4.0 THE PROPOSED DEVELOPMENT

Introduction

- 4.1 The Proposed Development, as the second phase of the development of the Ebberston Moor gas field as described in Chapter 1, aims to carry out the following activities as shown on Figure 4.1 and Figure 4.2:
 - Gas production from the Ebberston Moor 'A' Well Site; and
 - Construction of an 8" (200 mm) diameter steel underground pipeline from the existing Ebberston Moor 'A' Well Site to deliver natural gas and condensate to the KGS at East Knapton where it will be used to produce energy.
- 4.2 The proposed construction sequence and programme of works are outlined in Chapter 6. The current project schedule for the Proposed Development anticipates planning and field development approval in 2013, construction commencing in 2015 and transfer of gas via the pipeline between Ebberston Moor 'A' Well Site and KGS commencing in 2016. The gas production associated with the Proposed Development is expected to be up to 15 years duration.
- If, as the Applicant anticipates, the initial phase of development of the Ebberston Moor gas field (Ebberston Moor EDS) is constructed and operational prior to this Proposed Development (in 2014), the structures and equipment on the Ebberston Moor 'A' Well Site will already be in place as shown in **Figure 3.2** and therefore only the pipeline and its connections to the well site and KGS will need to be constructed as part of this Proposed Development. The flare and Lockton Compound will have been decommissioned and restored as part of the Ebberston Moor EDS project and will only be considered in terms of cumulative effects as part of this ES as discussed in Chapter 2.
- 4.4 However, if the Ebberston Moor EDS is not granted planning permission, and is not operational prior to construction of this Proposed Development, all the structures and equipment for this Proposed Development required at the well site as well as the pipeline will be constructed. This will occur once the 'sidetrack' to Ebberston Moor 1 well has been drilled under planning permission NYM/2013/0068/FL. The construction activities associated with gas production at the well site and constructing the pipeline are discussed further in Chapter 6.

19819/A5/ES2013 27 August 2013

Description of the Proposed Development

Ebberston Moor 'A' Well Site

- 4.5 The Ebberston Moor 'A' Well Site lies within the Parish of Allerston at the edge of the Dalby Forest approximately 6.5 km to the north of Ebberston.
- 4.6 The existing well site will be developed to allow for gas production as shown in **Figure 4.1**. It is anticipated that the volume of gas to be produced will be up to 15 million standard cubic feet per day (mmscf/d). In order to facilitate the construction and development of the Proposed Development, the following facilities listed below will be required:
 - Construction compound;
 - Lay down area for pipes;
 - Workforce facilities messing catering and offices;
 - Security cabin;
 - Parking spaces;
 - Potable water tank; and
 - 1 MW natural gas fuelled electric generator.
- 4.7 The main equipment at Ebberston Moor 'A' Well Site will include:
 - Gas well;
 - Water disposal well;
 - Site office:
 - Fire water tank (50 cubic metres);
 - Pipeline pig trap area;
 - Water separator building;
 - Gas fired heater;
 - Water storage tank; and
 - 1 MW natural gas fuelled electric generator.
- 4.8 All storage tanks, loading and unloading areas will be sited on an impermeable and curbed surface with suitable drains, catchment and hydrocarbon separation equipment. A specially designed interceptor will be provided to clean rain and surface water within the site drains before leaving the well site through the soakaway.
- 4.9 Electrical distribution, control, shutdown systems, telecommunications, instrument air and

wellhead hydraulic control panel will be housed within the site office (normally unmanned).

- 4.10 The gas, produced water and condensate will flow from the well head on the Ebberston Moor 1 well through a flow line, into the three phase separator. The inlet separator will operate at the pipeline pressure with the rate of flow limited by the energy generating capacity at KGS. The three-phase wellhead separator will then separate the gas and condensate from the produced water, before transfer of the gas and condensate along the pipeline to the KGS. The wellhead pressure will provide the driving force for the liquid and gas flow. Pig launchers will allow the pipeline to be inspected and/maintained but will not be used during normal operation.
- 4.11 Methanol will be stored in the well site storage tank and will be injected by pump immediately downstream of the wellhead and upstream of the choke valve to reduce hydrate formation. In addition a corrosion inhibitor will be injected at the wellhead.
- 4.12 The Proposed Development will be monitored by a System Control and Data Acquisition (SCADA) system and safety systems will be remotely operated via a telephone or satellite link to KGS. The operation of the Proposed Development will be carried out by the KGS management team as it will be remotely operated with operators available at KGS to respond to alarms and to carry out routine inspection and maintenance.

Produced Water Disposal

4.13 Any water produced during the production of gas will be disposed of via a water disposal well within the well site. Planning permission (NYM/2013/0068/FL) has already been granted for two gas appraisal wells and it is intended that one of the wells will be used for water disposal. Therefore separate planning permission will be sought to use the existing well cellar to drill a borehole for water disposal use, if required at a later date. The use of the borehole through the existing cellar will not be assessed further as part of this ES.

Heights of Buildings and Structures at Ebberston Moor 'A' Well Site

4.14 **Table 4.1** provides the approximate heights of the tallest structures on the well site.

19819/A5/ES2013 29 August 2013

Table 4.1: Approximate Heights of Structures/Buildings

Structure/Buildings	Height (m)
Inlet separator	1.8m
Gas fired heater	1.8m
Water storage tank	4.8m
Site Office (to apex)	3.5m

Pipeline from Ebberston Moor 'A' Well Site to KGS

- 4.15 The length of the pipeline route is 15.3 km. Therefore, the Proposed Development lies outside the remit of the National Infrastructure Directorate of the Planning Inspectorate which deals with nationally significant infrastructure projects including cross-country pipelines (that is, 16 km or more in length) (Schedule 21 of the Planning Act 2008) (Ref. 4.1).
- 4.16 One underground 8" diameter pipeline will be constructed from Ebberston Moor 'A' Well Site to KGS to transport gas and hydrocarbon condensate. The pipeline will be accompanied by a fibre optic cable within the construction working width. The construction working width will be 30m across as shown on **Figure 4.2**. A typical cross-section for the pipeline is shown on **Figure 4.3**.
- 4.17 Once construction has been completed, a 10m easement will be maintained during the operational lifetime of the proposed pipeline for maintenance purposes.

KGS

4.18 The gas and condensate will be separated after arriving at KGS using existing facilities at the KGS. The gas will be used as fuel-gas to generate power while the condensate will be collected and then transported off site by tanker for appropriate disposal.

Access

4.19 Access to Ebberston Moor 'A' Well Site is from the A170 via Ebberston Lane and Ebberston Common Lane. No unauthorised vehicles associated with the Proposed Development will use the Dalby Forest Drive. Ebberston Common Lane and Ebberston Lane are unclassified roads with passing places. Approximately 100m north of Givendale Head Farm, Ebberston Common Lane becomes an unimproved public highway (gravel track). There is already an established access using this route to Ebberston Moor 'A' Well Site and the adjacent Northern Gas Networks (NGN) Lockton Compound.

