

16.0 AGRICULTURAL LAND & SOILS

Introduction

- 16.1 This Chapter of the ES assesses the likely significance of the Proposed Development in terms of agricultural land and soils and is supported by **Appendix 16.1**. The Chapter describes the assessment methodology; the baseline conditions currently existing at the Assessment Site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed. The Chapter has been prepared by Land Use Consultancy Services (LUCS) **Appendix 16.2**.
- 16.2 The background to the Ryedale Gas Project is provided in Chapter 3 (Site and Surroundings) and Chapter 4 (Project Description) and is not being repeated here. The Chapter is based on a detailed soil survey and Agricultural Land Classification (ALC) assessment of agricultural land likely be affected by the Proposed Development. It describes the soil types and agricultural land quality that occur across the Assessment Site, considers the likely effects on agricultural businesses and sets out a soils and agricultural strategy that is designed to mitigate the effects of the Proposed Development.

Planning Policy Context

- 16.3 This Section reviews the planning policy background at the national, regional and local level as it relates to agricultural land and soils.
- 16.4 ***Planning Policy Guidance Note 7 (PPG7) "The Countryside - Environmental Quality and Economic and Social Development" (Department of the Environment, 1997)*** PPG7 established the principal of protecting valuable agricultural land from irreversible development in the national interest and in assessing the effect of severance and fragmentation upon the viability of farm businesses. The level of protection given to land of high quality, however, has been reduced by significant changes to national policy guidance in recent years.
- 16.5 ***The White Paper "Our Countryside: the future" (CM4909, 2000)*** signalled the Government's intention to reduce the weight attached to high quality agricultural land in planning decisions and to introduce a more holistic approach to valuing the importance of land assets, which would incorporate agricultural considerations on an equal footing

with other factors. This intention was realised through the publication of new planning guidance *Planning Policy Statement 7 (PPS7) 'Sustainable Development in Rural Areas'* (Office of the Deputy Prime Minister, August 2004), which replaced PPG7 - only Annex E to PPG7 which provides guidance on permitted development rights for agriculture and forestry remains extant.

16.6 PPS7 states, at paragraphs 28 and 29:

“The presence of the best and most versatile agricultural land (defined as land in grades 1 and 2 and 3a of the Agricultural Land Classification) should be taken into account alongside other sustainable considerations (e.g. biodiversity; the quality and character of the landscape; its amenity value or heritage interest; accessibility to infrastructure, workforce and markets; maintaining viable communities; and the protection of natural resources, including soil quality) when determining planning applications. Where significant development of agricultural land is unavoidable, local planning authorities should seek to use areas of poorer quality land (grades 3b, 4 and 5) in preference to that of a higher quality, except where this would be inconsistent with other sustainable considerations. Little weight in agricultural terms should be given to the loss of agricultural land in grades 3b, 4 and 5, except in areas (such as uplands) where particular agricultural practices may themselves contribute in some special way to the quality and character of the environment or the local economy. If any undeveloped agricultural land needs to be developed, any adverse effects on the environment should be minimised.

Development Plans should include policies that identify any major areas of agricultural land that are planned for development. But local planning authorities may also wish to include policies in their LDDs to protect specific area of best and most versatile agricultural land from speculative development. It is for local planning authorities to decide whether best and most versatile

agricultural land can be developed, having carefully weighed the options in the light of competent advice."

16.7 PPS7 does not contain reference to assessing the effect of severance and fragmentation upon the viability of farm businesses.

16.8 *Safeguarding our Soils. A Strategy for England (Defra, September 2009)* states:

"We must ensure that planning decisions take sufficient account of soil quality, particularly when significant areas of the best and most versatile agricultural land are involved. Together with Communities and Local Government (CLG), we will review the effectiveness of existing planning policy to protect important soils and consider whether there is a need to update it."

16.9 *Planning Policy Statement 4 (PPS4) (Department for Communities and Local Government, December 2009)* sets out the Government's comprehensive policy framework for planning for sustainable economic development in urban and rural areas. It replaced the economic development sections of PPS7 but did not affect paragraphs 28 and 29.

