



**GNI** (UK)  
Ltd.

## **IC2 Cruden to Brighthouse Pipeline**

Habitat Regulations Assessment – Screening and No  
Significant Effects Report



March 2015

**PROJECT REPORT****RSK General Notes**

**Project No:** 190418

**Title:** IC2 Cluden to Brighthouse Pipeline

**Client:** Penspen

**Issue Date:** March 2015

**Revision:** Draft

**Issuing Office:** Glasgow

<b>Authorised by:</b>		<b>Project Manager</b>	<b>Date:</b>	
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# **1 INTRODUCTION**

## **1.1 Purpose of this Report**

This document is produced to inform the Habitat Regulations Assessment (HRA) process in relation to the proposed construction of a 50 km pipeline from Cruden to Brighouse. The pipeline route lies within 15 km of six designated sites, namely three Special Areas of Protection (SPAs) and three Special Areas of Conservation (SACs). The document specifically considers potential effects of the pipeline construction on these internationally important sites.

RSK was commissioned by Penspen to undertake the initial stages of the HRA process, *i.e.* a screening assessment and subsequent No Significant Effects Report, or Statement to Inform the Appropriate Assessment.

A desk study review has been undertaken to determine any potential impacts of the proposals on the habitats and species listed as 'primary reasons' or 'qualifying features' for the SPA/SAC designations.

## **1.2 Scheme Description**

The scheme will involve the installation of a 50 km gas pipeline from Cruden to Brighouse. The gas pipeline system will be designed, constructed and operated in accordance with the '*Steel Pipelines for High Pressure Gas Transmission IGE/TD/1 Edition 4*'. The route of the proposed pipeline is shown on *Figure 1* together with the locations of the designated sites.

## **1.3 Ecological Context**

The pipeline route runs between Cruden and Brighouse in Dumfries and Galloway. The starting point is in Cruden to the North West of Dumfries and end point in Brighouse close to the coast south of Kirkcudbright. The route crosses mainly farmland with isolated pockets of woodland. The route is ecologically well connected to the surrounding farmed landscape due to the open nature of the area and interconnecting hedgerows.

**2****PROTECTED SITES POTENTIALLY AFFECTED BY THE PROPOSALS**

The pipeline lies within 15 km of the following designated sites:

- Upper Solway Flats and Marshes SPA;
- Solway Firth SAC;
- Loch Ken and River Dee Marshes SPA;
- Castle Loch, Lochmaben SPA;
- Solway Mosses North SAC; and
- Galloway Oakwoods SAC.

The location of these sites in relation to the proposed pipeline is shown in *Figure 1*.

**2.1****Upper Solway Flats SPA**

Upper Solway Flats and Marshes SPA lies 5.6 km to the South East of the proposed pipeline.

Upper Solway Flats qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance<sup>1</sup> of the following species listed on Annex I of the Directive.

**Over winter:**

Bar-tailed Godwit (*Limosa lapponica*), Barnacle Goose (*Branta leucopsis*), Golden Plover (*Pluvialis apricaria*) and Whooper Swan (*Cygnus cygnus*).

Upper Solway Flats has also been designated as a SPA under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

**On passage:**

Ringed Plover (*Charadrius hiaticula*)

**Over winter:**

Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Knot (*Calidris canutus*), Oystercatcher (*Haematopus ostralegus*), Pink-footed Goose (*Anser brachyrhynchus*), Northern Pintail (*Anas acuta*) and Redshank (*Tringa totanus*).

**Assemblage qualification: A wetland of international importance.**

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl. Further details of the SPA designations and qualifying features are provided in *Appendix 1*.

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<sup>1</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0013027>



## 2.2

### Solway Firth SAC

Solway Firth SAC has two parcels with one parcel situated 5.6 km to the South East of the proposed pipeline and the second parcel situated 7.2 km to the South East.

Solway Firth has been designated as an SAC on the basis that it supports the following habitats and species of European importance<sup>2</sup>:

#### Annex I habitats that are a primary reason for the selection for this site:

- Sandbanks which are slightly covered by sea water all the time.
- Estuaries.
- Mudflats and sandflats not covered by seawater at low tide.
- Salicornia and other annuals colonizing mud and sand.
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).

#### Annex I habitats present as a qualifying feature, but not a primary reason for selection:

- Reefs.
- Perennial vegetation of stony banks.
- "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" \* Priority feature.

#### Annex II species that are a primary reason for the selection for this site:

- Sea lamprey (*Petromyzon marinus*).
- River lamprey (*Lampetra fluviatilis*).

#### Annex II species present as a qualifying feature, but not a primary reason for site selection

- Not applicable.

Further details of the SAC designations and qualifying features are provided in *Appendix 2*.

## 2.3

### Loch Ken and River Dee Marshes SPA

The Loch Ken and River Dee Marshes SPA has two parcels with one parcel situated 1.9 km to the North West of the proposed pipeline and the other parcel situated 7.0 km to the North West.

This Loch Ken and River Dee Marshes qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance<sup>3</sup> of the following species listed on Annex I of the Directive:

#### Over winter:

Greenland White-fronted Goose (*Anser albifrons flavirostris*).

<sup>2</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0013025>

<sup>3</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK9003111>

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

**Over winter:**

Greylag Goose (*Anser anser*).

Further details of the SPA designations and qualifying features are provided in *Appendix 3*.

## 2.4 Castle Loch, Lochmaben SPA

The Castle Loch, Lochmaben SPA lies 14.5 km to the North East of the proposed pipeline.

This site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance<sup>4</sup> of the following migratory species:

**Over winter:**

Pink-footed Goose (*Anser brachyrhynchus*).

Further details of the SAC designations and qualifying features are provided in *Appendix 4*.

## 2.5 Solway Mosses North SAC

The Solway Mosses North SAC has two parcels with one parcel situated 5.6 km to the South East of the proposed pipeline and one situated 7.2 km to the South East.

The site has been designated as an SAC on the basis that it supports the following habitats and species of European importance<sup>5</sup>.

**Annex I habitats that are a primary reason for the selection for this site:**

- Active raised bogs \* Priority feature.

**Annex I habitats present as a qualifying feature, but not a primary reason for selection:**

- Degraded raised bogs still capable of natural regeneration.

**Annex II species that are a primary reason for the selection for this site:**

- Not applicable.

**Annex II species present as a qualifying feature, but not a primary reason for site selection**

- Not applicable.

Further details of the SAC designations and qualifying features are provided in *Appendix 5*.

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<sup>4</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK9003191>

<sup>5</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030310>



**2.6****Galloway Oakwoods SAC**

The Galloway Oakwoods SAC has two parcels with one situated 9.9 km to the North West of the proposed pipeline and one parcel situated 7.2 km to the South West.

The site has been designated as a SAC on the basis that it supports the following habitats and species of European importance<sup>6</sup>.

**Annex I habitats that are a primary reason for the selection for this site:**

- Old sessile oak woods with Ilex and Blechnum in the British Isles.

**Annex I habitats present as a qualifying feature, but not a primary reason for selection:**

- Not applicable.

**Annex II species that are a primary reason for the selection for this site:**

- Not applicable.

**Annex II species present as a qualifying feature, but not a primary reason for site selection**

- Not applicable.

