



# E.ON Whitehill Gas Storage Project

ES FID 2011 Scoping Report

September 2011

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E.ON Ltd

E.ON Whitehill Gas Storage  
Project:  
ES FID 2011 Scoping Report

30 September 2011

Reference 0136457

For and on behalf of  
Environmental Resources Management

Approved by: Dr Kevin Murphy

Signed: 

Position: Partner

Date: 30<sup>th</sup> September 2011

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**BACKGROUND**

E.ON is proposing to develop a project (Whitehill Gas Storage Project – the ‘Project’) to store natural gas underground in caverns specially created in the salt strata underlying the Holderness coast north of Aldbrough.

The following documents have been previously submitted to the East Riding of Yorkshire Council (the Council) in connection with the application for planning permission for the elements of the Project landward <sup>(1)</sup> of mean low water (these are discussed in more detail in *Section 2*):

- Environmental Statement (ES), 22 January 2007 (ES 2007, planning reference 7/00409/STPLFE).
- Further Information Document (FID), 05 September 2007 (FID 2007).
- Environmental Statement Further Information Document 2010 (ES FID 2010).

The ES FID 2010 was a combined update of the ES 2007 and FID 2007 and further environmental information to reflect minor Project changes and other matters, including the potential for the Project to have cumulative effects through its interactions with other recently approved local projects.

E.ON has proposed some design modifications to the Project. This scoping exercise therefore has two objectives:

1. to screen the proposed changes to determine whether they could lead to new or changed effects from those assessed in the ES FID 2010, which could materially change the conclusions of that document; and
2. where this may potentially be the case, to identify the scope of the assessments required to identify the likely significant effects resulting from these changes.

Section 2 provides the planning context in which it identifies the present applications, the current development plan and other policy changes. Section 3 identifies the main changes to the Project that were previously assessed in the ES FID 2010. The approach to the scoping exercise is described in *Section 4*, which will inform production of an Environmental Statement Further Information Document, referred to hereafter as the ES FID 2011.

(1) Applications for the offshore elements of the Project, supported by an ES, have also been made to the relevant regulatory bodies.

The change in the EIA Regulations (see below) is a relevant factor for the Council in deciding whether to allow the application to be amended. As the planning application was made before the 24<sup>th</sup> August 2011, the 1999 EIA Regulations continue to apply to the 2007 application.

Since the preparation and submission of the ES FID 2010, the 1999 EIA Regulations <sup>(1)</sup> and subsequent amendments have been replaced by the 2011 EIA Regulations <sup>(2)</sup>. The 2011 EIA Regulations have introduced some changes as well as consolidating the series of amendments to the 1999 regulations. The main changes introduced by the 2011 regulations have been reviewed and can be summarised as follows.

- Schedule 1 and 2: new project ‘types’ have been added related to carbon capture facilities, transportation pipelines and geological storage.
- Schedule 2(13) ‘Change or Extensions’ to schedule 1 and 2 development has been updated. The EIA Directive requires there to be consideration of the environmental effect of any changed/extended development as a whole, whereas the thresholds contained in Schedule 2 of the 1999 EIA Regulations, in the case of a change or extension to an existing or consented development, applied to the change or extension only and not to the larger development as changed or extended. The 2011 EIA Regulations now apply the relevant thresholds to the whole of the development as changed or extended.
- Three additional Regulations (7, 8 and 9) have been added to provide Local Planning Authorities (LPA) with greater clarity on the screening process, especially around ‘subsequent applications’ (Multi-stage consents). These three regulations, especially Regulation 8, are of particular relevance to projects that are submitting details for or making amendments to an existing planning permission.
- As a consequence of the three new screening regulations Regulation 19 requests are now known as Regulation 22 requests (further information and evidence respecting environmental statements).
- Regulation 4(8) allows an interested party (ie not just the developer / applicant) to request that the Secretary of State makes a screening direction. A screening direction can also be made under the Secretary of State’s own volition.
- All screening opinions and the Secretary of State’s screening directions (including those that indicate EIA is not required) must include a statement giving the full reasons for that conclusion (Regulation 4(7)),

(1) Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI No. 293).

(2) The Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (SI No. 1824), Regulation 65 (1) Schedule 5.

which must be made available as part of the public record (Regulation 23(1)(h)).

The Whitehill Gas Storage Project is an EIA development but has not yet received planning permission. EIA work and ES documentation to date has been undertaken and prepared in accordance with the requirements of the 1999 EIA Regulations and subsequent amendments. It is our view that the introduction of the 2011 EIA Regulations has no material bearing on the information presented to date (ie as consolidated in the ES FID 2010). The extent to which the new regulations will influence any update to the ES FID 2010 within the ES FID 2011 will primarily be in relation to how the Project amendments are described and assessed. The Project, including the proposed changes will be described so as to accommodate some flexibility in the design and will provide an assessment which is sufficiently robust to minimise further information requirements (pursuant to Regulations 8 and 22 of the 2011 EIA regulations) being necessary at the time that post-approval details are submitted. The approach to this is described further in *Section 5.2*.

## 1.2

### ***PURPOSE OF THIS REPORT***

This document represents the result of the scoping exercise discussed above. It will be submitted to the Council and its consultees for a scoping opinion on the matters to be addressed in updating the ES FID 2010.

## 2.1 THE PLANNING APPLICATIONS

During 2007, E.ON submitted three applications (Application/s) to East Riding of Yorkshire Council (the 'Council'); first, an application for planning permission for the development of gas storage (07/00409/STPLFE) accompanied by an ES; second, an application for planning permission for a temporary haul road (07/02421 STPLF); third, an application for planning hazardous substances consent (07/05156/PHAZ) (the Project). Also, in 2007, in response to a notice issued by the Council under Regulation 19 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended), E.ON submitted an ES further information document (ES FID 2007). On 18 October 2007, the Council resolved to approve the Applications subject to conditions and the Council and E.ON entering into a legal agreement. However, before the Council could issue decisions on the Applications, E.ON submitted a scoping request in 2009 followed in 2010 with an ES FID 2010, drawings, statement of community involvement, a planning statement (PS 2010), certificates and public notices.

The ES FID 2010 and PS 2010 addressed certain changes to the Project that had occurred between 2007-2010, namely the approval of two large projects in the vicinity of the Application site (the Site), the Secretary of State's decision to save certain development plan policies in the East Riding and the approval of a new regional strategy (RS).

E.ON had also proposed some minor changes to the Project that include the following:

- a reduction in area of the Application Site by the removal of the southern pipeline option;
- a small extension to the site of the above ground installation (AGI);
- the need to construct a temporary beach access; and
- a small extension of the proposed access to the B1242.

When reported to the Council's Planning Committee on 23.9.10, it was resolved that the Applications should be approved, subject to conditions, and E.ON and the Council entering into a legal agreement in respect of Applications 07/00409/STPLFE and 07/02421/STPLF. The legal agreement has now been completed and is held by the Council pending consideration of the proposed changes to the project. The Applications comprise the following.

### Application 07/00409/STPLFE

The Project design modifications now being considered include the provision of three wellhead compounds and the retention of the solution mining compound, which will require a change to the description of Application

07/00409/STPLFE as shown tracked below. These and other changes are described in Section 3.

*“Drilling of an exploratory well and other boreholes, laying of pipelines for water and brine, installation of solution mining equipment, controlled solution mining of rock salt to create 10 underground caverns and use of the same for the storage of natural gas, laying of gas and other pipelines, power and control cables, construction of above ground gas processing plant (GPP), high pressure pipelines, three wellhead compounds and plant, horizontal directional drilling and valve compound and plant, inter-tidal marine works, gas pipeline connecting to the national transmission system, an above ground installation, access roads, landscaping and works, temporary construction facilities and ancillary development”.*

A minor change will be requested to one of the conditions previously proposed by the Council to extend the period for commencement of development from 3 years to 5 years.

Application 07/02421/STPLF

*“Temporary construction traffic haul road between Great Hatfield Road and Whitehill Farm and permanent access between B1242 and Whitehill Farm serving the proposed Whitehill Gas Storage Project”.*

A minor change will be requested to one of the conditions previously proposed by the Council to extend the period for commencement of development from 3 years to 5 years and to increase the period for use of the temporary haul road from 4 years to 5 years.

Application 07/05156/PHAZ

*Consent to store up to 750,000 tonnes of natural gas in up to 10 underground caverns and in an above ground gas processing plant which will be connected by a high pressure gas pipeline and for the storage of up to 400 tonnes of methanol in two storage tanks used to dehydrate gas to be exported from the site.”*

The provision of three wellhead compounds instead of one and the potential for siting one underground cavern to the west of the B1242 will necessitate a minor change to this application.

Council officers are aware of the proposed changes to the Project which will be subject to further consultation.

E.ON has also submitted several applications in respect of works in the marine environment; the effects of these are summarised in the ES FID 2010 and will also be included in the ES FID 2011.

## 2.2

### *DEVELOPMENT PLAN*

The documents that comprise the development plan in this part of the East Riding of Yorkshire are:

- The Yorkshire and Humber Plan Regional Spatial Strategy to 2026 (2008) (RS).
- Joint Structure Plan Kingston-upon-Hull and the East Riding of Yorkshire (2005) saved policies.
- Holderness District Wide Local Plan (1999) saved policies.
- the Joint Minerals Local Plan (2004) saved policies.

When the Applications were considered by the Planning Committee in 2010, it was considered that they did not conflict with the relevant policies.

Since preparation of the ES and ES FID, the Coalition Government has published *The Coalition: Our Programme for Government*, which included an intention to: revoke Regional Strategies (RSs); abolish the Infrastructure Planning Commission (IPC); reduce carbon emissions and decarbonise the economy; and to place before Parliament a national energy planning statement.