16.10 *Regional Spatial Strategy for Yorkshire and the Humber (May, 2008)* continues this theme in Policy ENV7: Agricultural Land:

"If development of agricultural land is required it should take place on poorer quality land wherever possible and appropriate.

Outcomes: The Region's resource of good quality agricultural will have been safeguarded and enhanced.

Indicators: Extent and condition of agricultural land.

Targets: Stabilise quantity and quality of agricultural land. No loss of good quality (grades 1, 2 and 3a) agricultural land."

- 16.11 At the sub-regional level, the ***North Yorkshire County Council's Mineral Local Plan (1997)*** contains policies which need to be taken into consideration while drawing up a planning application for minerals development and which the Council must have regard to when deciding such applications. The policies were due to expire on the 27 September 2007, but the Secretary of State has allowed some policies to be extended, or 'saved' until policies being developed in the Minerals and Waste Development Framework supersede them.
- 16.12 The 'saved' policies will continue to form part of the statutory 'development plan' and provide the local policy framework for development control decisions until they are replaced by ones in the MWDF. Sections of the original Minerals Local Plan which would have been relevant to the Ryedale Gas Project Assessment Site, but which were not 'saved', were:-

“Best and Most Versatile Agricultural Land

Government policy on agricultural land is set out in PPG7. The best and most versatile land (Grades 1, 2 & 3a in the MAFF Agricultural Land Classification System) is regarded as a national resource to be protected from irreversible loss. Where the working of some such land is unavoidable, it will only be permitted where provision is made for high standards of soil stripping, storage, management, restoration, drainage and aftercare to enable reinstatement to a condition suitable for high quality agriculture to be attained.

Mining operations on the best and most versatile agricultural land will only be permitted where provision is made for a high standard of restoration, such that either an agricultural afteruse can be achieved or the future potential for agricultural use is safeguarded.”

- 16.13 ***The North York Moors National Park Authority Core Strategy (November, 2008)*** seeks, under 'Environmental Protection':

“To conserve and enhance the special qualities of the North York Moors National Park, development will only be permitted where it will not have an unacceptable adverse

impact on surface and ground water, soil, air quality and agricultural land.

The best and most versatile agricultural land is defined as that of grades 1, 2 and 3A and whilst much of the land in the Park does not fall within these categories there are pockets around Whitby and the western and southern fringes which are of a high quality."

16.14 Moorland Energy will demonstrate that the above policies have been addressed and that best and most versatile agricultural land will not be significantly affected as a result of the Proposed Development.

Assessment Methodology

16.15 Fieldwork was undertaken during November and December 2009 and January 2010. The soils were examined by hand auger borings to a depth of 120cm (or to weathering bedrock or solid strata if this was shallower) at 100 metre intervals, staggered across the Assessment Site and at other points predetermined by the National Grid. Additional observations were made to confirm soil types and boundaries. Soil profiles were inspected, where necessary, to assess soil physical characteristics and structural conditions.

16.16 Agricultural Land Classification (ALC) assessments were made using the revised guidelines and criteria of the Department for Environment, Food and Rural Affairs (Defra) – formerly the Ministry of Agriculture, Fisheries and Food (MAFF) - and described in "Agricultural Land Classification of England and Wales" (MAFF, 1988). ALC grade is determined by the most limiting factor present, according to the degree to which these limitations affect long-term agricultural use. Climatic criteria are considered first, followed by site characteristics and, finally, soil limitations. The definition of land classification grades is given in **Appendix 16.3**.

16.17 The assessment of the impact of a Proposed Development upon the economic viability and sustainability of affected farm businesses is based upon the following factors:

- Land quality;
- Land-take and financial implications;
- Effects on access;

- Effects on land drainage;
- Effects on buildings;
- Severance issues; and
- Accommodation work.

