

**Penzance Heliport Ltd**

**Penzance Replacement Heliport**

**Land at Jelbert Way,**

**Penzance**

**Agricultural Land Classification**

September 2016



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## **1. Executive Summary**

- 1.1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by WYG Environment Transport Planning Ltd to undertake an assessment of agricultural land quality (referred to as agricultural land classification (ALC) of a proposed development site at Jelbert Way, to the north-east of Penzance, Cornwall.
- 1.1.2. The ALC is based on an assessment of the extent to which physical or chemical characteristics impose long term limitations on the use of land. The main groups of factors are:
  - climatic: primarily rainfall and temperature;
  - site: gradient, microrelief and flood risk;
  - soil: texture, structure, depth and stoniness; and
  - chemical limitations.
- 1.1.3. The interaction of these factors enables land to be attributed to one of five grades in the classification with Grade 1 being the highest quality land and Grade 5 the lowest. Grade 3 is subdivided into two Subgrades; 3a and 3b.
- 1.1.4. Land of Grades 1 and 2, and Subgrade 3a quality is described as land of best and most versatile agricultural quality, and attracts a degree of protection from development in terms of land use planning policy.
- 1.1.5. The site was surveyed in 1992 by MAFF as part of a wider survey area and found to comprise land of predominantly moderate quality Subgrade 3b with a smaller portion of Grade 2. Land in the south was classified as urban and land in the south-east unclassified.
- 1.1.6. The soils described in the MAFF report are consistent with the descriptions of those mapped as being present and similar soils have also been found separately in close proximity to the site.
- 1.1.7. On this basis, it is considered that the ALC grade distribution as mapped by MAFF is robust and remains applicable. Additional areas of Subgrade 3b are most likely where there is no ALC data.

## 2. Introduction

- 2.1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by WYG Environment Transport Planning Ltd to undertake an assessment of agricultural land quality of a proposed development site at Jelbert Way, to the north-east of Penzance, Cornwall.
- 2.1.2. Virtually all the land has been previously surveyed to assess agricultural land classification (ALC). This assessment has relied solely on existing data sources, including:
- Provisional ALC mapping of the site and locality;
  - British Geological Survey mapping of bedrock and superficial geology;
  - the Soil Survey of England and Wales soil association maps (1:250,000 scale);
  - climatic data from the Meteorological Office's standard 5km grid point data set; and
  - existing post-1988 ALC survey data available across the site.
- 2.1.3. These data have been considered in the context of the prescribed methodology for classifying the quality of agricultural land as set out in the Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land (1988<sup>1</sup>), and summarised in Natural England's Technical Information Note 049<sup>2</sup>.
- 2.1.4. The ALC is based on an assessment of the extent to which physical or chemical characteristics impose long term limitations on the use of land. The main groups of factors are:
- climatic: primarily rainfall and temperature;
  - site: gradient, microrelief and flood risk;
  - soil: texture, structure, depth and stoniness; and
  - chemical limitations.
- 2.1.5. The interaction of these factors enables land to be attributed to one of five grades in the classification with Grade 1 being the highest quality land and Grade 5 the lowest. Grade 3 is subdivided into two Subgrades; 3a and 3b.

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<sup>1</sup> **MAFF (1988)**. *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications.

<sup>2</sup> **Natural England (2012)**. *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition 19<sup>th</sup> December 2012.

- 2.1.6. Land of Grades 1 and 2, and Subgrade 3a quality is described as land of best and most versatile agricultural quality, and attracts a degree of protection from development in terms of land use planning policy.
- 2.1.7. At national level this is articulated at paragraphs 109 and 112 of the National Planning Policy Framework. Paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing soils (amongst other matters). Paragraph 112 states that local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land, and goes on to advise that, where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.

### **3. Site and Climatic Conditions**

#### **3.1. General Features, Land Form and Drainage**

- 3.1.1. The site extends to some 4.74ha of agricultural land in arable use. Jelbert Way marks the southern boundary: other agricultural land is to the north, east and west.
- 3.1.2. Topography is very gently sloping with a slight fall to the south from an altitude of around 10m above Ordnance Datum (AOD) to 5m AOD.

