

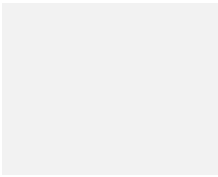
ISLES OF SCILLY DUNE & FLOOD DEFENCE SCHEME

Site Information- Porth Hellick

APRIL 2019



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Isles of Scilly Dune & Flood Defence Scheme

Site Information- Porth Hellick

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VERSION CONTROL

Version	Date	Author	Changes
P1	09-04-2019	MC	First Issue

This report dated 09 April 2019 has been prepared for Council of the Isles of Scilly (the "Client") in accordance with the terms and conditions of appointment dated 28 October 2016(the "Appointment") between the Client and **Arcadis (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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1. Introduction

This document forms the Site Information for the *works* at Porth Hellick on St. Mary's island, in the Isles of Scilly. It describes the existing conditions at the site and the information collected during the concept and detailed design phases of the scheme.

There are three *works* sites on the main island of St. Mary's, namely Porthloo, Porth Mellon and Porth Hellick with each site having separate Site and Work Information documents. See drawing & document register for details.

2. Site locations & Access

Porth Hellick is located on the south-east coast of St. Marys. The 250-m wide bay is flanked on both ends by rocky outcrops. Higher Moors SSSI pool is located behind the beach and is the island's main drinking water resource.

Nearest Postcode: TR21 0NZ
Nation Grid Reference: SV9247910719

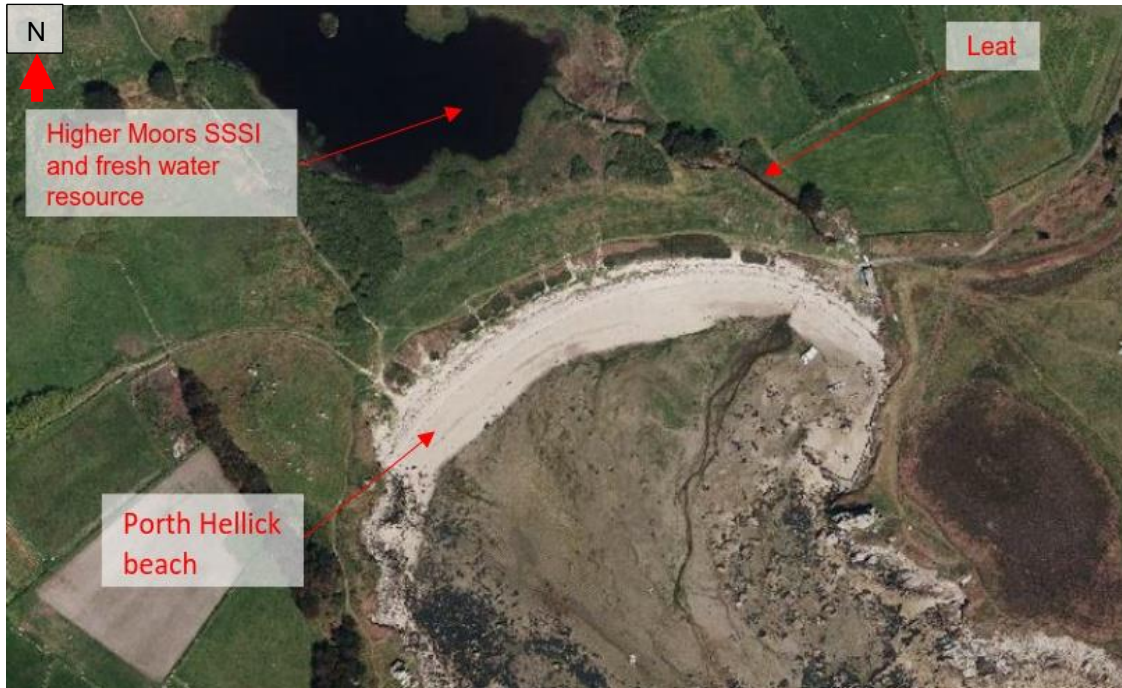


Figure 1: Porth Hellick (Plymouth Coastal Observatory, 2016)

Porth Hellick beach is accessed by foot through Higher Moors SSSI board walks. Vehicle access is via an unsurfaced track to the east of the site. See figure 4 below:

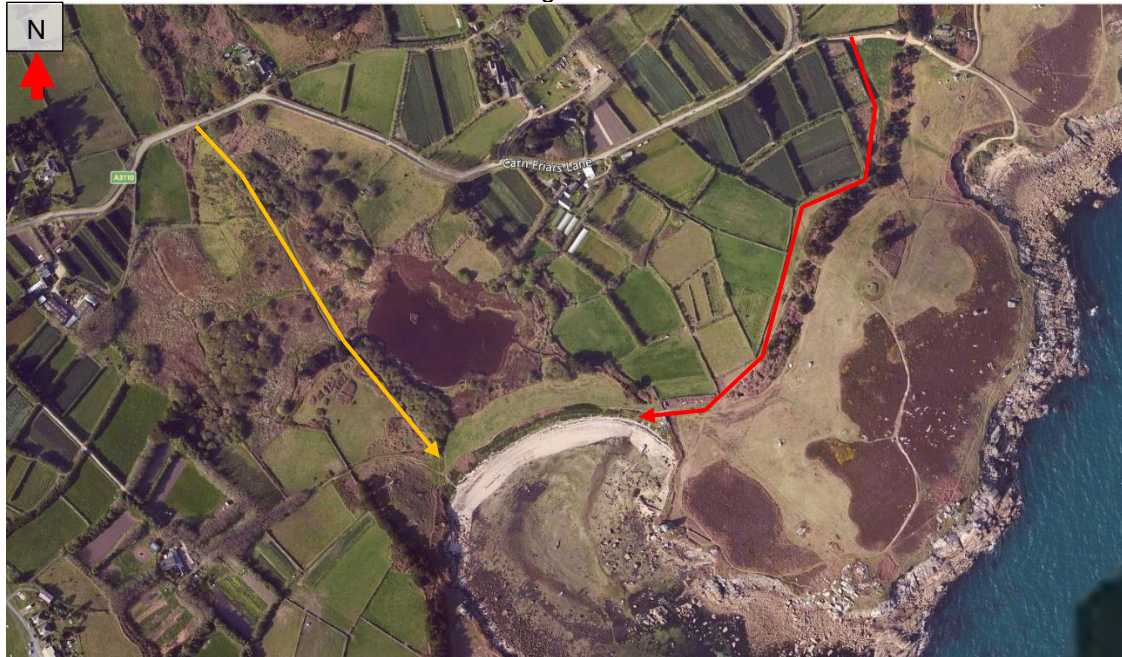


Figure 2: Vehicle access to Porth Hellick from Carn Friars Lane as shown by the red line arrow. The orange lined arrow illustrates pedestrian access through Higher Moors SSSI from the A3110.

3. Site Photos



Figure 3 Overview of Porth Hellick Bay



Figure 4: Profile view of Porth Hellick Dune. Pedestrian access only from the western end of dune (foreground of the photo).



Figure 5: Boathouse and informal slipway at the eastern end of the bay. The works are to raise the dune in this area.



Figure 6: View of the concrete outfall from the informal spillway. The works are to formalise the spillway and to raise the dune.

4. Topographic Survey

See Appendix A for topographic survey.

5. Services and Utility Search

See Appendix B for utility service plans

A Linesearch – ‘before u dig’ (LSBUD) search was conducted and of its members, only Western Power Distribution was found to have services in the area.

Of its non-members, the following replies were received:

E-mail requests	Sent	Received	Utilities Found	Comments/Notes
BT	09/03/18	09/03/18	Yes	Outside of works area
CityFibre	09/03/18	-	Nil reply	
Colt	09/03/18	20/03/18	No	
CenturyLink Communications	09/03/18	-	Nil reply	
Energetics Electricity	09/03/18	14/03/18	No	
ENGIE	09/03/18	09/03/18	No	
GTC	09/03/18	-	Nil reply	
Isles of Scilly Council	03/08/18	06/08/18	Yes	
Interoute	09/03/18	09/03/18	No	
KPN	09/03/18	12/03/18	No	
Mobile Broadband Network Limited	09/03/18	-	Nil reply	
Sota	09/03/18	12/03/18	No	
Utility assets	09/03/18	-	Nil reply	
Verizon Business	09/03/18	09/03/18	No	
Virgin Media	09/03/18	-	Nil reply	
Vodafone	09/03/18	16/03/18	No	
Vttesse Networks	09/03/18	-	Nil reply	

The Council of the Isles of Scilly is responsible for the maintenance of roads, land drainage, mains water and sewer services and details can be found in Appendix E.

See Appendix E for LSBUD results and utility service plans.

6. Ground Investigation

No ground investigation was undertaken at Porth Hellick, but the dune material can be described as a very loose GRAVEL with a fine to medium particles between 4-15mm (Cornish Granite).

7. Design Statements

For background information on the designs and for remaining hazards see Appendix C for design statements.

8. Designer's Hazard Record

For residual designer identified hazards that remain at the site see Appendix D.

APPENDIX A

Topographic Surveys

THIS DRAWING IS COPYRIGHT. Contractors and Consultants must check all dimensions on site. Only figured dimensions are to be used. Any discrepancies to be reported to the Project Manager before work proceeds. This drawing shall be used only for the purpose intended.

NOTES:
GENERAL:
Do not scale from this drawing

Floor Plan Legend

B0.00 floor to beam height
CH0.00 floor to ceiling height
FL0.00 floor level
C0.00 cill height
W0.00 window head height
D0.00 door head height

Underground Utility Legend

Underground Services.	
Underground Comms cables	
Underground Earthrod	
Underground Electricity	
Underground Foul water	
Underground Fuel line	
Underground Gas	
Underground Heating ducts	
Underground Mains water	
Underground Storm water	
All assumed underground services are shown as dashed lines.	

This information must not be solely relied upon in the event of excavation or other works carried out. No liability of any kind whatsoever is accepted by Benchmark Surveys, its servants, or agents, for any error or omission in respect of information contained on this information. The actual position of underground services must be verified and established on site before any mechanical plant is used. All information is complete at time of issue.

Remarks:

Datum and orientation fixed by
GPS to Ordnance Survey
Red = Feature Heights

Feature Legend

BP — Boundary post	FB — Post box
BS — Boundary stone	FO — Post / bollard
BT — British Telecom cover	RE — Roading eye
CATV — CATV cover	RS — Ridge
CH — Chimney	SC — Stopcock
DR — Drain	SP — Sign post
DR — Drainpipe	SV — Stop valve
EP — Electricity pole	TF — Top of fence
EV — Eave	TOW — Top of wall
FI — Fire hydrant	TL — Traffic light
FL — Floor level	TP — Telegraph pole
GA — Gas cover	WL — Water level
GB — Grit box	WM — Water meter
GP — Gate post	BM — Benchmark
GU — Gully	BO — Borehole
IC — Inspection cover	CB — County boundary
IL — Invert level	FI — Fence
LB — Light bollard	H — Hedge
LT — Light tower	LP — Light pylon
LP — Lamp post	S — Slope
J — Junction box	SR — Stone face
M — Manhole	SL — Surface level
m — metres	SS — Survey station
MO — Circular manhole	TP — Triangulation pillar
OC — Overhead Cable	



Benchmark (Exeter) Limited
Unit 12, Kingfisher Court
Venny Bridges
Pinhoe
Exeter
EX4 8JN
TEL: 01392 467836
FAX: 01392 468617
email: sales@benchmarksurveys.co.uk
www.benchmarksurveys.co.uk