Baseline Conditions

- 16.18 The Assessment Site extends from the existing Ebberston Well site on the southern edge of the North York Moors; two new parallel pipelines each 8.6 km in length to be laid within a nominal 42m working width, running in a south westerly direction across Wilton Heights; to the proposed Gas Processing Facility at Hurrell Lane. Typical altitude at Givendale Head Farm is 224m O.D., 118m O.D. at Wilton Heights and 23m O.D. at Hurrell Lane.
- 16.19 The agricultural land across the Assessment Site comprises all, or part, of fields in a number of different ownerships which were under arable cultivation or in permanent grassland at the time of the LUCS survey and occupies level and gently undulating land with slopes in the range 0 – 3 degrees in the north and south. Across the centre of the Assessment Site slopes were steeper and in the range 4 – 11 degrees (locally 12 – 15 degrees and occasionally 16 – 18 degrees).
- 16.20 ***Climatic Limitations:*** Climate has a major, and in places an overriding, influence on land quality across the Assessment Site by affecting both the range of potential agricultural uses and the cost and level of production. It is therefore necessary to include within the ALC exercise an assessment of the overall climatic limitation in addition to interactive limitations which are assessed separately.
- 16.21 Site-specific Met Office data show that the combination of rainfall and temperature imposes a climatic limitation upon land grade across the whole of the Assessment Site.
- 16.22 The best possible grade at Givendale Head is Subgrade 3b, whilst at Wilton Heights and at Hurrell Lane it is Grade 2. Limitations of site, soil physical characteristics and interactive soil limitations further downgrade land quality across the Assessment Site.
- 16.23 ***Site Limitations:*** The assessment of site factors is primarily concerned with the way in which topography influences the use of agricultural machinery and hence the cropping potential of land. Flood risk is also regarded as a site limitation as it is usually associated with well-defined topographic features.

- 16.24 Gradient limits ALC grade across part of the Assessment Site, but neither microrelief nor flood risk is a limiting factor in the final assessment of land grade.
- 16.25 **Geology and Soils:** The 1:50,000 scale geological map of the Scarborough area (British Geological Survey, 1998, Sheet 54, Solid and Drift Geology) shows that the A170 Pickering to Scarborough road marks the junction of solid, drift-free strata to the north and drift-covered strata to the south within the Assessment Site.
- 16.26 The solid strata to the north of the A170 form a complex lithological pattern of Calcareous Sandstone of the Lower Calcareous Grit Formation, Oolitic Limestones and Sandstones of the Coralline Oolite Formation (Passage Beds, Hambleton Oolite and Middle Calcareous Grit) and the Kimmeridge Clay Formation.
- 16.27 To the south of the A170 stony clay Till (boulder clay) and Lacustrine Deposits of silt, sand and clay overlie the Kimmeridge Clay Formation which itself is exposed at the surface in a narrow strip to the west of Wilton.
- 16.28 The soils developed on these solid strata and drift deposits exhibit soil profiles which are mapped and described as soils of the Elmton 2, Rivington 1, Fyfield 3, Anglezarke, Belmont, Landbeach, Dunkeswick and Denchworth Associations by the Soil Survey of England and Wales (Soils of England and Wales, Sheet 1, Northern England, SSEW, 1983 and Soils and their Use in Northern England, SSEW, 1984).
- 16.29 The LUCS survey confirmed the general soil pattern described above and more accurately defined soil types and boundaries.
- 16.30 **Soil Limitations:** The main soil properties which affect the cropping potential and management requirements, and hence ALC, of land across the Assessment Site are texture, structure, depth, stoniness and chemical fertility.
- 16.31 **Interactive Limitations:** The physical limitations which result from interactions between climate, site and soil are soil wetness, soil droughtiness and erosion. Across the Assessment Site only soil wetness and soil droughtiness limits the final assessment of land grade.

Agricultural Land Classification

- 16.32 The maps of Agricultural Land Classification which cover the areas around Pickering and Scarborough published by the Ministry of Agriculture at a scale of one inch to one mile

(Sheets 92, 1970 and 93, 1968), show the Application Site to be a mixture of Grade 4 land in the north at Givendale Head, Grade 3 land across Wilton Heights and Grades 3 and 4 around Hurrell Lane in the south. Forestry Commission land at Dalby Forest is classed as other land primarily in non-agricultural use.