Further details of the SAC designations and qualifying features are provided in *Appendix 6*.

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<sup>6</sup> taken from JNCC website <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030153>

### **3 POTENTIAL IMPACTS ON THE PROTECTED SITE**

#### **3.1 Methodology**

##### *3.1.1 Desktop review*

For the purposes of this report, a desk-based assessment was undertaken to determine which Natura 2000 sites may be directly or indirectly affected by the proposed works.

Information was collated from the organisations and websites listed below:

- Scottish Natural Heritage (SNH) Interactive Map (<http://www.snh.gov.uk>); and
- The Joint Nature Conservation Committee (JNCC) website ([www.jncc.gov.uk](http://www.jncc.gov.uk)).

As no direct affects on any Natura 2000 sites is anticipated, no specific surveys were undertaken to inform this HRA.

#### **3.2 Results and Assessment**

Screening matrices for the proposed development are presented in *Appendix 7, 8 and 9* of this report.

##### *3.2.1 Upper Solway Flats and Marshes SPA - Qualifying Features*

Given the distance of the site (5.6 km) from the proposed pipeline, no direct impacts on the designated features of this site are anticipated (i.e. bird disturbance).

The site is downstream of proposed river crossings and therefore there is a potential risk of contamination from accidental spillages or disturbance of sediments that could impact the feeding resource of the bird species. There is also a risk of spillages and pollution from general construction work.

##### *3.2.2 Solway Firth SAC - Qualifying Features*

Given the distance of the site (5.6 km) from the proposed pipeline, no direct impacts on the designated features of this site are anticipated.

The site is downstream of proposed river crossings and therefore there is a potential risk of contamination from accidental spillages or disturbance of sediments at river crossings. This could have an adverse effect on River Lamprey and Sea Lamprey, both qualifying species of the SAC. There is also a risk of spillages and pollution from general construction work.

##### *3.2.3 Loch Ken and River Dee Marshes SPA - Qualifying Features*

Given the distance to the site (1.9 km) from the proposed pipeline and the presence of the A75 between them, no direct impacts on the designated features of this site are anticipated.

The proposed river crossing of the River Dee is also downstream of the designated section of the river.

Wintering Greenland White Fronted Geese (for which the site is designated) have set patterns of field use and they do not use any of the fields which will be affected by the pipeline (information provided by Scottish Natural Heritage). Greylag Geese also use specific fields but they are spread over a much wider area and therefore they are not so dependent on specific fields. It is therefore possible that this species fields affected by proposed pipeline construction during the winter on an occasional basis. However, given that construction works will be undertaken in the summer months, no impact on this species is anticipated. To further encourage the geese to continue feeding along the route, sward cover will be established by the start of the winter where possible and temporary fencing will be removed before the geese return.

#### *3.2.4 Castle Loch, Lochmaben SPA - Qualifying Features*

Given the distance of the site (14.5 km) from the proposed pipeline, no impacts on the designated features are anticipated.

#### *3.2.5 Solway Mosses North SAC - Qualifying Features*

Given the distance of the site (5.58 km and 11.2 km) from the proposed pipeline, no impacts on the designated features are anticipated.

#### *3.2.6 Galloway Oakwoods SAC - Qualifying Features*

Given the distance to the site (9.9 km and 8.8 km) from the proposed pipeline, no impacts on the designated features are anticipated.

### **3.3**

#### ***Summary***

Based on the initial assessment, Upper Solway Flats and Marshes SPA and Solway Firth SAC have potential pathways for impacts through river crossings at distance from the designated sites.

It is possible that Greylag Geese (a qualifying feature of the Loch Ken and River Dee Marshes SPA) may use some of the fields along the route for winter feeding given that the SPA is only 1.9 km from the pipeline route. Therefore this species may be dissuaded from feeding in areas where works are taking place. However, given that works will generally be undertaken in the summer months, no impact on this species is anticipated.

No impacts are anticipated on the remaining sites.

## 4

### **MITIGATION**

As detailed in Sections 3.2.1 to 3.2.6, the proposed pipeline route is not situated within any of the designated sites. With the exception of a risk of contamination from accidental spillages or disturbance of sediments which could impact on the feeding resources of birds in the Upper Solway Flats and Marshes SPA and adversely affect the qualifying species of the Solway Firth SAC, all other effects are discounted.

### 4.1

#### **Construction Methods and Mitigation**

##### *4.1.1 General*

A project management team will be appointed to oversee the construction of the pipeline and a method statement covering the construction of crossings for watercourses will be produced. Method statements will be agreed with the appropriate consenting authorities. An overarching Project Environmental Management Plan (PEMP), Waste and Water Management, and Pollution Prevention and Emergency Response Plans will also be produced to control and monitor environmental performance throughout the project.

General mitigation measures that will be employed include:

- compliance with Scottish Environmental Protection Agency (SEPA) best practice guidelines for fuel storage and re-fuelling; and
- providing adequate facilities for the collection, treatment and disposal of waste and sewage.

The specific mitigation measures to be employed to prevent contamination of the site soils and groundwater during construction will include:

- fuels and lubricants will be stored in appropriately bunded static tanks at the Site Establishment Areas, which will be located to avoid highly sensitive locations;
- refuelling on the working width will be carried out using contained mobile bowsters, with lockable nozzles, which will be returned to the Site Establishment Areas each night;
- drip trays will be used when refuelling at all locations;
- adequate spill kits will be maintained in working areas, and staff carrying out refuelling will be trained in their use;
- site security will be maintained at an adequate level in areas where fuel and lubricants are stored, to ensure that contamination does not occur as a result of vandalism or theft;
- soils will not be transferred between fields/landownerships; and
- all secondary materials imported to the site – such as recycled aggregates for roadways and hardstandings; pipe-bedding material and clinker for cathodic protection systems – will be analysed for the presence of leachable contaminants before being brought to site, to ensure that they present a minimal risk of contamination to soils.

There is the potential for contamination of surface waters by sediment/silt run-off from the working width following topsoil stripping, during the excavation of open-cut crossings, from directional drilling and from spillages of fuels, chemicals and hazardous substances. Mitigation measures for the control of spillages are detailed above. Measures to control the remaining risks to surface water are discussed below.

Surface waters of high sensitivity or tributaries will be monitored to confirm the success of silt control, and:

- excavating a series of grips or channels to divert clean water (originating upgradient of the pipeline route towards existing watercourses or grassed areas) so that it does not collect silt from exposed soil surfaces;
- using straw bales in and around streams to filter large particles from run-off water;
- fluming the surface water over the working width to prevent it picking up sediment/silt;
- installing lagoons or bunds to retain water temporarily; and
- using agricultural sprays to disperse water over a wide area, allowing it to soak into grassed areas of ground.

Site staff will be briefed to ensure that all excavations are regularly inspected for any visible contamination or odour within the underlying soils, to provide an early indication of unforeseen contamination which may affect surface watercourses.

Before any works are carried out, an application(s) will be submitted to carry out works under the *Water Environment (Controlled Activities) Regulations 2005*. This will include all discharges, abstractions and all river engineering works. No works will commence until all relevant licences are obtained to the satisfaction of SEPA.

All surface water abstractions, particular private water supplies, will be recorded, marked and taken account of in order to avoid disruption to and contamination of supplies.