CLIENT

JacksonHyder Ltd

SITE LOCATION

Porth Hellick, St. Mary's Island

DRAWING TITLE

Topographic Survey

SCALE

1:500 @ A1

DRAWN BY

D.W

DRAWING NUMBER

BS2443/02.17/03/DW

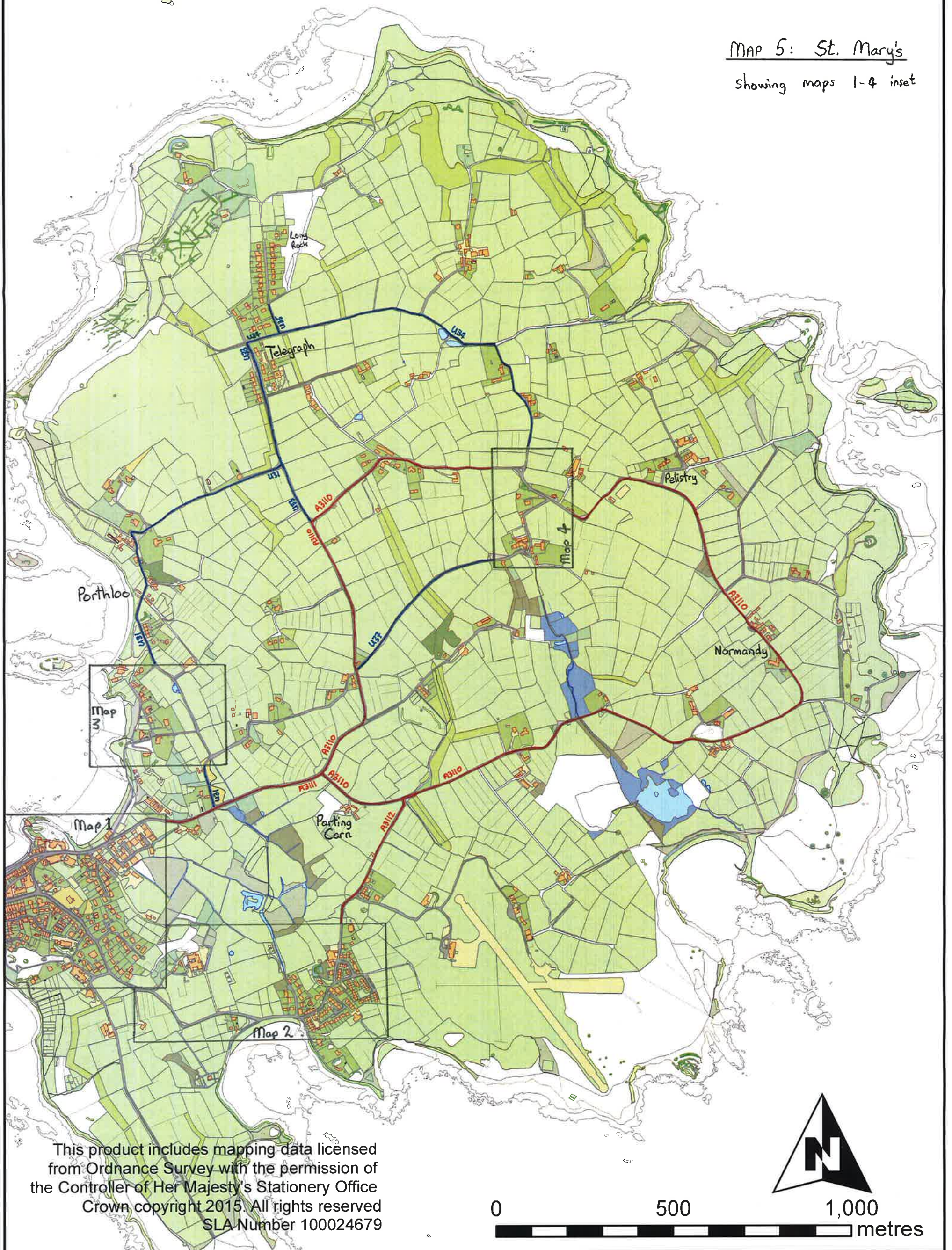
REVISION

A

APPENDIX B

Service Plans

MAP 5: St. Mary's
showing maps 1-4 inset



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SLA Number 100024679

0 500 1,000 metres

LIST OF STREETS

(Highways Maintainable At The Public Expense)

Council of the Isles of Scilly

All highways maintainable at the public expense (the streets listed) in the Isles of Scilly are located on the island of St Mary's. Please refer to the Attached Maps for the linear extents of the streets listed.

This List was last updated on 1st March 2016.

List, Part I – Roads

The streets listed in Part I (i. and ii.) are public roads.

- i. Roads, classified 'A' (*with or without dedicated footway(s) forming part of the road*)

Reference	Names of street	Route
A3110	Telegraph Road, Town Lane, High Lanes, Carn Friars Lane, Tremelethen Hill, Parting Carn Lane	Circular – names listed clockwise from junction with the A3111 Pump Road to the same junction
A3111	Pump Road, Telegraph Road (Porthmellon), Carn Thomas, Higher Strand, Lower Strand, The Parade (North), Hugh Street, The Bank	A3110 Telegraph Road/Parting Carn Lane junction to the end of the public road at <i>The Quay</i>
A3112	Old Town Lane, Old Town Road, Church Road, Church Street, The Parade (South)	A3110 Parting Carn Lane to the A3111 The Parade (North)

- ii. Roads, unclassified (*with or without dedicated footway(s) forming part of the road*)

