

**LAND ADJACENT TO SEAWYND
ST CATHERINE'S ROAD
NITON
ISLE OF WIGHT
PO38 2NA**

DESK STUDY & SITE RECONNAISSANCE REPORT

Client: Lynda Dix
Seawynds
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INTRODUCTION

Cowan Consultancy Limited (CCL) were instructed by Lynda Dix to prepare a desk study report in relation to the proposed development of land adjacent to Seawynds, St Catherine's Road, Niton, Isle of Wight

The plot is currently part of the grounds to Seawynds and has a gravel parking area with a garage unit to the northern end and a cultivated garden beyond.

The proposals are to construct a single storey dwelling on the site.

This report is intended to address the requirements of the National Planning Policy Framework Guidance on Land Stability. The report reviews the history of the site, the local geology and its influence and relationship with ancient landslide system known as the Undercliff.

This report has been prepared by Cowan Consultancy Ltd on behalf of Lynda Dix, and takes into account her particular instructions and requirements. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

SITE DESCRIPTION

The site is located at National Grid co-ordinates SZ504757 on the southern side of St Catherine's Road.

The site measures approximately 13.5m wide by 45m deep and currently forms part of the grounds to the property known as Seawynds.

The site is accessed directly off St Catherine's Road, through a gate in the existing stone boundary wall. There is a level gravel drive with a timber garage unit on the site, with a cultivated garden beyond. The Site is relatively level and bounded by a stone wall to the west and a hedge to the east.

PROPOSALS

The proposals for the site are indicated on the drawings and images prepared by Neil Geddes and are contained in the appendices of this report.

The drawings show a single storey, timber framed dwelling with pitched slate roof. The building is “C” shaped on plan and the foot print measures 10m wide by 18m deep at the widest point.

The front wall of the building is set back approximately 8m from St Catherine’s Road, positioned approximately over the existing garage unit.

HISTORIC MAPS

Historic maps of the area have been studied from our company archive and from online sources. Maps from 1862 to 1939 are referred to below along with recent aerial photographs

1862 Map

The map record shows a building in the position of Seawynds, the proposed plot forms part of the garden area associated with the building. St Catherine’s House is marked and St Catherine’s Road is shown, although it is labelled St Catherine’s Terrace.

Slope features are shown directly to the south of the site. The Coastguard Station is shown further to the south and Niton Lodge is to the southeast of the subject site.

A quarry is shown near the coast directly south of the site and Victoria Hotel is shown to the east of the quarry, on the coast.

To the north is open land with Southcliff beyond and Westcliff further to the North.

To the east there are several large buildings shown, including Royal Sandrock Hotel, Mount Cleve and Windcliff, as well as several smaller buildings.

1908 Map

The plot remains undeveloped and the building on the site of Seawynds is still present. St Catherine’s House directly to the east and the Coastguard Station to the south remain. Lloyds Signal Station is shown to the south and the slope features are not shown.

To the southwest of the site, Niton Lodge is now named Reach Lodge, the quarry is noted “Old Quarry” and Victoria Hotel is no longer present.

To the north of the subject site the area remains largely unchanged with Southcliff and Westcliff still shown. Development has taken place to the west side of Barrack Shute.

West of the site additional properties are shown along St Catherine's Terrace but there are no other notable changes to the west.

1939 Map

A building is shown on the plot in the area of the garage. The building on the site of Seawynds remains as does St Catherine's House.

To the south of the site very little appears to have changed except the "Old Quarry" is no longer shown.

To the north Southcliff and Westcliff remain. Further development has taken place along Barrack Shute.

West of the site there are few notable changes.

Aerial Photo (2019)

The site appears to remain unchanged from the previous map record. Seawynds has been extended to the west and further development has taken place along the southern side of St Catherine's Road.

North of the site remains open land but development has taken place along Sandrock Road.

GEOLOGY AND GROUND CONDITIONS

Ventnor Coastal Slope Stability Study

Ground movements to the Undercliff have been recognised as a localised problem for over 200 years. There is evidence in archaeological records that ground movements occurred in pre-historic times.

