Corrib Gas Field Development

Environmental Impact Statement

Prepared in respect of the proposed Bellanaboy Bridge Gas Terminal and associated Srahmore Peat Deposition Site.

Non-technical Summary

Volume 2:

Proposed Srahmore Peat Deposition Site
Bangor Erris
Co. Mayo

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December 2003

Srahmore Peat Deposition Site

Environmental Impact Statement
Non Technical Summary

1 INTRODUCTION

Shell E&P Ireland Limited (Shell), as operator of the Corrib gas field proposes to develop a gas reception terminal, the Bellanaboy Bridge Gas Terminal, at Bellanaboy Bridge, Glenamoy, Co Mayo. In order to construct the terminal, it will be necessary to excavate up to 450,000 cubic metres (m^3) of peat from the terminal site. It is proposed that this peat is transported by public road from the terminal site to a cutover peatland at Srahmore, Bangor, County Mayo. This peatland is owned and operated by Bord na Móna as part of their Oweninny Works.

Shell's application for planning permission for the terminal includes the associated Peat Deposition Site at Srahmore as outlined above. The Environmental Impact Statement for the development is presented in two separate volumes, one covering the terminal site termed the Terminal Volume (Corrib Field Development, Bellanaboy Bridge Terminal Volume) and this volume, termed the Peat Deposition Site Volume (Corrib Field Development, Peat Deposition Site Volume). Both volumes accompany the planning application to Mayo County Council.

This volume, the Peat Deposition Site Volume, also accompanies a Waste Licence Application to the Environmental Protection Agency (EPA) for the proposed Peat Deposition Site at Srahmore.

Under EU and Irish legislation, the proposed development requires an Environmental Impact Assessment (EIA) to be carried out and an Environmental Impact Statement (EIS) is the formal documentation of the impact assessment process. The EIS contains a description of the existing environment, information on the scale and nature of the proposed development, an impact assessment of the proposed development and mitigation measures to reduce the impact on the receiving environment.

This document provides a non-technical summary of the Peat Deposition Site Volume of the EIS describing the existing environment, the proposed development and potential impacts and mitigation measures.

The EIS supports the Planning Application being made to Mayo County Council and the Waste Licence Application being made to the Environmental Protection Agency.

A very comprehensive consultation process has been followed to date in respect of the present proposed facility. The consultation process consisted of consultation with the public, competent bodies, statutory bodies and other interested parties from a very early stage. The primary objectives of the consultation process followed were to aid the scoping of the Environmental Impact Assessment (EIA); fully brief consultees of Shell and Bord na Móna's proposal and to ascertain the consultees' observations and responses.

Groups consulted include North Western Fisheries Regional Board, An Taisce; Friends of the Irish Environment; Private Fisheries Users; National Parks and Wildlife (Department of the Environment, Heritage and Local Government); over 200 members of the public; Local residents; Irish Peatland Conservation Council; Mayo County Council; and the Environmental Protection Agency.