Environmental Advisors and Agricultural Liaison Officers (ALOs) will be employed for the duration of the project. The workforce will be briefed via inductions about relevant environmental issues, including pollution control, before work begins and at regular intervals throughout construction.

#### 4.1.2 Crossing Methods

The construction method for the watercrossings has not yet been determined due to the requirement for site investigation. It is intended that minor watercourses will be crossed using dry open-cut techniques. Watercourses will be bridged or flumed (by the installation of temporary pipes) and ramped over to allow uninterrupted flow of water within the watercourse and a continuous running track for construction vehicles. The choice of method will be determined after consultation with, and the consent of, Scottish Natural Heritage (SNH), and will be designed and constructed to minimise the risk of sediment run-off to watercourses. Where dry open-cut techniques are to be used, this will lead to the temporary removal of habitat associated with the excavation of the trench and the

construction of a temporary flumed crossing (or equivalent). There is also the potential for pollution and increased sedimentation to affect downstream habitats.

However, the requirement to use trenchless techniques for any of the watercourse crossings cannot be discounted until such time as intrusive ground investigations are completed during the detailed design. For trenchless techniques, there is a very low risk of failure of these techniques, which could affect the integrity of the sub-strata of the river bed. However, there is also potential for sediment pollution arising from the break-out of drilling mud used during micro-tunnel crossings.

Regardless of the technique, the pipe will be laid at sufficient depths of cover beneath stream/river beds to meet the current BGE standards and the requirements of the relevant authorities. This will ensure safe operation of the pipeline and continued safe use and maintenance by the relevant authorities for the crossing. Method statements for all watercourse crossings, including proposals for any sheet piling and dewatering, will be discussed and agreed in advance with SEPA. Specific methods for trenchless and open-cut crossings are discussed below.

#### 4.1.3 *Open-cut Crossings*

For open-cut crossings of tracks and roads the pipeline trench is excavated to allow the pipe to be lowered into the trench. Open-cut crossings are usually completed in one day. For crossings of watercourses two open-cut methods are available and the final decision will be made following consultations with SEPA. All construction activities will be carefully planned and controlled in accordance with Water and Pollution Prevention Plans to be agreed with SEPA, in particular, to prevent sediment-laden run-off from entering watercourses during construction.

##### Method 1 (Dry Open-cut Using Flume Pipes)

In this method, water flow is maintained using temporary 'flume' pipes (normally sections of steel pipe) installed in the bed of the watercourse:

- if required by SEPA or other licensed body, both upstream and downstream of the work, fish rescues will be undertaken prior to any works in the water and nets erected to prevent ingress of fish to the works;
- the site is prepared by stripping the topsoil from the areas adjacent to the watercourse banks and grading the banks down to bed level. The stripped topsoil is stacked separately from the agricultural topsoil and subsoil within the working area;
- suitably sized flume pipes, which have been selected in consultation with SEPA on the basis of flood flow volume, are installed over the point of the crossing, ensuring that they extend over the area of the proposed trench and the running track. The flume pipes are surrounded with soil-filled sand bags to create a seal. Straw bales and/or sedimats are placed downstream of the crossing to capture sediment and are replaced as required until reinstatement is complete;
- the pipe trench is then excavated below the flume pipes. The existing substrata within the channel is stored separately from the bank materials and clearly identified to enable its replacement when the pipeline has been lowered into the trench.



Under no circumstances is soil from the surrounding land used to backfill the excavated channel of the watercourse. Dewatering, using appropriate sediment-control techniques (see Chapter 6), and/or trench supports may be used to facilitate safe excavation. If pumps are used, the discharge hose will be directed through a filtering medium to remove silt, before the pumped water is allowed to percolate back into the watercourse;

- the pipeline is installed in the trench and is suitably protected, where necessary. The trench is backfilled first with subsoil and secondly with the stored watercourse materials such that it is level with the rest of the bed of the watercourse; and
- the watercourse banks are then reformed to their original profile to the satisfaction of the landowner/occupier and SEPA. Hessian netting and/or geotextile is used to stabilise the banks. Where this is not practical, blockstone or riprap is used, subject to SEPA approval. The reinstated watercourse is checked over the winter months to ensure that flood flows have not caused damage.

#### Method 2 (Dry Open-cut Using Temporary Dam and Pump Over)

In this method a temporary dam is constructed and the water pumped around the trench:

- if required by SEPA or other licenced body, both upstream and downstream of the work, fish rescues will be undertaken prior to any works in the water and nets erected to prevent ingress of fish to the works;
- the site is prepared as for Method 1 and a dam constructed immediately upstream of the proposed site of the pipe trench using clay-filled bags or sand bags faced with a layer of clay-filled bags. If this is not possible, sheet piles are driven into the bed to form a barrier, subject to the SEPA's prior consent. Proposals for temporary dams are subject to prior assessment of hydrological conditions;
- pipework and pumps are installed to pump the water around to the downstream side of the pipe crossing. Standby pumps are also provided where the pumps will be operated continuously. Where relevant, pumps will extract water downstream of the nets erected upstream of the works to avoid impacts upon fish. The pumped water is filtered, where practical, to remove sediment before it is discharged back into the watercourse, and straw bales and/or sedimats are used to catch sediment as for Method 1. Sedimats, break tanks or similar are also used, where necessary, to break the fall of the released water in order to minimise scouring or sediment generation;
- then the trench is dug in the dry bed of the stream, with bank topsoil and subsoil and bed materials being stored separately; and
- the pipe is installed and protected, and the works are reinstated as for Method 1.

#### *4.1.4 Trenchless Crossings*

A choice of auger boring, pipe jacking, microtunnelling techniques and Horizontal Directional Drilling (HDD) for trenchless crossings will be made, as appropriate. Where such techniques are considered, the choice will be finalised during the detailed design stage and will be subject to the results of a borehole survey of ground conditions and detailed discussions with the relevant consenting authorities.

The above methods may, on occasion, require deep excavations on either side of the crossing to aid the installation of the pipeline. Dewatering, sheet piling, safety barriers and

other techniques may be required to enable excavations and construction techniques to be carried out in accordance with Health and Safety Regulations. All the techniques require additional land to be taken (during the construction period only) on both sides of the crossing. The additional land is to accommodate the additional excavated material from the pits and necessary plant and equipment, including dewatering and associated sediment-removal plant.

#### Auger Boring

A 'thrust' or 'sending' pit is excavated on one side of the crossing large enough to take the auger head and a length of welded pipe for the crossing. A smaller receiving pit is excavated on the opposite side of the crossing. A 'cutting head' is fixed to the auger drill at the front of the pipe. Power is transmitted to the auger drill via a power unit, which is temporarily fastened to the top and rear of the pipe. This assembly is then lowered into the sending pit and is supported by crane-type side booms. Engineers then line and level the pipe to ensure it is installed in the correct location and at the correct depth.

A combination of rotation of the auger drill within the pipe and a winch located on the front of the power unit installs the first pipe section with the excavated material being drawn from the cutting head, along the auger drill flutes exiting from the rear of the pipe. Additional lengths are added to the installed pipe and the process is repeated until the crossing is completed.