During 2010, the Secretary of State purported to revoke all regional strategies (RSs); that decision was quashed by the High Court and, for the time being, RSs including the Yorkshire and Humber Plan, remain part of the development plan. Nevertheless, it remains the Secretary of State's intention to abolish regional strategies. The Localism Bill, if enacted, will repeal Part 5 of the Local Democracy Economic Development and Construction Act 2009 and revoke RSs. Pending abolition, RSs remain part of the statutory development plan. The Secretary of State's intention to revoke RSs is a material consideration and the weight afforded to a material consideration depends on the individual circumstances and it is for the decision maker to decide on the appropriate weight.

The Council is working on several new development plan documents (DPDs), namely the Core Strategy, Allocations and Joint Minerals and Joint Waste DPDs (prepared jointly with Kingston-upon-Hull). The emerging Core Strategy and Joint Minerals DPD carry limited weight at this time but will be considered in respect of Application 07/00409/STPLFE.

## 2.3

### *OTHER POLICY CHANGES*

Other changes to Government planning policy include the following.

1. HM Treasury and BIS on 23 March 2011 published *'The Plan for Growth'* which sets out the Government's objective to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries.
2. The Minister for Decentralisation issued a written ministerial statement on 23.3.11 which sets out policy on the approach to be taken to the determination of applications for planning permission.
3. The Chief Planner, Communities and Local Government on 31 March 2011 wrote to Chief Planning Officers in Local Planning Authorities in England *'drawing attention to objectives that must inform decisions by which the planning system should do everything it can to help secure a swift return to economic growth'*.
4. The Minister for Planning on 25 July 2011 published for consultation the Draft National Planning Policy Framework (NPPF), which sets out the Government's economic, environmental and social planning policies for England. It notes that nationally significant infrastructure projects (NSIPs) are to be determined by the decision making framework set out in national policy statements (NPSs), which are part of the overall framework of planning policy.

The essence of these four publications is that the Coalition Government wants to encourage a climate that favours investment in the renewal of the UK's economy and infrastructure and in which the planning system does everything it can to prioritise the delivery of jobs and growth.

On 18 July 2011, Parliament debated and approved six NPSs for Energy; on 19 July 2011, the Secretary of State for Energy designated the following NPSs under the Planning Act 2008:

- Overarching National Policy Statement for Energy (EN-1).
- National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2) replaces the earlier Revised Draft EN-2.
- National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) replaces the earlier Revised Draft EN-4.
- National Policy Statement for Electricity Networks Infrastructure (EN-5).

The NPSs are relevant to the development of all forms of energy infrastructure identified in EN-1 including gas storage.

The main changes to the Project as assessed in the ES FID 2010 are as follows:

- Instead of a single wellhead compound there will be three.
- Three wellhead compounds will also introduce the need for additional in-field gas, brine discharge and seawater pipelines, data communications infrastructure between the three wellhead compounds and an extension to internal road ways.
- Retention of the solution mining compound to facilitate subsequent well workovers.
- Provision will be made to drill up to 12 wells to provide assurance that if difficulties are encountered and a well cannot be completed, the target of 10 operational wells (and caverns) can still be achieved
- The positions and heights of some of the plant within the GPP site may change.

Table 3.1 below lists the components of the Project assessed in the ES FID 2010, and indicates those that will experience a modification and therefore result in a change to the Project Description in the ES FID 2011.

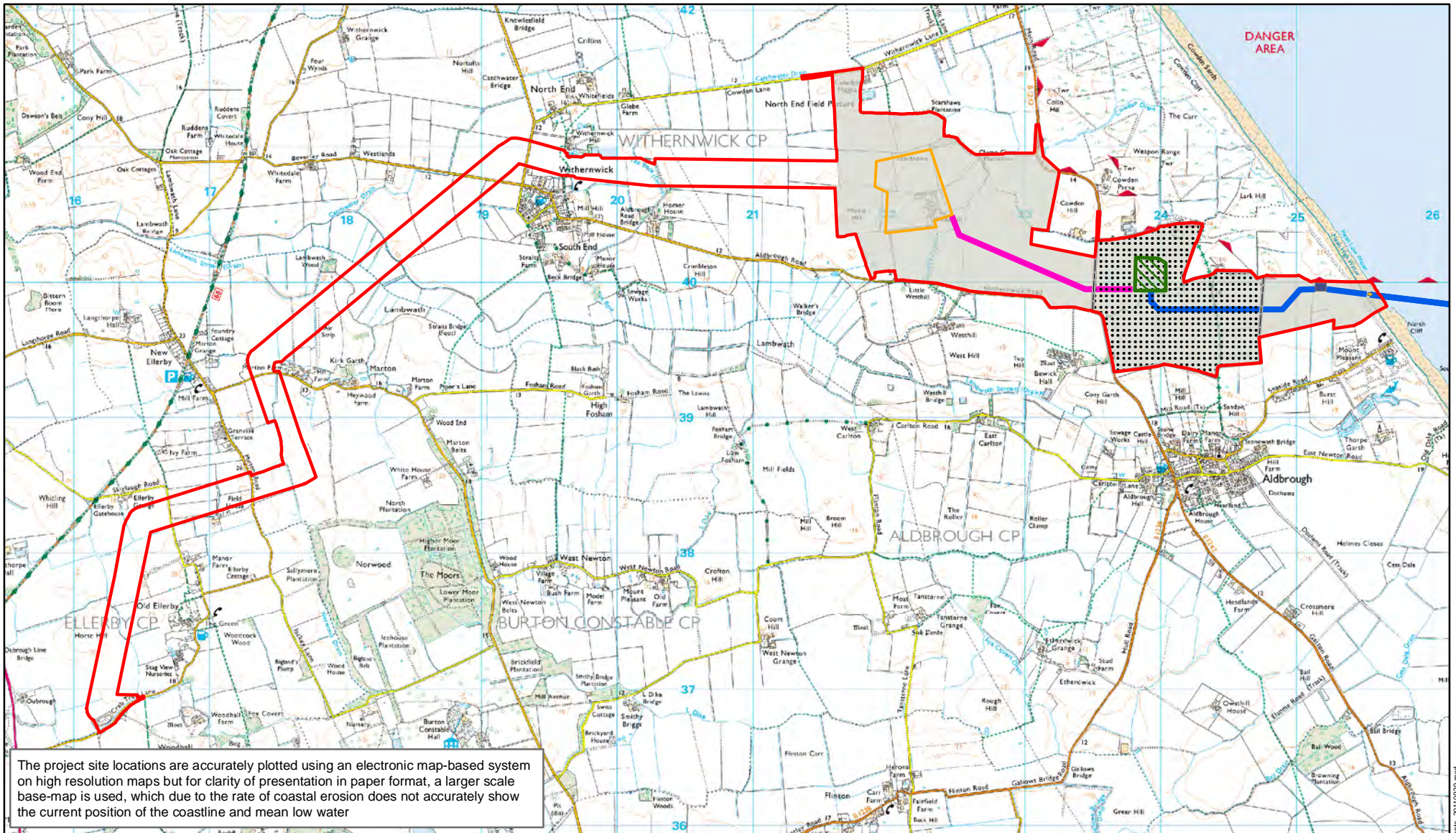
**Table 3.1** *Proposed Modifications to the Project*

<b>Project Component as Assessed in ES FID 2010</b>	<b>Proposed Modifications</b>
<ul style="list-style-type: none"> <li>• An exploration well.</li> </ul> <p><i>"This well will be located within the proposed wellhead compound area and may be converted for storage operations if the Project goes ahead. If it is not used, the well will be plugged and abandoned. If the Project does not proceed, the land would be returned to its present state".</i></p>	The exploration well will be located within any one of the three wellhead compounds.
<ul style="list-style-type: none"> <li>• Horizontal Directional Drilling (HDD)/Valve compound and underground seawater and brine pipelines.</li> </ul> <p><i>"The HDD/Valve compound will be set back from the cliffs and will contain valves, pipes and control systems to control the flow of seawater from the offshore intake pumps to the wellhead compound and the flow of brine from the wellhead compound to the offshore brine outlet diffuser through the buried pipes. It will occupy an area of approximately 0.2 hectares and although it will not normally be used after leaching of the wells, it has been assumed that the compound and infrastructure will be retained to supply seawater for refilling of the caverns should this be required during operation, or at decommissioning".</i></p>	No change

Project Component as Assessed in ES FID 2010	Proposed Modifications
<ul style="list-style-type: none"> <li>Offshore sea water intake and brine outfall pipelines, intake structure, outlet diffuser and associated foreshore works.</li> </ul>	No change
<ul style="list-style-type: none"> <li>Compound(s) for wellheads, drilling, leaching equipment and gas marshalling.</li> </ul> <p><i>"A wellhead compound will be used to directionally drill 10 wells. This is expected to occupy an area of about 6 hectares and in addition to the wellheads, the compound will contain small pumps, electrical and control equipment, vessels, tanks and manifolds to connect the wells into one or two pipelines linking the compound to the GPP. A central wellhead compound with directionally drilled wells will take less land than individual wellhead compounds for each of the 10 caverns were the wells drilled vertically".</i></p>	<p>The provision of three wellhead compounds instead of one. At this stage it is estimated that each wellhead compound will be approximately 1.35 ha in area plus landscaping. The ES FID 2010 states that <i>"a central wellhead compound with directionally drilled wells will take less land than individual wellhead compounds for each of the 10 caverns were the wells drilled vertically."</i></p> <p>It is envisaged that the development of the three wellhead compounds and the retention of the solution mining compound, together with the related infrastructure may increase the landtake; there will be a corresponding increase in the areas dedicated to landscaping and biodiversity.</p>
<p><i>"It is anticipated that each well will take about 45 days to drill and for ten wells, an 18 months overall drilling programme is expected"</i></p>	<p>The same number of wells (10) and caverns will be completed as previously outlined in the ES FID 2010, however, these will be distributed between the 3 wellhead compounds.</p>
<p>There will be two drilling rigs operating on site: the main drilling rig to drill the wells and a considerably smaller rig to conduct well workovers at the leaching stage.</p>	<p>A solution mining compound for leaching the caverns will occupy an area of approximately 0.75 ha plus landscaping; it will be retained for subsequent well workovers.</p>
<ul style="list-style-type: none"> <li>Gas processing plant (GPP).</li> </ul> <p><i>"The wellhead compound(s) would be connected by one/two underground pipelines to the GPP. The plant is the largest single element of the Project and could occupy an area of over 12 hectares".</i></p>	<p>Although 10 wells will be completed (ie one per cavern), the application will seek permission for up to 12 wells to be drilled as a contingency for failed wells. Based on updated information, it is expected that the drilling of each well will take approximately 3 months; therefore the overall drilling programme may extend for approximately 3 years.</p> <p>Modifications to the operational layout and possibly height of plant within the Site of the GPP (but no increase in the size of the site area to be occupied by a plant).</p>

