



IMPORTANT – THIS COMMUNICATION AFFECTS YOUR PROPERTY

COUNCIL OF THE ISLES OF SCILLY

Town Hall, St Mary's TR21 0LW
Telephone: 01720 424455 – Email: planning@scilly.gov.uk

Town and Country Planning Act 1990
Town and Country Planning (Development Management Procedure) Order 2015

PERMISSION FOR DEVELOPMENT

Application No:	P/23/060/COU	Date Application Registered:	8th August 2023
Applicant:	Mr Paul Masters Town Hall, The Parade, Hugh Town, St Mary's, Isles of Scilly, TR21 0LW	Agent:	Mrs Rebecca Williams Town Hall, The Parade, Hugh Town, St Mary's, Isles of Scilly, TR21 0LW

Site address: Land to the North of the Cemetery Old Town Road Old Town St Mary's Isles of Scilly
Proposal: Change of use of agricultural land to create extension to cemetery.

In pursuance of their powers under the above Act, the Council hereby **PERMIT** the above development to be carried out in accordance with the following 3 Conditions:

- C1 The development hereby permitted shall be begun before the expiration of three years from the date of this permission.**
Reason: In accordance with the requirements of Section 91 of the Town and Country Planning Act 1990 (as amended by Section 51 of the Planning and Compulsory Purchase Act 2004).
- C2 The development hereby permitted shall be carried out in accordance with the approved details only including:**
- **Plan 1 Location Plan,**
 - **Plan 2 Proposed Site Plan,**
 - **Ecological Survey Report (Phase 1) and Botanical Species List**
 - **Groundwater Risk Assessment**
 - **Heritage Impact Assessment**
 - **Design and Access Statement**
 - **Site Waste Management Plan**

These are stamped as APPROVED

Reason: For the clarity and avoidance of doubt and in the interests of the character and appearance of the Conservation Area, Area of Outstanding Natural Beauty and Heritage Coast in accordance with Policies OE1 and OE7 of the Isles of Scilly Local Plan (2015 - 2030).

PRE-COMMENCEMENT CONDITION: Submission of a Written Scheme of Investigation

- C3 (A) No excavation or trenching works shall take place until a programme of archaeological work including a Written Scheme of Investigation has been submitted to and approved by the local planning authority in writing. The scheme shall include an assessment of significance and research questions, and:**
- 1. The programme and methodology of site investigation and recording.**
 - 2. The programme for post investigation assessment.**
 - 3. Provision to be made for analysis of the site investigation and recording.**
 - 4. Provision to be made for publication and dissemination of the analysis and records of the site investigation.**
 - 5. Provision to be made for archive deposition of the analysis and records of the site**

investigation.

6. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.

(B) No excavation or trenching works shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

(C) The cemetery shall not be used for burials until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under part (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured. Note: The archaeological recording condition will normally only be discharged when all elements of the WSI including on site works, analysis, report, publication (where applicable) and archive work has been completed.

Reason: This is a pre-commencement condition that requires the submission of details that did not form part of the original submission but are required in order to ensure the site has provision for full recording of its archaeological potential in accordance with Policy OE7(7) of the Isles of Scilly Local Plan 2015-2030.

Further Information (5)

1. In dealing with this application, the Council of the Isles of Scilly has actively sought to work with the applicants in a positive and proactive manner, in accordance with paragraph 38 the National Planning Policy Framework 2021.
2. **DISCHARGE OF CONDITIONS:** In accordance with the Town and Country Planning (fees for Application and Deemed Applications, Requests and Site Visits) (England) (Amendment) Regulations 2017 a fee is payable to discharge any condition(s) on this planning permission. The fee is current £116 for each request to discharge condition(s) where the planning permission relates to any other type of development other than a householder application. The fee is payable for each individual request made to the Local Planning Authority. You are advised to check the latest fee schedule at the time of making an application as any adjustments including increases will be applied:
https://ecab.planningportal.co.uk/uploads/english_application_fees.pdf
3. **NON-MATERIAL AMENDMENTS:** In accordance with the provisions of Section 96A of the Town and Country Planning Act which came into force on 1st October 2009, any amendments to the approved plans will require either a formal application for a non-material amendment or the submission of a full planning application for a revised scheme. There is a fee to apply for a non-material amendment and the most up to date fee will be charged which can be checked here:
https://ecab.planningportal.co.uk/uploads/english_application_fees.pdf
4. **BATS:** The Applicant is reminded of the provisions of the Wildlife and Countryside Act 1981 and the E.C. Conservation (Natural Habitats) Regulations Act 1994, the Habitat and Species Regulations 2012 and our Natural and Environment and Rural Communities biodiversity duty. This planning permission does not absolve the applicant from complying with the relevant law protecting species, including obtaining and complying with the terms and conditions of any licences required, as described in part IV B of Circular 06/2005. Care should be taken during the work and if bats are discovered, they should not be handled, work must stop immediately, and a bat warden contacted. Extra care should be taken during the work, especially when alterations are carried out to buildings if fascia boards are removed as roosting bats could be found in these areas. If bats are found to be present during work, they must not be handled. Work must stop immediately, and advice sought from licensed bat wardens. Call The Bat Conservation Trust's National Bat Helpline on 0845 1300 228 or Natural England (01872 245045) for advice.
5. **PROTECTION OF GROUNDWATER:** The Groundwater Risk Assessment demonstrates the proposed Burial Ground Development to represent a potential LOW RISK to controlled waters. Notwithstanding this, the advice to the cemetery operators, as part of the implementation of this permission, is to take appropriate measures to manage this site to ensure they do not cause an unacceptable risk to groundwater quality. In implementing this permission the operator should refer to the cemetery section in the '[The Environment Agency's approach to groundwater protection](#)' and information on the Natural Death Centre website. Please ensure all works are:
 - at least 250 metres from a well, borehole or spring used to supply water that is used for human consumption, or for use in dairy farms.
 - at least 30 metres from any other spring or watercourse and at least 10 metres from any field drain.
 - have at least one metre of subsoil below the bottom of the burial pit, allowing a hole deep enough for at least one metre of soil to cover the remains.
 - have at least one metre of unsaturated zone (the depth to the water table) below the base of any grave.
Allowance should also be made to any potential rise in the water table (at least one metre should be maintained).

Signed:



Chief Planning Officer

Duly Authorised Officer of the Council to make and issue Planning Decisions on behalf of the Council of the Isles of Scilly.

DATE OF ISSUE: 12th October 2023



COUNCIL OF THE ISLES OF SCILLY

Planning Department
Town Hall, The Parade, St Mary's, Isles of Scilly, TR21 0LW
☎0300 1234 105
✉planning@scilly.gov.uk

Dear Mr Paul Masters

Please sign and complete this certificate.

This is to certify that decision notice: P/23/060/COU and the accompanying conditions have been read and understood by the applicant: Mr Paul Masters.

1. **I/we intend to commence the development as approved:** Change of use of agricultural land to create extension to cemetery at: Land To North Of Cemetery Old Town Road Old Town St Mary's Isles Of Scilly **on:**.....
2. I am/we are aware of any conditions that need to be discharged before works commence.
3. I/we will notify the Planning Department in advance of commencement in order that any pre-commencement conditions can be discharged.

You are advised to note that Officers of the Local Planning Authority may inspect the project both during construction, on a spot-check basis, and once completed, to ensure that the proposal has complied with the approved plans and conditions. In the event that the site is found to be inaccessible then you are asked to provide contact details of the applicant/agent/contractor (delete as appropriate):

Name: _____ **Contact Telephone Number:** _____
And/Or Email: _____

Print Name:

Signed:

Date:

Please sign and return to the **above address** as soon as possible.

For the avoidance of doubt you are reminded to address the following condition(s) before you commence the implementation of this permission. Although we will aim to deal with any application to discharge conditions as expeditiously as possible, you are reminded to allow up to **8 weeks** for the discharge of conditions process.

PRE-COMMENCEMENT CONDITION(S)

- C3 (A) No excavation or trenching works shall take place until a programme of archaeological work including a Written Scheme of Investigation has been submitted to and approved by the local planning authority in writing.

The scheme shall include an assessment of significance and research questions, and:

1. The programme and methodology of site investigation and recording.
2. The programme for post investigation assessment.
3. Provision to be made for analysis of the site investigation and recording.
4. Provision to be made for publication and dissemination of the analysis and records of the site investigation.
5. Provision to be made for archive deposition of the analysis and records of the site investigation.
6. Nomination of a competent person or persons/organisation to undertake the works set out within the Written Scheme of Investigation.

(B) No excavation or trenching works shall take place other than in accordance with the Written Scheme of Investigation approved under condition (A).

(C) The cemetery shall not be used for burials until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under part (A) and the provision made for analysis, publication and dissemination of results and archive deposition has been secured. Note: The archaeological recording condition will normally only be discharged when all elements of the WSI including on site works, analysis, report, publication (where applicable) and archive work has been completed.



COUNCIL OF THE ISLES OF SCILLY

Planning Department

Town Hall, St Mary's, Isles of Scilly, TR21 0LW

☎01720 424455

✉planning@scilly.gov.uk

**THIS LETTER CONTAINS IMPORTANT INFORMATION
REGARDING YOUR PERMISSION – PLEASE READ
IF YOU ARE AN AGENT DEALING WITH IS ON BEHALF OF THE
APPLICANT IT IS IMPORTANT TO LET THE APPLICANT KNOW
OF ANY PRE-COMMENCEMENT CONDITIONS**

Dear Applicant,

This letter is intended to help you advance your project through the development process. Now that you have been granted permission, there may be further tasks you need to complete. Some aspects may not apply to your development; however, your attention is drawn to the following paragraphs, which provide advice on a range of matters including how to carry out your development and how to appeal against the decision made by the Local Planning Authority (LPA).

Carrying out the Development in Accordance with the Approved Plans

You must carry out your development in accordance with the stamped plans enclosed with this letter. Failure to do so may result in enforcement action being taken by the LPA and any un-authorised work carried out may have to be amended or removed from the site.

Discharging Conditions

Some conditions on the attached decision notice will need to be formally discharged by the LPA. In particular, any condition that needs to be carried out prior to development taking place, such as a 'source and disposal of materials' condition, an 'archaeological' condition or 'landscaping' condition must be formally discharged prior to the implementation of the planning permission. In the case of an archaeological condition, please contact the Planning Department for advice on the steps required. Whilst you do not need to formally discharge every condition on the decision notice, it is important you inform the Planning Department when the condition advises you to do so before you commence the implementation of this permission. Although we will aim to deal with any application to discharge conditions as expeditiously as possible, you are reminded to allow up **to 8 weeks** for the discharge of conditions process.

Please inform the Planning Department when your development or works will be commencing. This will enable the Council to monitor the discharge and compliance with conditions and provide guidance as necessary. We will not be able to provide you with any written confirmation on the discharge of pre-commencement conditions if you do not formally apply to discharge the conditions before you start works.

As with the rest of the planning application fees, central Government sets a fee within the same set of regulations for the formal discharge of conditions attached to planning permissions. Conditions are necessary to control approved works and development. Requests for confirmation that one or more planning conditions have been complied with are as follows (VAT is not payable on fees set by central government). More information can be found on the Council's website:

- Householder permissions - £34 per application
- Other permissions - £116 per application

Amendments

If you require a change to the development, contact the LPA to see if you can make a 'non material amendment' (NMA). NMA can only be made to planning permissions and not a listed building consent. They were introduced by the Government to reflect the fact that some schemes may need to change during the construction phase. The process involves a short application form and a 14 day consultation period. There is a fee of £34 for householder type applications and £234 in all other cases. The NMA should be determined within 28 days. If the change to your proposal is not considered to be non-material or minor, then you would need to submit a new planning application to reflect those changes. Please contact the Planning Department for more information on what level of amendment would be considered non-material if necessary.

Appealing Against the Decision

If you are aggrieved by any of the planning conditions attached to your decision notice, you can appeal to have specific conditions lifted or modified by the Secretary of State. All appeal decisions are considered by the Planning Inspectorate – a government department aimed at providing an unbiased judgement on a planning application. From the date of the decision notice attached you must lodge an appeal within the following time periods:

- Householder Application - 12 weeks
- Planning Application – 6 months
- Listed Building Consent – 6 months
- Advertisement Consent - 8 weeks
- Minor Commercial Application - 12 weeks
- Lawful Development Certificate – None (unless for LBC – 6 months)
- Other Types - 6 months

Note that these periods can change so you should check with the Planning Inspectorate for the most up to date list. You can apply to the Secretary of State to extend this period, although this will only be allowed in exceptional circumstances.

You find more information on appeal types including how to submit an appeal to the Planning Inspectorate by visiting <https://www.gov.uk/topic/planning-development/planning-permission-appeals> or you can obtain hard copy appeal forms by calling 0303 444 5000.

Current appeal handling times can be found at: [Appeals: How long they take page](#).

Building Regulations

With all building work, the owner of the property is responsible for meeting the relevant Planning and Building Regulations. Building Regulations apply to most building work so it is important to find out if you need permission. This consent is to ensure the safety of people in and around buildings in relation to structure, access, fire safety, infrastructure and appropriate insulation.

The Building Control function is carried out on behalf of the Council of the Isles of Scilly by Cornwall Council. All enquiries and Building Control applications should be made direct to Cornwall Council, via the following link [Cornwall Council](#). This link also contains comprehensive information to assist you with all of your Building Control needs.

Building Control can be contacted via telephone by calling 01872 224792 (Option 1), via email buildingcontrol@cornwall.gov.uk or by post at:

Building Control
Cornwall Council
Pydar House
Pydar Street
Truro
Cornwall
TR1 1XU

Inspection Requests can also be made online: <https://www.cornwall.gov.uk/planning-and-building-control/building-control/book-an-inspection/>

Registering/Altering Addresses

If you are building a new dwelling, sub dividing a dwelling into flats or need to change your address, please contact the Planning Department who will be able to make alterations to local and national databases and ensure postcodes are allocated.

Connections to Utilities

If you require a connection to utilities such as water and sewerage, you will need to contact South West Water on 08000831821. Electricity connections are made by Western Power Distribution who can be contacted on 08456012989.

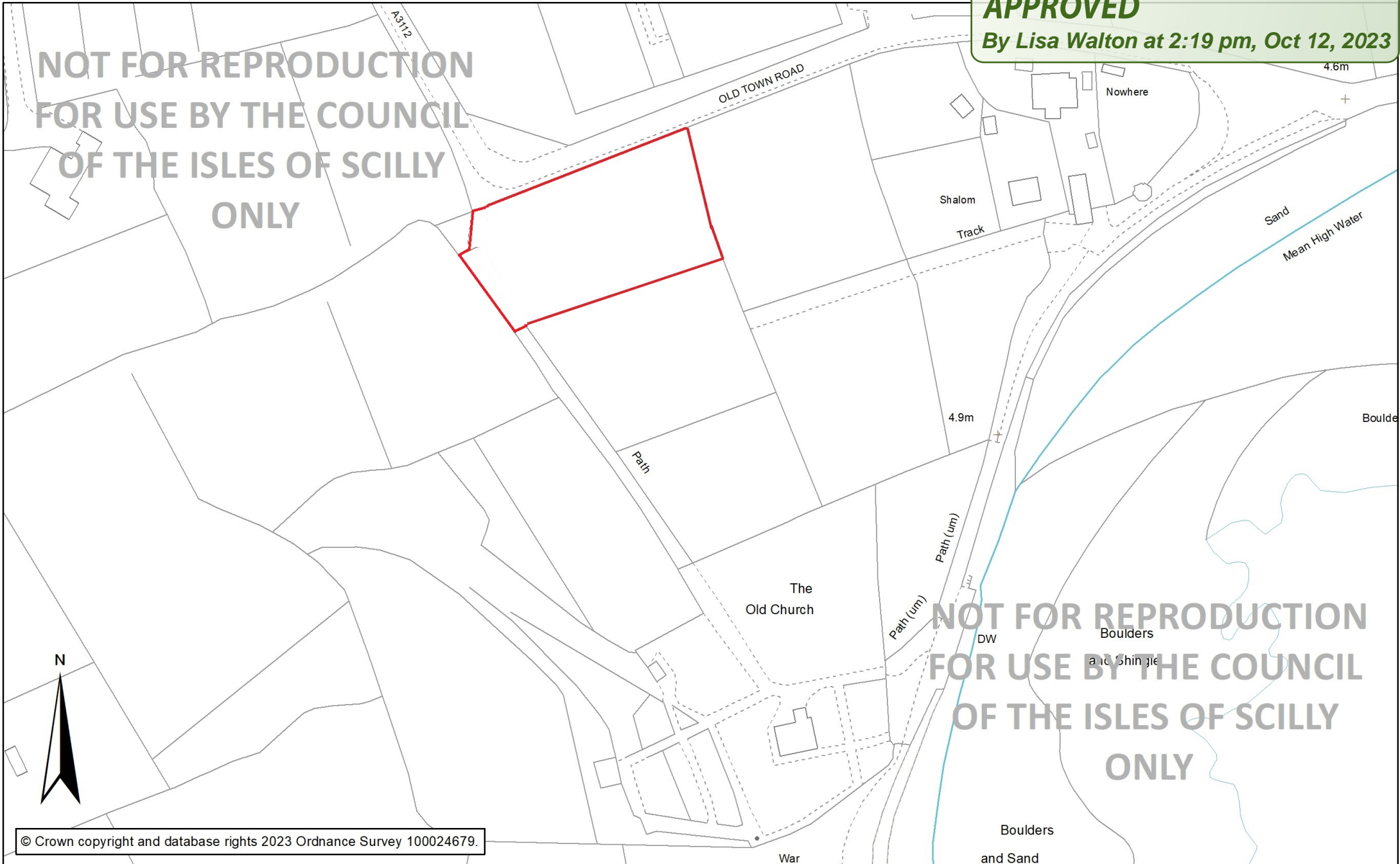
Should you require any further advice regarding any part of your development, please contact the Planning Department and we will be happy to help you.

Old Town Church & Cemetary, Old Town, St Mary's, Isles of Scilly

APPROVED

By Lisa Walton at 2:19 pm, Oct 12, 2023

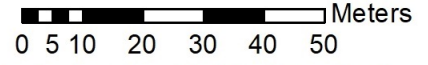
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RECEIVED

By Liv Rickman at 9:45 am, Aug 04, 2023

Old Town Cemetary, St Mary's, Isles of Scilly

APPROVED
By Lisa Walton at 2:19 pm, Oct 12, 2023

Key

- Fencing
- Pittosporum
- Elm
- Public access route

PROPOSED SITE WORKS ENTRANCE & PERMANENT PEDESTRIAN GATEWAY ACCESS

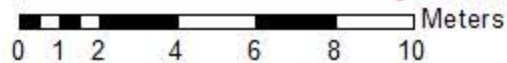
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EXISTING GAP TO ALLOW FOR ADDITIONAL PUBLIC ACCESS.



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Council of the Isles of Scilly, Town Hall, The Parade, St Mary's, Isles of Scilly, TR21 0LW



RECEIVED
By Liv Rickman at 9:46 am, Aug 04, 2023



DESIGN AND ACCESS STATEMENT

LAND NORTH OF EXISTING CEMETERY

Council of the Isles of Scilly

Site description

The proposed site is located at the southern side of the island of St Mary's in an area of enclosed agricultural land to the north of the existing cemetery at Old Town, St Mary's, Isles of Scilly. The site borders the public highway (A3112) where the main access to the cemetery by the public is located.

A site plan is presented in Appendix A.

A site location plan is presented in Appendix B.

The field sits alongside a narrow track which leads directly to the church, which bypasses the existing cemetery plot and churchyard. The site boundaries include a mixture of mature native hedging (Elms) with some non-native pittosporum hedging to the southern boundary. The site boundaries also include low, stone-faced hedgebanks. There are breaks in the boundaries at the north-west and the south-east of the site.

The field is currently used for grazing but with little evidence of recent activity. The site is composed of semi-improved grassland, with scattered scrub.



Figure 1: View of site from the north-west

Proposed works

The Council is in the process of purchasing this land from the Duchy of Cornwall as there is a requirement to extend the Cemetery at Old Town, St Marys to allow for burials to continue to take place. The existing cemetery is likely to reach capacity in the next 2-3 years.

Once groundworks have taken place, the ground requires at least 2 years to settle before burials can take place. The cemetery will be maintained and managed by the Council of the Isles of Scilly after the development and sale of the land has taken place.

The proposed works will require a full risk assessment to be undertaken to ensure the site is made secure and safe to prevent public access whilst the works are taking place. The site is likely to require temporary fencing at locations where there are gaps in the existing boundaries.

Site works will begin by pruning overhanging Elm branches and pittosporum hedging along all site boundaries, to allow for machinery access. The Council will appoint a qualified tree surgeon to undertake the tree works. The Council will be required to create a works access entrance to the north-west corner of the site, just off the main trackway. This will require the removal, and subsequent replacement, of two granite posts and a small section of the stone wall hedge (Figure 2).



Figure 2: North-west corner (works entrance).

Vegetation growing within the field will be topped and mown. Stakes to mark out grave trenches will be created by the council's operational team and the island's undertaker.

Ground works to the site will involve digging, trench by trench, down the length of the site (west to east) to a minimum depth of 2 metres. A gap of 1.5 will be left to the areas closest to the field boundaries, with an area approximately 2 metres (minimum) left down the

centre of the proposed site and towards the bottom (east), to allow for public and machinery access when the site is in use.

Soil and ram will be removed and replaced to refill the grave trenches, once all large rocks are removed. The site will then be levelled and left to settle. Additional earth may be required to raise the site back up to an appropriate level, which will come from local sources i.e., neighbouring farm. The site will then be re-seeded with an appropriate seed mix.

Access & Design

It is proposed that the entrance to the north-west (Figure 1) is used as permanent public access to the proposed site, once works are complete and the cemetery can be accessed by the public. The Council will include the installation of suitable wooden latched gate at the area (Figure 3).



Figure 3: Proposed gate design for permanent public access to north-west.

We propose to create an access path to the south and down the centre of proposed new gated entrance, to allow for public access. There is existing access to the site at the south-east corner, where there is a natural gap in the site boundary. This will allow for the public to move freely between the cemetery plots.

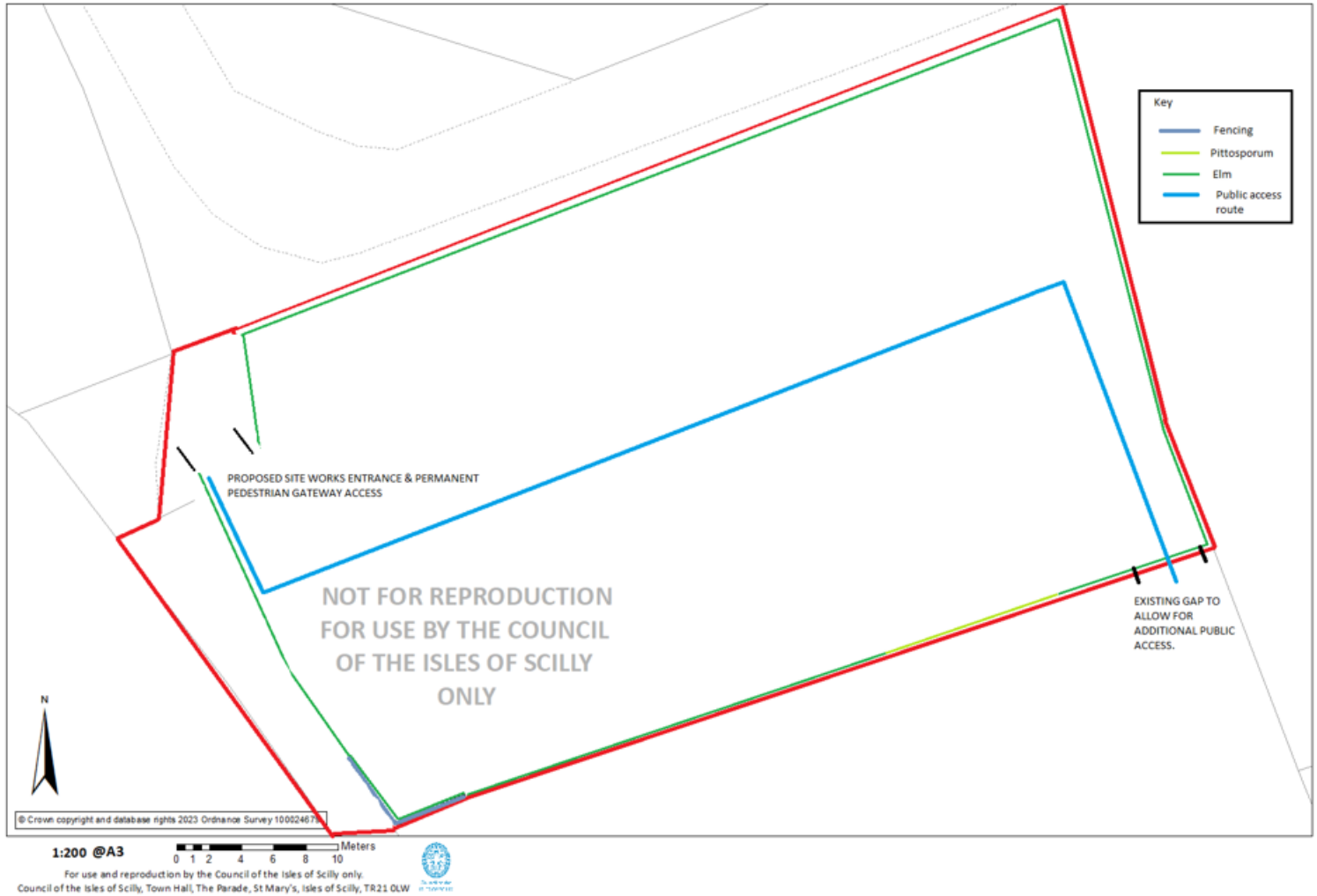
Permanent fencing is required to a section of the proposed site, and to the existing cemetery, as shown in Figure 4. This is to prevent access by the public to reduce erosion caused by walking (as can be viewed in Figure 4). The existing cemetery can also be accessed by the public, through a formal entrance, further down the track that runs to the churchyard. Stock post and wire fencing will be sort by the Council and installed as part of the works.



Figure 4: Location of permanent fencing.

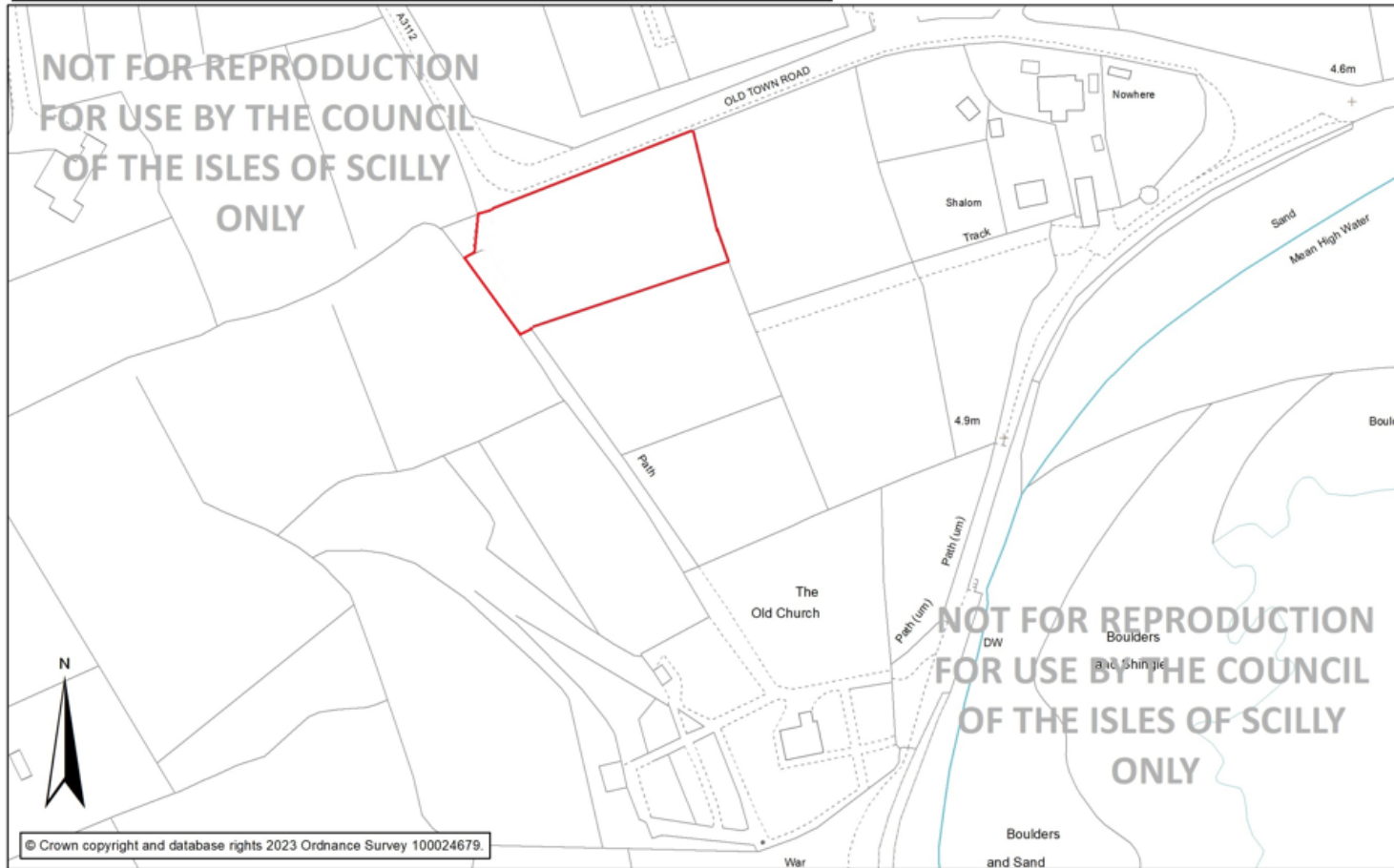
APPENDIX A: Site Plan

Old Town Cemetary, St Mary's, Isles of Scilly



APPENDIX B: Site Location Plan

Old Town Church & Cemetary, Old Town, St Mary's, Isles of Scilly



Old Town Cemetery Extension – extended Phase I ecological survey report

1 Introduction and Background

1.1 Purpose

On behalf of The Council of the Isles of Scilly, the Isles of Scilly Wildlife Trust has undertaken an extended Phase I habitat survey of the site proposed for an extension of the Old Town Cemetery. The field proposed for this extension is located adjacent to the Old Town Church and Cemetery, Old Town, St Mary's, Isles of Scilly, TR21 0NA at National Grid Reference SV 91060 10176.

1.2 Site location and description

The site is situated in the Isles of Scilly which has been designated as an Area of Outstanding Natural Beauty. The islands contain 26 sites of Special Scientific Interest, one Special Area of Conservation, one Special Protection Area and one Ramsar site.

The proposed site is located to the north of Old Town Church, with the cemetery bordering the site to the south side, and Old Town Road bordering the site to the north. To the east of the site there is a relatively species-rich semi-improved grassland which shows signs of having been used for recent grazing. To the north-west of the site is a cattle pasture, whilst due west of the site is an area of grassland which could not be viewed, beyond the elm-lined drive from the road to Old Town Church.

The wider landscape includes the settlement of Old Town, a patchwork of small fields used for flower farming or pasture, and the coast. The nearest SSSIs are of contrastingly different habitats to the site being surveyed, comprising the wetland of Lower Moors SSSI to the north of the site, and the coastal heathland of Peninnis Head to the south of the site.



Figure 1. Site Location - Aerial Photograph

1.3 Aim

The aim of this extended Phase I survey is to provide a description of the habitat types on site, identifying any features of particular ecological value and to make any recommendations for further surveys which may be merited.

2 **Methods**

A desk study was carried out to identify any sites designated for nature or of scientific interest within 2km of the site using the tool Multi-Agency Geographic Information for the Countryside (MAGIC). In addition. Reference was made to the New Flora of the Isles of Scilly (Parslow & Benallick 2017) and a conversation was held with Rosemary Parslow (botanical recorder for Scilly) about the field. The Environmental Records Centre for Cornwall and the Isles of Scilly was not consulted for a data search.

The survey was undertaken by Julian Branscombe, supported by Lydia Bunn, on 15th June 2023. During the survey the temperature was 18°C, light breeze, 50% cloud cover and good visibility. The methodology for habitat survey followed the JNCC (Joint Nature Conservation Committee) Guidelines (JNCC, 2010). This included a walkover survey while mapping habitat types and identifying all species and habitats found on the site.

In addition to a list of vascular plant species, incidental records were made of other species which could be identified on site during the survey. The potential of the site for any species of specially protected wildlife was also considered.

3 **Results**

3.1 Desk Study

There are three statutory designated sites of conservation within a 2km radius of the proposed site, namely:

- Lower Moors SSSI, a wetland site situated approximately 280m north-east of the proposed site.
- Higher Moors and Porth Hellick Pool SSSI, a wetland site situated approximately 1.2km north-east of the site.
- Peninnis Head SSSI, a coastal heathland situated approximately 370m south of the site.
- Porthloo SSSI, a geological site situated approximately 1.2km north of the site.

3.2 Phase 1 Habitat Survey

A list of plant species identified on site, along with their recorded frequency, is included as an Appendix. The taxonomy used follows that of the New Flora by Stace, 4th Edition. Figure 2 (below) provides a simple map of the site and the habitats present. The habitats within the site are detailed below.



Figure 2. Phase 1 Habitat Map of Site.

Semi-improved grassland with scattered scrub

Most of the site composed of semi-improved grassland, which has had no recent management. The most frequent species were Cock's-foot (*Dactylis glomerata*) and Hogweed (*Heracleum sphondylium*). Other grass species which were found included Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog (*Holcus lanatus*), False Oat-grass (*Arrhenatherum elatius*) and Rough Meadow-grass (*Poa trivialis*). In more open parts of the field the species present included a relatively low frequency of Cat's-ear (*Hypochaeris radicata*), Common Vetch (*Vicia sativa*) and Hairy Tare (*Vicia hirsuta*). The field included a number of garden escapes or relics from cultivation which included Blue-Eyed-Grass (*Sisyrinchium bermudiana*), Daffodil (*Narcissus* sp.) and Tutsan (*Hypericum androsaenum*).

Bramble (*Rubus fruticosus*) was frequent, particularly towards the edges of the field. Other scrub was represented by suckering Elm (*Ulmus procera* agg.) at the edge of the field, with a seedling of Holly (*Ilex aquifolium*) spotted at one point.

Overall, there were few species associated with relatively unimproved grasslands. Yellow Bartsia (*Parentucellia viscosa*) and Common Centaury (*Centaureum erythraea*) were both present, but rare (one or two individual plants noted in one location within the field apiece), in marked contrast to their relatively high frequency in the more flower-rich field outside the site to the east.

Boundary features

A Cornish hedge marked the boundary of the site to the road to the north. This style of boundary is largely restricted to Cornwall, and comprises stone-facing with an inner fill of soil and frequently topped with trees or vegetation. This boundary was lined with mature Elms with much Atlantic Ivy

(*Hedera hibernica*). Other species along the hedge included White Ramping-fumitory (*Fumaria capreolata*), Smooth Sow-thistle (*Sonchus oleraceus*) and Rock Sea-spurrey (*Spergularia rupicola*).

On the east and south side of the site, the boundaries appeared to represent remnant Cornish hedges, of low height and of limited remaining structure, largely representing a low, uneven earthy bank with some stones apparent. These were dominated by mature Elm trees and Pittosporum (*Pittosporum crassifolium*), with the southern boundary having considerable gaps between some of the trees and bushes.

On the west side the boundary comprised a line of Elm trees on level ground (with no bank present), and an understorey including Common Nettle (*Urtica dioica*), Soft Shield-fern (*Polystichum setiferum*), Lady Fern (*Athyrium felix-femina*) and Winter Heliotrope (*Petasites pyrenaicus*).

There was a small section of dry-stone wall on the northern corner of the site, by the entrance to the field.

Incidental Records

The bird species recorded using the site during the survey were Song Thrush (*Turdus philomelos*), Blackbird (*Turdus merula*), Wren (*Troglodytes troglodytes*), Robin (*Turdus philomelos*), Starling (*Sturnus vulgaris*), Goldfinch (*Carduelis carduelis*), Chaffinch (*Fringilla coelebs*) and House Sparrow (*Passer domesticus*). The invertebrates noted were Holly Blue (*Celastrina argiolus*), Common Blue (*Polyommatus icarus*), Buff-tailed bumblebee (*Bombus terrestris*) and Rose Chafer (*Cetonia aurata*).

4 Evaluation

The grassland present on site is considered to have relatively low ecological value. This is as a result of the very limited range and abundance of the species found in agriculturally unimproved grassland, the lack of recent grassland management and the field's past use for bulb cultivation.

The field was of considerable interest for arable wildflowers when under bulb cultivation, and was the last site in Scilly for the Purple Ramping-fumitory (*Fumaria purpurea*) (R Parslow pers. comm.). This fumitory is now extinct in Scilly and is considered Vulnerable on the England Red List for plants. It is possible that Purple Ramping-fumitory could reappear from the seedbank when soil is disturbed as part of the cemetery preparation or operation, in which case a priority conservation action would be seed collection so this species could be maintained in cultivation in Scilly, and/or introduced to another field on the island where the management includes regular tillage.

A range of widespread plant species were recorded from the field and its boundaries. A range of birds and invertebrates of wide distribution within Scilly were also recorded. The field is likely to have a relatively high biomass of invertebrates due to lack of recent disturbance, and the volume of vegetation, including encroaching Bramble and suckering Elms, however the site conditions do not include any conditions which indicate a high likelihood of presence of any locally or nationally uncommon invertebrates.

The boundary features are considered to be of at least moderate ecological value, particularly the Cornish hedge at the north of the site, and the mature elms. The elms and the hedgebank and its stones could all be of interest for lichens and bryophytes, with the most significant potential feature being the possible presence of the Sap-groove Lichen *Bacidia incompta*. Elm trunks in the Isles of Scilly are a national stronghold for this much declined species which is on the Red List. This species was not noted, but it can be a difficult species to survey for when Elm trees are in leaf.

The Elm trees may have cavities or cracks suitable for roosting bats, whilst the thick Atlantic Ivy cover on some of the trees may also support roosting bats. The combination of the overgrown field and tree-lined boundaries are likely to be of value for foraging bats.

5 Potential Impacts

The potential impacts of use of this field for a cemetery would depend on the nature of the works proposed. No details of the works have been provided. However, the impacts could be low if the provision of an extended cemetery facility involves no damage to Cornish hedges or mature Elm trees. It should be possible to develop the site as a cemetery extension without damage to Cornish hedges or mature trees.

6 Recommendations for further survey

It is considered that no further ecological survey is required for the proposed cemetery proposal, providing there is no impact on the Cornish hedges and mature elm trees. Should there be disturbance of these features, then work would be required to investigate the potential for bat roosts in the trees in particular. Furthermore, consideration should be given to the potential for important lichens (particularly Sap-groove Lichen where water and/or sap runs down the tree trunks, particularly below trunk or bough damage on the Elms).

Recommendations for habitat enhancements as part of the proposed cemetery are outwith the scope of this survey.

7 Appendix

A table giving the full list of plant species recorded in the grassland, and in the surrounding boundary habitats, is provided as an Appendix to this report.

