

# KIRKTON SOLAR PHOTOVOLTAIC (PV) AND ENERGY STORAGE FACILITY

## Land Capability for Agriculture

OXF11868  
Land at Kirkton  
Draft  
March 2021

**AGRICULTURAL LAND CLASSIFICATION**


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**Quality Management**

Version	Status	Authored by	Reviewed by	Approved by	Review date
1	Final	Julia Tindale	P.McKernan		

**Approval for issue**

[Name]	[Signature]	[Date]
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**File/Model Location**

**Document location:** Blank.docx

**Model / Appendices location:**

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- Figure 1 - Soil Survey of Scotland soil mapping
- Figure 2 - Land Capability for Agriculture Classes – partial mapping

# 1. INTRODUCTION

- 1.1 This report presents an assessment of the agricultural characteristics of the proposed solar farm and energy storage facility site situated approximately 1km to the south east of St Fergus, approximately 2km north of Peterhead, Aberdeenshire. The report considers the nature of the soils and agricultural Land Capability for Agriculture (LCA) classification of the Site based on the Macaulay Institute LCA (1982).
- 1.2 Section 2 of the report considers the National and Local Planning Policy context relevant to consideration of the potential effects of the proposed development on agricultural land quality.
- 1.3 The methodology for data collection is presented in Section 3 of the report. Section 4 describes the location, land use and topography of the Site together with the published geological and soils characteristics relevant to the land capability of the Site. The LCA of the Site is presented in Section 5 with analysis and conclusions provided in Section 6.

## 2. POLICY BACKGROUND

### Planning Policy Context

#### National Policy – Scottish Planning Policy (2014)

2.1 Paragraph 80 provides policy in relation to the protection of agricultural land.

*“80. Where it is necessary to use good quality land for development, the layout and design should minimise the amount of such land that is required. Development on prime agricultural land, or land of lesser quality that is locally important should not be permitted except where it is essential:*

- as a component of the settlement strategy or necessary to meet an established need, for example for essential infrastructure, where no other suitable site is available; or*
- for small-scale development directly linked to a rural business; or*
- for the generation of energy from a renewable source or the extraction of minerals where this accords with other policy objectives and there is secure provision for restoration to return the land to its former status.”*

2.2 Prime land is defined as Classes 1, 2 and 3.1 of the LCA system.

#### Aberdeenshire Local Development Plan (2017)

2.3 Policy PR1 Protecting important resources states:

2.4 *“We will not approve developments that have a negative effect on important environmental resources associated with the water environment, important mineral deposits, prime agricultural land, peat and other carbon rich soils, open space, and important trees and woodland. In all cases development which impacts on any of these features will only be permitted when public economic or social benefits clearly outweigh the value of the site to the local community, and there are no reasonable alternative sites”*

2.5 This policy also appears as Policy PR1.1 in the proposed Aberdeen Local Plan 2020.

### 3. METHODOLOGY

3.1 The methods used to collect data for the appraisal of soils and LCA on the Site are described below.

#### Land Capability for Agricultural Classification

3.2 The assessment of the effects on agricultural land quality and soil resources is based on a desk top assessment of relevant published information:

- Geological Information from British Geological Survey Internet Portal at: [www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html](http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html)
- Glentworth R and Muir J W (1963) *Soils of the Country around Aberdeen Inverurie and Fraserburgh*. HMSO Edinburgh. Available at: [https://www.hutton.ac.uk/sites/default/files/files/soils/142141013\\_THE\\_SOILS\\_ROUND\\_ABERDEEN\\_INVERURIE\\_AND\\_FRASERBURGH.PDF](https://www.hutton.ac.uk/sites/default/files/files/soils/142141013_THE_SOILS_ROUND_ABERDEEN_INVERURIE_AND_FRASERBURGH.PDF)
- LCA partial cover mapping available at: [http://map.environment.gov.scot/Soil\\_maps/?layer=5](http://map.environment.gov.scot/Soil_maps/?layer=5)
- Bibby J S et al, 1991. Land Capability Classification for Agriculture. The Macaulay Land Use Research Institute, Aberdeen

## 4. LOCATION AND LAND USE, TOPOGRAPHY, GEOLOGY AND SOILS

### Location and Land Use

- 4.1 The Site is situated approximately 1km south east of St Fergus and approximately 2km to the north of Peterhead and comprises predominantly agricultural grassland for livestock farming.

### Topography

- 4.2 The land within the Site is very gently sloping across its wider extents. The gradients across the site do not limit the quality of the agricultural land according to the LCA system.

### Geology

- 4.3 The area is covered by a thick deposit of heavy textured, reddish glacial till derived from mixed acid igneous, acid metamorphic and basic igneous rocks and the soils of most of the site are formed directly in this material. There is a band of dark grey silty clay, the remnant of a former raised beach occupying about half of the site in the north-east and east. Sand, forming dunes along the coast, is shown to the east of the site.