- 16.33 In the wider Pickering/Scarborough area Grade 2 is the dominant grade across the northern Vale of Pickering from Wilton eastwards to Seamer and to the east and west of Malton.
- 16.34 Grade 3 is widespread across the southern Vale of Pickering and on the dipslope of the North York Moors.
- 16.35 Grade 4 land occupies discrete areas within the Vale of Pickering and on the dip slope of the North York Moors and is widespread around Troutsdale, Lockton Low Moor and to the west of Cropton.
- 16.36 Grade 5 land – the worst category within the ALC system – occupies much of the North York Moors proper.
- 16.37 Non-agricultural land includes urban areas, Forestry Commission land, farm woodland, airfields and golf courses.
- 16.38 An interpretation of the MAFF ALC maps using the current ALC classification, information from the published soil maps and an examination of the available geological information indicates that the agricultural land classification grades found across the Assessment Site are typical of those to be found on similar sites in the wider Pickering/Scarborough area.

ALC across the Assessment Site

- 16.39 The ALC grades found across the Assessment Site during the LUCS survey are summarized in **Tables 16.1** and **16.2** and are shown in **Figures 16.1** to **16.6**.

Table 16.1: ALC Assessment

| <i>Grade</i> | <i>Description / Comments</i> |
|-----------------------|--|
| Grade 1 | None. |
| Grade 2 | None. |
| Subgrade 3a | <p>Land in this subgrade occurs on the lower ground in the south of the Assessment Site - at the proposed Hurrell Lane Gas Facility - where soil wetness (Wetness Class II and III, Appendix 16.4) is the major limitation.</p> <p>This subgrade also occurs on the higher ground across Wilton Heights on shallow limestone and sandstone where the main limitations are gradient, soil depth, topsoil stoniness and moderate soil droughtiness.</p> |
| Subgrade 3b | <p>This subgrade is found at Wilton Heights across the centre of the Assessment Site on shallow limestone and sandstone where the main limitations are gradient, soil depth, topsoil stoniness and moderately severe soil droughtiness.</p> <p>In the north at Givendale Head there is also land within this category where soil, site and interactive limitations do not outweigh those imposed by climate.</p> |
| Grade 4 | <p>At Givendale Head and locally across Wilton Heights shallow, stony soils and steep slopes, either singly or in combination, form land within this Grade.</p> <p>Clayey, poorly drained (Wetness Class IV) soils developed in Kimmeridge Clay on the northern fringe of the Vale of Pickering between the A170 and the Hurrell Lane Gas Facility also form land within Grade 4.</p> |
| Grade 5 | None. |
| Non-agricultural land | Forestry Commission land at Dalby Forest forms land within this category. |
| Un-surveyed land | <p>The Eberston Wellsite and access road was fenced and permanently out of agriculture at the time of survey.</p> <p>Land south of the A170 to the Hurrell Lane Gas Facility is also included within this category as access to undertake the soil and ALC surveys was refused by the landowner concerned.</p> |

Table 16.2 : Proportion of Land Within Each Grade

| Grade | Area (ha) | % of site |
|-----------------------|-----------|-----------|
| Grade 1 | Nil | Nil |
| Grade2 | Nil | Nil |
| Subgrade 3a | 14.34 | 24.50 |
| Subgrade 3b | 23.34 | 39.87 |
| Grade 4 | 4.01 | 6.85 |
| Grade 5 | Nil | Nil |
| Non-agricultural land | 2.54 | 4.34 |
| Un-surveyed land | 14.31 | 24.44 |
| Total | 58.54 | 100 |