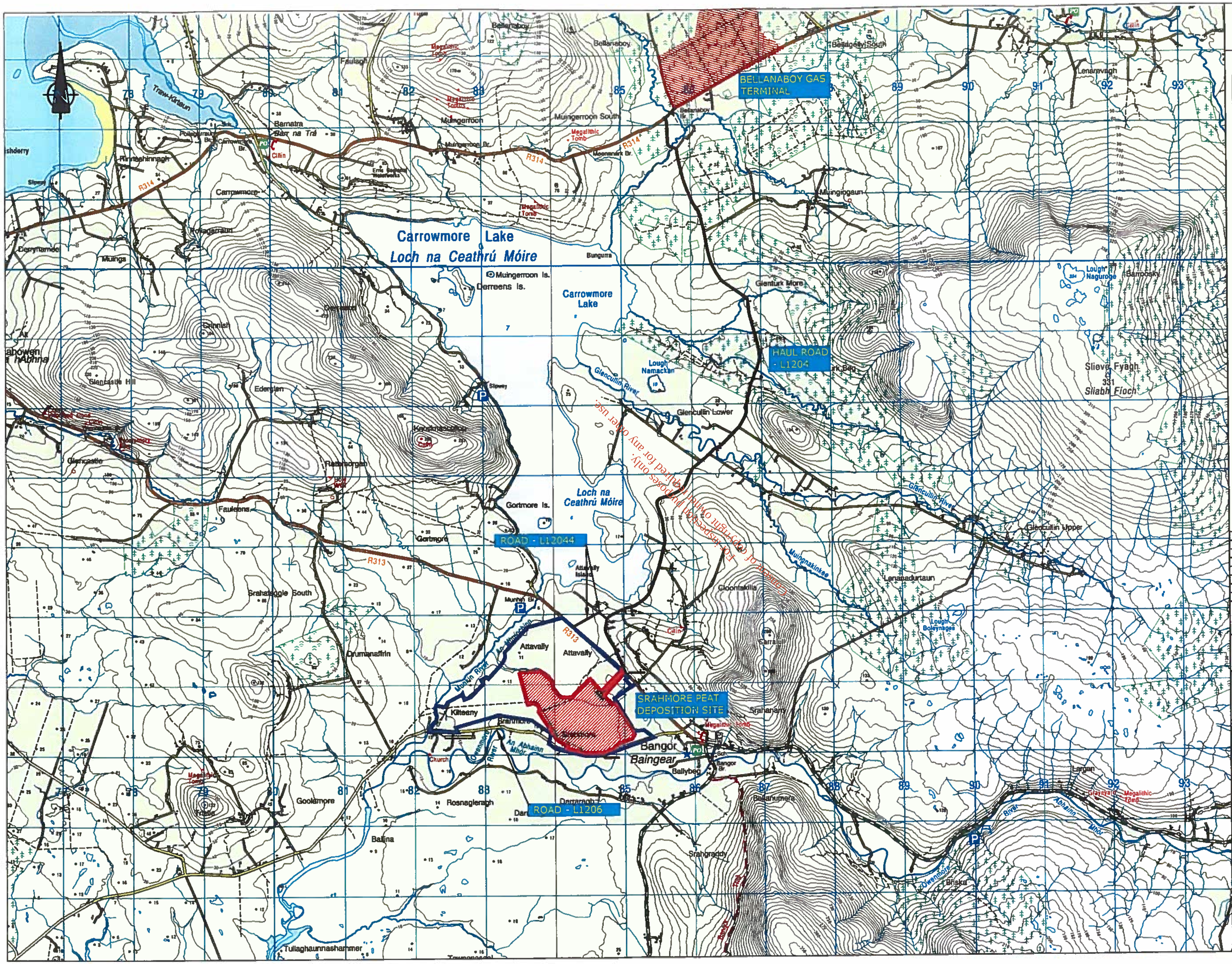
2 SITE DESCRIPTION

The site, shown on Figure 1, lies in the north-western part of County Mayo and is situated approximately 1 kilometre (km) north-west of the village of Bangor-Erris and comprises cutover peatland owned and operated by Bord na Móna. This consists of eight separate areas of cutover peatland, numbered 1 – 8, each of which was assessed for suitability for the development.

Area 5 was selected as the peat reception area. Area 6 was selected for the actual deposition of peat and a section of Area 7 will be utilised as a controlled overflow area in the event of rainfalls exceeding the design rainfall. The peat reception area to be utilised for off-loading of the peat is the closest area to the public road R313.

Area 6 is a low-lying saucer shaped depression of cutover peatland, which is surrounded by perimeter banks of fringe peatland habitats. The site slopes gently at c.1.8 degrees from east to west falling from 20.5 metres above Ordnance Datum (mOD) to 14 (mOD). Area 6 is subdivided by a series of "high fields" left in place to facilitate stockpiling of peat. These high fields are typically 14 metres (m) wide and 130m apart and will be utilised to transport peat for deposition in Area 6. Area 5 is also a low-lying area of cutover peatland with internal high fields.