19819/A5/ES2013 30 August 2013

4.20 Access to the pipeline route is from the local road network including: A170; B1415 Penniston Lane; Allerston Lane; Marishes Lane and B1258 Malton Road where the pipeline route crosses these roads.

Parking

4.21 Eighteen car parking spaces are already provided at Ebberston Moor 'A' Well Site which will be retained and used during the Proposed Development. There will be no car parking spaces available along the pipeline route.

Landscaping

4.22 The landscape strategy for the Proposed Development has been designed with particular consideration to the topography, landscape and ecological constraints and opportunities identified on the Assessment Site. Landscaping works will involve some ground modelling works associated with careful felling of woodland. Elsewhere within the Assessment Site, works will include soil preparation, tree and vegetation planting and seeding once the pipeline has been constructed. The existing screening along the frontage with the Ebberston Common Lane will be retained and enhanced where possible.

Sustainable Drainage Measures

- 4.23 Sustainable Drainage Systems (SuDS) will be used to reduce flood risk, improve water quality, assist groundwater recharge whilst also providing amenity and wildlife benefits.
- 4.24 The existing drainage system at Ebberston Moor 'A' Well Site and Lockton Compound will be upgraded to ensure that the Assessment Site is capable of safely containing, separating and disposing of both rainwater and any fluid spills from the tanks and piping. A closed drain system will recover and store any liquids drained from the process equipment, which will be disposed of in an approved manner. Surface water site drains will be sent to a receiving interceptor and then routed to a clean water discharge point. See Chapter 12 for more details.
- 4.25 Along the northern extent of the pipeline route between the well site and the A170 drainage will be reliant on the natural drainage of the land with the majority of surface water infiltrating into the ground. In contrast south of the A170 where the ground is impermeable, existing field drains will be modified to ensure that drainage of the fields remains unaffected by the presence of the pipeline. There will be no modifications to the drainage at KGS.

19819/A5/ES2013 31 August 2013

Utilities

4.26 The Proposed Development will connect into the existing telephone network in close proximity to Ebberston Moor 'A' Well Site, with new infrastructure installed beneath roads, and verges wherever possible. Electric power will be generated on the well site by a 1 MW natural gas fuelled engine driven generator. Use of natural gas as fuel instead of diesel for power generation reduces the carbon footprint of the Proposed Development. Natural gas will also be used on the well site to fuel a heater to keep the gas from forming hydrates in the plant inlet.

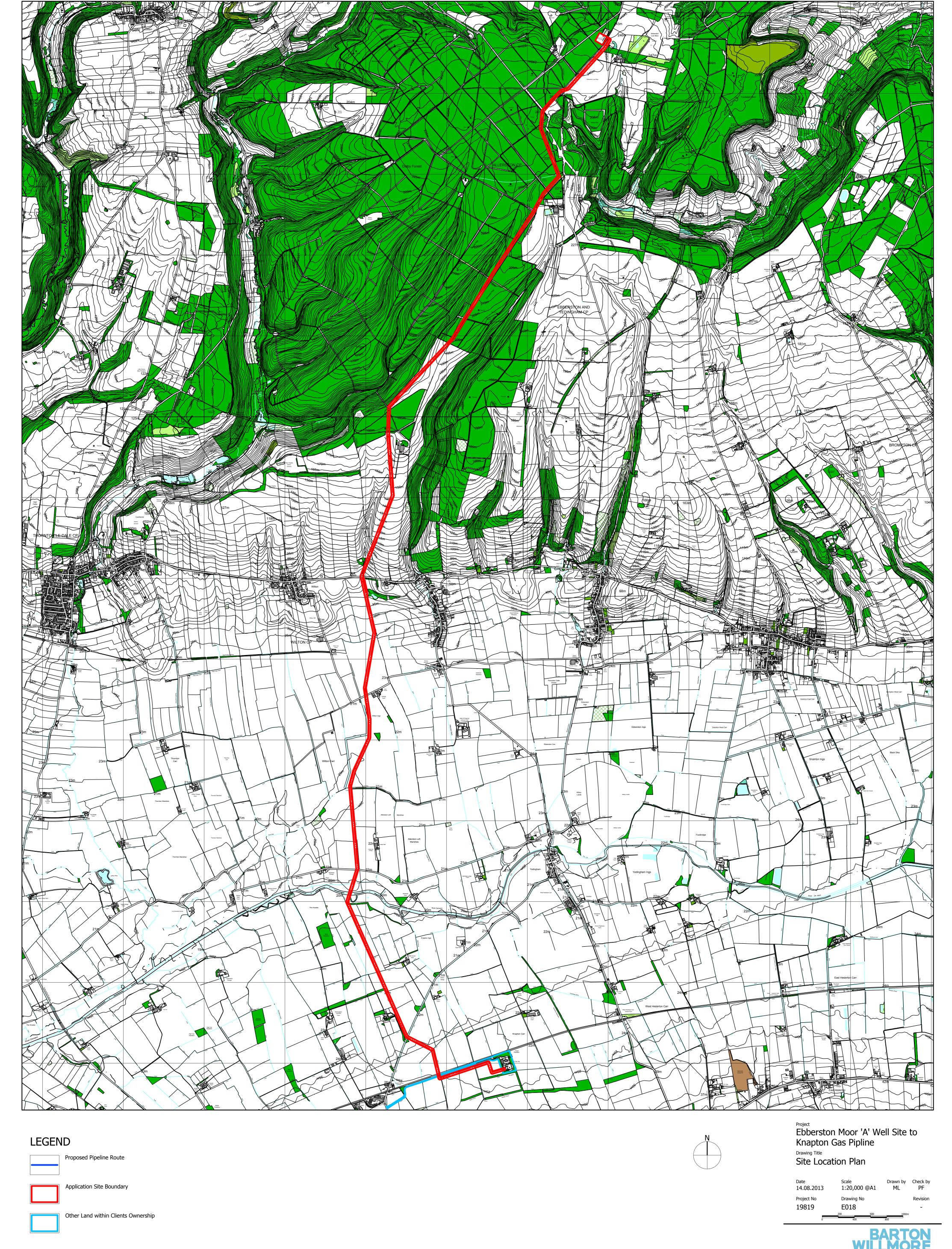
Lighting

4.27 The facility will not be lit at night except in emergencies or for urgent maintenance and therefore has not been described or discussed further in this ES.

Waste Management

4.28 The Proposed Development will provide an appropriate plan and facilities for the efficient collection, storage and transport of waste to an approved and licensed waste company for recycling or disposal. Adequate space for refuse for storage and collection will be provided within the Proposed Development as required by NYCC, NYMNPA and RDC.