#### Pipe Jacking (Sleeved Method)

This construction method is generally used on large diameter pipes and involves a concrete sleeve being installed behind a protective shield using normal mining techniques, with the excavated material being removed via the exposed end of the sleeve. Once the sleeve is installed, the pipe is inserted into the sleeve. As each pipe length progresses forward another is welded on; by repeating this cycle the pipe is installed. The annular space between the pipe and the sleeve is usually filled with a concrete grout after installation.

#### Microtunnelling

Microtunnelling has been used on many pipelines to cross beneath difficult areas for construction. This method involves placing pre-cast concrete jacking pipes behind a microtunnelling machine with the excavated material being removed mechanically via the tunnel entrance. The cutting head is lubricated with water, and bentonite (a natural, inert, non-toxic clay) may also be used to reduce friction. The drill fluid is returned to the surface where it is filtered to remove the cuttings and returned to temporary mud storage tanks for re-use.

#### Horizontal Directional Drilling

The HDD drill (or 'launch') site is set up on one side of the crossing and contains the plant associated with directional drilling. A pilot hole is dug using a drilling rod under the crossing to the end point where it will emerge in the area known as the 'receive' pit. As the drilling proceeds, the drilling fluid, comprising water and bentonite, is pumped down the centre of the hollow drill rods to the drilling face. If groundwater is encountered the pressure under which the drilling fluid or mud is pumped down the borehole will be controlled to prevent migration into the groundwater and vice versa. Drill fluid usage will be monitored at the surface to confirm that no significant losses are occurring. As it is non toxic, bentonite mud

is normally recommended for drilling in areas where groundwater is likely to be encountered. The composition of the bentonite and the use of any additives will be agreed with SEPA prior to construction.

After the pilot hole is drilled, reaming devices will be attached and pulled back through the borehole to enlarge it to the required diameter. When the drilled hole has reached the required diameter, the pipe will be attached to the reaming device and pulled through the borehole in one continuous length. This minimises the risk of it becoming stuck during the pull. Bentonite is injected around the reamer to coat the borehole. It is a thixotropic material and will support the sides of the hole as the pipe is pulled through.

Drilling and pull back operations are usually continuous, 24 hour operations and, once the pipe has been installed, the drilling rig and associated plant are removed. The drilling mud will be sampled, analysed and disposed of offsite to a licensed waste disposal facility in accordance with Duty of Care requirements.

#### **4.2**      ***Topsoil Storage***

The storage of topsoil in the flood plains of the watercourses crossed will be subject to careful planning and detailed agreement with SEPA, to ensure that sufficient gaps are left to allow any floodwater to escape. Topsoil stacks will be set back from watercourses in the floodplain, and measures such as berms and vegetated strips will be used to control sediment run-off to watercourses.

Berms, grips and other measures identified in the Water Management Plan to control sediment run-off to watercourses will also be constructed at this time.

#### **4.3**      ***Drainage***

Where appropriate, pre-construction field drainage will be installed within the working width of the pipeline. The design of these drainage schemes will be agreed with the landowners/occupiers. The design of these schemes will pay particular attention to the need to ensure that the drains do not act as pathways for contamination or cause flooding off-site. The design will be undertaken consulting with SEPA wherever necessary. Permanent records of the land drain locations will be made and passed to the landowners/occupiers. At all times the works will be supervised by competent drainage personnel.

A risk assessment of the route of the pipeline will be undertaken to identify areas where measures need to be taken to prevent the risk of pollution of watercourses by dewatering or surface run-off during construction. The results of the risk assessment will be incorporated into a Water Management Plan.

#### **4.4**      ***Access Roads***

Typically, a temporary access road consists of a thickness of crushed stone or sand overlaying a geotextile membrane, or bog mats. The location and construction of any access roads will take account of the need to minimise the risk of sediment release to watercourses.

#### **4.5 Reinstatement**

After re-grading of the working width to reflect the original profile, a replacement drainage scheme will be installed, where appropriate, within the working width following discussions with the appropriate landowner/occupier. The design of these drainage schemes will be agreed with the landowners/occupiers and will pay particular attention to the need to ensure that the drains do not act as pathways for contamination or do not cause flooding off site, consulting with SEPA wherever necessary.

#### **4.6 Site Establishment Areas and Pipe Storage Areas**

Oil storage facilities will be in accordance with best practice, Pollution Prevention Guidelines and The Water Environment (Oil Storage) (Scotland) Regulations 2006. Fully bunded oil stores will be used and they will be located at least 10 m from any watercourse and 50m from any borehole or well. Waste storage areas will be situated on hard standing and waste oil/waste chemical storage areas will be bunded. Foul and surface-water disposal facilities will be designed in accordance with SEPA requirements.

**5****CONCLUSION**

As detailed within the screening matrix, no direct impacts are anticipated on the qualifying species or habitats of any of the designated sites within 15 km of the proposed route.

The only sites which could potentially be indirectly affected are Upper Solway Flats and Marshes SPA and Solway Firth SAC as both these sites are downstream of proposed river crossings. There is therefore a risk of contamination from accidental spillages or disturbance of sediments that could impact the feeding resource of the bird species within the SPA or the qualifying species of the SAC.

As these risks will be controlled by strict mitigation measures it has been assessed that the project will not result in any likely significant effects on the Natura 2000 sites.

In addition, it is possible that the Loch Ken and River Dee Marshes SPA designated species Greylag Geese may feed in fields along the route during the winter. However, given that the construction works will be undertaken in the summer, no impacts on this species is anticipated.. To further encourage the geese to continue feeding along the route, sward cover will be established by the start of the winter where possible and temporary fencing will be removed before the geese return.

**5.1.1 Cumulative**

No cumulative impacts are anticipated.

## 6 APPENDIX 1 – UPPER SOLWAY FLATS AND MARSHES SPA/RAMSAR

### 6.1 Qualifying Features of Upper Solway Flats and Marshes SPA<sup>7</sup>

The Upper Solway Flats and Marshes SPA lies on the west coast on the border between England and Scotland. The flats and marshes of the Upper Solway form one of the largest continuous areas of intertidal habitat in Britain. The geomorphology and vegetation of the estuarine saltmarshes or meres are of international importance, with broad transitions to mature 'upper-marsh' being particularly well represented. The whole estuarine complex is of importance for wintering wildfowl (ducks, geese and swans) and waders, and is a vital link in a chain of west coast UK estuaries used by migrating waterbirds. The SPA supports virtually all of the Svalbard population of Barnacle Goose (*Branta leucopsis*) over the winter.

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

#### Article 4.1:

Overwinter

- Bar-tailed Godwit (*Limosa lapponica*), 2,367 individuals representing at least 4.5% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6);
- Barnacle Goose (*Branta leucopsis*), 13,595 individuals representing at least 113.3% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6);
- Golden Plover (*Pluvialis apricaria*), 6,121 individuals representing at least 2.4% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6); and
- Whooper Swan (*Cygnus cygnus*), 117 individuals representing at least 2.1% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6).

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

#### Article 4.2:

On passage;

- Ringed Plover (*Charadrius hiaticula*), 729 individuals representing at least 1.5% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6).

Over winter;

- Curlew (*Numenius arquata*), 5,881 individuals representing at least 1.7% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6);
- Dunlin (*Calidris alpina alpina*), 14,566 individuals representing at least 1.0% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6);

<sup>7</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?UK9005012>).