Reference	Name or description of street	Running between
U01	Garrison Hill	U03 Jerusalem Terrace and end of road at the frontage of land owned by the Duchy of Cornwall (before the <i>Garrison Gate</i>)
U02	Garrison Lane	A3111 Hugh Street and U01 Garrison Hill
U03	Jerusalem Terrace	A3111 The Bank and U02 Garrison Lane
U04	Sally Port	U01 Garrison Hill south and end of road at frontage of <i>4 Sally Port</i> and end of road at frontage of <i>29 Sally Port</i>
U05	Little Porth Road	U04 Sally Port and U14 Silver Street
U06	Parsons Field (Service Road)	U05 Little Porth Road and end of road where it meets F02 Parsons Field To Garrison Lane (Upper) and F05 Parsons Field (Estate Paths)
U07	Little Porth Slipway	U05 Little Porth Road and end of road at <i>Porthcressa Beach & Little Porth Beach</i>
U08	The Bank (Car Park)	A3111 The Bank and A3111 The Bank
U09	Atlantic Hotel Slipway	A3111 The Bank and end of road at <i>Town Beach</i>
U10	Well Lane	A3111 Hugh Street and U02 Garrison Lane
U11	Back Lane (Off Garrison Lane)	U02 Garrison Lane and U10 Well Lane

U12	Thorofare	A3111 The Parade (North) and (in two places) A3111 Hugh Street and ends of road (in two places) at <i>Town Beach</i>
U13	The Parade (East)	A3111 The Parade (North) and A3112 The Parade (South)
U14	Silver Street	A3111 Hugh Street and U16 Porthcressa Road
U15	Ingram's Opening	A3112 The Parade (South) and U16 Porthcressa Road
U16	Porthcressa Road	U14 Silver Street and U20 Buzza Street
U17	Porthcressa Road (Lane To South)	U16 Porthcressa Road and end of road where it meets F10 Porthcressa Promenade And Connecting Ways
U18	Porthcressa	U16 Porthcressa Road and U20 Buzza Street
U19	Buzza Road	U20 Buzza Street and end of road where it meets F12 Porthcressa Terrace To Buzza Road
U20	Buzza Street	A3112 Church Street and U19 Buzza Road
U21	Ram's Valley	U20 Buzza Street and end of road at a private gate (road inclusive of frontage of <i>Arden House</i>)
U22	Porthcressa Terrace	U20 Buzza Street and U21 Ram's Valley
U23	Rechabite Slipway	A3111 Lower Strand and end of road at <i>Town Beach</i>
U24	Well Cross	A3111 Lower Strand and A3112 Church Street
U25	Back Lane (Off Well Cross)	U24 Well Cross and U26 Church Road (North)
U26	Church Road (North)	A3111 Carn Thomas and A3112 Church Street
U27	Branksea Close	A3112 Church Road and end of road where it meets F15 Branksea Close (Estate Paths)
U28	Hospital Lane	A3112 Church Road and end of road where it meets F13 Mill Hill
U29	Moor Well Lane	A3111 Telegraph Road (Porthmellon) and end of road at entrance to the <i>Porthmellon waste management site</i>
U30	Porthmellon Industrial Estate Roads	A3111 Telegraph Road (Porthmellon) and all ends of road within the industrial estate
U31	Porthloo Lane	A3111 Pump Road and U33 Telegraph Road (North)
U32	Mount Flagon And Thomas' Porth	U31 Porthloo Lane and end of road at the frontage of <i>Camberdown</i> (inclusive)
U33	Telegraph Road (North)	A3110 Telegraph Road and U34 Pungie's Lane
U34	Pungie's Lane	U33 Telegraph Road (North) and A3110 High Lanes (a forked junction)
U35	McFarland's Down	U34 Pungie's Lane and end of road immediately before the junction with track leading to Long Rock
U36	Holy Vale	A3110 High Lanes and U37 Holy Vale Lane and looping onto itself
U37	Holy Vale Lane	A3110 Telegraph Road and U36 Holy Vale
U38	Ennor Close (Estate Roads)	A3112 Old Town Lane and A3112 Old Town Lane and the two ends of road which meet F19 Ennor Close (Estate Paths)

End of Part I

List, Part II – Footways

The streets listed in Part II are public footways or public footpaths (*not forming part of a road*)

Reference	Name or description of street	Running between
F01	The Bank To Jerusalem Terrace	A3111 The Bank and U03 Jerusalem Terrace
F02	Parsons Field To Garrison Lane (Upper)	U06 Parson's Field (Service Road) and junction of U02 Garrison Lane & U04 Sally Port
F03	Parsons Field To Garrison Lane (West)	U06 Parsons Field (Service Road) and U02 Garrison Lane
F04	Parsons Field To Garrison Lane (East)	U06 Parsons Field (Service Road) and U02 Garrison Lane
F05	Parsons Field (Estate Paths)	U04 Sally Port and U05 Little Porth Road and U06 Parsons Field (Service Road)
F06	Sally Port Steps And Passage	U04 Sally Port (in two places) and end of footway at line of boundary of housing estate with land owned by the Duchy of Cornwall
F07	Little Porth	U05 Little Porth Road and end of footway at frontage of <i>29 Sally Port</i> and U07 Little Porth Slipway
F08	Customs House To Town Beach	A3111 Lower Strand and end of footway at <i>Town Beach</i>
F09	The Parade To Porthcressa Road	A3112 The Parade (South) and U16 Porthcressa Road
F10	Porthcressa Promenade And Connecting Ways	U07 Little Porth Slipway and U14 Silver Street and U16 Porthcressa Road and U17 Porthcressa Road (Lane To South) and U18 Porthcressa and F11 Buzza Road Slipway
F11	Buzza Road Slipway	U19 Buzza Road and end of footway at <i>Porthcressa Beach</i>
F12	Porthcressa Terrace To Buzza Road	U22 Porthcressa Terrace and U19 Buzza Road
F13	Mill Hill	U19 Buzza Road and U28 Hospital Lane
F14	Hospital Lane To Dracaena	U28 Hospital Lane and end of footway at gate at the frontage of <i>Dracaena</i>
F15	Branksea Close (Estate Paths)	U27 Branksea Close and looping onto itself (within the housing estate)
F16	Rear Of Museum	A3112 Church Street and A3112 Church Street
F17	Strand Promenade And Way To Lifeboat Station	A3111 Higher Strand and A3111 Carn Thomas and ends of footway at the <i>RNLI Lifeboat Station</i> and <i>Town Beach</i>
F18	Carn Thomas To Church Road (North)	A3111 Carn Thomas and U26 Church Road (North)
F19	Ennor Close (Estate Paths)	U38 Ennor Close (Estate Roads) and U38 Ennor Close (Estate Roads) and ends of footway within the housing estate
F20	Mermaid Inn Slipway	A3111 The Bank and end of footway at <i>Town Beach</i>