### Soils

- 4.4 There are three main kinds of soils on the site, each associated with one of the geological parent materials described above, as identified on Figure 1. The Peterhead series is a poorly drained, heavy textured soil developed directly in glacial till (described in more detail on p160 of the Soil Memoir for the area), with the poorly structured (massive) clay at depth causing the impeded drainage. A typical soil profile description of this soil series is provided below:

#### Peterhead Soil Series Description

0 – 8 inches - Dark grey-brown (10YR4/2) loam; strong angular blocky, breaking into medium crumb; slightly plastic; organic matter moderate; roots frequent; stones mainly small and sub-rounded; no mottling.

8 – 16 inches Dark grey-brown (10YR4/2), brown (7.5YR5/4) and pale brown (10YR6/3) clay loam; mixing by worms; w& prismatic becoming stronger towards base; slightly plastic; low organic matter; roots frequent; frequent stones as above; moist; frequent yellow, medium, distinct mottles; grey sandy patches on structural planes.

16 – 24 inches - Brown (7.5YR5/4) clay loam with patches of pale brown (10YR6/3) sandy clay loam; coarse prismatic; low organic matter; occasional roots growing between faces of peds; occasional large decomposing granite stones; moist; mottling as above with frequent black manganese staining.

24 – 48 inches - Reddish brown (5YR4/4) clay; prismatic structure fading at 30 inches; massive below 36 inches; very plastic; no organic matter or roots; stones as in above

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horizon; fossil root channels to 46 inches; ochreous mottling and manganese staining frequent in upper part, infrequent at 48 inches.

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- 4.5 The Blackwater Complex (dark grey colour and map symbol BW.C) is a collection of poorly drained soils all characterised by having heavy clay at depth which causes the drainage impedance. This is overlain by a variable thickness of blown sand or peat or in some cases both, giving a range of soil profiles hence the use of the term “complex”. A description of a typical profile from this complex is provided below:

**Blackwater Complex Description**

0 – 8 inches - Dark grey-brown (10YR4/2) loamy sand; weak fine blocky; moderate organic matter; rich in shell fragments; roots abundant; no stones; no mottles.

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8-19 inches - Dark yellowish brown (10YR4/4) loamy sand; weak medium prismatic; friable; moderate organic matter; roots frequent; no stones; no mottles.

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19 – 26 inches - Very dark grey (10YR3/1) clay loam; moderate coarse prismatic; plastic; low organic matter; few stones; frequent distinct medium yellowish red (5YR5/8) mottles.

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26 – 32 inches - Grey-brown (2.5Y5/2) silty clay; weak coarse prismatic; plastic; low organic matter; few stones; frequent distinct medium yellowish red (5YR5/8) and strong brown (7.5YR5/8) mottles.

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32 – 52 inches - Grey-brown (2.5Y5/2) silty clay; massive; plastic; low organic matter; few stones; few mottles, decreasing with depth.

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- 4.6 Along the coast there is a broad belt of blown sand consisting of sand dunes adjacent to the shore and flatter inland areas, called Links with the latter found in the extreme south east of the site and in a larger area of rough grazing north-east of North Kirkton. In contrast to the other soils on the site these are freely to excessively drained and of a “skeletal” nature, consisting of just a few centimetres of surface organic material over loose sand.



## 5. LAND CAPABILITY FOR AGRICULTURE (LCA) CLASSIFICATION OF THE SITE

5.1 Figure 2 shows the location of the Site overlain with the LCA mapping.

5.2 The main classes identified within the Site are Class 3.2, and 4.1 with a potential fringe of 4.2 to the north and a small area of 6.2 on the north-eastern fringe. The definitions of these LCA classes are as follows:

- **Class 3.2** - Land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common
- **Class 4.1** - Land capable of producing a narrow range of crops, primarily grassland with short arable breaks of forage crops and cereals
- **Class 4.2** - Land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops
- **Class 6.2** – Land Capable of use as rough grazings with moderate quality plants

5.3 There is no Prime Land on the site (Class 3.1 or better), the best being Class 3.2 on the soils of the Peterhead series and the Blackwater Complex. The main reason for this grading, as shown on the original published LCA map, is a wetness limitation associated with the impeded drainage. The area of Links sand is placed in Class 4.1 with the main agricultural limitation, as shown on the original published map, regarded as being the risk of wind erosion on these very sandy, soils. The small area of 6.2 is associated with dune sand.