- Knot (*Calidris canutus*), 12,271 individuals representing at least 3.5% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6);
- Oystercatcher (*Haematopus ostralegus*), 34,694 individuals representing at least 3.9% of the wintering Europe & Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6);
- Pink-footed Goose (*Anser brachyrhynchus*), 15,983 individuals representing at least 7.1% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1991/2 - 1995/6);
- Northern Pintail (*Anas acuta*), 2,253 individuals representing at least 3.8% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6); and
- Redshank (*Tringa totanus*), 3,088 individuals representing at least 2.1% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6).

### **Assemblage qualification: A wetland of international importance.**

The area qualifies under **Article 4.2** by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 133,222 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Redshank, Barnacle Goose, Golden Plover, Bar-tailed Godwit, Pink-footed Goose, Pintail, Oystercatcher, Knot, Whooper Swan, Curlew, Lapwing (*Vanellus vanellus*), Great Crested Grebe (*Podiceps cristatus*), Cormorant (*Phalacrocorax carbo*), Shelduck (*Tadorna tadorna*), Mallard (*Anas platyrhynchos*), Scaup (*Aythya maila*), Goldeneye (*Bucephala clangula*), Ringed Plover, Grey Plover (*Pluvialis squatarola*) and Dunlin.

## **6.2 Vulnerability of Upper Solway Flats and Marshes SPA<sup>8</sup>**

A management strategy for the site has been produced by the Solway Firth Partnership. The strategy addresses threats to the SPA interest on the site and sets out the means by which it is proposed to secure the sustainable use of the Firth. There has been relatively little land claim compared with most other estuaries in the UK but some established and new flood defence and coastal erosion works may exacerbate erosion elsewhere within the site. The cockle fishery has been closed for a number of years due to overexploitation and the other commercial, traditional and shell fisheries are regulated by Government to ensure that they are carried out in a sustainable way and that their impact on bird feeding areas are not significant. Roosts and feeding areas are vulnerable to disturbance and the management strategy addresses the planning of recreational and development activities to avoid disturbance to roosts and feeding areas.

<sup>8</sup> Taken from the Natura 2000 Standard Data Form (<http://jncc.defra.gov.uk/pdf/SPA/UK9005012.pdf>).

## 7 APPENDIX 2 –SOLWAY FIRTH SAC

### 7.1 *Qualifying Features of Solway Firth SAC*<sup>9</sup>

#### Annex I habitats that are a primary reason for the selection for this site:

##### **1110 Sandbanks which are slightly covered by sea water all the time**

The Solway is representative of sublittoral **sandbanks** on the coast of north-west England/south-west Scotland. The sandbanks comprise mainly gravelly and clean sands, owing in part to the very dynamic nature of the estuary. The inner estuary contains constantly changing channels, and a predominance of sand is characteristic of such high-energy systems. There is a transition to less extreme conditions in the outer estuary. The dominant species of the infaunal communities comprise different annelid worms, crustaceans, molluscs and echinoderms, depending on the nature of the substrate. For example, the bivalve molluscs *Fabulina fabula* and *Spisula subtruncata* occur at the edge of sandbanks in fine and medium sand respectively. These communities are richer in the less extreme conditions of the outer estuary.

##### **1130 Estuaries**

The Solway is a large, complex **estuary** on the west coast of Britain. It is one of the least-industrialised and most natural large estuaries in Europe. Tidal streams in the estuary are moderately strong and levels of wave energy can be high. There is considerable seasonal fluctuation in water temperature, owing to the shallow nature of the estuary. The sediment habitats present, mainly dynamic sandflats and subtidal sediment banks, are separated by six main river channels, which are continually changing their patterns of erosion and accretion. The sublittoral sediment communities are typically sparse in the inner estuary, owing to the mobility of the sediment coupled with low and variable salinity. Communities become richer towards the outer estuary, where there are less extreme environmental conditions and more varied substrates. The dominant species of bivalve molluscs, polychaete worms, crustaceans and echinoderms vary, depending on location within the estuary.

##### **1140 Mudflats and sandflats not covered by seawater at low tide**

The Solway Firth is representative of highly mobile, predominantly sandy intertidal flats on the west coast. It contains the third-largest area of continuous littoral **mudflats and sandflats** in the UK. These occur within a natural estuary system substantially unaffected by human activities, such as industrial development and dredging. The Solway is an unusually dynamic estuarine system, with mobile channels and banks. Fine sandy sediments occur in the inner estuary, and more stable and diverse conditions in the outer reaches. Salinity ranges from fully marine to estuarine in character, and these gradients in physical conditions add to the ecological diversity within the site. The presence of intertidal

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<sup>9</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?UK0013025>).

sediment flats of fine sands, rather than muds, in conditions of estuarine salinity is a notable feature.

### **1310 Salicornia and other annuals colonizing mud and sand**

The pioneer glasswort *Salicornia* spp. saltmarsh in the Solway is part of a complete sequence of saltmarsh types, from pioneer communities through extensive mid-to high saltmarsh and transitions to tidal grazing marsh. It represents **Salicornia and other annuals colonising mud and sand** in north-west England and south-west Scotland. The pioneer marshes in this site develop in response to changing river channels and erosion of existing marsh and form part of a dynamic suite of maritime habitat types for which the site has been separately selected.

### **1330 Atlantic salt meadows (Gluco-Puccinellietalia maritimae)**

The Solway Firth, between north-west England and south-west Scotland, has been little affected by enclosure, with the result that it demonstrates unusually large areas of upper marsh and transitions to freshwater grassland communities. There is a greater proportion of sand in the substrate than is found in more southern saltmarshes. The mid-upper marsh is heavily dominated by saltmarsh rush *Juncus gerardii* community with smaller areas of the saltmarsh-grass/fescue *Puccinellia/Festuca* communities. The site has been selected because of its large size and uninterrupted transitions. Some of the species present, for example sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and lax-flowered sea-lavender *Limonium humile*, are at their northern limit in the UK.

### **Annex I habitats present as a qualifying feature, but not a primary reason for selection:**

**1170** Reefs;

**1220** Perennial vegetation of stony banks; and

**2130** "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" \* Priority feature.

### **Annex II species that are a primary reason for the selection for this site:**

**1095** Sea lamprey *Petromyzon marinus*

The Solway Firth provides migratory passage for **Sea Lamprey *Petromyzon marinus*** to and from spawning and nursery grounds in a number of rivers, including the Eden which is designated as an SAC for the species.

**1099** River lamprey *Lampetra fluviatilis*

The Solway Firth provides migratory passage for **River Lamprey *Lampetra fluviatilis*** to and from spawning and nursery grounds in a number of rivers, including the Eden which is designated as a cSAC for the species.

### **Annex II species present as a qualifying feature, but not a primary reason for site selection**

Not applicable.

## 8 APPENDIX 3 –LOCH KEN AND RIVER DEE MARSHES SPA

### 8.1 **Qualifying Features of Upper Solway Flats and Marshes SPA<sup>10</sup>**

Loch Ken and River Dee Marshes are located in south-west Scotland. The site takes the form of a long linear loch and river system that is the southernmost of its type in Scotland. Loch Ken was dammed in the 1930s and the raising of water levels resulted in the reformation of marshes along its banks. It contains areas of swamp (reed and sedge beds), adjoining fen, wet grassland and carr woodland. The site supports internationally important roosting numbers of Greenland White-fronted Goose *Anser albifrons flavirostris* and Icelandic Greylag Goose *Anser anser*. Both species also feed on agricultural areas outside the SPA.