The development entails the deposition of peat from Bellanaboy Bridge Terminal site on Bord na Móna peatlands at Srahmore, Bangor-Erris, County Mayo in order to facilitate the construction of the Bellanaboy Bridge Gas Terminal at Bellanaboy Bridge, County Mayo. Approximately 450,000m³ of peat must be excavated from the terminal footprint to allow for the terminal to be constructed at the required level.



LEGEND:

- SITE OWNERSHIP BOUNDARY
- SITE ACTIVITY BOUNDARY
- HAUL ROAD

NOTE:

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OS Sheet No. 18 & 26 Co. Mayo

All levels relate to Ordnance Datum at Malin Head

SCALE 1 : 25000

Applicant: Shell E&P Ireland Limited

Operator: BORD NA MÓNA

Project: CORRIB FIELD DEVELOPMENT SRAHMORE PEAT DEPOSITION SITE

Drawing Title: SITE LOCATION MAP

Scale	Drawn by	Checked by	Date
1:25000@ A1	Gerard Finane	Damien Grehan	DECEMBER 2003

ENGINEER IN CHARGE: SEAN FINLAY

TES CONSULTING ENGINEERS

Drawing No.: FIGURE 1

Rev.

LEGEND

- BORD NA MONA OWNERSHIP BOUNDARY
- SITE ACTIVITY BOUNDARY
- HAUL ROAD
- HIGH FIELD
- HIGH FIELD TOE DRAIN
- ACCESS ROAD
- EXISTING RAILWAY

NOTE:

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OS Sheet No. 18 & 26 Co. Mayo

All levels relate to Ordinance Datum at Malin Head

Shell E&P Ireland Limited

BORD NA MÓNA

CORRIB FIELD DEVELOPMENT
SRAHMORE PEAT DEPOSITION SITE

SITE PLAN

Scale 1:2500 @ A1

Drawn by	Checked by	Date
Gerard Finane	Damian Graham	December 2003

ENGINEER IN CHARGE: SEAN FINLAY

TES CONSULTING ENGINEERS

FIGURE 2

In summary, the proposed removal of the peat from the terminal footprint and subsequent deposition at the Srahmore Peat Deposition Site, shown on Figure 2, will involve the following:

- The trees/scrub at the Bellanaboy Bridge Terminal Site will be removed from the terminal footprint by Shell and will be retained on site (Refer to Bellanaboy Bridge Terminal Volume)

- The peat (up to 450,000m³ cubic metres) excavated from the terminal footprint will be drained and windrowed and then transported from the Bellanaboy Bridge site to the cutover peatland at Srahmore by a fleet of forty tipper trucks. Each truck will have a load capacity of 18 tonnes but will carry approximately 11tonnes in order to minimise impact on the local and regional road network.

- The peat will be transferred from the trucks to twenty low ground-bearing pressure tractors/trailers (Haku trailers) at a hardstanding Peat Reception Area – "Area 5" using two front-end industrial loaders. These trailers will haul the peat via internal haulage roads to the Peat Deposition Area – "Area 6" (see Figure 3).

- The deposited peat will be placed and graded to provide for falls towards existing and new drainage ditches. The placing and grading of the peat will be carried out using eleven low ground pressure tracked excavators and seven bulldozers (see Figures 4 and 5).