There has been a considerable amount of research into the ground movement problems along the undercliff, resulting in the production of a DOE Report in 1991 and a further update report in 1995 by South Wight Borough Council prepared by Highpoint Rendel (HPR). For the purposes of this report, the latter will be used for the assessment, since the 1991 report does not fully cover the area of the subject site.

The studies undertaken by High-Point Rendel showed that the landslides are developed in Cretaceous rocks of the Upper and Lower Greensand Formations, upon weak clay-rich layers within the Gault Clay and Sandrock strata respectively.

The report emphasised that it is important to note that whilst some areas of the Undercliff have had a reputation for landslide movement, much of the developed areas at Ventnor have remained largely unaffected by major events. Hence in many areas buildings have survived for long periods without distress. In other locations, property damage was thought to not necessarily reflect serious landslide problems, since many of the older Victorian properties were built with foundations and building styles quite unsuited to accommodating ground movement. Other properties were not well built or have been poorly maintained over the years. As a consequence, High-Point Rendel believed that the landslide problems have appeared to be more serious and less manageable than they should.

The report is accompanied by a suite of maps covering Geomorphology, Ground behaviour and Planning Guidance, specifically sheet 6 covers the subject site.

Reference to the information contained in the Highpoint Rendel publication and its respective mapping suggests the following:

Geomorphology

The geomorphological map indicates the subject site is in an area noted as “Degradation zone of multiple rotational blocks above the failure boundary Zone I and II”. The map shows a slight slope towards the south of 2°.

There is a scarp slope shown to the south of the site. Beyond the scarp, ground slopes are shown to increase to around 10°.

To the east and west of the site there are areas of ground noted as “Stream Valley”.

Further to the south, beyond Castle Haven Lane is an area noted as “Inland shallow mudslides developed in Gault Clay” with a Gault Clay scarp slope beyond, leading down to the coast.

Ground Behaviour

Contemporary Process

The map notes the site in an area of “landslide bench” where imperceptible ground movements of less than 10mm per year have been reported, although the benches are inactive most of the time.

Impact

Most properties situated on these benches have been largely unaffected by ground movement. However, in places the cumulative effects of ground movement has resulted in moderate and slight damage.

Planning Guidance

The planning guidance map indicate the entire site is within the “green zone” which is classified under Development Plan as an “area likely to be suitable for development”. For this area the results of a desk study and walkover survey should be presented with all planning applications.

Geology of the site

The geological map for the area shows the site lies in an area of landslip.

Online borehole records for the local area have been accessed via the BGS website. There are a number of records close to the site with some boreholes extending to over 30m.

The records most relevant to the site are SZ57NW33 and 37; approximately 100m to the east, SZ57NW34; 150m to the southeast and SZ57NW40; 150m to the south.

The boreholes indicate the surface geology at the site is likely to be firm to stiff brown fine sandy clay containing gravel fragments of sandstone. This ground is likely to form part of the Passage Beds with the Gault Clay horizon at least 10m below the ground surface.

COASTAL PROTECTION

Following significant landsliding in 1994, the coast in the area of Castlehaven was subject to significant investment in coastal protection and ground stabilisation measures. The works consisted of rock armour to the shoreline to arrest coastal erosion and installation of dewatering wells to reduce ground water levels to the summer mean.

The scheme was completed in 2004 and no significant landslide events have been recorded in the area since the schemes implementation.

The Coastal protection is expected to continue to provide protection for at least 25 years without intervention. Following this period, if no further protection works are undertaken, the cliff recession rate is predicted to be in the order of 1m per year.

The property is located some 250m from the coast and 200m north-west of the head of the 1994 landslide.

The site unlikely to be threatened by coastal erosion for in excess of 200 years, if no further protection measures are implemented.

The dewatering system has had a significant effect on improving the stability of the ground in the area and while the system is maintained and operational, the site will not be threatened by landsliding.

SITE RECONNAISSANCE

The site was inspected on 3rd November 2020 in dry overcast conditions.

The site is accessed directly from St Catherine's Road via a gated access in a stone wall. Beyond the boundary wall is a level gravel driveway leading to a timber garage.

The remainder of the site is level comprising vegetable planters and lawn. There were no signs of ground movement noted on the site.

There is a stone wall along the western boundary. This changes to timber fencing towards the southern end.

