

Public Information Leaflet

Corrib Onshore Pipeline

A Guide to the Environmental Impact Statement



Introduction

In August 2006, following a recommendation from Peter Cassells (mediator, appointed by the then Minister for Communications, Marine and Natural Resources) Shell E&P Ireland Limited (SEPIL) agreed to modify the route of the onshore Corrib Gas pipeline to address concerns by some members of the local community that the pipeline was too close to housing.

As a result of this commitment, SEPIL appointed RPS consultants in January 2007 to facilitate the selection of a new route in consultation with the local community. RPS are an independent company with no previous involvement in the Corrib gas project. RPS is highly experienced in gas pipeline routing and environmental assessment, having worked for Bord Gáis on the 335km Gas Pipeline to the West from Dublin to Galway / Limerick in 2002.

Between January 2007 and April 2008 a detailed route selection process was carried out to identify a route that increased the distance between the pipeline and occupied housing but also minimised the environmental impact and met the relevant technical criteria. An 11 month public consultation process was carried out to understand the concerns and issues which the local community wanted taken into consideration in the route selection process. At each stage in the process the local community was informed and their views sought. Communication with landowners was also a very important part of this process and took place during both public consultation and on a one to one level. Further details of the consultation process are available on www.corribgaspipeline.ie or by calling to the RPS Project Office in Seafield House, Belmullet (097 20720), Co. Mayo.

Following a community workshop held in February 2007, and feedback received from members of the

community, a list of criteria for selecting the new route was published. The criteria fell into three categories – Community (e.g. proximity to housing, maximising landowner consent, safety), Environmental (visual impact, minimise impact on local habitats) and Technical (minimise pipeline length, safe construction and operation etc).

The overall objective was to identify a route that struck the best balance between the community, environmental and technical criteria.

In April 2008 a route – known as Route C1 – was identified as the preferred route for the onshore pipeline. Subsequently SEPIL made applications to construct the new pipeline to the Department of Communications Energy and Natural Resources under the Gas Act, and to An Bord Pleanála (ABP) under the Strategic Infrastructure Act. Applications will shortly be made to the Coastal Zone Management Division of the Department of Agriculture, Fisheries and Food under the Foreshore Act. An Environmental Impact Statement (EIS) detailing the route, the construction methods, potential impacts and the mitigation measures that will be put in place to ensure that the impact of the proposed development is minimised, accompanies each of these applications. The EIS is a very detailed document and is accompanied by a Non-Technical Summary. Both are available online at www.corribgaspipelineSIAApplication.ie as well as in the RPS and SEPIL Offices in Belmullet.

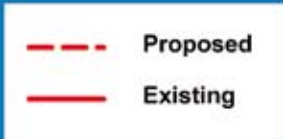
This brochure is a guide to the key issues addressed in the EIS. For more detailed information please refer to the Non-Technical Summary or the full EIS or contact either RPS or SEPIL. This brochure deals only with the onshore section of the pipeline.

For further details of the Corrib Gas project please refer to www.corribgas.ie or contact SEPIL's office in Belmullet on 097 27100.

Need For The Project

Ireland currently imports approximately 85-90% of its gas. The Corrib gas project will supply up to 60% of our gas needs at peak supply and, as such, is of strategic importance to the country. The project has resulted in the extension of the Bord Gáis Éireann

network from Galway to Mayo which has meant 11 towns in Mayo and Galway are being connected to the national gas grid. Refer to map overleaf of Ireland's Onshore Gas Transmission Network.



Corrib Gas Field



Kinsale Head Gas Field

Note: By 2010, the Kinsale Head Gas Field will no longer be producing significant amounts of natural gas.

Description Of The Development

The proposed Corrib Onshore Pipeline will consist of the following elements.

- An onshore gas pipeline 9.2km long and 508mm (20") in diameter.
- An umbilical 6" in diameter which carries the communications system (electrical signals etc) that controls the valves at the wells and includes hydraulic and chemical injection lines.
- A plastic polyethylene pipe which carries water treated at the terminal out to sea – known as the 'outfall pipe'.
- A Landfall Valve Installation (LVI), close to where the pipeline comes ashore, which will ensure that the pressure in the onshore pipeline will not exceed 144 bar. Further details of this can be found on www.corribgas.ie or by calling to the SEPIL office in Belmullet.