Likely Significant Effects

- 16.40 The operations associated with the Proposed Development are detailed elsewhere within this ES and provide information on working proposals and outline the programme of soil stripping, storage and restoration. Overall restoration along the pipeline section will be to agricultural land whilst the permanent facilities at the Ebberston Well site, the Hurrell Lane Gas Processing Facility and associated access roads will be landscaped. Restoration to agriculture will occur either during or immediately after completion of the works. Landscaping and agricultural aftercare will be monitored for a further 5 years after completion.
- 16.41 **On land and natural resources:** Although the Ryedale Gas Project will have an effect upon all the agricultural land within the Assessment Site, and it is recognised that there will be temporary (both short term and medium term) disturbance, only a very small area of high quality agricultural land will be irreversibly lost as a result of the Proposed Development. The remainder would be temporarily lost to agriculture for the duration of the works.
- 16.42 Of the agricultural land surveyed, the total area temporarily affected by the Proposed Development is approximately 35.82 ha, of which some 8.47 ha falls within the 'best and most versatile' category.
- 16.43 The total area of agricultural land surveyed and permanently affected by the Proposed Development is approximately 5.87ha, all of which falls within the 'best and most versatile' category.

- 16.44 Planning Authorities were formerly required by PPG7 to consult Defra where development proposals do not accord with the development plan and where these involve, or are likely to lead to, the irreversible loss of more than 20 ha of land in grades 1, 2 or 3a. This requirement was not taken forward into PPS 7.
- 16.45 The Proposed Development would also result in the permanent loss to agriculture of land associated with the access road to the Hurrell Lane Gas Processing Facility from the A170. This is land to which access was refused during the ALC survey, but an assessment of published information indicates that it includes Subgrade 3b and Grade 4 land. PPS 7 indicates that little weight in agricultural terms should be given to this loss.
- 16.46 In the context of agricultural land in the wider Pickering/Scarborough area, Grade 2 and Subgrade 3a agricultural land is widespread. The application site, with its mixture of Subgrade 3a, Subgrade 3b and Grade 4 land, would be placed above many other potential development sites in the district if ranked on the 'worst first' principle expressed in planning policy and guidance.
- 16.47 Applying the standard significance matrix, the effect upon land and natural resources would be minor at the Local level.
- 16.48 **On soils:** At worst, the potentially valuable soil resource could be lost from the site; for example by inappropriate re-use, simply disposing of it into voids or selling off-site. The detailed proposals, however, take full account of the need to conserve the soils on-site for use in restoration to agriculture and other permitted landscaping works. Damage to the fragile physical characteristics of the soil resource could occur during the stripping, storage and restoration operations if these were to be carried out under unsuitable weather and/or ground conditions.
- 16.49 Soil quality could be compromised if topsoils and subsoils were to be mixed unnecessarily during these operations. Significant long-term damage could be caused to the soil resource by the unnecessary and/or inappropriate traversing of land and soil by heavy machinery – especially under adverse weather conditions. There could be structural breakdown and bio-degradation of valuable soil resources if stockpiled inappropriately and/or for medium or long periods of time.
- 16.50 Applying the standard significance matrix, the effect upon soils would be moderate/minor at a Local level.

16.51 **On the Viability of Agricultural Businesses:** The Ryedale Gas Project would affect a number of local farm businesses, particularly those along the route of the proposed pipeline. These businesses, however, would only experience temporary loss of agricultural land during the duration of the construction works. The remaining agricultural land affected by the Proposed Development – at the Hurrell Lane Gas Processing Facility will be lost to agricultural use.

16.52 Having regard to the above, the impact upon agriculture of the Ryedale Gas Project will be minimal and the economic viability and sustainability of the affected farm businesses will not be threatened.

Mitigation Measures

16.53 **Soils and Agriculture:** The effects of the permanent loss of agricultural land, including approximately 5.87 ha of 'best and most versatile' agricultural land, is capable of partial mitigation through carefully stripping and stockpiling of the top soils and selected subsoils excavated during the Proposed Development, according to texture and position in the soil profile.

16.54 The topsoils and upper subsoils of land of high quality (Subgrade 3a) and topsoils and selected subsoils of Subgrade 3b and Grade 4 land form valuable soil-forming material which would be re-used in the restoration of land within the development site to productive agriculture in accordance with proposals detailed elsewhere within this application.