The site currently forms part of the grounds to Seawynds, however, the proposed eastern boundary is marked by an existing hedge line. The southern boundary will be formed approximately 15-20m north of the crest of the slope the leads down to Castlehaven Lane.

A cursory inspection was undertaken of Seawynds. The building is a single storey masonry dwelling with a pitched slate roof. No signs of cracking or distortion was noted to the property.

Inspection of the highway adjacent to the site noted manhole covers at close centres along the length of the road. The covers give access to the coastal stabilisation de-watering system. The road surface was found to be in good condition with no signs of repairs.

An inspection was also undertaken of Castle Haven Lane, to the south of the site. Similar to St Catherine's Road there are a series of manhole covers at close centres giving access to the de-watering system. The road surface was found to be in good condition. No sign of ground movements were noted to the roadway.

COMPANY ARCHIVE

Cowan Consultancy Limited were recently involved in the redevelopment of the Haven Sands site to the south west and Cairnmount to the east of the site. Both schemes involved removal and replacement of the properties. In both instances the new buildings were founded on shallow raft foundations.

In 1985, Robert Cowan Partnership undertook a site investigation at the site of the property now known as Hornbeam House, directly to the south of the site. The investigation entailed trial pits and a trench down to around 3.5m BGL. The investigations were to provide information to allow foundations to be designed for a new dwelling on the site. The investigations discovered consistent ground conditions at the site consisting of firm, moist, light brown silty sandy clay over stiff, moist, dark grey silty clay.

The report concluded that reinforced concrete foundations, founded between 1m and 1.5m BGL would be sufficient for the property, the depth of the foundations being determined by the presence of roots rather than ground stability concerns.

FOUNDATION DESIGN

The anticipated surface geology at the site is expected to be sandy, clayey silt. The ground is expected to be firm and a bearing pressure in excess of 100kN/m² would be appropriate for preliminary design purposes.

It is envisaged that reinforced concrete foundations will be suitable for the proposed building. Reinforcement should be designed to accommodate the effect of minor ground movements that the foundations may be subjected to.

We recommend that a targeted site investigation is undertaken prior to the foundations being designed to confirm the ground conditions at the site and to provide information for foundation design. The investigation is likely to entail trial pits excavated to around 2m below ground level. Soil samples should be taken for laboratory testing and in-situ soil strength tests should be undertaken.

CONCLUSIONS AND RECOMMENDATIONS

The site of the proposed dwelling is located in an area of known ground movements on the ancient landslip known as the Undercliff. Significant investigation and investment has taken place in the area in recent times culminating in the provision of a coastal protection scheme and a ground dewatering system. To date, these schemes have been successful in arresting mudsliding and ground movements along the coast, to the south of the site. Based on the current predicted rate of coastal erosion, even with no further intervention, the site should not be at risk from coastal erosion for in excess of 200 years.

The existing site has been utilised as a garden area since prior to the 1862 map recorded. The only structure to be built on the site is the timber garage unit. The site is level and well maintained. The inspection of the area did not reveal any signs that indicate ground movements had taken place on the site.

The sites immediately to the east and west have been built on for a considerable length of time. A cursory inspection of the properties did not reveal any signs to indicate they had been subject to foundation movement.

The proposals are to construct a new dwelling on the site. The proposed dwelling will be a single story structure constructed from lightweight building materials. The load imposed on the site as a result of the development will be minimal and is unlikely to affect the overall stability of the area.

The foundations will be reinforced concrete footings which will be suitably reinforced to resist minor ground movements.

A site specific investigation should be undertaken at the site prior to undertaking detailed foundation design to confirm the ground conditions and to provide data for the foundation design.

Having studied the available documentation relating to the site and having carried out a reconnaissance of the site there appear to be no obvious overriding factors which should preclude re-development of this site on grounds of general stability.