5.4 The analysis of the LCA classes of land identified within the Site are therefore as follows:

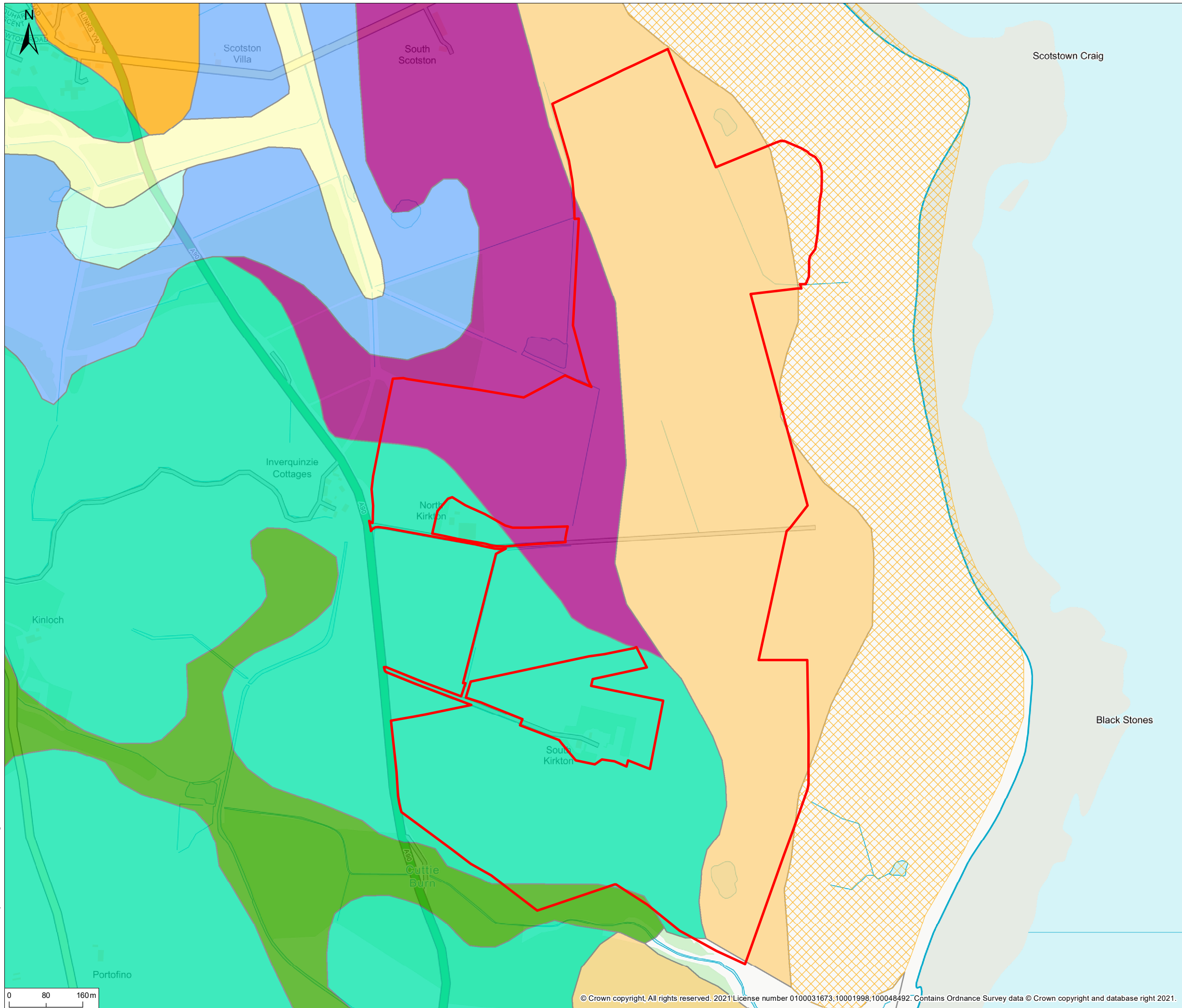
LCA Class	Area(ha)	%
Class 3.2	54.9	49
Class 4.1	57.3	51
Class 4.2	<0.1	
Class 6.2	0.4	<1
Total	112.7	100

## 6. ANALYSIS AND CONCLUSIONS

- 6.1 The desk top assessment of the Site identifies that it comprises entirely lower quality land predominantly in Classes 3.2 and 4.1 of the LCA system.
- 6.2 The Site does not, therefore comprise any Prime agricultural land and the proposed use as a solar farm and energy storage facility would not be in conflict with National Policy objectives for the protection of Prime land.
- 6.3 In addition, the land will continue to fulfil an agricultural purpose during the operation of the facility and soils would remain in situ on the Site, as far as possible. The rows of panels will be separated by spaces of between 2-6 metres and will be fixed atop frame tables which will be pushed or screwed into the ground. At their lowest, panels will remain typically 800mm off existing ground levels which will allow uninterrupted grazing by sheep. There would therefore be no permanent loss of the soil resource as a result of the development and the land would be restored to the pre-working agricultural use following the completion of the operation of the facility.