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Application Site Boundary



Proposed Pipeline Route

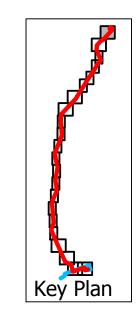


Figure 4.2b

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

Drawing Title

Detailed Pipeline Route Sheet 1 of 15

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Application Site Boundary



Proposed Pipeline Route

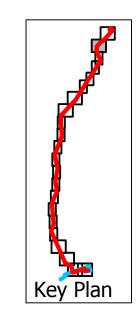


Figure 4.2c

Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

Drawing Title

Detailed Pipeline Route Sheet 2 of 15

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Application Site Boundary



Proposed Pipeline Route



North York Moors National Park

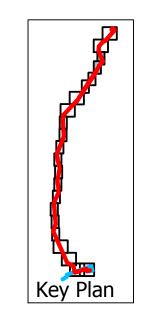


Figure 4.2d

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

Drawing Title

Detailed Pipeline Route Sheet 3 of 15

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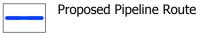




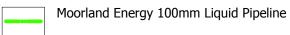
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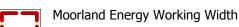
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Application Site Boundary



Moorland Energy 300mm Gas Pipeline







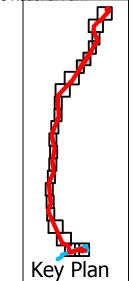


Figure 4.2e

Ebberston Moor 'A' Well Site to **Knapton Gas Pipeline**

Drawing Title

Detailed Pipeline Route Sheet 4 of 15

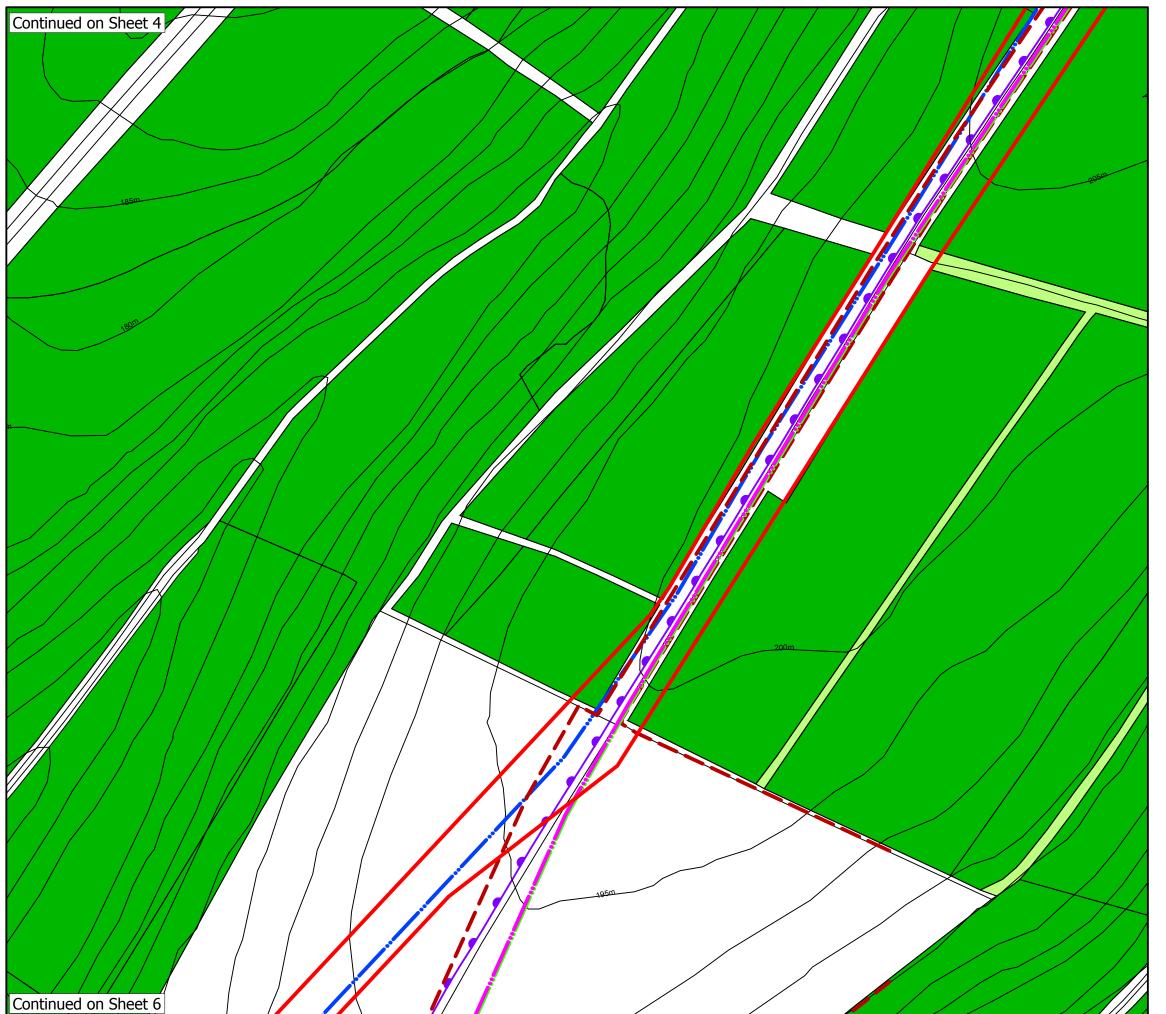
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Application Site Boundary

