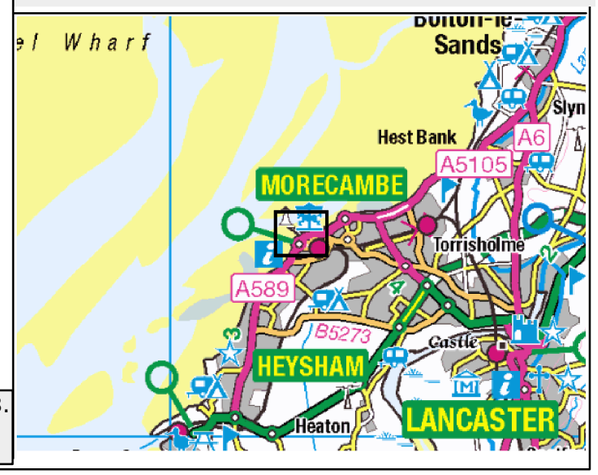
High : 8

Low : 4.5

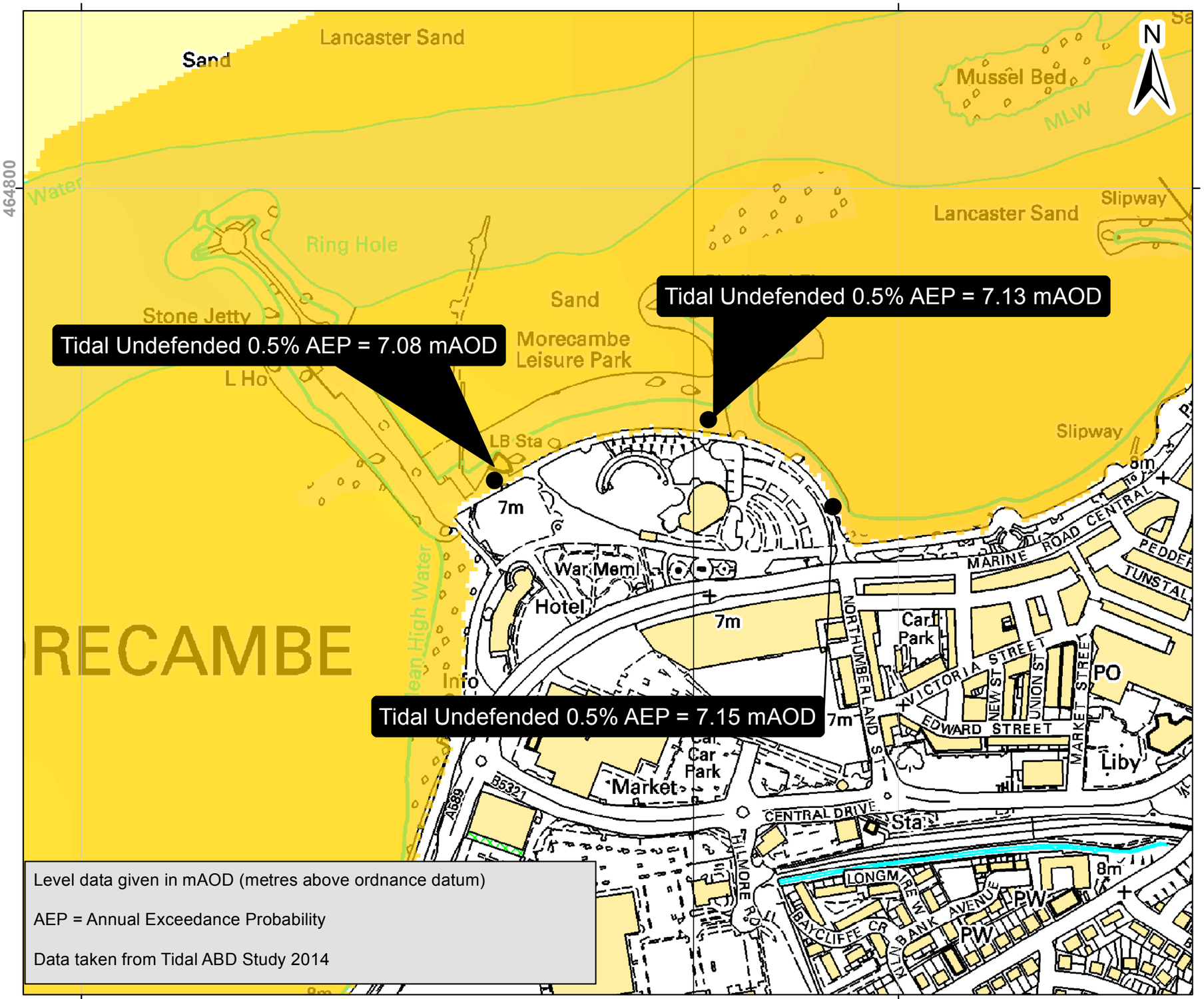
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

Data taken from Tidal ABD Study 2014

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Undefended 0.5% annual probability of flooding

mAOD

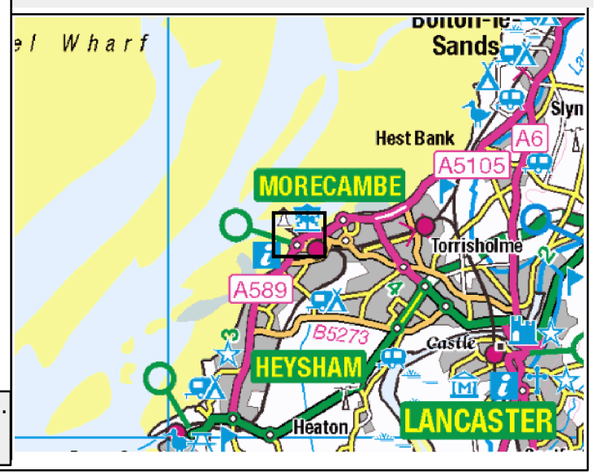
High : 8

Low : 4.5

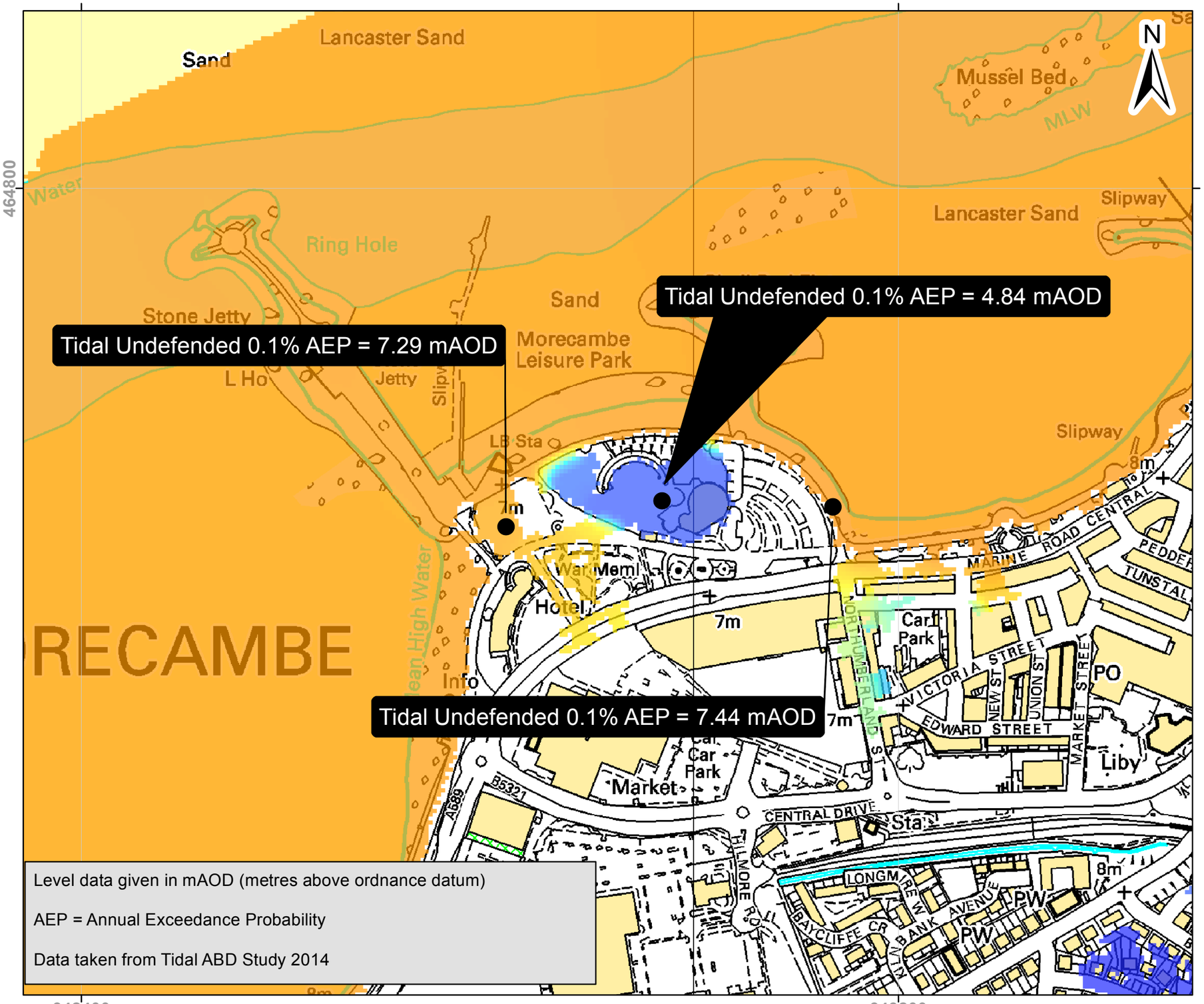
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

Data taken from Tidal ABD Study 2014

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Undefended 0.1% annual probability of flooding