Appendix: Botanical species list - Old Town Cemetery Extension

Semi-improved grassland with scattered scrub		
Common name	Scientific name	Frequency
Greater Bird's-foot-trefoil	<i>Lotus pendunculatus</i>	R
Common Vetch	<i>Vicia sativa</i>	R
Hairy Tare	<i>Ervillia hirsuta</i>	R
White Clover	<i>Trifolium repens</i>	O
Lesser Trefoil	<i>Trifolium dubium</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	LF
Wild Rose	<i>Rosa</i> sp.	R
English Elm	<i>Ulmus procera</i> agg.	O
Tutsan	<i>Hypericum androsaemum</i>	O
Scarlet Pimpernel	<i>Lysimachia arvensis</i>	R
Cleavers	<i>Galium aparine</i>	O
Common Centaury	<i>Centaurium erythraea</i>	R
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Selfheal	<i>Prunella vulgaris</i>	O
Yellow Bartsia	<i>Parentucellia viscosa</i>	R
Holly	<i>Ilex aquifolium</i>	R
Creeping Thistle	<i>Cirsium arvense</i>	O
Cat's-ear	<i>Hypochaeris radicata</i>	O
Bristly Oxtongue	<i>Helminthotheca echioides</i>	R
Smooth Hawk's-beard	<i>Crepis capillaris</i>	O
Fleabane sp.	<i>Erigeron</i> sp.	R
Honeysuckle	<i>Lonicera periclymenum</i>	O
Wild Carrot	<i>Daucus carota</i>	R
Hogweed	<i>Heracleum sphondylium</i>	F
Blue-eyed-grass	<i>Sisyrinchium bermudiana</i>	O
Rosy Garlic	<i>Allium roseum</i>	R
Three-cornered leek	<i>Allium triquetrum</i>	O
Daffodil sp.	<i>Narcissus</i> sp.	O
Soft Rush	<i>Juncus effusus</i>	R
Rye-grass	<i>Lolium perenne</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	F
False Oat-grass	<i>Arrhenatherum elatius</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	LF
Common Bent	<i>Agrostis capillaris</i>	LF
Rough Meadow Grass	<i>Poa trivialis</i>	O

Boundary features		
Common name	Scientific name	Frequency
Lady fern	<i>Athyrium filix-femina</i>	R
Soft shield-fern	<i>Polystichum setiferum</i>	R
Intermediate polypody	<i>Polypody interjectum</i>	O
Wall Pennywort/Navelwort	<i>Umbilicus rupestris</i>	O
White ramping-fumitory	<i>Fumaria capreolata</i>	R
Lesser Trefoil	<i>Trifolium dubium</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	F
English Elm	<i>Ulmus procera</i> agg.	F

Common Nettle	<i>Urtica dioica</i>	F
Procumbent Pearlwort	<i>Sagina procumbens</i>	O
Rock Sea-spurrey	<i>Spergularia rupicola</i>	R
Scarlet Pimpernel	<i>Lysimachia arvensis</i>	R
Cleavers	<i>Galium aparine</i>	O
Common Centaury	<i>Centaureum erythraea</i>	R
Bindweed species	<i>Calystegia</i> sp.	R
Smooth Sowthistle	<i>Sonchus oleraceus</i>	O
Prickly Sowthistle	<i>Sonchus asper</i>	R
Fleabane sp.	<i>Erigeron</i> sp.	O
Winter Heliotrope	<i>Petasites pyrenaicus</i>	LF
Pittosporum	<i>Pittosporum crassifolium</i>	O
Atlantic Ivy	<i>Hedera hibernica</i>	F
Alexanders	<i>Smyrniolus olusatrum</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Stinking Iris	<i>Iris foetidissima</i>	O
Three-cornered leek	<i>Allium triquetrum</i>	O
False Brome	<i>Brachypodium sylvaticum</i>	R
Red Fescue	<i>Festuca rubra</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O

Explanation of frequency codes

F - Frequent

LF - Locally Frequent

O - Occasional

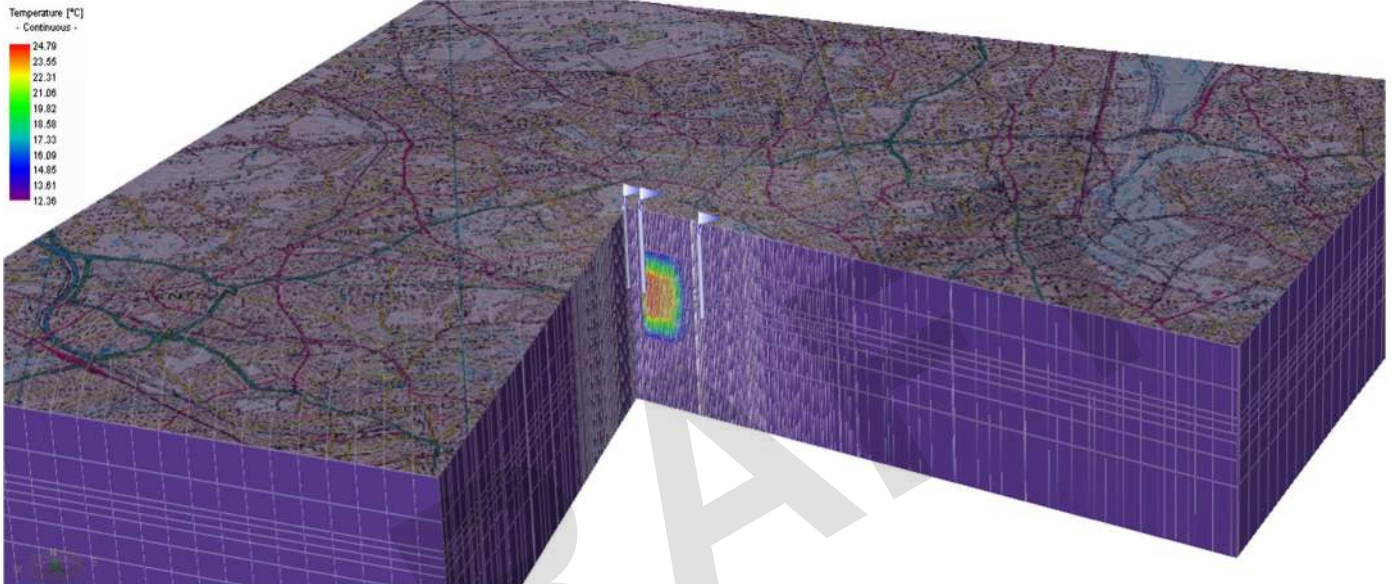
R - Rare

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REPORT

Report Title:

Tier 1: Groundwater Risk Assessment for a Proposed Expansion to an Existing Cemetery

Site Location:

Old Town Church, St Mary's, Isles of Scilly

Report prepared for:

Council of the Isles of Scilly

Report prepared by:

Huw Williams

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Contents

1	Introduction and Project Background.....	1
1.1	Historical and Proposed Future Use.....	2
1.2	Scope of Services and Project Objectives.....	3
1.3	Disclaimer.....	3
2	Justification of the Selected Methodology.....	4
3	Conceptual Site Model: Environmental Site Setting.....	5
3.1	Geological Setting.....	5
3.1.1	Soil and Drift.....	5
3.1.2	Solid Geology.....	5
3.1.3	BGS Borehole Records.....	6
3.2	Hydrogeological Setting.....	7
3.2.1	Groundwater Flow and Occurrence.....	7
3.2.2	Hydrostratigraphy.....	8
3.2.3	Regulatory Designations.....	8
3.3	Other Environmental Site Characteristics.....	9
3.4	Characteristics Summary Conceptual Model.....	9
3.5	Pollutants of Concern.....	9
4	Environmental Permit and Groundwater Risk Assessment.....	11
4.1	Minimum Good Practice Groundwater Requirements.....	11
4.2	Tier 1 Groundwater Risk Assessment.....	12
4.3	Tier 2 Groundwater Risk Assessment.....	13
4.3.1	Infiltration Worksheet: Input Parameters.....	13
4.4	Initial Assessment Results.....	15
5	Conclusions and Recommendations from the HIA.....	16

6	References	17
7	Author's Statement.....	17
8	Limitations	18

Figures

- Figure 1. Site Location
- Figure 2. Site Layout
- Figure 3. Existing Landuse
- Figure 4. Study Area
- Figure 5. Published Geological Mapping
- Figure 6. Selected Borehole Records
- Figure 7. Statutory Designations
- Figure 8. Non-Statutory Designations

Tables

- Table 1. Selected Borehole Records
- Table 2. Representative Hydrostratigraphical Profile at the Site
- Table 3. Summary of Local Designations
- Table 4. Assessment of the Minimum Good Practice Groundwater Protection Reequipments
- Table 5. Tier 1 Risk Assessment
- Table 6. Infiltration Worksheet Input Parameters
- Table 7. Initial Assessment Results

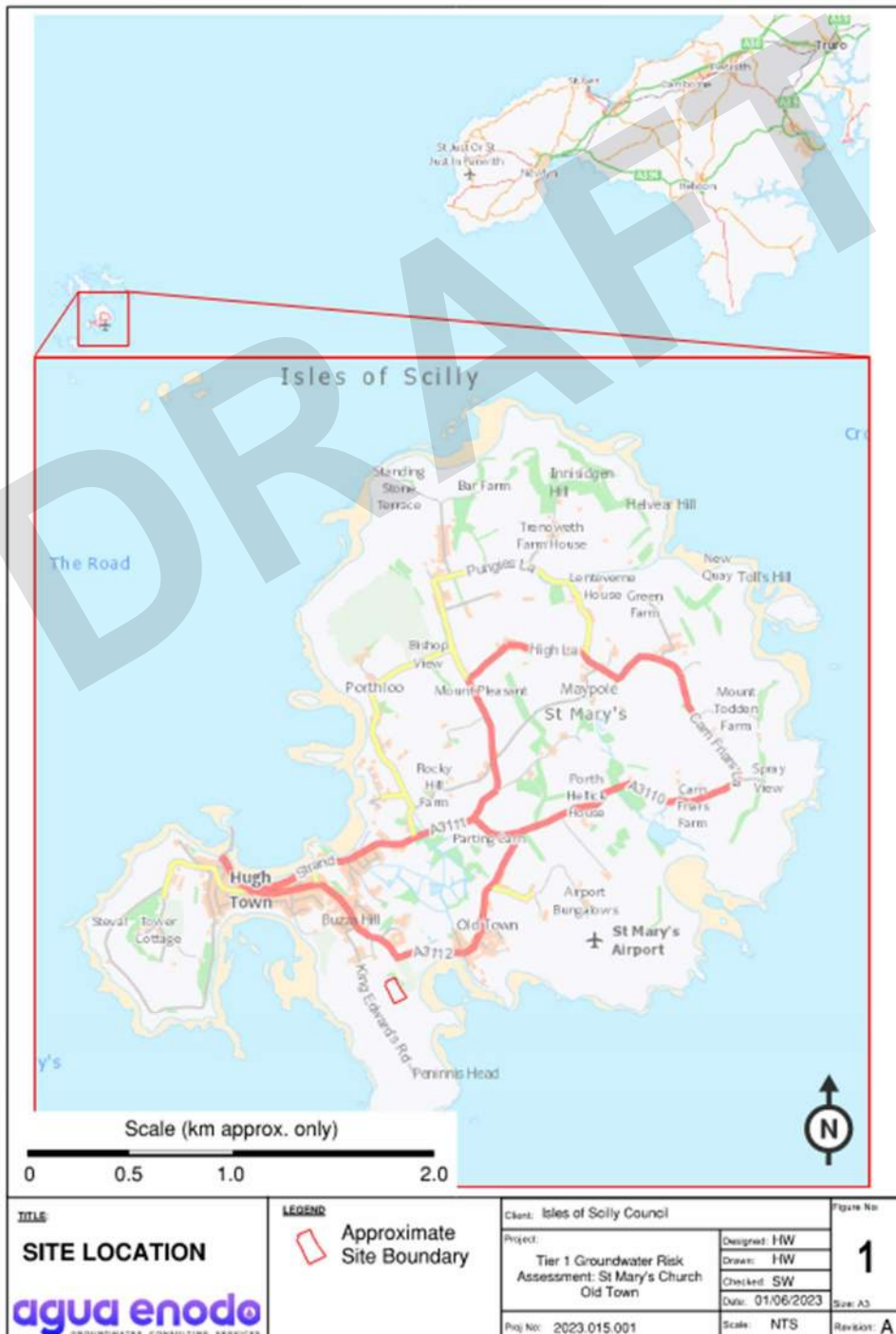
Appendices

- Appendix A - Selected Borehole Logs
- Appendix B - SouthWest Water Correspondance
- Appendix C - Groundwater Risk Ranking
- Appendix D - Infiltration Worksheet

1 Introduction and Project Background

The Isles of Scilly Council c/- Cornwall County Council have commissioned Agua Enodo to undertake a Groundwater Risk Assessment (GW-RA) for the proposed expansion of the existing cemetery at the Old Town Church, St Mary's, Isles of Scilly (IoS [herein referred to as the site. Refer Figure 1 for site location]).

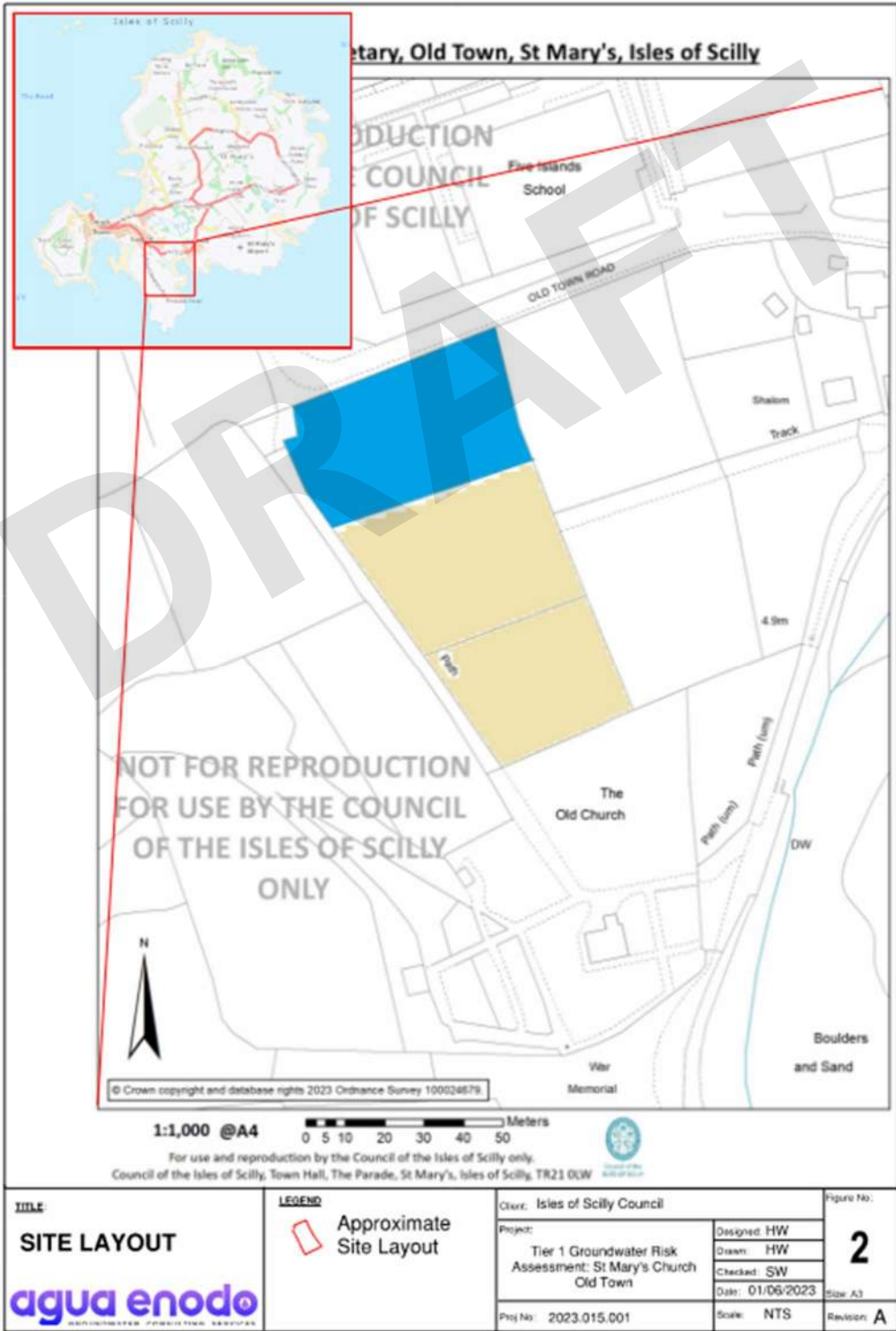
This report has been prepared in accordance with Environment Agency Guidance: Cemeteries and burials: Groundwater Risk Assessments (updated 1 April, 2022 on www.gov.uk). It follows the Source > Pathway > Receptor approach and justifies the Tier 1 Risk Assessment methodology selected.



1.1 Historical and Proposed Future Use

The burial register for the existing cemetery (highlighted cream-colour on Figure 2) dates from 1981 to the present day, totalling 385 recorded burials. This gives an average of 9 burials per year. This is corroborated with recent records which show 8 burials per year in the last three years (per. comm. Rebecca Williams, Head of Environment at Council of the IoS via email of 15/05/2023).

The proposed expansion area (highlighted blue Figure 2) is planned to have <10 burials per year, with an anticipated average 8 to 9 per year (per. comm. Rebecca Williams, 15/05/2023).



1.2 Scope of Services and Project Objectives

The scope and objectives of this GW-RA are to provide:

- A desktop study of the environmental site setting relevant to the existing and proposed cemetery within a 1 km area of the site, including but not limited to:
 - SOURCE: Assessment of the proposed cemetery expansion;
 - PATHWAY: Geology, hydrogeology, aquifer, groundwater and surface water characteristics; and
 - RECEPTOR: Environmentally sensitive receptors in the vicinity of the site.
- Justification of selecting a Tier 1 GW-RA; and
- The Tier 1 GW-RA, to assess reasonably foreseeable groundwater risks due to the proposed expansion of the cemetery.

No site walkover was conducted as part of this HIA.

All work has been carried out in accordance with the Environment Agency's Groundwater risk assessment for your environmental permit - How to carry out a groundwater risk assessment as part of an application for an environmental permit (www.gov.uk last updated 3 April 2018).

Analysis herein also complies with principals of:

- *The Environment Agency's approach to groundwater protection* dated February 2018 Version 1.2, in particular with reference to *Section L – Cemetery developments*; and
- *Guidance: Protecting groundwater from human burials*, Published 1 April 2022.

1.3 Disclaimer

This GW-RA has been undertaken based on currently available information at time of writing, provided by IoS Council, as well as readily available public information.

Documents and sources of information are referenced where appropriate in the text of this report and listed in References (Section 6).

Information provided to Agua Enodo was assumed to be reliable and no independent verification of information was undertaken.

Failure to manage and reduce any environmental risk to a minimum may result in action being taken under the Environmental Permitting (England and Wales) Regulations 2016, the Water Resources Act 1991 and the Anti-pollution Works Notice Regulations 1999.

2 Justification of the Selected Methodology

Historical records for burials at the site show:

- A long-term average of 9 burials per year for 41 years (from 1981);
- A recent three-year average of 8 burials per year (2019 to 2022); and
- Anticipated rate of 8 to 9 burials per year in the expanded cemetery area.

Based on census data reviewed for the purposes of this GW-RA (Office for National Statistics < www.ons.gov.uk/visualisations/censuspopulationchange/ > accessed 31/05/2023) the population of the IoS has fallen by 4.7% between 2011 and 202, and no significant population increase is anticipated.

For the purposes of this assessment, the following has been assumed:

1. Burials to be completed within the drift and heavily weathered granite (to a depth of <1.6 m is considered sufficient);
2. Burials to be evenly distributed across the site; and
3. Not more than 9 burials per year.

Based on these assumptions, a Tier 1 GW-RA has been undertaken and is presented herein.

Based on experience, it is reasonable to apply the following generic risk-based guidelines to controls and minimise pollution risk:

- At least 250 m from all groundwater supply boreholes and springs;
- At least 30 m from all surface watercourses or springs;
- At least 10 m from field drains and ditches (including perennial features); and
- Conduct no burials at or below the water table.

3 Conceptual Site Model: Environmental Site Setting

The expansion area is centred approximately on National Grid Reference SV 91059 10175 (Figure 3) off the southern side of Old Town Road on Peninnis Head, at the southern end of St Mary's.

Currently the site is covered by grassland (Figure 3) and surrounded by fields directly to the east and west. The existing cemetery lies to the south and The Five Islands Academy to the north.

The expansion area slopes gently towards the southeast, with the site elevation of c.8.0 mOD along the western side and c.6.0 mOD along the eastern side. The existing site layout and land-use is shown on Figure 3 and Figure 4 respectively.

Selected environmental site setting characteristics relevant to this GW-RA have been reviewed in the following sections.

3.1 Geological Setting

The shallow and deep geology of the site has been characterised using British Geological Survey (BGS):

- Soil data from the UK Soil Observatory online viewer (UKSO: www.mapapps2.bgs.ac.uk/ accessed 01/06/2023);
- Drift and solid geology from the 1:50,000 BGS geological map series: Sheet Number 357 & 360: loS Solid and Drift, published 1975 (as well as the BGS online viewer Onshore GeoIndex, accessed 01/06/2023); and
- Borehole Records (BGS Onshore GeoIndex, accessed 01/06/2023).

A representative geological profile for the site is summarised in Table 2 and summarised in the following sections. Published geological mapping is shown on Figure 3 along with a selected representative geological column for the site

3.1.1 Soil and Drift

The site is a mix of shallow and deep soil (thickness increasing down-slope) from c.0.5 m on the western side to >1.0 m deep on the eastern side (Figure 5).

The shallow soils are characterised as light to medium sandy loam to sandy soil, and medium/light to heavy clayey to silty soil on the deeper eastern side.

Head deposits are mapped as underlying soil on the eastern side of the site, corresponding to the change from shallow and deep soil profile. The Quaternary head deposits are generically described as poorly sorted and poorly stratified, angular rock debris and/or clayey hill-wash and soil creep, mantling a hillslope. This description and extent of the deposit corroborates the soil profile.

3.1.2 Solid Geology

Sy Mary's is composed of the loS Intrusion. This is described as being granitic of varying coarse to fine grain containing muscovite, biotite, orthoclase and quartz.

The depth of the granite is unproven, but is likely to form an outcrop of bedrock.

3.1.3 BGS Borehole Records

There are 46 Water Well Records and 74 Borehole Records located on St Mary's. They are fairly evenly distributed across the Island, with the exception of 28 Borehole Records associated with Mary's Airport, and drilled for geotechnical purposes along the runway alignment, generally to a depth of < 2 m.

14 No. borehole records were selected for review, based on their proximity to the site and are summarised in Table 1. Barney's well (underlined) has been identified as the sole Public Water Supply well on the site (refer Appendix A).

Table 1. Selected Borehole Records

BH Ref	Borehole Name / Location	Ground level (mOD)	Rest Water Depth (m)	Recorded Drift Material	Depth to Granite (m)	Distance (km) & Direction from Site
SV91SW20	Old Town	5.2	6.1	Sand and Clay	12.2	0.4 E
SV91SW21	Carn Gwaval Farm	-	-	-	-	0.2 N
SV91SW7	Rams Valley Well	-	-	Unconsolidated	2.7	0.6 NW
SV91SW35	Castle Well	-	-	-	-	0.4 NE
SV91SW45	Clemmie's Well	-	-	-	-	1.0 WNW
SV91SW30	New Well	-	-	-	-	0.4 NNW
SV91SW1	South of Moor Well	-	-	-	-	0.4 NNW
SV91SW8		-	-	-	-	
SV91SW9	Old Moor Well	-	-	-	-	0.5 NNW
SV91SW18	St Mary's	-	-	-	-	0.7 NNE
<u>SV91SW31</u>	<u>Barney's Well</u>	3.1	1.2	Fine clay & gravel (drift) over heavily weathered granite	3.9 (weathered granite) 5.1 (fresh granite)	0.7 NE
SV81SE1	Garrison Well	14.4	12.2	-	-	1.3 WNW
SV91SW38	Parking Carn	10.7	9.1	-	-	0.8 NE
SV91SW32	Parting Carn		-	-	-	0.75 NNE

Notable characteristics from each borehole log are highlighted in yellow (Appendix A).

Correspondence from Cornwall County Council and South West Water regarding the location of public water supply boreholes, is provided in Appendix B.

Table 2. Selected Representative Geological Profile at the Site

Unit	Geological Description	Thickness (m)	Depth to Base (mbgl)
Soil	Shallow (<1.0 m) to deep (>1.0 m) light sandy to heavy silty clayey TOPSOIL	1.0 (+/-0.5)	1.0 (+/-0.5)
Quaternary Head	Poorly sorted and poorly stratified, angular rock debris and/or clayey hill-wash and soil creep	0.0 to 2.7 (+/-0.5)	3.7 (+/-1.0)
Isles of Scilly Intrusion	Heavily weathered clayey granite	3.9 to 5.2 (+/-2.0)	7.8 (+/-4.0)
	Fresh Granite	unproven	unproven

Soil and Quaternary head of this nature are generally considered suitable for use as cemeteries. Pollutants from burials will be partly mitigated due to the high cation exchange capacity of the clayey soils and ability for adsorption.

Heavily weathered granite forming a clayey layer above fresh granite is also generally considered suitable for use as cemeteries. Pollutants from burials will be partly mitigated due to the high cation exchange capacity of the clayey soils and ability for adsorption.

There are no other relevant geological hazards associated with the geological profile presented in Table 2. This includes, but is not limited to, a low risk of shrink-swell, landslides, soluble rocks, compressible ground or running sands.

3.2 Hydrogeological Setting

3.2.1 Groundwater Flow and Occurrence

There is limited groundwater flow and occurrence data on St Mary's. Typically, groundwater on small islands is highest near the centre of the island, especially where this corresponds to higher ground, as it does on St Mary's. It then flows towards the coast.

As classified by the BGS: the granite is a low permeability aquifer, locally important in south-west England, yielding up to 1 L/s from near surface weathered zone and secondary fractures. Fracture flow is typically controlled by topography.

Based on groundwater elevations from reviewed borehole logs, and groundwater flow controlled by the topography, it is reasonable to assume groundwater flow beneath the site:

- Is in an easterly or south-easterly direction, towards the coast;
- Is at a depth of c.5.0 m (+/-2 m); and
- Is relatively slow, due to the gently sloping land, subdued topography of the area and low-lying elevation of the site relative to sea level.

This depth is corroborated by expected groundwater levels near the coast; as groundwater is typically a couple of metres above sea level in low-lying coastal areas.

3.2.2 Hydrostratigraphy

No hydraulic parameters for the strata encountered were obtained for the purposes of this assessment. However, it is reasonable to assume the Quaternary drift material has low permeability, due to the fine content noted in the long. The granite is a fractured aquifer, with permeability controlled by the number and connectivity of fractures.

3.2.3 Regulatory Designations

Based on a review of DEFRA's Magic Map, (<https://magic.defra.gov.uk/magicmap.aspx> accessed 01/06/2023) the following environmental receptors are present in the vicinity of the site (Figure 7 and Table 3).

Table 3. Summary of Local Designations

Designation	Type	Name	Description	Distance (km) & Direction from Site
Statutory	AONB	IoS	Maritime heathland and grassland, small pockets of woodland, arable fields, hedges and stone walls support a large variety of plants and animals.	Covers the site
	SSSI	Lower Moors	Lowland marsh and swamp.	0.31 km NE
		Peninnis Head	Lowland dwarf shrub heath.	0.36 km SSE
	SAC	IoS Complex	Sandbanks, mudflats and reefs partially or wholly covered by tidal waters supporting flora (Shore Dock) and Fauna (Grey Seal).	0.16 km SE
	Potential SPA	IoS	No description given. Extent of Potential SPA coincides with the existing SAC and extends seaward from the Mean High Water mark.	0.16 km SE
Non-Statutory	SPZ	SPZ 2	Outer Protection Zone	0.39 km NE
		SPZ 1	Inner Protection Zone	0.58 km NE
Other	Groundwater Vulnerability	High / Medium-High	High Vulnerability on the western side of the site (corresponding to the area of thin soil and no Quaternary Head cover) and Medium-High on the eastern half of the site (corresponding to the area of thicker soils and the presence of Quaternary Head deposits).	Covers the site
	Aquifer Designation	Secondary	Both the Quaternary Head deposits and Granite bedrock are classified as Secondary Aquifers.	Covers the site

Notes on Table 3:

- AONB: Area of Outstanding Natural Beauty
- SSSI: Site of Special Scientific Interest
- SAC: Special Area of Conservation
- Potential SPA: Potential Special Protection Area

- SPZ: Source Protection Zone

No other statutory or non-statutory environment designations were identified as part of this GW-RA including, but not limited to Coal Authority designations, Nitrate Vulnerability Zones, Drinking Water Safeguard Zones, National Forests or RSPB Reserves.

These features have been assessed in the RW-RA where relevant. Their locations within the conceptual model domain are presented in Figures 7 and 8.

3.3 Other Environmental Site Characteristics

Average rainfall for the IoS is 869.7 mm per year (1961 to 2020 MetOffice.gov.uk, accessed 01/06/2023)

Surface water ponding can occur at locations with low permeability soils. It is important to manage greywater in an appropriate manner.

No archaeological investigations have been undertaken as part of this GW-RA.

3.4 Characteristics Summary Conceptual Model

Extrapolated from selected representative local borehole logs and geological mapping:

- The site is located in an area where soil, Quaternary Head and heavily weathered granite is likely to be c.7.8 m (+/-4.0 m) thick, with fresh granite bedrock below; and
- Groundwater is likely to be at a depth of c.5.0 m (+/-2.0) and flow towards the coast, in a south-easterly direction.

Based on published maps:

- There are no known surface water or groundwater features in the vicinity of the site (Figure 7 and Appendix B); and
- There are no environmental receptors (statutory or non-statutory) in the vicinity of the site. Furthermore, due to the location of the cemetery near to the coast, there are no known environmental receptors down-hydraulic gradient from the site.

3.5 Pollutants of Concern

There will be c.9 burials per year. The main pollutants of concern will be:

- Ammoniacal nitrogen;
- Ammonium;
- Total Organic Compounds (TOC); and
- Pathogens.

Due to the low numbers of burials, the cumulative ammoniacal nitrogen and TOC concentrations are likely to be low.

Due to the clayey nature of the soil and gently sloping topography of the site, transport of pathogenic organisms are likely to be limited. Pathogens have short residency times at distance from source. As there is no near or down-hydraulic gradient receptor there is considered to be a low risk to groundwater pollution and potable well supply,

The thickness of clayey drift and decayed granite is considered to give sufficient mitigation of pollutants from burials due to the ability for adsorption via cation exchange in such clay dominated soils.

If significant fractures are encountered in the IoS Intrusive granite, then the risk is higher for the movement of burial contaminants and pathogens away from the source due to the faster movement of groundwater in the aquifer. However, as this is likely to discharge directly to the coast, this risk is considered low.

DRAFT

4 Environmental Permit and Groundwater Risk Assessment

Local councils (or other cemetery operators) do not need to apply for an environmental permit for existing cemeteries if:

- they do not need to use active mitigation measures to prevent pollution
- they are not planning to expand a cemetery area after 1 April 2022 which needs new planning permission under section 57 of the Town and Country Planning Act 1990
- they are planning to expand a cemetery area after 1 April 2022 which needs new planning permission, but the risk assessment shows that the expansion is not high risk and the Environment Agency has agreed this

To assess the requirements of a permit, the good practice groundwater protection requirements (Section 4.1 of this report) and a Tier 1 GW-RA (Section 4.2 of this report) have been conducted

4.1 Minimum Good Practice Groundwater Requirements

Environment Agency Guidance for minimum good practice groundwater protection (from Protecting groundwater from human burials, Environment Agency, Published 1 April 2022) is assessed in Table 4.

Table 4. Assessment of the Minimum Good Practice Groundwater Protection Requirements

Requirement 1: No Human Burials within:	Criteria Met? Yes / No
A groundwater SPZ1	Yes. Nearest SPZ1 is c.580 m and is not located down-hydraulic gradient of the site (Figure 8 and Table 3).
10 m of the nearest land drain	Yes. No land drain mapped within 10 m of the site (Figure 9)
30 m from the nearest watercourse or any other surface water	Yes. No watercourse or perennial ditch mapped within 30 m of the site (Figure 6 and Figure 9)
50 m of any well, spring or borehole, irrespective of that water's current use	Yes. No boreholes or springs mapped within 50 m of the site (Figure 6 and Figure 9)
250 m of any well, spring or borehole used for human consumption or food production	Yes. No boreholes or springs mapped within 50 m of the site (Figure 6 and Figure 8)
Areas identified as having karstic groundwater flow characteristics.	Yes. In the Head drift, flow is not karstic. In the underlying granite, groundwater flow is recognised as being within the weathered upper zone of the granite, and potentially secondary flow in fractures. However, where shallow, these are likely to be clay filled, due to the weathering at the coast.
A groundwater SPZ1	Yes. Nearest SPZ1 is c.580 m and is not located down-hydraulic gradient of the site (Figure 8 and Table 3).
Requirement 2: No Human Burials on:	Criteria Met? Yes / No
Land which is liable to flooding	Yes. The location is not mapped as an area at risk from river or sea flooding (https://check-long-term-flood-risk.service.gov.uk/map accessed 02/06/2023)

Requirement 3:	Criteria Met? Yes / No
Base of each grave at least 1 m above the highest anticipated annual groundwater level	Yes. Groundwater level is anticipated to be 5 mbgl (+/-2 m). This means burial depths are likely to remain above the highest anticipated groundwater level.
Requirement 4:	Criteria Met? Yes / No
You should not dig graves in unaltered or unweathered bedrock	Yes. Unweathered granite is likely to be 7.8 mbgl (+/- 4.0 m). This means burial depths are likely to remain above the highest anticipated depth of fresh granite bedrock.

Based on our assessment of the minimum good practice groundwater protection, the proposed cemetery expansion meets all requirements.

The only item of potential non-compliance is the karstic nature of the bedrock aquifer. However, given the low-permeability cover and relative limited karstic behaviour of the granite, this is considered a less than minor failure to fully meet the requirements.

4.2 Tier 1 Groundwater Risk Assessment

Based on the Environment Agency's Guidance: Cemeteries and burials: groundwater risk assessments (updated April 2022), a Tier 1 GW-RA has been conducted.

The potential of a number of pollutant pathways and the degree of associated risk assessed numerically on a 0 to 10 score with 10 being the highest risk is shown in Table 5 (refer Appendix C for risk ranking).

From the resultant data, the final values are assessed against burial number and a determinant of risk calculated from EA flow charts and nomographs. The table below also contains risk scores in brackets based on the presence of fractures in the Granite.

Table 5. Summary of pollution risk associated with the site.

Table 5. Tier 1 Risk Assessment

Risk	Assessment	Comment / Mitigation	Resultant Risk
Burials per year	LOW	Anticipated to be <9 per year	-
Drift Type: Soil, Drift and heavily weathered granite	MODERATE	Low permeability and high absorption potential of clays mitigating transport of pollutants of concerns	1-2
Drift thickness: Thin soil, drift and heavily weathered granite	HIGH	Low-permeability cover thins towards the western side of the site. This may reduce the attenuation potential of pollutants of concerns.	3-4
Depth to Water Table	HIGH	The water table high is anticipated to be below the base of the grave cuts.	7-8
Fractured Granite (groundwater flow)	HIGH	If encountered at shallow depth, the rapid transport of pollutants in groundwater is possible.	3-6
Proximity to potable wells and springs	LOW	There are no water abstractions mapped within 500 m radius of the site	1-2
Aquifer Type / groundwater flow	LOW	The aquifer is a secondary aquifer, with no known down-hydraulic gradient sensitive receptors	5-6
Abstractions and SPZs	LOW	There are no SPZ within 350 m of the site and the nearest are up-hydraulic gradient of the site.	1-2
Proximity to water course/springs	LOW	No water courses or ditches were identified.	1-2
Proximity to land drains	LOW	No land drains were identified	1.2
Precipitation	MODERATE	Low annual rainfall	-

The total score being: 24 to 34. Based on the Groundwater Risk Nomograph, the risk is moderate.

4.3 Tier 2 Groundwater Risk Assessment

As detailed in the Tier 1 Risk Assessment, a moderate risk was identified for the site. Therefore, a Tier 2 GW-RA was deemed appropriate. Worst-case and conservative values were used where appropriate. The methodology is discussed in the following sections.

Based on the pollutants of concern, Ammonium was considered herein.

4.3.1 Infiltration Worksheet: Input Parameters

Table 6 provides the selected input parameters (with Infiltration Worksheet in Appendix D).

Table 6. Infiltration Worksheet Input Parameters

Parameter	Selected Value	Selected variance	Justification / Discussion
Input Conc. Ammonium	870,000 mg	-	A single 70 kg corpse in the first year of decomposition releases: 0.87kg NH ₄ ⁺ (Source: EA Guidance)
Infiltration rate	87 mm/year	+/-5%	Taken to be 10% of the average annual rainfall of 869.7 mm/year
Infiltration per burial	522 Litres/year	+/-25%	87 mm/yr x 6 m ² (burial plot) = 522 Litres/year
Infiltration per year (9 burials)	4,698 L/yr	+/-2 burials per year	522 L/yr (infiltration rate) x 9 (burials per year) = 4,698 Litres/year
Total Conc. Ammonium	1,667 mg/L	+/-2 burials per year	(9 x 870,000) / 4,698 = 1,667 mg/l
Discharge Rate	0.013 m ³ /day	+/-2 burials per year	87 mm/yr (infiltration rate) x 54 m ² (total area of the all plots) = 0.013
Thickness of drainage layer	1.9 m	+0.5 m	Minimum burial depth plus additional 0.5 m depth
Attenuation unsaturated zone thickness	3.2 m	+/- 1.0 m	5 mbgl (water table) – 1.8 m (the required basal depth of a single grave as stated within Environment Agency guidance) = 3.2 m (and varied for sensitivity analysis)
Water filled porosity	0.15	+/-0.05	Based on published values for sandy clay (and varied for sensitivity analysis)
Bulk density	1.073	+/-0.5	Based on literature values.
Degradation	Sorbed and dissolved	-	Sorbed and dissolved phases as ammonium attenuation within the unsaturated subsoil is likely to take place predominantly through cation exchange and nitrification, it was considered appropriate to select degradation as active.
Fraction of rapid flow through the unsaturated zone	10%	+/-5%	The unsaturated zone comprises sandy clay. Therefore, it was considered unlikely that a significant fraction of the discharge would pass through the unsaturated zone unretarded by the soil / rock matrix.
Dimensions of the drainage field	280 m ²	+/-50%	The conservative field size of cemetery expansion.
Saturated Aquifer Thickness	6 m	+/- 3	Conservatively assuming the base of the aquifer is sea level, the effective aquifer thickness is 6 m.
Hydraulic Conductivity	2 m/d	+/- 0.5	Matrix porosity is likely to be low, however fracture k may be higher, if present.
Hydraulic gradient	0.01	+/-25%	Taken to be height of water table above sea level to sea level (assumed water table elevation at the coast)

4.4 Initial Assessment Results

Table 7. Initial Assessment Results

Contaminant of Concern	Environmental Standard (DWS)	Concentration at Compliance Point
		Groundwater: 50 m from site
Ammonium (NH ₄ ⁺)	0.5 mg/L	<p>Sensitivity Low Values: 4.69 mg/L</p> <p>Worst Case: 0.43 mg/L</p> <p>Sensitivity High Values: 0.02 mg/L</p>

Initial assessment results show compliance for the worst case and favourable case scenarios relevant to Drinking Water Standards. Within the Initial Assessment, Input Parameters were generally selected to give a 'Conservative' or 'Worst Case' risk assessment; in particular with regard to the potential contaminant loading.

Based on our judgement, the most important factor controlling compliance was the area of the drainage field, with larger areas more readily meeting compliance.

DRAFT

5 Conclusions and Recommendations from the HIA

Based on the findings of this RW-RA, we have drawn the following conclusions:

- 1) The site does not require an Environmental Discharge Permit, as it meets all criteria Minimum Good Practice Groundwater Protection (Section 4.1, Table 4); and
- 2) Based on the Tier 1 GW-RA:
 - a) A low to moderate risk was identified as part of the qualitative risk assessment (Section 4.1 Tier 1 Risk Assessment, Table 5); and
 - b) A quantitative GW-RA was undertaken using the Infiltration Worksheet. This demonstrated compliance for the worst case and favourable sensitivity analysis. The key assumption being the rate of burials.
- 3) A review of soil and groundwater chemical analysis suggested that Natural Attenuation processes would be anticipated; including Nitrification (the biological oxidation of ammonium). The process of nitrification would further reduce the ammonium concentration and thereby further lessen the potential impact of the development on groundwater quality;
- 4) It was concluded that the Sensitivity Assessment 'Realistic Case' Groundwater Risk Assessment demonstrates the proposed Burial Ground Development to represent a potential LOW RISK to controlled waters (groundwater); and
- 5) The risk assessment verifies that the spatial extent of the proposed Burial Strategy would be acceptable.

6 References

- British Geological Survey (BGS) Onshore GeoIndex online mapping, <<http://mapapps2.bgs.ac.uk/geoindex/home.html>> accessed 01/06/2023
- British Geological Survey (BGS) and Environment Agency, 1997. The Physical Properties of Major Aquifers in England and Wales. Technical Report WD/97/34 Environment Agency R&D Publication 8
- British Geological Survey (BGS) and Environment Agency, 2000. The physical properties of minor aquifers in England and Wales. Technical Report WD/00/04 Environment Agency R&D Publication 68
- British Geological Survey (BGS) UK Soil Observatory online viewer (UKSO: www.mapapps2.bgs.ac.uk/ accessed 01/06/2023);
- British Geological Survey (BGS) Drift and solid geology from the 1:50,000 BGS geological map series: Sheet Number 357 & 360: IoS Solid and Drift, published 1975 (as well as the BGS online viewer Onshore GeoIndex, accessed 01/06/2023
- EA, 2018. The Environment Agency's approach to groundwater protection. Dated February 2018, Version 1.2

7 Author's Statement

This Hydrogeological Risk Assessment was carried out by Huw Williams, director at Agua Enodo Ltd (registered address: Lowin House, Tregolls Road, Truro, Cornwall, TR1 2NA).

Huw holds a BSc in Geological Sciences and an MSc in Hydrogeology, both from University College London.

With over 20 years in industry, Huw is also a former employee of the Environment Agency, and has completed many Groundwater Risk Assessments, Environmental (Discharge) Permit and Groundwater Abstraction Licence applications.

Proof of relevant insurance can be provided on request.

Based on the above, we submit that Huw Williams is a competent industry professional in respect to undertaking the above assessment.

8 Limitations

It is important to understand the variability of the ground conditions in this area. No guarantee of flow rates or sustainable yield can be provided at this stage and it will be necessary to drill and test a borehole in-situ to better evaluate the performance of a new borehole at this site.

We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, their professional advisers and the relevant authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.

The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.

Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on hwilliams@aguaenodo.com if you require any further information.