**FIGURES**



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- Legend**
- Site Boundary
  - AL
  - AN
  - BC
  - BW.C - Blackwater Complex
  - LN - Links
  - PE – Peterhead
  - PR
  - PT
  - Dune Sand
  - No Data

Rev	Description	By	CB	Date



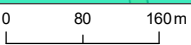
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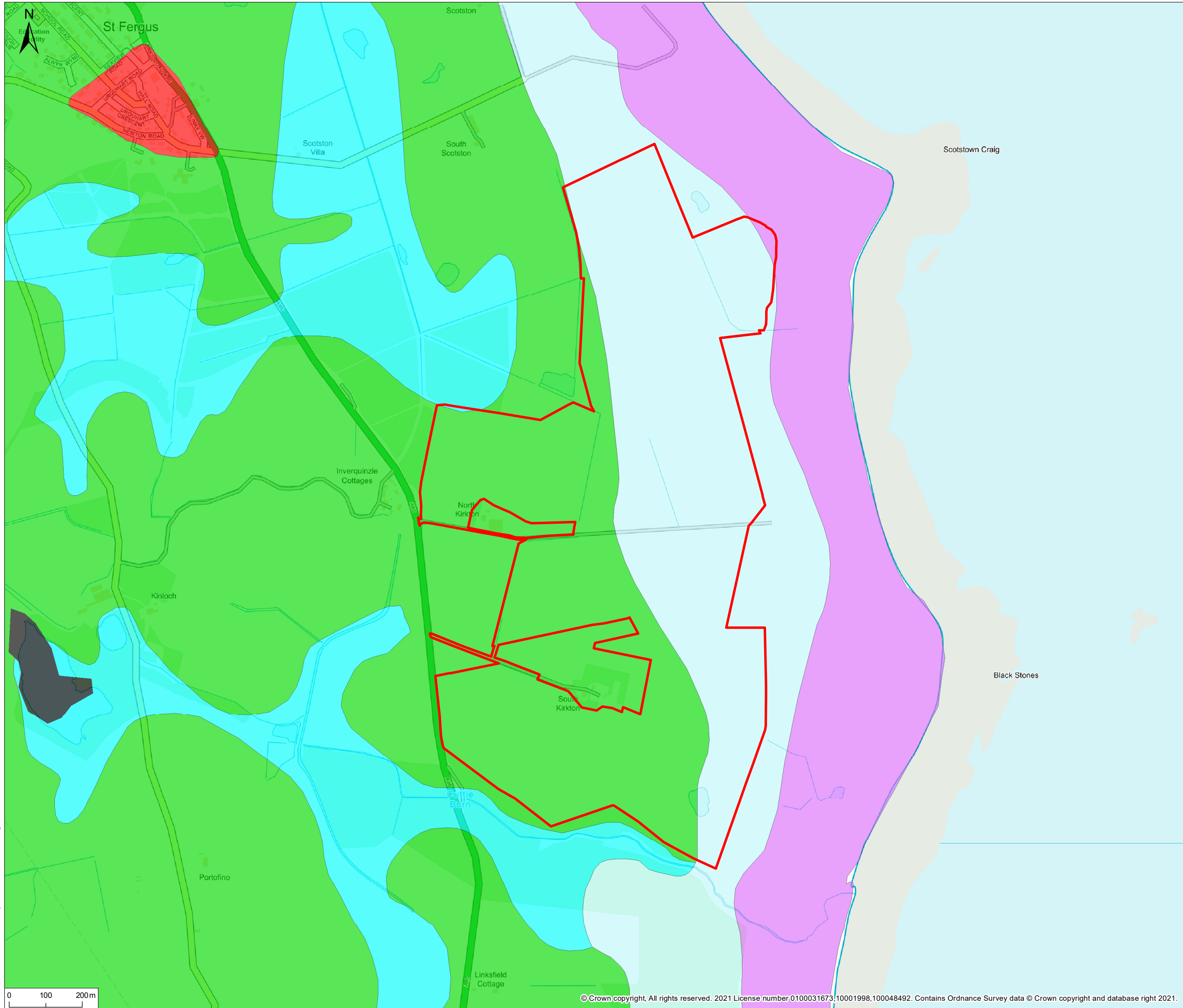
Client -  
 Project Kirkton ALC  
 Title Soil Survey Plan

Status	Drawn By	PM/Checked By
DRAFT	BG	JT
Project Number	Scale @ A3	Date Created
OXF11868	1:7,932	MAR 2021
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- Legend**
- Site Boundary
  - 3.2
  - 4.1
  - 4.2
  - 6.2
  - Built-up area
  - Inland water

Rev	Description	By	CB	Date



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Client -  
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Status	Drawn By	PM/Checked By
DRAFT	BG	JT
Project Number	Scale @ A3	Date Created
OXF11868	1:10,000	MAR 2021
Figure Number		Rev
2		-

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