Application Site Boundary

Proposed Pipeline Route

Moorland Energy 300mm Gas Pipeline

Moorland Energy 100mm Liquid Pipeline

Moorland Energy Working Width

North York Moors National Park

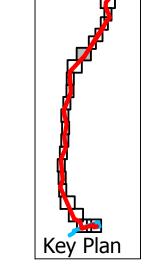


Figure 4.2f

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 5 of 15

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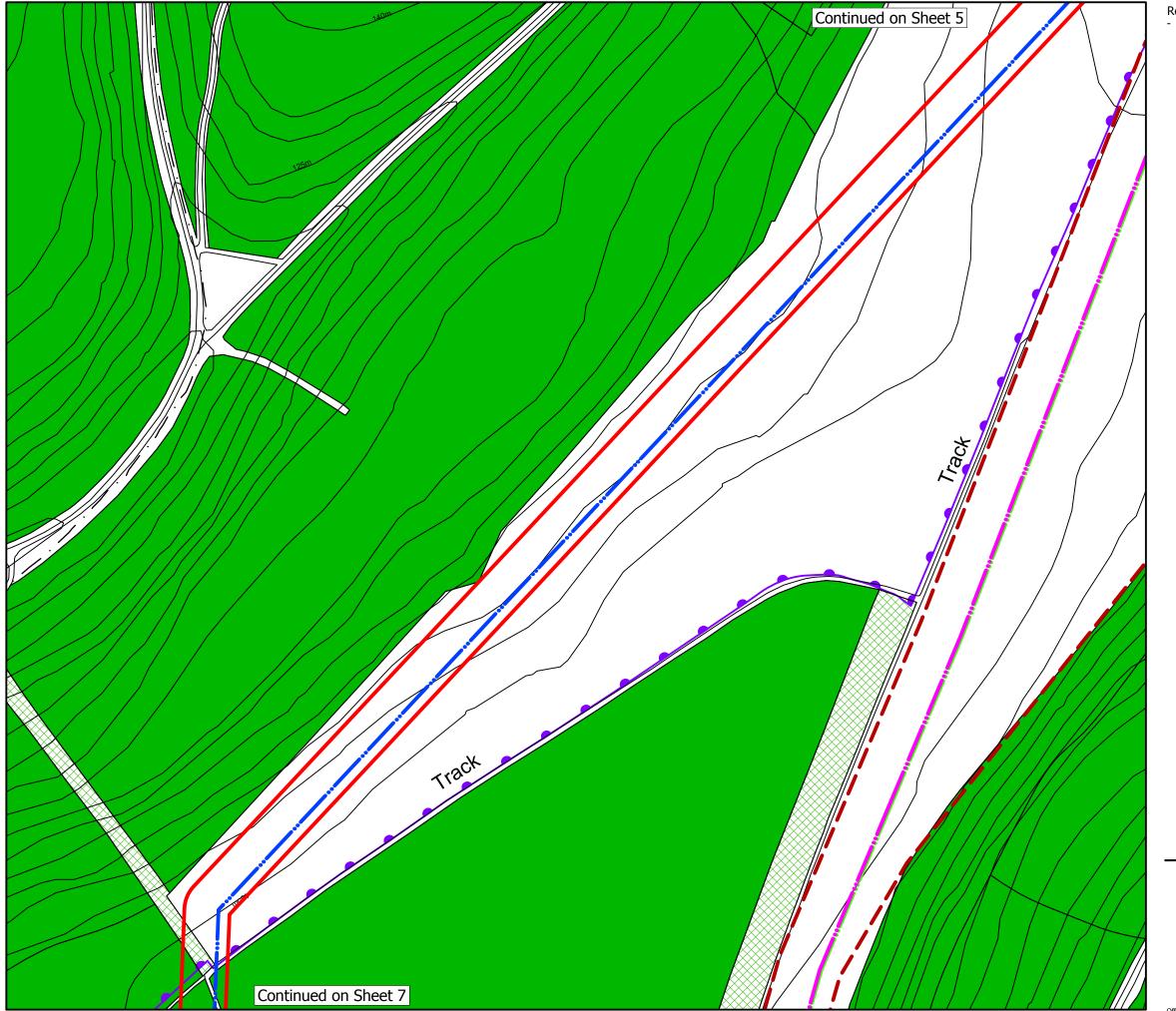
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Figure 4.2g

Ebberston Moor 'A' Well Site to **Knapton Gas Pipeline**

Drawing Title

Detailed Pipeline Route Sheet 6 of 15

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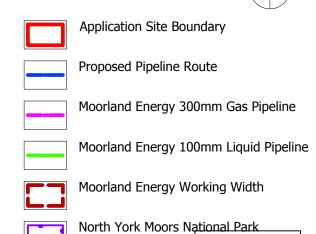


Figure 4.2h

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

Drawing Title

Detailed Pipeline Route Sheet 7 of 15

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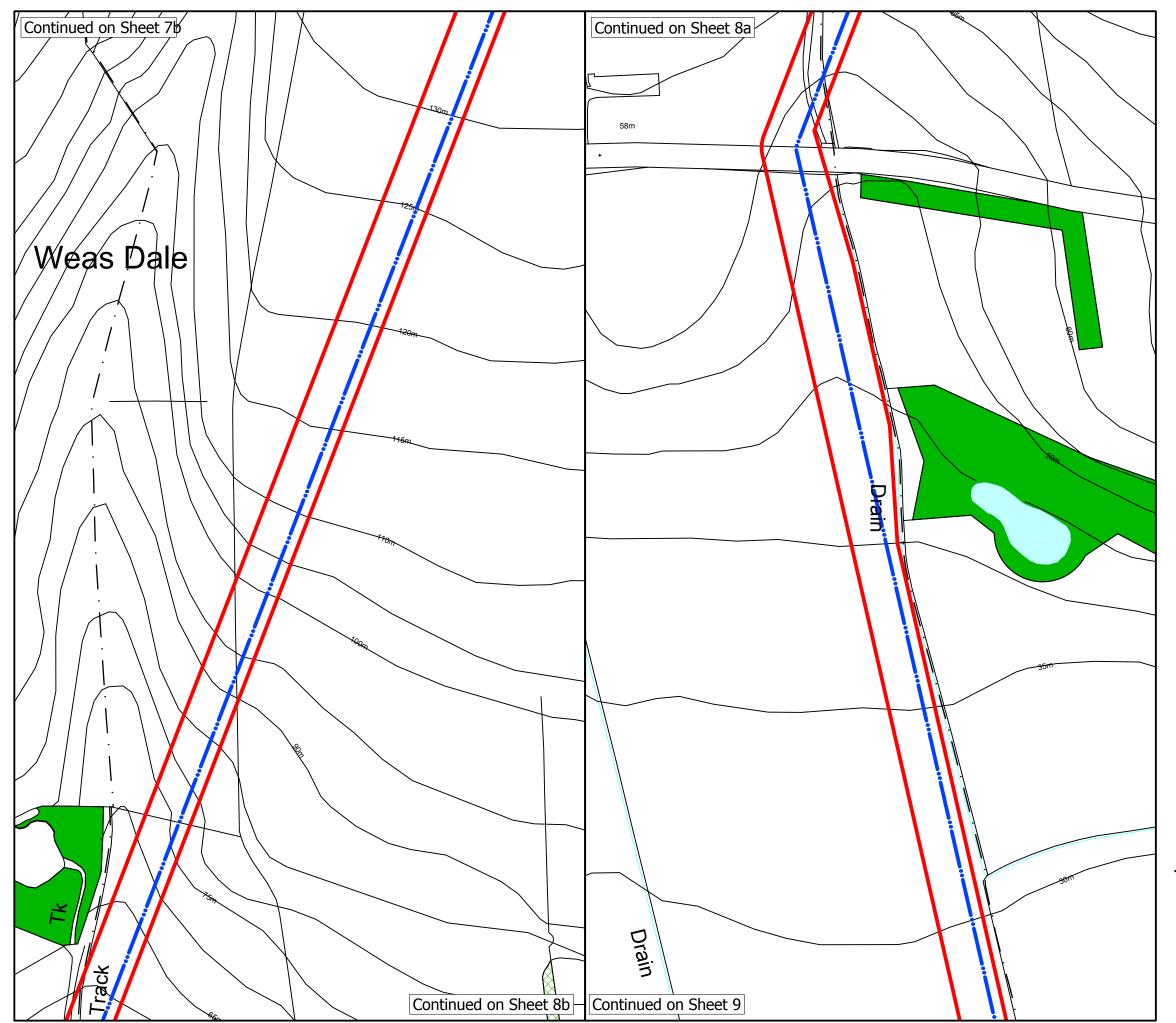
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Application Site Boundary