mAOD

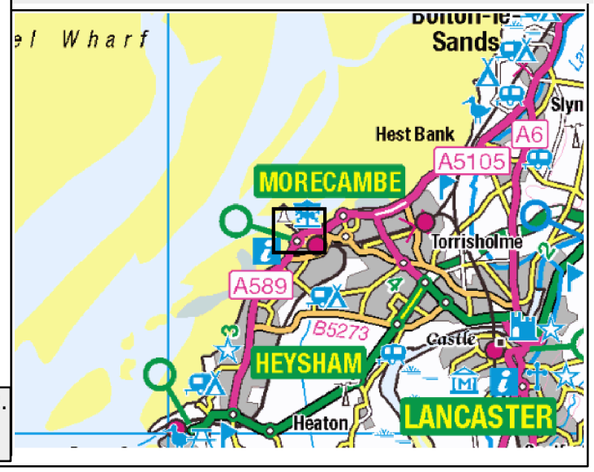
High : 8

Low : 4.5

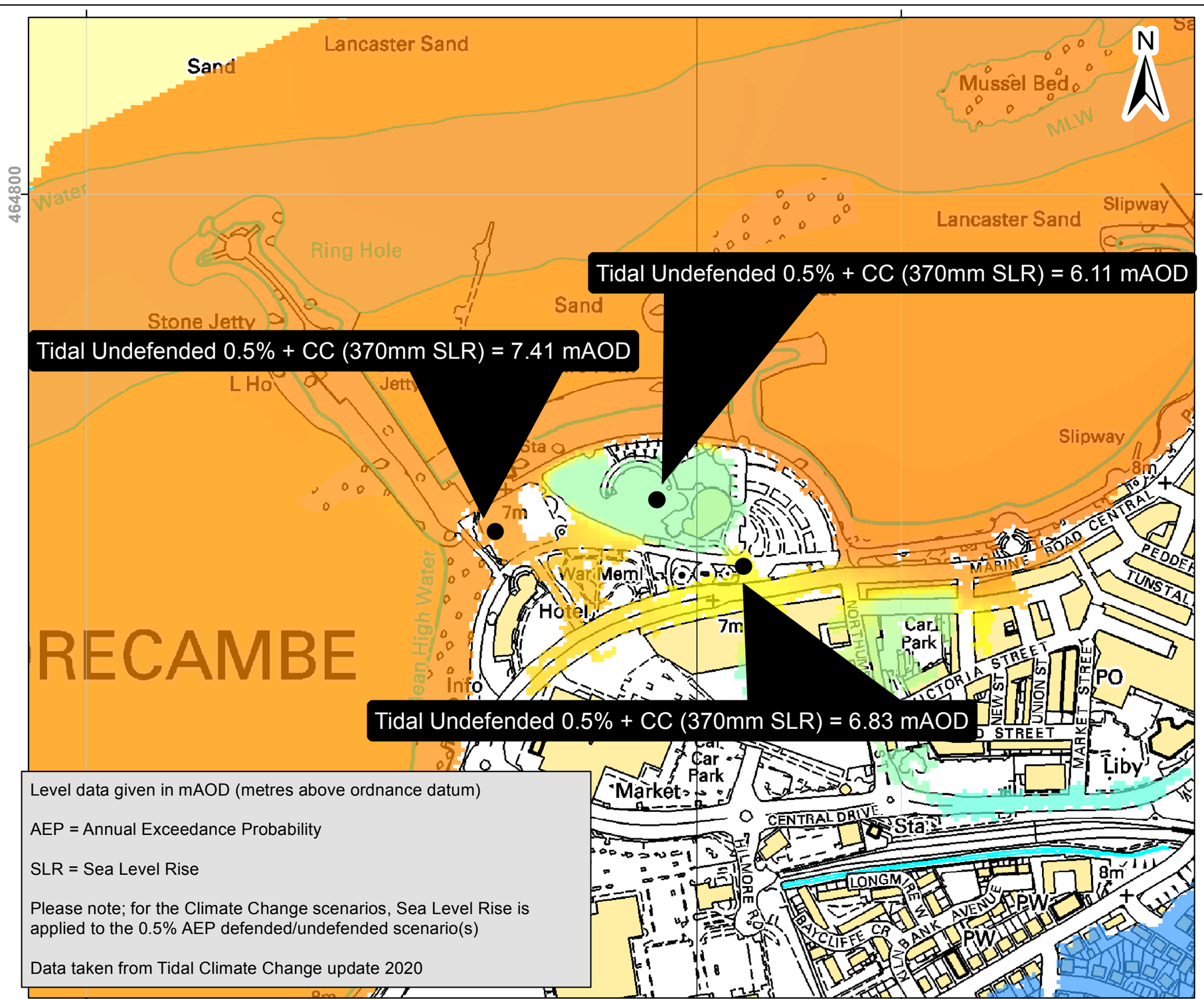
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Undefended 0.5% annual probability of flooding + Climate change (+370mm SLR) scenario

mAOD

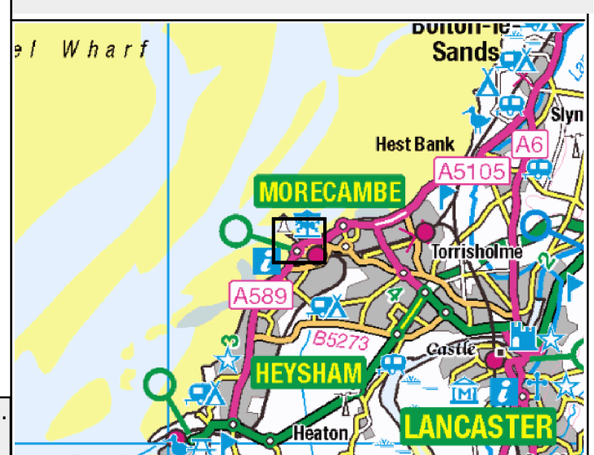
High : 8

Low : 4.5

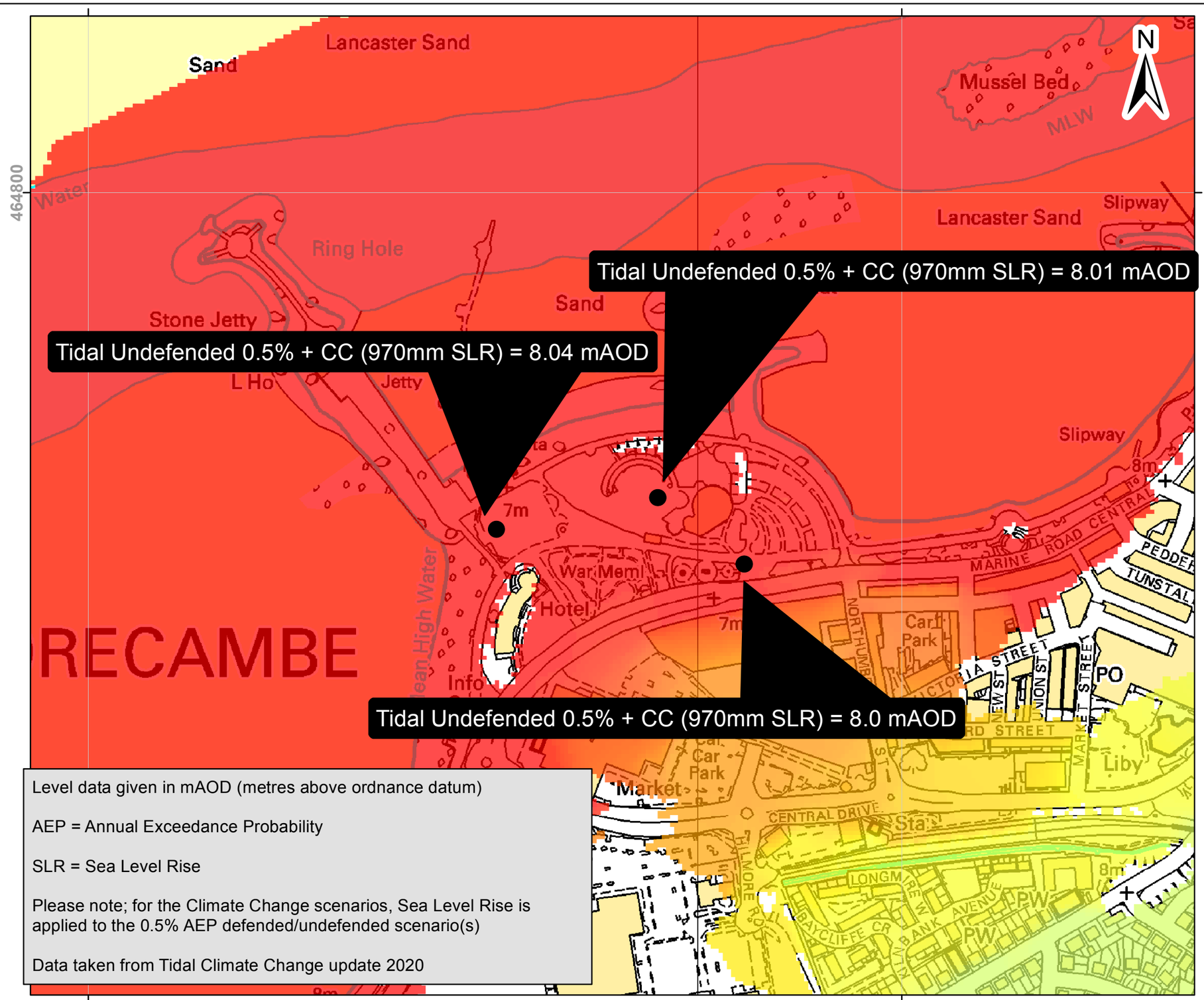
Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAOD (metres above ordnance datum)

AEP = Annual Exceedance Probability

SLR = Sea Level Rise

Please note; for the Climate Change scenarios, Sea Level Rise is applied to the 0.5% AEP defended/undefended scenario(s)

Data taken from Tidal Climate Change update 2020

Environment Agency

Tidal Flood Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Tidal Undefended 0.5% annual probability of flooding + Climate change (+970mm SLR) scenario

mAOD

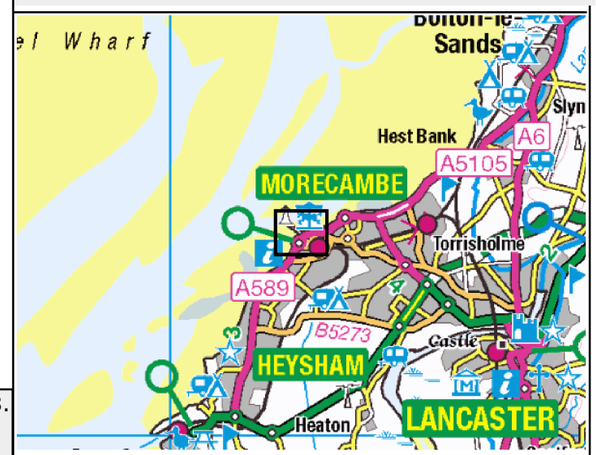
High : 8

Low : 4.5

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.