This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

**Article 4.1:**

Greenland White-fronted Goose (*Anser albifrons flavirostris*), 350 individuals representing at least 2.5% of the wintering population in Great Britain (Count, as at late 1990s).

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

**Article 4.2:**

**Overwinter**

Greylag Goose (*Anser anser*), 1,000 individuals representing up to 1.0% of the wintering Iceland/UK/Ireland population (winter peak means).

### 8.2 **Vulnerability of Upper Solway Flats and Marshes SPA<sup>11</sup>**

The RSPB leasehold 153 ha of the site which they manage for its nature conservation interest. The water level of Loch Ken is controlled by Scottish Power and they have an agreement with RSPB, consented by SNH, to maintain suitable water levels at specified times of the year. There is some threat to the roosting geese from disturbance by recreational activities. SNH is a member of the Loch Ken Management Committee which is addressing this issue. There is water skiing on Loch Ken but there are restrictions on the timing of use and sanctuary zones to prevent disturbance to birds. Wildfowling also occurs on the site in winter and is monitored to ensure compliance with legal and other restrictions. All other recreational activities are monitored by the ranger service and RSPB in consultation with SNH and landowners.

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<sup>10</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp? UK9003111>).

<sup>11</sup> Taken from the Natura 2000 Standard Data Form (<http://jncc.defra.gov.uk/pdf/SPA/ UK9003111.pdf>).

## 9 APPENDIX 4 –CASTLE LOCH, LOCHMABEN SPA

### 9.1 **Qualifying Features of Castle Loch, Lochmaben SPA**<sup>12</sup>

Castle Loch, Lochmaben is located in south-west Scotland about 10 km east of Dumfries. Castle Loch has eutrophic water conditions, with extensive fringes of emergent vegetation dominated by Common Reed *Phragmites australis* and Reed Sweet-grass *Glyceria maxima*. These merge into marshy grassland with a wide range of wetland plants, with a further transition to carr woodland with willows, Birch *Betula pendula* and Alder *Alnus glutinosa*. An area of mature deciduous woodland has established on the drier ground. Castle Loch is a winter roost for large numbers of the Iceland/Greenland population of Pink-footed Goose *Anser brachyrhynchus*. During the day the geese feed outside the SPA on the surrounding farmland.

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

#### **Article 4.2:**

##### **Overwinter**

Pink-footed Goose (*Anser brachyrhynchus*), 5,450 individuals representing at least 2.4% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1991/2 - 1995/6).

### 9.2 **Vulnerability of Castle Loch, Lochmaben SPA**<sup>13</sup>

This site is managed as part of a Local Nature Reserve. Commercial angling, limited wildfowling and sailing occur on the loch but the current management regime appears to be successful in preventing disturbance to the SPA interest.

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<sup>12</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?UK9003191>).

<sup>13</sup> Taken from the Natura 2000 Standard Data Form (<http://jncc.defra.gov.uk/pdf/SPA/UK9003191.pdf>).



## 10 APPENDIX 5 –SOLWAY MOSSES NORTH SAC

### 10.1 **Qualifying Features of Solway Mosses North SAC<sup>14</sup>**

#### **Annex I habitats that are a primary reason for selection of this site**

##### **7110 Active raised bogs** \* Priority feature

This is a complex of estuarine raised bogs to the south of the Solway, and is comprised of Wedholme Flow, Bowness Common, Drumburgh Moss and Glasson Moss. At 759 ha, Bowness Common is one of the largest **Active raised bogs** remaining in the UK. Although affected by past drainage and peat-cutting, much of these sites support **typical bog vegetation**, including bog rosemary *Andromeda polifolia*, cranberry *Vaccinium oxycoccos* and great sundew *Drosera anglica*. Wedholme Flow contains the largest area of almost-intact **active raised bog** in England, but also some 7120 degraded raised bog in which peat-cutting has recently ceased. The central part of Glasson Moss displays some of the most diverse raised bog vegetation in the UK today, with bog-moss species including abundant *Sphagnum pulchrum* as well as *S. fuscum*.

#### **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site**

##### **7120 Degraded raised bogs still capable of natural regeneration**

#### **Annex II species that are a primary reason for selection of this site**

Not applicable.

#### **Annex II species present as a qualifying feature, but not a primary reason for site selection**

Not applicable.

### 10.2 **Vulnerability of Solway Mosses North SAC<sup>15</sup>**

Management issues including those arising from drainage systems and afforestation are being highlighted in site management statements and addressed through management agreements, acquisition and through implementation of a National Nature Reserve management plan in part of the area. A LIFE-funded programme of large-scale timber extraction has been completed to restore vegetation and raise water levels. The effects on the SAC of continued peat extraction will be addressed under the provisions for reviews of consent in the Habitats Regulations.

<sup>14</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?UK9003191>).

<sup>15</sup> Taken from the Natura 2000 Standard Data Form (<http://jncc.defra.gov.uk/pdf/SPA/UK0030310.pdf>).

## 11 **APPENDIX 6 –GALLOWAY OAKWOODS SAC**

### 11.1 ***Qualifying Features of Galloway Oakwoods SAC***<sup>16</sup>

#### **Annex I habitats that are a primary reason for selection of this site**

##### **91A0 Old sessile oak woodlands with Ilex and Blechem in the British Isles**

This complex of oakwoods is the only site within the SAC series representing the South-west Lowlands of Scotland Atlantic Bryophyte zone. The individual sites are small and dispersed, but are regionally important due to the highly fragmented nature of remnant semi-natural woodland in south-west Scotland. The complex contains good examples of **old sessile oak woods**, some of which have been coppiced in the past, with a notable oceanic bryophyte flora, including some species rare in south-west Scotland. They typically have rich assemblages of Atlantic mosses and liverworts, lichen communities and ferns, such as hard fern *Blechnum spicant*. Holly *Ilex aquifolium* is common in the understorey.

#### **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site**

Not applicable.

#### **Annex II species that are a primary reason for selection of this site**

Not applicable.

#### **Annex II species present as a qualifying feature, but not a primary reason for site selection**

Not applicable.

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<sup>16</sup> Taken from the JNCC Site account (<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?UK9003191>).