Proposed Pipeline Route

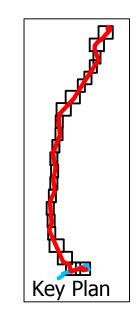


Figure 4.2i

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 8 of 15

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Application Site Boundary

Proposed Pipeline Route

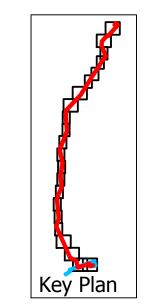


Figure 4.2j

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

Drawing Title

Detailed Pipeline Route Sheet 9 of 15

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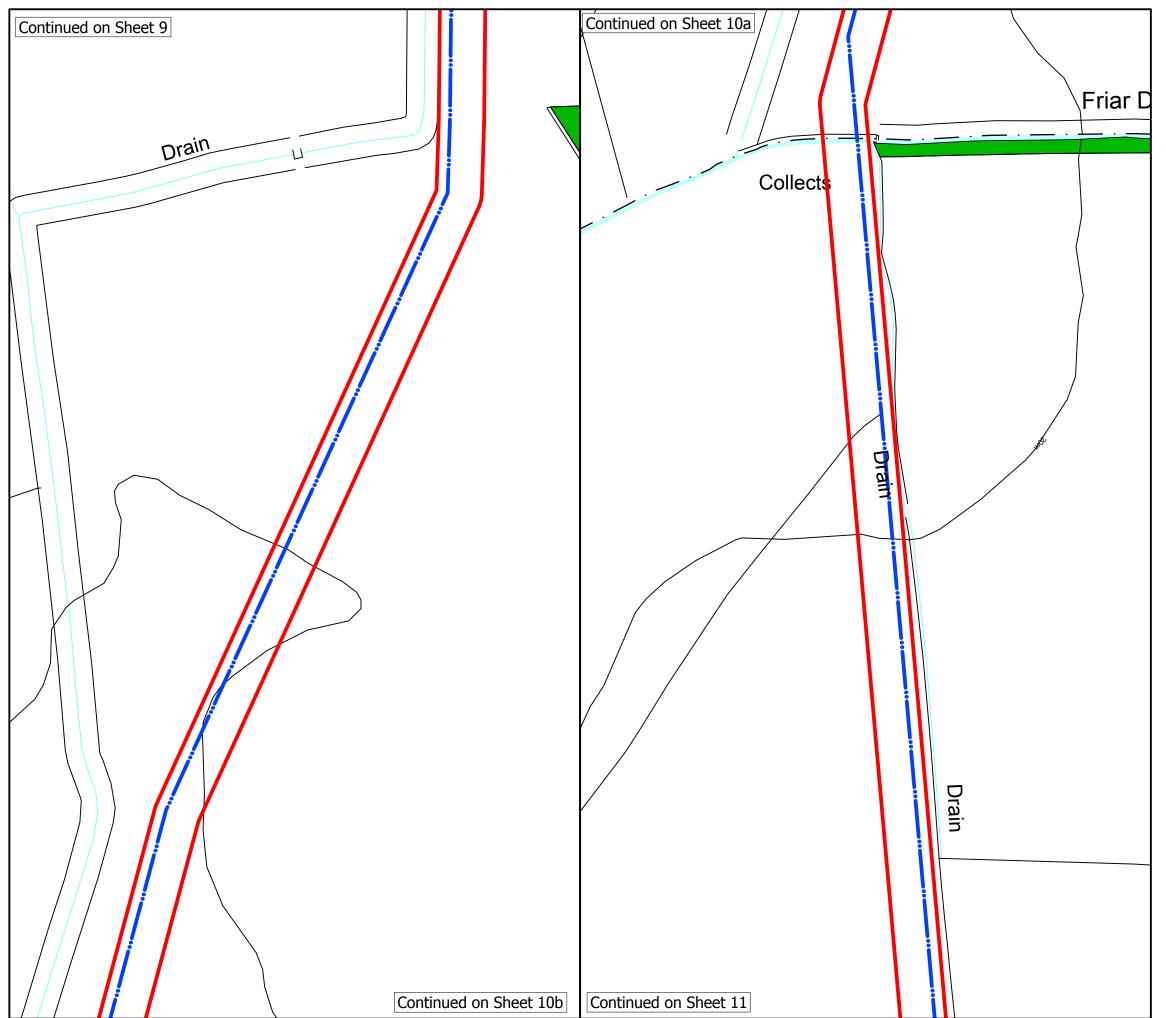
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Application Site Boundary