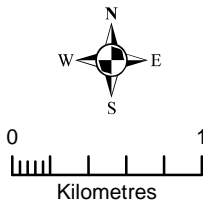
Project Component as Assessed in ES FID 2010	Proposed Modifications
<ul style="list-style-type: none"> <li>Services corridor associated with the underground high pressure gas pipeline connecting the cavern wellhead compound to the GPP and containing other pipelines for hydrate inhibitor, water, drainage plus power/ control/ communication cables.</li> </ul>	Changes to the routing of connecting pipelines to reflect connections to three wellhead compounds.
<ul style="list-style-type: none"> <li>Connections to HDD/Valve Compound for water lines</li> </ul>	No change
<ul style="list-style-type: none"> <li>Underground gas pipeline connecting the GPP to the National Transmission System (NTS) at an existing or new above ground installation (AGI).</li> </ul>	No change
<p><i>"It is proposed to connect at an existing National Grid Gas above ground installation (AGI) at Ganstead approximately 10 km to the south west of the GPP".</i></p>	
<ul style="list-style-type: none"> <li>Sites occupied temporarily for storage and equipment fabrication.</li> </ul>	Additional areas may be required temporarily to accommodate additional storage and equipment fabrication associated with the additional wellhead compounds.
<ul style="list-style-type: none"> <li>Permanent and temporary access roads.</li> </ul>	Additional permanent and temporary access roads will be required to serve the additional wellhead compounds.
<p><i>"The ES FID 2010 assumed the use of 4 temporary access routes during construction. The operational site will be accessed via one of five routes assessed (or a combination of these)".</i></p>	
<ul style="list-style-type: none"> <li>Underground electrical cables connecting the GPP to the grid at existing or extended substations.</li> </ul>	It is possible that the temporary 11 kV power supply may be an overhead line

The proposed increase in the number of wellhead compounds and associated interconnecting pipelines as set out in *Table 3.1* will probably extend the construction schedule set out in the ES FID 2010 (which predicted 6 months to construct the wellhead compound and associated pipelines) by approximately six further months, a total of 1 year. The longer construction programme will result in traffic movements over an increased period, however the peak flows are expected to be unchanged from those set out in the ES FID 2010.



The project site locations are accurately plotted using an electronic map-based system on high resolution maps but for clarity of presentation in paper format, a larger scale base-map is used, which due to the rate of coastal erosion does not accurately show the current position of the coastline and mean low water

- KEY:
- Gas Processing Plant
  - Wellhead Compound ES FID 2010
  - Wellhead Compound Zone
  - Foreshore Works
  - HDD/Valve Compound
  - Main Site Area
  - Project Boundary
  - Brine/Water Pipeline
  - Services Corridor



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SIZE: A4

TITLE: **Figure 3.1  
 Indicative Location Plan**

DATE: 29/09/2011	CHECKED: NW	PROJECT: 0136457
DRAWN: JL	APPROVED: KJM	SCALE: 1:40,000

SOURCE: Reproduced from Ordnance Survey digital map data. © Crown copyright. All rights reserved. 2011 License number 0100031673.  
 PROJECTION: British National Grid

DRAWING: Project Components\_20110929.mxd

REV: 0

This Scoping Review examines the proposed modifications to the Whitehill Gas Storage Project Design (see *Table 3.1* and *Figure 3.1*) as assessed in the ES FID 2010, and assesses the extent to which changes in effects as a result of these changes in design may materially alter the conclusions of the ES FID 2010.

A topic led review comprising has been conducted (see *Tables 4.1* to *4.3*) based on the changes to the Project described in *Table 3.1* and the location plan in *Figure 3.1*. No detailed surveys or modelling additional to those that underpinned the ES FID 2010 have been undertaken to support this review.

Where a possible change to the impact assessment conclusions is identified, an indication as to how material the change is considered to be in the context of the ES FID 2010 findings is provided. Where changes to cumulative effects are likely, these are also indicated.

The team that has conducted this Scoping Review is that which undertook the ES FID 2010, thus providing continuity.

As indicated in *Table 3.1*, the key modifications to the design of the Project are centred on the move from one wellhead compound to three wellhead compounds and modifications to the layout of the Gas Processing Plant (GPP). Therefore the Scoping Review has focussed on identifying the likely significant environmental effects that may arise from the following changes to the Project:

1. Wellhead compounds and inter-connecting pipeline construction (*Table 4.1*).
2. Wellhead compounds and inter-connecting pipeline drilling, leaching and operation (*Table 4.2*).
3. modifications to the operational lay out of the GPP (*Table 4.3*).

We do not expect that the proposed changes introduced by Item 3 will have any bearing on the findings of the assessment of construction impacts for the GPP but will keep this under review.

It is planned that construction and operational transport routes will remain unchanged and that in general the proposed modifications will fall within the scope of the Project as described in the ES FID 2010 unless noted in *Table 3.1*.

**Table 4.1 Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase**

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<i>Land Use, Seabed and Coastal Processes</i>		
<p><b>Temporary and slight adverse impact to land use</b> due to land take.</p>	<p>The proposed changes will require additional temporary land take to facilitate the construction of three wellhead compounds instead of one. The baseline data included with the ES FID 2010 covers the area of the proposed extension, and the additional land take will include arable farmland similar to that within the original project footprint.</p>	<p>The magnitude of the effect will increase given the increase in the extent, and potentially the duration (although it will remain temporary).</p> <p>The assessment as presented in the ES FID 2010 will require an update to examine the new project construction footprint. The impact will change but this is not likely to lead to a change in the significance rating as presented in the ES FID 2010.</p>
<p>Small section of the <b>pipeline</b> comprising the diffuser system will result in a <b>minor impact</b> to the <b>sediment transport</b> due to intercepted suspended and bedload material.</p>	<p>None of the proposed layout changes will introduce a change to the coastal environment to that of the consented project. The mitigation measures and conditions previously identified will remain valid and appropriate.</p>	<p>No change.</p>
<p>The <b>marine barge access option</b> will have a <b>negligible impact on beach/intertidal sediments</b> and on <b>coastal processes</b>.</p>	<p>The proposed changes will not effect the marine barge access option. None of the proposed layout changes will introduce a change to the coastal environment to that of the consented project. The mitigation measures and conditions previously identified will still remain valid and appropriate.</p>	<p>No change.</p>
<p><b>No cumulative effects</b> were reported in the ES FID 2010 in relation to Land Use, Seabed and Coastal Processes</p>	<p>The proposed changes will require additional temporary land take to facilitate the construction of three wellhead compounds.</p>	<p>Although no cumulative effects were reported in the ES FID 2010 with regard to Land Use, Seabed and Coastal Processes, a review of the projects included in the cumulative effect assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.</p>

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<b><i>Air Quality, Dust and Climate Change</i></b>		
<p><b>Dust</b> will originate from excavation works and construction activities and the impact, following mitigation, will be <b>insignificant</b> at the limited number of potentially sensitive receptors (residential) closest to the proposed construction site.</p>	<p>The proposed changes extend the boundaries of the construction site of the wellhead compounds to the south, closer to the village of Aldbrough, to Bewick Hall and to bridleways and footpaths in the area.</p>	<p>New receptors (mainly residential properties on the outskirts of Aldbrough) will potentially experience negative impacts. Measures will be adopted to avoid significant effects.</p> <p>The assessment as presented in the ES FID 2010 will require an update to examine new dust buffers and interpret the impact significance to new receptors, and any change to existing receptors. However, the outcome at this stage is not anticipated to alter the impact significance as presented in the ES FID 2010.</p>
<p>Due to relatively low <b>traffic</b> flows (existing and Project-related) on all roads, it is likely that the traffic will be free flowing and that dispersion of vehicular emissions will be good and therefore the impact will be <b>insignificant</b>.</p>	<p>The introduction of the additional wellhead compounds and inter-connecting pipelines will potentially result in additional construction traffic over an extended period, although the peak construction traffic flows are anticipated to remain as those assessed in the ES FID 2010. This will result in vehicular emissions over an extended period.</p>	<p>The magnitude of the impact will change in terms of the duration of effect experienced by the sensitive receptors.</p> <p>The assessment as presented in the ES FID 2010 will require an update to examine the prolonged period of effect. However providing construction traffic routes remain unchanged from those assessed in the ES FID 2010, it is unlikely that this will alter the impact significance as presented in the ES FID 2010.</p>
<p><b>No cumulative effects</b> were reported in the ES FID 2010 in relation to Air Quality, Dust and Climate Change.</p>	<p>The proposed changes do not affect the distance of sensitive receptors in respect of the cumulative projects.</p>	<p>Emissions to air attributable to the Project are insignificant compared with background air quality; therefore it is considered that the cumulative effect of the sites will be negligible even in the unlikely circumstance that the peak construction periods for the three sites are coincidental. Therefore the lengthening of construction period is unlikely to have a potentially negative impact.</p>