## APPENDIX 7 – SCREENING MATRIX FOR UPPER SOLWAY FLATS AND MARSHES SPA/RAMSAR SITE AND SOLWAY FIRTH SAC

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Upper Solway Flats and Marshes SPA/RAMSAR and Solway Firth SAC	
<b>Date</b>	<b>Author</b>	
19.02.15	Ruth Morton and Tom Smith	
<i>Brief description of the project or plan</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway.	
<i>Brief description of the Natura 2000 site</i>	<p>Upper Solway Flats and Marshes form one of the largest continuous areas of intertidal habitat in Britain. The estuarine complex is important for wintering wildfowl and waders and is also a vital link in a chain of west coast UK estuaries used by migrating waterbirds. The SPA supports virtually all of the Svalbard population of Barnacle Goose over the winter.</p> <p>The Solway Firth SAC comprises a variety of habitats including tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins) salt marshes, salt pastures and salt steppes. It is also designated due to its population of sea and river lamprey.</p>	
<b>Assessment criteria</b>		
<i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i>	The sites are downstream of proposed river crossings and therefore there is a risk of contamination from accidental spillages or disturbance of sediments that could impact the feeding resource of the bird species of the SPA and the designated species of the SAC. There is also a risk of pollution from general construction works.	
<i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</i>		

<i>size and scale;</i>	50 km pipeline not situated within the SPA/SAC.
<i>land-take</i>	Site is 5.8 km northwest of the SAC/SPA and therefore no landtake.
<i>distance from the Natura 2000 site or key features of the site</i>	5.8 km to South East of proposed route.
<i>resource requirements (water abstraction etc.)</i>	No resource requirements are needed from within the SAC/SPA.
<i>emissions (disposal to land, water or air)</i>	The sites are downstream of proposed river crossings and therefore there is a risk of contamination from accidental spillages or disturbance of sediments at river crossings.
<i>excavation requirements</i>	The construction of the pipeline will involve extensive excavations along the route but none are situated within the designated sites.
<i>transportation requirements</i>	Access to the site for construction traffic will be from access roads created along the route and from existing rural roads. All outside the designated site.
<i>duration of construction, operation, decommissioning, etc</i>	Construction is anticipated to last 7 months with reinstatement undertaken on completion. This will subject to the timing of works and possible restrictions to working hours.
<i>other</i>	-
<b><i>Describe any likely changes to the site arising as a result of:</i></b>	
<i>reduction of habitat area:</i>	No reduction in the area of the SAC/SPA/Ramsar site.
<i>disturbance to key species</i>	No direct disturbance to key species is anticipated
<i>habitat or species fragmentation</i>	None
<i>reduction in species density</i>	None

<i>changes in key indicators of conservation value (water quality etc.)</i>	Accidental spillages and disturbance of sediment during water crossings may result in changes in water quality within the designated sites. This may affect the feeding resource of birds within the SPA and affect lamprey species within the SAC.
<i>climate change</i>	None
<b>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</b>	
<i>interference with the key relationships that define the structure of the site</i>	None
<i>interference with key relationships that define the function of the site</i>	None
<b>Provide indicators of significance as a result of the identification of effects set out above in terms of:</b>	
<i>loss</i>	No impacts anticipated
<i>fragmentation</i>	No impacts anticipated
<i>disruption</i>	No impacts anticipated
<i>disturbance</i>	No impacts anticipated
<i>change to key elements of the site (e.g. water quality etc.).</i>	Not expected to be significant impacts.
<i>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</i>	The mitigation detailed within the HRA minimises the impacts of accidental spillages and sediment runoff and reduces the risk of an adverse affect on the qualifying features of the SPA/Ramsar and SAC.

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### APPENDIX 8 – SCREENING MATRIX FOR LOCH KEN AND RIVER DEE MARSHES SPA

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Loch Ken and River Dee Marshes SPA	
<b>Date</b>	<b>Author</b>	
23.02.15	Ruth Morton and Tom Smith	
<i>Brief description of the project or plan</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway	
<i>Brief description of the Natura 2000 site</i>	Loch Ken and River Dee Marshes SPA is designated for its overwintering Greenland White-fronted Goose and Greylag Goose assemblages.	
<b>Assessment criteria</b>		
<i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i>	No direct impacts anticipated on any of these sites given their distances from the proposed route.  Greenland White-fronted Geese do not use the fields along the pipeline route for feeding but Greylags are not so specific therefore may use some of the fields.	
<b>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</b>		
<i>size and scale;</i>	50 km pipeline situated outside of the designated site.	
<i>land-take</i>	No land intake from any of the designated sites	



<i>distance from the Natura 2000 site or key features of the site</i>	Loch Ken and River Dee Marshes SPA has two parcels within 15.0 km – one is 1.9 km North West of the route and one is 7.0 km North West of the route.
<i>resource requirements (water abstraction etc.)</i>	No resource requirements are needed from within the SAC/SPAs.
<i>emissions (disposal to land, water or air)</i>	None anticipated
<i>excavation requirements</i>	The construction of the pipeline will involve extensive excavations along the route but none within any of the designated sites.
<i>transportation requirements</i>	Access to the site for construction traffic will be from access roads created along the route and from existing rural roads.
<i>duration of construction, operation, decommissioning, etc</i>	Construction is anticipated to last 7 months with reinstatement undertaken on completion. This will be subject to the timing of works and possible restrictions to working hours.
<i>other</i>	-
<b><i>Describe any likely changes to the site arising as a result of:</i></b>	
<i>reduction of habitat area:</i>	No reduction in the area of the designated sites.
<i>disturbance to key species</i>	There may be disturbance to Greylag Geese if they chose to feed in fields along the route.
<i>habitat or species fragmentation</i>	None
<i>reduction in species density</i>	None
<i>changes in key indicators of conservation value (water quality etc.)</i>	None
<i>climate change</i>	None
<b><i>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</i></b>	

<i>interference with the key relationships that define the structure of the site</i>	None
<i>interference with key relationships that define the function of the site</i>	None
<b><i>Provide indicators of significance as a result of the identification of effects set out above in terms of:</i></b>	
<i>loss</i>	No impacts anticipated
<i>fragmentation</i>	No impacts anticipated
<i>disruption</i>	No impacts anticipated
<i>disturbance</i>	Not anticipated to be significant
<i>change to key elements of the site (e.g. water quality etc.).</i>	No impacts anticipated
<i>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</i>	As works will be predominately undertaken in the summer months, no significant impact on qualifying species is anticipated. Sward cover will be established before winter where possible and temporary fencing will be removed so as not to put off geese from feeding there.

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**APPENDIX 9 – SCREENING MATRIX FOR CASTLE LOCH, LOCHMABEN SPA, SOLWAY MOSSES NORTH SAC AND GALLOWAY OAKWOODS SAC**

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Castle Loch, Lochmaben SPA, Solway Mosses North SAC and Galloway Oakwoods SAC	
<b>Date</b>	<b>Author</b>	
23.02.15	Ruth Morton and Tom Smith	
<i>Brief description of the project or plan</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway	
<i>Brief description of the Natura 2000 site</i>	<p>Castle Loch, Lochmaben SPA is designated for its Pink-footed Goose assemblage.</p> <p>Solway Mosses North SAC is designated for its active raised bogs and degraded raised bogs still capable of natural regeneration.</p> <p>Galloway Oakwoods SAC comprises broad leaved deciduous woodland and is designated for old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i>.</p>	
<b>Assessment criteria</b>		
<i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i>	No impacts anticipated on any of these sites given their distances from the proposed route.	
<b><i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</i></b>		

<i>size and scale;</i>	50 km pipeline situated outside of the designated sites. The distances these sites are from the proposed pipeline are detailed below.
<i>land-take</i>	No land intake from any of the designated sites
<i>distance from the Natura 2000 site or key features of the site</i>	Castle Loch, Lochmaben SPA is 14.5 km North East of the proposed route.  Solway Mosses North SAC has two parcels within 15 km – one is 5.6 km South East and one is 11.2 km South East of the proposed route.  Galloway Oakwoods SAC has two parcels within 15km – one is 9.9 km North West and one is 8.8 km North West of the proposed route.
<i>resource requirements (water abstraction etc.)</i>	No resource requirements are needed from within the SAC/SPAs.
<i>emissions (disposal to land, water or air)</i>	None anticipated
<i>excavation requirements</i>	The construction of the pipeline will involve extensive excavations along the route but none within any of the designated sites.
<i>transportation requirements</i>	Access to the site for construction traffic will be from access roads created along the route and from existing rural roads.
<i>duration of construction, operation, decommissioning, etc</i>	Construction is anticipated to last 7 months with reinstatement undertaken on completion. This will subject to the timing of works and possible restrictions to working hours.
<i>other</i>	-
<b>Describe any likely changes to the site arising as a result of:</b>	
<i>reduction of habitat area:</i>	No reduction in the area of the designated sites.
<i>disturbance to key species</i>	No direct disturbance to key species is anticipated.