Route Description

The proposed pipeline comes ashore at Glengad, where it crosses a small area of grassland before crossing under Sruwaddacon Bay for the first time. The route then crosses land in Rossport before turning in an easterly direction for approximately 3.5km and skirts along the periphery of the Glenamoy Bog Complex. The route then crosses under Sruwaddacon Bay for a second time before rejoining the previously approved route through

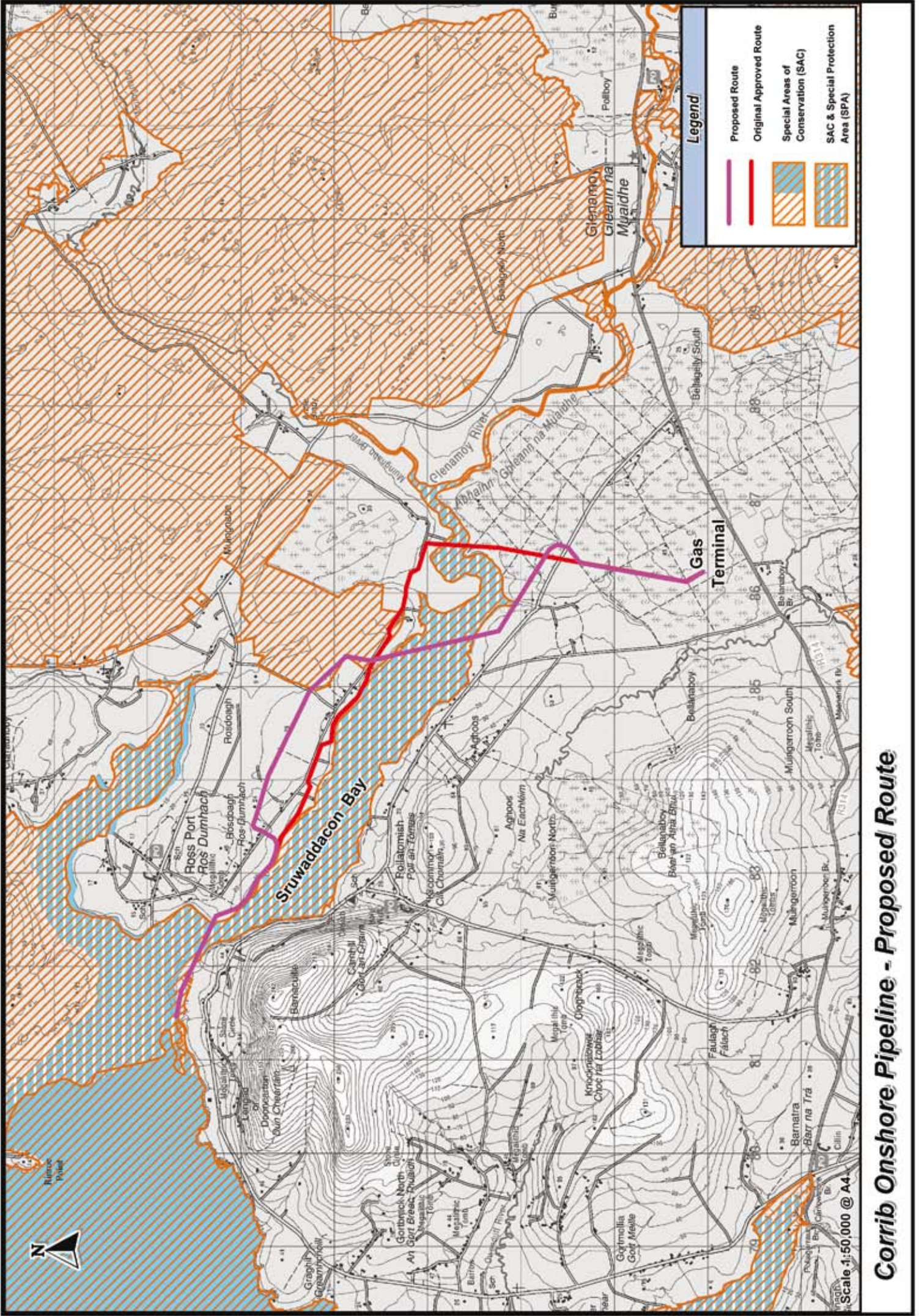
plantation woodland to the Bellanaboy Gas Terminal site. As the Bay is located within a Special Protection Area (SPA) and Special Area of Conservation (SAC), both crossings of the Bay will be constructed using micro-tunnelling techniques underneath the bed of the Bay, to ensure minimal environmental impact.