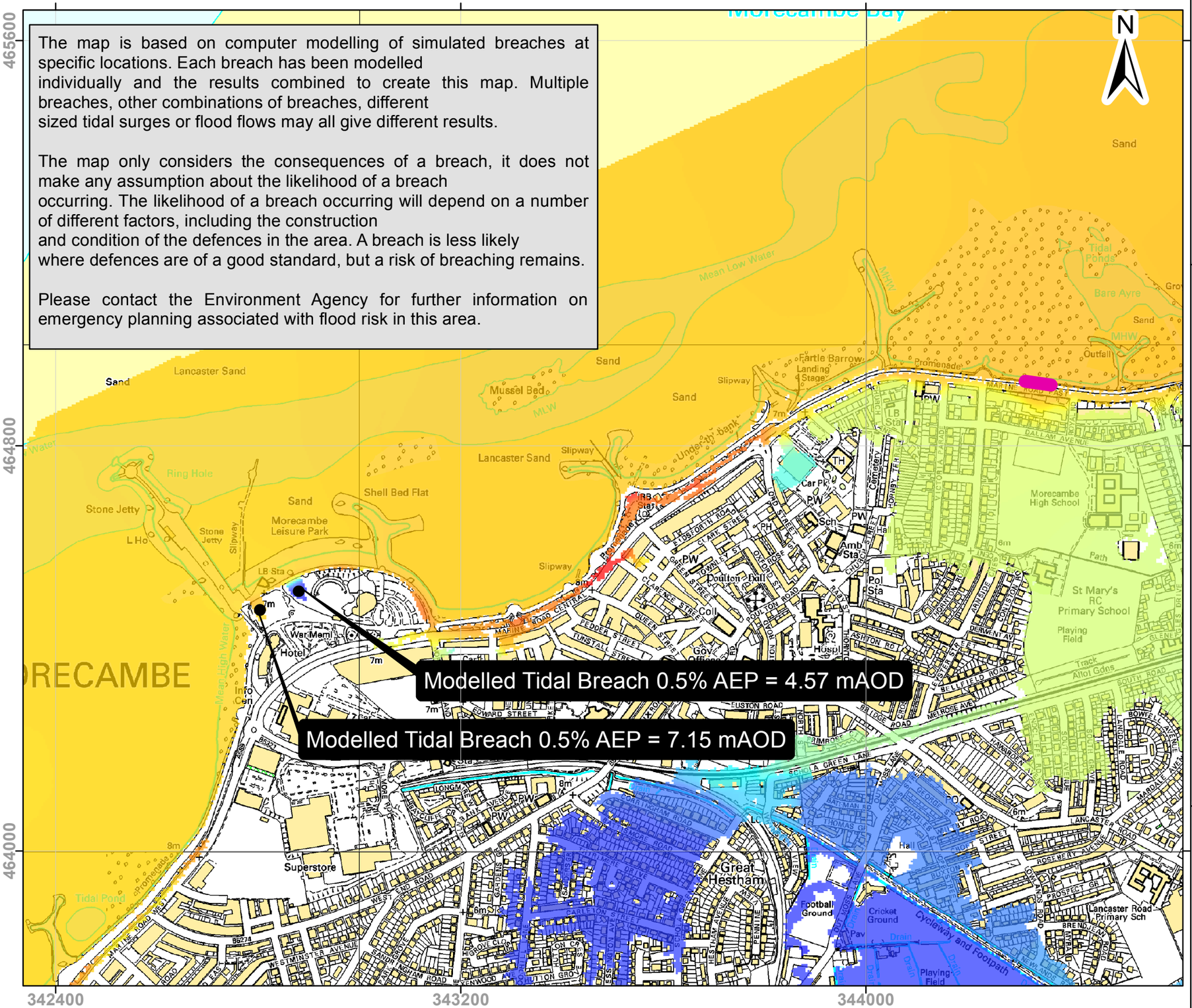


© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.

Please contact the Environment Agency for further information on emergency planning associated with flood risk in this area.



© Environment Agency copyright and database rights 2020. All rights reserved. © Crown Copyright and database rights 2020. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Environment Agency

Tidal Breach Map:
Eden Project North, Morecambe
Produced: 08 October 2020
Our Ref: CL185448
NGR: 342938, 464479

Key

Breach Locations

Modelled Tidal Breach Scenario 0.5% Annual probability of flooding

mAOD

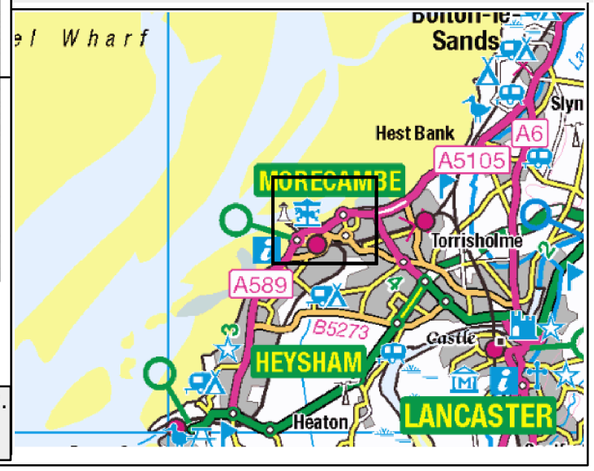
High : 8

Low : 4.5

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



[redacted]

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: 21 July 2021 10:49
To: [redacted]
Subject: CL215113HR

Hello

The model files, including the wave overtopping files, relate to the Tidal ABD Study 2014 only and not the updated climate change runs which were carried out in 2020. The '201CC' files will refer to the 2115 climate change scenario which was modelled in the original study.

We are unable to provide the input modelling files for the Tidal Climate Change Update 2020 (the 2069 and 2119 epoch scenarios). The modelling files have not yet been delivered for these runs. The sharefile link provided to you previously will however contain the output data (e.g. ESRI geodatabase, ASCII grids, GeoTIFF files).

Thanks

[redacted]
Flood & Coastal Risk Management Officer

From: [redacted]@wsp.com]
Sent: 16 July 2021 16:35
To: [redacted]@environment-agency.gov.uk>; CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Cc: NWNorthPlanning <CLPlanning@environment-agency.gov.uk>; [redacted] <[redacted]@environment-agency.gov.uk>; [redacted]@wsp.com>; [redacted]@wsp.com>
Subject: RE: CL215113HR

Good afternoon,

We've previously been issued with Product 7 data for Morecambe Bay by the Agency. We're now currently undertaking the modelling for Eden Project North.

We've reviewed the files and within the wave data there are lots of return periods which we assume to be present day. We were expecting these return periods to be repeated for 2069 and 2119 but that doesn't appear to be the case. We have some 201 return period events which have 'CC' included in the Water Level (WL) Return Period (RP) column but it isn't clear what this is referring to. Please could you confirm what this relates to and whether there is any other data that we might not have?

Please can you confirm that the wave modelling outputs are definitely from the updated 2020 model rather than the 2014 version?

Kind Regards,

[redacted]

[redacted]
Engineer – Water Risk Management and Engineering
BSc (Hons), MCIWEM

[redacted]

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you. WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

From: [redacted]@environment-agency.gov.uk>
Sent: 30 April 2021 14:54
To: [redacted]@wsp.com>
Subject: CL215113HR

Dear [redacted]

Enquiry regarding Product data

Thank you for your enquiry which was received on 28 April 2021.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Please see the ShareFile link below for the Product 7 request.

- https://ea.sharefile.com/d-sea3e92911634440984869e96702c6720 - **Please note that this link expires on 30/05/2021. Please download the data on receipt.**
- This data is being supplied under the terms of our Conditional Licence.
- The link contains the Tidal ABD Study 2014 including model files, report and GIS outputs in ASCII and ESRI geodatabase formats. The link also contains the outputs and report from the Tidal Climate Change Update study in 2020. Please note however that the model files are not yet available.

Please refer to Open Government Licence which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Thanks

[redacted]

[redacted]
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

inforequests.cmblnc@environment-agency.gov.uk



From: [redacted]@wsp.com]
Sent: 28 April 2021 16:37
To: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Cc: [redacted]@wsp.com>; NWNorthPlanning <CLPlanning@environment-agency.gov.uk>
Subject: RE: CL185448HR

FAO [redacted]

Good afternoon [redacted],

Previously you supplied Product 4 data to us for the Eden Project North site (location plan attached), along with the relevant modelling reports that this was based on. However, as the project is progressing we would now like to request the associated model and results (Product 7) please. Is this something that can be provided via a sharefile link please?

Kind Regards,

[redacted]
CIWEM Committee Member - CSB
Engineer – Water Risk Management and Engineering, WEI

[redacted]
Mountbatten House,
Basing View, Basingstoke,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: 03 February 2021 07:29
To: [redacted]@wsp.com>
Subject: CL185448HR

Hi [redacted]

In order for me to make sure the right team contact you for a discussion around your queries could you just tell me what they relate to. Is it queries around the product 4 data we sent you or is it more to do with planning issues?

I look forward to hearing from you.

[redacted]
Customer and Engagement Officer
Cumbria and Lancashire

From: [redacted]@wsp.com]
Sent: 02 February 2021 18:22
To: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Cc: [redacted]@wsp.com>
Subject: RE: CL185448HR

Dear [redacted],

Many thanks for the providing us with the Product 4 data for Eden Project North.

We have some further queries in regards to the proposed development and we would be grateful if we could have a call with yourself or another appropriate colleague to discuss this please.

Please could you let me know your availability and I will set up a call/teams meeting?

Kind Regards,

[redacted]
CIWEM Committee Member - CSB
Engineer – Water Risk Management and Engineering, WEI

[redacted]
Mountbatten House,
Basing View, Basingstoke,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: 08 October 2020 16:08
To: [redacted]@wsp.com>
Subject: CL185448HR

Dear [redacted]

Enquiry regarding product 4 data.

Thank you for your enquiry received on 17 September 2020.

We respond under the Freedom of Information Act 2000 and Environment Regulations 2004.

Please see below response for: Eden Project North, Morecambe

- The **Tidal data** was taken from the Lancashire Tidal ABD study produced in 2014. Climate Change scenarios have been updated. These now supersede the Tidal Climate Change values in the 2014 modelling. The Climate Change update utilised the modelling undertaken from 2014 and applied a Sea Level Rise (SLR) to the modelling. Therefore, any changes in topography since the 2014 modelling would not have been captured.

  The specific sea level rise increases are as follows;
  2069 grids - a 370mm SLR applied to the defended/undefended 0.5% AEP scenarios
  2119 grids - a 970mm SLR applied to the defended/undefended 0.5% AEP scenarios

  The report update is still being finalised and not available for issue yet.
  The model files are not yet available and so only the output data is available.

- Current Climate Change allowances may not be appropriate for some planning applications. In these instances please refer to Table 3; Sea Level Rise guidance on the following website;
  www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

- For all queries relating to flooding from surface water, ordinary watercourses and groundwater flooding, please contact the Lead Local Flood Authority Lancashire County Council in this instance. Surface Water Maps can be viewed online at https://flood-warning-information.service.gov.uk/long-term-flood-risk/map.

There are coastal flood defences managed by Lancaster City Council at this location that we don't hold any information on but you should be able to contact them to obtain the information.

Please refer to the Open Government Licence which explains ther permitted use for this information.

Please get in touch if you have any further queries or contact us within 2 months if you would like us to review the information we have sent.

Kind regards.

[redacted]
Customer Engagement officer
Cumbria and Lancashire

From: CMBLNC Info Requests
Sent: 17 September 2020 14:18
To: [redacted]@wsp.com
Subject: CL185448HR

Dear [redacted]

Thank you for contacting the Environment Agency regarding product 4 data.

As your request for information falls under either the Freedom of Information Act or Environmental Information Regulations we must respond to you within 20 working days.

Due to the present situation with Corona Virus and the fact that our staff are having to work from home we ask that you bear with us at this difficult time. We will try and get a response to you as soon as we can but it may well take longer than 20 working days if staff are poorly or are unable to access files or computer programmes at home.

In the meantime you may wish to look at www.data.gov.uk to see if the data you have requested is available for you online.

You may find it helpful to look online at The Flood Hub, which has been developed to hold up to date information about flooding in the North West, including what the Environment Agency is doing and what steps you can do yourself, to help increase your flood resilience.

For further information on what you can expect from us and our full service commitment to you, please click this link; https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

If you need to contact me in the meantime, please do not hesitate to do so using the details below and quoting reference number CL185448HR.

Kind regards

[redacted]
Customer and Engagement Officer

From: Enquiries, Unit
Sent: 17 September 2020 14:11
To: [redacted]@wsp.com' [redacted]@wsp.com>
Subject: Ref: 200917/JV02 - FW: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Dear [redacted],

I have passed your e-mail to the local customer team who will deal with your request.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, but we aim to respond to all enquiries as quickly as we can.

You can find more information about our service commitment by clicking on the link below:

https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

You can contact our customer team directly on the contact details below, or call the National Customer Contact Centre on 03708 506506 who will transfer you to the area team.

Please quote your enquiry reference 200917/JV02 in any correspondence with us regarding this matter.