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<i>Archaeology and Cultural Heritage</i>		
<p><b>All construction impacts can be adequately mitigated and there are no predicted adverse residual impacts</b> on designated or undesignated heritage assets arising from construction. The Project will result in a beneficial residual impact in terms of improved appreciation and understanding of the regional archaeological resource.</p>	<p>The introduction of the additional wellhead compounds with associated inter-connecting pipelines, landscaping and possible access roads will increase the construction project footprint. Given the location within an area of significant recorded and unrecorded archaeological remains (relating to early prehistoric, Iron Age/Romano-British settlement and agriculture) and ‘important’ historic hedgerows (Hedgerows Regulations 1997), there is the potential to increase the extent of direct impacts to the archaeological and historic landscape resource within the site boundary.</p> <p>The proposed changes associated with the two southern wellhead compounds extend the boundaries of the Project closer to Aldbrough village Conservation Area and Bewick Hall, which includes a Grade II Listed Building and a Scheduled Monument.</p>	<p>Assessment and evaluation of the revised footprint will be necessary to confirm whether there will be any additional impact on significant recorded or unrecorded archaeological or historic landscape remains. At this stage it is likely that any additional identified impacts on the archaeological resource will be satisfactorily mitigated either through the programme of open area excavation and or archaeological monitoring as proposed in the ES FID 2010. Additional impacts on ‘important’ hedgerows will potentially be able to be mitigated through recording and reinstatement as previously proposed in the ES FID 2010.</p> <p>Increased proximity to previously unaffected designated assets could result in the potential for temporary negative impacts on the setting and amenity of these assets through visual intrusion and/or increased dust, noise and vibration during construction. Assessment of the impact of these effects will be necessary.</p> <p>Further archaeological investigation will add to the current level of appreciation of the site.</p> <p>No other potential material changes from the ES FID 2010 findings are predicted and it is unlikely at this stage, that there will be any significant residual impacts arising from the proposed changes.</p>
<p><b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Archaeology.</p>	<p>The proposed changes will result in additional disturbance within the site boundary. However, there is no interaction with cumulative</p>	<p>A review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will</p>

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
	schemes and therefore the proposed changes will not result in a potentially new impact.	be required to confirm that this remains unchanged.
<i>Ecology and Nature Conservation</i>		
<b>No adverse residual impacts</b> on the important features of either <b>SINC/SNCI</b> will occur as a result of the development.	With the extension of the construction site boundary as a result of the introduction of additional wellhead compounds and connecting in-field pipelines, more of the Cowden Range SINC is likely to be within the boundary. However, this extension is likely to continue to be within the part of the site that is under arable cultivation and not worthy of this status (as reported in the ES FID 2010).	It is not anticipated that the extended construction site boundary will introduce any residual impacts to designated sites.
The Project should also provide a <b>long term benefit</b> for <b>European Protected Species</b> , specifically, <b>great crested newts</b> and <b>pipistrelle bats</b> . This is because the extent and quality of habitat available to these species will be dramatically improved through the proposed Landscape and Biodiversity Strategy. The effect on their conservation status should therefore be <b>positive</b> , despite some initial, limited disturbance (under licence) during the construction phase.	The Project as changed includes the Landscape and Biodiversity Strategy and even without amendment, this strategy will deliver a positive effect on the conservation status of great crested newts, most breeding birds, water voles and bats. The Project will now require additional temporary land take. Whilst this is likely to be all arable land the ratio of lost habitats to created habitats will be reduced.	Despite the increase in land take, a significant positive impact is still anticipated for the Project as changed. However, the magnitude of positive impact will be reduced for farmland birds, mainly skylark, as a result of an increase in habitat loss.  Additional measures could be considered for inclusion in the Strategy to maintain the magnitude of the benefit for farmland birds. In addition, adoption of the landscaping measures set out for the single wellhead compound will be applied to the three wellhead compounds in the Project as changed.
Due to the risk of site run-off, etc from the Project reaching the Lambwath Meadows SSSI being low. There should be <b>no significant cumulative impacts</b> on the <b>Lambwath Stream SNCI/SINC</b> .	No change.	No change.
<b>No cumulative impacts</b> are anticipated with regard to the direct mortality and injury of <b>protected species</b> .	No change.	No change.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<b>Minor cumulative impacts</b> are predicted with regard to the disturbance of <b>protected species</b> during construction.	No change.	No change.
<b>Positive cumulative impacts</b> are predicted with regard to <b>habitat damage, loss and creation</b> , with an increase in biodiversity as a result of habitat creation.	No change.	No change.
<b>Positive cumulative impacts</b> are predicted with regard to <b>habitat fragmentation and isolation</b> as there will be improved connectivity through the local area from the creation of habitats of value to biodiversity in an intensively farmed landscape.	The Landscape and Biodiversity Strategy will continue to provide this benefit under the changed Project.	By reducing the fragmentation and isolation of habitats and populations of flora through the implementation of the Biodiversity Strategy, the Project as changed will have a positive impact of local significance.
<b>No cumulative impacts</b> are predicted as a result of <b>pollution and other indirect effects</b> .	No change.	No change.
<b>Impacts to Land</b>		
The residual risk of impact through potential <b>contamination of the Chalk aquifer by drilling muds and/or salination</b> is considered to be of <b>moderate significance</b> as there is potential for derogation of a water resource, but the aquifer is not utilised in the area.	The proposed modifications to the wellhead compounds involves drilling the same number of wells as previously assessed in the ES FID 2010, only they are now to be distributed over three wellhead compounds instead of one. Therefore any changes to potential impacts from drilling activities to the chalk aquifer will result from the new locations of the wellhead compounds and their proximity to new sensitive receptors (such as groundwater protection zones, water resources or a change in the geological formation).	The ES FID 2010 baseline information will require some update to accommodate the new boundary to the wellhead compounds, to locate any new receptors, and to include any new data that has been published since 2010.  Initial review of the baseline information in the ES FID 2010 indicates that the additional wellhead compounds are unlikely to introduce new sensitive receptors, and therefore it is not anticipated that mitigation measures will require alteration and that the residual impact is likely to remain unchanged.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
The residual impact of <b>contamination</b> during the installation of the <b>brine and seawater pipelines</b> is considered to be of <b>minor significance</b> .	The proposed modifications to the wellhead compounds and inter-connection pipelines will not have an effect on the installation of the brine and seawater pipelines.	No change.
Reduction in the thickness of the low permeability drift through construction of the <b>wellhead compound</b> is not considered to increase the likelihood of <b>contamination</b> reaching the Chalk aquifer because of the significant overall thickness (40m) of the drift, and the fact that any excavations will be of limited depth. <b>No significant impact</b> is therefore anticipated.	The proposed modifications to the wellhead compounds and inter-connecting in-field pipelines will result in the removal of additional topsoil, however this will be to the same depth as of that described for the single wellhead compound in the ES FID 2010.  The additional mobilisation of soil will increase the potential for run off of contaminants found in the soil which is addressed in the water resources section below.	The proposed additional wellhead compounds and interconnecting in-field pipelines will affect a larger area of a site that overlies the chalk aquifer than assessed in the ES FID 2010. However, assuming that the key receptor (chalk aquifer) will remain the same, the construction activities remain unchanged, the mitigation measures as listed in the ES FID 2010 therefore still apply. It is therefore unlikely at this stage that the residual impact significance will change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Impacts to Land.	The modification to the wellhead compounds and pipelines will not have an effect on cumulative impacts.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Impact to Land, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Landscape and Visual</i>		
<b>Significant beneficial impacts</b> are predicted with regard to <b>physical effects on the landscape</b> due to the retention and enhancement of woodland areas.	No change to GPP woodland planting.  Proposed changes will require changes to the landscape mitigation scheme proposed for the wellhead compound. Review of appropriate mitigation needed for the three wellhead compounds and a permanent solution mining compound; e.g. potentially hedgerows around compound site edges to link with existing hedgerow field boundary planting. This may also affect the practical agricultural use of the land surrounding the wellhead compounds, through fragmentation of the field(s).	Significant beneficial physical effects of woodland enhancement around GPP will remain.  Extended project footprint of dispersed wellhead compounds and solution mining compound will change mitigation proposals for this area and need to be designed appropriately to retain beneficial effects.  Potential to have significant beneficial effect on hedgerows with additional hedgerow/field boundary planting around the compounds. Due to fragmentation of field(s) larger woodland copses may be appropriate to infill space that is

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<p>Two <b>significant adverse impacts</b> have been identified to the <b>landscape character</b> from the <b>GPP, gas pipeline and wellhead compound</b>. These will reduce to be not significant over a temporary period.</p>	<p>The three wellhead compounds and solution mining compound are likely to be considered as having a marginally greater effect on landscape character, affecting a wider footprint and having a more dispersed pattern in the character area.</p> <p>The original wellhead compound was located in relatively close proximity to existing large scale farming activities at Cowden pig farm, and is within 250m of the MOD range at Cowden Parva, which has a history of 'brown field' use. Two of the proposed wellhead compounds are located further from these features and nearer to settled areas (Aldbrough/Seaside Rd).</p> <p>Despite these factors, the proposed changes are unlikely to result in an overall change to the assessment of two significant adverse effects on landscape character.</p>	<p>not practical for agricultural use.</p> <p>Effects on other physical elements unlikely to be significant. The magnitude of change on the <i>Hornsea to Withernsea Coastal Farmland</i> landscape character area may increase to a slightly wider area, given the to three wellhead compounds which affect a wider footprint in the LCA. The overall effect is likely to remain significant on part of this LCA, as originally assessed.</p> <p>Assuming there are no significant changes to the height of components within the GPP, the effect on the <i>Central Holderness Open Farmland</i> will remain as assessed in original EIA.</p>