Report prepared by

-UNSIGNED DRAFT-

Huw Williams
Hydrogeologist

Figures

DRAFT




TITLE:

EXISTING LANDUSE

GW-RA ONLY
NOT FOR CONSTRUCTION

LEGEND

 Approximate Site Boundary

Client: Isles of Scilly Council

Project:
Tier 1 Groundwater Risk
Assessment: St Mary's Church
Old Town

Proj No: 2023.015.001

Designed: HW
Drawn: HW
Checked: SW
Date: 01/06/2023

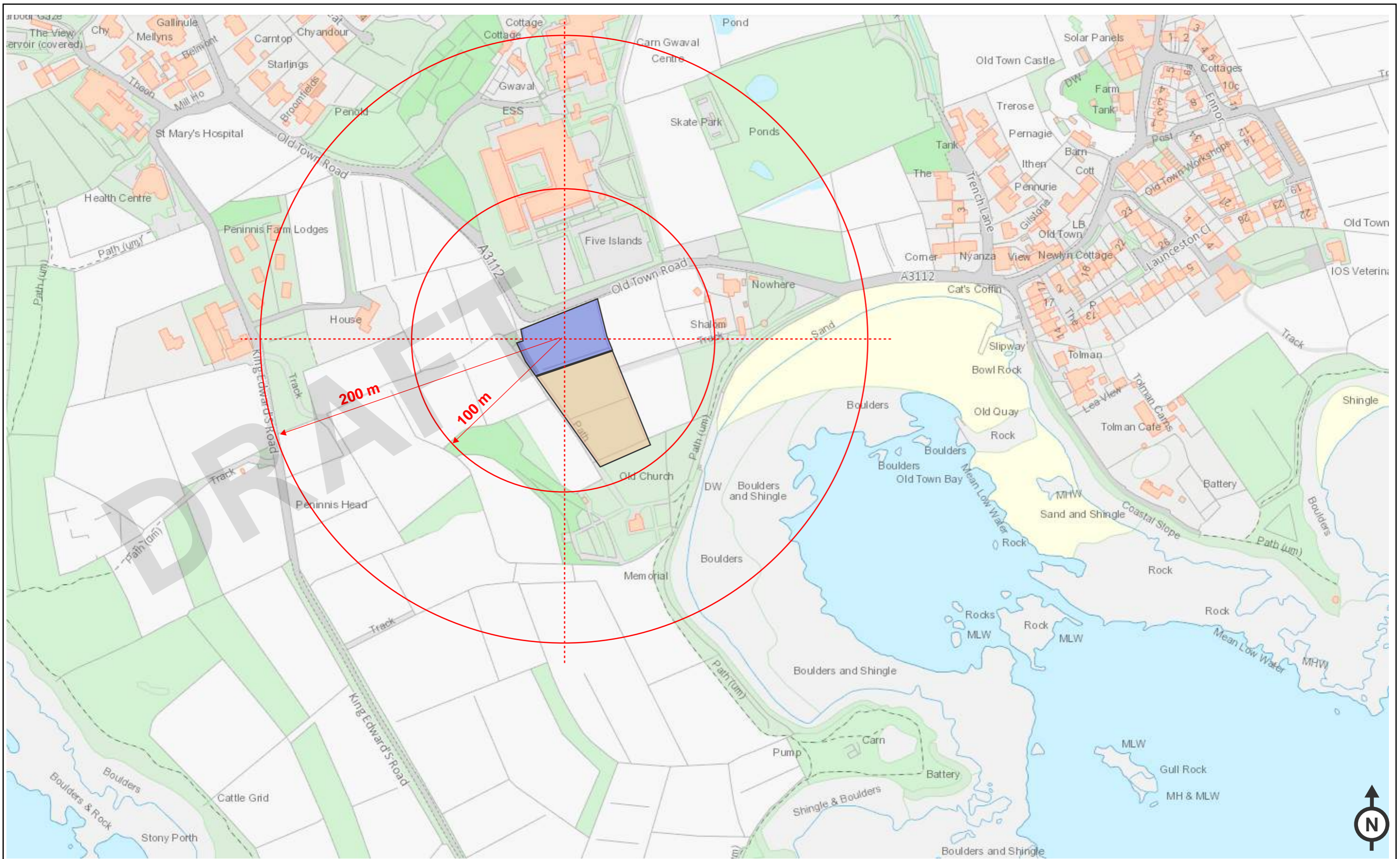
Scale: NTS

Figure No:

3

Size: A3

Revision: A




TITLE:

STUDY AREA

GW-RA ONLY
NOT FOR CONSTRUCTION

LEGEND

 Approximate Site Boundary

Client: Isles of Scilly Council

Project:
Tier 1 Groundwater Risk
Assessment: St Mary's Church
Old Town

Proj No: 2023.015.001

Designed: HW
Drawn: HW
Checked: SW
Date: 01/06/2023

Scale: NTS

Figure No:

4

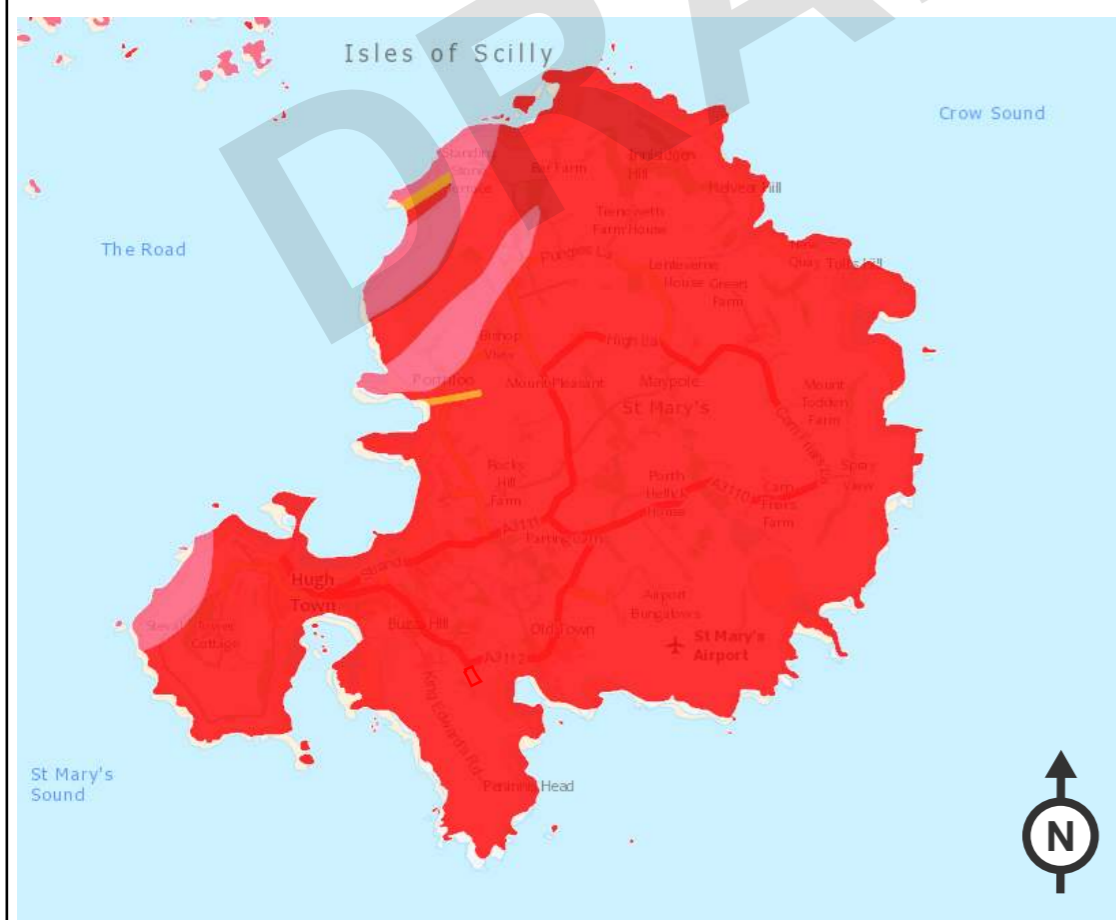
Size: A3

Revision: A



Superficial deposits 1:50,000 scale

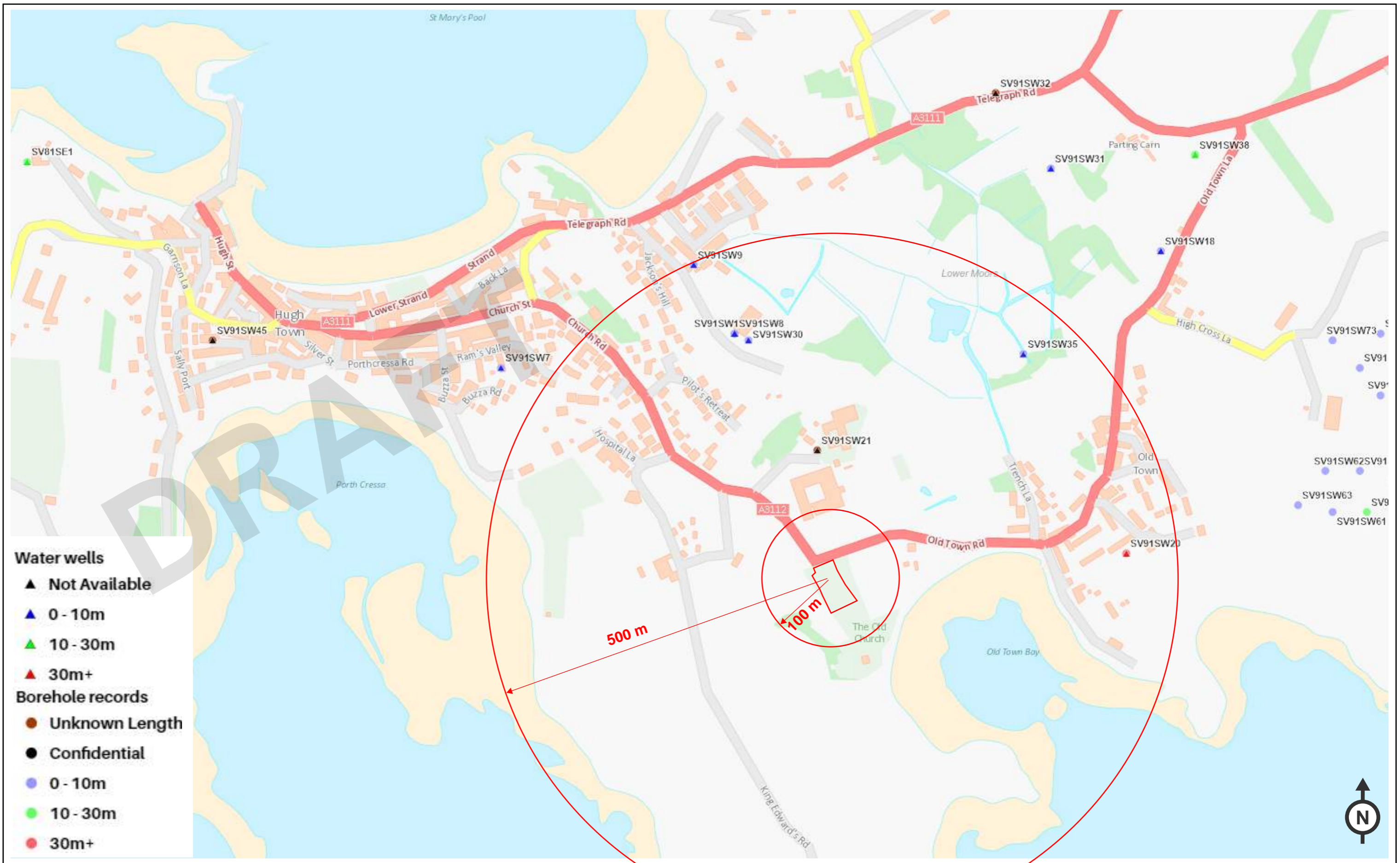
- ALLUVIUM - CLAY, SILT, SAND AND GRAVEL
- BLOWN SAND - SAND
- HEAD - CLAY, SILT, SAND AND GRAVEL
- RAISED BEACH DEPOSITS - GRAVEL
- TIDAL FLAT DEPOSITS - GRAVEL, SAND AND SILT



Bedrock geology 1:50,000 scale

- ISLES OF SCILLY INTRUSION - MICROGRANITE, APLITIC
- UNNAMED DYKE, PERMIAN - FELSITE
- ISLES OF SCILLY INTRUSION - GRANITE


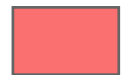





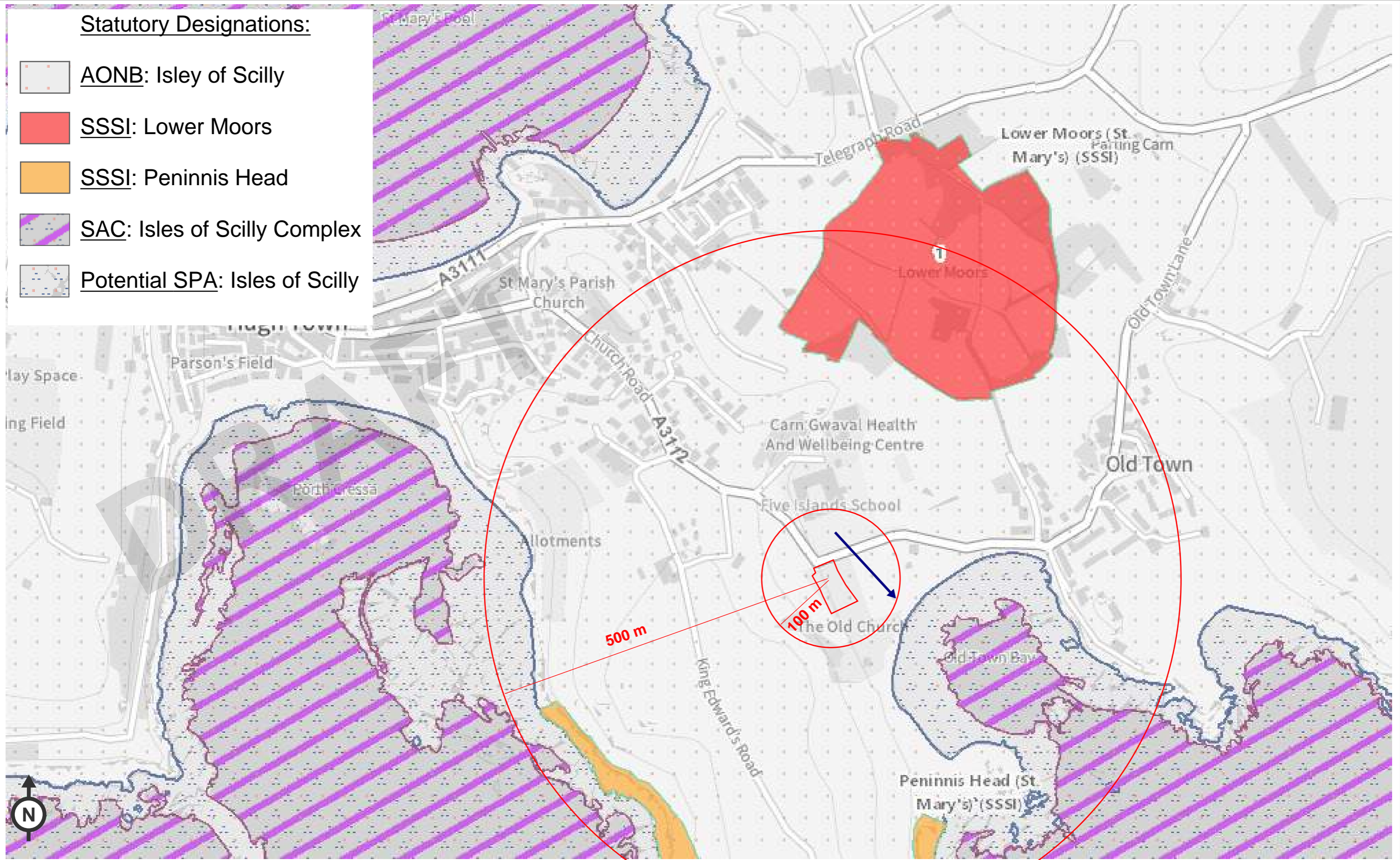


TITLE:
SELECTED BOREHOLE RECORDS
 GW-RA ONLY
 NOT FOR CONSTRUCTION

Client: Isles of Scilly Council		Figure No:
Project: Tier 1 Groundwater Risk Assessment: St Mary's Church Old Town		6
Designed: HW	Size: A3	
Drawn: HW		
Checked: SW	Date: 01/06/2023	
Proj No: 2023.015.001	Scale: NTS	Revision: A



Statutory Designations:

-  **AONB: Isley of Scilly**
-  **SSSI: Lower Moors**
-  **SSSI: Peninnis Head**
-  **SAC: Isles of Scilly Complex**
-  **Potential SPA: Isles of Scilly**



TITLE:
STATUTORY DESIGNATIONS
 GW-RA ONLY
 NOT FOR CONSTRUCTION

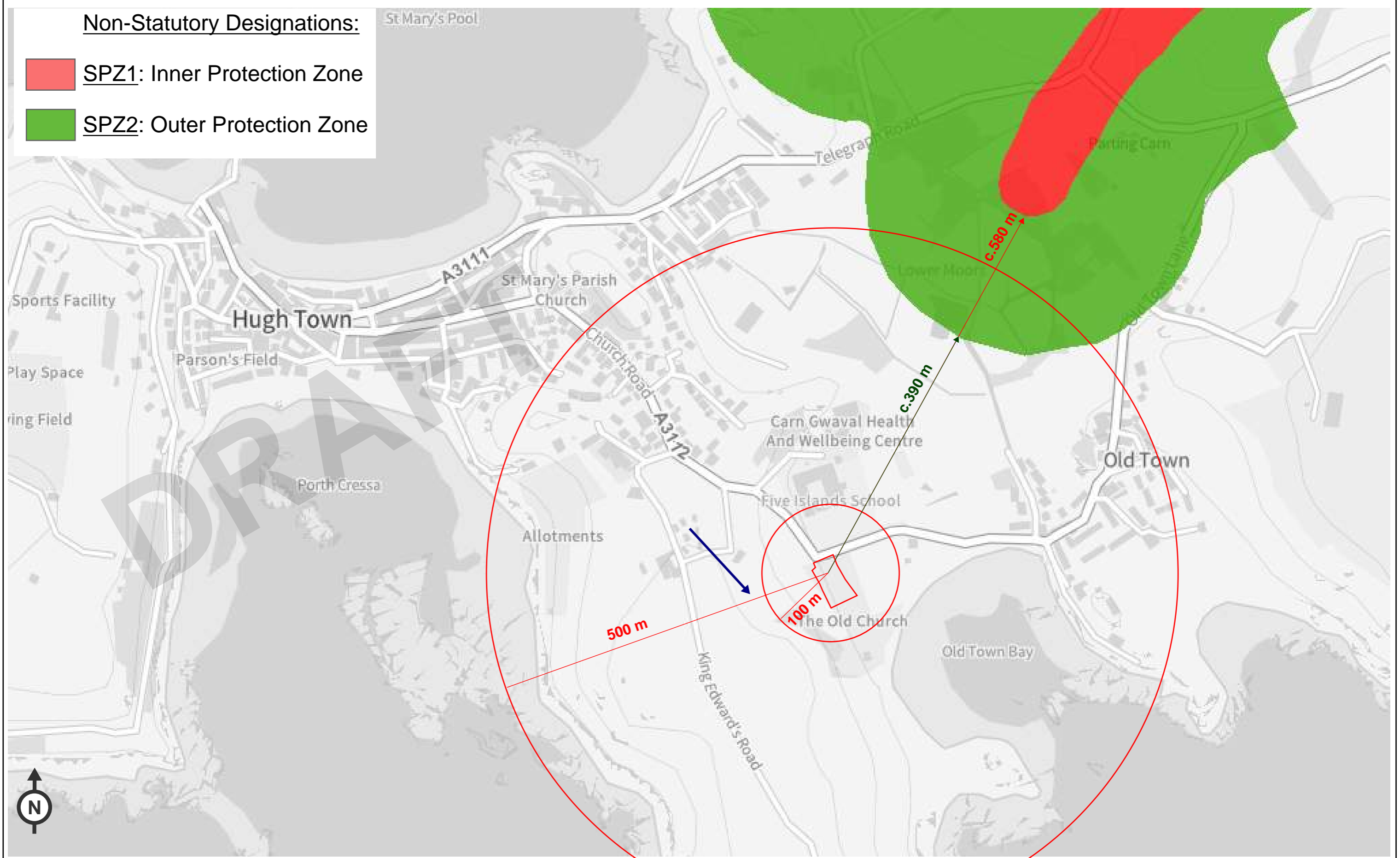
LEGEND

-  Approx. Site Location
-  Inferred Groundwater Flow Direction in the vicinity of the site

Client: Isles of Scilly Council		Figure No:
Project: Tier 1 Groundwater Risk Assessment: St Mary's Church Old Town		7
Designed: HW	Size: A3	
Drawn: HW	Revision: A	
Checked: SW	Date: 01/06/2023	
Proj No: 2023.015.001	Scale: NTS	

Non-Statutory Designations:

- SPZ1: Inner Protection Zone**
- SPZ2: Outer Protection Zone**



LEGEND

- Approx. Site Location
- Inferred Groundwater Flow Direction in the vicinity of the site

Client: Isles of Scilly Council		Figure No:
Project: Tier 1 Groundwater Risk Assessment: St Mary's Church Old Town		8
Designed: HW	Drawn: HW	Size: A3
Checked: SW	Date: 01/06/2023	Revision: A
Proj No: 2023.015.001	Scale: NTS	

Appendix A

DRAFT



1

IC SV81/2

SV 8989 1077

13

13

Garrison Well. 6° Cornwall 87 SW/E
Depth approx. 70 ft. Deepest on island. Shaft 3' 6" square.
30 ft. of standing water.
Rest level .∴ 40 ft. below surface.
Never dry. Water brackish; not used much.

DRAFT

105/1-SV91/14-17
105/1-4

St. Mary's Island

Analyses below of water from Buzza Hill Reservoir is mixed water from above wells. 105/1-4

Analyses (parts per 100,000)

Quality varies. Best at Parting Carn - water level 2 ft. above H.W.M.O.S. tides
Storage Reservoir. Buzza Hill. 18.5.44.
 Appearance bright - few mineral particles. Turbidity - less than 5 parts per million.
 Colour - Hazen v. ft. yellow. 15 (silica scale). Odour - nil.
 Reaction pH. Acid 5.4. Free Carbonic Acid 6.6
 Electric conductivity at 20° C. 3700. Total solids, dried at 180° C. 250.0.
 Chlorine in Chlorides 116.0. Alkalinity as Calcium Carbonate 1.8.
 Hardness - Total 94.0; Temp. nil; Perm. 94.0.

Nitrogen in Nitrates 0.64

Nitrogen in Nitrites less than 0.001

Free Ammonia 0.0008

Ammoniacal Nitrogen nil

Albuminoidal Ammonia 0.016

Albuminoidal Nitrogen nil

Oxygen absorbed in 4 hrs. at 27° C. 0.205

Metals:

Iron 0.005

Zinc 0.2

Manganese 0.055

Other metals absent

Bacteriological Results;

No. of bacteria growing on Agar per cc. or ml. in	1 day at 37° C. - 1
" " " " " "	2 days " 37° C. - 13
" " " " " "	3 " " 20° C. - 300

Presumptive coliform Reaction:	Present 10 cc.:	Absent 1 cc.
Bacteria coli. Type 1.:	Present nil	" 100 cc.
Type 2.:	Present 10 cc.:	" 1 cc.
Cl. welchi Reaction	Present 100 cc.:	" 10 cc.

Water reasonably clear and bright in appearance, is acid in reaction, deficient in Carbonate or temporary hardness, and will be plumbo-solvent and corrosive to metals. Excessively hard in character - permanent, high content of salinity causing taste, low standard of organic purity. Unsuitable for public supply.

and bacterial

10S SV91/16

A+B SV9092 1052

10S / 3

A+B
A
B

South of Moor well
St Mary's Island

A
B

2 wells.
Depth 18 ft. Diam. 5 ft.
Depth 16 ft. Diam. 5 ft.

Constructed ~ 1938. ? by Ward and Moyle
Both wells deepened in 1939 by J. F. Ellis

6" Cornwall 87. SE. W

Sited Aug 1946 H.E.F.

DRAFT

SV91/16A+B

3

South of Moor well. Two wells.
Depth 18 ft., diameter 5 ft. and depth 16 ft., diameter 5 ft.
Constructed in 1938. ? by Ward and Moyle.
Both wells deepened in 1939 by J.F. Ellis.

6" Cornwall 87 SE/W

COPY

10 SV91/14
APPENDIX "A"

RAM'S VALLEY WELL was sunk to a depth of about 25 feet, sixteen of which were cut through the solid rock. Water was first met at about sixteen feet from the surface, but only oozing in very slowly. The work was continued for about nine feet below where the water was first seen, the springs becoming stronger as the well descended.

.....

The mean length of the square at the bottom of the Well is 5½ feet, the mean width 3½ feet, and the depth of water 8½ ft. These measurements give a capacity of more than 1000 gallons; and it has been found when the well is perfectly dry, it requires four hours to refill to the 8½ feet level. This means that the well would yield, if required, 4000 gallons a day between the hours of 6 a.m. and 10 p.m. Estimating the population of Hugh Town at 800, this gives a supply of 10 gallons a day to one-half of the Town, or 5 gallons a day to the whole of the Town, or 3½ gallons to every man, woman and child on the whole Island; population 1200.

The well was opened on January 18th, 1897, and there was found to be 11½ feet of water in it.

February 6th, 1903,.. depth of water 11 feet, at 3 p.m.

? 1903.
H of H. file 657/9361

Rams Valley Well. Approx. 1904. 6" Cornwall 875E/W
Depth 18ft., diameter 2 ft. Yield 2,000 gallons per day. Public supply.

3.

108 SV91/14

Analysis - 1897 or 1901.

Ram's Valley

Total Solid Residue -----	38.64
Combined Chlorine -----	13.40
" " (exp. as NaCl) -----	22.08
Nitrogen as Nitrates -----	1.01
Nitrites -----	a heavy trace.
Saline Ammonia -----	0.0035
Albuminoid Ammonia -----	0.0105
Oxygen req. to oxidise the organic matter -----	0.1240
Hardness (in degrees) -----	10 ^o
Lead or Copper -----	absent

Observations. This is a water of doubtful purity & certainly should not be used if a better supply can be obtained.



COPY

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

108 SV91/14

Watergate House,
 York Buildings,
 Adelphi,
 London, W.C.2.

To Dr. Addison,
 St. Mary's,
 Isles of Scilly.

Ref: No. 26,362.

The sample of water marked Well - 26ft. (Ram's Valley Well) collected on 22.7.25. and received here on 24.7.25., has been chemically examined, and I have been instructed to forward the following report:-

ANALYSIS (B).

	<u>Parts per 100,000</u>	<u>Grains per Gallon.</u>
Total Solids (dried at 120°C.)	80.00	56.000
Combined Chlorine	28.30	19.81
equivalent to Na Cl.	46.70	32.69
Nitric nitrogen	1.52	1.06
Nitrous nitrogen	Nil.	Nil.
Ammoniacal nitrogen	0.0003	0.0002
Albuminoid nitrogen	0.0090	0.0063
Oxygen absorbed in 4 hours at 27°C.	0.071	0.050
Lead or copper	Nil.	Nil.
Temporary hardness (equivalent to Ca Co ₃)	2.2	1.6
Permanent hardness do.	21.5	15.0
Total hardness do.	23.7	16.6

Judged on chemical analysis alone, i.e., without bacteriological tests, this water cannot be regarded as fit for drinking unless previously boiled.

(sgd). W.J.CURRY

Secretary.

COPY

THE CLINICAL RESEARCH ASSOCIATION

108 SV91/14

Westgate House,
York Buildings,
Adelphi,
London, W.C.2.

To Dr. W.B. Addison,

St. Mary's,

Isles of Scilly.

3. 10. 25.

Ref. No. 34,199.

Bacteriological examination, by cultural and microscopical methods, of the sample of water marked, 26' Well. (Ram's Valley Well) collected on --- and received here on 29. 9. 25. has given the following results:-

(1) QUANTITATIVE.

The average number of organisms, producing visible colonies on gelatine plates incubated at 20°C. for 3 days, is found to be 458 per c.c.

The average number of organisms, producing visible colonies on agar plates incubated at 37.5°C. for 2 days, is found to be 16 per c.c.

(11) QUALITATIVE.

B. Coli. not found in 100 c.c.
Streptococci. present in 10 c.c.
B. Enteritidis Sporogenes not found in 100 c.c.

The temperature of the water on arrival was 15°C.

In the absence of other excremental organisms we cannot regard the presence of the Streptococci as indicative of sewage pollution, they are probably adventitious.

From a bacteriological point of view the water might be regarded as safe for drinking purposes.

(Sgd). W.K.CURRY.

Secretary.

F.M.

SV 9058 1047

IOS
/1

Report by J.H. Blight, Penzance. 1944

- 1 Rams Valley Well. 1904 approx.
2 ft. diam., 18 ft. deep. Yield 2,000 g.p. day.[†]
- 2 Old Moor Well. 1914-1918. (Used only in drought).
6 ft. diam., 17 ft. deep. Yield 10,000 g.p. day.[†]
- 4 New Well. 1942. (Adjoining two other wells 16 ft. and 18 ft. deep).
10 ft. square, 26 ft. deep. 27,000 g.p. day.[†] Minimum yield much less.
During drought, after standing for 3 hrs. pump empties well in 2 hrs. or less

SV91/14

Combined flow does not exceed 14,000 g.p. day at worst period.

At present public supply unpalatable. Water at Parting Carn, Pump Rd. shows vast improvement. This suggests Old Town Marshes for future development, being 50 acres in extent having a catchment area of about 500 acres. The granite is below sea-level and is covered with 12-20 ft. of sand, silt and a layer of clay into which water percolates and is stored. This is a large natural underground reservoir. Lowering water below high water mark causes entrance of sea-water. This has already occurred at Moor Well and New Well. Old Town Marshes are flooded in winter to a depth of a foot or so. Any well sunk here should be situated as far from the sea as is compatible with access to the site, to avoid lowering the water level near the sea. Minimum run-off in Scilly is .20 cu. secs. per 1,000 acres
 ∴ 54,000 gallons yielded from 500 acres in 24 hrs.

Water levels in three new wells varies as much as 10 ft., indicating that ground water finds difficulty in reaching New Well. This may be due to choked fissures and a heading would therefore increase supply at well bottom. (Water is decreasing annually). This may cause pollution, therefore, it is recommended to sink a well near Aunt Joanies on the opposite side of Old Town Marshes as suggested by the Geologist Dr. Hickling.

Proposed new well - Barneys Well

Depth 26 ft. Internal diameter 6 ft. Headings at bottom for 20 ft. Height 6 ft. Width 2 ft. 6 in., to provide storage capacity of 2,000 gallons at level of 20-26 ft. below the surface as a sump. Lining of broken rock up to 1 ft. 6 in. above ground level. Pumping carried out at Aunt Joanies Well. New well in reserve with heading

Analyses (parts per 100,000)

Quality varies. Best at Parting Carn - water level 2 ft. above H.W.M.O.S. tides *
Storage Reservoir. Buzza Hill. 18.5.44.
 Appearance bright - few mineral particles. Turbidity - less than 5 parts per million.
 Colour - Hazen 4.5 ft. yellow. 15 (silica scale). Odour - nil.
 Reaction pH. Acid 5.4. Free Carbonic Acid 6.6
 Electric conductivity at 20° C. 3700. Total solids, dried at 180° C. 250.0.
 Chlorine in Chlorides 116.0. Alkalinity as Calcium Carbonate 1.8.
 Hardness - Total 94.0: Temp. nil: Perm. 94.0.
 Nitrogen in Nitrates 0.64 Nitrogen in Nitrites less than 0.001
 Free Ammonia 0.0008 Ammoniacal Nitrogen nil
 Albuminoidal Ammonia 0.016 Albuminoidal Nitrogen nil
 Oxygen absorbed in 4 hrs. at 27° C. 0.205
 Metals: Iron 0.005 Zinc 0.2
 Manganese 0.055 Other metals absent

Bacteriological Results:

No. of bacteria growing on Agar per cc. or ml. in 1 day at 37° C. - 1
 " " " " " " 2 days " 37° C. - 13
 " " " " " " 3 " " 20° C. - 300
 Presumptive coliform Reaction: Present 10 cc.: Absent 1 cc.
 Bacteria coli. Type 1.: Present nil " 100 cc.
 Type 2.: Present 10 cc.: " 1 cc.
 Cl. welchi Reaction Present 100 cc.: " 10 cc.

Water reasonably clear and bright in appearance, is acid in reaction, deficient in Carbonate or temporary hardness, and will be plumbo-solvent and corrosive to metals. Excessively hard in character - permanent, high content of salinity causing taste, low standard of organic/purity. Unsuitable for public supply.

hand bacterial

by Mr. Blight
 + alleged minimum yields said to be grossly overestimated

COPY

105 SV91/14

The COUNTIES PUBLIC HEALTH LABORATORIES
91, Queen Victoria Street, London, E.C.4.

RAMS VALLEY WELL.

Analysis of a sample of water received on 14. 5. 35, from Gerald Cox Esq., Dalmouth Corporation Waterworks. Labelled St. Mary's, Isles of Scilly Water Supply.

RAMS VALLEY WELL.

Taken by G. Cox. Witness A.Nance. Date---- 5.0 p.m.

Chemical results in parts per 100,000

Appearance.	Bright, few vegetable and mineral particles.
Colour.	Normal. Odour - None.
Reaction pH.	Faintly acid, 6.0 Free Barbonic Acid - 3.3
Electric Conductivity at 20°C.	1020
Total solids, 180°C.	71.5
Chlorine in chlorides	24.0
Nitrogen in Nitrates	2.20 Nitrites - absent.
Hardness: permanent.	54.0 Calcium - 3.9
temporary.	0.0 Magnesium - 9.9
total	54.0
Metals.	Minute trace of Iron. 0.012
Free Ammonia	0.0052
Albuminoid ammonia	0.0108
Oxygen absorbed in 4 hrs. at 80°F.	0.0900

Bacteriological results.

No. of Bacteria per c.c.	
on Agar in 3 days at 20°C.	8600
on Agar in 1 day at 37°C.	420
The Bacillus Coli.	Present in --- absent in 100cc.
Bacillus welchii	
(B. Enteriditis Sporogenes)	Present in --- Absent in 100 cc.

This is a reasonable clear and bright and colourless water.

It is acid in reaction exceedingly hard in character and devoid of Carbonate (Temporary) hardness and will be corrosive to metals and contact with Lead (a poisonous metal) should be avoided.

The hardness is due to the presence of sulphate and Chlorides of Calcium and Magnesium and corrosive action on boilers, hot water pipes etc., would be marked. The amount of common salt is not excessive and metals are absent, apart from a minute and negligible trace of iron.

The water is of low grade of organic purity and is highly nitrated suggesting an origin from a manurially polluted soil. The bacterial content is also high but bacteria indicating recent and dangerous pollution were not found. The water, in view of its chemical characters, is an objectionable one for the purposes of a Public Supply, but cannot on this sample be considered seriously polluted or unwholesome necessitating sterilisation, though the latter is probably desirable as a safeguard.

(Signed)-----

for Drs. Beale and Suckling.



7.

Copy.

108 SV91/14

THE COUNTIES PUBLIC HEALTH LABORATORIES
91, Queen Victoria Street, London, E. C. 4.

(Ram's Valley)

Ref. J. 164.

Analysis of a sample of water received on 14.5.35, from
Gerald Cox, Esq., Falmouth Corporation W; Works.
Labelled St.Mary's Isles of Scilly Water Supply.

Ram's Valley Well.

Taken by G. ^{Cox} ~~Yas.~~ Witness A. Nance. Date --- 5.0, p.m.

Chemical results in parts per 100,000.

Appearance.	Bright, few vegetable and mineral particles.		
Colour.	Normal.	Odour.	None.
Reaction pH.	Faintly acid 6.0.	Free Carbonic Acid -	3.3.
Electric Conductivity at 20°C.	1020.		
Total solids, 180°C.	71.5.		
Chlorine in Chlorides.	24.0		
Nitrogen in Nitrates.	2.20	Nitrites -	absent.
Hardness; permanent.	54.0.	Calcium -	3.9
		Magnesium -	9.9
temporary	0.0		
total.	54.0		
Metals.	Minute trace of Iron.		0.012
Free ammonia.	0.0052		
Albuminoid ammonia	0.0108		
Oxygen absorbed in 4 hrs at 80°F.	0.0900		

Bacteriological results.

No. of Bacteria per c.c.	
on Agar in 3 days at 20° C.	2,600
on Agar in 1 day at 37°C.	420
The Bacillus Coli.	Present in --- Absent in 100cc.
Bacillus Welchii	
(Enteritidis Sporogenes).	Present in -- Absent in 100 cc.

This is a reasonably clear and bright and colourless water.

It is acid in reaction exceedingly hard in character and devoid of Carbonate (Temporary) hardness and will be corrosive to metals and contact with Lead (a poisonous metal) should be avoided.

The hardness is due to the presence of Sulphate and Chlorides of Calcium and Magnesium and corrosive action on boilers, hot water pipes, etc., would be marked. The amount of common salt is not excessive and metals are absent, apart from a minute and negligible trace of iron.

The water is of low grade of organic purity and is highly nitrated suggesting an origin from a manurally polluted soil. The bacterial content is also high but bacteria indicating recent and dangerous pollution were not found. The water, in view of its chemical characters, is an objectionable one for the purposes of a Public Supply, but cannot on this sample be considered seriously polluted or unwholesome necessitating sterilisation, though the latter is probably desirable as a safeguard.

(Signed) -----
for Drs., Beale and Suckling.



Copy

-5-

1085091/14

The Counties Public Health Laboratories
 91, Queen Victoria Street,
 London, E.C.4.

Analysis of a sample of Water received on 4.2.39 from
 Messrs. D.Balfour & Sons, for St. Mary's, Isles of Scilly.

Labelled Ram's Valley Well.

Sgd. and Taken by T. Flower. Witness E.B.Guy. Date 2.2.39. 1.15 p.m.

Appearance Bright: slight brown film-deposit of iron oxides.
 Turbidity: 4.5 p.p.m. (Silica Scale)
 Colour Yellow: A.P.H.A. 23.
 Odour Nil. Total Alkalinity as CaCO₃; 3.0

Free Carbonic Acid 2.8 Reaction, pH. Faint acid: 6.4

Results expressed in parts per 100,000.

Ca	Mg.	Na.	K.	CO ₃	SO ₄	Cl.	NO ₃	SiO ₂	Probable Combinations.
2.2	3.5			1.8	11.4	23.2	4.45	1.20	
1.2				1.8					Calcium carbonate 3.00
1.0					2.4				Calcium sulphate 3.40
	2.29				9.0				Magnesium sulphate 11.29
	1.21					3.52			Magnesium chloride 4.73
		12.79				19.68			Sodium chloride 32.47
		1.65					4.45		Sodium nitrate 6.10
									SILICA 1.20
									Difference 1.31.

Total solid constituents dried at 180°									63.50.

Hardness - Permanent 20.0 Temporary 1.0 Total 21.0
 Ammonical Nitrogen 0.0030 Free Ammonia 0.0036
 Albuminoid Nitrogen 0.0132 Albuminoid Ammonia 0.0160
 Oxygen absorbed in 4 hours at 80°F. 0.190
 Nitrites Absent
 Metals - Iron: 0.035 in solution. 0.007 Other metals: Absent.
 Note - To convert the above parts per 100,000 into grains per gallon multiply by .7

BACTERIOLOGICAL RESULTS.

No. of Colonies per cc. or ml.
 On Agar in 3 days at 20°C. 280
 On Agar at 37°C. in: 1 day 13
 2 days 23
 Bacillus Coli Present in - Absent in 100 c.c.
 Bacillus Welchii Present in - Absent in 100 c.c.
 (B. Enteritidis Sporogenes)
 Coliform organisms present in 10 c.c. but no typical B.Coli was found.

10 S SV91/15

SV 9086 1062 106 / 2

2

old moor well
St Mary's Island

Constructed between 1914-18. Used only in drought.
Purchased from Admiralty for public supply.
Depth 17 ft. Diameter 6 ft.
Yield 10,000 g.p.d.

6" Cornwall 87 SE.W

Sited Aug. 1946. M.E.F.



SV91/15

2 . Old Moor Well. Constructed between 1914-18. Used only in drought.
Purchased from Admiralty for public supply.
Depth ~~is~~ 17 ft. Diameter 6 ft. Yield 10,000 gallons per day. 6" Annual 87/SE/W

DRAFT

2

IOS SV91/15

Analysis - 1897 or 1901.

Moor Well

2

Total Solid Residue	53.48
Combined Chlorine	20.30
" " (exp. as NaCl)	33.45
Nitrogen as Nitrates	0.075
Nitrates	absent
Saline Ammonia	0.0028
Albuminoid Ammonia	0.0230
Oxygen req. to oxidise the organic matter	0.3600
Hardness (in degrees)	10.5°
Lead or Copper	absent.

Observations. A water which is too impure to be used for drinking purposes.

3

Copy

108, SU91/15

THE CLINICAL RESEARCH ASSOCIATION, LIMITED

Watergate House,
York Buildings,
Adelphi,
London, W.C.

To Dr. Addison,
St. Mary's,
Isles of Scilly.

28. 7. 25.

Ref. No. 26.363.

The sample of water marked Well - 20 ft. (Moor Well) collected on 22.7.25 and received here on 24.7.25., has been chemically examined, and I have been instructed to forward the following report:-

ANALYSIS (B).

	<u>Parts per 100,000.</u>	<u>Grains per Gallon.</u>
Total solids (dried at 120°C.)	92.00	64.40
Combined chlorine	33.70	23.59
equivalent to Na Cl.	55.60	38.92
Nitric Nitrogen	0.90	0.63
Nitrous nitrogen	Nil	Nil
Ammoniacal nitrogen	0.0008	0.0006
Albumenoid nitrogen	0.0216	0.0151
Oxygen absorbed in 4 hours at 27°C.	0.229	0.160
Lead or copper	Nil.	Nil.
Temporary hardness (equivalent to Ca CO ₃)	2.0	1.4
Permanent hardness do.	20.0	14.0
Total hardness. do.	22.0	15.4

The figures representing organic matter are very high and much of it is probably of vegetable origin but is, nevertheless, objectionable.

The water - judged without bacteriological examination - cannot be considered as fit for drinking, but if it must be used it should be boiled.

(Sgd) W.J. CURRY
Secretary.

THE COUNTIES PUBLIC HEALTH LABORATORIES
91, Queen Victoria Street, London, E.C.4.

108 SV91/15

Ref. J. 163.

2

MOOR WELL.

Analysis of a sample of water received on 14.5.35, from Gerald Cox Esq. Falmouth Corporation Waterworks. Labelled St. Mary's, Isles of Scilly. Water Supply.

MOOR WELL. Witness A. Nance. Date 11.5.35. 5.0 p.m.

Chemical results in parts per 100,000.

Appearance.	Clear and Bright.	
Colour.	Faint yellow.	Odour - none.
Reaction pH.	Acid 5.6	Free Carbonic Acid 4.8
Electric Conductivity at 20°C.		1035
Total Solids, 180 C.		73.5
Chlorine and chlorides		24.8
Nitrogen in Nitrates		2.40 Nitrites - absent
Hardness: permanent		62.0 Calcium - 3.5
temporary		0.0 Magnesium - 12.1
total.		62.0
Metals.	Minute trace of Iron	0.003
Free ammonia		0.0052
Albuminoid ammonia		0.0250
Oxygen absorbed in 4 hrs. at 80°F.		0.2700

Bacteriological results.

No. of Bacteria per c.c.		
on Agar in 3 days at 20°C.		7800
on Agar in 1 day at 37°C.		72
The Bacillus Coli.	Present in ----	Absent in 100 cc.
Bacillus Welchii		
(B. Enteritidis Sporogenes)	Present in ---	Absent in 100 cc.

This is a clear and bright water with faint yellow colour, It is acid in reaction, devoid of Carbonial hardness and will be corrosive to metals and contact with Lead should be avoided. The water is excessively hard and the hardness being due to Sulphate and Chlorides of Calcium and Magnesium, is permanent in character. No excess of Sodium Chloride (Common Salt) is preseny and metals are absent, apart from a minute and negligible trace of Iron. The water contains an excess of organic matter and is highly nitrated. The bacterial content is also high but bacteria of objectionable type and origin were not found. The water is impure, but judged by this sample, is not polluted to a degree to be unwholesome. On account of its hardness and chemical characters the water is an objectionable one for the purposes of a Public Supply and Chlorination would probably be a desirable precautionary measure.

(Sgd). -----

for Drs. Beale and Suckling.

COPY

108 SV91/15

4 THE CLINICAL RESEARCH ASSOCIATION, LIMITED

Dr. W.B. Addison,
St. Mary's,
Isles of Scilly.

Watergate House,
York Buildings,
Adelphi,
London, W.C.2.

3. 10. 25.

Ref. No. 34, 200.

Bacteriological examination, by cultural and microscopical methods, of the sample of water marked 20' Well. (Moor Well). collected on ----- and received here on 29. 9.25. has given the following results:-

(I) QUANTITATIVE.

The average number of organisms, producing visible colonies on gelatine plates incubated at 20°C. for 3 days, is found to be 641 per c.c.

The average number of organisms, producing visible colonies on agar plates incubated at 37°C. for 2 days is found to be 20 per cc.

(II) QUALITATIVE.

B. coli.	Not found in 100 c.c.
Streptococci.	present in 1 c.c.
B. Enteritidis Sporogenes	not found in 100 c.c.

The temperature of the water on arrival was 15.5°C.

The Streptococci present are probably derived from some extraneous source rather than sewage pollution; this in view of the fact that other excremental organisms are entirely absent. Even the presumptive tests for B.Coli giving definite negative findings.

We note that animals can come quite close up to the well but presume that the surface structures exclude possibility of contamination.

Taking the result of the examination as a whole the water might be considered safe for drinking purposes from a bacteriological point of view.

(Sgd.) W.J.CURRY,
Secretary.



For Survey use only Licence No.

N. 11940

RECORD OF WELL

At Old Town, St Marys,
 Isles of Scilly.

Town or Village Old Town, St Marys.
 County Isles of Scilly.

IOS/43
SV91/35

EXACT SITE
 OF WELL

Six-inch sheet 87SE/W. Six-inch National Grid sheet SV9149 1020

For The Land Steward, Duchy of Cornwall. State whether owner, tenant, builder, contractor, consultant, etc.:-

Address (if different from above) The Land Steward, Duchy of Cornwall, Isles of Scilly.
 Level of ground surface If well top is not at ground } above: *Scilly.
 above sea level (O.D.).....ft. level, state how far } below;.....ft.

DELETE
 WHICHEVER IS
 INAPPLICABLE

SHAFT.....ft.; diameter.....ft.; HEADINGS (please attach details—dimensions and directions)

BORE 120.....ft.; diameter of bore: at top.....5.....in.; at bottom.....in.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.).....
 Forty feet of 4 inch Galvanised pipe.

Water struck at depths of.....110.....ft. below well top.