Proposed Pipeline Route

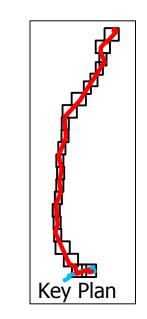


Figure 4.2I

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

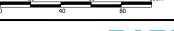
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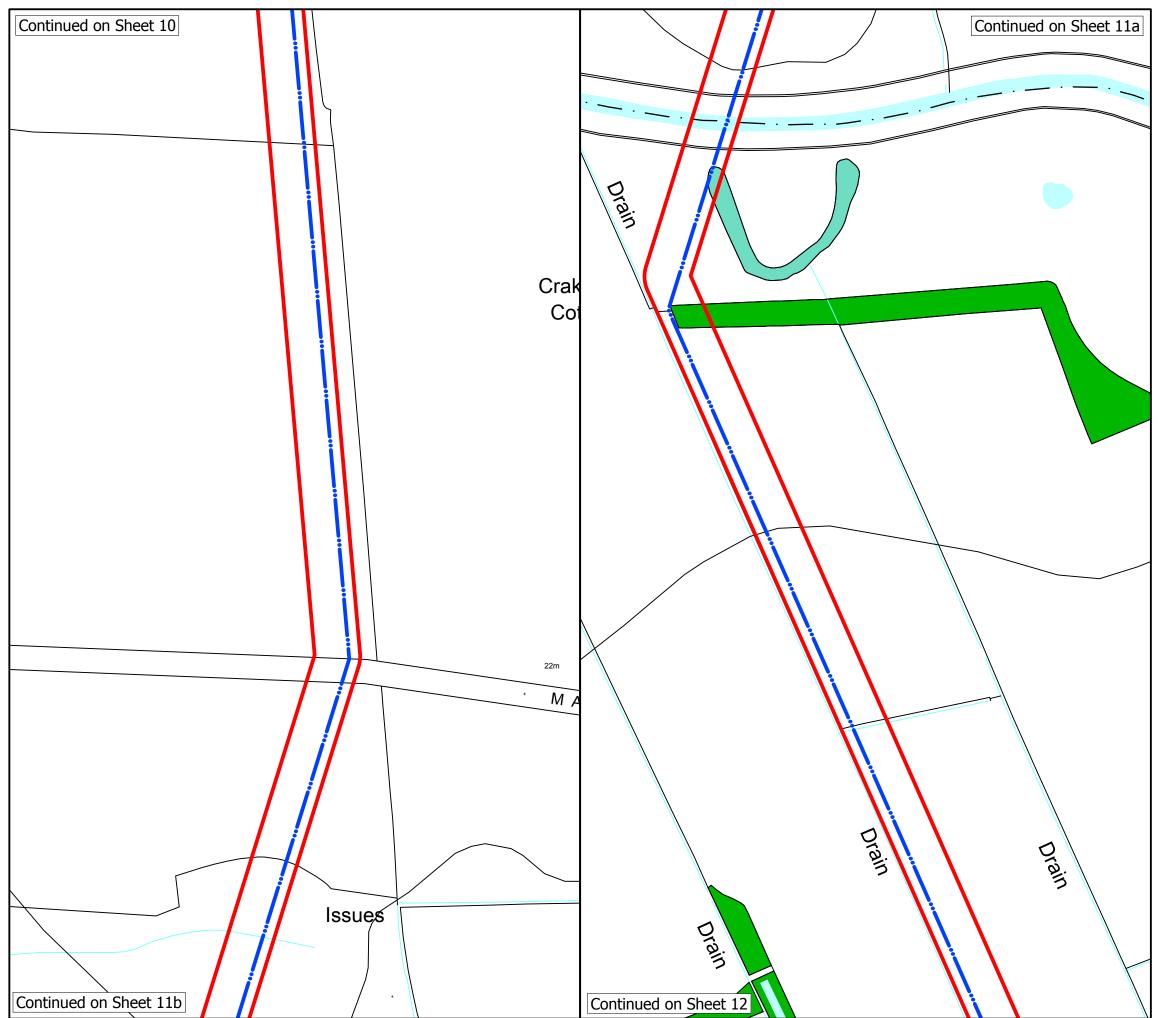
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Application Site Boundary



Proposed Pipeline Route

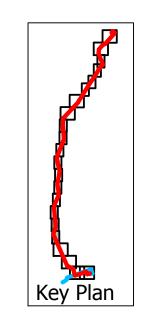


Figure 4.2I

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 11 of 15

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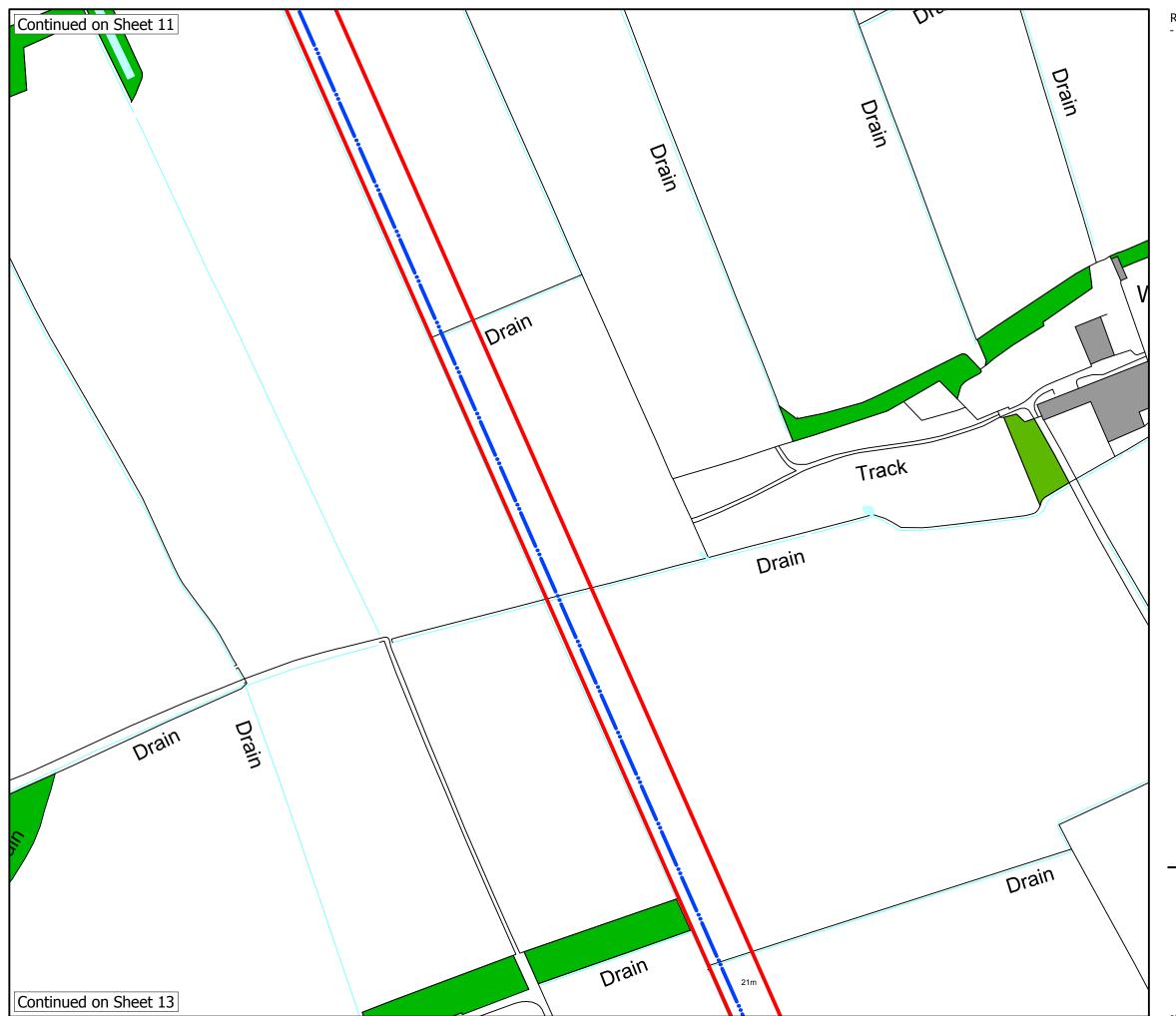
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Application Site Boundary