End of Part II

Attached Maps

1. Hugh Town
2. Old Town
3. Mount Flagon and Thomas' Porth
4. Maypole and Holy Vale
5. St Mary's (*showing maps 1 to 4 inset*)

Key to the Attached Maps

Colour lines denote approximate centre lines of highway, and are intended primarily to show the linear extents of the highway and individual streets listed.

	Road, classified 'A'	(<i>with or without dedicated footway(s) forming part of the road</i>)
	Road, unclassified	(<i>with or without dedicated footway(s) forming part of the road</i>)
	Footway	(<i>not forming part of a road</i>)

The Reference for each street listed is written at least once by the particular street.

Contact Us

Mapping Enquiries:

All areas 0121 623 9780

General Enquiries:

All areas 0800 096 3080

**Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA
0800 6783 105**

Date Requested: 08/03/2018

Job Reference: 12386308

Site Location: 92558 10742

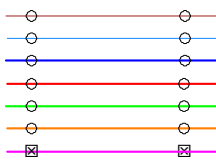
Requested by: Mr Ryan Haselden

Your Scheme/Reference: IoS

IMPORTANT NOTICES

- This information is given as a guide only and its accuracy cannot be guaranteed. Services or recent additions to the network may not be shown.
- Cables, overhead lines & substations owned by other electricity network owners or private companies may be present and may not be shown.
- You should always verify exact locations of cables using a cable locator and by careful use of hand tools in accordance with HSE guidance note HSG47.
- When working within 10m of any overhead electric line you should follow the requirements of HSE Guidance Note GS6.
- For further advice on working near our electricity cables or lines, call our Contact Centre on 0800 096 3080.
- Advice should be sought from the Western Power Distribution Contact Centre for any work that is to take place in proximity to 66kV or 132kV underground cables and 66kV 132kV overhead lines – 0800 096 3080

Overhead Line



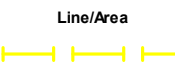
SURF Telecoms



Link Box



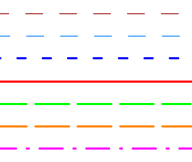
Site Location



Line/Area



Underground Cable



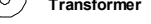
Pilot Cables



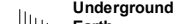
PME Earth



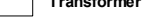
Pole Mounted Transformer



Underground Earth



Ground Mounted Transformer



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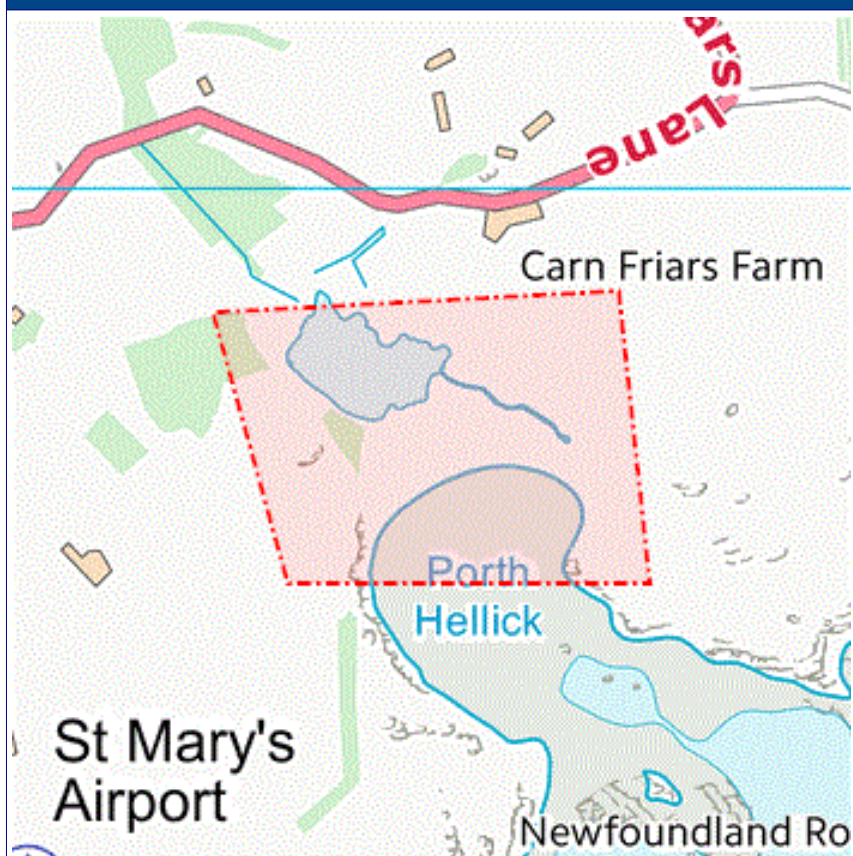
Enquirer

Name	Mr Ryan Haselden	Phone	4401752689010
Company	Arcadis	Mobile	Not Supplied
Address	Unit 7, Chamberlain House Research way, Plymouth Science Park Plymouth Devon PL6 8BT		
Email	ryan.haselden@arcadis.com		

Enquiry Details

Scheme/Reference	Isles of Scilly		
Enquiry type	Planned Works	Work category	Utility Works
Start date	26/07/2018	Work type	Multiple excavations site
End date	26/01/2019	Site size	118261 metres square
Searched location	SV9247910719	Work type buffer*	25 metres
Confirmed location	92474 10730		
Site Contact Name	Not Supplied	Site Phone No	Not Supplied
Description of Works	Not Supplied		

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map


Asset Owners

Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.lineasearchbeforeudig.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

Notes. Please ensure your contact details are correct and up to date on the system in case the LSBUD Members need to contact you.

Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LineasearchbeforeUdig accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

Asset Owners & Responses. Please note the enquiry results include the following:

1. "LSBUD Members" who are asset owners who have registered their assets on the LSBUD service.
2. "Non LSBUD Members" are asset owners who have not registered their assets on the LSBUD service but LSBUD is aware of their existence. Please note that there could be other asset owners within your search area.

Below are three lists of asset owners:

1. **LSBUD Members who have assets registered within your search area. ("Affected")**
 - a. **These LSBUD Members will either:**
 - i. **Ask for further information ("Email Additional Info" noted in status).** The additional information includes: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.
 - ii. **Respond directly to you ("Await Response").** In this response they may either send plans directly to you or ask for further information before being able to do so, particularly if any payments or authorisations are required.
2. **LSBUD Members who do not have assets registered within your search area. ("Not Affected")**
3. **Non LSBUD Members who may have assets within your search area.** Please note that this list is not exhaustive and all details are provided as a guide only. It is your responsibility to identify and consult with all asset owners before proceeding.

National Grid. Please note that the LSBUD service only contains information on National Grid's Gas above 7 bar asset, all National Grid Electricity Transmission assets and National Grid's Gas Distribution Limited above 2 bar asset.

For National Grid Gas Distribution Ltd below 2 bar asset information please go to www.beforeyoudig.nationalgrid.com

LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.

List of affected LSBUD members

Asset Owner	Phone/Email	Emergency Only	Status
Western Power Distribution	08000963080	08006783105	Await response

LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.

List of not affected LSBUD members

AWE Pipeline	BOC Limited (A Member of the Linde Group)	BP Exploration Operating Company Limited
BPA	Carrington Gas Pipeline	CATS Pipeline c/o Wood Group PSN
Cemex	Centrica Storage Ltd	CLH Pipeline System Ltd
Concept Solutions People Ltd	ConocoPhillips (UK) Ltd	DIO (MOD Abandoned Pipelines)
E.ON UK CHP Limited	EirGrid	Electricity North West Limited
ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESP Utilities Group	ESSAR	Esso Petroleum Company Limited
Fulcrum Pipelines Limited	Gamma	Gateshead Energy Company
Gigaclear PLC	Gtt	Hafren Dyfrdwy
Humbly Grove Energy	IGas Energy	INEOS FPS Pipelines
INEOS Manufacturing (Scotland and TSEP)	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Mainline Pipelines Limited	Manchester Jetline Limited	Manx Cable Company
Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited	National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission
Northumbrian Water Group	NPower CHP Pipelines	Oikos Storage Limited
Ørsted	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Premier Transmission Ltd (SNIP)	Prysmian Cables & Systems Ltd (c/o Western Link)
Redundant Pipelines - LPDA	RWEnpower (Little Barford and South Haven)	SABIC UK Petrochemicals
Scottish Power Generation	Seabank Power Ltd	Severn Trent (Chester area only)
SGN	Shell (St Fergus to Mossmorran)	Shell Pipelines
SSE (Peterhead Power Station)	Tata Communications (c/o JSM Construction Ltd)	Total (Colnbrook & Colwick Pipelines)
Total Finaline Pipelines	Transmission Capital	UK Power Networks
Uniper UK Ltd	Vattenfall	Veolia ES SELCHP Limited
Westminster City Council	Wingas Storage UK Ltd	Zayo Group UK Ltd c/o JSM Group Ltd

The following Non-LSBUD Members may have assets in your search area. It is **YOUR RESPONSIBILITY** to contact them before proceeding. Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.

Non-LSBUD members (Asset owners not registered on LSBUD)			
Asset Owner	Preferred contact method	Phone	Status
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08009173993	Not Notified
CenturyLink Communications UK Limited	plantenquiries@instalcom.co.uk	02087314613	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Energetics Electricity	plantenquiries@energetics-uk.com	01698404646	Not Notified
ENGIE	nrsua@cofely-gdfsuez.com	01293 549944	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Interoute	interoute.enquiries@plancast.co.uk	02070259000	Not Notified
Isles of Scilly Council	planning@scilly.gov.uk	01720424350	Not Notified
KPN (c/-Instalcom)	kpn.plantenquiries@instalcom.co.uk	n/a	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sota	SOTA.plantenquiries@instalcom.co.uk		Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified
Vtesse Networks	https://plant.interoute.com/plant-enquiries/	01992532100	Not Notified
Wales and The West Utilities	www.wutilities.co.uk/login.aspx	02920278912	Not Notified

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APPENDIX C

Design Statements

SHORT FORM DESIGN STATEMENT

 ARCADIS <small>Design & Consultancy for natural and built assets</small>	Project Name	Number and Activity code
	Isles of Scilly – Porth Hellick	UA008878-ARC-XX- XX-MS-CE-0561-P3
<p>Brief Description:</p> <p>Porth Hellick is located on the south-east coast of St. Marys. The 250-m wide bay is flanked on both ends by rocky outcrops.</p> <p>The backshore dune is made of coarse sand (4-10 mm particle size) and vegetation is well established along its crest including <i>Fascicularia Bicolour</i> & <i>Hottentot Fig</i> (<i>C.edulis</i>). There are gaps and low points due to the action of storm events during the past decade. It has been reported though that the dune is not particularly mobile.</p> <p>The eastern end of the dune suffers from severe human-induced erosion due to the action of boat launching. Additionally, the construction of the existing outfall required the excavation of dune which was not reinstated to match the existing dune levels.</p> <p>These low spots are potential paths for saline intrusion into the Higher Moors Pool, the main fresh water resource for St. Mary's, hence the sand dune defence needs improvement to continue to protect this natural resource.</p>		
		