TEST
 CONDITIONS

Rest level of water.....20.....ft. ^{above} well top. Suction at.....ft. Yield on..... hours' *
 below days' test
 pumping at.....240.....galls. per.....hour.....with depression to.....ft. below well top.

Recovery to rest level in..... mins. * Capacity of pump.....g.p.h. Date of measurements.....
 hours

NORMAL
 CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type..... Motive power.....

Capacity.....galls. per hour. Suction at.....ft. below well top.

Amount pumped.....galls. per day. Estimated consumption.....galls. per week.

Well made by W. Visick & Sons Ltd. Date of sinking 8/1/65

Information from As above.

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

For Survey use only

Date Received 2. 2. 65

Section 6

Pumping test

Observ. well

Recorder

E.R. log

Site marked on

1" map 0

6" map 0. 2. 2. 6. 8. (use symbol)

Record forwarded

to

date

GEOLOGICAL SURVEY,
 WATER DIVISION,
 SOUTH KENSINGTON,
 LONDON, S.W.7.

23/11/59 C597D W154188-P.S.47 10M 1/60 M.P.L.D. G.722

10S SV91/17

SV 9094 1051

10S / 4 4

New well
St Mary's Island

Depth 26 ft. Diam 7 ft or 10 ft sq.
Yield 27,000 g.p.d. Minimum yield
much less. During drought, after standing for
3 hours, pump empties well in 2 hrs. or less.

1942

6" Cornwall 87 SE-W

Sited Aug 1946 H.E.M.



4

New Well: Depth 26 ft., diameter 7 ft. or 10 ft. square. Yield 27,000 gallons per day. Minimum yield much less. During drought, after standing for three hours, pump empties well in two hours or less. 1942.

Above wells sited Aug. 1946. H.R.F. 6" Cornwall 87SE/W

SV91/17

DRAFT

108 SV91/17
The County Public Health
Laboratories,
91, Queen Victoria Street,
London, E.C.4

Ref. S/RW/11.

14th January, 1944.

ANALYSIS OF A SAMPLE OF WATER received on: 6th January, 1944.
from Council of the Isles of Scilly, Town Hall, St. Mary's.
labelled: New Well, St. Mary's. Date: 4.1.44. 10.20 a.m.

Taken by: T. Bodilly. Witness: - Signed: W. Hopwood.

Chemical results in Parts per 100,000.

Appearance: Bright - very few particles of mineral debris.
Turbidity: Less than 5 parts per million, Silica scale.
Colour: Hazen: 51, yellow-brown 10. Odour: Nil.
Reaction pH: Faint Acid: 6.5 Free Carbonic Acid: 1.5
Electric Conductivity Total Solids, dried at 180°C: 90.0
at 20°C: 1350
Chlorine in Chlorides: 34.5 Alkalinity as Calcium Carbonate: 3.0
Hardness: Total 31.0 Temporary: 1.0 Permanent: 30.0
Nitrogen in Nitrates: 1.2 Nitrogen in Nitrites: absent
Free Ammonia: 0.0024 Ammoniacal Nitrogen: -
Albuminoid Ammonia: 0.0048 Albuminoid Nitrogen: -
Oxygen Absorbed in 4 hrs. at 27°C. 0.095
Metals: Iron: 0.003 Other metals absent.

Bacteriological Results.

Number of "Bacteria" growing -) on Agar per cc. or ml. in)	1 day at 37°C. 2 days at 37°C. 3 days at 20°C.		
	17	30	250
Presumptive Coliform Reaction.	*Present: 50 c.c.	Absent: 10 c.c.	
Bact. coli.	Present: -	Absent: 100 c.c.	
Cl. welchii Reaction.	Present: -	Absent: 100 c.c.	

■ Due to coliform bacteria of intermediate types.

These results are consistent with a wholesome water suitable for drinking and domestic purposes.

In view of the slight acidity and deficiency in bicarbonate or temporary hardness, the water will be plumbo-solvent and corrosive to metals and lead should not be used in connection therewith.

This sample is reasonably clear and bright in appearance, faintly acid in reaction and free from metals apart from an insignificant trace of iron. The water is hard in character although not to an excessive degree and has a high but not excessive content of salinity. It is of satisfactory organic and bacterial purity although not of the highest standard.

IOS SV91/17
 4

Report by J.H. Blight, Penzance. 1944

- 1 Rams Valley Well. 1904 approx.
 2 ft. diam., 18 ft. deep. Yield 2,000 g.p. day. †
 - 2 Old Moor Well. 1914-1918. (Used only in drought).
 6 ft. diam., 17 ft. deep. Yield 10,000 g.p. day. †
 - 3 New Well. 1942. (Adjoining two other wells 16 ft. and 18 ft. deep).
 10 ft. square, 26 ft. deep. 27,000 g.p. day. † Minimum yield much less.
 During drought, after standing for 3 hrs. pump empties well in 2 hrs. or less
- Combined flow does not exceed 14,000 g.p. day at worst period.

At present public supply unpalatable. Water at Parting Carn, Pump Rd. shows vast improvement. This suggests Old Town Marshes for future development, being 50 acres in extent having a catchment area of about 500 acres. The granite is below sea-level and is covered with 12-20 ft. of sand, silt and a layer of clay into which water percolates and is stored. This is a large natural underground reservoir. Lowering water below high water mark causes entrance of sea-water. This has already occurred at Moor Well and New Well. Old Town Marshes are flooded in winter to a depth of a foot or so. Any well sunk here should be situated as far from the sea as is compatible with access to the site, to avoid lowering the water level near the sea. Minimum run-off in Scilly is .20 cu. secs. per 1,000 acres
 ∴ 54,000 gallons yielded from 500 acres in 24 hrs.

Water levels in three new wells varies as much as 10 ft., indicating that ground water finds difficulty in reaching New Well. This may be due to choked fissures and a heading would therefore increase supply at well bottom. (Water is decreasing annually). This may cause pollution, therefore, it is recommended to sink a well near Aunt Joanies on the opposite side of Old Town Marshes as suggested by the Geologist Dr. Hickling.

Proposed new well - Barneys Well

Depth 26 ft. Internal diameter 6 ft. Headings at bottom for 20 ft. Height 6 ft. Width 2 ft. 6 in., to provide storage capacity of 2,000 gallons at level of 20-26 ft. below the surface as a sump. Lining of broken rock up to 1 ft. 6 in. above ground level. Pumping carried out at Aunt Joanies Well. New well in reserve with heading.

Analyses (parts per 100,000)

Quality varies. Best at Parting Carn - water level 2 ft. above H.W.M.O.S. tides *
 Storage Reservoir. Buzza Hill. 18.5.44.
 Appearance bright - few mineral particles. Turbidity - less than 5 parts per million.
 Colour - Hazen v. ft. yellow. 15 (silica scale). Odour - nil.
 Reaction pH. Acid 5.4. Free Carbonic Acid 6.6
 Electric conductivity at 20° C. 3700. Total solids, dried at 180° C. 250.0.
 Chlorine in Chlorides 116.0. Alkalinity as Calcium Carbonate 1.8.
 Hardness - Total 94.0: Temp. nil: Perm. 94.0.
 Nitrogen in Nitrates 0.64 Nitrogen in Nitrites less than 0.001
 Free Ammonia 0.0008 Ammoniacal Nitrogen nil
 Albuminoidal Ammonia 0.016 Albuminoidal Nitrogen nil
 Oxygen absorbed in 4 hrs. at 27° C. 0.205
 Metals: Iron 0.005 Zinc 0.2
 Manganese 0.055 Other metals absent

Bacteriological Results:
 No. of bacteria growing on Agar per cc. or ml. in 1 day at 37° C. - 1
 " " " " " 2 days " 37° C. - 13
 " " " " " 3 " " 20° C. - 300

Presumptive coliform Reaction: Present 10 cc.: Absent 1 cc.
 Bacteria coli. Type 1.: Present nil " 100 cc.
 Type 2.: Present 10 cc.: " 1 cc.
 Cl. welchi Reaction Present 100 cc.: " 10 cc.

Water reasonably clear and bright in appearance, is acid in reaction, deficient in Carbonate or temporary hardness, and will be plumbo-solvent and corrosive to metals. Excessively hard in character - permanent, high content of salinity causing taste, low standard of organic purity. Unsuitable for public supply.

has bacterial

by m. Blight

+ alleged minimum yields said to be grossly overestimated



From M/H File 657/9819

108 / SV 91/18
 5

To be furnished in Triplicate

"Barney's Well"

WELLS AND BOREHOLES

20 ft. east of well named as
 "Aunt Joan's well" on 6"
 Cornwall 87 SE/W

Information to be supplied to the Ministry of Health

SV 9138 1076

Name of District
 If the District is a Rural District, name of Contributory Place concerned
 Level of surface of ground above Ordnance Datum
 Depth and diameter of shaft or boring, or of each
 Depth or depths at which water was found
 Estimated Quantity of Water required in Gallons per day
 Yield of water in gallons per diem, as ascertained by continuous pumping during days or otherwise
 Level of water above Ordnance Datum at commencement of pumping
 Level of water above Ordnance Datum at cessation of pumping
 Time taken for water to return to original rest level after pumping ceased
 A tabulated Statement should be sent showing the quantity of water pumped in each 24 hours during the duration of the test together with the level of the water above Ordnance Datum at the end of each day. If there should be any stoppage, the reason and duration should be stated.
 Limit of deviation from vertical as specified in inches per 100 feet.
 Deviation as ascertained by measurement.
 Distances of the well or borehole from any other known wells or boreholes in the neighbourhood
 Quality. (Copies of chemical and bacteriological analyses should be annexed. Information as to the mineral constituents of the water is desirable)
 A 6" to the mile Ordnance map showing (in red) the precise situation of the well or borehole
 Date of Completion of well or borehole
 Well or borehole sunk by

St. Mary's Isles of Scilly.

10.0 O.D.

6'0" internal diam.

at 6.80 O.D.

Present about 15,000 G.P. 24 hours.

Ultimately - estimated 40,000 gals. per day.

6.80 O.D.

- 0.50 O.D.

Pumping continued to feed town (see tabulated statement).

Note: Test pumping took place after about 700,000 gals. had been pumped to waste during well sinking.

Nil.

Nil.

120 yds.

attached.

See plan note at top hereof.

8/9/1944

St. Just Engineering Co.

Signed

J. M. Light

Date

23 Dec. 1944

Normally the pumping test should be continuous over a period of 14 days. This form should be signed by the Engineer for the proposed works.

2

A description of the Strata pierced should be given as follows:-

	Thickness of each Stratum		Total depths from the surface	
	Feet	Inches	Feet	Inches
Meat Earth		6		6
Mixed China Clay	1	6	2	0
Fine China Clay and gravel.	8	0	10	0
Coarse Gravel	3	6	13	6
Mixed Coarse Gravel and decomposed granite	2 1	6 6	16 17	0 6
Hard fissured granite.		6	18	0

A Section to scale showing the size of the well or boring, strata pierced, rest level of water, and other particulars, should also be forwarded to the Ministry.

D 91839-1 500 D/d 8024 3/44 R P W

3.

^{105/5}
105/5 SV 91/18
5

1944. Barneys Well. Engineer J.H. Blight, Penzance Corporation, Municipal Buildings, Penzance. Water deficient in carbonate and corrosive to metals.

Depth 20 ft. No headings. Concrete tubes 6 ft. in diameter. Yield 15,000-20,000 g.p. day during well sinking operations. Test gauging indicated that the incoming water at a level 19 ft. below the surface was 4,000 g.p.h. Steady pumping 1,500-1,800 g.p.h. failed to lower the water below 9 ft. from the top. Immediately pumping ceased the well commenced to fill and rose 12 ft. to a point 1 ft. below normal rest-level in one hour, i.e. an average rate of over 2,000 g.p.h. The last 2 ft. rise took longer than the first 2 ft. 40,000 g.p. day expected in spite of extremely dry year.

(St. Just Engineering Co., Mancherrō Hill, St. Just, Cornwall.)

Present figures 14.8.46. (J.H. Blight).

Ground level 10' O.D. (Liverpool)

Standing water level 6.8' O.D.

Pumping water level 3.8' O.D.

Consumption 12,000-14,000 g.p. day, pumped in 6-7 hrs. supplied from granite fissures at depth - 10 O.D.

Low pH value 6.2.

6" Cornwall 87SE/W

DRAFT

4

Analysis - 1897 or 1901.

10S SV91/18
Aunt Joanes
5

Total Solid Residue -----	41.30
Combined Chlorine -----	15.90
" " (exp. as CaCl) -----	26.20
Nitrogen as Nitrates -----	0.75
Nitrites -----	absent
Saline Ammonia -----	0.009
Albuminoid Ammonia -----	0.047
Oxygen req. to oxidise the organic matter -----	0.476
Hardness (in degrees) -----	7.5°
Lead or Copper -----	absent

Observations. This water is too highly charged with organic impurities to be now safe for drinking purposes.



5
Authority Council of the Isles of Scilly **109** **SV91/18**
Date from M/H file 657/9819

Site of Well or Bore St. Mary's Island of Scilly

"Barney's well" adjoining "Aunt Joan's well" named on
Date of analysis 27. Sept. 1948. (Compton's Public Health Laboratories)

Physical Characters (appearance, etc.)

Bright: few particles of mineral & organic debris.
Colour - normal.

CHEMICAL ANALYSIS Parts per 100,000

Reaction pH	<u>Acid</u>	<u>Acid 5.5.</u>
Total Solids	<u>dried at 180°C.</u>	<u>53.5.</u>
Chlorides/Chlorine		<u>18.6.</u>
Nitrogen as Nitrates		<u>1.4.</u>
Nitrogen as Nitrites		<u>absent.</u>
Saline and free Ammonia (Amm. Nitrogen)		<u>absent.</u>
Organic Ammonia (Album. Nitrogen)		<u>absent.</u>
Oxygen absorbed in	<u>4</u> hrs. @ 27°C	<u>0.70</u>
Poisonous Metals		<u>absent.</u>
Iron		<u>0.00</u>
Temporary hardness		<u>—</u>
Permanent hardness		<u>12.5</u>
Total hardness		<u>12.5.</u>

ANALYST'S REMARKS Acid in reaction; deficient in carbonate or temp. hardness will be corrosive to metals & lead shd. be avoided. No excess of salinity; insignificant trace of iron. Satisfactory organic & bac. purity. Neutralisation of acidity could be affected by aeration & small dose of lime.

BACTERIOLOGICAL ANALYSIS

Total Colonies at 37°C in	{ 1 day	12	
	{ 2 days	21.	per c.c.
	{ 3 days	90.	
No. of B.Coli	<u>absent</u> per <u>100</u>		c.c.

REMARKS
/



CSVA/IR
 5

Council of the Isles of Scilly.

Well now named Barney's Well.

AUNT JOANEY'S WELL - TEST PUMPING.

(adjoining "Aunt Joaney
 Well"). Info file 657/9819.

Level of Water (O.D.)

Date	Commence- ment of Pumping.	Completion.	Time Started.	Time Stopped.	Total Hours.	Average quantity of gallons per hour pumped.	Total amount pumped.	Remarks.
8/9/44	6.80	0.25	4.0p.m.	-	16	1800	28,800 gals.	Water fell to 2.50 O.D. first hour and to 1.25 O.D. in 2 hours.
9/9/44	1.25	1.25	8.0a.m.	-	24	1800	43,200 "	
10/9/44	0.25	1.25	8.0a.m.	-	24	1800	43,200 "	1 hour removing Ex. Valve
11/9/44	1.25	1.25	8.0a.m.	-	24	1800	43,200 "	
12/9/44	1.25	1.25	8.0p.m.	-	24	1800	43,200 "	Engine Valve trouble.
13/9/44	1.25	1.25	8.0p.m.	5.0a.m.	21	1800	37,800 "	
14/9/44	6.70	1.00	4.0p.m.	-	16	1800	28,800 "	Overhauled valve etc. Pumping to Reservoir.
15/9/44	1.00	0.50	8.0a.m.	-	24	1800	43,200 "	
16/9/44	0.50	0.25	8.0a.m.	-	24	1800	43,200 "	4 hours per day pumped to Reservoir.
17/9/44	0.25	0.00	8.0a.m.	-	24	1800	43,200 "	
18/9/44	0.00	0.00	8.0a.m.	-	24	1800	43,200 "	-
19/9/44	0.00	0.00	8.0a.m.	-	20	1800	36,000 "	
20/9/44	0.00	0.25	8.0a.m.	-	24	2500	60,000 "	Repaired rising Main. 6 hours to Reservoir.
21/9/44	0.25	0.50	8.0a.m.	-	24	2500	60,000 "	
22/9/44	0.50	0.50	8.0a.m.	4.0p.m.	8	2500	20,000 "	

Note: The test pumping took place at the end of the driest summer on record. At the end of the test pumping it was necessary to pump at 4,000 gallons per hour to keep the well in fork.

19/12/1944.

J. H. Light
 Dec. 1944

SV 9130 1087

108 SV91/19
/6

St. Mary's

Pump read, Parting Garn - Hand pump.
Dates from 1896. Used for cattle watering.
Ran dry when Barney's new well was sunk 175 yds. away.
Analysis below. 26.5.44

Appearance - very faint opalescence. Slight flocculent deposit of mineral debris and amorphous silica.
Turbidity - less than 5 parts per million, silica scale.
Colour - Hazen, very faint yellow; 15. Odour - nil
Reaction pH acid 5.4. Free Carbonic Acid 4.8.
Electric conductivity at 20° C. 810. Total solids dried at 180° C. 54.0.
Chlorine in Chlorides 19.2 Alkalinity as Calcium Carbonate 0.9.
Total Hardness 13.5. Temp. 0; Perm. 13.5.
Nitrogen in Nitrates 1.2. Nitrogen in Nitrites 0.001 approx.
Free Ammonia 0.0060 Ammoniacal Nitrogen nil.
Albuminoid Ammonia 0.0052 Albuminoid Nitrogen nil.
Oxygen absorbed in 4 hrs. at 27° C. 0.095
Metals: Iron 0.010 Zinc 0.2
Others absent

Bacteriological Results:

No. of bacteria growing on Agar. per cc. or ml. in 1 day at 37° C.	2	
" " " " " " 2 days " "	10	
" " " " " " 3 days " 20° C.	450	
Presumptive Coliform Reaction: Present 10 cc.;	Absent 1 cc.	
Bacteria coli. Type 1.:	" 100 cc.;	" 50 cc.
Type 2.:	" 10 cc.;	" 1 cc.
Cl. welchi reaction.	" 100 cc.	" 10 cc.

This sample is not quite clear and bright but is not unduly turbid.
Water is acid in reaction, deficient in carbonate or temporary hardness and will therefore be plumbo-solvent and corrosive to metals. Water has moderate hardness, contains no excessive salinity or metals and is of passable organic quality.
Bact. riologically it is unsatisfactory showing evidence of contamination. If used for domestic purposes it should be chlorinated.

Sited Aug. 1946. MEF.

6" Cornwall 87SE/W



SV 9016 1051

108

23

SV 91/25

Analysis - 1897 or 1901.

Clemmie's Well

Total Solid Residue	-----	40.95
Combined Chlorine	-----	15.50
" " (exp. as NaCl)	-----	25.54
Nitrogen as Nitrates	-----	1.03
Nitrites	-----	a faint trace
Saline Ammonia	-----	traces only
Albuminoid Ammonia	-----	0.0182
Oxygen req. to oxidise the organic matter))))))	0.1900
Hardness (in degrees)	-----	8°
Lead or Copper	-----	abs.

Observations. This water contains too much organic matter, to be desirable or safe for drinking purposes.

COPY

108 SV91/25

THE CLINICAL RESEARCH ASSOCIATION, LIMITED

23
Watergate House,
York Buildings,
Adelphi,
London, W.C.

To Dr. W.B. Addison,
St. Mary's
Isles of Scilly.

12. 8. 25.

Ref. No. 28,184.

The sample of water marked Well. (Clemmie's Well) collected on 5.8.25. and received here on 8.8.25. has been chemically examined, and I have been instructed to forward the following report:-

ANALYSIS (B).

	<u>Parts per 100,000</u>	<u>Grains per Gallon.</u>
Total solids (dried at 120°C.)	79.40	55.58
Combined chlorine	26.8.	18.7
equivalent to Na Cl.	44.2	31.0
Nitric nitrogen	0.90	0.63
Nitrous nitrogen		Faint trace.
Ammoniacal nitrogen	0.0070	0.0049
Albumenoid nitrogen	0.0336	0.0235
Oxygen absorbed in 4 hours at 27°C.	0.43	0.30
Lead or copper	Nil.	Nil.
Temporary hardness (equivalent to Ca. Co ₃)	4.3	3.0
Permanent hardness do.	16.0	11.2
Total hardness do.	20.3	14.2

The amount of organic matter in the water is very considerable, and although it is probably mainly of vegetable origin, is nevertheless objectionable and renders the water in its present state unfit for drinking purposes, unless previously purified, e.g. by boiling.

(Sgd). W.J.CURRY

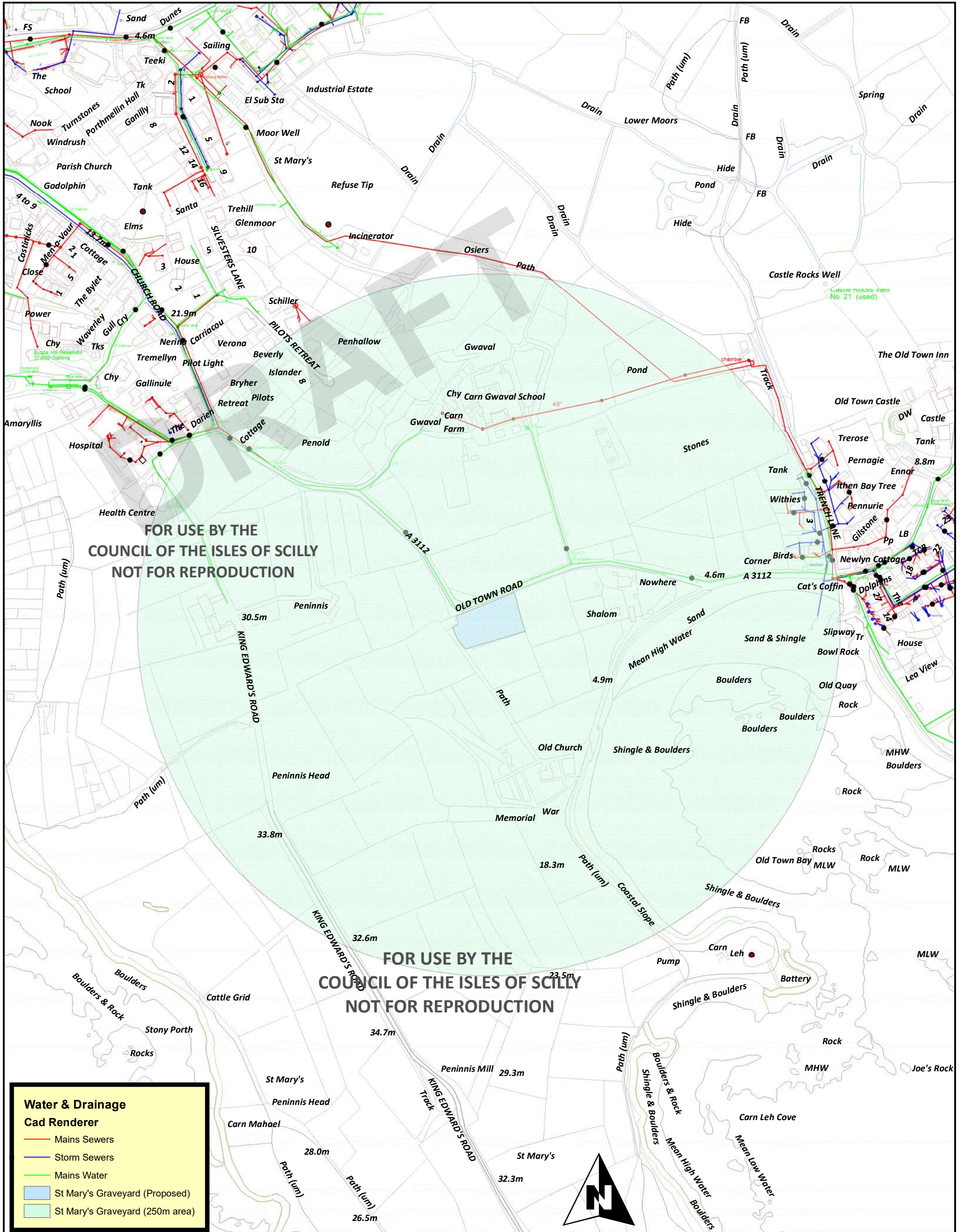
Secretary.

Appendix B

DRAFT

Water & Sewerage Plan

Land on North Side of St Mary's Graveyard, St Mary's, Isles of Scilly



Appendix C

DRAFT

Appendix C – Groundwater Risk Ranking

Ranking	Very Low 1-2	Low 3-4	Moderate 5-6	High 7-8	Very High 9-10
Drift Type	<u>Clay</u>	<u>Silt</u>	Silty sand	Sand/Gravel	Absent
Drift Thickness	>5 m	<u>3-5 m</u>	3 m	0-3 m	Absent
Depth to Water Table	>25 m	11-25 m	10 m	<u>5-9 m</u>	<5 m
Flow Mechanism	Intergranular	-	-	-	Fissure
Proximity to Wells	<u>>250 m</u>	-	-	-	< 250 m
Aquifer Type	Non-Aquifer	-	<u>Secondary Aquifer</u>	-	Principal Aquifer
Abstractions and SPZs	<u>None</u>	Within SPZ 3	Close to SPZ 2	Within SPZ 2	Within SPZ 1
Water courses and springs	<u>>100 m</u>	70-100 m	50-70 m	30-50 m	<30 m
Drains	<u>>100 m</u>	40-100 m	30-40 m	10-30 m	<10 m

Risk ranking for the site are underlined.

Appendix D

DRAFT



Groundwater risk assessment for treated effluent discharges to infiltration systems

Infiltration Worksheet , Release v3.0


Date of Workbook Issue: March 2022

This worksheet has been produced in combination with the document: H1 Annex J5 User Manual version 2.0 (Environment Agency, 2014).

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IMPORTANT: To enable MS Excel worksheet, click the Microsoft Office Button  Excel Options, click Add-Ins. In the Manage box, select Excel Add-ins. Click Go. Select **Analysis ToolPak** and **Analysis ToolPak-VBA** (to calculate error functions)

Details to be completed for each assessment

Site Name:	St Mary's		
Site Address:	Old Town Road		
Completed by:	HW	Version:	x.xx
Date:	05-Jun-23		
Substance	Ammonium		
Environmental Standard (C _T)	0.5 mg/l	Origin of C _T :	Specify basis for standard (e.g. MRV, EQS, DWS)

This spreadsheet has been developed as a tool to assist groundwater risk assessment for effluent discharges to infiltration systems. The following worksheets are available:

- [Infiltration System](#)
- [Attenuation unsatzone](#)
- [Dilution](#)
- [Attenuation satzone](#)
- [Summary](#)
- [Simple calcs](#)

Site details entered on this page are automatically copied to each worksheet.

The worksheet uses the following colour coding:

- Worksheet option with pull down menu
- Data entry
- Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
- Data carried forward from an earlier worksheet
- Calculation

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

Infiltration Worksheet

Infiltration System



This sheet allows user to enter effluent concentration and details of infiltration system

Substance	Ammonium	From introduction sheet
Compliance value or environmental standard	C_T	From introduction sheet
	5.00E-01 mg/l	

Input Parameters

	Variable	Value	Unit	Source of parameter value
<i>Standard entry</i>				
Concentration of substance in discharge (entering infiltration system)	C _e	1.67E+03	mg/l	
Type of treatment plant		Other		

Water use and percolation rate (for use only with septic tanks and package treatment plants)

Number of persons	p			Not valid for this treatment plant option
Water use		1.80E+02	litres/person/day	Not valid for this treatment plant option
Percolation rate	V _p		s/mm	Not valid for this treatment plant option

Specify discharge (Q1) or calculate based on use (Q2)

	Variable	Value	Unit	Source of parameter value
Specified discharge Q1				
Discharge rate	Q1	1.30E-02	m ³ /d	
Calculated discharge	Q2	0.00E+00	m ³ /d	Value specified by user and not calculated

Area of drainage field and hydraulic loading

Specify area of drainage field or calculate based on percolation rate				
Specify				
Enter area of drainage field	A	2.80E+02	m ²	
Calculated area of drainage field	A	0.00E+00	m ²	Value specified by user and not calculated
Calculated infiltration rate	Inf	4.64E-05	m/d	

Site being assessed:	St Mary's
Completed by:	HW
Date:	05-Jun-23
Version:	x.xx

DRAFT

Infiltration Worksheet

Attenuation unsaturated zone



This sheet calculates attenuation factor for the unsaturated zone, concentration at base of unsaturated zone and discharge consent limit

Contaminant	Ammonium		
Compliance value or environmental standard	C_T	5.00E-01	mg/l
Concentration of substance in discharge (entering infiltration system)	C_o	1.67E+03	mg/l

Input Parameters
 Variable Value Unit Source of parameter value

Drainage Layer

Infiltration rate	Inf	4.64E-05	m/d	From infiltration sheet
Thickness of drainage layer	S_1	1.90E+00	m	
Water filled porosity	θ_1	1.50E-01	fraction	
Bulk density	ρ_1	1.07E+00	g/cm ³	
Calculated dispersivity	D_1	1.90E-01	m	calculated

Option to select degradation
 Degradation occurs - sorbed and dissolved phases
 Half life for degradation of substance $t_{1/2}$ 2.19E+03 days
 Calculated decay rate λ_1 3.17E-04 days⁻¹ calculated (very low value set if no degradation) *Calculated from half life (above)*

Enter method of defining partition co-efficient (using pull down list) **User specified value for partition coefficient**

Entry if specify partition coefficient (option)
 Soil water partition coefficient K_d1 1.50E-02 l/kg

Entry for organic chemicals (option)
 Fraction of organic carbon in soil f_{oc} 1.00E-02 fraction *Not valid - User specified value used*
 Organic carbon partition coefficient K_{oc} 1.00E+01 l/kg *Not valid - User specified value used*

Soil water partition coefficient used in assessment K_d1 1.50E-02 l/kg Specified value

Retardation factor	Rf_{u1}	1.11E+00	
Unretarded travel time (no dispersion)	t_{u1}	6.14E+03	d
Unretarded travel time (with dispersion)	t_{d1}	5.52E+03	d
Retarded travel time (with dispersion)	t_{r1}	6.12E+03	d
Attenuation factor	AF_{u1}	6.17E+00	

Unsaturated Zone

Thickness of unsaturated zone below drainage field	S_2	3.20E+00	m	
Water filled porosity	θ_2	1.50E-01	fraction	
Bulk density of unsaturated zone	ρ_2	1.07E+00	g/cm ³	
Calculated dispersivity	D_2	3.20E-01	m	calculated

Option to select degradation
 Degradation occurs - sorbed and dissolved phases
 Half life for degradation of substance $t_{1/2}$ 2.19E+03 days
 Calculated decay rate λ_2 3.17E-04 days⁻¹ calculated (very low value set if no degradation) *Default value of 1/10¹⁰ used*
 Fraction of rapid flow through unsaturated zone B 1.00E-01

Enter method of defining partition co-efficient (using pull down list) **User specified value for partition coefficient**

Entry if specify partition coefficient (option)
 Soil water partition coefficient K_d2 1.50E-02 l/kg

Entry for organic chemicals (option)
 Fraction of organic carbon in soil f_{oc} 1.00E-02 fraction *Not valid - User specified value used*
 Organic carbon partition coefficient K_{oc} 1.00E+01 l/kg *Not valid - User specified value used*

Soil water partition coefficient used in assessment K_d2 1.50E-02 l/kg Specified value

Retardation factor	Rf_{u2}	1.11E+00	
Unretarded travel time (no dispersion)	t_{u2}	1.03E+04	d
Unretarded travel time (with dispersion)	t_{d2}	9.30E+03	d
Retarded travel time (with dispersion)	t_{r2}	1.03E+04	d
Attenuation factor	AF_{u2}	1.69E+01	
Total unretarded travel time	$t_{u1} + t_{u2}$	1.65E+04	d
Total retarded travel time	$t_{r1} + t_{r2}$	1.82E+04	d

Attenuation factor and discharge consent limit

Drainage layer attenuation factor	AF_{u1}	6.17E+00	
Unsaturated zone attenuation factor	AF_{u2}	1.69E+01	
Concentration at base of drainage layer	C_{db}	2.70E+02	mg/l
Concentration at base of unsaturated zone	C_{wt}	4.14E+01	mg/l

Site being assessed:	St Mary's
Completed by:	HW
Date:	05-Jun-23
Version:	x.xx

Infiltration Worksheet



Dilution

Substance	Ammonium		
Compliance value or environmental standard	C _T	5.00E-01	mg/l
Source concentration	C _e	1.67E+03	mg/l
Concentration at base of drainage layer	C _{wt}	4.14E+01	mg/l

This sheet calculates the dilution factor for groundwater dilution below the drainage field. Substance concentration in groundwater and discharge consent limit

Input Parameters	Variable	Value	Unit	Source of parameter value
Infiltration	Inf	4.64E-05	m/d	From infiltration sheet
Area of drainage field	A	2.80E+02	m ²	From infiltration sheet

Entry for groundwater flow below site

Length of drainage field in direction of groundwater flow	L	3.50E+01	m	
Saturated aquifer thickness	da	6.00E+00	m	
Hydraulic Conductivity of aquifer in which dilution occurs	K	2.00E+00	m/d	
Hydraulic gradient of water table	i	1.00E-02	fraction	
Width of drainage field perpendicular to groundwater flow	w	8.00E+00	m	
Background concentration of substance in groundwater up-gradient of site	C _u	6.00E-03	mg/l	
		Calculate		
Enter mixing zone thickness	Mz	5.00E+00	m	Not valid - Value calculated
Calculated mixing zone thickness	Mz	3.78E+00	m	
Groundwater flow (mixing zone) below drainage field	Gw	0.61	m ³ /d	

Dilution factor and discharge consent limit

Dilution Factor	DF	47.58158991	
Headroom Factor	HF	47.02261083	
Unsaturated zone attenuation factor	AF _u	1.69E+01	From infiltration sheet
Concentration in groundwater below drainage field	C _{gw}	8.76E-01	mg/l
		or	
Environmental Permit limit value	EPL ₂	946.1909933	mg/l

Site being assessed:	St Mary's
Completed by:	HW
Date:	05-Jun-23
Version:	x.xx

Concentration immediately downgradient of drainage field exceeds target concentration

Infiltration Worksheet

Attenuation in saturated zone

Input Parameters	Variable	Value	Unit	Source
Substance				
Compliance value or environmental standard	C _t	Ammonium		From introduction sheet
Source concentration	C ₀	5.00E-01	mg/l	From introduction sheet
Dilution Factor	DF	1.67E+03	mg/l	From infiltration sheet
Unsaturated zone attenuation factor	AFu	4.76E+01		from dilution sheet
	AFs	1.69E+01		From atten_unsatzone sheet
Source of parameter value				
Variable	Value	Unit	Source of parameter value	
Concentration in groundwater below drainage field	C _{gw}	8.76E-01	mg/l	from dilution sheet
Option to select degradation - sorbed and dissolved phases				
Option to select degradation	Degradation occurs - sorbed and dissolved phases			
Half life for degradation of substance	t _{1/2}	2.19E+03	days	
Calculated decay rate	λ	3.17E-04	days ⁻¹	calculated (very low value set if no degradation)
Width of drainage field	W	8.00E+00	m	from dilution sheet
Mixing zone thickness	Mz	3.78E+00	m	from dilution sheet
Bulk density of aquifer materials	ρ	2.50E+00	g/cm ³	
Effective porosity of aquifer	n	1.00E-01	fraction	
Hydraulic gradient	i _{corr}	1.02E-02	fraction	from dilution sheet (adjusted)
Hydraulic conductivity of saturated aquifer	K	2.00E+00	m/d	from dilution sheet
Distance to compliance point	x	5.00E+01	m	
Option to select time				
Time since pollutant entered groundwater	t	1.00E+02	days	Use steady state (recommended)
Parameters values determined from options	Parameters values determined from options			
Partition coefficient	Kd	0.00E+00	l/kg	see options
Longitudinal dispersivity	ax	2.98E+00	m	see options
Transverse dispersivity	az	2.98E-01	m	see options
Vertical dispersivity	ay	2.98E-02	m	see options
Calculated Parameters				
Groundwater flow velocity	v	2.04E-01	m/d	
Retardation factor	Rf	1.00E+00	fraction	
Decay rate used	λ	3.17E-04	d ⁻¹	
Hydraulic gradient used in aquifer flow down-gradient	i _{corr}	1.02E-02	fraction	
Rate of contaminant flow due to retardation	u	2.04E-01	m/d	
Attenuation factor	AFs	2.07E+00	fraction	

This sheet calculates attenuation factor for the saturated zone; substance concentration at downgradient compliance point and discharge consent limit

User method of defining partition co-efficient (using pull down list)
User specified value for partition coefficient

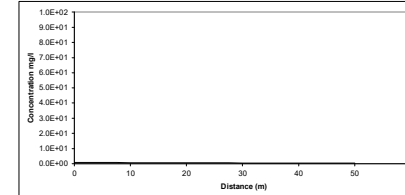
Soil water partition coefficient	Kd	0.00E+00	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)
Dispersivity based on Xu & Eckstein (1995)

Longitudinal dispersivity (m)	ax	2.98E+00	2.98E+00	2.98E+00
Transverse dispersivity (m)	az	2.98E-01	2.98E-01	2.98E-01
Vertical dispersivity (m)	ay	2.98E-02	2.98E-02	2.98E-02

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report $ax = 0.83(\log_{10}x)^{0.114}$; $az = ax/10$, $ay = ax/100$ are assumed
For calculated value, assumes $ax = 0.1 * x$, $az = 0.01 * x$, $ay = 0.001 * x$



Calculated concentrations for distance-concentration graph

Distance m	Concentration mg/l
0	8.8E-01
2.5	8.72E-01
5.0	8.52E-01
7.5	8.16E-01
10.0	7.76E-01
12.5	7.38E-01
15.0	7.02E-01
17.5	6.70E-01
20.0	6.41E-01
22.5	6.15E-01
25.0	5.91E-01
27.5	5.69E-01
30.0	5.48E-01
32.5	5.29E-01
35.0	5.12E-01
37.5	4.95E-01
40.0	4.80E-01
42.5	4.65E-01
45.0	4.51E-01
47.5	4.38E-01
50.0	4.26E-01

Site being assessed:	St Mary's
Completed by:	0
Date:	00-Jan-00
Version:	0

Attenuation and Dilution factors and discharge consent limit

Dilution Factor	DF	4.76E+01	
Unsaturated zone attenuation factor	AFu	1.69E+01	
Saturated zone attenuation factor	AFs	2.07E+00	
Concentration in groundwater at compliance point	C _{gw}	0.425649272	mg/l
Environmental Permit limit value	EPL ₃	1.96E+03	mg/l
Distance to compliance point		50	m

below compliance value
Discharge limit for discussion with Environment Agency

Concentration at compliance point below target concentration

DRAFT

Infiltration Worksheet

Summary of calculations for concentration of substance in groundwater

No input required, values taken from previous worksheets

Summary of compliance data, attenuation and dilution factors

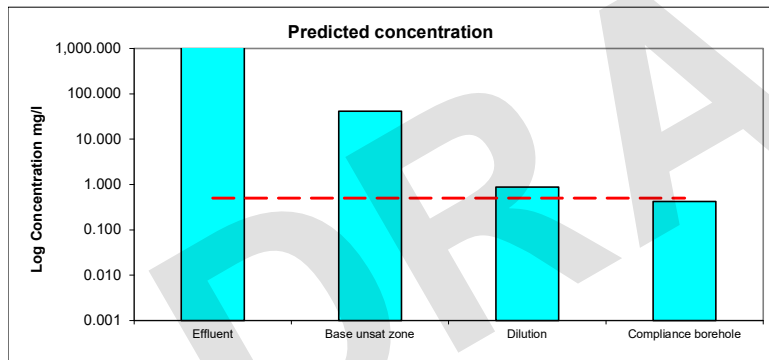
Substance		Ammonium	
Effluent concentration	C_e	1.67E+03	mg/l
Compliance value or environmental standard	C_T	0.50	mg/l
Distance to compliance point		50.00	m
Attenuation factor - unsat zone	AF _u	1.69E+01	
Dilution Factor	DF	4.76E+01	
Attenuation factor- sat zone	AF _s	2.07E+00	

Predicted concentrations at compliance point based on proposed effluent concentration

Concentration at base of unsaturated zone	C_{wt}	4.14E+01	mg/l	Attenuation in unsaturated zone only
Concentration in groundwater below drainage field	C_{gw}	8.76E-01	mg/l	Dilution taken into account
Concentration in groundwater at compliance point	C_{dcp}	4.26E-01	mg/l	Attenuation in saturated zone taken into account

Provisional Environmental Permit limit values

Based on attenuation in unsaturated zone	EPL ₁	2.01E+01	mg/l	
Based on attenuation in unsaturated zone and dilution	EPL ₂	9.46E+02	mg/l	
Based on dilution and attenuation in unsaturated and saturated zone	EPL ₃	1.96E+03	mg/l	Discharge limit for discussion with Environment Agency



RECEIVED

By Liv Rickman at 11:08 am, Aug 04, 2023

APPROVED

By Lisa Walton at 2:23 pm, Oct 12, 2023

ST MARYS OLD TOWN CEMETERY

ST MARYS

ISLES OF SCILLY

Results of a Heritage Assessment



South West Archaeology Ltd. Report No. 20230616



www.swarch.net

Tel. 01769 573555
01872 223164

St Mary's Old Town Cemetery, St Mary's, Isles of Scilly

Results of Heritage Assessment

By F. Balmond MCIfA and A. Allen ACIfA
Report Version: Draft

Draft issued: 16.06.23
Finalised: 28.06.23

Work undertaken by SWARCH for the Council of the Isles of Scilly

SUMMARY

This report presents the results of a heritage assessment carried out by South West Archaeology Ltd. for St Mary's Old Town Cemetery, St Mary's, Isle of Scilly, for a proposed extension to the cemetery.

The Isles of Scilly are referenced in the 10th century as having been subdued by Athelstan (Lysons 1814) and at some time in or before the reign of Edward the Confessor some of the islands and all of the tithes had been granted to monks or hermits who resided on St Nicholas's Island (now Tresco). All the churches of Scilly were granted by Henry I to the abbot of Tavistock along with the land which had belonged to the monks or hermits in the reign of Edward I. The Earl of Cornwall appears to have possessed property and had jurisdiction over the Isles of Scilly. By 1549 the property of the Scilly Isles passed to the Duchy of Cornwall, having already gained the lands of the abbey of Tavistock at the dissolution (Lysons 1814). In the mid-16th century Thomas Godolphin Esq. was the captain or governor of the Isles of Scilly, the lease passed to the Duke of Leeds as heir of the Godolphin's. St Mary's is the largest of the Scilly Isles and the historic settlement was at Old Town which includes the remains of Ennor Castle.