Proposed Pipeline Route

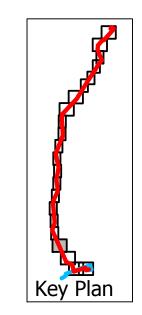


Figure 4.2m

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 12 of 15

 Date 06.08.2013
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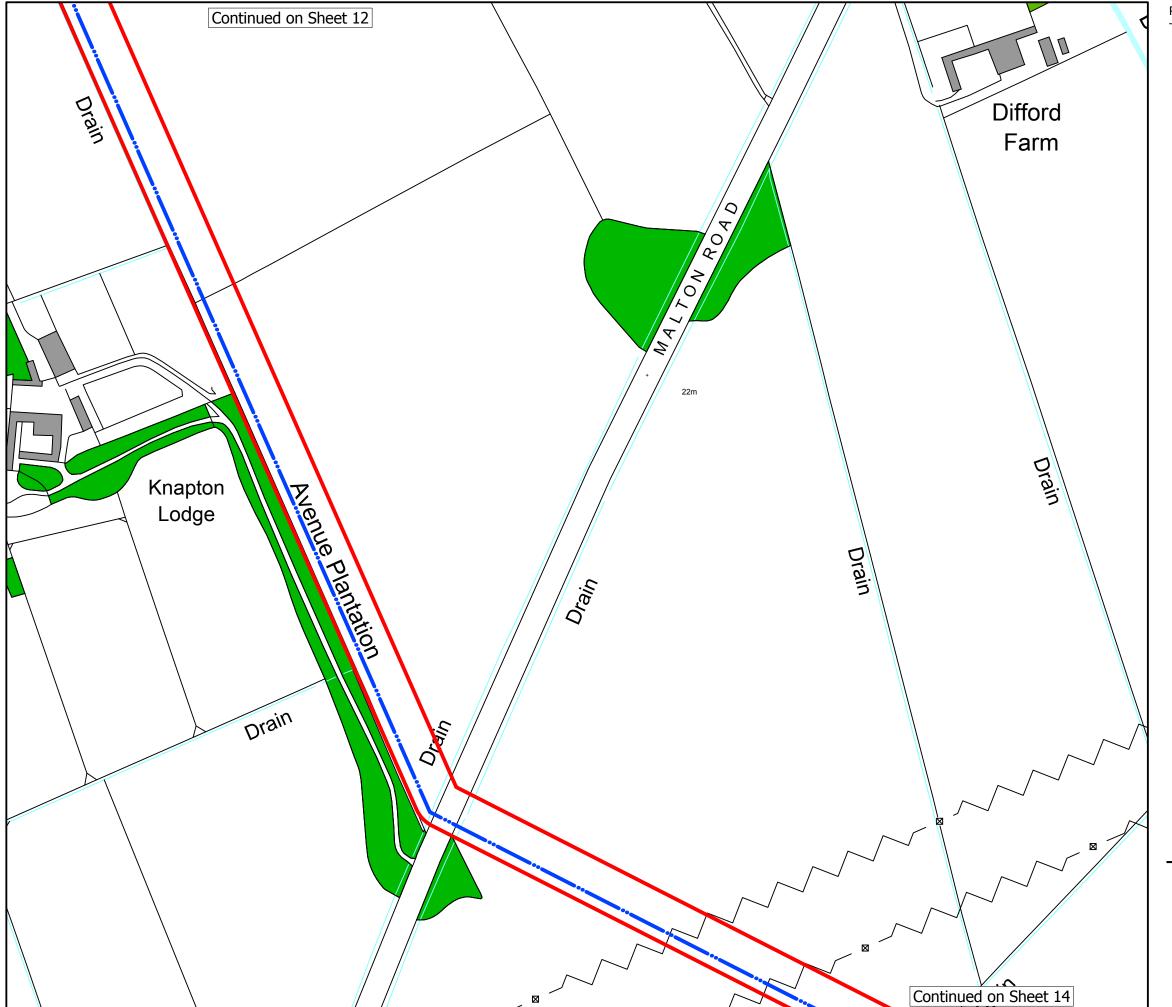
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Application Site Boundary



Proposed Pipeline Route

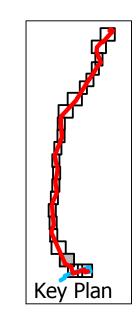


Figure 4.2n

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 13 of 15

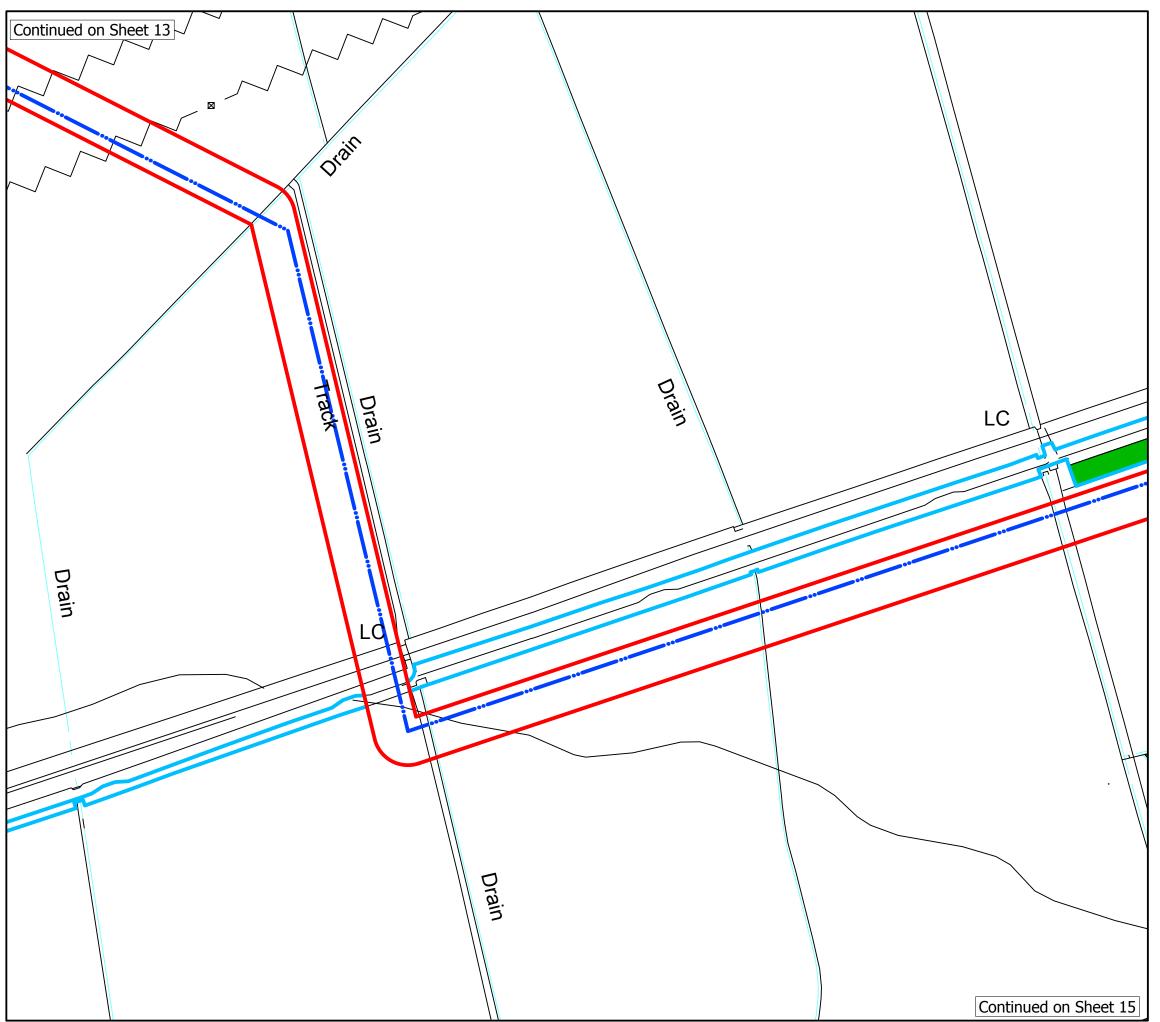
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Application Site Boundary