Customers and Engagement
Environment Agency
Cumbria and Lancashire Area
Lutra House
Dodd Way
Walton Summit
Bamber Bridge
PRESTON
PR5 8BX

Kind regards

[redacted]
Customer Service Advisor
Environment Agency - National Customer Contact Centre
Part of National Operations Services

[redacted]
Web Site: www.gov.uk/environment-agency



Click an icon to keep in touch with us:-





From: [redacted]@wsp.com]
Sent: 15 September 2020 17:23
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Dear Sir / Madam,

Eden Project North, Morecambe

Flood Risk Assessment – Enquiry

We have been instructed by our client to carry out an assessment of flood risk at the above site.

We are writing to request the Environment Agency provide any flood risk and flood defence data and information with respect to the above site and any other pertinent information or opinion regarding development at the application site.

The site is shown to be located within Flood Zone 1, Flood Zone 2 and Flood Zone 3. The OS grid reference for the site is 342938, 464479 and the nearest post code is LA4 4BU. Please find enclosed a location map for your reference.

Please could the Environment Agency provide the following information, where available:

1. Please could the Environment Agency provide Product 4 data. We understand that there is no detailed hydraulic model for the site – If this is not correct, please can you provide this as well?

2. Historical records of flooding at or within the vicinity of the site from all sources of flooding. If the Environment Agency does not hold any records, please can you confirm that the site has no record of flooding in the past.

3. Details of any flood defences in the area that might influence flooding at the site / surrounding area.

4. Please could the Environment Agency confirm whether they have any specific water quality requirements for surface water runoff within Lancashire.

5. Groundwater levels on or within 500m of the site (including details of the strata in which the groundwater level observations are made).

6. Does the Environment Agency have any critical drainage areas that cover the development site and have these been notified to Lancashire?

7. Any additional flood data the Environment Agency considers useful for the above site.

We trust the above is clear, however, should you have any queries or require any further information from WSP to be able to answer the above queries, please do not hesitate to get in contact.

Kind Regards,

[redacted]
Graduate Engineer

[redacted]

Mountbatten House, Basing View,
Basingstoke, Hampshire,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

[redacted]
WSP
Mountbatten House Basing View
Basingstoke
Hampshire
RG21 4HJ

Our ref: NO/2021/113515/01-L01
Your ref: Eden Project North

Date: 2 July 2021

Dear [redacted]

CHARGED ADVICE ENQUIRY FOR EDEN PROJECT NORTH CENTRAL PROMENADE REGENERATION SITE, INCLUDING MORECAMBE BAY; LAND NORTH OF MARINE ROAD CENTRAL (FROM STONE JETTY TO CAR PARK OPPOSITE GREEN ST);
LAND NORTH-WEST OF MORECAMBE RAILWAY ST MARINE ROAD CENTRAL MORECAMBE LANCASHIRE

Thank you for requesting advice regarding the above proposal.

A briefing meeting was held 26/05/2021, and summary notes & actions were subsequently circulated by Jasmine Hope.

Please see below for comments from the Environment Agency made in response to the specific questions asked. We trust they will help shape the development proposals, and we look forward to continuing working with WSP as consideration of these issues progresses.

Query/comment	**EA response**
Regulation/consent	
AS confirmed that LCC are likely to need to consent the works, however SL and AS to follow this up (see Point 4.5).	The EA would not regulate the works through Environmental Permitting Regulations as the walls are owned by LCC. Please contact LCC.
Modelling	
I sought to confirm whether the new defences were included in the recent model update - SL	Updated climate change allowances were modelled in 2020. This modelling does not include any topographic updates from the 2014 modelling, therefore do not account for new defences.

Cont/d..

Which allowance does the 2069 and 2119 sea level rise data represent, the higher central or upper end?	The 370mm and 970mm sea level rise increases were included within the Product 4 data. These allowances do not directly relate to a particular year or allowance as they could be used for different years within each scenario. Both upper end and higher central need to be looked at in relation to the lifetime of the development so that a range of events/future scenarios are considered.
• There appear to be some discrepancies (circled below) in the Product 4 data between the flood levels for the undefended and defended scenarios, and also across different parts of the site. Please could you confirm the reason for this?	The defended runs account for wave overtopping, but the undefended runs do not. This could be one reason for the discrepancies between the defended and undefended modelled levels, but we can't confirm this. We also can't confirm how the site floods i.e. whether this is tidal or wave overtopping as we do not have TUFLOW flow grids. This should be explored by WSP as part of the FRA.
• We are planning to undertake a review of the Environment Agency's model to see if it accurately represents the topography and features at the site. Following this review a decision will be made on whether more detailed modelling will be required. We would be interested in your comments on this approach please.	We interpret this comment to mean that you are looking to review the topography used within the EA's coastal model against the current topography/features on site. If you find the topography is not representative, you will then update the EA model's topographic data. In principle this approach seems sensible and proportionate to the proposed development. The need for more detailed modelling can then be assessed. As mentioned above, the updated climate change runs did not include any topographic updates. The existing modelling was mostly undertaken in 2014, and updated in 2020 with additional climate change scenarios. As topography was not updated in 2020 then it's likely there is better information/survey data available now, which could be more correct.
Ground level raising	
We are proposing that development levels will be starting at approximately 4m AOD to mimic the existing topography at the site (former Lido use). It is proposed that these areas would be surrounded by external levels set at levels with a suitable freeboard above the design flood level and have internal access routes above this level too. Please can you confirm this is acceptable.	• It is not within the remit of the EA to provide expert advice on the general safety of the proposed design ie. access designed to be dry in design flood, leading to lower internal levels; although we note the intention to incorporate internal routes set above the design flood level. Please see comments below under Evacuation Plan. • The impact of raising ground levels needs to be assessed further against the modelled flooding mechanism. • For example, if the site floods through wave overtopping and the wave overtopping would continue to occur as part of the development, that water would still need to flow somewhere. • If ground levels are raised, it is likely that this water would be displaced and flood somewhere else. • The NPPF details that flood risk should not be increased elsewhere, so WSP/the developer would

Cont/d..

	need to provide detail to demonstrate that this would not occur.
• **Climate change**	
SL to confirm whether an interpolated 2072 epoch is suitable to assess against for the development	• The sea level rise assessed for the planning application would need to be until the end of the design life of the development. • For example if the design life is 50 years, and completed construction by 2022, then sea level rise up to 2052 should be assessed in line with the climate change PPG. • Please note, if you are using the EA's product 4 data, the sea level rise should be calculated from 2014 (when the baseline model was produced).
Evacuation plan	
SL advised that an evacuation plan should be prepared for the site.	• If a site is at risk of flooding an evacuation plan should be prepared to help understand the risk and plan how to react. • This may not be required for planning if the development can be protected for its lifetime, but could be a method of protecting the development/people against residual flood risk. • The adequacy of rescue or evacuation arrangements should be reviewed by Emergency Services and the Local Authority.
Pending	• SL to check historic groundwater records with team.

Yours sincerely,

[redacted]
Sustainable Places Officer

email@ clplanning@environment-agency.gov.uk

End

MEETING NOTES

DRAFT

PROJECT NUMBER	70083611	**MEETING DATE**	11 August 2021
PROJECT NAME	Eden Project North, Morecambe	**VENUE**	Via MS Teams
MEETING SUBJECT	Stakeholder Engagement – Environment Agency and Flood Modelling		
PRESENT	Liz Locke – Environment Agency (EA) Stephanie Lynes – Environment Agency (EA) Tim Narey – Eden Project International Jasmine Hope – WSP Daniel Jackson – WSP Ashley Holland – Trivandi Olu Fagbewesa - Grimshaw Camila Rock - Grimshaw		
CONFIDENTIALITY	**Confidential**		

Background

Further to recent discussions, a meeting was held on 11/8/21 between the EA and the Eden North Design Team with a view to clarifying FRA work required for the imminent planning submission scheduled for 31/8/21 and, specifically, to de-risk the application in this respect through clarification of application content, design response, and items to be conditioned and to be addressed in the post-planning stage with regards to potential and future flood risk.

Discussion

Eden explained the difficulties around the current timeline, intertwined with discussions with central Government and COP26. The previous strategy of providing detailed wave modelling significantly beyond the application date was challenged as not best serving the project and the outcomes all parties required as the design could not respond to the findings of the study and the result could cause problems with consenting the scheme in parallel with Gov't/COP26 publicly backing the project.

Eden clarified expectations around the site and design in respect to business risk:

- The development should be viewed as a landscape with a lid on it, as opposed to a more traditional building type with highly controlled internal environments.
- Coastal modelling is being undertaken to support the proposed development and will feed into the FRA and ES chapter. The coastal model is formed of three main components including the wave model, overtopping assessment, and onsite modelling. WSP will utilise the outputs of the wave model from the EA's 2014 study to inform the overtopping assessment. The 2014 study considers a 2115 climate change epoch which is conservative based on the current design life of the development (50 years). The overtopping assessment will be updated using the latest topographical information. The onsite modelling will use the updated overtopping assessment and the appropriate still water levels which will

be uplifted to account for the necessary climate change. Baseline (existing site) and post development (proposed development) modelling will be undertaken to assess flood risk.

- The site is highly exposed and Eden expect the site will be at risk of/be prone to flood at some point in the future. The site is already shown to be at flood risk by the Agency's mapping but the frequency of flooding at the site is likely to increase with climate change. Eden's view is that the site / project will mitigate the majority of high-water events through the initial design response, but that in extreme future cases the site may need to close and pumping operations may be required. The final approach to providing resilience to future events will not be determined prior to the application and therefore final design detail is envisaged to follow a successful application through condition. This approach will also allow collaborative solutions to be developed and agreed prior to the commencement of on-site work.
- It is noted that the lower levels of the site are resilient in terms of finishes and indeed many are designed as 'wet' or outdoor areas.
- With high throughput and occupancy, the evacuation procedures (fire/terrorism) are highly developed.
- Critical infrastructure, particularly electrical, will be designed with a higher level of protection
- Eden Cornwall has experienced several flood events and the operations and safety teams are familiar with managing incidents.

EA confirmed they understood the issue and presented their priorities which would need to be addressed in the application:

- People Safety
- Property Resilience
- Flood Risk elsewhere / adjacent properties

EA understood that the development and its activities were quite distinct from a typical development for residential purposes.

EA could accept limited modelling from the design team but would look to ensure there were outline provisions in the application for:

- Flood Management Plan
- Evacuation Plan (included within Flood Management Plan)

EA could accept future modelling and final versions of the above plans as conditioned and discharged at the post-planning stage.

Outcomes agreed

- **EA** will formally confirm acceptance of this note giving certainty to the team (including any amendments).
- **WSP** will model the baseline and post development scenarios at the site in line with approach set out above. **WSP** will produce a hydraulic modelling report which will supplement the FRA and ES chapter. The FRA will make recommendations with regards to an outline Flood Management Plan.
- In the interim, the ES chapter will set out the findings of the Flood Risk Assessment, the mitigation measures that have been designed-in to the scheme and any early findings of the modelling exercise. The ES chapter and FRA will then be supplemented by the aforementioned hydraulic modelling report.
- **Eden Design Team** will address primary evacuation and flood defence elements in the Environmental Statement and supporting information.

Appendix E.2

LANCASHIRE COUNTY COUNCIL



Public

[redacted]

From: Suds <suds@lancashire.gov.uk>
Sent: 10 June 2021 08:47
To: [redacted]
Subject: FRM1332 - Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Importance: High

Good morning,

Further to our telephone call yesterday please find a response regarding the pre application service Lancashire County Council as Lead Local Flood Authority can provide.