#### **3.2. Agro-climatic Conditions**

- 3.2.1. Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point data set at a representative altitude of 5m AOD, and are given in Table 1. Climate at the site is warm and very wet with moderate crop moisture deficits. The Field Capacity Day (FCD) regime is longer than is typical for lowland England and is considered to be unfavourable for providing opportunities for agricultural field work.

**Table 1: Local agro-climatic conditions**

Average Annual Rainfall	1,010mm
Accumulated Temperatures >0°C	1,654 day°
Field Capacity Days	201 days
Average Moisture Deficit, wheat	100mm
Average Moisture Deficit, potatoes	92mm

#### **3.3. Soil Parent Material and Soil Type**

- 3.3.1. The principal underlying geology of the site as mapped by the British Geological Survey<sup>3</sup> is slate and siltstone of the Mylor Slate Formation. This is overlain by superficial deposits of alluvium which may include clay, silt, sand and gravel.
- 3.3.2. The Soil Survey of England and Wales soil association mapping<sup>4</sup> (1:250,000 scale) shows soils of the Conway association to be mapped across the site, bordering on Denbigh 2 soils to the immediate north.
- 3.3.3. Conway soils typically develop in floodplains and are usually affected by high groundwater levels. Profiles are characterised by deep, stoneless, silty clay loam which is greyish brown or grey. Conway soils are seasonally waterlogged, of Wetness Class (WC) IV<sup>5</sup>.
- 3.3.4. Contrastingly, the Denbigh 2 association is characterised by moderately stony clay loam profiles overlying slate or slate rubble within moderate depth. The soils are permeable and well drained, of WC I.

## 4. Agricultural Land Classification

### 4.1. Existing Data

- 4.1.1. Provisional ALC mapping shows the site to cover a boundary between land of excellent quality Grade 1, and urban. However, Natural England's TIN049 explains that:

*"These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended ..."*

- 4.1.2. The site was surveyed by MAFF in 1992<sup>6</sup> and <sup>7</sup> as part of a wider survey area and was found to comprise approximately 1.2ha of Grade 2 and 2.7ha of Subgrade 3b. A small area in the south (0.2ha) is classified as urban and 0.6ha was omitted from the

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<sup>3</sup> **British Geological Survey (2016)**. *Geology of Britain viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

<sup>4</sup> **Soil Survey of England and Wales (1984)**. *Soils of South West England (1:250,000), Sheet 5*

<sup>5</sup> **Findlay et al. (1984)**. *Soils and Their Use in South West England, Soil Survey of England and Wales*, Bulletin 14. Harpenden

<sup>6</sup> **MAFF (1992)**. *Agricultural Land Classification, Penwith District Plan: Penzance, Newlyn and Gulval*, Reference No 19/92

<sup>7</sup> **MAFF (1992)**, *Penwith District Plan: Penzance, Newlyn, Madron, Marazion and St Buryan, Agricultural Land Classification, Report of Survey*, Reference No 18-21/92

survey. The soil survey was undertaken at a detailed scale with one observation made per hectare, including four auger observations and one excavated pit.

- 4.1.3. A separate survey was also conducted by MAFF in 1990<sup>8</sup> in the vicinity of the site (approximately 300m to the south-west) and found land of Subgrade 3b quality.

## **4.2. Agricultural Land Quality**

- 4.2.1. The soil types described in the MAFF report are consistent with those mapped.
- 4.2.2. Soils of Grade 2 quality are described as freely draining with medium sandy loam topsoils. Inherently of excellent quality (as the Provisional ALC map suggests), these soils occur at the higher altitude but the sloping northern region of the site has been downgraded due to a slight risk of exposure to salt laden winds preventing the growth of particularly sensitive horticultural crops.
- 4.2.3. Land assessed as Subgrade 3b is affected most severely by wetness and workability. Profiles are described as medium clay loams to depth which are gleyed and slowly permeable from a depth of around 32cm. These soils are of WC IV and limited to Subgrade 3b under the climatic conditions of the site, as highlighted in Appendix 1.
- 4.2.4. Based on aerial photography, mapped soil types, and the pattern of topography, the Subgrade 3b grade is likely to extend across the 0.6ha of unclassified land at the eastern end of the site, and indeed also across the land MAFF has classified as urban: photographic evidence indicates this land is presently in agricultural use.
- 4.2.5. The MAFF survey of 1990 undertaken in the vicinity of the site also has an area mapped as soils of the Conway association which have slowly permeable layers between 35cm and 40cm depth, and also included sandy silt loam topsoil textures. These profiles are similarly of WC IV and Subgrade 3b.