Proposed Pipeline Route

Other Land in Clients Ownership

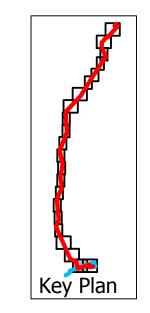


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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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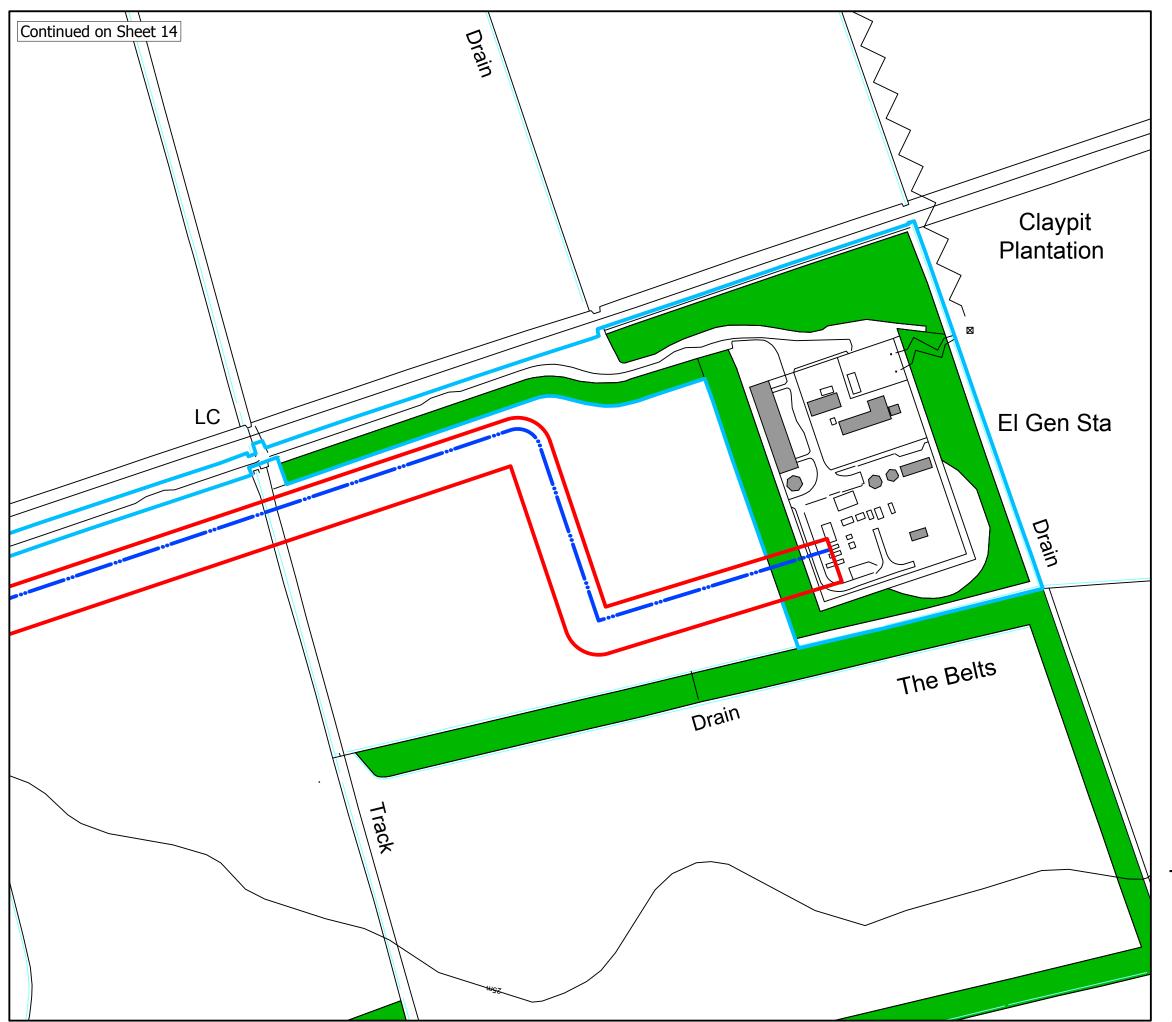
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Application Site Boundary

Proposed Pipeline Route

Other Land in Clients Ownership

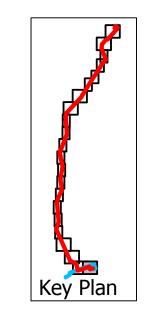


Figure 4.2p

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Ebberston Moor 'A' Well Site to Knapton Gas Pipeline

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Detailed Pipeline Route Sheet 15 of 15

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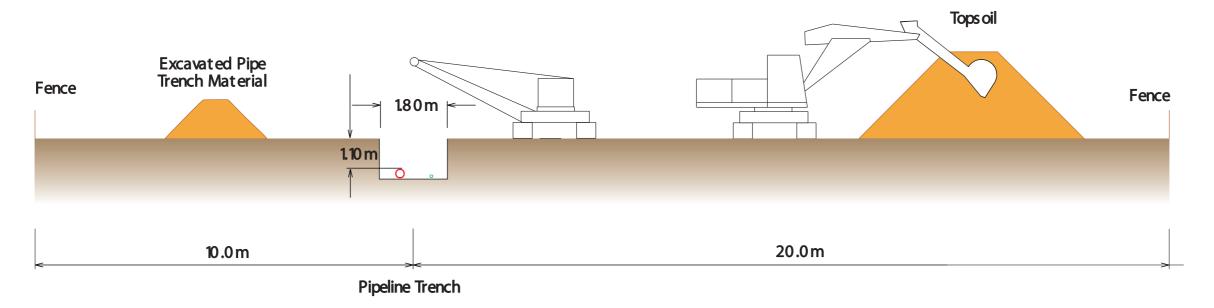
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DALBY FOREST TRACK EASEMENT CONFIGURATION

Figure 4.3

KNAPTON EXTENSION

Indicative section

 Date
 Scale

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Town Planners Architects Master Planne Landscape Architects Environmental Consultant

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