The fee for our service £1872.72 + VAT based on the size and type of development.

I have attached a response below from the district lead officer who will be dealing with this pre application regarding the information requested and what we can provide for you:

Information requested	Comment
Confirmation of the local by-law distances to Ordinary Watercourses and flood defence infrastructure;	We advise against construction (buildings, fences, walls etc) over or within 8m from the top of the bank of an existing watercourse or culvert. This is to ensure there's sufficient access for future maintenance purposes and to avoid any increased risk of flooding to buildings and structures should the watercourse ever become blocked or should its capacity ever become exceeded. The 8m distance is a recommendation in line with EA guidance. There are currently no by-laws in place for Ordinary Watercourses in Lancashire. Distances for flood defences will need to be checked with the Environment Agency and City Council.
Any information on the existing flood defence infrastructure at the site (including standard of protection and condition). Please note that we are also consulting Lancaster City Council with regards to the flood defences;	I've checked our records and we have no information for the existing flood defence infrastructure on file. The applicant is advised to consult the Environment Agency and City Council in this regard.
Any information pertaining to the culverted watercourse (ordinary watercourse) which is known to pass under the site and outfall into Morecambe Bay to the north of the site (refer to attached plan), including line & level, buffer requirements and building over constraints;	I've checked our records and we have no information for the culverted watercourse on file. The applicant is advised to carry out their own investigations of the culverted watercourse for design purposes. Please refer to the comment above regarding buffer requirements and building over constraints. Any alterations to the culverted watercourse will require land drainage consent from us as LLFA. This can be discussed further during the 1hr pre-application meeting.

Any historic records of flooding (any source) in the vicinity of the site or confirmation that no such data exists;	We'll review our records and advise of any historical flooding upon receipt of the pre-application fee. The applicant is also advised to check with other risk management authorities to see what information they hold.
Any records of unlicensed private surface or groundwater abstractions/discharges within 1.5km of the site; and	I've checked our records and we have no information on file. The applicant is advised to consult the Environment Agency in this regard.
Details of any assets or features which could significantly influence local flooding including condition and ownership.	I've checked our records and we have no flood risk asset information for this site on file. However there is an excel spreadsheet that includes the location of all recorded flood risk assets across Lancashire. A copy of the excel spreadsheet can be downloaded via the following link: https://www.lancashire.gov.uk/media/923204/flood-risk-asset-register.pdf.
A meeting to discuss the points above.	A 1hr meeting will be scheduled upon receipt of the pre-application fee to include discussion on surface water flood risk, surface water discharge rates and volumes and sustainable drainage proposals.

Please can you advise if you would like us to raise an invoice as per the costs above so we can arrange the pre application meeting.

If a response is not received we will presume you do not wish to use the pre application service.

Kind Regards

[redacted]
Flood Risk Technical Support Officer
Highways and Transport
Lancashire County Council
[redacted]
W: www.lancashire.gov.uk

From: [redacted]@wsp.com>
Sent: Monday, June 7, 2021 4:55 PM
To: Suds <suds@lancashire.gov.uk>
Cc: [redacted]
Subject: FW: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Good afternoon,

Please could we kindly request an update with regards to the email sent below? We are keen to have comments from the LLFA to feed into our assessments/ design of the site and potentially organise a meeting to discuss.

Many thanks,

[redacted]
CIWEM Committee Member - CSB
Engineer – Water Risk Management and Engineering, WEI

[redacted]
Mountbatten House,
Basing View, Basingstoke,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

From: [redacted]@wsp.com>
Sent: 27 April 2021 18:42
To: suds@lancashire.gov.uk
Cc: [redacted]@wsp.com>
Subject: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Dear Sir/Madam,

Eden Project North – Morecambe
Flood Risk Assessment – Enquiry

We have been instructed by our client to carry out an assessment of flood risk at the above site.

We are writing to request any flood risk and flood defence data and information with respect to the above site and any other pertinent information or opinion regarding development on it. The OS grid reference for the site is SD 42913 64487 and the nearest post code is LA4 4NJ. Please find enclosed a location map for your reference.

From a review of data on the Environment Agency's Website we understand the site lies within Flood Zones 1, 2 and 3.

I have attached a completed Pre-application form. However, please could you also provide me with flood related information pertinent to, and in the vicinity of, the site including but not limited to:

- Confirmation of the local by-law distances to Ordinary Watercourses and flood defence infrastructure;
- Any information on the existing flood defence infrastructure at the site (including standard of protection and condition). Please note that we are also consulting Lancaster City Council with regards to the flood defences;
- Any information pertaining to the culverted watercourse (ordinary watercourse) which is known to pass under the site and outfall into Morecambe Bay to the north of the site (refer to attached plan), including line & level, buffer requirements and building over constraints;
- Any historic records of flooding (any source) in the vicinity of the site or confirmation that no such data exists;
- Any records of unlicensed private surface or groundwater abstractions/discharges within 1.5km of the site; and
- Details of any assets or features which could significantly influence local flooding including condition and ownership.

In addition to the above we urgently need to convene a meeting with yourselves to discuss the points above as the Design Team are currently working on the layout (including levels, land use, proximity to the defences) and we need to feed into this process to ensure your acceptance of the scheme. Please can you confirm costs for a meeting and your availability during the week commencing 10th of May 2021?

Once a date has been agreed and a quotation has been received, I will arrange payment for the above.

We trust the above to be satisfactory, however, should you have any queries or require any further information from WSP to be able to answer the above queries, please do not hesitate to contact the undersigned.

Kind regards,

[redacted]
Graduate Engineer, Water Risk Management and Engineering, WEI

[redacted]

Mountbatten House, Basing View,
Basingstoke, Hampshire,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

NOTICE: This communication and any attachments ("this message") may contain information which is privileged, confidential, proprietary or otherwise subject to restricted disclosure under applicable law. This message is for the sole use of the intended recipient(s). Any unauthorized use, disclosure, viewing, copying, alteration, dissemination or distribution of, or reliance on, this message is strictly prohibited. If you have received this message in error, or you are not an authorized or intended recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

-LAEmHhHzdJzBlTWfa4Hgs7pbKl

****

This e-mail contains information intended for the addressee only.

It may be confidential and may be the subject of legal and/or professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it.

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of the County Council's position.

Lancashire County Council reserves the right to monitor all incoming and outgoing email.

Lancashire County Council has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

Appendix E.3

LANCASTER CITY COUNCIL



Public

EDEN PROJECT NORTH – QUERIES FOR LANCASTER CITY COUNCIL

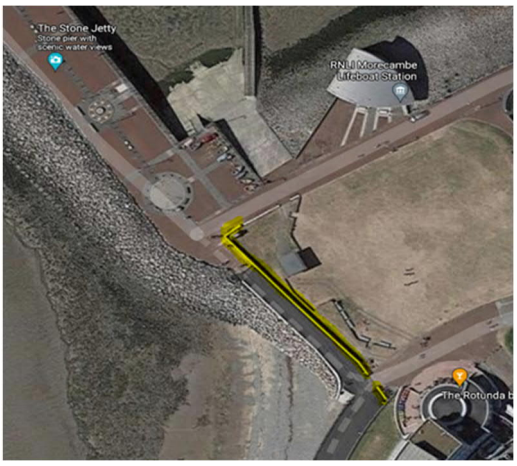
- Type of development:
    - As the development type is leisure the appropriate flood risk vulnerability category for the site is 'Less Vulnerable'.
    - The current anticipated design life for the development is 50 years for the main structural elements.
- Flood Defences

  Please can you confirm:
    - the location of the flood defences LCC is responsible for in the local vicinity (a plan would be helpful if available) and their purpose (erosion protection / wave protection / tidal inundation protection); Essentially Eden North is sited upon, and adjacent to our coastal defence assets: rock armour protection to the North and Stone Jetty structure to the West. Primary sea defence (wall/rock armour in place for coastal erosion and flooding – secondary wall for wave reflection purposes to prevent localised flooding. The remainder of the WRW project falls outside the Eden footprint – also see Ian response (NOTE all in City Council ownership)
    - details of the flood defences regarding type, crest levels, their condition and the standard of protection currently provided; (Ref photo 1) Bubbles Breakwater and Armourstone. Constructed 1995, placed against the original 1920's sea-wall . Extends in a curve from slipway top left, to hovercraft station bottom right. Bubbles Road in non-permeable red asphalt is approximately 7.3m AOD.
    - Prime defence here is rock armour/rip-rap against the original sea-wall. This includes a sub-surface drainage and outfall system. Occasional minimal maintenance required. Crest Level 7.3m AOD.
    - Secondary defence is a small wave wall 5m landward to help prevent any promenade overtopping inundating the former Dome site. Occasional minimal maintenance required. Crest level 7.80m AOD.
    - All defences are in excellent condition providing a high-level of wave protection and tidal inundation prevention.
    - Currently Bubbles Road provides vehicular/pedestrian access to the Stone Jetty and access for occasional city council building maintenance.
    - the required easement distance from Lancaster City's flood defence structures; Arguably 8m back from any secondary defences (to protect the defences and provide sufficient working space for R&M and potential replacement. Ideally, free movement along Bubbles Road at the north for access and maintenance to Stone Jetty and professional fisherfolks stone road, both of which are our assets. Access from East or West will suffice. Also note the presence of a culverted watercourse through the site. This will require similar easement for maintenance. Line level and condition is not known but recommend a thorough investigation (eg 3d Laser scanning survey) is carried out to identify any issues and any maintenance required is understood and undertaken before construction is started. This culverted watercourse could be diverted.
    - whether the easement distance can be relaxed as long as there was still access provision to the sea defences for maintenance vehicles (i.e. the existing promenade would be retained in the proposed scenario); Without further discussion (and relevant agreements) we would not relax the requirements for the easement. However the easement could potentially be relaxed as long as there is still access for maintenance (and ultimately renewal) of the sea defence assets. The easement could be in part landscaped (hard and flat for vehicular access) but would potentially be sacrificial I suggest a 1m minimum walkable width for inspection purposes



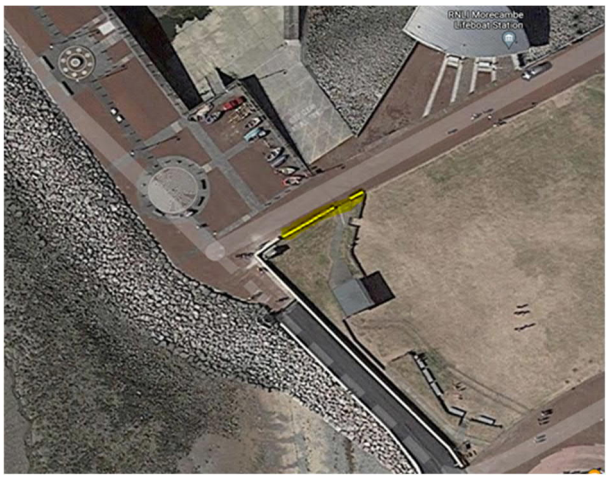
- the minimum buffer width required for maintenance vehicles to access the flood defence structure; Minimum 5m to 8m easement for vehicular access.
- what landform / landscaping would be acceptable within the easement (to the rear of the existing promenade); see above
- whether development at an upper floor level that protrudes into the required LCC easement (i.e. an overhang) would be acceptable if development at ground floor level remained the required distance away; I would be reluctant about overhang – replacement of sea defence structures usually requires large excavators and/or craneage. If it could be demonstrated that maintenance and renewal operations could be undertaken, an overhang could be considered.
- whether a temporary stop up of the promenade route during construction would be required? (Could the offset zone be utilised during construction?); The Site Management Plan for the construction phase should confirm this supported by appropriate RAMS but initial thoughts are yes it would need to be closed, for H&S reasons, ideally with clearly signed alternative routes provided for pedestrians and vehicles (the wave reflection wall replacement project maintained a continuous 2m access)
- any details of planned future upgrades to the flood defences (we are aware that the Shoreline Management Plan policy is 'Hold the Line' for this area), however we are also aware that a new wave return wall was installed in 2019 – does this mean that additional defences over the lifetime of the development are still likely to be constructed? No current plans to build any new defences on this footprint however there is a proposal to revisit the Morecambe Coastal Strategy (2022/23) to follow up the Shoreline Management Plan Refresh (the latter currently ongoing) in order to capture up to date climate change predictions and best practice – this may generate areas of intervention to existing defences – Also note the current defences do undergo constant monitoring which again may generate maintenance activity or interventions should it be required
- There is an existing secondary flood defence wall located on the western side of the development (highlighted yellow below). Could this be relocated further east by approximately 5m to facilitate better pedestrian connections to the Jetty? Secondary defence providing a wave return function It could be relocated set back from its current position