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<p>Six significant, adverse and temporary impacts are predicted to the following viewpoints:</p> <ul style="list-style-type: none"> <li>• 5, Withernwick Road near track to Bewick Hall;</li> <li>• 6, B1242 junction with Withernwick Road;</li> <li>• 7 B1242 north of Aldbrough;</li> <li>• 8, By-way between Aldbrough and East Hill Farm;</li> <li>• 10 Private Track to Whitehill Farm, off Withernwick Road; and</li> <li>• 12, Mill Road public right of way, Aldbrough.</li> </ul> <p>These are mainly due to the large magnitude of change on the views resulting from the GPP and Wellhead Compound.</p>	<p>The proposed changes would result in construction of three separate wellhead compounds being potentially visible in views to the east of the B1242 during the construction period, rather than the single wellhead compound originally proposed. Wellhead compound construction activities were concentrated to one location in views and will now be dispersed to three locations, potentially with sequential views of wellhead compounds unfolding along the course of routes through the area. Although part of the same development, the three wellhead compounds together with a permanent solution mining compound could be perceived as a form of cumulative development, particularly from linear receptors including the footpath/ bridleway near East Hill Farm and B1242.</p>	<p>The magnitude of the change may increase or decrease depending on the extent of visibility of the construction of the three proposed wellhead compounds in comparison to the single wellhead compound at each viewpoint.</p> <ul style="list-style-type: none"> <li>• 5, Withernwick Road near track to Bewick Hall – likely to remain significant;</li> <li>• 6, B1242 junction with Withernwick Road - likely to remain significant. Potentially, this could also report a new, significant, cumulative effect as a consequence of sequential views of wellhead compounds construction unfolding along its course;</li> <li>• 7, B1242 north of Aldbrough likely to remain significant. Potentially, this could also report a new, significant, cumulative effect as a consequence of sequential views of wellhead compounds unfolding along its course;</li> <li>• 8, By-way between Aldbrough and East Hill Farm - likely to remain significant. Potentially, this could also report a new, significant, cumulative effect as a consequence of sequential views of wellhead compounds unfolding along its course;</li> <li>• 10 Private Track to Whitehill Farm, off Withernwick Road -likely to remain significant, but due to GPP, not wellhead compounds; and</li> <li>• 12, Mill Road public right of way, Aldbrough - likely to remain significant, with wellhead compounds being more prominent in views from this edge of Aldbrough. Potentially, this could also report a new, significant, cumulative effect as a consequence of sequential views of wellhead compounds unfolding along its course.</li> </ul>

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<b>Negative cumulative impact will result</b> due to the proximity and scale of the Gas Processing Plant in association with Witherwick wind farm and the Wellhead Compound in relation to the viewpoint and the addition of development into parts of the view that currently are not affected	Although part of the same development, the construction of the three wellhead compounds could be perceived as a form of cumulative development, particularly from linear receptors including the footpath/ bridleway near East Hill Farm and B1242.	The proposed changes are unlikely to result in an overall change to the assessment of effects in the original LVIA.
<i>Noise and Vibration</i>		
<b>Night-time noise impacts</b> are predicted during <b>drilling</b> , at Ravenfield Farm, Cowden Parva Bungalow (3dB above the criterion) and East Hill (1dB above the criterion) during the drilling period when the drilling is operating nearest to these receptors.	The effect of moving the drilling locations further south will mean that noise levels will be likely to increase at the nearest receptors at Bewick Hall, Bewick Cottage, and at the nearest properties in Aldbrough. Noise level changes have the potential to increase above the night-time assessment criteria at the closest of these receptors (Bewick Hall and Bewick Cottage).	This will have the potential to generate noise impacts at night during the drilling phase at a location where noise levels previously did not result in significant impacts. This will require further attention to mitigation.
<b>No significant noise impacts due to general construction activities were identified.</b>	The additional areas required to accommodate additional storage and equipment fabrication associated with the wellhead compounds have the potential to generate additional noise impacts.	The significance will depend on the type of activity being undertaken and the proximity of the selected sites to noise sensitive receptors.
<b>The access routes and haul roads were shown to result in impacts that were not significant.</b>	The addition of permanent and temporary access roads for the wellhead compounds could result in an increased potential for noise impacts.	The significance of the noise impact will depend on the proximity of the roads to noise sensitive receptors and number of vehicles that will use the additional roads.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Noise and Vibration.	Increased number of wellhead compounds, which in turn will lead to a slightly extended construction programme or lead to a potential for cumulative impacts.	Although the construction period will be extended the cumulative assessment considered the worst-case scenario assuming construction coincided with cumulative schemes. Therefore no significant cumulative impact is expected with an increased construction period in terms of traffic noise.
<i>Safety</i>		
Scoped out of the EIA.	No change.	No change.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<i>Socioeconomics</i>		
There are indirect and induced employment effects and the jobs will be available for people in the local area.	The ES FID 2010 reports that 75 jobs (FTE) will be created when construction begins, with a peak of 267 (FTE) and with an average of 150 (FTE) jobs over an eight year construction programme.	Given the likely small scale increase of FTE, the overall impact is likely to continue to be long term and positive in relation to the local economy. Therefore it is unlikely that the additional FTE will result in any additional residual impacts.
<b>Long term positive economic impacts</b> are predicted by the Project.	The introduction of additional wellhead compounds will extend the construction programme. This is likely to result in additional FTE jobs. However, the peak construction numbers are likely to remain unchanged.	
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to socioeconomics.	The proposed changes will not result in any socioeconomic impact or cumulative socioeconomic impact.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Socioeconomics, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Traffic and Transport</i>		
The additional vehicle movement numbers are not high within the context of existing local network capacity and therefore <b>not considered significant</b> .	The introduction of the additional wellhead compounds and associated inter-connecting in-field pipelines will result in an increased construction programme. Whilst additional traffic will be using the local network for a longer period of time it is not anticipated that the peak construction traffic flows will be significantly altered. It is assumed that the construction traffic routes that were assessed in the ES FID 2010 will remain unchanged.	The increased construction period will result in traffic movements on the local network an increased period of time. However, the peak flows remain the same. Given the existing network has capacity the proposed changes are not expected to give rise to any likely significant effect in terms of traffic.
If required, a temporary closure or diversion order will be sought while this crossing is made. <b>No impact</b> on Public Rights of Way.	The introduction of the additional wellhead compounds will not alter the proposed mitigation measures that, if required, a temporary closure or diversion order will be sought while this crossing is being made.	The introduction of the additional wellhead compounds will have no impact on Public Rights of Way, subject to the application of the mitigation measures set out in the ES FID 2010.
<b>Potential cumulative impacts</b> to the local traffic network should the construction of Witherwick	The proposed changes will result in similar peak construction traffic movements and an increase construction period therefore potential	Potential cumulative impacts were reported in the ES FID 2010. A review of the projects included in the cumulative

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
wind farm and Tansterne straw burning power station coincide with the construction of the Project.	cumulative impacts of Withernwick wind farm and Tansterne straw burning power station is likely, should the construction of these projects coincide.	impact assessment will inform whether there continues to be the possibility of potential cumulative impacts (if the cumulative schemes were to coincide).
<i>Waste</i>		
The construction of the gas processing plant, wellhead compound and pipelines will produce construction wastes. The impact of the removal and disposal of other solid and liquid construction and drilling wastes is considered to be <b>insignificant</b> .	<p>The move from one to three wellhead compounds will result in an increase in construction spoil mainly due to the inter-connecting in-field pipelines.</p> <p>If more than 10 (up to 12) wells have to be drilled this will increase the volume of drill cuttings wastes.</p>	<p>As set out in the ES FID 2010, where spoil arisings are not contaminated, the first choice will be reuse onsite. Where this is not possible, the second choice will be reuse on other parts of the proposed scheme or in other schemes in the area. A waste management exception will be required for the waste to be used on land. The last choice will be disposal to a registered inert landfill site.</p> <p>The increase in generation of construction waste from the proposed modifications will result in the possibility for additional surplus material that requires transportation via HGV to a licensed waste management facility.</p> <p>A Site Waste Management Plan, as part of the Environmental Management Plan, will act to minimise the volume and ensure that on-site reuse is maximised.</p> <p>Although no cumulative impacts were reported in the ES FID 2010 with regard to Waste, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.</p>
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Waste.	No cumulative impacts are expected to arise from the introduction of additional wellhead compounds.	
<i>Water Resources</i>		
Subject to use of best practice mitigation measures there is <b>no likely significant residual impact</b> to water resources.	The introduction of the additional wellhead compounds and associated inter-connecting in-field pipelines will result in additional potential impacts that could result from:	While there be will be additional temporary use of land, the land is Flood Zone 1 and subject to a revised flood risk assessment, it is likely that extended use of land would be acceptable as set out in Planning Policy Statement 25.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the Change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Construction Phase (Table 4.1)</b>		
<p><b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Water Resources</p>	<ul style="list-style-type: none"> <li>• pollution of surface water arising from the mobilisation of additional sediments during excavations;</li> <li>• possibility of contamination of groundwater from drilling fluids by additional drilling activities;</li> <li>• the potential for accidental spills during construction of the additional wellhead compounds and in-field connecting pipelines;</li> <li>• temporary local changes to groundwater flows; and</li> <li>• temporary use of additional land within Flood Zone 1 during construction.</li> </ul> <p>The cumulative assessment reported no cumulative impacts. The introduction of additional wellhead compounds is unlikely to have an effect on the cumulative impacts in relation to water resources.</p>	<p>Subject to the use of best practice mitigation measures as set out in the ES FID 2010. It is unlikely that the introduction of additional wellhead compounds will result in a negative effect to water resources.</p> <p>Although no cumulative impacts were reported in the ES FID 2010 with regard to Water Resources, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.</p>
<i>Associated Infrastructure</i>		
<p>Residual impacts assessed for a buried 11 kV power line were assessed and reported in the ES FID 2010.</p>	<p>A change to an overhead 11 kV cable will remove some potential impacts (eg to archaeology and ecology) but introduce new ones, particularly temporary impacts to landscape and visual amenity.</p>	<p>An overhead 11 kV line may contribute in a small way to landscape and visual effects, however its presence will be temporary and in the long term will have no impact.</p>