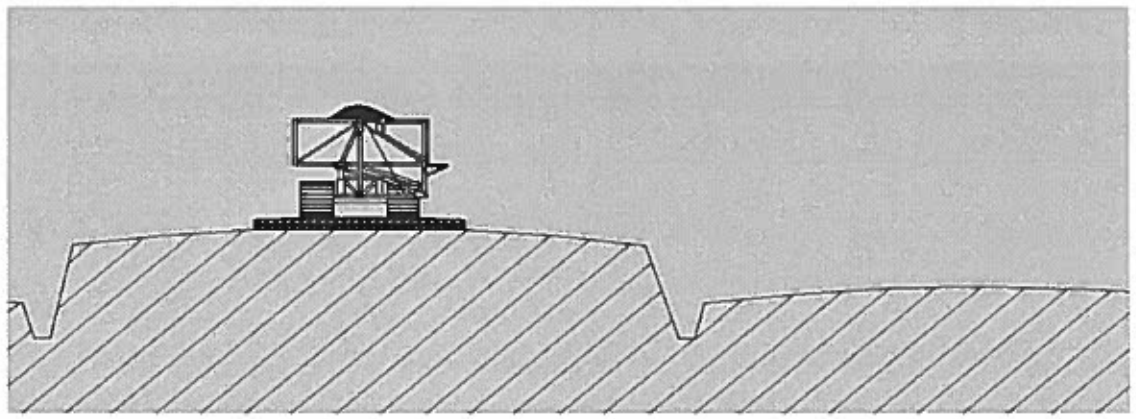

Figure 3. Material transported onto peatlands in Haku trailers, which travel on roads constructed on high fields.

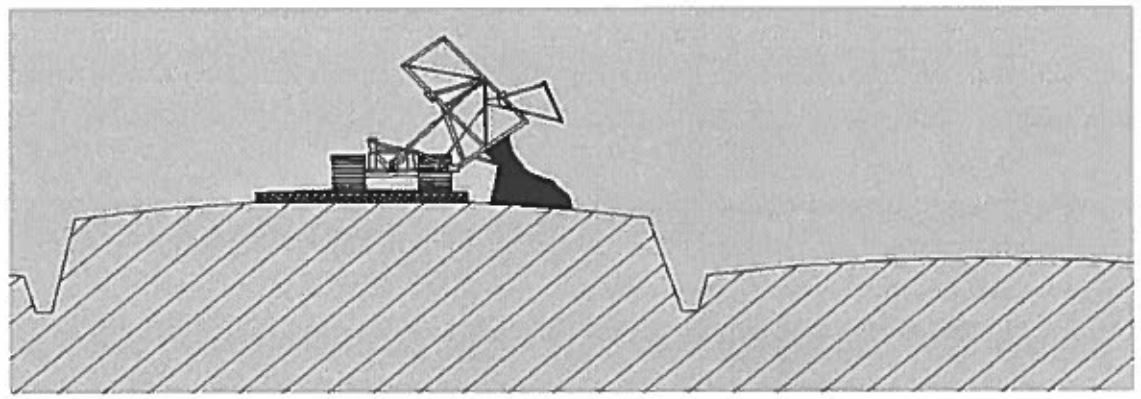

Figure 4. Material side tipped from Haku trailers onto sides of high fields.

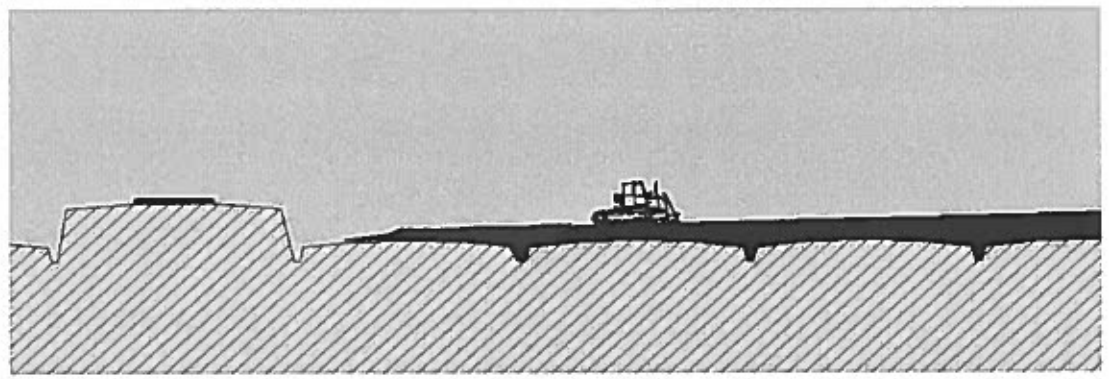

Figure 5. Material spread over low fields and compacted with dozers.

Peat will generally be moved from 07.00hrs to 19.00hrs Monday to Friday and 07.00hrs to 16.00hrs on Saturdays (in periods of good weather, and with the permission of Mayo County Council, increased operations may be considered to reduce the haulage operation duration). It is envisaged that 4,000m³ of peat will be deposited daily over the six months of operation of the facility, which may be spread over two seasons depending on weather conditions.