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<sup>8</sup> MAFF (1990), Penzance Local Plan, Agricultural Land Classification, Report of Survey, Reference No 24/90a, b, c, d.

### **4.3. Summary**

- 4.3.1. The proposed site at Jelbert Way extends to 4.74ha of agricultural land.
- 4.3.2. The site was surveyed in 1992 by MAFF as part of a wider survey area and found to comprise land of predominantly moderate quality Subgrade 3b with a smaller portion of Grade 2. Land in the south was classified as urban and land in the south-east unclassified.
- 4.3.3. The soils described in the report are consistent with the descriptions of those mapped as being present and furthermore, similar soils have also been found separately in close proximity to the site. On this basis, it is considered that the ALC grade distribution as mapped by MAFF is robust and remains to be applicable. Additional areas of Subgrade 3b are most likely where there is no ALC data. The MAFF and predicted ALC distribution is shown in Figure RAC7358-1.

**Appendix 1: ALC Grade According to Soil Wetness (Table 6 of the MAFF ALC Guidelines)**

Wetness Class	Texture <sup>1</sup> of the top 25 cm	Field Capacity Days				
		<126	126-150	151-175	176-225	>225
I	S <sup>2</sup> LS <sup>3</sup> SL SZL	1	1	1	1	2
	ZL MZCL MCL SCL	1	1	1	2	3a
	HZCL HCL	2	2	2	3a	3b
	SC ZC C	3a(2)	3a(2)	3a	3b	3b
II	S <sup>2</sup> LS <sup>3</sup> SL SZL	1	1	1	2	3a
	ZL MZCL MCL SCL	2	2	2	3a	3b
	HZCL HCL	3a(2)	3a(2)	3a	3a	3b
	SC ZC C	3a(2)	3b(3a)	3b	3b	3b
III	S <sup>2</sup> LS SL SZL	2	2	2	3a	3b
	ZL MZCL MCL SCL	3a(2)	3a(2)	3a	3a	3b
	HZCL HCL	3b(3a)	3b(3a)	3b	3b	4
	SC ZC C	3b(3a)	3b(3a)	3b	4	4
IV	S <sup>2</sup> LS SL SZL	3a	3a	3a	3b	3b
	ZL MZCL MCL SCL	3b	3b	3b	3b	3b
	HZCL HCL	3b	3b	3b	4	4
	SC ZC C	3b	3b	3b	4	5
V	S LS SL SZL	4	4	4	4	4
	ZL MZCL MCL SCL	4	4	4	4	4
	HZCL HCL	4	4	4	4	4
	SC ZC C	4	4	4	5	5
Soils in Wetness Class VI - Grade 5						

\*Grades shown in brackets relate to naturally calcareous soils only.





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|--|---|------------------------------|--|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: blue; margin-right: 5px;"></span> * Grade 1 - excellent quality</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: cyan; margin-right: 5px;"></span> Grade 2 - very good quality</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: green; margin-right: 5px;"></span> * Subgrade 3a - good quality</li> </ul> | } | Best and most versatile land | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; margin-right: 5px;"></span> Subgrade 3b - moderate quality</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></span> * Grade 4 - poor quality</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: orange; margin-right: 5px;"></span> * Grade 5 - very poor quality</li> </ul> |
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: white; margin-right: 5px;"></span> * Not Present</li> </ul>  |   |                              |  |



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Scale 1:10,000:A4 Aug/2016

Figure RAC7358-1: MAFF and Predicted ALC

Site: Jelbert Way, Penzance

Client: WYG Environment Transport Planning Ltd



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