Signature  Date: 20/11/2020

STEPHEN BURGESS M Eng (Hons)
For and on Behalf of Cowan Consultancy Ltd

APPENDICES

A Historical Maps

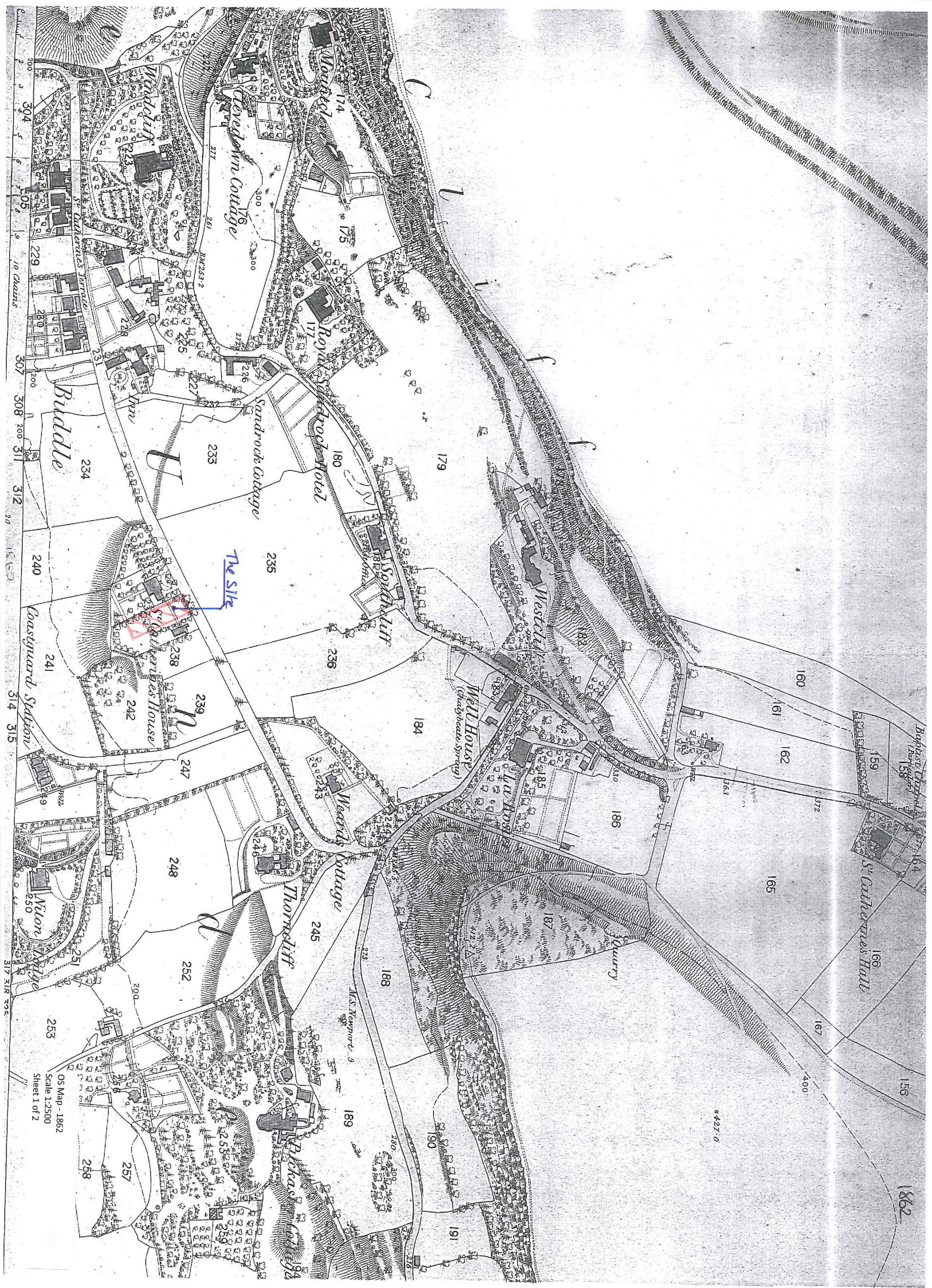
- 1862
- 1908
- 1939

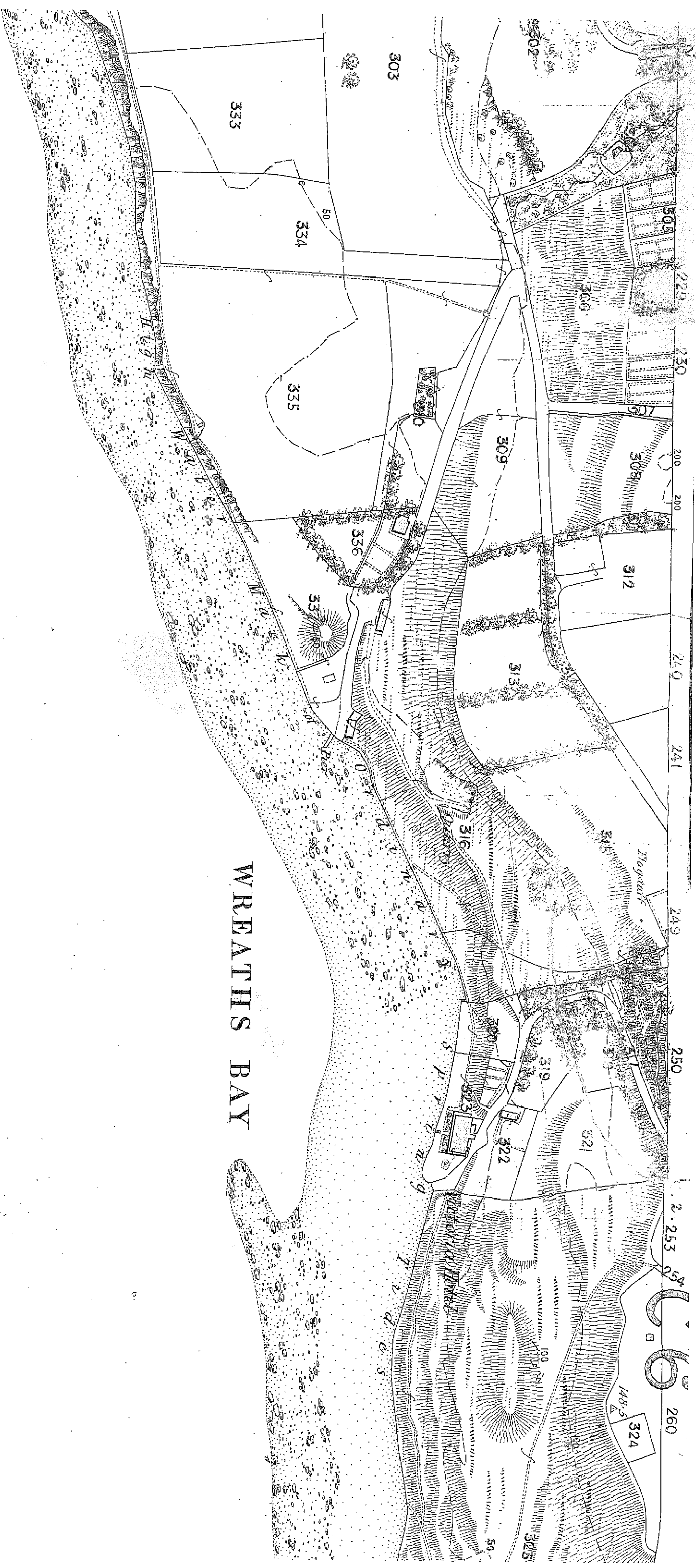
2019 Aerial Photograph




B Photographs

C Proposed Architects Drawings

APPENDIX A