The proposed facility, as shown on Figure 2, will also include ancillary infrastructure including site entrance; site access road; administration building; weighbridge; security kiosk; wheelwash; and toilet facilities. A series of 5 new settlement ponds will be constructed, in addition to 2 existing settlement ponds, to capture silt mobilised by surface water runoff.

The temporary buildings, equipment and services will be removed at the end of the deposition period. The removal of the peat reception, entrance road and link roads to Area 6 is envisaged to occur at the end of the stabilisation process, which is expected to be five years after the deposition is complete.

3 CONSTRUCTION

The site at Srahmore, Bangor-Erris, Co. Mayo is to be developed for the purpose of accommodating the deposition of approximately 450,000m^3 of peat, which will be transported from the proposed Bellanaboy Bridge Terminal site to the Srahmore site. The peat removal from Bellanaboy Bridge Terminal site is expected to take up to six months to complete. This timeline is however weather dependent and may be spread over two seasons.

The construction activities on the peat deposition site at Srahmore, Bangor-Erris, Co. Mayo comprise:

- Construction of an entrance and access road to peat reception area
- Construction of site building/accommodation area
- Construction of peat reception area
- Construction of internal roads
- Construction of site drainage, including interceptor drains and settlement ponds

There will also be various temporary activities carried out as part of the construction of the above such as the drainage of the accommodation/reception areas during construction to ensure the local watercourses are not adversely impacted.

On completion, the site will be allowed to recolonise by natural species. Environmental monitoring stations, in accordance with EPA requirements, will be established at the site and monitoring will be continued post the closure of the facility.

4 ALTERNATIVES

A planning application and accompanying EIS for the proposed Bellanaboy Bridge Gas Terminal was submitted to Mayo County Council in April 2001. Following appeal to An Bord Pleanála the development was refused planning permission due to concerns about potential peat stability. The original proposal had envisaged storing all peat excavated during construction activities on site within bunded areas. Following the decision of An Bord Pleanála, the project was re-examined and alternatives as well as other options for peat management were considered.

The review determined that total peat removal was still the preferred method of developing the terminal site and that removal of the excavated peat offsite would be the best alternative for dealing with the excavated peat. An assessment was made of offsite deposition locations which would be acceptable in environmental and planning terms. On the basis of the assessment the favoured site is a Bord na Móna cutover peatland, at Srahmore, to the west of Bangor Erris.

This site, approximately 11km away from the proposed terminal site, is one from which peat has been harvested for a local power station. The peat from the terminal could be deposited at this site, which is saucer shaped with an extensive drainage infrastructure that was installed for industrial peat extraction.

A number of field trials were carried out to select the best method for transporting the peat within the site. Following these trials it emerged that a fleet of approximately 20 Haku trailers will be required to transport the 4,000 m^3 of peat, which is expected to arrive daily.

This is the optimum peat transfer and deposition method as (a) it requires minimal disturbance within the deposition site and (b) it will maximise the storage capacity of the deposition site.

5 HUMAN BEINGS

The proposed facility will not create any adverse impact on language or culture in the area, as an influx of workers is not required to serve this part of the development. Employees will be locally sourced, and are likely to be primarily Bord na Móna workers. It is not expected that employees will commute from any distance greater than a 15km radius of the site.

With reference to the Mayo County Development Plan, there are no protected structures that will be affected by the deposition of peat on the site. The site area has experienced a significant level of disturbance through being worked as an industrial peatland over the past forty years. There will be no further effect on the architectural heritage of the area as a result of the development.

Should the peat deposition activity proceed in Srahmore as proposed there would be a manning requirement for 50-55 people and Bord na Móna would intend, in the first instance, utilising its existing workforce, depending on availability. Bord na Móna's Oweninny works is scheduled for closure at the end of 2004 and the development would provide an alternative employment source beyond this time.

It is not expected that there would be any negative impact on agriculture, forestry or fishing during or after construction so long as the mitigation measures outlined elsewhere in this EIS are implemented.