The proposal site appears to have been an agricultural field throughout the 19th and 20th century, subdivided with drainage channels in the early 20th century. The site falls into an area classified as late post medieval enclosures in the Isles of Scilly Historic Landscape Characterisation. It does not appear that the site has been subject to any archaeological investigation. There are 10 Listed Buildings (1 Grade II, 9 Grade II) within 500m of the site, 12 Scheduled Monuments and one Conservation Area. There are no Registered Parks and Gardens or Registered Battlefields within 1km of the site. The impact on heritage assets within the vicinity of the proposed development has been considered. The main impact of the proposed cemetery extension is a direct impact on any buried archaeological remains located in this area. Given its proximity to a fogou and the identification of other prehistoric remains in the vicinity of the site has archaeological potential. No indirect impacts on designated heritage assets have been identified.*

With this in mind, the overall impact of the proposed development can be assessed as Neutral. The impact of the development on any buried archaeological resource would be irreversible and archaeological monitoring of any major groundworks on the site should be considered.



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CONTENTS

<i>SUMMARY</i>	2
<i>CONTENTS</i>	3
<i>LIST OF FIGURES</i>	3
<i>LIST OF APPENDICES</i>	4
<i>ACKNOWLEDGEMENTS</i>	4
<i>PROJECT CREDITS</i>	4
1.0 INTRODUCTION	5
1.1 PROJECT BACKGROUND	5
1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND	5
1.3 HISTORICAL & ARCHAEOLOGICAL BACKGROUND	5
1.4 METHODOLOGY	6
2.0 HERITAGE IMPACT ASSESSMENT	7
2.1 HERITAGE IMPACT ASSESSMENT - OVERVIEW	7
2.2 NATIONAL POLICY	7
2.3 LOCAL POLICY	8
2.4 STRUCTURE OF ASSESSMENT – DIRECT AND INDIRECT IMPACTS	9
2.5 DEVELOPMENT PROPOSALS	9
3.0 DIRECT IMPACTS	10
3.1 STRUCTURE OF ASSESSMENT	10
3.2 DOCUMENTARY HISTORY	10
3.3 CARTOGRAPHIC DEVELOPMENT	11
3.1 ARCHAEOLOGICAL BACKGROUND	13
3.2 AERIAL PHOTOGRAPHY AND LIDAR	19
3.3 WALKOVER SURVEY	21
3.4 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY	24
4.0 INDIRECT IMPACTS	25
4.1 STRUCTURE OF THE ASSESSMENT	25
4.2 QUANTIFICATION	25
4.3 IMPACT BY CLASS OF MONUMENT OR STRUCTURE	26
5.0 CONCLUSION	37
6.0 BIBLIOGRAPHY & REFERENCES	38

LIST OF FIGURES

Cover plate: Photograph of Old Town Church from the south-east.

FIGURE 1: SITE LOCATION.	6
FIGURE 2: EXTRACT FROM THE ST MARYS TITHE MAP; THE APPROXIMATE SITE IS INDICATED (TNA).	11
FIGURE 3: EXTRACT FROM FIRST EDITION 6 INCH ORDNANCE SURVEY MAP 1887-8; THE APPROXIMATE SITE IS INDICATED (NLS)	12
FIGURE 4: EXTRACT FROM THE SECOND EDITION 6 INCH ORDNANCE SURVEY MAP, c.1905 (NLS).	12
FIGURE 5: EXTRACT FROM THE ORDNANCE SURVEY MAP, REVISED 1931, PUBLISHED 1950 (NLS).	13
FIGURE 6: HERITAGE ASSETS WITHIN 500M OF THE SITE RECORDED IN THE CORNWALL AND SCILLY HER.	15
FIGURE 7: DESIGNATED HERITAGE ASSETS WITHIN 500M OF THE PROPOSAL AREA RECORDED IN THE NATIONAL HERITAGE LIST.	19
FIGURE 8: AERIAL PHOTO OF THE SITE FROM 2017; ©2023 MAXAR TECHNOLOGIES. THE APPROXIMATE SITE IS INDICATED.	20
FIGURE 9: 1M LIDAR DSM LAST RETURN DATA. PROCESSED USING QGIS 3.22 MULTIHILLSHADE 315_35_2.	20
FIGURE 10: 1M LIDAR DTM DATA. PROCESSED USING QGIS 3.22 MULTIHILLSHADE 315_35_2.	21
FIGURE 11: THE TRACK LEADING TO THE CHURCH, BYPASSING THE PLOT TO THE EAST, TAKEN FROM THE NORTH.	22
FIGURE 12: THE NORTH-WEST BOUNDARY WALL, BUILT AGAINST A SQUARE, GRANITE GATE PIER, VIEWED FROM THE WEST.	23
FIGURE 13: VIEWS INTO THE PLOT FROM THE SOUTH-WEST BREAK IN BOUNDARY, VIEWED FROM THE SOUTH.	23

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

FIGURE 14: THE NEIGHBOURING CEMETERY EXTENSION, TAKEN FROM THE NORTH-WEST.	24
FIGURE 15: GRAVESTONES TO MAIN CHURCHYARD, OVERLOOKING OLD TOWN BAY. TAKEN FROM THE WEST.	27
FIGURE 16: OLD TOWN CHURCH, FROM THE NORTH.	29
FIGURE 17: THE CHURCH IS WELL SCREENED BY BOUNDARIES TO LATER SOUTHERN PLOTS. TAKEN FROM THE SOUTH.	29
FIGURE 18: VIEW UP TO RECORDED FOGU, THICK HEDGEROWS LINE THE EAST BOUNDARY; VIEWED FROM THE SOUTH-EAST.	32
FIGURE 19: VIEWS TOWARD OLD TOWN BAY FROM THE MAIN CHURCH GRAVEYARD; VIEWED FROM THE WEST.	35
FIGURE 20: THE PLOT IS WELL-SCREENED FROM OLD TOWN BAY TO THE EAST; TAKEN FROM THE EAST.	35

LIST OF APPENDICES

APPENDIX 1: SUPPORTING PHOTOGRAPHS	39
APPENDIX 2: IMPACT ASSESSMENT METHODOLOGY	49

ACKNOWLEDGEMENTS

THE COUNCIL OF THE ISLES OF SCILLY (THE CLIENT)

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1.0 INTRODUCTION

LOCATION:	ST MARY'S OLD TOWN CEMETERY
PARISH:	ST MARY'S CP
COUNTY:	ISLES OF SCILLY
NGR:	SV9105410174
PLANNING NO.	PRE-PLANNING
OASIS NUMBER:	SOUTHWES1-516444
SWARCH REF.	SMOT23

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned to undertake a heritage assessment for St Mary's Old Town Cemetery, St Mary's, Isles of Scilly. This work was undertaken in accordance with best practice and ClfA guidance.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The proposed site is located on the southern side of the island of St Mary's, Isles of Scilly, at c.10m AOD and comprises an area of enclosed agricultural land to the north of the present cemetery limit. The soils of this area are the well-drained gritty loamy soils with a humose surface in places of the Moretonhampstead Association (SSEW 1983), overlying granite of the Isles of Scilly intrusion with superficial head deposits on the eastern side of the site (BGS 2023).

1.3 HISTORICAL & ARCHAEOLOGICAL BACKGROUND

The Isles of Scilly are referenced in the 10th century as having been subdued by Athelstan (Lysons 1814) and at some time in or before the reign of Edward the Confessor some of the islands and all of the tithes had been granted to monks or hermits who resided on St Nicholas's Island (now Tresco). All the churches of Scilly were granted by Henry I to the abbot of Tavistock along with the land which had belonged to the monks or hermits in the reign of Edward I. The Earl of Cornwall appears to have possessed property and had jurisdiction over the Isles of Scilly. The castle of Ennor was held by Ralph de Blachminster in the reign of Edward I and the Blanchminsters appear to have held the Scilly Isles into the 15th century, passing to the Davers and Whittingstons as representatives of the Arundells, heirs of the Coleshills and Blanchminsters. By 1549 the property of the Scilly Isles passed to the Duchy of Cornwall, having already gained the lands of the abbey of Tavistock at the dissolution (Lysons 1814). In the mid 16th century Thomas Godolphin Esq. was the captain or governor of the Isles of Scilly, the lease passed to the Duke of Leeds as heir of the Godolphins. St Mary's is the largest of the Scilly Isles and the historic settlement was at Old Town which includes the remains of Ennor Castle.

The proposal site appears to have been an agricultural field throughout the 19th and 20th century, subdivided with drainage channels in the early 20th century. The site falls into an area classified as *late post medieval enclosures* in the Isles of Scilly Historic Landscape Characterisation. It does not appear that the site has been subject to any archaeological investigation although a geophysical survey and archaeological evaluation was carried out for the Five Islands School site to the north of Old Town Road which uncovered some evidence of field boundaries and unstratified Medieval and Post Medieval pottery.

Due to the nature of the site a 500m radius around the site has been considered in detail although reference is made to archaeological features and assets within the wider landscape of the site. There are 10 Listed Buildings (1 Grade II*, 9 Grade II) within 500m of the site, 12 Scheduled

Monuments and one Conservation Area. There are no Registered Parks and Gardens or Registered Battlefields within 1km of the site.

1.4 METHODOLOGY

This archaeological assessment was undertaken in accordance with best practice. The heritage assessment follows the guidance outlined in: Conservation Principles: policies and guidance for the sustainable management of the historic environment (English Heritage 2008), The Setting of Heritage Assets (Historic England 2015), Seeing History in the View (English Heritage 2011), Managing Change in the Historic Environment: Setting (Historic Scotland 2010), and with reference to Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute 2013). The impact assessment also follows the guidance outlined in the Principles of Cultural Heritage Impact Assessment in the UK produced by CfA, IHBC and IEMA in July 2021.

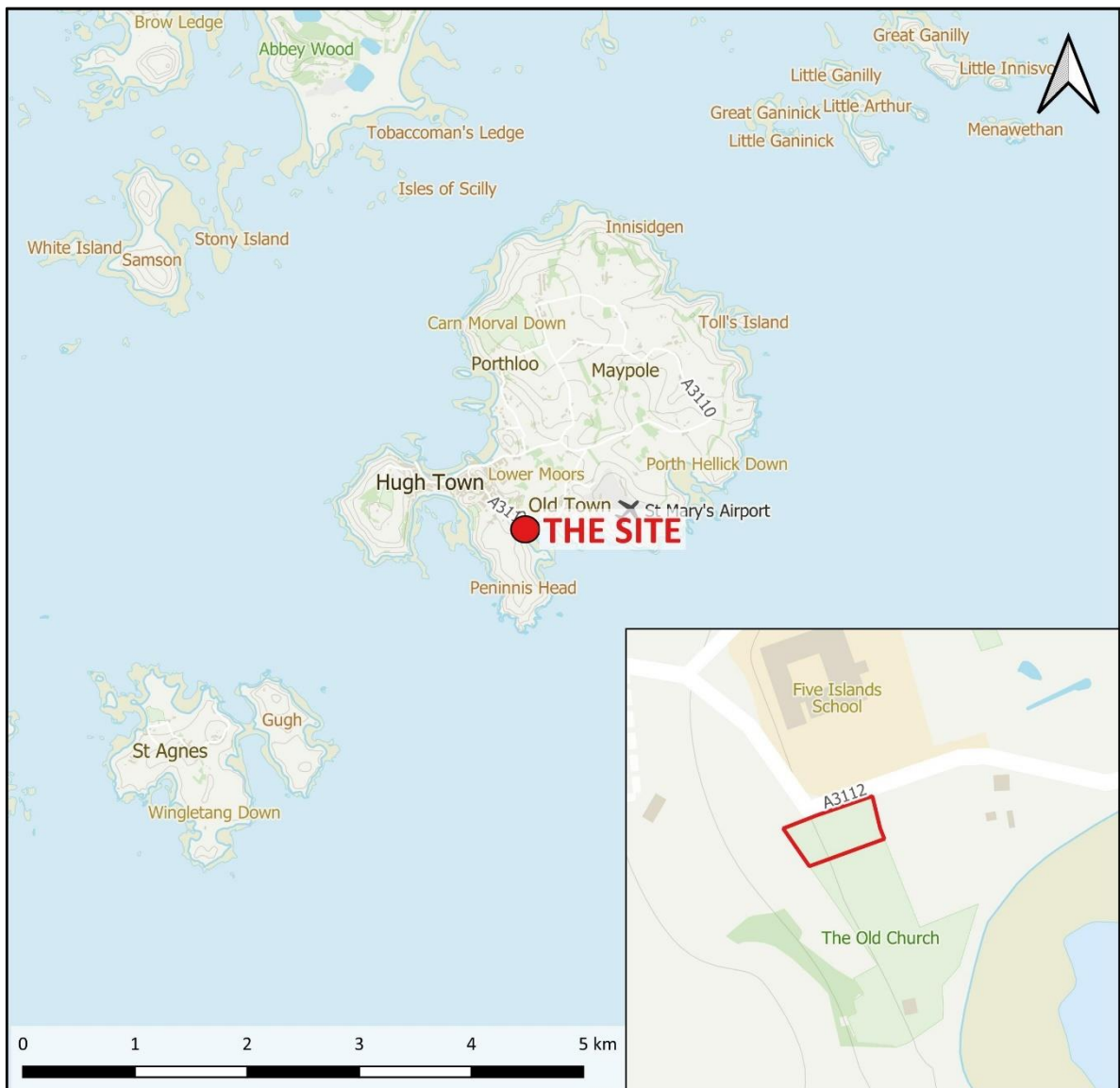


FIGURE 1: SITE LOCATION.

2.0 HERITAGE IMPACT ASSESSMENT

2.1 HERITAGE IMPACT ASSESSMENT - OVERVIEW

The purpose of heritage impact assessment is twofold: Firstly, to understand – insofar as is reasonably practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area, monument, or archaeological site (the 'heritage asset'). Secondly, to assess the likely effect of a proposed development on the heritage asset (direct impact) and/or its setting (indirect impact). The methodology employed in this assessment is based on the approach outlined in the relevant DoT guidance (DMRB LA 104 2020), used in conjunction with the ICOMOS (2011) guidance and the staged approach advocated in *The Setting of Heritage Assets* (GPA3 2nd Ed Historic England 2017). The methodology employed in this assessment can be found in Appendix 2.

2.2 NATIONAL POLICY

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2021). The relevant guidance is reproduced below:

Paragraph 189

Heritage assets range from sites and buildings of local historic value to those of the highest significance, such as World Heritage Sites which are internationally recognised to be of Outstanding Universal Value. These assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations.

Paragraph 194

In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted, and the heritage assets assessed using appropriate expertise where necessary. Where a site on which a development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

Paragraph 195

Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

Paragraph 206

Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990, in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

Paragraph 207

Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 201 or less than substantial harm under paragraph 202, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.

2.3 LOCAL POLICY

Policy OE7: Isles of Scilly Local Plan 2015-2030:

Policy OE7: Development affecting Heritage.

- 1) Great weight will be given to the conservation of the islands irreplaceable heritage assets. Where development is proposed that would lead to substantial harm to assets of the highest significance, including undesignated archaeology of national importance, this will only be justified in wholly exceptional circumstances, and substantial harm to all other nationally designated assets will only be justified in exceptional circumstances. Any harm to the significance of a designated or non-designated heritage asset must be justified.*
- 2) Proposals causing harm will be weighed against the substantial public, not private, benefits of the proposal, and whether it has been demonstrated that all reasonable efforts have been made to sustain the existing use, find new uses, or mitigate the extent of the harm to the significance of the asset; and whether the works proposed are the minimum required to secure the long-term use of the asset.*
- 3) In those exceptional circumstances where harm to any heritage asset can be fully justified, and development would result in the partial or total loss of the asset and/or its setting, the applicant will be required to secure a programme of recording and analysis of that asset, and archaeological excavation where relevant, and ensure the publication of that record to an appropriate standard in a public archive.*
- 4) Proposals that will help to secure a sustainable future for the islands' heritage assets, especially those identified as being at greatest risk of loss or decay, will be supported.*
- 5) Conservation Area Development within the Isles of Scilly Conservation Area will be permitted where:
 - a) it preserves or enhances the character or appearance of the area and its setting;*
 - b) the design and location of the proposal has taken account of:
 - i. the development characteristics and context of the area, in terms of important buildings, spaces, landscapes, walls, trees and views within, into or out of the area; and*
 - ii. the form, scale, size and massing of nearby buildings, together with materials of construction.***
- 6) Listed Buildings Development affecting Listed Buildings, including alterations or changes of use, will be supported where:
 - a) it protects the significance of the heritage asset and its setting, including impacts on the character, architectural merit or historic interest of the building; and*
 - b) materials, layout, architectural features, scale and design respond to and do not detract from the Listed Building; and*
 - c) a viable use is proposed that is compatible with the conservation of the fabric of the building and its setting.**
- 7) Scheduled Monuments and Archaeology Proposals that preserve or enhance the significance of Scheduled Monuments or Archaeological Sites, including their setting, will be supported where measures are to be taken to ensure their protection in situ based upon their significance. Where development would involve demolition or removal of archaeological features, this must be fully justified, and provision must be made for excavation, recording and archiving by a suitably*

qualified person(s) prior to work commencing, to ensure it is done to professional standards. Development within the Garrison on St Mary's (i.e. any land or building within the Garrison Wall Scheduled Monument) and its setting should accord with the Garrison Conservation Plan 2010 (or any successor plan). Proposals that would result in harm to the authenticity and integrity of the Garrison as a strategically important coastal defensive site should be wholly exceptional. If the impacts of a proposal are neutral, either on the site's significance or setting, then opportunities to enhance or better reveal significance should be taken.

8) Registered Parks and Gardens Planning permission for development that preserves or enhances the special historic landscape character and interest of the Tresco Abbey Garden, including its setting, will be granted where:

a) It is demonstrated that the proposal seeks to protect original or significant designed landscapes, their built features and setting; or

b) The proposal includes restoration or reinstatement of historic landscape features to original designs using appropriate evidence, or that the proposed works better reveal their setting.

9) Non-designated Local Heritage Assets Development proposals that positively sustain or enhance the significance of any local heritage asset and its setting will be permitted. Alterations, additions and changes of use should respect the character, appearance and setting of the local heritage asset in terms of the design, materials, form, scale, size, height and massing of the proposal. Proposals involving the full or partial demolition, or significant harm to a local heritage asset will be resisted unless sufficient justification is provided and the public benefits outweigh the harm caused by the loss of the asset.

10) All development proposals should be informed by proportionate historic environments assessments and evaluations (such as heritage impact assessments, desk-based appraisals, field evaluation and historic building reports) which identify the significance of all heritage assets that would be affected by a proposal, and the nature and degree of any effects; and which demonstrate, in order of preference, how any harm will be avoided, minimised or mitigated.

2.4 STRUCTURE OF ASSESSMENT – DIRECT AND INDIRECT IMPACTS

This assessment is broken down into two main sections. Section 3.0 addresses the *direct impact* of the proposed development i.e. the physical effect the development may have on heritage assets within, or immediately adjacent to, the development site. Designated heritage assets on or close to a site are a known quantity, understood and addressed via the *design and access statement* and other planning documents. Robust assessment, however, also requires a clear understanding of the value and significance of the *archaeological* potential of a site. This is achieved via the staged process of archaeological investigation detailed in Section 3.0. Section 4.0 assesses the likely effect of the proposed development on known and quantified designated heritage assets in the local area. In this instance the impact is almost always indirect i.e. the proposed development impinges on the *setting* of the heritage asset in question and does not have a direct physical effect.

2.5 DEVELOPMENT PROPOSALS

The proposed development comprises an extension of the existing cemetery northwards to include an agricultural field south of Old Town Road.

3.0 DIRECT IMPACTS

3.1 STRUCTURE OF ASSESSMENT

For the purposes of this assessment, the *direct effect* of a development is taken to be its direct physical effect on the buried archaeological resource. In most instances the effect will be limited to the site itself. However, unlike designated heritage assets (see Section 4.0) the archaeological potential of a site, and the significance of that archaeology, must be quantified by means of a staged programme of archaeological investigation. Sections 3.2-3.5 examine the documentary, cartographic and archaeological background to the site; Section 3.6 summarises this information in order to determine the significance of the archaeology, the potential for harm, and outlines mitigation strategies as appropriate. Appendix 2 details the methodology employed to make this judgement.

3.2 DOCUMENTARY HISTORY

The Isles of Scilly are referenced in the 10th century as having been subdued by Athelstan (Lysons 1814) and at some time in or before the reign of Edward the Confessor some of the islands and all of the tithes had been granted to monks or hermits who resided on St Nicholas's Island (now Tresco). All the churches of Scilly were granted by Henry I to the abbot of Tavistock along with the land which had belonged to the monks or hermits in the reign of Edward I. The Earl of Cornwall appears to have possessed property and had jurisdiction over the Isles of Scilly. The castle of Ennor was held by Ralph de Blachminster in the reign of Edward I and the Blanchminsters appear to have held the Scilly Isles into the 15th century, passing to the Davers and Whittingstons as representatives of the Arundells, heirs of the Coleshills and Blanchminsters. By 1549 the property of the Scilly Isles passed to the Duchy of Cornwall, having already gained the lands of the abbey of Tavistock at the dissolution (Lysons 1814). In the mid 16th century Thomas Godolphin Esq. was the captain or governor of the Isles of Scilly, the lease passed to the Duke of Leeds as heir of the Godolphins. St Mary's is the largest of the Scilly Isles and the historic settlement was at Old Town which includes the remains of Ennor Castle.

The Old Church of St Mary is Grade II* Listed. Its Listing text states:

Church. C12 with rebuildings of 1666, 1743 and C19; restored from dereliction in 1830s for Augustus Smith, Lord Proprietor of the Islands; second restoration of 1890 for Rev W.E. Groves. Roughly coursed rubble granite with ashlar dressings; stone-coped gabled slate roof. Single-cell plan with north porch. East gable, rebuilt 1743, has 2-light above 3-light chamfered stone-mullioned windows; apex cross of c1200 to gable. South side has similar 2-light mullioned window. North side has similar window to centre, C19 round-headed doorway to right and porch to left with 1666 datestone above segmental-arched north doorway and chamfered surround to small west window. West gable with bellcote of two unmoulded piers of rubble. Interior: C12 north door (to porch) has roll-moulded jambs with scalloped capitals to round arch with solid stone tympanum. Two mid C17 marble tablets on guttae brackets. Late C19 east window has Crucifixion flanked by Virgin Mary and St. John. (P Laws: The Buildings of Scilly: Redruth: 1980-: 5; Buildings of England: Pevsner, N and Ratcliffe, E: Cornwall: London: 1951-1970: 209) (Historic England 2023)

The tithe apportionment of 1847 shows His Royal Highness the Prince of Wales as Duke of Cornwall as the landowner of St Mary's and Augustus Smith and others as the occupier. Augustus Smith was the Lord Proprietor of the Isles of Scilly at this date. No detail of field names or cultivation is given on the tithe map and apportionment owing to it being held under one landowner.

3.3 CARTOGRAPHIC DEVELOPMENT

The St Marys Tithe map provides little detail of the landscape around St Mary's Old Church, depicting it crudely as a rectilinear structure. No field boundaries are shown and no detail of field names or cultivation is given on the tithe map and apportionment owing to it being held under one landowner. The tithe apportionment of 1847 states His Royal Highness the Prince of Wales as Duke of Cornwall was the landowner of St Mary's and Augustus Smith and others are documented as the occupier.

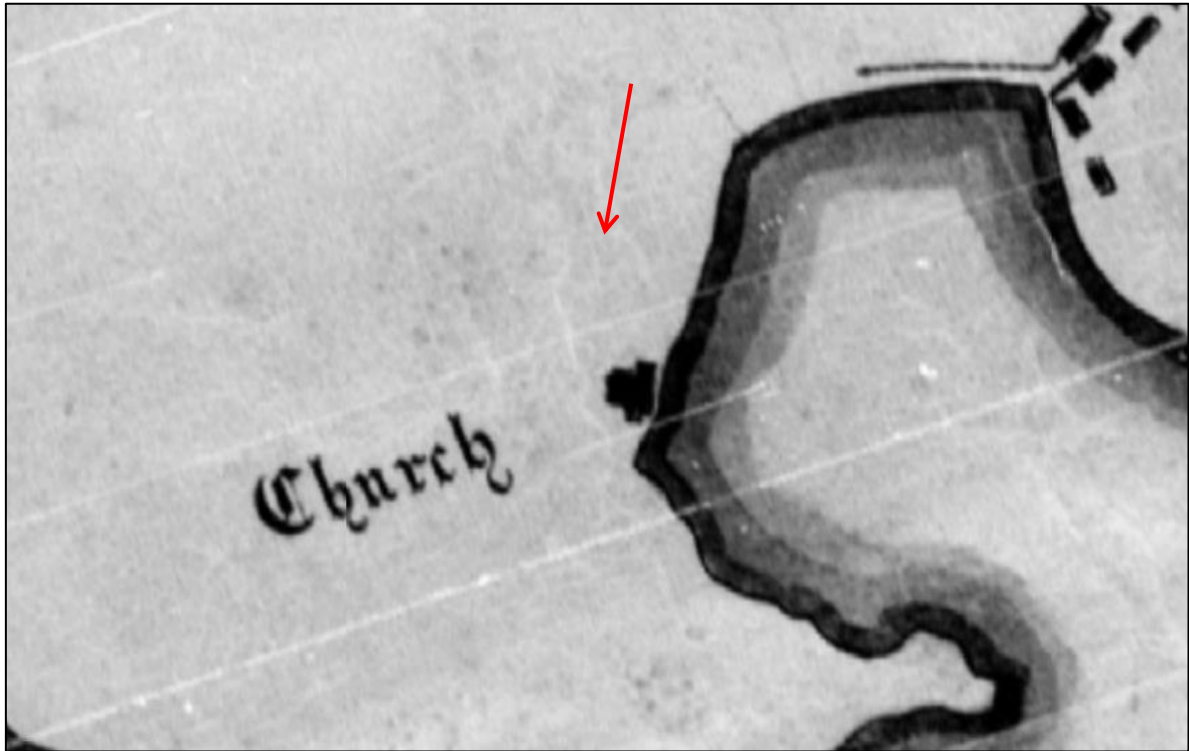


FIGURE 2: EXTRACT FROM THE ST MARYS TITHE MAP; THE APPROXIMATE SITE IS INDICATED (TNA).

The First Edition Ordnance Survey map surveyed 1887-8 (Figure 3) shows the church enclosed by its graveyard. The proposed cemetery extension forms part of one long rectangular field at this date with a footpath marked along the western boundary leading from the road near Buzza Hill. The ground to the west appears to be depicted as marshy. The Second Edition 25 inch map surveyed 1906 (Figure 4) shows a greater level of detail with drainage shown in the field comprising the site and a number of fields around. The graveyard is shown with paths around its outer edges. A 1931 map revision (Figure 5) still shows the drainage channels in the fields to the north of the church.

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

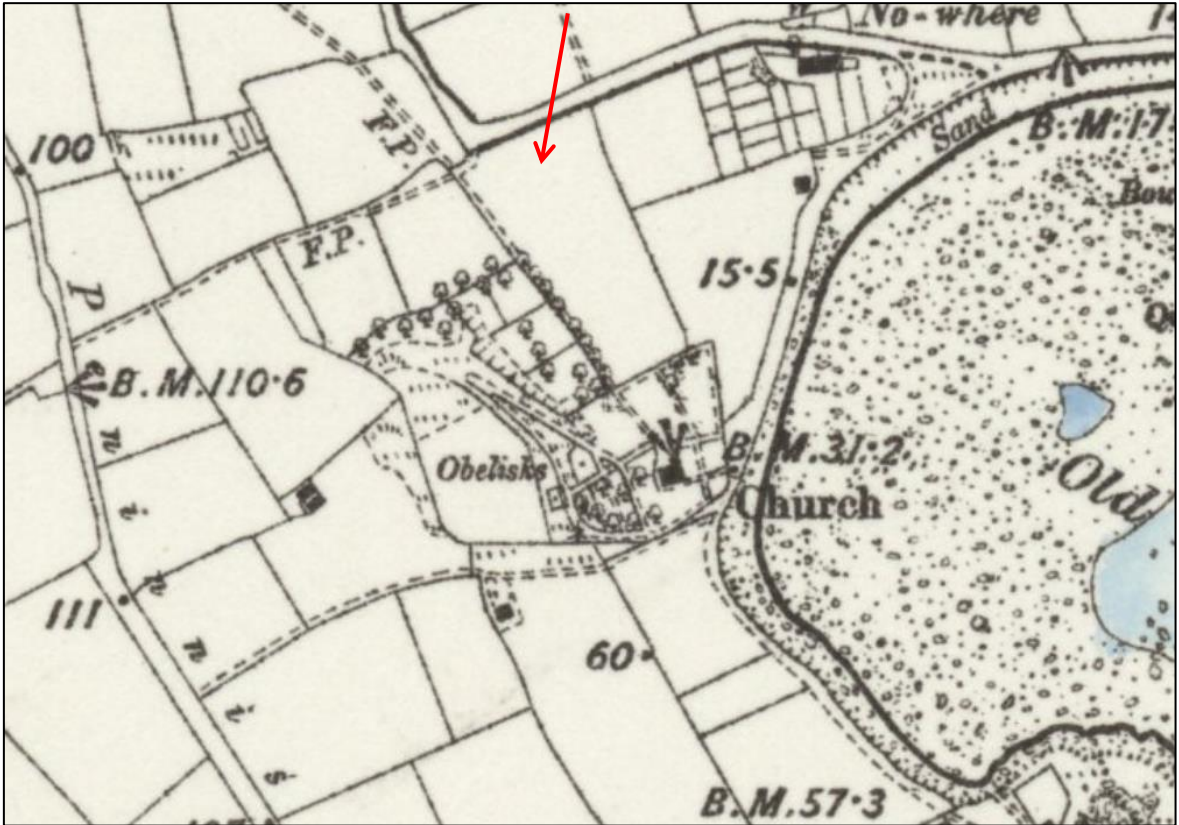


FIGURE 3: EXTRACT FROM FIRST EDITION 6 INCH ORDNANCE SURVEY MAP 1887-8; THE APPROXIMATE SITE IS INDICATED (NLS)

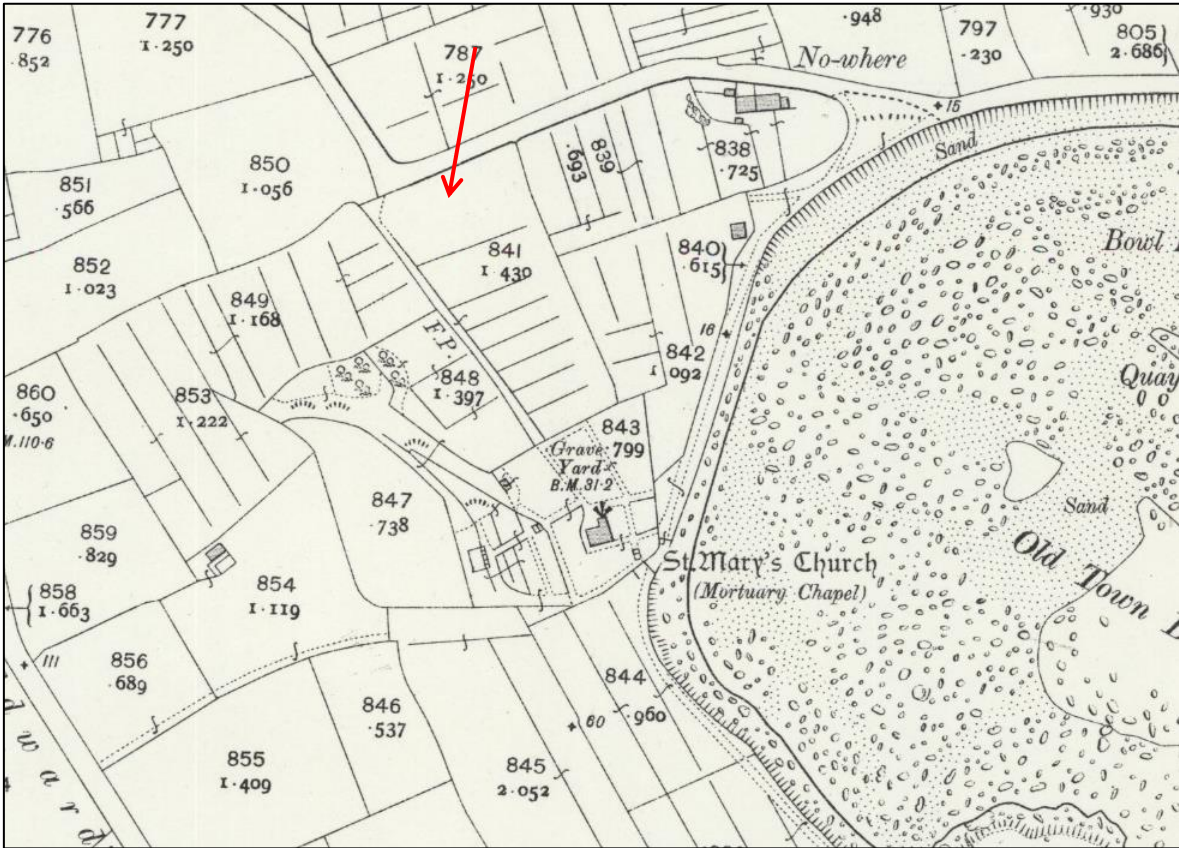


FIGURE 4: EXTRACT FROM THE SECOND EDITION 6 INCH ORDNANCE SURVEY MAP, c.1905 (NLS). THE APPROXIMATE SITE IS INDICATED

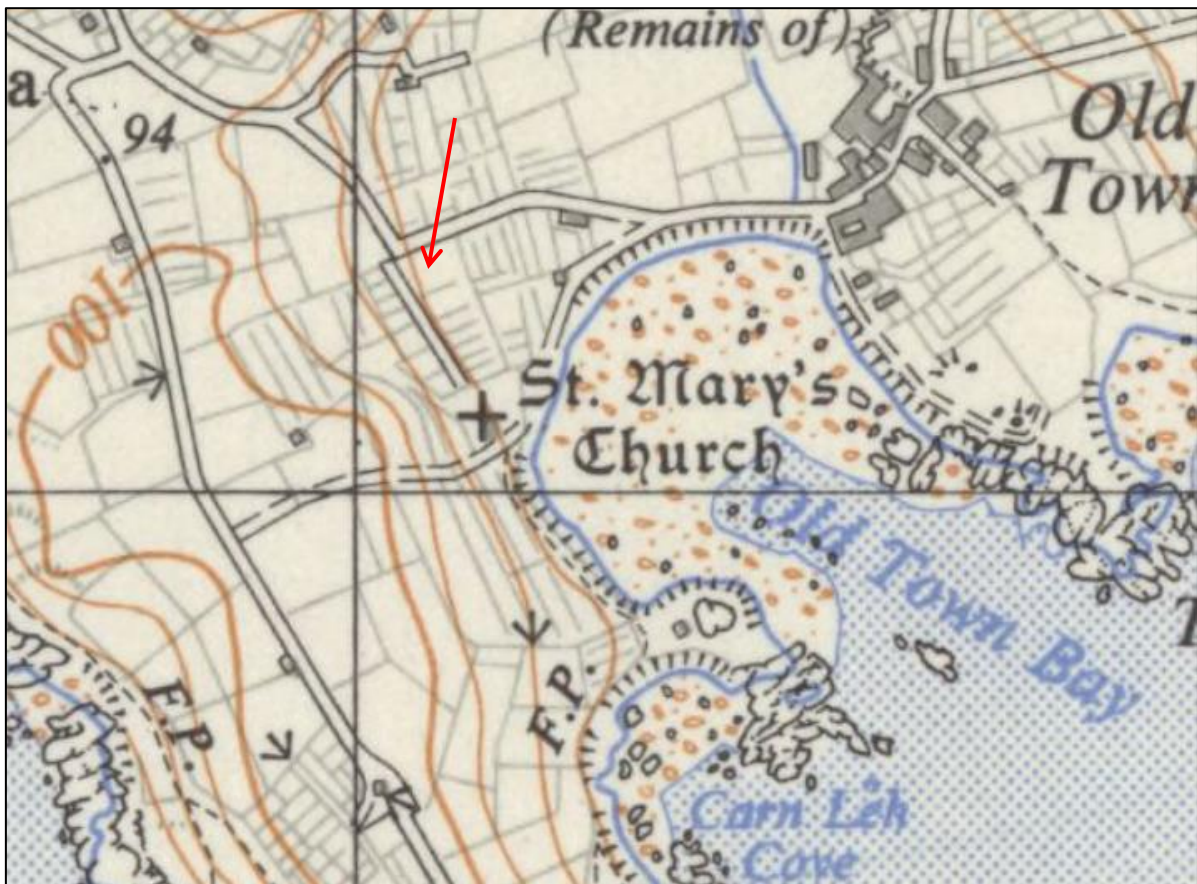


FIGURE 5: EXTRACT FROM THE ORDNANCE SURVEY MAP, REVISED 1931, PUBLISHED 1950 (NLS). THE APPROXIMATE SITE IS INDICATED.

3.1 ARCHAEOLOGICAL BACKGROUND

The proposal site appears to have been an agricultural field throughout the 19th and 20th century, subdivided with drainage channels in the early 20th century. The site falls into an area classified as *late post medieval enclosures* in the Isles of Scilly Historic Landscape Characterisation. It does not appear that the site has been subject to any archaeological investigation although a geophysical survey and archaeological evaluation was carried out for the Five Islands School site to the north of Old Town Road which uncovered some evidence of field boundaries and unstratified Medieval and Post Medieval pottery.

Due to the nature of the site a 500m radius around the site has been considered in detail although reference is made to archaeological features and assets within the wider landscape of the site. There are 10 Listed Buildings (1 Grade II*, 9 Grade II) within 500m of the site, 12 Scheduled Monuments and one Conservation Area. There are no Registered Parks and Gardens or Registered Battlefields within 1km of the site.

3.1.1 PREHISTORIC 4000BC - AD43

A significance number of sites, finds and features of prehistoric date are identified in this area of St Marys including scheduled prehistoric field systems, cairns, a fogou and house platforms. The fogou is the only scheduled monument in close proximity to the proposed site. Prehistoric flint and pottery finds are recorded in the CSHER within the area of the cemetery just to the south of the proposed extension (MCO53358) and there is some evidence of a Bronze Age entrance grave somewhere in the landscape around the site although the exact location is not known (MCO30990). Finds of prehistoric flints and other stones (e.g. quern stones) are recorded in the wider landscape of the site.

3.1.2 ROMANO-BRITISH AD43 – AD409

The documented evidence for Romano-British activity in the vicinity of the site or the surrounding landscape is more limited, although a Romano-British cist was recorded in cliff to the western edge of St Marys (MCO31127). Romano-British Pottery Sherds have also been documented closer to Hugh Town. The Fogou identified to the north west of the site may span the Iron Age- Romano British period.

3.1.3 MEDIEVAL AD410 – AD1540

The main site of medieval date in the vicinity of the proposed churchyard extension is the Church of St Mary, first documented in the 12th century. Some finds of medieval pottery have also been noted to the south of the proposed site, and archaeological excavation to the north of the site at Five Islands School also noted pottery sherds of this date although observed they may have been deposited through manuring of the fields. The old quay in Old Town Bay is of medieval date and marks the historic use of this bay before the creation of the new quay at Hugh Town and expansion of the settlement there. Ennor Castle, to the north east of the site, also had its origins in the medieval period.

3.1.4 POST-MEDIEVAL AD1540 -1899

A number heritage assets recorded in the wider setting of the site are of Post Medieval date. Several Grade II Listed grave stones are recorded in the churchyard of St Marys Church. Few sites of Post Medieval date are recorded close to the proposed site as this period marked the shift to Hugh Town as the prominent settlement with its new quay. The defence of the island during the Civil War however left its mark in the civil war battery at Carn Leh, a scheduled monument, to the south east of the site.

3.1.5 MODERN 1900-PRESENT AND UNKNOWN

A WW2 pillbox is located to the east of the proposed site and is also a scheduled monument. To the south, a war memorial is located in the old churchyard at St Marys. Within the wider landscape are a number of buildings of modern date serving the island e.g. the hospital, health centre and primary school.

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

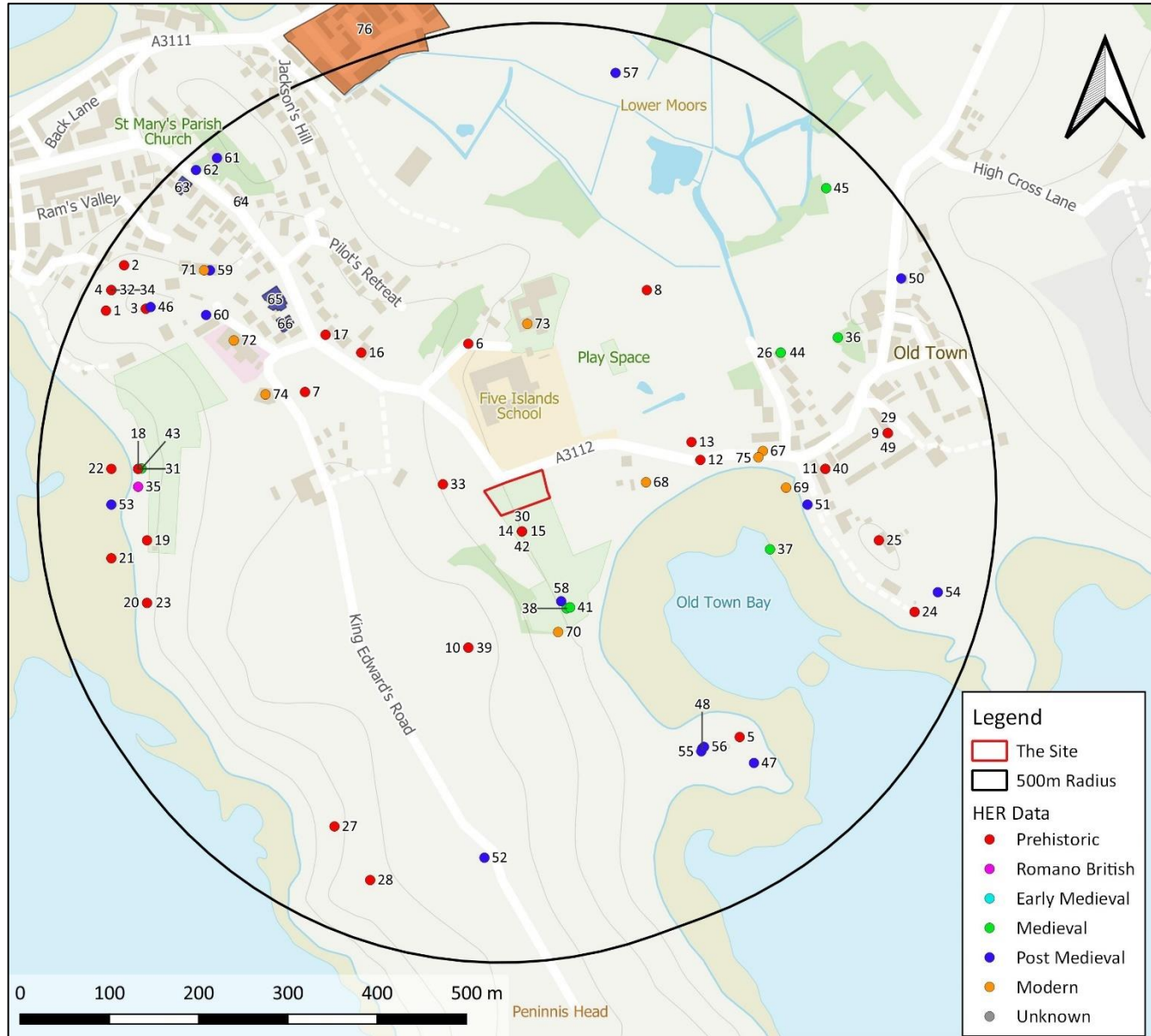


FIGURE 6: HERITAGE ASSETS WITHIN 500M OF THE SITE RECORDED IN THE CORNWALL AND SCILLY HER CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

TABLE 1: TABLE OF NEARBY HERITAGE ASSETS (SOURCE: CORNWALL AND SCILLY HER).