<p>Figure 1: Aerial photograph of Porth Hellick. Image orientated north (Channel Coastal Observatory, 2016)</p>		

Assumptions:

- Though the beach is tidal, the proposed work is located above the MHWS mark the construction area could still be affected by storm events.
- Existing water levels:

	Chart Datum (CD)	Ordnance Datum Local (ODL)
HAT	6.3	3.39
MHWS	5.7	2.79
MHWN	4.3	1.39
MLWN	2.0	- 0.91
MLWS	0.7	- 2.21

- It is assumed that the existing ground is suitable and accessible for the works to raise the dune crest.
- It is assumed that, based on the existing data collated by the Channel Coastal Observatory through the South West Regional Monitoring Programme, the potential sediment transport in Porth Hellick is negligible (<1% change in sediment volume in the period 2007-2015).
- It is assumed that the existing plant species located on the crest of the existing dune is suitable to revegetate the existing gaps and the newly raised dune.
- It has been agreed to raise the crest of the dune to +5.00 m ODL.
- It has been agreed not to provide any clearance between the toe of the newly raised dune and the existing shed on the east end of the beach.
- It is agreed that the beach access ramp will not be designed to accommodate the launching of boats and is intended to protect the dune from vehicles accessing the beach to maintain the existing outfall.
-

Design Basis / design method:

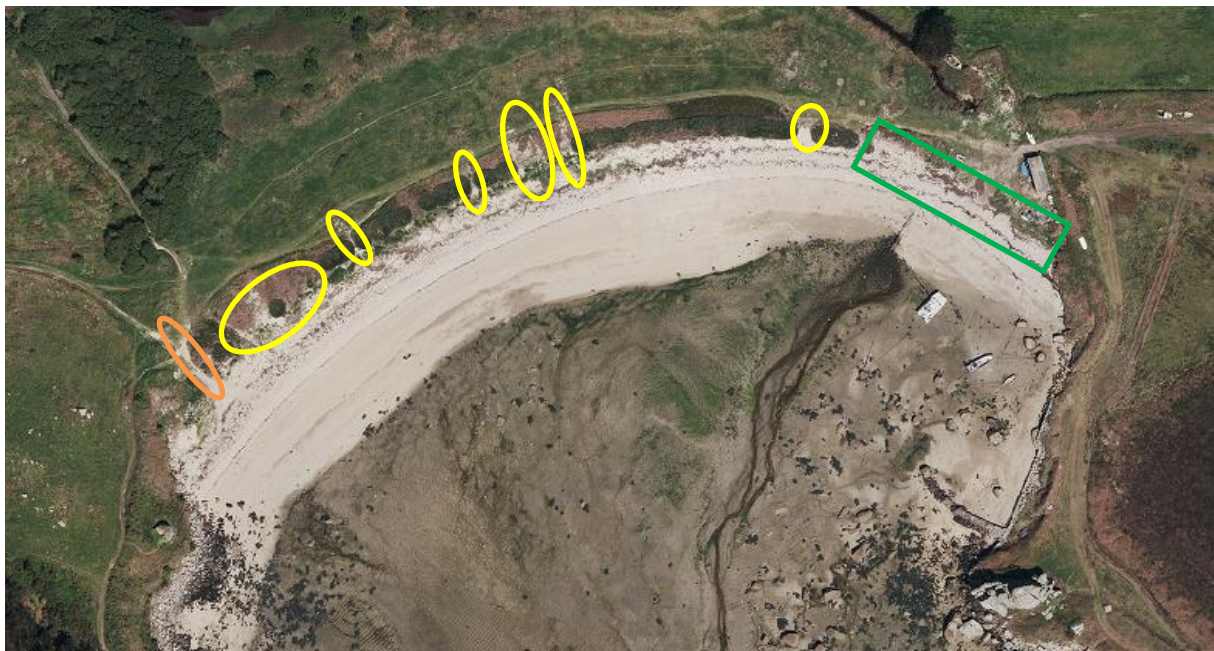


Figure 2. Key elements of the design

The focus of the design is on the following three elements:

1. Revegetation of the dune crest:

It can be observed in Figure 2 that the existing vegetation (*Fascicularia Bicolour*) on the crest of the dune has prevented beach material being moved to the rear of it. Therefore, it is proposed that non-vegetated

areas, highlighted in yellow, are revegetated with the same plant species found growing locally on the crest to provide a consistent and continuous line of defence against wave run-up and dune erosion.

The fascicularia plants are firmly established on the bank and their removal would do irreparable damage to the integrity of the bank's structure. Furthermore, their salt tolerance and development at this site has added a good metre of height to the bank and have helped stabilise and protect the bank during storm events. The Fascicularia are not encroaching on land beyond the bank and the use of the plant in selected areas will not extend its distribution beyond this site. Its use is with the aim to infill sections within the existing distribution and help provide those bare sections in the bank with a degree of protection that the rest of the bank already benefits from.

The Fascicularia plants also provide shelter on the landward side of the bank for other local vegetation. At present, some of these sheltered landward areas have been populated by *C.edulis* (Hottentot fig). None of this species will be transported or propagated at this area. Where possible areas with little or no vegetation on the landward side will be planted with species such as Sea Campion, Sea Holly, Sea Kale and Sea Rocket etc to help prevent the opportunist spread of *C edulis*.