-





- There is an existing lower wall near to the RNLI station – what is the purpose of this section (secondary defence? Secondary defence providing a wave return function Could this be removed to facilitate better manoeuvrability to RNLI vehicles? – it could be relocated in another position but must remain for the function stated)





- Flood Risk:
  - We are proposing that development levels will be starting at approximately 4.5m AOD to mimic the existing topography at the site (former Lido use). It is proposed that these areas would be surrounded by external levels set at levels with a suitable freeboard above the design flood level and have internal access routes above this level too. Please can you confirm this is acceptable? Sounds reasonable but would advise some sort of pumped arrangement to remove surface water or sea defence overtopping/or spray from the lower levels
  - Please can you confirm if we would be required to submit an evacuation plan as part of the planning application? Indeed – I imagine ESAG would expect this
  - Are there any specific requirements you have with regards to safe access provision? Refer to ESAG Emergency procedures in a flood event, signing up to EA flood warnings (coastal flooding)
  - Any historic records of flooding in the vicinity of the site or confirmation no such data exists; Nothing on record on the site itself but see Ian's History time-line of flood events in Morecambe (Copy attached)

- Details of any assets or features which could significantly influence local flooding including condition and ownership Winter Gardens Culverted Watercourse, see attached PDF (Riparian owner) – Bubbles Pumping Station and outfall (Lancaster City Council?), local water supplies – toilets for example (UU?) Potential foul drainage from former Dome site (UU asset?)

- Any other points you feel are relevant to this site in terms of flood risk and drainage. reference to Bubbles Pumping station and demolition of former Dome site and foul drainage therefrom

- Consents:
  - What consents are required for the site (FRAP/OWC/MMO?)? MMO if below MHW +RAMSAR and SPA (Natural England / RSPB impact on over wintering birds). Ordinary watercourse consent form the LLFA if work affects the culverted watercourse.

[redacted]

From: [redacted]@lancaster.gov.uk>
Sent: 14 June 2021 13:00
To: [redacted]
Cc: [redacted]
Subject: FW: Eden Project - Response to WSP enquiry
Attachments: 210526 - Queries for Lancaster City Council - Combined comments GB PB IR.docx; Photo 1.jpg; MCW History 2009.pdf

Afternoon all,

On behalf of our Engineering Team, please find attached their response to your questions and additional information for your assistance.

Please note, that any proposals to replace and relocate secondary flood defences would need to be included in the development description and the costs of such borne by the developer (part of the development costs). Such would also require separate agreements with the Council in its role as the Coastal Protection Authority.

Our engineers would be happy to have a meeting with you to discuss matters further – either on TEAMS or on site.

I hope this is of assistance to you.

Kind regards,

[redacted]

Planning & Place Service I Directorate for Economic Growth and Regeneration I Lancaster City Council
PO Box 4 I Lancaster Town Hall I Dalton Square I Lancaster I LA1 1QR
[redacted]







Please note that whilst we will continue to process planning applications and pre-application enquiries, delays of many weeks are being incurred to the validation, allocation and determination of applications due to the continued high volume of planning related submissions and the implications of Covid-19 on the availability of consultees and some Council officers. We apologise for any inconvenience caused. If there are specific reasons why a submission cannot be validated or determined, a Technician or Officer respectively will be in contact to provide an explanation.

From: Blakeley, Paul <pblakeley@lancaster.gov.uk>
Sent: 14 June 2021 11:55
To: Rehman, Jennifer <jrehman@lancaster.gov.uk>
Cc: Bowker, Gary <GBowker@lancaster.gov.uk>; Robinson, Ian <IRobinson@lancaster.gov.uk>
Subject: Eden Project - Response to WSP enquiry

Hi [redacted]

As discussed,

Please find attached in response to the enquiry from WSP. Also attached is the photo referred to and the report with historic information relating to flooding.

Please can you pass this on to WSP.

If there are any queries, please don't hesitate to contact me.

Regards,

[redacted]

[redacted]
Project Engineer
Engineering Team
Directorate for Economic Growth and Regeneration
[redacted]

UK businesses use up 2 million tonnes of paper each year. Think before you print this email - do you really need to? Thank you.

An Investor in People/Positive about Disabled People.

DISCLAIMER:

[redacted]

From: [redacted]@lancaster.gov.uk>
Sent: 15 June 2021 16:52
To: [redacted]
Subject: RE: Eden North flood defence structures

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted],
This concrete wall is a secondary defence in case we experience tidal overtopping. The low lying land there is vulnerable and requires this barrier.
The road is at its original level and the landward wall effectively raises the level of both the prom and defences.
Secondly it provides protection to the road edge abutting the former Dome site.
Regards,
[redacted]

From: [redacted]lancaster.gov.uk>
Sent: 15 June 2021 16:36
To: [redacted]
Subject: RE: Eden North flood defence structures

Thanks [redacted],

I'm not sure about the stone wall and I will leave [redacted] to respond about that.

Regards,

[redacted]

From: [redacted]@lancaster.gov.uk>
Sent: 15 June 2021 15:59
To: [redacted]
Subject: Eden North flood defence structures

Hi [redacted]

The consultants for Eden are going to call you to arrange a TEAMs meeting to discuss your responses to their questions.

One query they have raised with me is whether the stone wall with the blue railings above (with the Tern artwork on the railings) forms part of any secondary flood defence structure, or whether this is just part of the public realm? Could you confirm please?

Thanks,
[redacted]

[redacted]
Planning & Place Service I Directorate for Economic Growth and Regeneration I Lancaster City Council

PO Box 4 I Lancaster Town Hall I Dalton Square I Lancaster I LA1 1QR

[redacted]

Please note that whilst we will continue to process planning applications and pre-application enquiries, delays of many weeks are being incurred to the validation, allocation and determination of applications due to the continued high volume of planning related submissions and the implications of Covid-19 on the availability of consultees and some Council officers. We apologise for any inconvenience caused. If there are specific reasons why a submission cannot be validated or determined, a Technician or Officer respectively will be in contact to provide an explanation.

Please note that I am currently only working three days a week. My working days are typically Monday, Tuesday and Fridays, but these may vary.

[redacted]

From: [redacted]@lancaster.gov.uk>
Sent: 16 June 2021 15:52
To: [redacted]
Cc: [redacted]
Subject: RE: Eden Project North - Request for Meeting
Attachments: RE: Eden North flood defence structures

Hi [redacted]

One of our engineers replied to me about this yesterday. Please see attached. I will leave it for [redacted] to revert back to you re a meeting.

Kind regards,
[redacted]

From: [redacted]@wsp.com>
Sent: 16 June 2021 15:35
To: [redacted]
Cc: [redacted]
Subject: Eden Project North - Request for Meeting

This email is from an external email address
Do not click any links or open attachments unless you know the content is safe.
Never disclose your password to anyone.

Good afternoon both,

First of all thank you for your comprehensive reply to our queries on Eden Project North, we've fed these back to the design team and are helpful moving forwards.

We did have a couple more queries off the back of the response, the primary one being in relation to the secondary flood defences at the site ([redacted]may have already asked you about this) but do you have a plan available that you can share with us please which shows the location / alignment of Lancaster City's flood defences? We would like to confirm whether it's just the wall and wave reflection wall to the west that are the secondary flood defences or whether the wall (with blue railings) surrounding the Bubbles site is also classified as a Lancaster City flood defence.

I think it would be useful if we could set up a meeting just to run through some of the responses. There are also other consultants working on the project, Buro Happold for drainage and TEP for landscape, who may also want to be involved. Please would you be able to confirm your availability for a Teams meeting this week and next week please?

Kind Regards,

[redacted]

[redacted]
Engineer – Water Risk Management and Engineering
BSc (Hons), MCIWEM

[redacted]

WSP in the UK
Mountbatten House
Basing View
Basingstoke RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you. WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

NOTICE: This communication and any attachments ("this message") may contain information which is privileged, confidential, proprietary or otherwise subject to restricted disclosure under applicable law. This message is for the sole use of the intended recipient(s). Any unauthorized use, disclosure, viewing, copying, alteration, dissemination or distribution of, or reliance on, this message is strictly prohibited. If you have received this message in error, or you are not an authorized or intended recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

-LAEmHhHzdJzBlTWfa4Hgs7pbKl

UK businesses use up 2 million tonnes of paper each year. Think before you print this email - do you really need to? Thank you.

An Investor in People/Positive about Disabled People.

DISCLAIMER:

[redacted]

From: [redacted]@lancaster.gov.uk>
Sent: 28 June 2021 11:01
To: [redacted]
Cc: [redacted]
Subject: Eden Project North - Flood Risk and Drainage
Attachments: Winter Gardens Culvert - survey 2018 MH1 and MH2 locations.pdf; Winter Gardens Culvert - survey 2018 location in relation to Greenway watercourses.pdf; Winter Gardens Culvert - survey 2018 MH1 and MH2 inspection record.pdf; Winter Gardens Culvert - old recorded alignment.pdf

Hi [redacted]

Just following up on an action on me from our telecon last week to circulate plans of the West End Culvert prior to the proposed survey

I attach...

- An old plan of the culvert as we understand it to be - no date on this but the accompanying record shows it as being 867m in length
- 2018 survey records of manholes 1&2 located in or adjacent to Hilmore Way these are the first 2 manholes on the culverted watercourse downstream of the open watercourse

Hope these are helpful

Regards

[redacted]

[redacted]
Project Engineer
Engineering Team
Directorate for Economic Growth and Regeneration
Lancaster City Council
[redacted]
www.lancaster.gov.uk

UK businesses use up 2 million tonnes of paper each year. Think before you print this email - do you really need to? Thank you.

An Investor in People/Positive about Disabled People.

DISCLAIMER:

MAN HOLES No1 & No2 + CULVERT No1

COVER LEVEL.