No	Mon No	Name	Summary
1	MCO30225	BUZZA HILL - Bronze Age entrance grave	An entrance grave, approx 12m diameter and up to 2.5m high.
2	MCO30226	BUZZA HILL - Bronze Age entrance grave	Site of a cairn excavated by Borlase, on which the former windmill King Edward's Tower now stands.
3	MCO30227	BUZZA HILL - Bronze Age entrance grave	Site of a cairn excavated by Borlase of which there is no trace.
4	MCO30228	BUZZA HILL - Prehistoric findspot	A possible post-hole stone in a garden below Buzza Hill.
5	MCO30235	CARN LEH - Prehistoric hut circle	The possible remains of a hut circle and an associated field boundary.
6	MCO30273	CARN GWAVEL - Prehistoric findspot	A pivot stone found in 1993 built into the hedge.
7	MCO30721	KING EDWARDS ROAD - Bronze Age cairn	Remains of a cairn, approx 10m diameter and average height 0.3m.
8	MCO30805	LOWER MOORS - Prehistoric site, Early Medieval site	Samples for analysis of the vegetational history of Scilly taken at Lower Moors.
9	MCO30986	OLD TOWN - Bronze Age cist	A cist uncovered and accidentally destroyed by workmen, containing a Scillonian biconical urn of the 1st millenium BC.
10	MCO30990	OLD TOWN - Bronze Age entrance grave	An entrance grave investigated in 1876; precise location unknown.
11	MCO30992	OLD TOWN - Prehistoric findspot	Worked flints found in Old Town in 1928.
12	MCO30995	OLD TOWN BAY - Prehistoric findspot	A probable saddle quern incorporated in a heap of granite blocks serving as a sea defence.
13	MCO30996	OLD TOWN - Prehistoric findspot	A saddle quern, visible in 1989 amongst boulders dumped at the top of Old Town beach as a sea defence.
14	MCO30999	OLD TOWN - Prehistoric findspot	The tip of a flint blade found in July 1985.
15	MCO31000	OLD TOWN - Iron Age findspot, Romano British findspot	A sherd of cordoned ware found in July 1985.
16	MCO31081	PERNOLD - Neolithic findspot, Bronze Age findspot	Two flint thumb-nail scrapers found in 1963-64, and two hammer stones found at Pernold.
17	MCO31088	PILOTS RETREAT - Bronze Age findspot	An agate bead found in the garden of Pilot's Retreat.
18	MCO31121	PORTH CRESSA - Bronze Age hut circle	The remains of a hut circle exposed in the cliff face, with associated midden.
19	MCO31122	PORTH CRESSA - Bronze Age wall	A wall curving SE into the north-south cliff face, 1.1m high and at least 1.0m wide.
20	MCO31123	PORTH CRESSA - Bronze Age hut circle settlement	The remains of a settlement of four adjacent hut circles.
21	MCO31126	PORTH CRESSA - Prehistoric findspot	A large granite saddle quern was found at high tide mark on the east side of Porth Cressa in 1993.
22	MCO31128	PORTH CRESSA - Prehistoric findspot	A saddle quern found on the foreshore below an exposed midden on the cliff face.
23	MCO31163	PORTHCRESSA - Bronze Age cist	The possible remains of a small cist or a natural arrangement of stones.
24	MCO31653	TOLMAN CARN - Bronze Age cist	Russell lists a doubtful slab-built cist at Tolman Carn; no trace of the feature has been found.
25	MCO31654	TOLMAN CARN - Bronze Age cist	A possible cist, 1.2m by 0.8m internally by 1.0m high; identified as a natural feature below an outcrop of granite.
26	MCO31699	TRENCH LANE - Neolithic findspot, Bronze Age findspot	Unstratified prehistoric finds collected in 1985 from the upcast of foundation trenches in Trench Lane, Old Town.
27	MCO44759	PENNINIS HEAD - Prehistoric field boundary	One of three prehistoric linear boundaries which subdivide the south west flank of Peninnis Head.
28	MCO44760	PENNINIS HEAD - Prehistoric field boundary	One of three prehistoric linear boundaries which subdivide the south west flank of Peninnis Head.
29	MCO53356	OLD TOWN - Bronze Age cist, Post Medieval wall	A cist containing a Scillonian biconical urn of the 1st millenium BC; and a length of wall with C17 finds.
30	MCO53358	OLD TOWN - Prehistoric findspot, Iron Age findspot, Romano British findspot, Medieval findspot, Post Medieval findspot	Flint and pottery finds in July 1985.
31	MCO53362	PORTH CRESSA - Bronze Age hut circle settlement, Romano British	Remains of a hut circle settlement and associated features, a Romano-British cist, and medieval and post-medieval

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

		cist, Medieval findspot, Post Medieval findspot	pottery.
32	MCO53363	BUZZA HILL - Prehistoric findspot, Romano British findspot	Finds of Romano-British sherds and a possible post-hole stone at Buzza Hill.
33	MCO58697	PENINNIS HEAD - Iron Age/Romano British fogou	A fogou survives in good condition on Peninnis Head, St Mary's.
34	MCO30229	BUZZA HILL - Romano British findspot	Romano-British sherds in the cliff face noted by Ashbee.
35	MCO31127	PORTH CRESSA - Romano British cist	A Porth Cressa-type Romano British cist grave exposed in the cliff face, containing fragmented remains of a skull.
36	MCO30370	CASTLE ENNOR - Medieval castle, Post Medieval castle	The site of 'Castle of Ennor', a C13/C14 castle said to have been built by one of the earls of Cornwall.
37	MCO30981	OLD QUAY - Medieval quay, Post Medieval quay	A ruined quay, first mentioned in 1554 and shown on maps of 1655, of drystone construction of large boulders.
38	MCO30988	OLD TOWN - Medieval church	Old Town church, St Marys.
39	MCO30989	OLD TOWN - Medieval chapel	A C12 charter mentions a chapel within the parish of St Mary's (Old Town) church, but its whereabouts is unknown.
40	MCO30991	OLD TOWN - Medieval findspot	The rim of a bronze cauldron, probably C12, found near Old Town.
41	MCO30998	OLD TOWN - Medieval cross	A cross head mounted on the east gable end of Old Town church.
42	MCO31001	OLD TOWN - Medieval findspot, Post Medieval findspot	Two sherds of unglazed late medieval or post-medieval pottery found in July 1985.
43	MCO31124	PORTH CRESSA - Medieval findspot, Post Medieval findspot	Medieval and C18 pottery found in the cliff face on the east side of Porth Cressa.
44	MCO31700	TRENCH LANE - Medieval findspot, Post Medieval findspot	Unstratified medieval and post-medieval finds collected in 1985 from the upcast of foundation trenches in Trench Lane, Old Town.
45	MCO41959	LOWER MOORS - Medieval field boundary	A field boundary, likely to be of medieval origin, is visible on aerial photographs.
46	MCO30230	BUZZA TOWER - Post Medieval windmill	A disused windmill standing on the top of Buzza Hill.
47	MCO30234	CARN LEH - Post Medieval battery	Remains of an earthwork that was probably part of a Civil War battery.
48	MCO30236	CARN LEH - Post Medieval farm building	The ruined and overgrown remains of a barn and cart shed on the west side of Carn Leh.
49	MCO30987	OLD TOWN - Post Medieval field system	A 5.8m length of drystone wall, approx 0.8m high with C17 associated finds.
50	MCO30997	OLD TOWN - Post Medieval nonconformist chapel	A disused Wesleyan Methodist chapel built c1860, closed 1930 and converted to a house.
51	MCO31003	OLD TOWN QUAY - Post Medieval fish processing factory	A granite trough, 2.4m long by 0.9m wide by 0.9m high, probably C18, used for salting fish.
52	MCO31063	PENINNIS MILL - Post Medieval corn mill	Remains of Peninnis Mill, consisting of a circular platform of long dressed granite blocks, surviving two courses high.
53	MCO31130	PORTH CRESSA - Post Medieval slipway	The remains of a slipway with associated breakwater and a shorter, possibly earlier feature alongside.
54	MCO31655	TOLMAN CARN - Post Medieval battery, Modern pillbox	A Civil War gun battery with a WW2 pillbox built into its interior.
55	MCO37604	CARN LEH - Post Medieval barn	The remains of a barn, visible on air photos.
56	MCO37605	CARN LEH - Post Medieval trackway	A trackway, visible on air photos.
57	MCO41957	LOWER MOORS - Post Medieval field system	The remains of a field system of post-medieval bulb strips on Lower Moors, visible on aerial photographs.
58	MCO58008	OLD TOWN - C18 memorial	A commemorative slab of early C18 date, in slate with inscription in border.
59	MCO64382	HUGH TOWN - Post Medieval quarry	Extant Post Medieval quarry, now disused and the site of a C20 electricity generating plant
60	MCO64382	HUGH TOWN - Post Medieval quarry	Extant Post Medieval quarry, now disused and the site of a C20 electricity generating plant
61	MCO64410	HUGH TOWN - C19 house	Extant substantial house known as The Chaplaincy, probably of the 1830s or 1840s
62	MCO64411	HUGH TOWN - C19 gate	Extant C19 gate with granite ashlar gateposts to the Chaplaincy house are characteristic of this area

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

63			
64	MCO64429	HUGH TOWN - Post Medieval building	Buildings highlighted as being distinctive and historic components of the town, all of which predate WWII
65			
66			
67			
67	MCO30993	OLD TOWN - Modern pillbox	A WW2 pillbox concealed behind a granite wall, 8.0m back from the sea wall on the western side of Old Town.
68	MCO30994	OLD TOWN BAY - Modern pillbox	A WW2 pillbox (pillbox No 25), standing beside the footpath on the low cliff top on the west side of Old Town Bay.
69	MCO41960	OLD TOWN - Modern slipway	A slipway, 26m long and 4.0m wide, visible on aerial photos.
70	MCO61238	OLD TOWN - C20 war memorial	Extant war memorial commemorating those from the Isles of Scilly who served in the first and second world wars. Rough-hewn granite base surmounted by cross.
71	MCO64383	HUGH TOWN - C20 electricity generating plant	Extant C20 electricity generating plant built within a disused quarry
72	MCO64384	HUGH TOWN - C20 hospital	Extant C20 hospital, the first hospital on the Isles of Scilly, built in 1938
73	MCO64387	CARN GWAVAL - C20 school	Extant primary school was built at Carn Gwaval in 1976
74	MCO64389	HUGH TOWN - C20 health centre	Extant health centre built on high ground in the 1990s
75	MCO64515	OLD TOWN BAY - C20 sea wall	Extant C20 concrete sea wall built as a result of the 1962 storm to protect the road behind. The wall was reinforced in the 1990s
76	MCO64388	PORTHMELLON - C20 industrial estate	Extant industrial estate built in the 1980s
77	MCO31002	OLD TOWN - Undated findspot	A perforated slate disc found in a field south of Old Town church.
78	MCO31125	PORTH CRESSA - Undated wall	Undated wall in the cliff face on the east side of Porth Cressa.

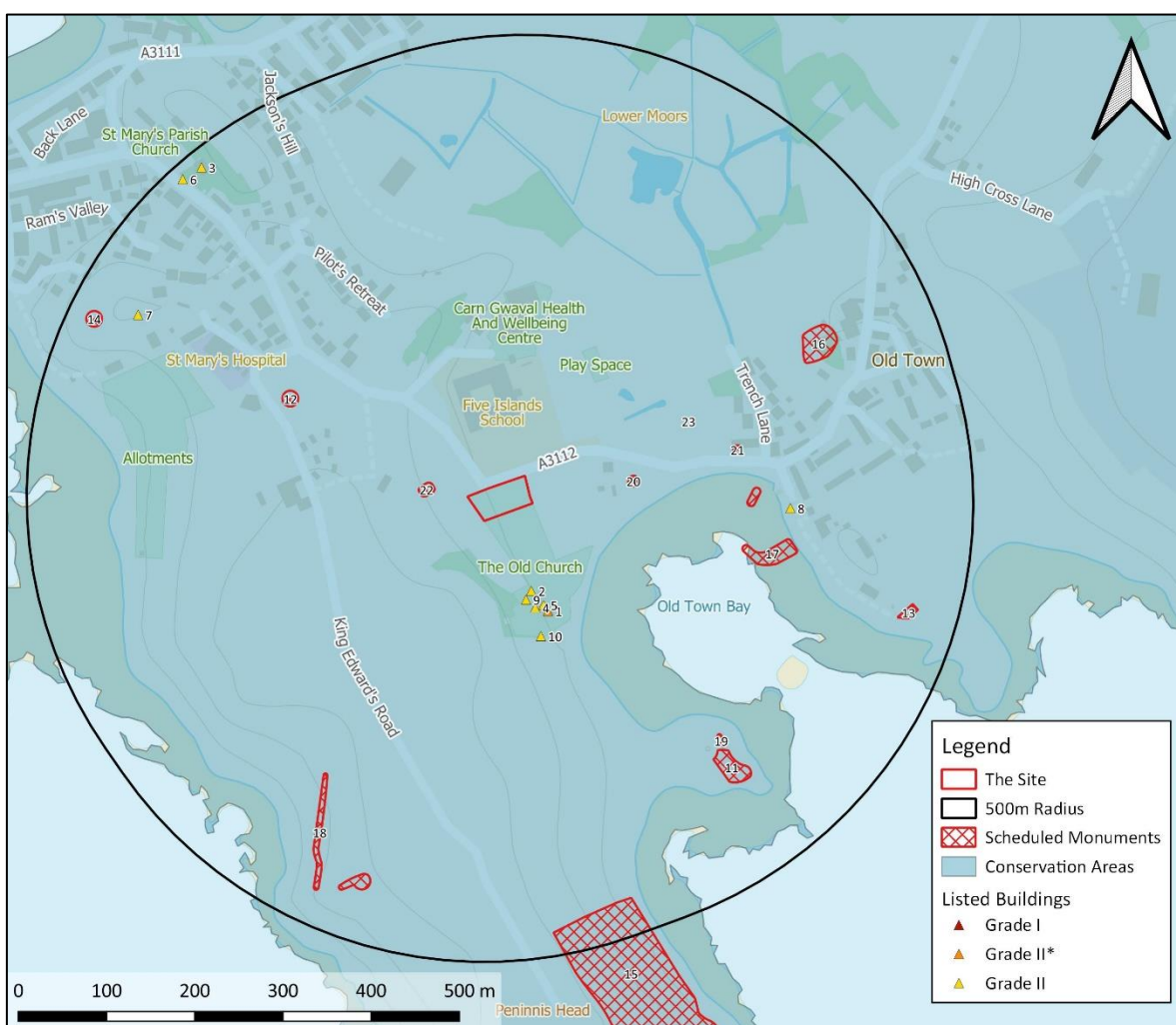


FIGURE 7: DESIGNATED HERITAGE ASSETS WITHIN 500M OF THE PROPOSAL AREA RECORDED IN THE NATIONAL HERITAGE LIST FOR ENGLAND (NHLE) © HISTORIC ENGLAND 2023. CONTAINS ORDNANCE SURVEY DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2023. THE MOST PUBLICLY AVAILABLE UP TO DATE HISTORIC ENGLAND GIS DATA CAN BE OBTAINED FROM [HTTP://HISTORICENGLAND.ORG.UK](http://HistoricEngland.org.uk).

TABLE 2: DETAILS OF DESIGNATED HERITAGE ASSETS SHOWN IN FIGURE 9 (HE)

No	List Entry	Name	Grade
1	1141210	The Old Church Of St Mary	II*
2	1141211	Monument To Charles Budd Approximately 25 Metres North Of The Old Church Of St Mary	II
3	1141213	The Chaplaincy	II
4	1218572	Headstone Approximately 10 Metres West North West Of The Old Church Of St Mary	II
5	1218581	Rattenbury Memorial Approximately 5 Metres North Of The Old Church Of St. Mary	II
6	1291873	Gateway To West Of The Chaplaincy	II
7	1291886	Buzza Tower	II
8	1291939	Former Fish Salting Trough On East Side Of Old Town Bay	II
9	1328822	Headstone Approximately 23 Metres North West Of The Old Church Of St Mary	II
10	1456741	Old Town War Memorial	II
11	1008330	Civil War Battery At Carn Leh, St Mary's	SM
12	1009284	Platform Cairn On Northern Peninnis Head, 200m ESE Of Buzza Tower	SM
13	1010150	Civil War Battery At Tolman Carns, St Mary's	SM
14	1010174	Round Cairn With Funerary Chamber On Buzza Hill, 45m West Of The Buzza Tower, St Mary's	SM
15	1014993	Prehistoric Field System On Eastern Peninnis Head, St Mary's	SM
16	1014994	Ennor Castle, Old Town, St Mary's	SM
17	1015656	The Old Quay, Old Town Bay, St Mary's	SM
18	1015669	Prehistoric Linear Boundaries, House Platform And Cairn On South Western Peninnis Head, St Mary's	SM
19	1015670	Prehistoric House Platform And Boundary North East Of Carn Leh, St Mary's	SM
20	1016513	World War II Pillbox 250m South East Of Carn Gwavel Farm, St Mary's	SM
21	1016514	The Cat's Coffin World War II Pillbox, Old Town, St Mary's	SM
22	1020142	Iron Age To Romano-British Fogou On Northern Peninnis Head, 170m South Of Carn Gwavel Farm, St Mary's	SM
23		Isles of Scilly Conservation Area	CA

3.2 AERIAL PHOTOGRAPHY AND LiDAR

A review of readily available aerial photographs shows the site in 2017, after the construction of sports fields to the northern side of the road. The field appears to be grass with an undulating and possibly slightly scrubby appearance.

LiDAR data is available at a survey interval of 1m for the site and surrounding area. While a 25cm interval is preferable for the identification of archaeological features, especially within woodland, a 1m resolution can be used, particularly for identifying larger archaeological features. The LiDAR data is a 2022 data set. LiDAR Digital Surface Model (DSM) (Figure 9) and Digital Terrain Model (DTM) (Figure 10) data has been processed and examined. Both data sets show an undulating ground surface with possible banking of material or vegetation inside the hedge banks. No clear archaeological features are present.



FIGURE 8: AERIAL PHOTO OF THE SITE FROM 2017; ©2023 MAXAR TECHNOLOGIES. THE APPROXIMATE SITE IS INDICATED.

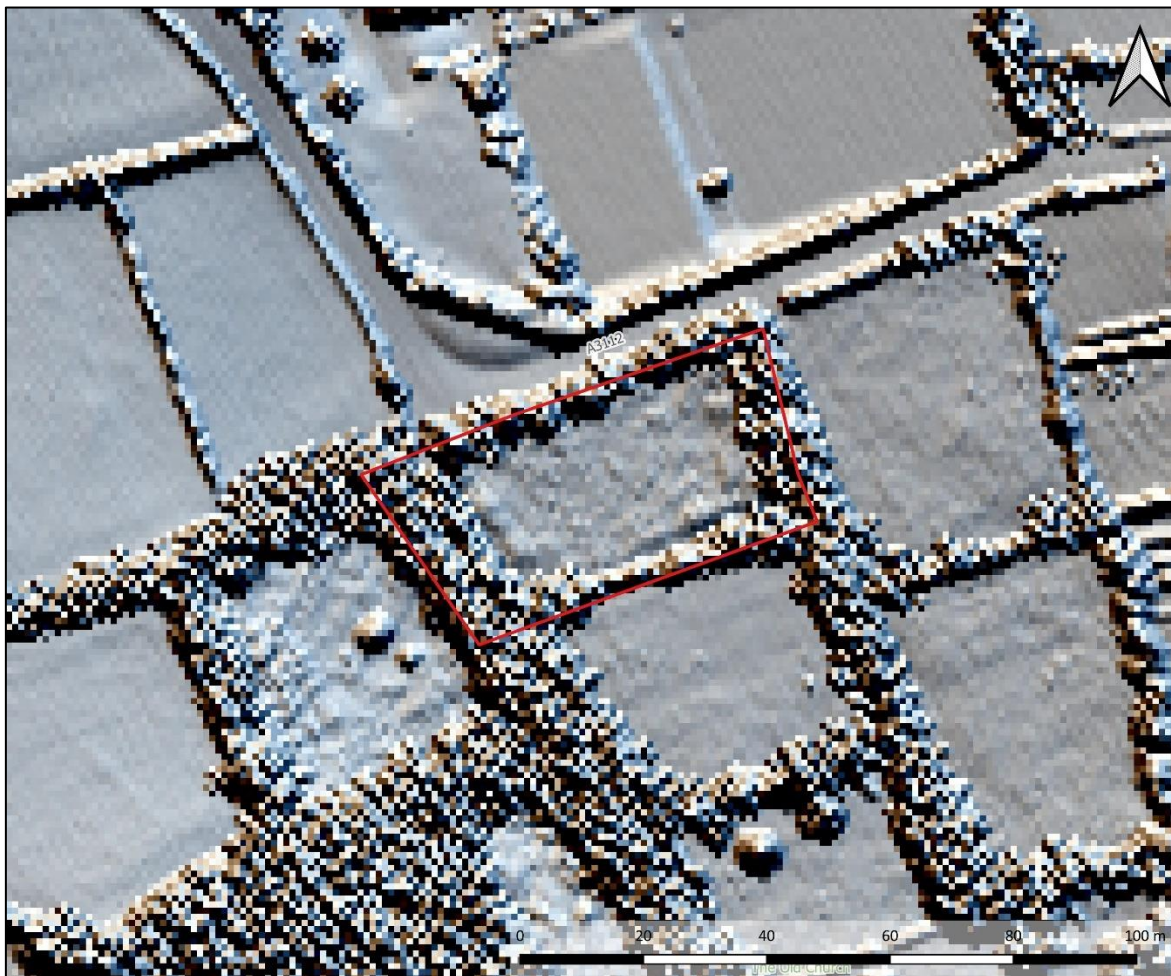


FIGURE 9: 1M LIDAR DSM LAST RETURN DATA. PROCESSED USING QGIS 3.22 MULTIHILLSHADE 315_35_2. CONTAINS ENVIRONMENT AGENCY DATA USED UNDER THE OPEN GOVERNMENT LICENSE 3.0.

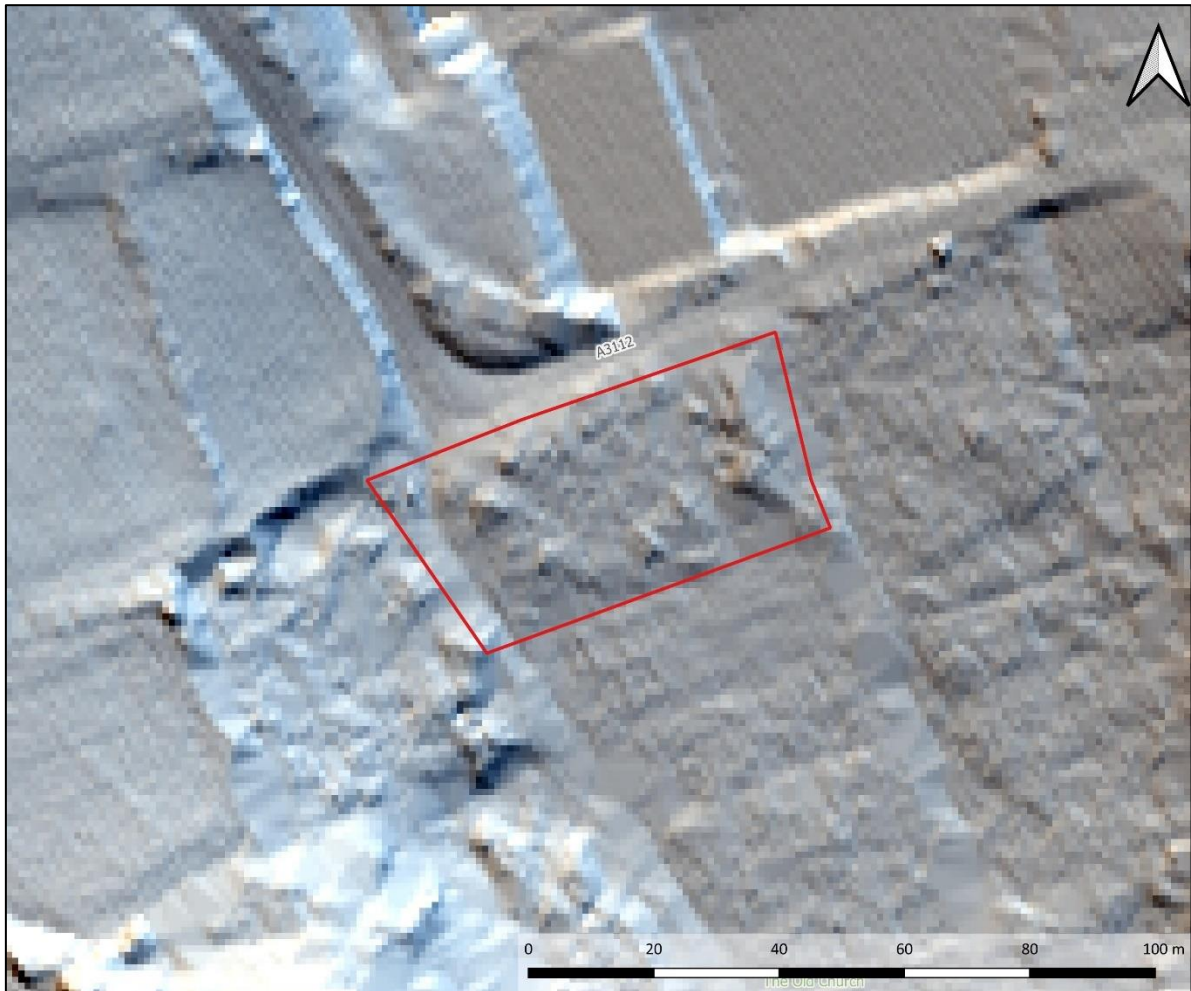


FIGURE 10: 1M LIDAR DTM DATA. PROCESSED USING QGIS 3.22 MULTIHILLSHADE 315_35_2. CONTAINS ENVIRONMENT AGENCY DATA USED UNDER THE OPEN GOVERNMENT LICENSE 3.0.

3.3 WALKOVER SURVEY

A walkover survey of the site was undertaken on the 13th of June 2023 in sunny and dry conditions. The site was in an overgrown and in unoccupied state, but it could be observed from three corners of the field: north-west, south-west and south-east.

Site description

The site slopes gently from the north-west to the south-east, with a mixture of boundaries, including mature hedging and low, stone-faced hedgebanks topped with shrubbery. There are multiple mature trees along all boundaries, these are mostly deciduous. The site is accessed just off Church Town Road, on a sharp bend that leads further south-east to Old Town Bay on the south side of the island. The field sits to the east side of a narrow track leading directly to the church, bypassing another similar-sized cemetery extension to an adjacent southern plot, with similarly-sized field plots lining the west side of the track. The neighbouring plot has similar boundaries, though, the south boundary had a central opening through tall trees, connecting it to the main cemetery plot and southwards to the church.

Main access to the plot can be made through the north-west corner, just off the main trackway, with two, heavy granite posts lining space for an earlier gate, though both are likely reused pieces to this location. The north boundary facing Church Town Road is lined with a good, stone-faced hedgebank, and this continued to the north-west corner, before the gate opening. However, the north-west section of walling appeared rough, and a more recent addition to the boundary line,

built against a modern, square gate pier to the north-west corner. Viewing into the field, it was not clear whether earthworks existed due to its overgrown state, however observations included possible light earthworks likely associated with drainage lining the north and west boundaries.

The plot was also viewed from the south-west corner, in a break to the boundary. The east side of the track continued with rustic stone-faced hedgebank that was mirrored to the western plot boundaries, providing a very vernacular pedestrian walkway lined with trees, to the church. It was clear the site gently sloped eastwards, again, there were possible earthworks lining the south and west boundaries, likely associated with drainage, although it was difficult to confirm due to its overgrown state.

Views out from the site are limited, the plot is incredibly well-screened by its later post-medieval boundaries, and the mature shrubbery that lines them. It appeared to sit to the base of a steep western slope, no direct views could be made towards the closest recorded HER feature – a prehistoric fogu which sat to the top of the western slope to the north-west. The plot was also well-screened from the roadside – the hedge banks to this side were notably higher and in good condition. There was no visibility to the church due to the height of the southern boundaries, thus little visual impact on neighbouring assets was determined.



FIGURE 11: THE TRACK LEADING TO THE CHURCH, BYPASSING THE PLOT TO THE EAST LINED WITH HEAVY GRANITE POSTS, TAKEN FROM THE NORTH.



FIGURE 12: THE NORTH-WEST BOUNDARY WALL, BUILT AGAINST A SQUARE, GRANITE GATE PIER, VIEWED FROM THE WEST.



FIGURE 13: VIEWS INTO THE PLOT FROM THE SOUTH-WEST BREAK IN BOUNDARY, INCLUDES GOOD SCREENING FROM THE ROAD. VIEWED FROM THE SOUTH.

3.4 ARCHAEOLOGICAL POTENTIAL AND IMPACT SUMMARY

The direct *effect* of the development would be the possible disturbance or destruction of archaeological features or deposits present within the structure and footprint of the development; the *impact* of the development would depend on the presence and significance of archaeological features and deposits.

TABLE 3: SUMMARY OF DIRECT IMPACTS.

Asset	Type	Distance	Value	Magnitude of Impact	Assessment	Overall Assessment
Direct Impacts						
Unidentified archaeological features	Non-deg.	On site	Unknown	Moderate	Neutral/slight to Slight Adverse	Negligible Adverse

The site may have the potential to encounter buried archaeological remains relating to buildings, structures or boundaries previously located within the proposed development area. Historic mapping suggests the site has been utilised as an agricultural field in the past two centuries and that this land has been drained. The archaeological potential of the site is unknown but given the potential for prehistoric activity in the wider area could be moderate. Damage to archaeological deposits would be considered **permanent/irreversible**.

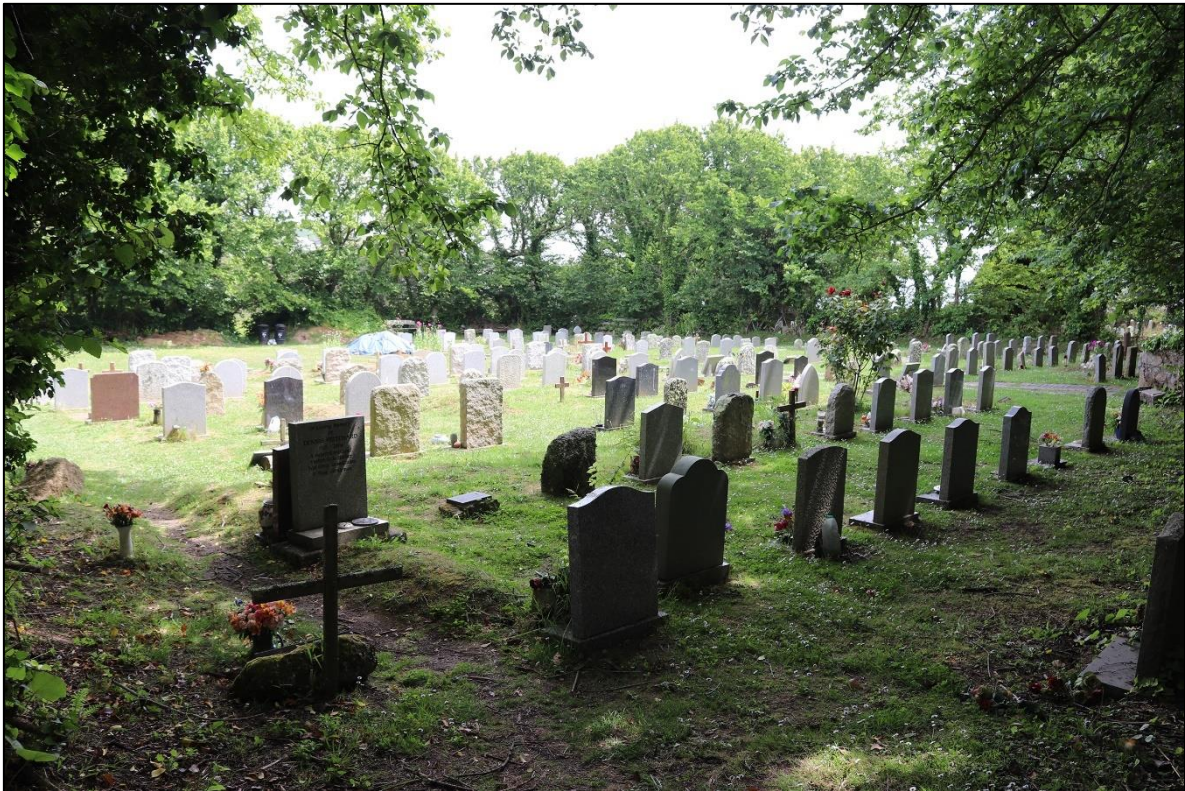


FIGURE 14: THE NEIGHBOURING CEMETERY EXTENSION, TAKEN FROM THE NORTH-WEST.

4.0 INDIRECT IMPACTS

4.1 STRUCTURE OF THE ASSESSMENT

For the purposes of this assessment, the *indirect effect* of a development is taken to be its effect on the wider historic environment. The principal focus of such an assessment fall upon identified designated heritage assets like Listed buildings or Scheduled Monuments. Depending on the nature of the heritage asset concerned, and the size, character and design of a development, its effect – and principally its visual effect – can impact on designated assets up to 20km away.

The methodology adopted in this document is based on that outlined in *The Setting of Heritage Assets* (GPA3 2nd edition, Historic England 2017), with reference to ICOMOS (2011) and National Highways (DMRB LA 104, 2020) guidance. Two assessments are provided. The first is arrived at by the objective application of DRMB Table 3.8.1 (i.e. environmental value and degree of change determines the significance of effect). The second applies a negligible/minor/moderate/major scale (derived from DRMB Table 3.4N, and which can be correlated with the NPPF substantial/less than substantial scale) based on the professional judgement of the author. The latter assessment is a more subjective one, but, as the term implies, applies the knowledge, skills, and experience of the author in a way that is informed by professional standards, laws, and ethical principles to provide a considered, fair, and impartial assessment as to the likely impact of the proposed development. Appendix 4 goes into greater depth regarding the methodology employed.

This report follows the staged approach to proportionate decision making outlined in *The Setting of Heritage Assets* (Historic England 2017, 6). *Step one* is to identify the designated heritage assets that might be affected by the development. The first stage of that process is to determine an appropriate search radius, and this would vary according to the height, size and/or prominence of the proposed development. For instance, the search radius for a wind turbine, as determined by its height and dynamic character, would be much larger than for a single house plot or small agricultural building. The second stage in the process is to look at the heritage assets within the search radius and assign to one of three categories:

- Category #1 assets: Where proximity to the proposed development, the significance of the heritage asset concerned, or the likely magnitude of impact, demands detailed consideration.
- Category #2 assets: Assets where location, current setting, significance would strongly indicate the impact would be no higher than negligible and detailed consideration both unnecessary and disproportionate. These assets are still listed in the impact summary table.

For *Step two* and *Step three*, and with an emphasis on practicality and proportionality (*Setting of Heritage Assets* p15 and p18), this assessment then groups and initially discusses heritage assets by category (e.g. churches, historic settlements, funerary remains etc.) to avoid repetitious narrative; each site is then discussed individually, and the particulars of each site teased out. The initial discussion establishes the baseline sensitivity of a given category of monument or building to the potential effect, the individual entry elaborates on local circumstance and site-specific factors. The individual assessments should be read in conjunction with the overall discussion, as the impact assessment is a reflection of both.

4.2 QUANTIFICATION

Due to the nature of the site and the form of the proposals, a 500m radius has been considered suitable for the assessment of any likely impacts upon heritage assets as a result of the proposed development. There are 10 Listed Buildings (1 Grade II*, 9 Grade II), 12 Scheduled monuments and one Conservation Area within 500m of the site. All except the Isles of Scilly Conservation

Area, Grade II* Old Church of St Mary and Iron age to Romano-British fogou on north Peninnis Head (scheduled monument) were scoped out of the assessment following the site visit. Based on perceived value and location relative to the site, these have been treated as *Category #1* assets. All other designated heritage assets within the vicinity of the site were scoped out of the assessment following a site visit due to the lack of visibility of the site to and from their locations as a result of topography and screening effects of other structures.

With an emphasis on practicality and proportionality (see *Setting of Heritage Assets* p15 and p18), only those assets where there is the possibility for an effect greater than negligible (see Table 4 in Appendix 2) are considered here in detail and in summary Table 5. All other Scheduled and Listed assets can be seen listed and mapped in section 3.1, although they have been scoped out of this assessment due to their neutral relationship to the proposed development.

- Category #1 assets: Grade II* Old Church of St Mary, Iron age to Romano-British fogou on north Peninnis Head (SM), Isles of Scilly Conservation Area
- Category #2 assets: None

4.3 IMPACT BY CLASS OF MONUMENT OR STRUCTURE

4.3.1 CHURCHES AND PRE-REFORMATION CHAPELS

Church of England parish churches and chapels; current and former places of worship

Most parish churches tend to be associated with a settlement (village or hamlet), and therefore their immediate context lies within the setting of the village (see elsewhere). Church buildings are usually Grade II* or Grade I Listed structures, on the basis they are often the only surviving medieval buildings in a parish, and their nature places of religious worship.

In more recent centuries the church building and associated structures functioned as *the* focus for religious devotion in a parish. At the same time, they were also theatres of social interaction, where parishioners of differing social backgrounds came together and renegotiated their social contract.

In terms of setting, many churches are still surrounded by their church towns. Viewed within the context of the settlement itself, churches are unlikely to be affected by the construction of a wind turbine unless it is to be located in close proximity. The location of the church within its settlement, and its relationship with these buildings, would remain unchanged: the church often being the visual focus on the main village street.

This is not the case for the church tower. While these structures are rarely open to the public, in rural communities they are frequently the most prominent visual feature in the landscape, especially where the church is itself located in a topographically prominent location. The towers of these structures were clearly *meant* to be highly visible, ostentatious reminders of the presence of the established church with its message of religious dominance/assurance. However, churches were often built and largely maintained by their laity, and as such were a focus for the *local* expression of religious devotion. It was this local devotion that led to the adornment of their interiors and the elaboration of their exteriors, including the tower.

Where parishes are relatively small, the tower would be visible to the residents of multiple parishes. This would have been a clear expression of the religious devotion – or rather, the competitive piety – of a particular social group. This competitive piety that led to the building of these towers had a very local focus, and very much reflected the aspirations of the local gentry. If the proposed development is located within the landscape in such a way to interrupt line-of-sight

between church towers, or compete with the tower from certain vantages, then it would very definitely impact on the setting of these monuments.

As the guidance on setting makes clear, views from or to the tower are less important than the contribution of the setting to the significance of the heritage asset itself. The higher assessment for the tower addresses the concern it will be affected by a new and intrusive element in this landscape.

Churchyards often contained Listed gravestones or box tombs, and associated yard walls and curtilage are usually also Listed. The setting of all of these assets is usually extremely local in character, and local blocking, whether from the body of the church, church walls, shrubs and trees, and/or other buildings, always plays an important role. As such, the construction of a wind turbine is unlikely to have a negative impact.



FIGURE 15: GRAVESTONES TO MAIN CHURCHYARD, OVERLOOKING OLD TOWN BAY. TAKEN FROM THE WEST.

What is important and why

Churches are often the only substantial medieval buildings in a parish, and reflect local aspirations, prosperity, local and regional architectural trends; they usually stand within graveyards, and these may have pre-Christian origins (evidential value). They are highly visible structures, identified with particular geographical areas and settlements, and can be viewed as a quintessential part of the English landscape (historical/illustrative). They can be associated with notable local families, usually survive as places of worship, and are sometimes the subject of paintings. Comprehensive restoration in the later 19th century means many local medieval churches are associated with notable ecclesiastical architects (historical/associational). The 19th century also saw the proliferation of churches and parishes in areas like Manchester, where industrialisation and urbanisation went hand-in-hand. Churches are often attractive buildings that straddle the distinction between holistic design and piecemeal/incremental development, all overlain and blurred with the 'patina of age' (aesthetic/design and aesthetic/fortuitous). They have great communal value, perhaps more in the past than in the present day, with strong commemorative, symbolic, spiritual and social value.

ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY

Asset Name: The Old Church of St Mary	
<i>Parish:</i> St Marys CP	<i>Value:</i> High
<i>Designation:</i> GII*	<i>Distance to Development:</i> c.118m
<p><i>Description:</i> Listing: Church. C12 with rebuildings of 1666, 1743 and C19; restored from dereliction in 1830s for Augustus Smith, Lord Proprietor of the Islands; second restoration of 1890 for Rev W.E. Groves. Roughly coursed rubble granite with ashlar dressings; stone-coped gabled slate roof. Single-cell plan with north porch. East gable, rebuilt 1743, has 2-light above 3-light chamfered stone-mullioned windows; apex cross of c1200 to gable. South side has similar 2-light mullioned window. North side has similar window to centre, C19 round-headed doorway to right and porch to left with 1666 datestone above segmental-arched north doorway and chamfered surround to small west window. West gable with bellcote of two unmoulded piers of rubble. Interior: C12 north door (to porch) has roll-moulded jambs with scalloped capitals to round arch with solid stone tympanum. Two mid C17 marble tablets on guttae brackets. Late C19 east window has Crucifixion flanked by Virgin Mary and St.John. (P Laws: The Buildings of Scilly: Redruth: 1980-: 5; Buildings of England: Pevsner, N and Ratcliffe, E: Cornwall: London: 1951-1970: 209)</p>	
<p><i>Conservation Value:</i> The church holds evidential value. The church is of local communal value, and it has aesthetic value. It has historical illustrative value as part of the narrative of the development of St Marys, particularly in the 19th century.</p>	
<p><i>Authenticity and Integrity:</i> The church is well maintained and still open as a place of worship although the main church for St Marys is now located at Hugh Town . It is surrounded by its graveyard which has been extended to the north into former agricultural fields.</p>	
<p><i>Setting:</i> The church stands on the southern side of St Mary's, overlooking Old Town Bay, in the Old Town area of the island. The land drops away from the church on its eastern side giving views out over Old Town Bay. It sits surrounded by its graveyard, which is boarded with tree covered hedge banks separating it from the agricultural land to the north, west and south. The topography means that the church is primarily visible from Old Town Bay and Old Town.</p>	
<p><i>Contribution of Setting to the Significance of the Asset:</i> The citing of the church is in relation to the settlement at Old Town, the most historic settlement on the island, and the bay around which it sits. With origins in the 12th century, the church was likely to be one of the first established buildings around Old Town Bay. As a maritime settlement the location of the church close to the sea is also of significance. Its setting and views in toward the church do therefore contribute to the significance of the church and its place within the landscape of the Old Town area.</p>	
<p><i>Magnitude of Effect:</i> The proposed development is an extension to the churchyard at its northern end. As the churchyard provides the immediate setting of the church there would be no change to this by extending the churchyard further to the north. This area is slightly uphill and is also screened from the church by tree lined hedge banks. An extension of the churchyard is considered to have a neutral impact on the church and its setting but would provide a continuity of use for the church which has been established here since the 12th century.</p>	
<p><i>Significance of Effects:</i> High value asset and no change = Neutral impact</p>	
<p><i>Magnitude of Impact:</i> Neutral</p>	



FIGURE 16: OLD TOWN CHURCH, FROM THE NORTH.