Onshore Pipeline Design





The proposed onshore pipeline is 9.2km long, 508mm (20 inches) in diameter, with a wall thickness of 27.1mm. The normal operating pressure in the first few years of operation will be between 90 and 110 bar and will decrease over time as the gas reservoir becomes depleted.

The LVI will ensure that operating pressure in the pipeline will not exceed 144 bar. The pipeline operating pressure range is similar to that of the two existing Scotland-Ireland Gas Interconnectors operated by Bord Gáis Éireann.

Relevant National and International pipeline codes will be used to ensure the safe design, construction and operation of the pipeline and its installations. The primary pipeline design code for the onshore pipeline will be IS EN 14161 and the Irish and UK codes (IS 328 and PD 8010) will apply where their standards exceed those of IS EN 14161.



Legend

	Proposed Route
	Original Approved Route
	Special Areas of Conservation (SAC)
	SAC & Special Protection Area (SPA)

Corrib Onshore Pipeline - Proposed Route

Scale: 1:50,000 @ A4

Alternatives Considered

In June 2007 RPS identified and presented to the public, eight indicative route corridors which covered an area from Glinsk to Portacloy to Inver and Barnatra.

From June 2007 onwards, detailed environmental and technical surveys were carried out to assess these route corridors and in September 2007 a short-list of three route corridors was announced.

A number of the original options had significant environmental and technical constraints and were not therefore shortlisted.

All of the three route corridors short-listed in September 2007 increased the separation distances of the pipeline from housing. Further environmental and technical assessments were subsequently

carried out as well as further consultation with the local community, landowners and the appropriate statutory consultees (such as National Parks and Wildlife Service etc). During this period variations to two of the shortlisted route corridors emerged and were published in December 2007.

Details of the route selection process can be found in the table below and on www.corribgaspipeline.ie.

The preferred route, Route C1, which was announced in April 2008, was identified as the route that struck the best balance between the community, environmental and technical criteria. Further details about the route and the reasons for its selection can be found in the RPS April 2008 Community Update Brochure on www.corribgaspipeline.ie and in the EIS.

Route Selection Process	Date	Consultation Activities
Introduction of RPS	February 2007	'Open Day 1' outlining the route selection process. February Community Update Brochure published.
Route selection criteria	April 2007	Facilitated community workshop and discussion on the route selection criteria. April Community Update Brochure published.
Route selection criteria finalised	April / May 2007	'Open House' held in RPS Project Office to provide a final opportunity to comment and input into criteria for route selection.
Identification of eight route corridor options	June 2007	'Open Day 2' to communicate the final route selection criteria and to identify preliminary route corridor options. June Community Update Brochure published.
Short-list of three route corridors	September 2007	Public display in RPS Project Office to detail the emerging preferred route corridor options. September Community Update Brochure published.
'Focus Week'	November 2007	'Focus Week' to provide a progress update to the community in relation to the route selection process. Held in the RPS Project Office during the week November 12th to November 16th. November Community Update Brochure published.
Variations of short-listed route corridors	December 2007	Corridor variations emerge as a result of feedback and further studies and put on public display in the RPS Project Office. December Community Update Brochure published.
End of consultation period	January 2008	Additional public notice was put in all the local papers advising that the consultation phase would close on January 18th 2007.
Selection of preferred route	April 2008	Public announcement of proposed route which is currently on public display in the RPS Project Office. April Community Update Brochure published.

Construction Of The Onshore Pipeline

The construction methods to be used for the onshore gas pipeline have been selected to prevent and / or minimise the potential for environmental impact on the receiving environment along the proposed route. It is estimated that it will take approximately 12 months in total to construct the Corrib Onshore Pipeline.

Construction On Land

Before construction commences the entire route will be surveyed. This will be done in consultation with landowners and statutory bodies.

Construction activities on land will generally be carried out within a 40m wide temporary working area. Increased working space may be required at certain points such as at road and water crossings. A permanent wayleave of generally 14m (18m in a small number of locations in peatland) is contained within this temporary working area. Specialist techniques will be used to ensure minimal impact on the environment.

Firstly, the topsoil in the working area will be stripped away using appropriate equipment. The topsoil will be stored carefully to the side of the working area. The pipeline will arrive in sections and will be stored at the Bellanaboy Terminal Site. The pipeline sections will be laid out along the route and will then be welded together. All of the welds will be radiographed and approved before a final protective coating is applied at the welds.

A trench will then be excavated using mechanical excavators and the welded pipe will be carefully lowered into the trench.