**Table 4.2 Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Operation**

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<i>Land Use, Seabed and Coastal Processes</i>		
With mitigation in place, the proposed scheme will result in a <b>slight residual impact to land use</b> during the operational phase.	The proposed modifications are expected to result in additional permanent landtake for the installation of additional wellhead compounds (approximately 1.35ha each) plus the solution mining compound (0.75 ha) plus landscaping. Nevertheless, the permanent total landtake for the Project will not significantly change but the spreading out of the effects over a wider area may have different effects. The additional land is currently in agricultural use.	The assessment as presented in the ES FID 2010 will require an update to examine the new project footprint from an agricultural land use perspective. The outcome at this stage is unlikely to alter the impact significance as presented in the ES FID 2010.
There are <b>no operational impacts</b> of the Scheme to <b>coastal and seabed processes</b> .	None of the proposed layout changes will introduce a change to the coastal environment to that of the consented project.	No change.
<b>No significant impacts to coastal erosion</b> are anticipated.	None of the proposed layout changes will introduce a change to the coastal environment to that of the consented project.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Land Use, Seabed and Coastal Processes during operation.	None of the proposed layout changes would introduce a change to the cumulative assessment for land use, seabed or coastal processes.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Land Use, Seabed and Coastal Processes, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Air Quality, Dust and Climate Change</i>		
<b>No significant impact to climate change</b> in the context of National emissions.	The proposed modifications to the wellhead compounds and interconnecting in-field pipelines will not change the carbon dioxide emissions from the plant. Therefore no changes are anticipated to the Global Warming Potential for the project from the operation of the wellhead compounds and inter-connecting in-field pipeline operation.	No change.

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
No significant impacts to air quality from operational traffic.	No additional operational traffic is anticipated to be required as a result of the proposed modifications.	No change.
Based on the proposed design of the installation, the residual air quality impacts from the operation of the gas storage project have been assessed to be insignificant.	No change.	No change.
There will be no significant cumulative air quality impacts with traffic with other projects during operation.	No additional operational traffic is anticipated to be required as a result of the proposed modifications.	No change.
There will be no significant cumulative air quality impacts with traffic with other projects during operation.	<p>The distance between the Project site and the Tansterne straw burning power station is approximately 3 km, therefore this is unlikely to have maximum coincidental concentrations.</p> <p>The predicted ambient background concentrations for cumulative maximum incremental contribution are negligible. Therefore it is unlikely that the combined impact of the two sites will significantly impact upon human health.</p> <p>The introduction of the additional wellhead compounds will not alter the distance between the cumulative schemes and therefore would not give rise to any new potential impact.</p>	Although no cumulative impacts were reported in the ES FID 2010 with regard to Air Quality, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<i>Archaeology and Cultural Heritage</i>		
There are <b>no predicted adverse residual impacts</b> on any designated or undesignated heritage assets due to the operation of the Project.	The proposed changes associated with the two southern wellhead compounds extend the boundaries of the scheme closer to Aldbrough village Conservation Area and Bewick Hall, which includes a Grade II Listed Building, and a Scheduled Monument. None of these assets were previously affected by the scheme. There are no other predicted changes to the heritage resource arising from the proposed operation changes.	<p>Additionally affected designated assets could experience negative impacts on their setting, character and appearance through visual intrusion and/or increased noise and vibration during operation. Assessment of the impact of these potential additional effects will be undertaken, including further landscape and visual assessment.</p> <p>As set out in the ES FID 2010 landscape and visual findings in respect of the original wellhead compound, it is anticipated that the visual influence of the additional wellhead compounds during the operational stage will be localised due to the relatively low height of the structures at the compound and the extent of the planting which will be designed to integrate the compounds into the landscape.</p> <p>It is likely that any changes to the ES FID 2010 findings will therefore be restricted to new negligible or slight adverse impacts on the setting or amenity of designated assets.</p>
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Archaeology during operation.	No change.	No change.
<i>Ecology and Nature Conservation</i>		
The Project will have <b>no significant impacts to Protected Areas and European Protected Species</b> . The Project will make a number of general positive contributions to local biodiversity.	The Landscape and Biodiversity Strategy will continue to provide this benefit under the changed scheme.	By reducing the fragmentation and isolation of habitats and populations of flora through the implementation of the Biodiversity Strategy, the scheme as changed will have a positive impact of local significance.

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Ecology.	No change.	No change.
<i>Impacts to Land</i>		
The possibility of potential <b>contamination</b> during the operation of the wellhead compound is considered to be low and the impact of <b>minor significance</b> .	The introduction of the additional wellhead compounds changes the location of the vertical pathways into the aquifer, but does not add additional pathways as the number of wells to be drilled effectively remains unchanged. If a well does fail and a contingency one is required the failed well will be sealed.	With the application of the same mitigation measures as set out in the ES FID 2010 (use of the correct design technique to prevent vertical migration of contaminants into the aquifer, both from the surface and within the aquifer itself), no changes are likely to occur to the residual impact significance to land.
The impact of potential contamination during the operation of the gas processing plant is considered to be of <b>minor significance</b> as any contamination would be contained within the site.	The operation of the wellhead compounds and inter-connecting in-field pipelines will not have a change to the land within the boundary of the gas processing plant (see <i>Table 3.3</i> below for potential changes as a result of modifications to the GPP).	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Impacts to Land.	The modification to the wellhead compounds and in-field pipelines will not have an effect on cumulative impacts.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Impact to Land, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Landscape and Visual</i>		
Of the five different landscape character receptors that have been identified within the study area, <b>no significant effects</b> have been identified.	The move to three wellhead compounds and the retention of the solution mining compound is likely to be considered as having a marginally greater effect on landscape character during the operational stage, affecting a wider footprint and having a more dispersed pattern in the character area. It is unlikely, however, that the proposed changes would result in an overall change to the assessment on landscape character, providing that appropriate mitigation measures are proposed in the landscape masterplan, e.g. hedgerow planting. Significant adverse effects on landscape character can be avoided due to the integration of the built development elements provided by trees and hedgerows.	Of the five different landscape character receptors that have been identified within the study area, no significant effects are likely to be identified (providing appropriate mitigation planting is proposed for the wellhead compounds).

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<p>Of 14 viewpoints chosen within the study area, <b>one significant adverse and long-term effect</b> was identified. This significant effect- on viewpoint 10 is mainly due to the large magnitude of change on the view.</p>	<p>The proposed changes will result in three operational wellhead compounds and potentially the solution mining compound being visible in views to the east of the B1242, rather than the single wellhead compound originally proposed and the solution mining compound which was temporary. The original wellhead compound benefited from being relatively low lying, with some local landform features around the 15m contour providing a degree of local enclosure.</p> <p>Two of the proposed wellhead compounds will be located closer to, and are likely to be more visible from, the B1242. The third wellhead compound and the solution mining compound is located further east, in an area of slightly higher ground around the 18m contour - the landform rises slightly from the B1242 towards the coastal edge but this wellhead compound and solution mining compound may be screened by existing hedgerows.</p> <p>There is potential for mitigation screening by locating the wellhead compound behind new hedgerow planting along the bridleway between Aldbrough and East Hill Farm, although this receptor would experience closer range effects than previously anticipated.</p> <p>Although part of the same development, the three wellhead compounds and the solution mining compound could be perceived as a form of cumulative development, particularly from linear receptors including the footpath/ bridleway near East Hill Farm and B1242.</p> <p>It is unlikely, however, that the proposed changes would result in an overall change to the assessment of significant effects on views, providing that appropriate mitigation measures are proposed in the landscape masterplan, e.g. hedgerow planting.</p> <p>It is expected that significant adverse effects on views can be avoided due to the integration of the built development elements provided by trees and hedgerows.</p>	<p>Of 14 viewpoints chosen within the study area, one significant adverse and long-term effect will remain. This significant effect- on viewpoint 10 is mainly due to the large magnitude of change on the view caused by the GPP.</p>

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
There will be <b>limited adverse effects cumulatively</b> with the wind farm at two receptors.	Although part of the same development, the construction of the three wellhead compounds could be perceived as a form of cumulative development, particularly from linear receptors including the footpath/ bridleway near East Hill Farm and B1242.	The proposed changes are unlikely to result in an overall change to the assessment of effects in the original LVIA.
<i>Noise and Vibration</i>		
<b>No significant residual noise impacts</b> are expected from operation of the project.	The results of preliminary predictions have confirmed that by employing extensive noise mitigation measures it should be possible to build and operate the plant to meet the assessment criterion of 35dB(A) at the nearest residential noise sensitive receptors. During leaching pumps will operate at near to one of the new wellhead compound locations.	Following assessment it is likely noise mitigation may need to be modified (eg if sources move closer to receptors), but with this in place it should be possible to ensure that no significant noise impacts are identified. Following assessment it is likely noise mitigation may need to be modified (eg if sources move closer to receptors), but with this in place it should be possible to ensure that no significant noise impacts are identified.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Noise Impacts.	The introduction of three wellhead compounds, with the same number of wells will not have an impact on operational noise. Therefore the previous cumulative assessment remains for the Project remains valid.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Noise, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Safety</i>		
The report concludes that the highest level of individual risk at normally occupied lies well within the accepted limits for broadly <b>acceptable risk</b> published by HSE, even for individuals present for 100 percent of the time.	The installation of additional wellhead compounds and inter-connecting in-field pipelines introduces changes to the area over which risks will be experienced from the following scenarios which were identified in the ES FID 2010 as having the greatest potential for off-site consequences: <ul style="list-style-type: none"> <li>• manifold rupture at the wellhead (vertical release);</li> <li>• inlet line rupture (horizontal release);</li> <li>• rupture of cavity pressure process pipework (horizontal release); and</li> <li>• wellhead failure (vertical release).</li> </ul>	The safety assessment will require updating to incorporate the change in layout of the wellhead compounds and additional in-field pipework.