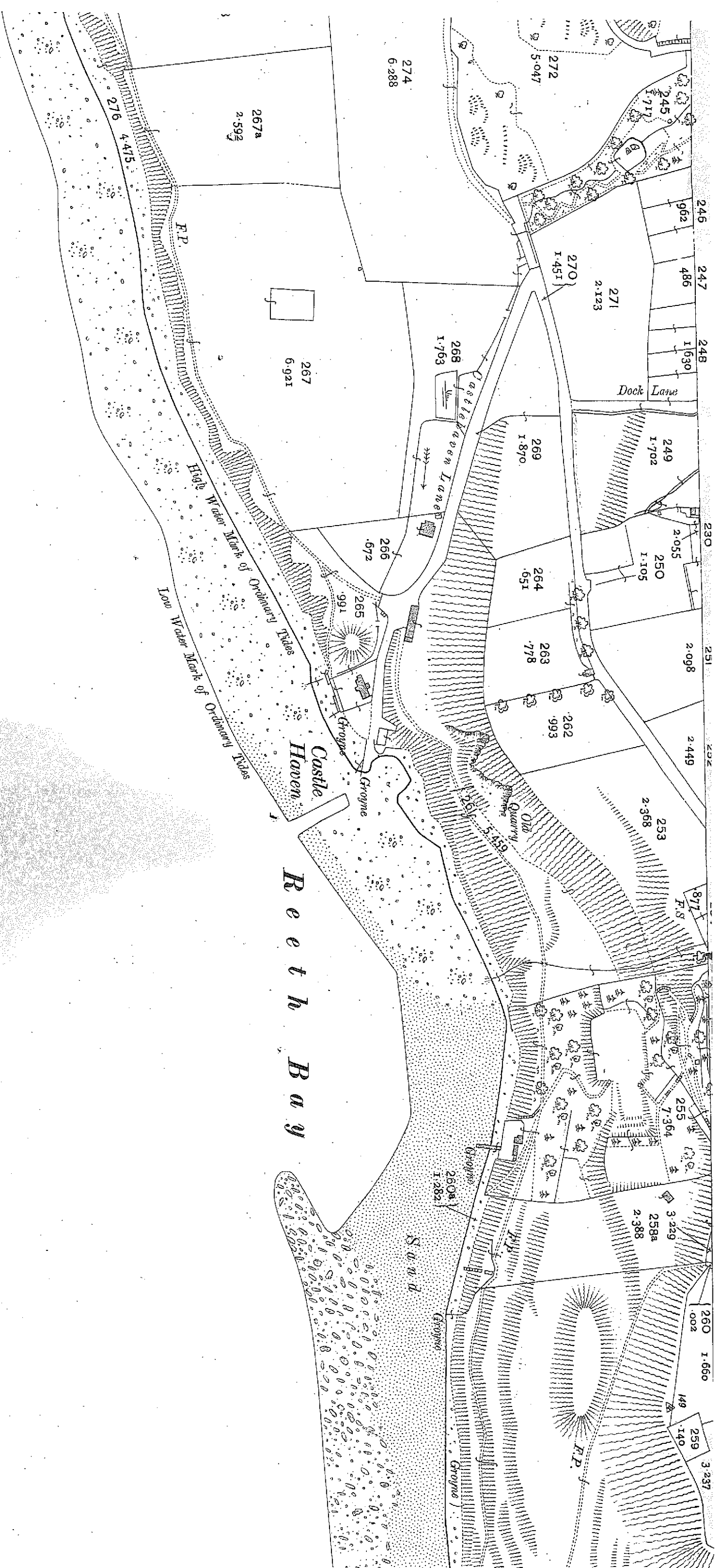
W	Change of Boundary, indicating the point at which the character of a Boundary changes.	
D	Antiquities (Site of)	
P	Trigonometrical Station	
		
	Every parcel is numbered thus:  Its area is given underneath in Acres, thus:  Acres indicating that the spaces so connected are included in the same uniform number, thus: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 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The *Mitudes* are given in feet above the assumed Mean Level of the Sea at Liverpool which is 0·650 of a Foot below the general *Mitudes* indicated thus (B.M. + 54·7) refer to Roorah Mounds. To " " " "