The pipe trench will be backfilled, where possible with the material taken from the trench in reverse order in which it was excavated. Sand padding may be used to protect the pipe if the backfill material is particularly stony and in areas of rock. Prior to the gas flowing through the pipeline the inside of the pipeline will be cleaned. The pipeline will then be pressure tested with water, to 500 bar, to prove its integrity.

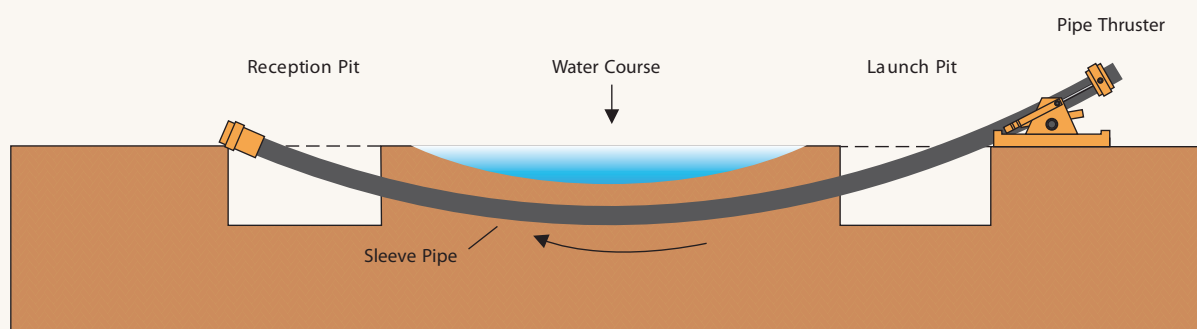


Trenching in Agricultural Land

Construction Across Sruwaddacon Bay

Pipelines can be constructed across watercourses in two ways: a 'trenchless' method and a more conventional 'open cut' method. Trenchless methods are specialised techniques where a pipeline is tunnelled below the watercourse without excavating from the surface.

In the case of the Corrib onshore pipeline, trenchless micro-tunnelling methods will be used to construct the two proposed crossings of the Bay. This will avoid disturbance to the bed of the Bay during construction and will thus minimise environmental impacts.



Construction Through Areas Of Bog

In areas of peatlands conventional trenching is not feasible as the ground is too wet for a trench to remain open while the pipeline is installed. In this case the upper layer of peat will firstly be carefully removed in sections and set to one side. The peat below will be stripped away to a depth of approximately 1 metre and a stone road constructed in the trench. This stone road will allow access

for necessary equipment. A trench will then be constructed within the stone road and the pipeline lifted from the stone road into the constructed trench. The sections from the upper layer of peat will then be replaced on top of the stone road. This method ensures stability in areas of peatland and was successfully used in similarly sensitive and designated peatland areas on the Mayo-Galway gas pipeline.



Preparation for Construction of Pipeline in Peatland (Mayo-Galway Pipeline, 2006)

Environmental Management During Construction

To ensure that environmental considerations are adequately covered during construction an Environmental Management Plan will be prepared for the construction of the proposed development. This plan, when implemented, will ensure that all environmental effects associated with the proposed development are avoided or minimised.

Pipeline Testing And Commissioning

Testing and commissioning of the onshore gas pipeline will begin once it is mechanically complete in accordance with relevant industry standards.

Potential Impacts And Proposed Mitigation Measures During Construction And Operation Of The Onshore Pipeline

A large number of specialists undertook detailed studies to investigate how the proposed development would interact with the human and natural environment. In each individual study the baseline environmental conditions were recorded, potential impacts assessed and mitigation measures proposed to remove or minimise impacts. The areas investigated are briefly described below and for the purpose of this brochure a summary of the key points is given. For further details refer to the EIS.

- **Community and Socio-Economic**

The construction phase of the overall Corrib onshore pipeline will generate direct employment of approximately 120 personnel. The proposed development will also generate indirect employment and will benefit local industries including building suppliers, caterers, general retail and accommodation. The potential socio-economic impact is therefore considered to be positive.

- **Traffic**

A traffic impact assessment was undertaken to assess the impact of the proposed pipeline construction on the local road network. Additional traffic will be generated during construction – mainly through the delivery of materials and equipment to and from the site. There will also be some increased traffic due to construction personnel accessing the site. A traffic management plan, which will be subject to detailed consultation with Mayo County Council, will be put in place to ensure minimal impact on local people and activities.