FIGURE 17: THE CHURCH IS WELL SCREENED BY BOUNDARIES TO LATER SOUTHERN PLOTS. TAKEN FROM THE SOUTH, LOOKING UP TOWARDS OLD TOWN ROAD.

4.3.2 LISTED COTTAGES AND STRUCTURES WITHIN HISTORIC SETTLEMENTS

Clusters of Listed Buildings within villages or hamlets; occasionally Conservation Areas

The context of the (usually) Grade II Listed buildings within settlement is defined by their setting within the village settlement. Their significance is determined by their architectural features,

historical interiors or role/function in relation to the other buildings. The significance of their setting to the experience of these heritage assets is of key importance and for this reason the curtilage of a property and any small associated buildings or features are often included in the Listing and any changes must be scrutinised under relevant planning law.

Most village settlements have expanded significantly during the 20th century, with rows of cottages and modern houses and bungalows being built around and between the older 'core' Listed structures. The character of the settlement and setting of the heritage assets within it are continually changing and developing, as houses have been built or farm buildings have been converted to residential properties. The setting of these heritage assets within the village can be impacted by new residential developments especially when in close proximity to the settlement. The relationships between the houses, church and other Listed structures will not be altered, and it is these relationships that define their context and setting in which they are primarily to be experienced.

The larger settlements and urban centres usually contain a large number of domestic and commercial buildings, only a very small proportion of which may be Listed or protected in any way. The setting of these buildings lies within the townscape, and the significance of these buildings, and the contribution of their setting to that significance, can be linked to the growth and development of the individual town and any associated industries. The original context of any churches may have changed significantly since construction, but it usually remains at the heart of its settlement. Given the clustering of numerous individual buildings, and the local blocking this inevitably provides, a distant development is unlikely to prove particularly intrusive.

What is important and why

Historic settlements constitute an integral and important part of the historic landscape, whether they are hamlets, villages, towns or cities. The physical remains of previous occupation may survive beneath the ground, and the built environment contains a range of vernacular and national styles (evidential value). Settlements may be archetypal, but development over the course of the 20th century has homogenised most, with streets of terraced and semi-detached houses and bungalow growths arranged around the medieval core (limited historical/illustrative value). As dynamic communities, there will be multiple historical/associational values relating to individuals, families, occupations, industry, retail etc. in proportion to the size and age of the settlement (historical/associational). Settlements that grew in an organic fashion developed fortuitously into a pleasing urban environment (e.g. Ledbury), indistinguishable suburbia, or degenerate urban/industrial wasteland (aesthetic/fortuitous). Some settlements were laid out quickly or subject to the attention of a limited number of patrons or architects (e.g. late 19th century Redruth and the architect James Hicks, or Charlestown and the Rashleigh family), and thus strong elements of design and planning may be evident which contribute in a meaningful way to the experience of the place (aesthetic/design). Component buildings may have strong social value, with multiple public houses, clubs, libraries (communal/social), chapels and churches (communal/spiritual). Individual structures may be commemorative, and whole settlements may become symbolic, although not always in a positive fashion (e.g. the Valleys of South Wales for post-industrial decline) (communal/symbolic). Settlements are complex and heterogeneous built environments filled with meaning and value; however, beyond a certain size threshold distant sight-lines become difficult and local blocking more important.

Almost every village or town will have a public house, usually several. They may have been specially constructed perhaps by a landowning industrialist as a means of profiting from travellers or his own workforce; or arose organically, being converted from a residential property. Their setting is often local in character, along thoroughfares with a clear concern for visibility from the road. An important facet of these buildings is its communal value: places where disparate elements of the population could meet and serving as a focus for local sentiment.

Asset Name: Isles of Scilly Conservation Area	
<i>Parish:</i> St Marys CP	<i>Value:</i> Medium
<i>Designation:</i> CA	<i>Distance to Development:</i> Within
<p><i>Summary:</i> The Isles of Scilly Conservation Area Character Statement (2015) describes the character of St Mary's. The most relevant sections are included below (Council of the Isles of Scilly 2015): <i>Scilly's main island is St Mary's. It is the largest island and contains Scilly's only sizeable settlement, Hugh Town. There are several other settlement areas including Old Town, Telegraph, Porthloo, Higher Newford and Normandy. There are numerous dispersed farmsteads and small clusters of houses connected by narrow winding lanes. This island supports the local airport and the principal harbour, St Mary's Pool.... The main part of the island comprises an undulating interior landscape of comparatively large fields (although still small compared to mainland locations), wooded valleys and low lying marshy areas. There are some places on St Mary's from which the sea cannot be seen. The coastal strip is made up of exposed headland heaths, rocky coast with heathland and areas of sandy shore. On the southern part of the island the small airport has a significant visual impact as it is situated on high ground and is therefore very prominent. To the north at Halangy Down there are a number of very tall communication masts which are visible from around the islands. These developments impact negatively on the intimate scale of the Scillonian landscape. However, they provide some of the vital infrastructure necessary to support the islands' community and economy.</i></p> <p><i>In addition to Hugh Town there is a smaller settlement at Old Town. There are a number of important character buildings in Old Town including farmhouses and barns. The older part of the settlement has houses and barns dating from the late seventeenth century onwards that formed a predominantly linear settlement between Old Town Quay and Ennor Castle both of which are medieval in origin. Old Town also has two housing developments; Launceston Close was designed by the Louis de Soissons architectural practice and built by the Duchy of Cornwall in the 1960s to provide modern housing following the practice's vision for community living as embodied in Welwyn Garden City in the 1920s; Ennor Close is a council development from the early 1970s. Both of these settlements reflect contemporary urban building practices on the mainland rather than traditional Scillonian linear settlement morphology.</i></p> <p><i>Conservation Value:</i> St Marys (as part of the Isles of Scilly) has evidential value within its buildings and in below ground deposits. Historical illustrative value is vested in the buildings which comprise the historic settlements of the Islands and tell the narrative of the settlement of the Islands in the historic period. Many buildings have a strong aesthetic value.</p> <p><i>Principle Views:</i> Principle views were identified in the Conservation Area appraisal however it also notes '<i>the Isles of Scilly form a spectacular landscape and there are significant views from all high points and numerous coastal vantage points. The views highlighted in this document are those that could be considered most under threat from development</i>'. The only Principle identified view on St Marys in relation to the site is that from the airport towards the Old Town Bay area.</p> <p><i>Setting:</i> The setting of the Conservation Area is its defined area and the areas immediately adjacent to its boundaries and its views outwards. As the entire Isles of Scilly is a Conservation Area, its setting could be defined as the sea immediately surrounding it.</p> <p><i>Likely Effects:</i> The proposed development is within the Conservation Area but involves the incorporation of a parcel of land as part of a cemetery. Most of this parcel of land (one large rectangular field shown on the First edition OS map) has already been incorporated as part of the cemetery for St Marys Church Old Town. The proposed use is not envisaged to have any impacts on the Conservation Area. It sits within an area enclosed by hedge banks and so is unlikely to be visible in any of the identified views from the airport towards Old Town.</p> <p><i>Contribution of Setting to the Significance of the Asset:</i> As the entire Isles of Scilly is one Conservation Area, its maritime setting contributes to its significance.</p> <p><i>Magnitude of Impact:</i> The proposed development is considered unlikely to have any impact on the Isles of Scilly Conservation Area, being a low level use of the land, which will visually remain as a green space although will no longer be used for agricultural purposes.</p>	
Overall Impact Assessment: Neutral	

4.3.1 PREHISTORIC SETTLEMENTS

Enclosures, 'rounds', hut circles

Fogou's are a relatively rare class of monument and their function is unknown although they are associated with settlements of Iron Age/Romano-British date and for this reason have been included under this class of monument.

Rounds are a relatively common form of enclosed settlement in Cornwall and, to a lesser extent, in Devon, where they are often referred to as hillslope enclosures. These settlements date to the Iron Age and Romano-British periods, most being abandoned by the sixth century AD. Formerly regarded as the primary settlement form of the period, it is now clear that unenclosed – essentially invisible on the ground – settlements (e.g. Richard Lander School) were occupied alongside the enclosed settlements, implying the settlement hierarchy is more complex than originally imagined.



Figure 18: VIEW UP TO RECORDED FOGU, THICK HEDGEROWS LINE THE EAST BOUNDARY, SCREENING THE ASSET FROM PLOT; VIEWED FROM THE SOUTH-EAST (NO SCALE).

These monuments are relatively common, which would suggest that decisions about location and prospect were made on a fairly local level. Despite that – and assuming most of these monuments were contemporary – visual relationships would have played an important role in interactions between the inhabitants of different settlements. Such is the density of these earthwork and cropmark enclosures in Cornwall (close to one every 1km²), it is difficult to argue that any one example – and particularly those that survive only as a cropmark – is of more than local importance, even if it happens to be Scheduled.

Prehistoric farmsteads – i.e. hut circles – tend to be inward-looking and focused on the relationship between the individual structures and the surrounding field systems, where they survive. The setting of these monuments does contribute to their wider significance, but that setting is generally quite localised; the relevance of distance prospects and wider views has not

been explored for these classes of monument, and it is thus difficult to assess the impact of a wind turbine at some distance removed.

What is important and why?

Smaller Prehistoric earthwork monuments contain structural and artefactual information and represent a time and resource investment with implications of social organisation; they may also be subject to reoccupation in subsequent periods (evidential). The range in scale and location make generalisations on aesthetics difficult; all originally had a design value, modified through use-life but then subject to hundreds if not thousands of years of decrepitude, re-use and modification. The best examples retain their earthworks, but many no longer exist in an appreciable form.

Asset Name: Iron Age to Romano-British fogou on northern Peninnis Head, 170m south of Carn Gwavel Farm, St Mary's	
Parish: St Marys CP	Value: High
Designation: SM	Distance to Development: c.47m
<p><i>Description: Scheduling: The monument includes an Iron Age to Romano-British underground walled passage called a fogou, situated on a north easterly midslope at the northern end of Peninnis Head on St Mary's in the Isles of Scilly. The fogou survives with an underground chamber-like passage measuring 4.97m long, north east-south west, by up to 1.18m wide and 1.18m high. Limited roof collapse near the north east end of passage reveals that the top of its cover-slabs at that point lie 0.4m-0.48m beneath the present ground surface. Its floor remains roughly level but in plan the passage undergoes a shallow 'S' curve throughout its length, terminating in the south west at an oblique narrow end-wall, but closed by a broader transverse wall at the north east end. At the foot of the north east end-wall, on its south east side, is a very low narrow opening covered by a large lintel slab. This opening, called a creep, formed the original constricted point of entry into the passage, which comprised the innermost chamber of the fogou. The creep, 0.57m wide by 0.27m high, is visible for up to 1.36m before becoming wholly blocked by collapsed debris. Shortly before that blocking, the creep widens on its north west side and is considered to extend further as the fogou's original entrance from the ground surface. The passage is walled by granite slabs, generally 0.2m to 0.5m across, laid in five to seven rough courses; the base of the wall also includes three relatively small edge-set slabs, to 0.4m high: two adjacent at the south west end and one nearby in the south east wall. The larger spaces between wall slabs are frequently infilled by small pebbles and the local subsoil, called ram, which is considered to have been applied deliberately as a mortar, a practice known from prehistoric stone-built monuments elsewhere on Scilly. At their upper levels, the passage walls curve gently inwards as each course of slabs projects slightly beyond that immediately beneath, a technique known as corbelling. The lower masonry of the passage's southeast side-wall continues into the creep without any joint, confirming that the creep and the passage are of one build. The passage is roofed by five large cover-slabs laid flat across the top of the walls and ranging from 0.47m to 0.86m wide. The central cover slab and that to its northeast almost touch, but gaps 0.25m-0.37m wide separate the others. The gaps separating the southwestern and northeastern cover slabs from those adjacent to them are infilled by small boulders and rubble: it was limited collapse of this infill in the north eastern gap in May 2000 that led to the discovery of the fogou and created the present aperture by which the passage has been examined. By contrast, the space between the central cover slab and that to its southwest is closed by a row of smaller slabs laid neatly across the gap from above; this is a later modification following a previous and unrecorded collapse of the gap's rubble infill which produced a mound of soil and silt, with loose slabs along its southern edge, on the passage floor directly beneath the gap. Beyond the soil mound and rubble from that previous collapse, the earth floor of the passage combines patches both of subsoil and dark plough soil, the result of silts filtered through the roof and wall, and some recent contamination by visitors examining the passage. However, in the absence of evident excavation or other disturbance to that surface, any stratified floor deposits pertaining to original activity within the passage will survive intact beneath the visible surface. Beyond this monument, there is evidence for settlement and ritual activity in the surrounding area both before and after the period of fogou construction. Funerary cairns dating to the Bronze Age survive on high ground at both ends of the broad headland of Peninnis Head, the nearest being situated only 185m north west of this monument, while Middle to Late Bronze Age settlement sites are exposed along the western coastal cliff of Peninnis Head, with prehistoric field systems surviving further south around the flanks of the headland. These form the subject of separate scheduling. Evidence from the Roman period includes stone artefacts found nearby in the Hughtown area during the 19th century, an altar stone and several column fragments, showing the likely presence there of a Romano-Celtic temple.</i></p>	
<p><i>Conservation Value:</i> The fogou has been scheduled for its evidential value. It has no communal value, and as a below ground feature, not visible or publicly accessible its aesthetic value is very limited. It has historical illustrative value as part of the narrative of prehistoric settlement on St Marys.</p>	
<p><i>Authenticity and Integrity:</i> The fogou is believed to be in good condition with no evidence of antiquarian</p>	

disturbance
<i>Setting:</i> The fogou is located on the southern side of St Mary's, near to Old Town Bay, in the Old Town area of the island. The land slopes down towards the bay. It sits in the centre of an enclosed agricultural field, subdivided in the 20 th century from one larger field.
<i>Contribution of Setting to the Significance of the Asset:</i> The fogou would have been located for proximity to a contemporary settlement although as the exact function of these features is unknown it is more difficult to determine the contribution of their setting to their significance. As a below ground feature, it would appear views inwards and outwards to the fogou would be of lower importance than their location.
<i>Magnitude of Effect:</i> The proposed development is an extension to the churchyard at its northern end. The fogou does not appear to derive significance from its wider landscape setting and is well screened from the churchyard by tree covered hedge banks. The change from agricultural field to churchyard would be expected to have a neutral impact on the fogou and its setting.
<i>Significance of Effects:</i> High value asset and no change = Neutral impact
<i>Magnitude of Impact:</i> Neutral

4.3.2 HISTORIC LANDSCAPE

General Landscape Character

The landscape of the British Isles is highly variable, both in terms of topography and historical biology. Natural England has divided the British Isles into numerous 'character areas' based on topography, biodiversity, geodiversity, and cultural and economic activity. The County Councils and AONBs have undertaken similar exercises, as well as Historic Landscape Characterisation.

Some character areas are better able to withstand the visual impact of development than others. Rolling countryside with wooded valleys and restricted views can withstand a larger number of sites than an open and largely flat landscape overlooked by higher ground. The English landscape is already populated by a large and diverse number of intrusive modern elements, e.g., electricity pylons, factories, modern housing estates, quarries, and turbines, but the question of cumulative impact must be considered. The aesthetics of individual developments is open to question, and site specific, but as intrusive new visual elements within the landscape, it can only be **adverse**.

The Isles of Scilly Conservation Area Character Statement (2015) described the Landscape Character of the Scillies as: *An isolated archipelago, the character of Scilly is hugely influenced by its maritime surroundings. Each of the islands has its own unique character and distinctive feel derived from its position, shape, topography, landscape and relationship to the other islands and the sea. Subtle differences create the distinctiveness of each island and the richness and diversity to be found within the Isles of Scilly. The headlands can be broadly divided into exposed heathland, low lying southern headlands and on St Mary's fortified headlands (the main example of this being the Garrison with 17th and 18th century defensive walls). The coastal edge generally breaks down into rocky shore, cliffs and sandy or boulder beaches. The extent of the tidal range creates a constantly changing landscape, atmosphere and character. Other coastal habitats include sandflats, dune systems and coastal heathland. The interior of the Islands is a mosaic of unenclosed hills supporting heathland and gorse scrub, a small number of wooded hills such as those on Treco and agricultural land typified by small enclosed strips surrounded by evergreen hedges or by larger pasture fields enclosed by native hedgerow*

It is considered that the low level of the development combined with the screening provided with existing hedgebanks and its context provided by St Marys Church Old Town means that the overall effect on the historic landscape here of an extension to the cemetery is likely to be **Neutral**.



FIGURE 19: VIEWS TOWARD OLD TOWN BAY FROM THE MAIN CHURCH GRAVEYARD; VIEWED FROM THE WEST.



FIGURE 20: THE PLOT IS WELL-SCREENED FROM OLD TOWN BAY TO THE EAST; TAKEN FROM THE EAST.

4.3.3 AGGREGATE IMPACT

The aggregate impact of a proposed development is an assessment of the overall effect of a single development on multiple heritage assets. This differs from cumulative impact (below), which is an assessment of multiple developments on a single heritage asset. Aggregate impact is particularly difficult to quantify, as the threshold of acceptability will vary according to the type, quality, number and location of heritage assets, and the individual impact assessments themselves.

Based on the restricted number of assets where any appreciable effect is likely, the aggregate impact of this development is **neutral**, and significance of effects is **Neutral**. There is the potential for some constructional phase impacts on the heritage assets in closest proximity to the proposed development, predominately in the increased aural intrusion.

4.3.4 CUMULATIVE IMPACT

Cumulative impacts affecting the setting of a heritage asset can derive from the combination of different environmental impacts (such as visual intrusion, noise, dust and vibration) arising from a single development or from the overall effect of a series of discrete developments. In the latter case, the cumulative visual impact may be the result of different developments within a single view, the effect of developments seen when looking in different directions from a single viewpoint, of the sequential viewing of several developments when moving through the setting of one or more heritage assets.

The Setting of Heritage Assets 2011a, 25

*The key for all cumulative impact assessments is to focus on the **likely significant** effects and in particular those likely to influence decision-making.*

GLVIA 2013, 123

An assessment of cumulative impact is, however, very difficult to gauge, as it must take into account existing, consented and proposed developments. The threshold of acceptability has not, however, been established, and landscape capacity would inevitably vary according to landscape character. Given the limited number of developments proposed or undertaken in this area. The cumulative impact of this development is considered **negligible adverse**.

4.3.5 INDIRECT IMPACT SUMMARY

Table 6 (below) provides a summary of the likely impact of the proposed development on both category #1 and category #2 heritage assets. As with the individual assessments (above), this table presents the results of both the likely significance of effect *and* our professional judgement as to the likely impact of the proposed development (as per Tables 3 and 4 in Appendix 4; the *significance of effect* is colour-coded as per Table 4). These assessments are for the operational function of the proposed development; constructional impacts are generally short-lived (if more intense) and outside of renewables, most developments have a degree of permanence.

TABLE 4: SUMMARY OF IMPACTS AND EFFECTS

Asset	Type	Distance	Value	Scale of Change	Significance of Effect	Professional Judgement
Category #1 Assets						
The Church of St Mary Old Town	Non Deg.	c.118m	High	No Change	Neutral	Neutral
Iron Age to Romano-British fogou on northern Peninnis Head, 170m south of Carn Gwavel Farm, St Mary's	GII	c.47m	High	No Change	Neutral	Neutral
Bude Conservation Area	CA	Within	Medium	No Change	Neutral	Neutral
Category #2 assets						
None						
Landscape Character						
Historic Landscape	n/a	n/a	Medium	No change	Neutral	Neutral
Aggregate Impact	n/a	n/a				Neutral
Cumulative Impact	n/a	n/a				Negligible Adverse

5.0 CONCLUSION

The Isles of Scilly are referenced in the 10th century as having been subdued by Athelstan (Lysons 1814) and at some time in or before the reign of Edward the Confessor some of the islands and all of the tithes had been granted to monks or hermits who resided on St Nicholas's Island (now Tresco). All the churches of Scilly were granted by Henry I to the abbot of Tavistock along with the land which had belonged to the monks or hermits in the reign of Edward I. The Earl of Cornwall appears to have possessed property and had jurisdiction over the Isles of Scilly. By 1549 the property of the Scilly Isles passed to the Duchy of Cornwall, having already gained the lands of the abbey of Tavistock at the dissolution (Lysons 1814). In the mid-16th century Thomas Godolphin Esq. was the captain or governor of the Isles of Scilly, the lease passed to the Duke of Leeds as heir of the Godolphins. St Mary's is the largest of the Scilly Isles and the historic settlement was at Old Town which includes the remains of Ennor Castle.

The proposal site appears to have been an agricultural field throughout the 19th and 20th century, subdivided with drainage channels in the early 20th century. The site falls into an area classified as *late post medieval enclosures* in the Isles of Scilly Historic Landscape Characterisation. It does not appear that the site has been subject to any archaeological investigation. There are 10 Listed Buildings (1 Grade II*, 9 Grade II) within 500m of the site, 12 Scheduled Monuments and one Conservation Area. There are no Registered Parks and Gardens or Registered Battlefields within 1km of the site. The impact on heritage assets within the vicinity of the proposed development has been considered. The main impact of the proposed cemetery extension is a direct impact on any buried archaeological remains located in this area. Given its proximity to a fogou and the identification of other prehistoric remains in the vicinity of the site has archaeological potential. No indirect impacts on designated heritage assets have been identified, the plot is well-screened, and if the proposed area is kept in keeping with others to the south, by retaining the majority of the boundary walls, then impacts to visuals will be kept low.

With this in mind, the overall impact of the proposed development can be assessed as **Neutral**. The impact of the development on any buried archaeological resource would be **irreversible** and archaeological monitoring of any major groundworks on the site should be considered.

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APPENDIX 1: SUPPORTING PHOTOGRAPHS



1. THE NORTH BOUNDARY LINING OLD TOWN ROAD; VIEWED FROM THE EAST (NO SCALE).



2. VIEWS TO THE PROPOSED PLOT FROM THE NORTH ALONG OLD TOWN ROAD, THE SITE IS WELL-SCREENED.



3. THE WEST END OF NORTH BOUNDARY WITH GATE PIER LINING ENTRANCE TO TRACKWAY; VIEWED FROM THE NORTH (NO SCALE).



4. TRACKWAY ENTRANCE WITH SQUARE GRANITE GATE PIER; VIEWED FROM THE NORTH-EAST (0.3M SCALE).



5. THE NORTH-WEST BOUNDARY CORNER LEADING TO ENTRANCE LINED WITH GRANITE POSTS; VIEWED FROM THE WEST (0.3M SCALE).



6. LEFT: EAST GRANITE POST WITH SEVERAL SOCKET HOLES SUGGESTING REUSE; VIEWED FROM SOUTH. RIGHT: WEST GRANITE POST, BOTH DIFFERENT IN STYLE AND HEIGHT; VIEWED FROM NORTH-EAST. (0.3M SCALE).



7. LOOKING BACK TOWARD GRANITE POSTS TO NORTH-WEST CORNER FROM PLOT; VIEWED FROM THE SOUTH-EAST (NO SCALE).



8. PLOT SHOT SHOWING SOUTH BOUNDARY; VIEWED FROM THE NORTH-WEST (NO SCALE).



9. THE NORTH BOUNDARY; VIEWED FROM THE SOUTH-WEST (NO SCALE).



10. THE EAST AND SOUTH BOUNDARIES; VIEWED FROM THE NORTH-WEST (NO SCALE).



11. THE WEST BOUNDARY; VIEWED FROM THE NORTH (NO SCALE).



12. THE TRACKWAY LEADING TO CHURCH FROM THE NORTH (NO SCALE).



13. VIEW UP TO RECORDED FOGU; VIEWED FROM THE SOUTH-EAST (NO SCALE).



14. VIEW UP TO RECORDED FOGU; VIEWED FROM THE GATE TO EAST (NO SCALE).

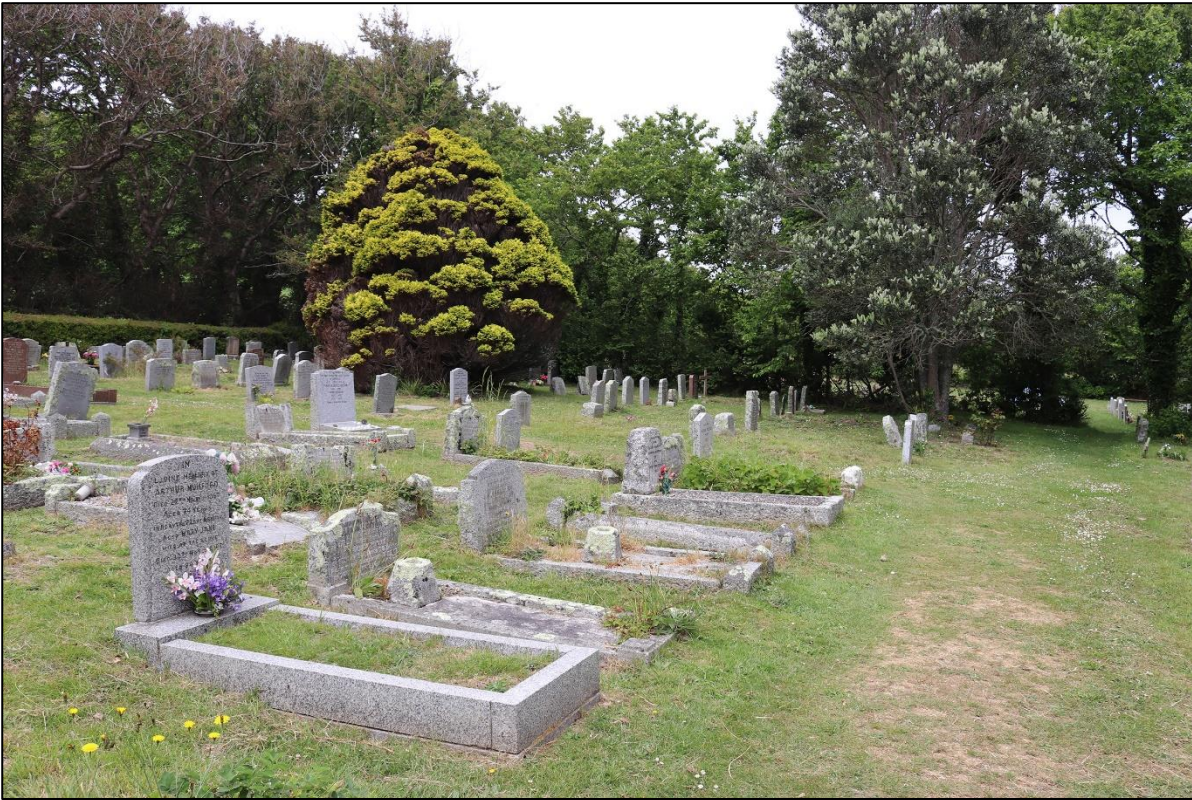


15. THE SOUTH-EAST CORNER OF PLOT FROM ADJACENT SOUTHERN PLOT; VIEWED FROM THE SOUTH (NO SCALE).



16. THE SOUTH BOUNDARY FROM THE ADJACENT SOUTHERN PLOT; VIEWED FROM THE SOUTH (NO SCALE).

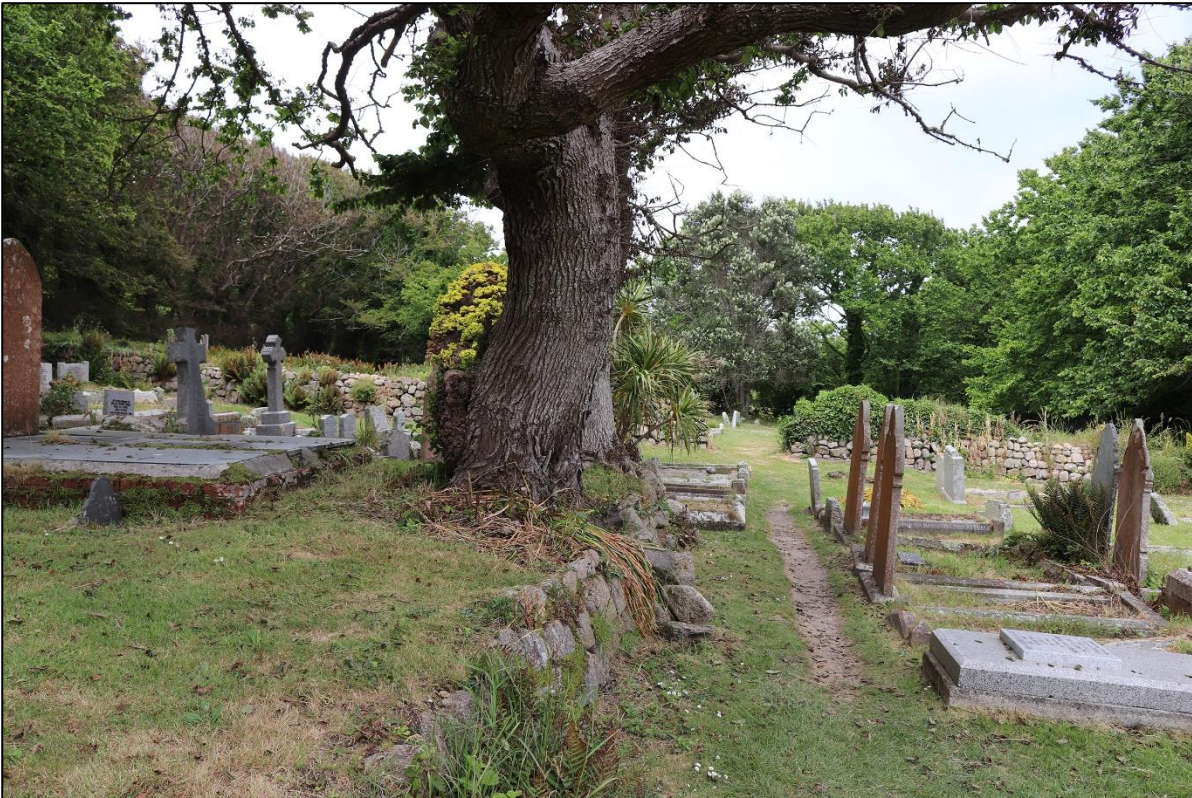
ST MARY'S OLD TOWN CEMETERY, ST MARYS, ISLES OF SCILLY



17. VIEWS ACROSS THE SOUTHERN PLOT, FROM MAIN CHURCHYARD; VIEWED FROM THE SOUTH-EAST (NO SCALE).



18. VIEW FROM SOUTH PLOTS TO CHURCH; VIEWED FROM THE NORTH (NO SCALE).



19. VIEWS BACK TOWARDS PLOT FROM MAIN CHURCHYARD, WELL-SCREENED; VIEWED FROM THE SOUTH (NO SCALE).



20. VIEWS TOWARD CHURCH AND PLOT FROM ACROSS OLD TOWN BAY, THE SITE IS WELL-SCREENED; VIEWED FROM THE EAST (NO SCALE).

APPENDIX 2: IMPACT ASSESSMENT METHODOLOGY

Heritage Impact Assessment - Overview

The purpose of heritage impact assessment is twofold: Firstly, to understand – insofar as is reasonably practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area or archaeological monument (the 'heritage asset'). Secondly, to assess the likely effect of a proposed development on the heritage asset (direct impact) and/or its setting (indirect impact). The methodology employed in this assessment is based on the approaches advocated in *Managing Significance in Decision-Taking in the Historic Environment* [GPA2 Historic England 2015] and *The Setting of Heritage Assets 2ND Edition* [GPA3 Historic England 2017], used in conjunction with the ICOMOS [2011] and National highways [DMRB LA 104 2020] guidance. This Appendix contains details of the statutory background and staged methodology used in this report.

National Policy

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2012 revised 2021)¹. The relevant guidance is reproduced below:

Paragraph 194

In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted, and the heritage assets assessed using appropriate expertise where necessary. Where a site on which a development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

Paragraph 195

Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990², in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

In addition, the Ancient Monuments and Archaeological Areas Act 1979³, the Protection of Wrecks Act 1973⁴, and the Historic Buildings and Ancient Monuments Act 1953⁵ also contain relevant statutory provisions.

Unitary councils, county councils, and district councils usually have local policies and plans, based on national guidelines, that serve to guide local priorities.

Development within a Historic Environment

Any development within a historic environment has the potential for both *direct* and *indirect* impacts. Direct impacts can be characterised as the physical effect the development may have on heritage assets within, or immediately adjacent to, the redline boundary. These impacts are almost always adverse, i.e. they represent the

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

² <https://www.legislation.gov.uk/ukpga/1990/9/contents>.

³ <https://www.legislation.gov.uk/ukpga/1979/46/contents>.

⁴ <https://www.legislation.gov.uk/ukpga/1973/33/contents>.

⁵ <https://www.legislation.gov.uk/ukpga/Eliz2/1-2/49/contents>.

disturbance or destruction of archaeological features and deposits within the footprint of the Scheme. Indirect impacts can be characterised as the way the development affects the visual, aural, and experiential qualities (i.e. setting) of a designated heritage asset in the wider area, where the significance of that asset is at least partly derived from those qualities. These impacts can be adverse, beneficial, or neutral.

The *designated heritage assets* (see below) potentially impacted by a development are, by definition, a known quantity and, to a greater or lesser extent, their significance is appreciated and understood. In general, undesignated heritage assets of comparable value to designated assets are also readily identifiable. Nonetheless, understanding of the value and significance of the designated heritage assets must be achieved via a staged process identification and assessment in line with the relevant guidance.

In contrast, unknown archaeological assets are, by definition, unidentified, unquantified and their significance is not understood. Clear understanding of the value and significance of the archaeology must therefore be achieved via a staged process of documentary and archaeological investigation in line with the relevant guidance.

Significance in Decision-Making

It is the determination of *significance* that is critical to assessing level of impact, whether the effect is determined to be beneficial or adverse. The PPG states: *Heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent, and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals*⁶.

The relevant Historic England guidance is *Managing Significance in Decision-Taking in the Historic Environment*⁷. The following is a staged process for decision-taking, largely based on that document.

1. Identity the heritage asset(s) that might be impacted.
2. Understand the significance of the affected asset(s).
3. Understand the impact of the proposal on that significance.
4. Avoid, minimise, and mitigate impact in a way that meets the objectives of the NPPF.
5. Look for opportunities to better reveal or enhance significance.
6. Justify any harmful impacts in terms of the sustainable development objective of conserving significance and the need for change.
7. Offset negative impacts on aspects of significance by enhancing through recording, disseminating, and archiving archaeological and historical interest of the important elements of the heritage assets affected.

In general, impact assessment addresses Steps 1-3 and 7, but may include Steps 4-6 where the required information is available from the developer/client/agent, and where design is an iterative process rather than *fait accompli*.

For designated heritage assets, which have been designated *because* they are deemed significant, Step 1 is relatively straightforward, and Step 2 is also, to a degree quantified, as the determination of significance, to a greater or lesser extent, took place then the heritage asset was designated⁸. For undesignated heritage of assets comparable value, or for archaeological sites that may have not been investigated (or were unknown or poorly understood prior to identification), a staged process of assessment is required (below).

Once an assessment of value and significance has been made, either by reference to designation or comparable importance if non-designated, the significance of the effect (Table 3) and an assessment based on professional judgement (Table 4) can be determined. The former is logical and objective, the latter is a more nuanced but subjective, and the accompanying discussion provides the more narrative but subjective approach advocated by Historic England. This is a useful balance between rigid logic and nebulous subjectivity (e.g. the significance of effect on a Grade II Listed building can never be greater than moderate/large; an impact of substantial adverse is almost never achieved). This is in adherence with GPA3⁹. The term used – professional judgement – is defined here as applying knowledge, skills, and experience in a way that is informed by professional standards, laws, and ethical

⁶ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>. Paragraph 007.

⁷ Historic England 2015: *Managing Significance in Decision-Taking in the Historic Environment Good Practice Advice in Planning Note 2*. Paragraph 6.

⁸ With the caveat that Listed building descriptions vary in quality between authorities, and interiors may not have been inspected.

⁹ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 19.

principles to provide a considered, fair, and impartial assessment as to the likely impact of a proposed development.

In the NPPF, adverse impact is divided into the categories: *total loss*, *substantial harm*, and *less than substantial harm*. The bar for substantial harm was set at a very high level in 2013 by the case *Bedford BC v SCLG38*. However, following a recent High Court action¹⁰ it is possible a *major adverse impact* may now qualify as a *substantial harm*. Any lesser adverse impact will constitute a *less than substantial harm*. Table 5 shows how this report correlates the two systems.

It is important to state that, whereas the assessment of direct effects to archaeological sites (where the identified heritage asset falls within the footprint of the development and thus is very likely to be damaged or destroyed) is relatively straightforward, the assessment of indirect effects (where the effect is communicated by the impact on the *setting* of a heritage asset) is more nebulous and harder to convincingly predict.

In this context it is useful to remember that *setting is not itself a heritage asset, nor a heritage designation... its importance lies in what it contributes to the significance of the heritage asset or to the ability to appreciate that significance*¹¹. Thus it is not simply the contribution to significance that is important, but also how a setting facilitates or hinders an appreciation of the significance of a heritage asset. *The contribution of setting to the significance of a heritage asset is often expressed by reference to views*¹², *but ...setting is different to general amenity. Views out from heritage assets that neither contribute to significance nor allow appreciation of significance are a matter of amenity rather than of setting*¹³. Thus it is possible for views between and across heritage assets and a development to exist without there necessarily being an effect.

In addition, and as PPG states¹⁴: *The extent and importance of setting is often expressed by reference to the visual relationship between the asset and the proposed development and associated visual/physical considerations. Although views of or from an asset will play an important part in the assessment of impacts on setting, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust, smell, and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places. For example, buildings that are in close proximity but are not visible from each other may have a historic or aesthetic connection that amplifies the experience of the significance of each.*

The concept of setting is explored in more detail below (see *Definitions*).

Value and Importance

While every heritage asset, designated or otherwise, has some intrinsic merit, the act of designation creates a hierarchy of importance that is reflected by the weight afforded to their preservation and enhancement within the planning system. The system is far from perfect, impaired by an imperfect understanding of individual heritage assets, but the value system that has evolved does provide a useful guide to the *relative* importance of heritage assets. Provision is also made for heritage assets where value is not recognised through designation (e.g. undesignated 'monuments of Schedulable quality and importance' should be regarded as being of *high* value); equally, there are designated monuments and structures of *low* relative merit. Table 1 is based on the current DRMB, Table 3.3N; Table 2 refers back to the 2011 DRMB which more usefully defines value in relation to designation.

TABLE 1: THE HIERARCHY OF VALUE/IMPORTANCE (BASED ON THE DMRB LA104 2020 TABLE 3.2N).

Value (Sensitivity) of Receptor / Resource	Typical description
Very High	Very high importance and rarity, international scale and very limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution
Low	Low or medium importance and rarity, local scale
Negligible	Very low importance and rarity, local scale.

¹⁰ UK Holocaust Memorial in Victoria Tower Gardens in Westminster, reference APP/XF990/V/193240661.

¹¹ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 9.

¹² Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 10. The sentiment is also expressed in the PPG glossary.

¹³ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 16.

¹⁴ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>. Paragraph 013.

TABLE 2: THE HIERARCHY OF VALUE/IMPORTANCE (BASED ON THE DMRB VOL.11 TABLES 5.1, 6.1 & 7.1).

Hierarchy of Value/Importance	
Very High	Structures inscribed as of universal importance as World Heritage Sites; Other buildings of recognised international importance; World Heritage Sites (including nominated sites) with archaeological remains; Archaeological assets of acknowledged international importance; Archaeological assets that can contribute significantly to international research objectives; World Heritage Sites inscribed for their historic landscape qualities; Historic landscapes of international value, whether designated or not; Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).
High	Scheduled Monuments with standing remains; Grade I and Grade II* (Scotland: Category A) Listed Buildings; Other Listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the Listing grade; Conservation Areas containing very important buildings; Undesignated structures of clear national importance; Undesignated assets of Schedulable quality and importance; Assets that can contribute significantly to national research objectives. Designated historic landscapes of outstanding interest; Undesignated landscapes of outstanding interest; Undesignated landscapes of high quality and importance, demonstrable national value; Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II (Scotland: Category B) Listed Buildings; Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations; Conservation Areas containing buildings that contribute significantly to its historic character; Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated or undesignated archaeological assets that contribute to regional research objectives; Designated special historic landscapes; Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value; Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	Locally Listed buildings (Scotland Category C(S) Listed Buildings); Historic (unlisted) buildings of modest quality in their fabric or historical association; Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated and undesignated archaeological assets of local importance; Archaeological assets compromised by poor preservation and/or poor survival of contextual associations; Archaeological assets of limited value, but with potential to contribute to local research objectives; Robust undesignated historic landscapes; Historic landscapes with importance to local interest groups; Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.
Negligible	Buildings of no architectural or historical note; buildings of an intrusive character; Assets with very little or no surviving archaeological interest; Landscapes with little or no significant historical interest.
Unknown	Buildings with some hidden (i.e. inaccessible) potential for historic significance; The importance of the archaeological resource has not been ascertained.

TABLE 3: SIGNIFICANCE OF EFFECTS MATRIX (BASED ON DRMB LA 104 2020 TABLE 3.8.1; ICOMOS 2011, 9-10).

	Value of Heritage Asset	Scale and Severity of Change/Impact				
		No Change	Negligible Change	Minor Change	Moderate Change	Major Change
		Significance of Effect (either adverse or beneficial)				
Environmental Value (Sensitivity)	WHS sites that convey OUV	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

TABLE 5: PROFESSIONAL JUDGEMENT OF IMPACT (BASED ON DMRB LA 104 2020 TABLE 3.4N).

Magnitude of Impact		Typical Description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features, or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features, or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features, or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features, or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features, or elements.
No change		No loss or alteration of characteristics, features, or elements; no observable impact in either direction.

TABLE 5: SCALES OF IMPACT AS PER THE NPPF, AS RELATED TO TABLE 4.

Scale of Impact		
No Change	<i>Neutral</i>	No impact on the heritage asset.
Less than Substantial Harm	<i>Negligible Adverse</i>	Where the developments may be visible or audible but would not affect the heritage asset or its setting, due to the nature of the asset, distance, topography, or local blocking.
	<i>Minor Adverse</i>	Where the development would have an effect on the heritage asset or its setting, but that effect is restricted due to the nature of the asset, distance, or screening from other buildings or vegetation.
	<i>Moderate Adverse</i>	Where the development would have a pronounced impact on the heritage asset or its setting, due to the sensitivity of the asset and/or proximity. The effect may be ameliorated by screening or mitigation.
Substantial Harm	<i>Major Adverse</i>	Where the development would have a severe and unavoidable effect on the heritage asset or its setting, due to the particular sensitivity of the asset and/or close physical proximity. Screening or mitigation could not ameliorate the effect of the development in these instances.
Total Loss	<i>Total Loss</i>	The heritage asset is destroyed.