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Safety.	The presence of the Withernwick wind farm and the Tansterne straw burning power station will not lead to cumulative increase in risk levels.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Safety, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Socioeconomics</i>		
<b>Long term positive economic impacts</b> will be of <b>minor scale</b> , and include, direct employment on site, indirect employment and induced employment.	The introduction of additional wellhead compounds and interconnecting pipelines will not result in additional employment on the site. Therefore, there will be no increase with regards to induced or indirect employment.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Socioeconomics.	No change is anticipated to the predicted operational employment numbers and therefore there is no predicted additional impact.	No change.
<i>Traffic and Transport</i>		
<b>Operational traffic</b> flows generated from the site will be minimal and the associated impact is considered <b>not significant</b> .	No additional operational traffic is anticipated to be required as a result of the proposed modifications.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Traffic and Transport.	Due to the low levels of traffic flow for all projects, operational impacts cumulatively with the wind farm and the biomass power plant are considered to be not significant.	Although no cumulative impacts were reported in the ES FID 2010 with regard to Impact to Traffic and Transport, a review of the projects included in the cumulative impact assessment, and in the context of the proposed changes will be required to confirm that this remains unchanged.
<i>Waste</i>		
The impacts associated with the <b>operational waste</b> generated are considered to be <b>minor impact</b> .	No change is anticipated to the amount of operational waste.	No change.

Residual impacts introduced by the Project as reported in the ES FID 2010	Change in Potential Impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - Wellhead Compounds and Inter-Connecting In-field Pipelines Operation (Table 4.2)</b>		
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Waste.	No change is anticipated with regards to cumulative waste.	No change.
<i>Water Resources</i>		
There will be <b>no significant impact to water resources</b> within the study area.	The additional wellhead compounds will result in an increase in the number of drain systems that will be installed at the site.	The mitigation measures with regard to water resources as set out in the ES FID 2010 will apply to the updated Project and will preclude the possibility of contamination of local water courses. It is unlikely that the residual impact significant to water resource will change as a result of these modifications.
Relatively <b>little in the way of residual risk</b> in terms of <b>Flood Risk</b> .	The introduction of additional wellhead compounds will increase the amount of hardstanding required within Flood Zone 1 (<0.1 percent chance of flooding), and the buried inter-connecting pipelines will transect this Flood Zone. This will in turn increase the possibly of contamination of local water courses around these facilities.	The mitigation measures outlined in the ES FID 2010 include the installation of drainage systems at the wellhead compound to control the rate of flow of surface water and to preclude the possibility of contamination of local water courses accordance with PPS25. This measure will apply to the additional wellhead compounds and therefore it is unlikely that the residual impact significance to flood risk will change as a result of these modifications.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Water Resources.	The introduction of additional wellhead compounds is unlikely to have an effect on the cumulative impacts in relation to water resources.	No change.

**Table 4.3 Scoping Review – GPP Layout during Operation**

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – GPP Layout during Operation (Table 4.3)</b>		
<i>Land Use, Seabed and Coastal Processes</i>		
With mitigation in place, the proposed scheme will result in a <b>slight residual impact to land use</b> during the operational phase.	The proposed modifications to the layout of the GPP will not alter the overall permanent landtake required for this element of the Project.	No change.
There are <b>no operational impacts</b> of the Scheme to <b>coastal and seabed processes</b> .	The proposed modifications to the layout of the GPP will not have a change the coastal environment.	No change.
<b>No significant impacts to coastal erosion</b> are anticipated.	The proposed modifications to the layout of the GPP will not have a change the coastal environment.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Land Use, Seabed and Coastal Processes	The changes to the GPP layout is not expected to have a cumulative impact on seabed or coastal processes during operation.	No change.
<i>Air Quality, Dust and Climate Change</i>		
<b>No significant impact to climate change</b> in the context of National emissions.	Changes to the GPP layout will not have an impact on the assessment in terms of climate change.	No change.
Based on the proposed design of the installation, the <b>residual air quality impacts</b> from the operation of the gas storage project have been assessed to be <b>insignificant</b> .	The proposed changes to the GPP layout are unlikely to result in a change to the ES FID 2010 assessment. It is assumed that the stack will remain within the approved plant envelope.	No change.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - GPP Layout during Operation (Table 4.3)</b>		
There will be <b>no significant cumulative air quality impacts with traffic</b> with other projects during operation.	There are no anticipated cumulative air quality impacts with traffic arising from GPP layout changes.	No change.
<i>Archaeology and Cultural Heritage</i>		
There are <b>no predicted adverse residual impacts</b> on any designated or undesignated heritage assets due to the operation of the Project.	<p>Modifications to the operational layout of the plant will have no additional impacts on the heritage resource.</p> <p>Modifications to the height of plant could potentially alter the visual influence of the plant within the wider landscape. The nearest designated assets to the GPP site are Withernwick village Conservation Area, c. 2.4 km to the west; Bewick Hall (Scheduled Monument and grade II Listed Building), c. 1.3km to the south-east, and Aldbrough village Conservation Area, c.2.2 km to the south-east.</p>	<p>Given the distance and proposed landscaping and planting around the GPP site, the proposed changes are unlikely to result in any significant new adverse impacts on the setting of the designated heritage assets. However, this will be confirmed as part of the detailed assessment.</p> <p>No other potential changes from the ES FID 2010 findings are predicted.</p>
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Archaeology and Cultural Heritage.	No change.	No change.
<i>Ecology and Nature Conservation</i>		
The Project will have <b>no significant impacts to Protected Areas and European Protected Species</b> . The Project will make a number of general positive contributions to local biodiversity.	Changes to the GPP layout will have no effect on the overall ecological Project impacts.	No change.
<i>Impacts to Land</i>		

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – GPP Layout during Operation (Table 4.3)</b>		
The possibility of potential <b>contamination</b> during the operation of the wellhead compound is considered to be low and the impact of <b>minor significance</b> .	See <i>Table 3.2</i> for potential changes to land as a result of the proposed modifications to the wellhead compounds.	n/a.
The impact of potential contamination during the operation of the gas processing plant is considered to be of <b>minor significance</b> as any contamination would be contained within the site.	The proposed modifications to the layout of the GPP will not alter the activities on the site during operation or the substances that will be stored there.	With the application of preventative measures for chemical storage, waste handling and emergency response as set out in the ES FID 2010, no change is anticipated to occur.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Impacts to Land.	No change.	No change.
<i>Landscape and Visual</i>		
Of the five different landscape character receptors that have been identified within the study area, <b>no significant effects</b> within the development envelopes have been identified.	The height and position of features within the envelopes of the GPP may be different from those previously assessed, however these changes may prove not to be significant if the plant remains within the parameters of the site footprint in which case the original LVIA will remain valid for the modified project, insofar as the GPP is concerned.	As per original LVIA.
Of 14 viewpoints chosen within the study area, <b>one significant adverse and long-term effect</b> was identified. This significant effect- on viewpoint 10 is mainly due to the large magnitude of change on the view.	The height and position of features within the envelopes of the GPP may be different from those previously assessed, however these changes may prove not to be significant if the plant remains within the parameters of the site footprint in which case the original LVIA will remain valid for the modified project, insofar as the GPP is concerned	As per original LVIA.
At the remaining viewpoints the effect of the development is either considered to be adverse, but not significant- where the gas storage development is visible; or neutral and not significant- where the view is affected by new hedgerow planting in the foreground.	The height and position of features within the envelopes of the GPP may be different from those previously assessed, however these changes may prove not to be significant if the plant remains within the parameters of the site footprint in which case the original LVIA will remain valid for the modified project, insofar as the GPP is concerned	As per original LVIA.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review – GPP Layout during Operation (Table 4.3)</b>		
There will be <b>limited adverse effects cumulatively</b> with the wind farm at two receptors.	The height and position of features within the envelopes of the GPP may be different from those previously assessed, however these changes may prove not to be significant if the plant remains within the parameters of the site footprint in which case the original LVIA will remain valid for the modified project, insofar as the GPP is concerned	As per original LVIA.
<i>Noise and Vibration</i>		
<b>No significant residual noise impacts</b> are expected from operation with these noise mitigation measures in place.	The modifications to the layout of the GPP could alter the location of noise generating equipment. However, the location of the GPP remains fixed and therefore there will be no altered impact to sensitive receptors.	The modification is unlikely to result in any changes to sensitive receptors; as such there will be no change to the assessment.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Noise and Vibration.	No change.	No change.
<i>Safety</i>		
The report concludes that the highest level of individual risk at normally occupied lies well within the accepted limits for broadly <b>acceptable risk</b> published by HSE, even for individuals present for 100 percent of the time.	The modifications to the layout of the GPP will not change the operational activities that will occur or the substances that will be stored within the site boundary, rather the configuration of the equipment within the site boundary.	A review of the inputs to the safety assessment is required to determine whether a full reassessment is necessary.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Safety.	No change.	No change.
<i>Socioeconomics</i>		
<b>Long term positive economic impacts</b> will be of <b>minor scale</b> , and include, direct employment on site, indirect employment and induced employment.	The modifications to the layout of the GPP are not anticipated to have any change to the total operational jobs that will be generated (15 permanent skilled).	No change.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - GPP Layout during Operation (Table 4.3)</b>		
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Socioeconomics.	There are no anticipated changes to employment numbers and therefore no change to cumulative impacts.	No change.
<i>Traffic and Transport</i>		
<b>Operational traffic</b> flows generated from the site will be minimal and the associated impact is considered <b>not significant</b> .	As the modifications to the GPP are not anticipated to have any change to the total operational jobs, no change is anticipated to operational traffic from staff. The ES FID 2010 also assumed 1 HGV trip per day during operation given that the final design of the equipment is not complete, it is anticipated that will still apply with the proposed modifications.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Traffic and Transport.	The modified GPP layout will not affect trip numbers and therefore the cumulative assessment will not be affected.	No change.
<i>Waste</i>		
The impacts associated with the <b>operational waste</b> generated are considered to be <b>minor impact</b> .	The proposed layout modifications to the GPP are not anticipated to alter the predicted generation of operational waste as assessed in the ES FID 2010.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Waste.	The modified GPP layout will not result in additional waste and therefore there are no likely cumulative impacts that arise from the modifications.	No change.
<i>Water Resources</i>		
There will be <b>no significant impact to water resources</b> within the study area.	The proposed layout modifications to the GPP are not anticipated to alter the scenario as assessed in the ES FID 2010 for process water (which assumes that it will be collected, separated and any hydrocarbons removed for off site disposal, and then further treated before discharge to local water courses). Therefore the potential risk of contamination to surface water will remain unchanged.	No change.