16.55 All soils would be protected during the works and re-used in accordance with a detailed Soil Handling Strategy.

16.56 Topsoils and subsoils would be stripped and stored separately in accordance with the Soil Handling Strategy for re-use within the Assessment Site.

16.57 This approach would provide a positive re-use of valuable soil-forming materials within the Assessment Site and will result in restored land of similar quality and of similar extent to that which exists at present

16.58 Valuable soil-forming material would, thus, be retained for re-use as follows:-

- Reinstatement to agricultural land within the curtilage of the development along the pipeline route; and
- Landscaping proposals around the Ebberston Wellsite, the Hurrell Land Gas Processing Facility and associated access roads.

16.59 This approach would result in the creation of land of the highest possible quality. As a result, the net loss of 'best and most versatile' agricultural land would be kept to a minimum.

16.60 The detailed Soil Handling Strategy would be prepared and submitted to the Local Planning Authority for approval. This will be supported by the supplementary provision of:-

- An assessment of the current soil resources on site - their nature and volume;
- Comment upon their use as soil-forming material in the proposed soil restoration programme;
- Detailed proposals for the stripping and storage of all topsoils and subsoils to be used in the subsequent restoration;
- Detailed proposals for the management of subsoils remaining as subsoil on site - including trafficking restrictions and climatic working parameters;
- Detailed restoration proposals including final topsoil and subsoil depths; and
- A detailed programme of aftercare for 5 years after completion of the works.

16.61 **The Viability of Agricultural Businesses:** Short and medium term disruption owing to pipeline construction work would be programmed to have the least possible affect upon farming operations and upon the viability and sustainability of the affected farm businesses.

Residual Effects

16.62 The residual effects of the Proposed Development would be the permanent loss of 5.87 ha of 'best and most versatile' agricultural land and a smaller area of other agricultural land which is offered little or no protection within national, regional or local policy and guidance.

16.63 Applying the standard significance matrix, the residual effects would be minor, bordering on insignificant, at a local level.

Cumulative Effects

16.64 There are no cumulative effects.

Summary

16.65 The level of protection given to agricultural land of high quality has been reduced by recent significant changes to national planning policy guidance.

16.66 Although the Ryedale Gas Project would have an effect upon all the agricultural land within the Assessment Site, and it is recognised that there will be temporary (both short term and medium term) disturbance and permanent loss, only a very small area of high quality land will be irreversibly lost as a result of the Proposed Development. The remainder would be temporarily lost to agriculture for the duration of the works.

16.67 The total area of agricultural land within the 'best and most versatile' category permanently affected by the Proposed Development is approximately 5.87 ha. This is the lowest category of land that should be 'taken into account' when determining planning applications according to the guidance set out in Planning Policy Statement 7.

16.68 The impact of the permanent loss of land of high quality is considered to be of no more than minor significance at the Local level. There is little protection given to land of lower quality and the impact of its loss is not considered to be significant in agricultural terms.

16.69 The permanent impacts of the Proposed Development would be mitigated by the positive re-use of selected topsoil and subsoil material stripped during the works in soil restoration and landscaping elsewhere within the curtilage of the Assessment Site.

16.70 The area of agricultural land temporarily affected by the Proposed Development is approximately 35.82 ha, of which some 8.47 ha falls within the 'best and most versatile' category.

16.71 Soil-forming material stripped from the pipeline corridor would be re-used in the reinstatement of soil profiles along the corridor to productive agricultural land on a par with existing land quality.

16.72 In order to protect valuable soil-forming materials, all soils will be protected during the works and re-used in accordance with a detailed Soil Handling Strategy to be approved

by the Local Planning Authority which will ensure that soils are stripped, stockpiled and restored according to 'best practice'.

16.73 In conclusion, the Ryedale Gas Project would have no significant effect upon the viability of agricultural businesses within the Assessment Site and it is consistent with local and national planning policy and guidance in respect of agricultural land quality and soil-related matters.