INERT LEVEL

Car Park

Skateboard Park

El Sub Sta

Shelters

CR

Shelter

HILMORE WAY

6.885

Posts

3.083 #3.004

6.202

Post

Post

22

23 29

Aldingham Walk

14 12

11 10 9 5

BAYCLIFFE CRES

22 24

20 21

14 15

12 9

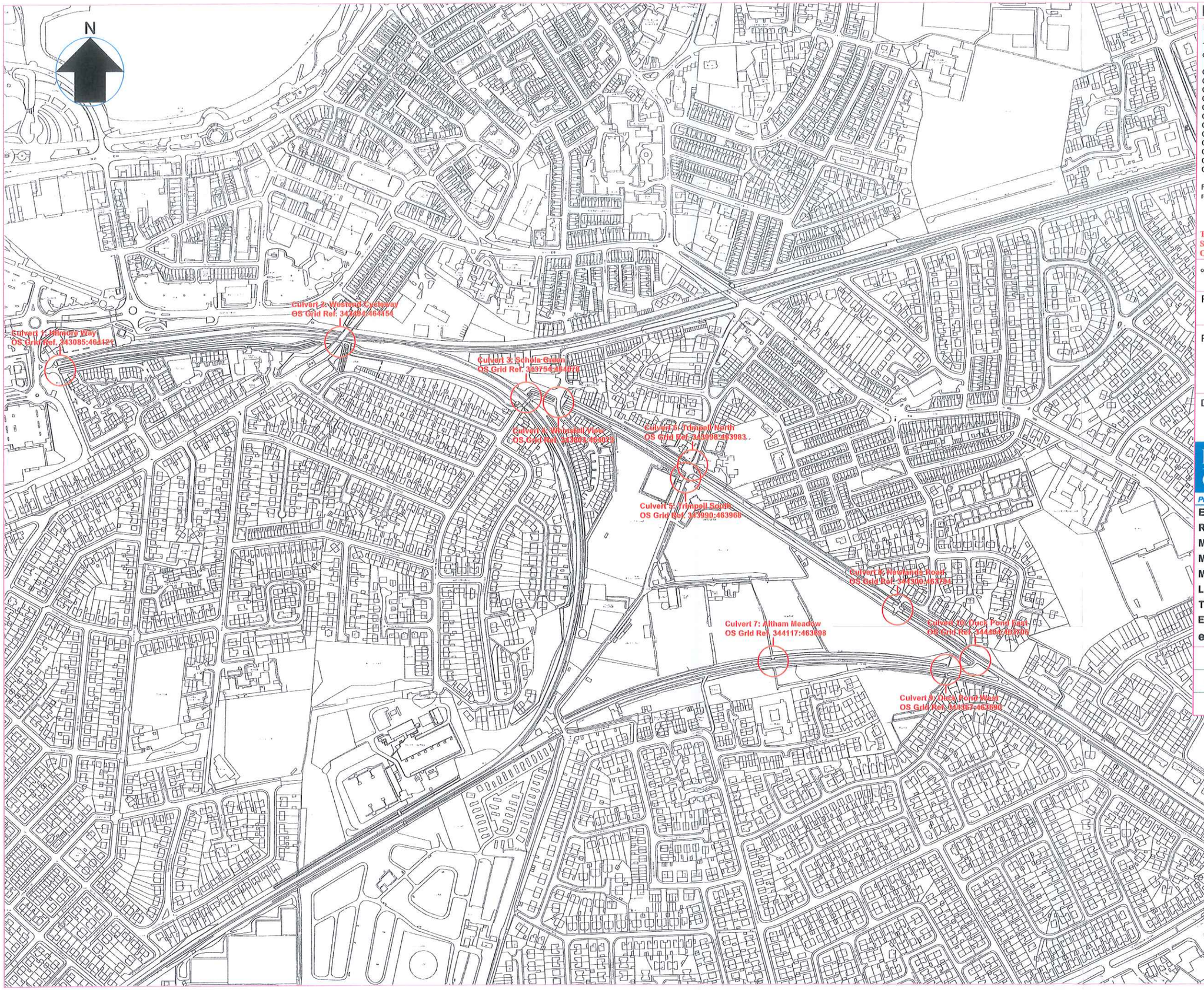
116



Scale 1:2500

C:\JUNE\FLDEF10.ECW

Produced from the 1993 Ordanance Survey 1:1250 mapping with the permission of the Controller of Her Majesty's Stationary Office
© Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings



DRAWING No. Y49/00

NOTES

This drawing is to be read in conjunction with the following drawings:

Culvert Location Plan: Drawing Ref. Y49/00
Culvert 1: Drawing Ref. Y49/01
Culvert 2: Drawing Ref. Y49/02
Culvert 3: Drawing Ref. Y49/03
Culvert 4: Drawing Ref. Y49/04
Culvert 5: Drawing Ref. Y49/05
Culvert 6: Drawing Ref. Y49/06
Culvert 7: Drawing Ref. Y49/07
Culvert 8: Drawing Ref. Y49/08
Culvert 9: Drawing Ref. Y49/09
Culvert 10: Drawing Ref. Y49/10
Culvert 11: Drawing Ref. Y49/11

For more detailed plans of individual culvert locations please refer to the relevant culvert drawing listed above.

The data in this map is derived from the Ordnance Survey MasterMap dataset, and is used here under Ordnance Survey Licence No. 100023320

THIS MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. LANCASTER CITY COUNCIL LICENCE NUMBER 100025403

REVISIONS

PROJECT

GREENWAY CULVERTS
Morecambe Cycleway & Dyke System

DRAWING

CULVERT LOCATION PLAN

LANCASTER CITY COUNCIL
Promoting City, Coast & Countryside
Engineering Team
Regeneration and Planning Service
MORECAMBE TOWN HALL
MARINE ROAD EAST
MORECAMBE
LA4 5AF
Tel (01524) 582000
Email:
engineering@lancaster.gov.uk

SCALE @A1		1/2500	
DRAWN	B.J.R.	APPROVED	TBC
DATE	13/09/17	DATE	TBC

Culvert No. 1: Manhole 1	Greenway Culvert Survey C755 Notes/Description/Measurements
Date of survey	22/03/2018
Weather Conditions and recent rainfall	Fine
Man Hole Location	This manhole is located down stream of Culvert No. 1 with this pedestrian area/footpath. As indicated on the survey drawing
Survey Cover Level	*Refer to Survey Drawing * Datum Location : 6.202m
Measure invert level to top of MH1 Cover	Depth of Chamber 3.250m Invert Level : 2.952m
Condition of the chamber walls	The chamber is constructed from Concrete rings and insitu concrete which is in very good condition
Check for external water ingress	No water ingress through side walls or soffit
Establish the direction and distance between MH1 and MH2	49.055m
Record the outfall culvert condition from MH1 to the upstream headwall	The condition of this pipe from culvert No.1 to MM No1 is in good condition constructed from pre-cast concrete sections
Record the length of the culvert from MH1 to the upstream headwall	5.045m
Record the depth of silt within the culvert pipe	No silt deposits within the culvert channel
Record the depth of water within the culvert pipe	50mm
Step Irons	Good Condition
Lid and Frame	Ductile iron D400 cover and frame in good condition

Culvert No. 1: Manhole 2	Greenway Culvert Survey C755 Notes/Description/Measurements
Date of survey	22/03/2018
Weather Conditions and recent rainfall	Fine
Man Hole Location	Manhole No 2 is located in the centre of this across road Hilmore Road, South of the traffic island off the main roundabout by Frankie and Benny's as indicated on the survey drawing
Survey Cover Level	*Refer to Drawing Survey * Datum Location : 6.855m
Measure invert level to top of MH lid	Depth of Chamber : 4.150m Invert Level : 2.705m
Condition of the chamber walls	This manhole chamber is constructed using pre cast concrete rings and insitu concrete which is in very good condition
Check for external water ingress	No Water Ingress was identified through the walls or soffit
Check for flap valve	There were no flap valves within the manhole chamber
Record the culvert condition from MH2 to MH1	The Concrete pipe work looked in good condition with no evident issues or concerns
Record the depth of silt within the culvert pipe	No silt deposits within the culvert channel
Record the depth of water within the culvert pipe	50mm
Steps and Ladder	Good Condition
Manhole access cover and frame	Ductive Iron D400 Cover and frame in good condition

CLASS B ENGINEERING BRICKWORK
4 COURSES MAX.
2 COURSES MIN.

600x600 MANHOLE COVER AND FRAME
BEDDED ON CLASS M1 OR M2 MORTAR

150mm. THICK HEAVY DUTY REINFORCED
CONCRETE COVER SLAB (B.S.5911)
BEDDED WITH CLASS M1 OR M2 MORTAR
OR MASTIC SEALANT

600

C20 CONCRETE SURROUND
150mm. THICK

900 DIA PRECAST CONCRETE
SHAFT SECTIONS

HEAVY DUTY REINFORCED CONCRETE
REDUCING SLAB.

1200 DIA PRECAST CONCRETE
CHAMBER SECTIONS ABOVE SOAKAWAYS.
WITH C20 CONCRETE SURROUND.

3No 1200 DIA PRECAST
CONCRETE SOAKAWAY SECTIONS
TOTAL HEIGHT FROM BASE 2700.

INSERT NEW PLASTIC PIPE AND
CAULKING TO FORM NEW CONNECTION

PIPEWORK TO SUIT EXISTING.
150 CONCRETE SURROUND.

SIMON-HARTLEY 'COPLASTIX'
CIRCULAR FLAP VALVE
OR SIMILAR APPROVED

LADDER (BS 4211) DIST
FROM WALL 200mm.
MAX. 675mm FROM COVER
LEVEL TO FIRST LADDER RUNG
MATERIALS TO BE GRADE 316 S16
STAINLESS STEEL TO BS 970 PART 4.
REFER TO DRG No 7444-40.

C20 CONCRETE SURROUND
TO SOAKAWAYS, WITH VOIDS
THRO AT PERFORATIONS

300 THICK BASE SLAB
C20 CONCRETE

300 SUB-BASE WRAPPED IN
TERRAM 2000 OR SIMILAR

ORIGINAL BEACH LEVEL

MANHOLES B1 AND B2
1:20

CONSTRUCTION DETAILS:
1m WELL COMPACTED 'CORE A' STONE ON
'TERRAM 1500' GEOTEXTILE ON
EXISTING BEACH.

RAMP DOWN TO -2.00

WIDTH 7m. LENGTH 100m

-3
-2
-1
0
1
2

N

TIE-IN WITH EXISTING FEATURE
TO BE AGREED ON SITE.

COBBLE/BOULDER BEACH

A

A

MANHOLE B2
SEE DETAIL.
POSITION TO BE ESTABLISHED
ON SITE.

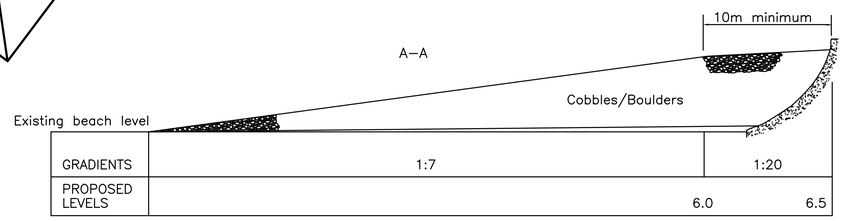
COBBLE BEACH TO RUN
INTO BREAKWATER

BUBBLES COMPLEX

MANHOLE B1
SEE DETAIL.
POSITION TO BE ESTABLISHED
ON SITE.