Residual Impacts introduced by the Project as reported in the ES FID 2010	Change in impact and (if any) new Potential Impacts are introduced	Likely Effect following the change
<b>Scoping Review - GPP Layout during Operation (Table 4.3)</b>		
Relatively <b>little in the way of residual risk</b> in terms of <b>Flood Risk</b> .	The proposed layout modifications may alter the configuration of the areas of hardstanding required within the site boundary but are not anticipated to alter the overall area required. The mitigation outlined in the ES FID 2010 included the installation of a drainage system to control the rate of flow and preclude the possibility of contamination to water courses. With the application of measures as set out in the ES FID 2010, the potential risk to contamination of surface water from site run off will remain unchanged.	No change.
<b>No cumulative impacts</b> were reported in the ES FID 2010 in relation to Water Resources.	No change.	No change.

### 5.1 SUMMARY AND CONCLUSIONS OF SCOPING

Tables 4.1, 4.2 and 4.3 set out the likely effects of the proposed modifications to the Project. This section considers the likely implication in terms of potentially material changes from the conclusions of the ES FID 2010, and how these relate to the scope of work required to prepare an addendum to the ES FID 2010.

In summary, it is clear that all the technical assessments covered in the ES FID 2010 will require some update in part to align with the proposed modifications. All the technical assessments will therefore be reviewed. Some technical assessments are relatively unaffected by the proposed changes and are likely to only require a review of baseline data and mitigation measures to ensure the accuracy of the existing assessment and the adequacy of the current mitigation measures proposed. For other technical assessments more work will be required. Key topics that have been identified as requiring more detailed reassessment include noise, landscape and visual, archaeology and cultural heritage, ecology, land use and air quality.

- *Noise:* The Project modifications will result in potential impacts to additional sensitive receptors during construction (specifically at night) primarily due to the wellhead compounds moving closer to residential properties.
- *Landscape and Visual:* The design and layout of the wellhead compounds are likely to impact the landscape and visual assessment. The sequential view of the wellhead compounds unfolding is noted as having a potential additional impact, and it is likely that new viewpoints will require assessment during construction. An aboveground 11 kV line will introduce new landscape and visual impacts for a temporary period.
- *Archaeology and Cultural Heritage:* Detailed assessment and evaluation of the revised construction footprint will be necessary to confirm whether there will be any additional impact on significant recorded or unrecorded archaeological or historic landscape remains. Cultural heritage sites (including previously unaffected ones) could also experience a change in the impacts on their setting, character and appearance through visual intrusion and/or increased noise and vibration during operation.
- *Ecology:* The footprint of the overall Project will be extended and this will lead to new potential ecological impacts that will require assessment and possibly further mitigation to be developed.
- *Land Use:* As with ecology the overall Project footprint will be extended and this will introduce new potential land use impacts.

- *Air Quality:* The Project is likely to result in potential impacts to additional sensitive receptors with regards to dust during construction primarily due to the wellhead compounds moving closer to residential properties.

This review has also identified potential changes to the cumulative impact assessment in particular with regard to Landscape and Visual.

## 5.2 *THE WAY FORWARD*

### 5.2.1 *General Considerations*

#### *Planning and Regulatory Considerations*

The planning context for the Project will be updated to reflect the current situation.

#### *Project Description and Alternatives*

The project description and discussion of alternatives will be updated with further detail on the proposed changes, any alternatives considered and the rationales for the changes. At this stage the Project design team are not able to present final details in regards to certain matters such as the precise locations of the wellhead compounds as they will be built. The way in which the update to the ES FID 2010 will deal with the need for design flexibility while providing the necessary information to the Council is addressed below.

### 5.2.2 *Technical*

#### *Overarching Considerations*

All the topics assessed in the ES FID 2010 will be revisited and revised, however in terms of specific approaches and methodologies the following topics will be given particular attention.

The assessments will also be undertaken in a manner that considers the need for flexibility going forward and this is also discussed below. In this respect the assessments will be iterative with design work so that to the extent the Project design team is able to fix certain matters ahead of submission of the updated ES FID 2010 its decisions will have been informed by environmental considerations.

#### *Noise*

The noise assessment will consider the effects of construction, drilling and operations at the wellhead compounds and construction of interconnecting pipelines.

At present there is an 'envelope' of land (see *Figure 3.1*) within which all the wellhead compound development activity will take place. In the first instance

the assessment will consider the noise from the longer term activities (drilling and operation) at the nearest sensitive receptors, taking into account practicable mitigation measures. Depending on the outcome of this work the size and shape of the envelope may be modified and the noise work will be used to define the area within which the wellhead compounds will be located and provide the basis for assessment for the other topics below.

The baseline noise climate for the area will be updated by survey subject to consultation with the Council's Environmental health Department. The impacts will be predicted/quantified by standard accepted techniques and the assessment criteria established in the ES FID 2010 will advise the evaluation of significance. An objective of the assessment will be to report in the ES FID the noise effects of various permutations (including a 'worst case') of the arrangement of the three wellhead compounds so that the Council and its consultees are made aware of the full range of potential effects.

#### *Landscape and Visual*

There will be two elements to the landscape and visual assessment.

1. Based on the outcome of the noise assessment the landscape and visual assessment will assess the impacts during construction, leaching and operations of three wellhead compounds arranged within a defined envelope. Appropriate photomontages will be used to illustrate the likely effects and mitigation will be proposed in terms of amendments to the landscape and biodiversity master plan.
2. The landscape and visual assessment will also assess the potential impacts of changes to plant layout and building heights within the GPP. Again the approach will be to allow future flexibility while reporting the full range of likely effects in the update to the ES FID 2010. The most likely approach will be to look at the GPP initially as a set of block structures, each up to the maximum height of the tallest proposed structure (with the exception of the vent stack). This will allow overall visibility to be illustrated in photomontages and assessed from a range of viewpoints. From this approach an envelope will be defined for the layout and heights of structures such that the effects on visual impact would be as assessed in the ES FID 2010. The expectation would then be that all future design would result in a layout and structure heights within an envelope for which the visual effects had been assessed and were understood.

In addition the temporary effects to landscape and visual amenity due to an above-ground 11 kV cable will be assessed.

#### *Archaeology and Cultural Heritage*

An update to the archaeology assessment will be undertaken based on a site walk over. This will cover the full area in which the wellhead compounds may be located, together with the pipeline corridors to the extent these areas

have not been previously surveyed. The study area is in arable use and the present time of year is optimal for such a survey.

#### *Ecology*

An update to the ecological assessment will be undertaken based on a site walk over. This will cover the full area in which the wellhead compounds may be located, together with the pipeline corridors to the extent these areas have not been previously surveyed. The survey will be undertaken by an ecologist who undertook the original survey and assessment work and the depth of knowledge accrued over several years will offset minor considerations regarding the optimal time of year for certain species/groups.

#### *Land Use*

The assessment will identify existing land uses and the mitigation proposed to minimise impacts and restore the pipeline corridors.

#### *Air Quality (Dust)*

The air quality assessment will focus on potential dust impacts and any further need for mitigation.

### **5.2.3 *Cumulative Impacts***

As part of the update to the ES FID 2010, a full review of the projects/schemes to be included in the cumulative assessment will be undertaken to ensure the assessment is up to date. Should new projects/schemes be identified, or if further information is obtained regarding existing schemes, this will be used to update the cumulative assessment.

### **5.2.4 *The Format of the Information to be Provided***

The ES FID 2010 will be updated and amended where required to produce an ES FID 2011. The intention therefore is to produce a document that transparently shows the changes from the ES FID 2010 document. The manner in which the update information is presented will be explained in the updated Non-technical Summary and the Introduction chapter.

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