<i>habitat or species fragmentation</i>	None
<i>reduction in species density</i>	None
<i>changes in key indicators of conservation value (water quality etc.)</i>	None
<i>climate change</i>	None
<b>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</b>	
<i>interference with the key relationships that define the structure of the site</i>	None
<i>interference with key relationships that define the function of the site</i>	None
<b>Provide indicators of significance as a result of the identification of effects set out above in terms of:</b>	
<i>loss</i>	No impacts anticipated
<i>fragmentation</i>	No impacts anticipated
<i>disruption</i>	No impacts anticipated
<i>disturbance</i>	No impacts anticipated
<i>change to key elements of the site (e.g. water quality etc.).</i>	No impacts anticipated
<i>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</i>	N/A

**APPENDIX 10 – NO SIGNIFICANT EFFECTS REPORT**

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Upper Solway Flats and Marshes SPA/RAMSAR and Solway Firth SAC	
<b>Date</b>	<b>Author</b>	
23.02.15	Ruth Morton and Tom Smith	
<i>Name and location of European Site</i>	Upper Solway Flats and Marshes SPA/RAMSAR and Solway Firth SAC located in Dumfries and Galloway.	
<i>Description of the project</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway.	
<i>Is the project directly connected with or necessary to the management of the site (provide details)?</i>	No	
<i>Are there other projects or plans that together with the project being assessed could affect the site (provide details)?</i>	No	
<b>The Assessment of Significance of Effects</b>		
<i>Describe how the project (alone or in combination) is likely to affect the European Site</i>	No direct impacts on the Natura 2000 site are anticipated.  Accidental spillages and disturbance of sediment during water crossings may result in changes in water quality within the designated sites. This may affect the feeding resource of birds within the SPA and affect lamprey species within the SAC.	

<p><i>Explain why these effects are not considered significant.</i></p>	<p>Mitigation measures are proposed which will control the risk of accidental spillages and sediment disruption. The preparation of an Project Environmental Management Plan (PEMP), Waste and Water Management, and Pollution Prevention and Emergency Response Plans will minimise these risks making it unlikely that a significant incident would occur which may affect the designated sites.</p>		
<p><i>List of agencies consulted: provide contact name and telephone or e-mail address.</i></p>	<p>N/A</p>		
<p><i>Response to Consultation</i></p>	<p>N/A</p>		
<p><b>Data Collected to carry out the Assessment</b></p>			
<p><i>Who carried out the assessment?</i></p>	<p><i>Sources of data</i></p>	<p><i>Level of assessment completed</i></p>	<p><i>Where can the full results of the assessment be accessed and reviewed?</i></p>
<p>Ruth Morton and Tom Smith</p>	<p>JNCC Data Form for Upper Solway Flats and Marshes</p>	<p>Screening</p>	<p>Appendix 1 and 2</p>

**APPENDIX 11 – NO SIGNIFICANT EFFECTS REPORT**

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Loch Ken and River Dee Marshes SPA	
<b>Date</b>	<b>Author</b>	
19.02.15	Ruth Morton and Tom Smith	
<i>Name and location of European Site</i>	Loch Ken and River Dee Marshes SPA	
<i>Description of the project</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway	
<i>Is the project directly connected with or necessary to the management of the site (provide details)?</i>	No	
<i>Are there other projects or plans that together with the project being assessed could affect the site (provide details)?</i>	No	
<b>The Assessment of Significance of Effects</b>		
<i>Describe how the project (alone or in combination) is likely to affect the European Site</i>	<p>Given the distance to the site from the proposed pipeline there are no anticipated direct impacts on the site.</p> <p>There is the possibility to disturb feeding Greylag Geese if they chose to use any of the fields along the route for feeding in the winter.</p>	
<i>Explain why these effects are not considered significant.</i>	<p>Given that the majority of the works will be undertaken in the summer months, disturbance of geese is considered to be unlikely. Sward cover will be established where possible prior to geese arriving for winter and temporary fencing will be removed so as not to discourage them from feeding in the area.</p>	
<i>List of agencies consulted: provide contact name and telephone or e-mail address.</i>	<p>SNH – Stuart Graham, Southern Scotland Operations Officer,  <a href="mailto:SOUTHERN_SCOTLAND@snh.gov.uk">SOUTHERN_SCOTLAND@snh.gov.uk</a></p>	



<i>Response to Consultation</i>		N/A	
<b>Data Collected to carry out the Assessment</b>			
<i>Who carried out the assessment?</i>	<i>Sources of data</i>	<i>Level of assessment completed</i>	<i>Where can the full results of the assessment be accessed and reviewed?</i>
Ruth Morton and Tom Smith	JNCC Data Form	Screening	Appendix 3

**APPENDIX 12 – NO SIGNIFICANT EFFECTS REPORT**

<b>Project Name</b>	Cluden to Brighthouse Pipeline	
<b>Natura 2000 Site under Consideration</b>	Castle Loch, Lochmaben SPA, Solway Mosses North SAC and Galloway Oakwoods SAC	
<b>Date</b>	<b>Author</b>	
19.02.15	Ruth Morton and Tom Smith	
<i>Name and location of European Site</i>	Castle Loch, Lochmaben SPA, Solway Mosses North SAC and Galloway Oakwoods SAC in Dumfries and Galloway	
<i>Description of the project</i>	Construction of a 50 km gas pipeline in Dumfries and Galloway	
<i>Is the project directly connected with or necessary to the management of the site (provide details)?</i>	No	
<i>Are there other projects or plans that together with the project being assessed could affect the site (provide details)?</i>	No	
<b>The Assessment of Significance of Effects</b>		
<i>Describe how the project (alone or in combination) is likely to affect the European Site</i>	Given the distance to the site from the proposed pipeline there are no anticipated impacts on the designated features of these sites.	
<i>Explain why these effects are not considered significant.</i>	N/A	
<i>List of agencies consulted: provide contact name and telephone or e-mail address.</i>	N/A	
<i>Response to Consultation</i>	N/A	
<b>Data Collected to carry out the Assessment</b>		

<i>Who carried out the assessment?</i>	<i>Sources of data</i>	<i>Level of assessment completed</i>	<i>Where can the full results of the assessment be accessed and reviewed?</i>
Ruth Morton and Tom Smith	JNCC Data Form	Screening	Appendix 4 - 6