STONE JETTY

A-A



DRAWING No. 7444-26B

NOTES

1. ALL CONCRETE (INC PRECAST) TO BE SULPHATE RESISTANT.

REVISIONS

A. OCT 94. RAMP ADDED.
B. DEC 94. MANHOLE DETAILS ADDED.

PROJECT

COASTAL WORKS PHASE IV

DRAWING

BUBBLES COBBLE BEACH PLAN AND SECTIONS

LANCASTER CITY COUNCIL

ENGINEERING SERVICES

A.WRIGLEY B.Eng.,C.Eng.,M.I.C.E.
CHIEF ENGINEER
TOWN HALL
MORECAMBE
LA4 5AF
TEL. (0524) 582000

DISTRICT PROJECT GROUP

SCALE	PLAN 1:500 SECTION 1:250
DRAWN	CHECKED
DATE	DATE

IN ASSOCIATION WITH
SHORELINE MANAGEMENT PARTNERSHIP

DRAWING No. 7444-26B

Appendix E.4

UNITED UTILITIES

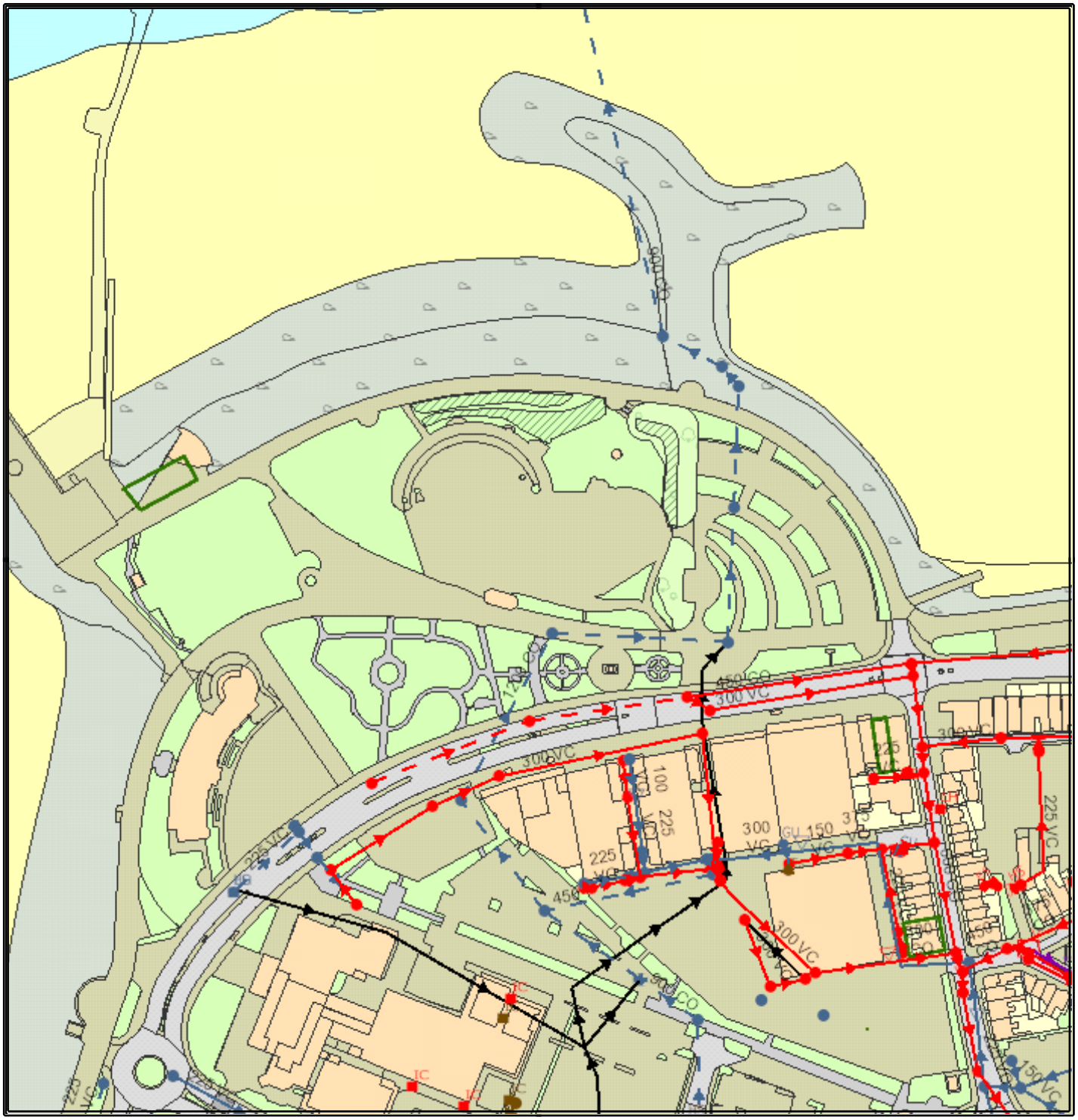


Public

United Utilities

COMMERCIALDW
DRAINAGE AND WATER ENQUIRY

SEWER RECORD AREA EDGED RED LAND AT MORECAMBE LEISURE PARK MARINE ROAD CENTRAL MORECAMBE



The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water Limited will not accept any liability for any damage caused by the actual positions being different from those shown.

© United Utilities Water PLC 2017.The plan is based upon the Ordnance Survey Map with the sanction of the Controller of H.M. Stationery Office, Crown copyright 100022432 and United Utilities Water PLC copyrights are reserved. Unauthorised reproduction will infringe these copyrights.

[redacted]

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 24 September 2020 09:27
To: [redacted]Planning Liaison
Subject: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Good Morning,

Thank you for contacting United Utilities.

I can confirm that we do have a current record of sewer flooding within the vicinity of the proposed development.

Please note that United Utilities Water Limited (UUW) can only record and check flooding events which are reported to us and we have to comply with our Regulators instructions on the qualification of flooding events to place on the register.

Our response does not include:

- any sewer flooding events caused by blockages or collapses which are the result of third party actions, natural events or other actions over which UUW has no control and not a facet of sewer capacity; or

- any historical sewer flooding events that have been removed from the register as a result of investment in our infrastructure.

As with all development sites, we recommend you liaise with our water and wastewater engineers by contacting our Developer Services team so the details of your development proposal can be considered further. Details can be found at the following link.

https://www.unitedutilities.com/services/builders-developers/

Should you require any further information please do not hesitate to contact me.

Kind Regards,

United Utilities
Water for the North West

[redacted]
Customer Advisor Advanced
Developer Services & Metering
Customer Services
[redacted]
unitedutilities.com

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

From: [redacted]@wsp.com]
Sent: 21 September 2020 10:40
To: Planning Liaison <Planning.Liaison@uuplc.co.uk>
Subject: Eden Project North, Morecambe - Flood Risk Assessment Enquiry

Dear Sir / Madam,

Eden Project North, Morecambe

Flood Risk Assessment – Enquiry

WSP has been commissioned to carry out an assessment of flood risk at the above site.

We are writing to request historic sewer records and flood risk and defence information with respect to proposed development at the above site.

The OS grid reference for the site is 342938, 464479 and the nearest post code is LA4 4BU. Please find enclosed a location map for your reference.

Please could United Utilities provide the following data:

- Historic Records of flooding within the vicinity of the proposed development.
- Historic sewer records within the vicinity of the proposed development.

Please could United Utilities also provide rates that we could discharge runoff to the nearest sewer connection point, if other surface water discharge options prove unviable at the site.

Once a quotation has been received, I will arrange payment for the above.

We trust the above to be satisfactory, however, should you have any queries or require any further information from WSP to be able to answer the above queries, please do not hesitate to contact the undersigned.

Kind Regards,

[redacted]
Graduate Engineer



[redacted]

Mountbatten House, Basing View,
Basingstoke, Hampshire,
RG21 4HJ

wsp.com

Confidential
This message, including any document or file attached, is intended only for the addressee and may contain privileged and/or confidential information. Any other person is strictly prohibited from reading, using, disclosing or copying this message. If you have received this message in error, please notify the sender and delete the message. Thank you.

WSP UK Limited, a limited company registered in England & Wales with registered number 01383511. Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

Appendix F

ENVIRONMENT AGENCY MAPPING

Public

342750
343000
343250
464750
464500
464250

N

Shell
Bed Flat

Tourist Info

A589

B5321

NORTHUMBERLAND STREET

WEST VIEW ROAD

BACK CRES

STREET

SKIPTON STREET

PO

VICTORIA STREET

NEW STREET

UNION STREET

EDWARD STREET

CENTR

0 50 100 150 200 m

KEY:

Site Boundary

Flood Map For Planning

Flood Zone 1

Flood Zone 2

Flood Zone 3

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

wsp
Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
ENVIRONMENT AGENCY - FLOOD MAP FOR PLANNING

DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-EA-001.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-EA-001	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:21:48 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\EA\3611-EA-001.qgz

342750
343000
343250
464750
464500
464250

N

Shell
Bed Flat

Tourist Info

A589

B5321

NORTHUMBERLAND STREET

WEST VIEW ROAD

BACK CRES STREET

SKIPTON STREET

PO

VICTORIA STREET

NEW STREET

UNION STREET

EDWARD STREET

CENTR

0 50 100 150 200 m

KEY:

Site Boundary

Risk of Flooding from Surface Water

0.1% AEP

1% AEP

3.3% AEP

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

wsp
Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
ENVIRONMENT AGENCY - RISK OF FLOODING FROM SURFACE WATER

DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-EA-002.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-EA-002	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:24:58 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\EA\3611-EA-002.qgz

342750
343000
343250
464750
464500
464250

N

Shell
Bed Flat

A589
Tourist Info
B5321
NORTHUMBERLAND STREET
WEST VIEW ROAD
BACK CRES
STREET
SKIPTON STREET
PO
VICTORIA STREET
NEW STREET
UNION STREET
EDWARD STREET
CENTR

0 50 100 150 200 m

KEY:

- Site Boundary
- Risk of Flooding from Reservoirs (Extent)

REV	DATE	DRW	DESCRIPTION	CHK	APP
A	24/08/21	JD	FIRST ISSUE	JH	MQ

STATUS:
FOR INFORMATION ONLY

wsp
Mountbatten House, Basing View,
Basingstoke, HANTS, RG21 4HJ
Tel: +44 (0) 1256 318 800
Fax: +44 (0) 1256 318 70
www.wsp.com

CLIENT:
EDEN PROJECT INTERNATIONAL LIMITED

ARCHITECT:
-

PROJECT:
EDEN PROJECT NORTH

TITLE:
ENVIRONMENT AGENCY - RISK OF FLOODING FROM RESERVOIRS

DRAWN:	CHECKED:	APPROVED:

QGIS FILE:	SCALE @A3:	DATE:
3611-EA-003.qgz	1:2,500	24/08/21

PROJECT No:	DRAWING No:	REV:
70083611	3611-EA-003	A

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN WSP AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT
CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2020, ENVIRONMENT AGENCY INFORMATION © ENVIRONMENT AGENCY AND DATABASE RIGHT 2020
BRITISH GEOLOGICAL SURVEY MATERIALS © NERC 2020

Created by: UKJED006 - 2021-08-24 10:32:57 - C:\Users\UKJED006\WSP O365\70083611 - Eden Project North - Documents\03 - WIP\Flood Risk\02 Drawings\GIS\Workspaces\FRA\EA\3611-EA-003.qgz



Mountbatten House
Basing View
Basingstoke, Hampshire
RG21 4HJ

wsp.com

PUBLIC