- **Air Quality**

The only predicted impact on air quality is through the emissions from traffic and through dust generation during construction. In order to minimise construction emissions a series of measures and good working practises will be implemented as part of the Environmental Management Plan and the Traffic Management Plan.

- **Noise & Vibration**

There will be an increase in noise in the local area as a result of construction, however, a series of good working practices – such as the implementation of a Traffic Management Plan will be put in place to ensure the impact is minimised. Noise monitoring will be implemented during construction.

- **Landscape and Visual**

Due to the close proximity to the coast the local landscape is exposed and rugged in nature. The entire Corrib onshore pipeline will be buried beneath the ground so there will be no permanent impact on the landscape. The proposed Landfall Valve Installation (LVI) at Glengad will contain some above ground features. However, the careful siting of the installation in reduced ground levels will result in minimal change to the local landscape.

- **Material Assets**

During the construction phase there will be some disruption to agricultural land. Landowners will be compensated appropriately for this. During the operational phase a 14 metre permanent wayleave (or in some cases 18m wayleave in peatland) will be in place. Access to the wayleave will be required from time to time to carry out inspections.

- **The Natural Environment**

During pipeline construction impacts on both flora and fauna habitats will generally be short-term in nature. Careful reinstatement, as well as monitoring and mitigation measures, will be implemented to minimise potential impacts on these habitats. It is proposed to tunnel underneath Sruwaddacon Bay to minimise any disturbance to the bed of the Bay during construction. Once the pipeline is installed there will be no impact on the marine or freshwater environment.

- **Archaeology, Architectural and Cultural Heritage**

Four sites of archaeological potential were identified along the proposed route and special mitigation measures will be put in place to ensure there is no adverse impact on them. Specialist archaeologists will work closely with the construction team to ensure appropriate equipment is used when working in the vicinity of such sites. An Archaeologist will also monitor work to ensure mitigation measures can be put in place to minimise impacts on any other archaeological sites that may be identified during construction.

Landfall Valve Installation (LVI)

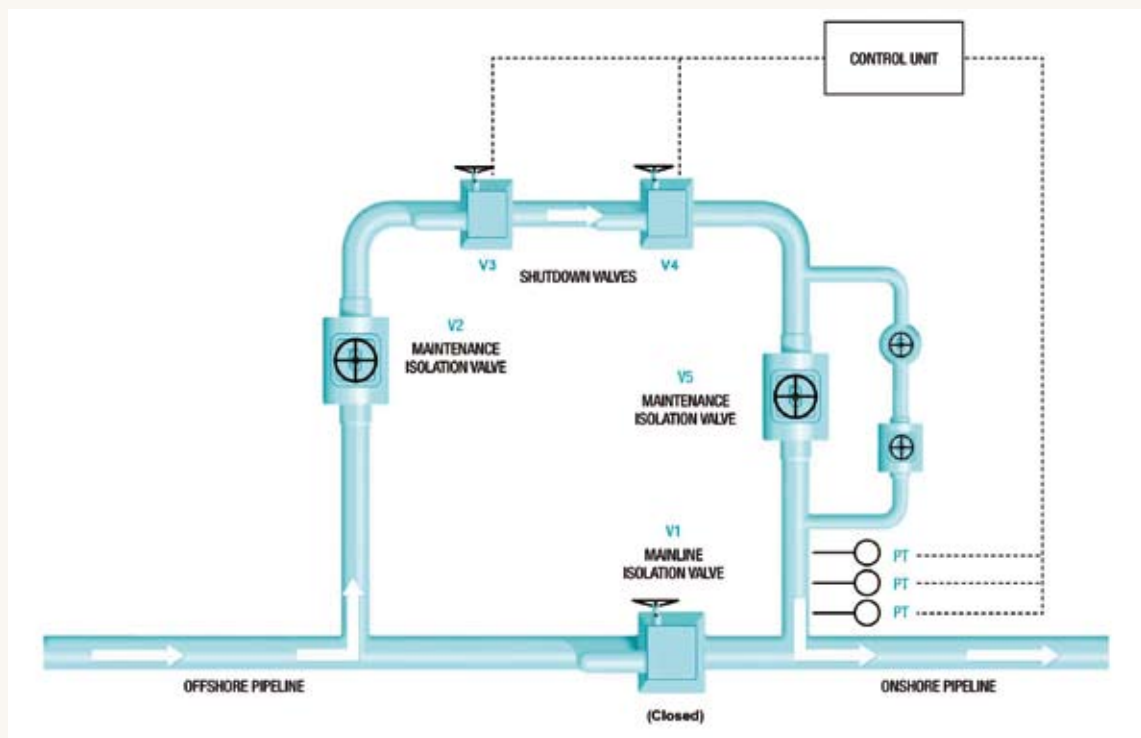
The Landfall Valve Installation (LVI) will be located approximately 50 metres from the landfall at Glengad in an area of improved agricultural grassland. The footprint of the installation will be approximately 22m x 20m.