Sheet 1 of 2





ENGLISH



134
10.015

137
4.403

138
1.325

139
1.098

140
1.513

141
1.533

142
3.998

143
1.224

144
5.993

145
2.139

146
1.561

147
1.501

148
1.986

149
2.459

121
9.796

122
5.993

123
2.33

124
1.524

125
1.098

126
3.998

127
1.403

128
1.325

129
1.098

130
1.513

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136
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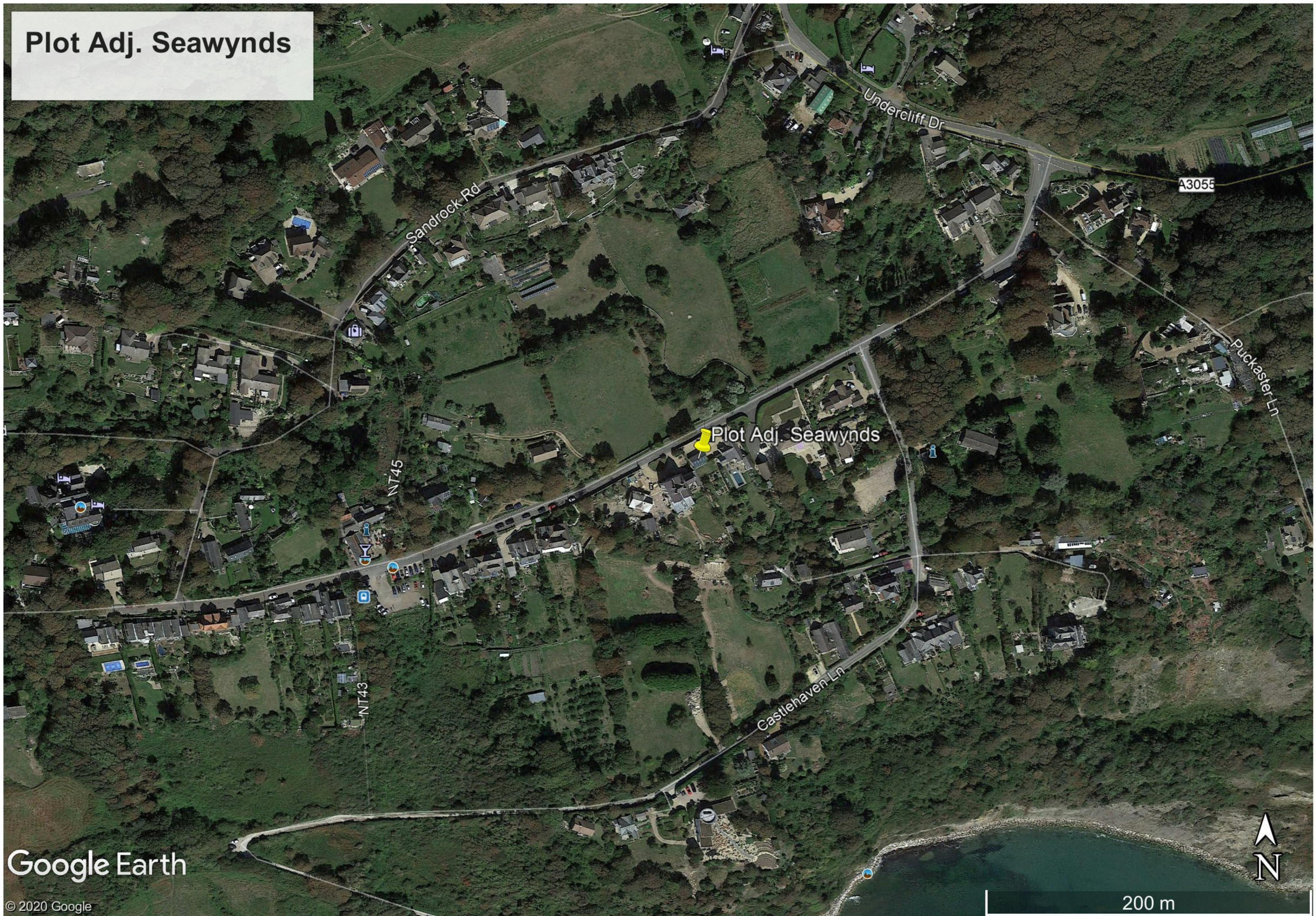
139
2.459

The Altitudes of Bench Marks and surface heights are given in Feet above the mean level of the sea at NEWLYN and are based on the primary levelling of 1912-21.
To refer levels to Liverpool
Add 4.6 Feet
Subtract 1 Foot
Note that the figure applies to this plan only and is approximate to 0.1 ft.

OS Map - 1939
Scale 1:2500
Sheet 1 of 2



Plot Adj. Seawynds



Google Earth

© 2020 Google

200 m

APPENDIX B



View of site access from St Catherine's Road



Gravel drive and garage



View of site facing north – Note: hedge marking proposed eastern boundary of site



View of southern end of site



View of Castle Haven Lane to south of site



View from Castle Haven Lane looking north towards site

APPENDIX C