2. Installation of an elevated timber boardwalk:

The section highlighted in orange in Figure 2 at the western end of the site, is primarily used by members of the public to access the beach. This is causing the dune to erode, facilitating a path for sea water to reach the water resource during storm events. In this case, it is proposed to install a timber boardwalk which will be elevated above the underlying beach material (circa 100mm). This should stop further deterioration of the dune from the pedestrian induced erosion. This aspect of the scheme will be let under a sperate contract and is not part of the dune recharge project.

3. Extending the dune:

The existing dune is to be extended along the section highlighted in green with its crest set to +5.00 ODN. To do so, the existing ground will be cleared to provide a suitable founding surface. The dune will be profiled in two sections, leaving a gap in between for the construction of the ramp. The slopes of the dune will match the existing (1V:6H approximately) and will be stabilised with 100% biodegradable geotextile (Coconet 800 or similar approved). The imported material is to be crushed Cornish granite 4-10 mm grading. Following point no.1, the crest will be revegetated with bush found growing locally on the crest. A mix of sapling and mature plants is to be used. The required volume to be imported is ~276 m³ although allowance will need to be made for wastage.

The raised dune will require local profiling around the existing shed on the east end of the beach. An alternative layout of the dune was studied in order to provide clearance around the shed, but this resulted in the dune being bypassed by overtopping flows leading to saline intrusion in the Higher Moors SSSI.

4. Installation of a flexible precast concrete block mattress:

This is to provide access to vehicles to carry out maintenance works on the outfall. The mattress will follow the profile of the newly raised dune onto the beach. It will be anchored at both ends with mass concrete beams and founded Strataweb layers filled with the inported material. The mattress will be covered with topsoil and seeded with native grasses.


5. Installation of access track to block mattress

This will provide access to the above-mentioned works and will stop damage occurring from vehicles approaching the beach access ramp. The access track shall be formed from a 300mm compacted stone layer underlain by geotextile to prevent subsidence.

Designer's Risk Assessment: *incl. Hazards that cannot be designed out. See Designer's Hazard Record for further information*

- A. Works adjacent to water – Though working above MHWS, the site could be affected by wave conditions and extreme tidal levels.
- B. Soft ground – Risk of machinery over turning
- C. Public beach – Risk public may enter works area.
- D. Services – Existing buried Higher Moors leat outfall pipe.
- E. Environmental sensitive dune designated as SSSI & AONB

F. Invasive Plant Species - Hottentot Fig (Carpobrotus Edulis)


Signed: ...Emilio Bolanos... 

Reviewed: ...Max Clausen..... 

Approved: ...Ian Cooke..... 

APPENDIX D

Designer’s Hazard Records

	<h2>Health & Safety - Designer's Hazard Record</h2>	
	Project Title Isles of Scilly Flood Defence and Dune Management Project – Porth Hellick	Project Code UA008878-ARC-XX-XX- HS-CE-0562-P3

Assessment Coverage:

 The dune recharge at the eastern extend of Porth Hellick beach including the installation of a beach access ramp over the newly raised dune and an approach access track to the beach ramp.

1. Scope of Commission and Coverage of Assessment:
 This part of the scheme comprises the following elements:

- Restoration of the existing backshore beach dune to +5.00 m ODL.
- Installation of a flexible precast concrete block mattress to facilitate access to vehicles to the beach when carrying out maintenance works on the leat outfall.
- Installation of an access track from the approach field to rear of the dune ramp.

2. Brief Description of the Works:

- Recharging the dune to +5.00 m ODN, including the stabilisation with 100% biodegradable geotextile and re-vegetation of the crest.
- Installation of the vehicle access ramp over the dune to access the beach
- Installation of a vehicle approach track to the ramp.

3. Key Risk Reduction measures taken during design process:

- The footprint of the works has been kept above the MHWS mark.
- Excavation works have been kept to a minimum by adopting the concrete Dycel block solution for the access ramp.
- The Dycel blocks are to be individually laid by hand and cabled together onsite thereby reducing the size of the plant required when compared to lifting & positioning factory constructed mats.
- The stabilisation of the dune is to be achieved with 100% biodegradable geotextile, reducing the environmental impact of the solution on the SSSI.

4. Significant Project Specific Hazards Remaining:

- Works adjacent to water. Though working is above MHWS, the site could be affected by wave conditions and extreme tidal levels.
- Soft & unstable ground – The dune is formed of gravel (4-10mm particle size). Risk of machinery overturning
- Public beach – Possibility of public entering the works area.
- Services – Higher Moors leat outfall pipe buried in dune.
- Environmentally sensitive dune designated SSSI & AONB
- Invasive plant species- Hottentot Fig (Carpobrotus Edulis) present amongst existing native vegetation on the dune.

5. Specific Construction Requirements

- The Dycel blocks weigh 45kg each and will need to be lifted by machinery to avoid manual handling issues when constructing the beach access ramp.

6. Means by which significant hazards are conveyed to contractors and others:

- Hazard markers added to drawings

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Date of Review	
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Assessed by:

Name	M. Clausen	Signature		Date	29/03/2019
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Reviewed by:

Name	Ian Cooke	Signature		Date	29/03/2019
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	Health & Safety - Designer's Hazard Record			Project Code/Doc No: UA008878-ARC-XX-XX-HS-CE-0562	
	Project Title: Isles of Scilly Flood Defence and Dune Management Project – Porth Hellick	Assessor (Name): M. Clausen	Assessor (Signature): 	Date: 29/03/19	Revision: P3

Ref	Activity & Hazard	Level of Risk (optional)	Design Input to Eliminate or Reduce Hazards, and Hazards Remaining	Residual Hazard?
A	Working adjacent to water		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes
B	Soft & unstable ground		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes
C	Public beach		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes
D	Services- Higher Moors Outfall		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes
E	Environmental sensitive dune. Designated SSSI & AONB		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes
F	Invasive Plant Species - Hottentot Fig (Carpobrotus Edulis)		This is an unavoidable consequence of the works and the contract is to mitigate the associated risks	Yes

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