The LVI is a system that will automatically shut off the flow of gas in the highly unlikely event that the pressure in the pipeline rises towards 144 bar at the landfall. When activated, the shut-off valves close, resulting in complete isolation of the onshore section from the offshore section of the pipeline. This prevents the pressure from ever exceeding 144 bar in the onshore pipeline.

The LVI will consist of valves, pipework, instrumentation and supporting equipment. The main elements (isolation valves, pressure limiting system and associated pipe work) will be below ground with valve actuators (used to open and close the valves) and instrumentation/control cabinets located above ground. To minimise visual impact the ground level of the installation will be lowered into the landscape in this area ensuring that very little of the facility will be visible from the public road.

The LVI will function as follows;

- Three independent pressure sensors or transmitters, located at the facility, continuously measure the pressure in the pipeline.
- If any of the sensors detect pressure approaching 144 bar, they send a series of 'trip' signals to a control unit which automatically initiates closure of the two shutdown valves located in the LVI. The configuration of the system is shown below.
- The closed shutdown valves isolate the onshore pipeline from the offshore pipeline, thereby preventing any further pressure increase in the onshore pipeline.
- The production system from the wells to the Gas Terminal will be controlled such that the LVI safeguarding system should never have to operate.
- The system will be constantly monitored and tested on a regular basis in accordance with relevant test procedures for pipeline safety shut-off valves.



PT
PRESSURE SENSORS. MEASURE THE PRESSURE IN THE PIPELINE

CONTROL UNIT
THE CONTROL UNIT SENDS SIGNALS TO SHUTDOWN VALVES TO CLOSE THEM WHEN PRESSURE APPROACHES 144 BAR

V1
MAINLINE ISOLATION VALVE. CLOSED DURING NORMAL OPERATION

V3 & V4
SHUTDOWN VALVES. WILL CLOSE AUTOMATICALLY WHEN PRESSURE APPROACHES 144 BAR

V2 & V5
MAINTENANCE ISOLATION VALVES. OPEN DURING NORMAL OPERATION, CLOSED WHEN MAINTENANCE OF THE SHUTDOWN VALVES IS REQUIRED.

Summary

The Environmental Impact Statement has examined the proposal to construct the Corrib Onshore Pipeline from Glengad to the Bellanaboy Bridge Gas Terminal. The development also includes the construction of the LVI at Glengad. Where environmental impacts have been identified, mitigation measures have been proposed.

Having conducted this environmental impact study, the results of which are described in detail within the EIS, RPS has concluded that the proposed Corrib Onshore Gas Pipeline will not have a significant impact on the human or natural environment.

Viewing And Purchasing The Environmental Impact Statement (EIS)

The EIS and the Non-Technical Summary for the Corrib Onshore Pipeline can be viewed and/or purchased at the offices of:

- An Bord Pleanála,
64 Marlborough Street, Dublin 1.
- Mayo County Council, Áras an Chontae,
Castlebar, Co. Mayo
- Mayo County Council, Church Road,
Béal an Mhuirthead (Belmullet), Co. Mayo

- Corrib Project Information Office,
4 Údarás na Gaeltachta, Béal an Mhuirthead,
Co. Mhaigh Eo
- RPS, Seafield House, Béal an Mhuirthead
(Belmullet), Co. Mayo.

The EIS and Non-Technical Summary may also be viewed and downloaded from www.corribgaspipelineSIApplication.ie and from www.corribgaspipeline.ie

Public Submissions

Submissions or observations in relation to the proposed development can now be made directly to An Bord Pleanála, 64 Marlborough St, Dublin 1. Closing date for submissions is June 25th, 2008. Please refer to public newspaper notices on www.corribgaspipelineSIApplication.ie for further information.



CORRIB
natural gas

Produced by:
RPS Project Office
Seafeld House
Belmullet, Co Mayo

T 097 20720
E routeinfo@rpsgroup.com
www.corribgaspipeline.ie
www.corribgas.ie