Staged Investigation – Direct Impact

The staged approach for the assessment of direct impacts references the publication *Significance in Decision-Taking in the Historic Environment*¹⁵. The aim of this assessment is to establish the *archaeological baseline* for the site and determine the likely significance of the archaeological resource. This staged approach starts with desk-based assessment¹⁶, may conclude with intrusive investigations, and may reference some or all of the following:

1. Documentary research (published works, primary and secondary sources in record offices).
2. Existing archaeological reports or surveys for the site.
3. Historic maps.
4. Archaeological research (historic environment records (HER), event records (HER), Historic England National List; Portable Antiquity Scheme (PLS) records, grey literature reports (available from the Archaeological Data Service).
5. Historic Landscape Characterisation (HLC).
6. Aerial photography (National Mapping Programme, historic aerial photographs (Historic England, Cambridge, Britain from Above), recent commercial photography (Google Earth)).
7. LiDAR analysis (Environment Agency data, TELLUS data).
8. Oral testimony.
9. Walkover survey (or for historic buildings, a historic building appraisal¹⁷).
10. Geophysical survey, if suitable (magnetometry, electrical resistance, ground-penetrating radar)¹⁸.
11. Archaeological trench evaluation¹⁹, if appropriate.

¹⁵ Historic England 2015: Managing Significance in Decision-Taking in the Historic Environment: *Historic Environment Good Practice Advice in Planning Note 2*.

¹⁶ CIfA 2014 updated 2020: *Standard and guidance for historic environment desk-based assessment*.

¹⁷ Historic England 2016: *Understanding Historic Buildings: A Guide to Good Recording Practice*.

¹⁸ CIfA 2014 updated 2020: *Standard and guidance for archaeological geophysical survey*. Schmidt, A., Linford, P. Linford, N. David, A, Gaffney, C., Sarris, A. & Fassbinder, J. 2016: *EAC Guidelines for the Use of Geophysics in Archaeology*.

¹⁹ CIfA 2014 updated 2020: *Standard and guidance for archaeological field evaluation*.

Following the conclusion of this staged process, an assessment of the archaeological potential of the site is produced and (if appropriate) recommendations made, including for further investigation, analysis, and publication to be undertaken, as mitigation for the proposed development. This document will normally only cover Items 1-10.

Type of Impact

Developments can readily be divided into several phases which are marked by different types and level of impact. However, the only one relevant to direct impact is the *construction phase*. Construction works have direct, physical effects on the buried archaeology of a site. Direct effects may extend beyond the nominal footprint of a site e.g. where related works or site compounds are located off-site. *Operational* and *decommissioning* phases are only relevant where elements of the buried archaeological resource survive, but in most instances (excluding PV sites and wind turbines), these impacts are permanent and irreversible.

Staged Investigation – Indirect Impact

The staged approach for the assessment of indirect impacts references the *Setting of Heritage Assets*²⁰. The aim of this assessment is to identify the designated heritage assets outside the redline boundary that might be impacted upon by the proposed development, determine if an effect on their significance via setting is possible, and establish the level of impact. The staged approach advocated by GPA3 contains the following steps²¹:

1. Identify which heritage assets and their settings are affected.
2. Assess the degree to which these settings make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated.
3. Assess the effects of the proposed development, whether beneficial or harmful, on that significance or on the ability to appreciate it.
4. Explore ways to maximise enhancement and avoid or minimise harm.
5. Make and document the decision and monitor outcomes.

Step one is to identify the designated heritage assets that might be affected by the development. The first stage of that process is to determine an appropriate search radius, and this would vary according to the height, size and/or prominence of the proposed development. For instance, the search radius for a wind turbine, as determined by its height and dynamic character, would be much larger than for a single house plot or small agricultural building. For this assessment, the second part of the process is to examine the heritage assets within the search radius and assign them to one of three categories:

- Category #1 assets: Where proximity to the proposed development, the significance of the heritage asset concerned, or the likely magnitude of impact, demands detailed consideration.
- Category #2 assets: Assets where location, current setting, significance would strongly indicate the impact would be no higher than negligible and detailed consideration both unnecessary and disproportionate. These assets are scoped out of the assessment but may still be listed in the impact summary table.

Dependant on the nature of the development, this work may be informed, but not governed, by a generated ZTV (zone of theoretical visibility) or ZVI (zone of visual influence).

Pursuant to *Steps Two* and *Three*, a series of site visits are made to Category #1 designated heritage assets. Each asset is considered separately and appraised on its significance, condition, and setting/context by the assessor. The potential impacts the development are assessed for each location, taking into account site-specific factors and the limitations of that assessment (e.g. no access, viewed from the public road etc.). Photographic and written records are compiled during these visits. If a ZTV has been used in the assessment, the accuracy of the ZTV is corroborated with reference to field observations.

Step 4 is possible where the required information is available from the developer/client/agent, and where design is an iterative process rather than *fait accompli*. In many instances, adverse outcomes (and more rarely, beneficial outcomes) are unavoidable, as mitigation would have to take place at the heritage asset concerned or within an intervening space, and not the proposed site itself.

Assessment and documentation, *Step 5*, takes place within this document. The individual asset tables are

²⁰ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 9.

²¹ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 9.

completed for each assessed designated heritage asset, and, with an emphasis on practicality and proportionality,²² assets are grouped by category (e.g. churches, historic settlements, funerary remains etc.) and provided with a generic preamble that avoids repetitious narrative. This initial preamble establishes the baseline sensitivity of a given category of monument or building to the potential effect; the individual entries that follow then elaborate on local circumstance and site-specific factors. The individual assessments are to be read in conjunction with the overall discussion, as the assessment of impact is reflection of both.

In this report, Category #1 heritage assets receive their own written assessment, as per the pro forma below:

Asset Name: The name of the heritage asset, usually as it appears in its Listing or Scheduling	
<i>Parish:</i> The ecclesiastical parish in which the asset lies	<i>Within the ZTV:</i> Whether assets stands within the ZTV of the development (if relevant)
<i>Designation:</i> Its official designation (e.g. Grade II)	<i>Value:</i> According to Tables 1 and 2
<i>Distance to the site:</i> Determined as the crow flies	<i>Condition:</i> A visual assessment of its condition
<i>Description:</i> Here the official descriptive text from Historic England (or relevant heritage body) is reproduced. In the case of non-designated heritage assets, the description is provided by the HER entry or field observations (e.g. 'A three-cell cross-passage house, eight-over-eight sashes to the front elevation, with a central six-panel door etc.').	
<i>Supplemental Comments:</i> Any additional information on the asset, noted during the site visit, especially if at variance with the official description (e.g. 'the house has a lateral stack to the rear, and the windows have been replaced since it was Listed').	
<i>Conservation Value:</i> A description of the heritage value of the asset, usually based on the four <i>Conservation Values</i> (evidential, historical, aesthetic, communal) presented in English Heritage 2008. It may include the related but separate <i>interests</i> outlined in the NPPF (archaeological, architectural and artistic, historic). (E.g. 'an attractively composed cottage with garden, with high evidential value as the interior was not inspected during the Listing process etc.')	
<i>Authenticity and Integrity:</i> These concepts come from ICOMOS, and relate to the physical condition of the asset, and the degree to which it survives as a genuine embodiment of the thing it purports to be (e.g. 'the house is in good condition, having been recently renovated, but its windows have been replaced').	
<i>Topographical Location & Landscape Context:</i> A quick description of the physical topography of the place (e.g. 'on a south-facing slope towards the base of the long ridge').	
<i>Setting:</i> A description of the setting of the asset. Usually, but not always, limited to its immediate setting, with some reference to its wider setting (e.g. 'the whole surrounded by open fields').	
<i>Principal Views:</i> Principal views covers both designed or intended views, and those fortuitous views that nonetheless better reveal the heritage value of the asset (e.g. 'down the lane to the main façade', or 'from the house along the avenue to the triumphal arch').	
<i>Landscape Presence:</i> This covers those landmark assets visible across wide areas (e.g. 'the tower of the church is visible from the neighbouring villages').	
<i>Sensitivity of Asset:</i> A discussion of the sensitivity of the asset to change within its immediate setting or broader landscape context if relevant, with reference to the identified conservation values (e.g. 'the principal value of this monument is evidential/archaeological, which is neither enhanced nor diminished by the proposed development' or 'the principal value of this structure is aesthetic/artistic, which would be greatly diminished by development within its gardens').	
<i>Contribution of Setting to Significance of Asset:</i> A brief assessment of how setting enhances the significance of a heritage asset, or better reveals the significance of a heritage asset (e.g. 'the house stands within its gardens/park with views down the valley to and from a folly tower on the hillside' or 'the gardens were laid out by the designer to compliment the western façade of the house').	
<i>Scale of Change:</i> A brief description of how the proposed development would affect the setting of the heritage asset, for better or for worse, usually including a discussion of the degree of screening the asset enjoys, as determined by the site visit (e.g. the proposed new dwelling would be located across the lane from the house, but screened by the existing farm buildings from the main façade').	
<i>Significance of Effect:</i> As per Table 3, derived from DRMB LA 104 2020; ICOMOS 2011, 9-10.	
<i>Professional Judgement:</i> As per Table 4, ultimately derived from DMRB LA 104 2020 Table 3.4N.	

As discussed (elsewhere, this document), the critical assessment is to determine the contribution of setting to the significance of the heritage asset, and/or the ability of the setting to facilitate an appreciation of that significance. Views are important but not paramount, and views to and from a proposed development can exist without adverse effect. Some assets are intrinsically more sensitive to change in their environment than others; a useful shorthand for this can be found in Table 6.

²² Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraphs 2, 17, 19, 21, 23, 41.

TABLE 6: IMPORTANCE OF SETTING TO INTRINSIC SIGNIFICANCE.

Importance of Setting to the Significance of the Asset	
Paramount	Examples: Round barrow; follies, eye-catchers, stone circles
Integral	Examples: Hillfort; country houses
Important	Examples: Prominent church towers; war memorials
Incidental	Examples: Thatched cottages
Irrelevant	Examples: Milestones

The Setting of Buried or Conceptual Assets

Some heritage assets have no remaining surface expression and survive *only* as buried archaeological features. Some Scheduled Monuments were designated on the basis of significant cropmarks or else were mapped by the Ordnance Survey in the 19th century and have been ploughed flat. Registered Battlefields may not even have an archaeological expression, and function as conceptual assets.

GPA3 states²³: *Heritage Assets that comprise only buried remains may not be readily appreciated by a casual observer. They nonetheless retain a presence in the landscape and, like other heritage assets, may have a setting.*

These points apply equally, in some rare, to designated heritage assets such as Scheduled Monuments or Protected Wreck Sites that are periodically, partly, or wholly submerged, e.g. in the intertidal zone on the foreshore. The location and setting of historic battles, otherwise with no visible traces, may include important strategic views, routes by which opposing forces approached each other and a topography and landscape features that played a part in the outcome.

In general, without strong historical associations (e.g. battlefields) it is difficult to assess the likely impact of a proposed development on a buried heritage asset. If meaning can be derived from an appreciation of landscape context – e.g. an elevated location for a lost hillfort or barrow – then a consideration of setting, and the ability of setting to better reveal the significance of a site, remains relevant. Where that is not possible, the significance of physical setting is much diminished.

Type of Impact

Developments can readily be divided into several phases which are marked by different types and level of impact: the *construction phase*, the *operational phase*, and the *decommissioning phase*. In most instances, impacts are impermanent and reversible, as a turbine can be dismantled, a tower block demolished, or trees may grow up to screen an ugly elevation.

Construction Phase

Construction works have direct, physical effects on the buried archaeology of a site, and a pronounced but indirect effect on neighbouring properties. Direct effects may extend beyond the nominal footprint of a site e.g. where related works or site compounds are located off-site. Indirect effects are both visual and aural, and may also affect air quality, water flow and traffic in the local area.

Operational Phase

The operational phase of a development is either temporary (e.g. wind turbine or mobile phone mast) or effectively permanent (housing development or road scheme). The effects at this stage are largely indirect and can be partly mitigated over time through design and/or planting. Large development can have an effect on historic landscape character, as they transform areas from one character type (e.g. agricultural farmland) into another (e.g. suburban).

Decommissioning Phase

Relevant to wind turbines and PV sites, less relevant to other forms of development. These impacts would be similar to those of the construction phase.

In general, the operational impacts are assessed in this document. Construction phase impacts may be considered, but while more intense are usually short-term in nature. The potential impact of the decommissioning phase, for most projects, is harder to predict and, outside of renewable developments with their fixed use-lives, should effectively be considered permanent.

²³ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 8.

Group Assessment

Individual assessments give some indication as to how a development may affect a particular cottage, historic park, or hillfort, but collective assessment is also necessary, reflecting the effect on the historic environment in general.

Cumulative Impact

A single development will have a direct physical and an indirect visual impact, but a second and a third site in the same area will have a synergistic and cumulative impact above and beyond that of a single site. PPG states²⁴: *When assessing any application which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change. They may also need to consider the fact that developments which materially detract from the asset's significance may also damage its economic viability now, or in the future, thereby threatening its ongoing conservation.*

GPA3 states²⁵: *Where the significance of a heritage asset has been compromised in the past by unsympathetic development affecting its setting, to accord with NPPF policies consideration still needs to be given to whether additional change will further detract from, or can enhance, the significance of the asset. Negative change could include severing the last link between an asset and its original setting; positive change could include the restoration of a building's original designed landscape or the removal of structures impairing key views of it.*

However, the cumulative impact of a proposed development can be difficult to determine, as consideration must be given to consented and pre-determination proposals as well as operational or occupied sites.

Aggregate Impact

A single development will usually affect multiple individual heritage assets. In this assessment, the term *aggregate impact* is used to distinguish this from cumulative impact. In essence, this is the impact on the designated parts of the historic environment as a whole, rather than multiple developments on a single asset.

²⁴ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>. Paragraph 013.

²⁵ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 9.3.

Definitions

Heritage Assets

The NPPF Glossary defines heritage assets as: *A building, monument, site, place, area, or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing)*²⁶. This is a fairly broad definition for an expanding range of features, as what is considered of little heritage interest today may – due to location, rarity, design, associations, etc. – be considered of heritage value in the future.

Significance

The NPPF Glossary defines significance as: *The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic, or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting*²⁷.

Conservation Principles

In making an assessment, this report adopts the conservation values (*evidential, historical, aesthetic and communal*) laid out in the English Heritage 2008 publication *Conservation Principles*²⁸. These are used to determine and express the relative importance of a given heritage asset. The definition of those terms is summarised below:

Evidential Value

Evidential value (or research potential) is derived from the potential of a structure or site to provide physical evidence about past human activity and may not be readily recognised or even visible. This is the primary form of data for periods without adequate written documentation. However, it is an assessment of *potential* – known value falls under the umbrella of historical value (below).

Historical Value

Historical value (narrative) is derived from the ways in which past people, events and aspects of life can be connected via a place to the present; it can be illustrative or associative.

Illustrative value is the visible expression of evidential value; it has the power to aid interpretation of the past through making connections with, and providing insights into, past communities and their activities through a shared experience of place. Illustrative value tends to be greater if a place features the first or only surviving example of a particular innovation of design or technology.

Associative value arises from a connection to a notable person, family, event or historical movement. It can intensify understanding by linking the historical past to the physical present, always assuming the place bears any resemblance to its appearance at the time. Associational value can also be derived from known or suspected links with other monuments (e.g. barrow cemeteries, church towers) or cultural affiliations (e.g. Methodism).

Buildings and landscapes can also be associated with literature, art, music or film, and this association can inform and guide responses to those places.

Historical value depends on sound identification and the direct experience of physical remains or landscapes. Authenticity can be strengthened by change, being a living building or landscape, and historical values are harmed only where adaptation obliterates or conceals them. The appropriate use of a place – e.g. a working mill, or a church for worship – illustrates the relationship between design and function and may make a major contribution to historical value. Conversely, cessation of that activity – e.g. conversion of farm buildings to holiday homes – may essentially destroy it.

Aesthetic Value

Aesthetic value (emotion) is derived from the way in which people draw sensory and intellectual stimulation from a place or landscape. Value can be the result of *conscious design*, or the *fortuitous outcome* of landscape evolution; many places combine both aspects, often enhanced by the passage of time.

Design value relates primarily to the aesthetic qualities generated by the conscious design of a building, structure,

²⁶ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

²⁷ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

²⁸ English Heritage 2008: *Conservation Principles: policies and guidance for the sustainable management of the historic environment*.

or landscape; it incorporates composition, materials, philosophy, and the role of patronage. It may have associational value, if undertaken by a known architect or landscape gardener, and its importance is enhanced if it is seen as innovative, influential or a good surviving example. Landscape parks, country houses and model farms all have design value. The landscape is not static, and a designed feature can develop and mature, resulting in the 'patina of age'.

Some aesthetic value developed fortuitously over time as the result of a succession of responses within a particular cultural framework e.g. the seemingly organic form of an urban or rural landscape or the relationship of vernacular buildings and their materials to the landscape. Aesthetic values are where a proposed development usually has their most pronounced impact: the indirect effects of most developments are predominantly visual or aural and can extend many kilometres from the site itself. In many instances the impact of a development is incongruous, but that is itself an aesthetic response, conditioned by prevailing cultural attitudes to what the historic landscape should look like.

Communal Value

Communal value (togetherness) is derived from the meaning a place holds for people and may be closely bound up with historical/associative and aesthetic values; it can be commemorative, symbolic, social, or spiritual.

Commemorative and symbolic value reflects the meanings of a place to those who draw part of their identity from it, or who have emotional links to it e.g. war memorials. Some buildings or places (e.g. the Palace of Westminster) can symbolise wider values. Other places (e.g. Porton Down Chemical Testing Facility) have negative or uncomfortable associations that nonetheless have meaning and significance to some and should not be forgotten. Social value need not have any relationship to surviving fabric, as it is the continuity of function that is important. Spiritual value is attached to places and can arise from the beliefs of a particular religion or past or contemporary perceptions of the spirit of place. Spiritual value can be ascribed to places sanctified by hundreds of years of veneration or worship, or wild places with few signs of modern life. Value is dependent on the perceived survival of historic fabric or character and can be very sensitive to change. The key aspect of communal value is that it brings specific groups of people together in a meaningful way.

Significance in the NPPF

The NPPF operates on a slightly differently set of criteria to the Conservation Principles, a divergent trajectory that will doubtless be addressed when the Conservation Principles are revised. Under the NPPF, value is expressed as *archaeological interest*, *architectural and artistic interest*, and *historic interest*. The following is taken from the NPPF PPG²⁹ document, followed by commentary:

Archaeological Interest

As defined in the Glossary to the National Planning Policy Framework, there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point. This interest most closely accords with evidential value. While it usefully extends that definition to include known elements, the emphasis on *archaeological* interest unhelpfully seems to preclude the built environment.

Architectural and Artistic Interest

These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture. This interest most closely accords with aesthetic value, but the use of the term *architectural* seems prejudiced against vernacular forms of built heritage, and fortuitous aesthetics.

Historic Interest

An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history, but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity. This interest most closely accords with historical value, and extends to include communal value, though with diminished emphasis.

²⁹ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>. Paragraph 006.

Concepts from World Heritage Guidance

World Heritage Sites are assessed with reference to their own, non-statutory, guidance³⁰. This includes the useful concepts of *authenticity* and *integrity*³¹:

Authenticity

Authenticity is the ability of a property to convey the attributes of the outstanding universal value of the property. *The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful.* Outside of a World Heritage Site, authenticity may usefully be employed to convey the sense a place or structure is a truthful representation of the thing it purports to portray. Converted farm buildings, for instance, survive in good condition, but are drained of the authenticity of a working farm environment.

Integrity

Integrity is the measure of wholeness or intactness of the cultural heritage and its attributes. Outside of a World Heritage Site, integrity can be taken to represent the survival and condition of a structure, monument, or landscape. The intrinsic value of those examples that survive in good condition is undoubtedly greater than those where survival is partial, and condition poor.

Designated Heritage Assets

The majority of the most important ('nationally important') heritage assets are protected through *designation*, with varying levels of statutory protection. These assets fall into one of six categories, although designations often overlap, so a Listed early medieval cross may also be Scheduled, lie within the curtilage of Listed church, inside a Conservation Area, and on the edge of a Registered Park and Garden that falls within a World Heritage Site. The NPPF Glossary defines a designated heritage asset as: *A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation*³².

Listed Buildings

A Listed building is an occupied dwelling or standing structure which is of special architectural or historical interest. These structures are found on the *Statutory List of Buildings of Special Architectural or Historic Interest*. The status of Listed buildings is applied to 300,000-400,000 buildings across the United Kingdom. Recognition of the need to protect historic buildings began after the Second World War, where significant numbers of buildings had been damaged in the county towns and capitals of the United Kingdom. Buildings that were considered to be of 'architectural merit' were included. The Inspectorate of Ancient Monuments supervised the collation of the list, drawn up by members of two societies: The Royal Institute of British Architects and the Society for the Protection of Ancient Buildings. Initially the lists were only used to assess which buildings should receive government grants to be repaired and conserved if damaged by bombing. The *Town and Country Planning Act 1947* formalised the process within England and Wales, Scotland and Ireland following different procedures. Under the 1979 *Ancient Monuments and Archaeological Areas Act* a structure cannot be considered a Scheduled Monument if it is occupied as a dwelling, making a clear distinction in the treatment of the two forms of heritage asset. Any alterations or works intended to a Listed Building must first acquire Listed Building Consent, as well as planning permission. Further phases of 'listing' were rolled out in the 1960s, 1980s and 2000s; English Heritage advise on the listing process and administer the procedure, in England, as with the Scheduled Monuments.

Some exemption is given to buildings used for worship where institutions or religious organisations (such as the Church of England) have their own permissions and regulatory procedures. Some structures, such as bridges, monuments, military structures, and some ancient structures may also be Scheduled as well as Listed. War memorials, milestones and other structures are included in the list, and more modern structures are increasingly being included for their architectural or social value.

Buildings are split into various levels of significance: Grade I (2.5% of the total) representing buildings of exceptional (international) interest; Grade II* (5.5% of the total) representing buildings of particular (national) importance; Grade II (92%) buildings are of merit and are by far the most widespread. Inevitably, accuracy of the

³⁰ ICOMOS 2011: *Guidance on Heritage Impact Assessment for Cultural World Heritage Properties: a publication of the international Council on Monuments and Sites.*

³¹ UNESCO 2021: *Operational Guidelines for the Implementation of the World Heritage Convention.* Paragraphs 79-95.

³² <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

Listing for individual structures varies, particularly for Grade II structures; for instance, it is not always clear why some 19th century farmhouses are Listed while others are not, and differences may only reflect local government boundaries, policies and individuals.

Other buildings that fall within the curtilage of a Listed building are afforded some protection as they form part of the essential setting of the designated structure, e.g. a farmyard of barns, complexes of historic industrial buildings, service buildings to stately homes etc. These can be described as having *group value*.

Conservation Areas

Local authorities are obliged to identify and delineate areas of special architectural or historic interest as Conservation Areas, which introduces additional controls and protection over change within those places. Usually, but not exclusively, they relate to historic settlements, and there are c.7000 Conservation Areas in England.

Scheduled Monuments

In the United Kingdom, a Scheduled Monument is considered an historic building, structure (ruin), or archaeological site of national importance. Various pieces of legislation, under planning, conservation, etc., are used for legally protecting heritage assets given this title from damage and destruction; such legislation is grouped together under the term 'designation', that is, having statutory protection under the *Ancient Monuments and Archaeological Areas Act 1979*. A heritage asset is a part of the historic environment that is valued because of its historic, archaeological, architectural or artistic interest; those of national importance have extra legal protection through designation. Important sites have been recognised as requiring protection since the late 19th century, when the first 'schedule' or list of monuments was compiled in 1882. The conservation and preservation of these monuments was given statutory priority over other land uses under this first schedule. County Lists of the monuments are kept and updated by the Department for Culture, Media and Sport. In the later 20th century sites are identified by English Heritage (one of the Government's advisory bodies) of being of national importance and included in the schedule. Under the current statutory protection any works required on or to a designated monument can only be undertaken with a successful application for Scheduled Monument Consent.

Registered Parks and Gardens

Culturally and historically important 'man-made' or 'designed' landscapes, such as parks and gardens are currently "listed" on a non-statutory basis, included on the 'Register of Historic Parks and Gardens of special historic interest in England' which was established in 1983 and is, like Listed Buildings and Scheduled Monuments, administered by Historic England. Sites included on this register are of national importance, many associated with stately homes of Grade II* or Grade I status. Emphasis is laid on 'designed' landscapes, not the value of botanical planting. Sites can include town squares and private gardens, city parks, cemeteries and gardens around institutions such as hospitals and government buildings. Planned elements and changing fashions in landscaping and forms are a main focus of the assessment.

Registered Battlefields

Battles are dramatic and often pivotal events in the history of any people or nation. Since 1995 Historic England maintains a register of 46 battlefields in order to afford them a measure of protection through the planning system. The key requirements for registration are battles of national significance, a securely identified location, and its topographical integrity – the ability to 'read' the battle on the ground.

World Heritage Sites

Arising from the UNESCO World Heritage Convention in 1972, Article 1 of the Operational Guidelines (2015, no.49) states: 'Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity'. These sites are recognised at an international level for their intrinsic importance to the story of humanity, and should be accorded the highest level of protection within the planning system.

Setting

The assessment of direct effects to archaeological sites (where the identified heritage asset falls within the footprint of a development and thus is very likely to be damaged or destroyed) is relatively straightforward, the assessment of indirect effects (where the effect is communicated via impact on the *setting* of a heritage asset) is more nebulous and harder to convincingly predict.

The NPPF Glossary defines the setting of a heritage asset as: *The surroundings in which a heritage asset is*

*experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral*³³.

The principal guidance on this topic is contained within one publication: *The Setting of Heritage Assets: Good Practice Advice* ³⁴. Where the impact of a proposed development is largely indirect, the importance of the setting to the significance of the heritage asset becomes the primary consideration of the impact assessment. The following extracts are from GPA3³⁵:

The NPPF makes it clear that the extent of the setting of a heritage asset 'is not fixed and may change as the asset and its surroundings evolve'. Setting is not itself a heritage asset, nor a heritage designation, although land comprising a setting may itself be designated (see below Designed settings). Its importance lies in what it contributes to the significance of the heritage asset or to the ability to appreciate that significance.

While setting can be mapped in the context of an individual application or proposal, it cannot be definitively and permanently described for all time as a spatially bounded area or as lying within a set distance of a heritage asset. This is because the surroundings of a heritage asset will change over time, and because new information on heritage assets may alter what might previously have been understood to comprise their setting and the values placed on that setting and therefore the significance of the heritage asset.

There are two ways in which change within the setting of a heritage asset may affect its significance:

- Where the setting of the heritage asset contributes to the significance of the heritage asset (e.g. the historic park around the stately home; the historic streetscape to the Listed shopfronts).
- Where the setting contributes to the ability to appreciate the significance of the heritage asset (e.g. clear views to a principal façade; well-kept garden to a Listed cottage).

GPA3 states: *The contribution of setting to the significance of a heritage asset is often expressed by reference to views, a purely visual impression of an asset or place...*³⁶ *The Setting of Heritage Assets*³⁷ lists a number of instances where views contribute to the particular significance of a heritage asset:

- Those where the composition within the view was a fundamental aspect of the design or function of the heritage asset.
- Those where town- or village-scape reveals views with unplanned or unintended beauty.
- Those with historical associations, including viewing points and the topography of battles.
- Those with cultural associations, including landscapes known historically for their picturesque and landscape beauty, those which became subjects for paintings of the English landscape tradition, and those views which have otherwise become historically cherished and protected.
- Those where relationships between the asset and other heritage assets or natural features or phenomena such as solar or lunar events are particularly relevant.
- Those assets, whether contemporaneous or otherwise, which were intended to be seen from one another for aesthetic, functional, ceremonial, or religious reasons, including military and defensive sites, telegraphs or beacons, prehistoric funerary and ceremonial sites, historic parks and gardens with deliberate links to other designed landscapes and remote 'eye-catching' features or 'borrowed' landmarks beyond the park boundary.

However, as stated in PPG³⁸: *Although views of or from an asset will play an important part in the assessment of impacts on setting, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust, smell, and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.*

Furthermore, as stated in GPA3³⁹: *Similarly, setting is different from general amenity. Views out from heritage assets that neither contribute to significance nor allow appreciation of significance are a matter of amenity rather than of setting.*

³³ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

³⁴ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.).

³⁵ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraphs 8, 9.

³⁶ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 10.

³⁷ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 11.

³⁸ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment#assess-substantial-harm>. Paragraph 013.

³⁹ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 16.

These documents make it clear that views to, from, or including, a heritage asset can be irrelevant to a consideration of setting, where those views do not contribute to either the significance of the asset, or an ability to appreciate its significance.

In addition, visibility alone is no clear guide to visual impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons⁴⁰ has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development, some of which are seasonal or weather-related.

Thus, the principal consideration of assessment of indirect effects cannot be visual impact *per se*. It is an assessment of the likely magnitude of effect, the importance of setting to the significance of the heritage asset, and the sensitivity of that setting to the visual or aural intrusion of the proposed development.

GPA3 also details other area concepts that exist in parallel to, but separate from, setting. These are *curtilage*, *historic character*, and *context*⁴¹.

Curtilage

Curtilage is a legal term describing an area around a building and, for listed structures, the extent of curtilage is defined by consideration of ownership, both past and present, functional association and layout. The setting of a heritage asset will include, but generally be more extensive than, its curtilage. The concept of curtilage is relevant to Listed Building Consent, and where development occurs within the immediate surroundings of the Listed structure.

Historic Character

The historic character of a place is the group of qualities derived from its past uses that make it distinctive. This may include: its associations with people, now and through time; its visual aspects; and the features, materials, and spaces associated with its history, including its original configuration and subsequent losses and changes. Character is a broad concept, often used in relation to entire historic areas and landscapes, to which heritage assets and their settings may contribute. The concept of character area⁴² can be relevant to developments where extensive areas designations (Registered Parks and Gardens, Registered Battlefields, Conservation Areas, and World Heritage Sites; also towns and larger villages) are divisible into distinct character areas that a development may impact differently due to proximity, visibility etc.

Context

The context of a heritage asset is a non-statutory term used to describe any relationship between it and other heritage assets, which is relevant to its significance, including cultural, intellectual, spatial or functional. Contextual relationships apply irrespective of distance, sometimes extending well beyond what might be considered an asset's setting, and can include the relationship of one heritage asset to another of the same period or function, or with the same designer or architect. A range of additional meanings is available for the term 'context', for example in relation to archaeological context and to the context of new developments, as well as customary usages. Setting may include associative relationships that are sometimes referred to as 'contextual'. This concept is a useful, though non-statutory one, as heritage assets may have a relationship with the surrounding landscape that is non-visual and based e.g. on their historical economy. This can be related to landscape context (below), but which is a physically deterministic relationship.

Landscape Context

The determination of *landscape context* is an important part of the assessment process. This is the physical space within which any given heritage asset is perceived and experienced. The experience of this physical space is related to the scale of the landform and modified by cultural and biological factors like field boundaries, settlements, trees, and woodland. Together, these contribute to local character and extent of the setting.

⁴⁰ Hull, R.B. & Bishop, I.D. 1988: 'Scenic Impacts of Electricity Transmission Towers: the influence of landscape types and observer distance', *Journal of Environmental Management* 27, 99-108.

⁴¹ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraph 7.

⁴² Historic England 2017: *Understanding Place: Historic Area Assessments*.

Landscape context is based on topography and can vary in scale from the very small – e.g. a narrow valley where views and vistas are restricted – to the very large – e.g. wide valleys or extensive upland moors with 360° views. Where very large landforms are concerned, a distinction can be drawn between the immediate context of an asset (this can be limited to a few hundred metres or less, where cultural and biological factors impede visibility and/or experience), and the wider context (i.e. the wider landscape within which the asset sits).

When new developments are introduced into a landscape, proximity alone is not a guide to magnitude of effect. Dependant on the nature and sensitivity of the heritage asset, the magnitude of effect is potentially much greater where the proposed development is to be located within the landscape context of a given heritage asset. Likewise, where the proposed development would be located outside the landscape context of a given heritage asset, the magnitude of effect would usually be lower. Each case is judged on its individual merits, and in some instances the significance of an asset is actually greater outside of its immediate landscape context, for example, where church towers function as landmarks in the wider landscape.

Principal Views, Landmark Assets, and Visual Impact

Further to the consideration of views (above), historic and significant views are the associated and complementary element to setting, but can be considered separately as developments may appear in a designed view without necessarily falling within the setting of a heritage asset *per se*. As such, significant views fall within the aesthetic value of a heritage asset and may be *designed* (i.e. deliberately conceived and arranged, such as within parkland or an urban environment) or *fortuitous* (i.e. the graduated development of a landscape 'naturally' brings forth something considered aesthetically pleasing, or at least impressive, as with particular rural landscapes or seascapes), or a combination of both (i.e. the *patina of age*).

On a landscape scale views, taken in the broadest sense, are possible from anywhere to anything, and each may be accorded an aesthetic value according to subjective taste (this is the *amenity value* of views⁴³). Given that terrain, the biological and built environment, and public access restrict our theoretical ability to see anything from anywhere, in this assessment the term *principal view* is employed to denote both the deliberate views created within designed landscapes, and those fortuitous views that may be considered of aesthetic value and worth preserving, where they contribute to significance.

It should be noted, however, that there are distance thresholds beyond which perception and recognition fail, and this is directly related to the scale, height, massing, and nature of the heritage asset in question. For instance, beyond 2km the Grade II cottage comprises a single indistinct component within the wider historic landscape, whereas at 5km or even 10km a large stately home or castle may still be recognisable. By extension, where assets cannot be seen or recognised i.e. entirely concealed within woodland, or too distant to be distinguished, then visual harm to setting is moot. To reflect this emphasis on recognition, the term *landmark asset* is employed to denote those sites where the structure (e.g. church tower), remains (e.g. earthwork ramparts) or – in some instances – the physical character of the immediate landscape (e.g. a distinctive landform like a tall domed hill) make them visible on a landscape scale. In some cases, these landmark assets may exert landscape *primacy*, where they are the tallest or most obvious man-made structure within line-of-sight. However, this is not always the case, typically where there are numerous similar monuments (multiple engine houses in mining areas, for instance) or where modern developments have overtaken the heritage asset in height and/or massing.

Where a new development has the potential to *visually dominate* a heritage asset, even if the contribution of setting to the significance of a heritage asset is minimal, it is likely to impact on the ability of setting to facilitate an appreciation of the heritage asset in question and can be regarded as an adverse effect.

Visibility alone is not a clear guide to visual impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons (Hull & Bishop 1988) has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development (see Table 7~~ERROR! REFERENCE SOURCE NOT FOUND.~~), some of which are seasonal or weather-related.

⁴³ Historic England 2017: *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (2nd ed.). Paragraphs 14-16.

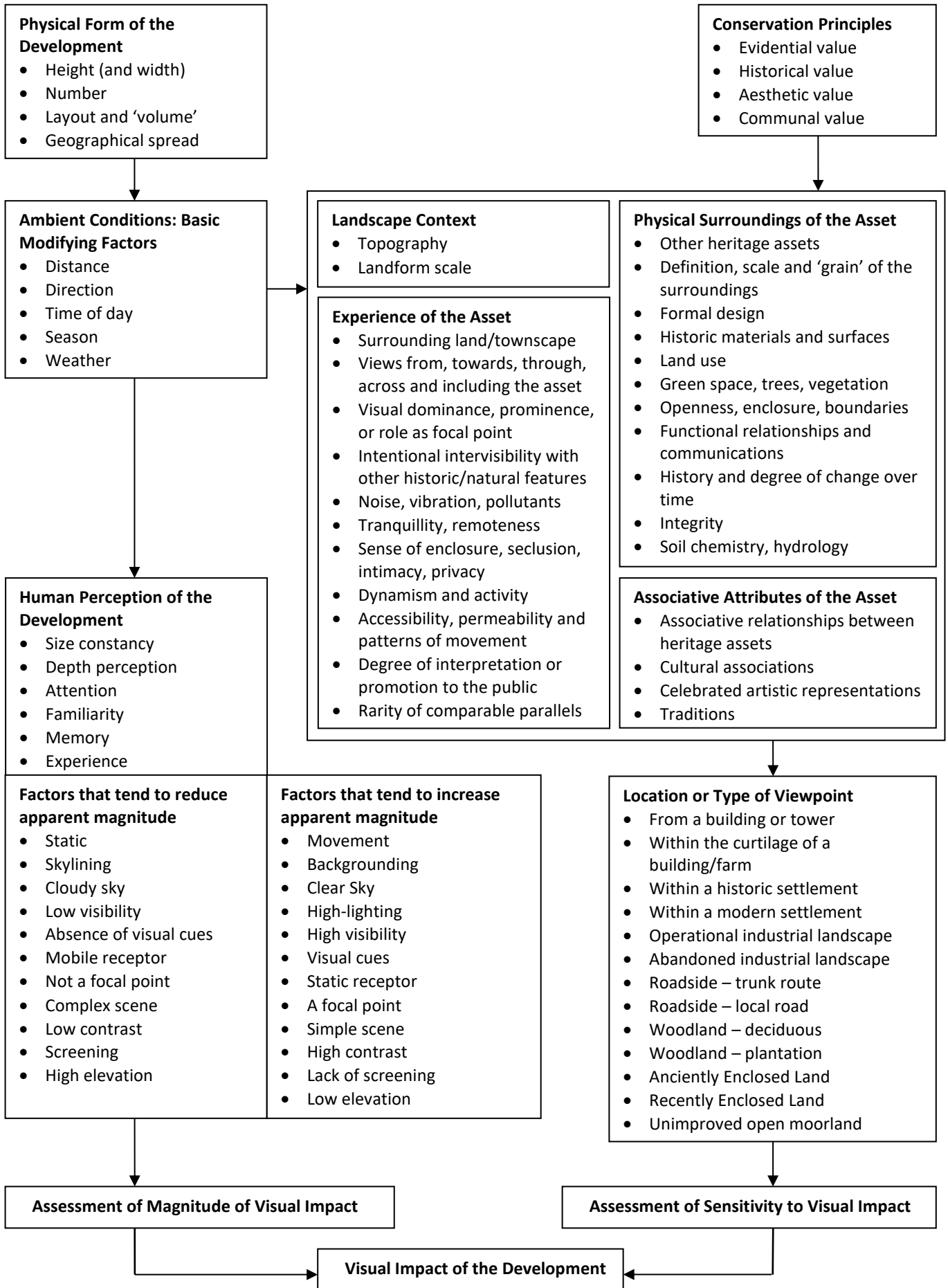


TABLE 7: THE CONCEPTUAL MODEL FOR VISUAL IMPACT ASSESSMENT PROPOSED BY THE UNIVERSITY OF NEWCASTLE (2002, 63), MODIFIED TO INCLUDE ELEMENTS OF ASSESSMENT STEP 2 FROM THE SETTING OF HERITAGE ASSETS (HISTORIC ENGLAND 2017, 11, 13).



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RECEIVED
By Liv Rickman at 11:08 am, Aug 04, 2023

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APPROVED

By Lisa Walton at 2:25 pm, Oct 12, 2023

Site Waste Management:

Details of how waste from your development will
be dealt with



Site Waste Management Plan

Dealing with and minimising waste on the Islands is an important consideration with any proposal. It is difficult to dispose of waste locally as, if it is not re-used on site, it needs to be shipped to land fill sites on the main land.

The intention of a Site Waste Management Plan is to ensure that waste is considered at an early stage and as much material is re-used on site as possible.

A Site Waste Management Plan is needed for all types of proposed development and should demonstrate the efficient use of construction materials and methods so that waste is minimised and any waste that is produced can be re-used, recycled or recovered in other ways before disposal options are explored.

A Site Waste Management Plan is intended to encourage, at an early stage the identification of the volume and type of material to be demolished and/or excavated, opportunities for the re-use and recovery of materials and to demonstrate how off-site disposal of waste will be minimised and managed.

The Council of the Isles of Scilly aims to work with local businesses and the community to reduce, reuse and recycle as much of the Islands' waste as possible. The Council currently cannot accept construction and demolition waste (including mixed construction skips, tiles and ceramics, excavated soils and aggregate, mixed rubble and plasterboard) due to site space restrictions and resources.

The Council have produced guidelines on what information should be incorporated into a Site Waste Management Plan and a Site Waste Management Plan template.

Please complete the template and submit along with your planning application. If you experience any problems in filling out this template the Planning Department of the Council of the Isles of Scilly would be pleased to help you and can be contacted on 01720 424455 or by email at planning@scilly.gov.uk

A Site Waste Management Plan forms an integral part of your application submission and applications may not be valid for registration without one.

Site Waste Management Plan Information Guidelines

Your site waste management plan should include the following information:

Responsibilities	1. The name of the applicant
	2. The name of the principal contractor
Location and description of the construction works	3. Location of the construction site
	4. Description of works
Estimated Schedule for new Construction Materials	<p>5. Describe each material expected to be used during the project for e.g. doors, plasterboards, paint, floorboards, timber, plaster and insulation. Please include sizes.</p> <p>6. For each proposed material identified please estimate the quantity required.</p> <p>7. For each proposed material identified please indicate the unit size required.</p> <p>8. For each proposed material identified please indicate who will supply these items.</p> <p>9. For each proposed material identified please indicate how these will be transported on to the island and by whom.</p>
Waste Management	10. Description of each waste type expected to be produced during the project.
	11. For each waste type estimate the quantity of waste that will be produced.
	12. For each waste type identify the waste management action proposed (including re-use, recycling, other types of recovery and disposal).
	13. Waste types (as a minimum) should be recorded as inert, non-hazardous or hazardous. Further information on waste types can be found using the European Waste Catalogue system - https://www.gov.uk/how-to-classify-different-types-of-waste/overview
	14. Quantity of waste should usually be specified in m ³ .
	15. Where the waste type has a waste management action of recycling off site, sent to landfill or other disposal full details will be required for example a site plan at a scale of 1:2500, 1:1250 or 1:500 clearly identifying any off site location areas, full details of licenced waste carriers/handlers/haulier companies and containerisation details.

Additional Information:

Due to the nature of the works, the amount of waste material generated at this stage is largely unknown. However, the Council has provided a best estimate based on the size of field, the works taking place (depth and length of trenches) and the likely amount of granite we expect to find. The Council will apply seek to reduce waste and reuse all material produced. All granite will be reused for Council sea-defence works under a U1 exemption from the Environment Agency. All green waste will be sent to the Council's waste management site (permit no. HP3539EQ).

1.Excavated Material:	Yes	N/A
The submitted plans show all areas and volumes where excavated material will be disposed of and this is included within the red lined application site area	X	
2. Hazardous Material: All hazardous waste materials will be dealt with in accordance with the waste duty of care in section 34 of the Environmental Protection Act 1990, The Waste (England and Wales) Regulations 2014 and The Hazardous Waste (England and Wales) (Amendment) Regulations 2016.		X
3.Declaration: I/We confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine opinions of the person(s) giving them. Signed: <i>R Williams</i> Dated: 19/07/23		