A number of tourism centres have been identified in the county. However, most major attractions are sufficiently remote from the Srahmore site for their associated visitors to be unaffected by the peat deposition activity. During the construction period, visitors to the local area who pass by the Srahmore site will notice site activity. There will be minor traffic delays at the temporary signalling arrangement proposed at the junction of the county road linking Bellanaboy Bridge to the Srahmore site.

There will be increased traffic movements on the county road haul route and the R313 and R314 during the construction period with the movement of heavy goods vehicles to and from the site. These increased traffic levels should not impact significantly on local tourism.

During the construction phase there will be some disturbance of the local population in terms of noise, visual impact, and increased levels of heavy goods vehicles traffic.

It is not envisaged that the local fishing industry and angling attractions will be disturbed by the peat deposition exercise at the Srahmore site, provided that the necessary mitigation measures outlined in this volume of the EIS are effectively implemented.

The construction of the peat deposition site will not affect any known recreational routes. The site will be visible from local roads and tracks used in the area. However this activity will be restricted to a relatively short timeframe and the rehabilitated site will ultimately blend with the surrounding landscape.

The site is currently not used for any form of recreational activity. In this regard, it is not expected that there will be any significant negative impact on local recreation or sporting facilities, as a result of the proposed peat transfer and deposition activities.

Peat transfer and deposition activities at the Srahmore site will be subject to Bord na Móna health and safety procedures, carried out according to best practice guidelines.

The impact of the environmental emissions from the proposed peat depository are discussed in each of the relevant sections of this volume of the EIS. Each individual section discusses the likely impacts of emissions on humans, flora and fauna and the environment, where relevant.

The proposed activity will be subject to the issuance of a Waste Licence by the EPA; such a licence typically includes provisions for the ongoing monitoring and reporting of a range of environmental parameters in order to ensure compliance with emission limits determined by the EPA.

6 TERRESTRIAL ECOLOGY

There are no designated conservation areas within the study area, which comprises the Bangor peatland and lands immediately adjacent. The development site is considered to have low local ecological value and consists primarily of cutover peatland with drainage ditches. No rare species, or species protected under the EU Habitats Directive, have been recorded from the site of the proposed development.

There will be an overall positive local ecological impact with the increase in local biodiversity through the replacement habitats establishing in Area 5, 6 and 7. The site will be dominated by soft rush and a number of species will colonise between tussocks. Possible re-instatement options include a process of rewetting the peat deposition site. This would promote the re-establishment of peat-forming conditions and re-instate a peatland ecosystem in place of the original Atlantic blanket bog complex.

Area 7 will most likely comprise a more wetland habitat. These replacement habitats will enhance the local biodiversity by providing substitute habitats for species already established in the local area. With time, the area could be incorporated into the existent network of cSACs and pNHAs to complement the existing conservation value of the Erris peninsula and expand the habitat available for wildlife. This is in line with the *National Biodiversity Plan* and the *Rehabilitation Plan* for the Oweninny Works.

7 AQUATIC ECOLOGY

The aquatic habitats which potentially could be impacted upon are the Munhin River, Owenmore River and Tullaghan Bay, which combined form the lower stretch of the Owenmore Catchment. The Owenmore Catchment covers an area of 340km^2 and stretches from the tributaries entering the Oweninny River at Knockmoyle (cSAC), the Altnabrocky River that flows north through the Bellacorick Bog complex (cSAC) and those entering Lough Carrowmore (cSAC).

The Annex II species, the Atlantic salmon (*Salmo salar*) is present in the Munhin River. Lamprey species were also recorded from tributaries entering Lough Carrowmore (the tributaries were surveyed as part of the information provided for the Bellanaboy Bridge Terminal Site Volume of this EIS. While the development site is downstream of Carrowmore Lake, it is worth noting the presence of lamprey in the area. Both salmon and lamprey species are recognised as highly sensitive receptors within the receiving environment and both are listed in Annex II of the EU Habitats Directive.

The north-west Mayo coastline, and in particular the Erris peninsula and its associated coastal habitats, is recognised as being of significant ecological value. This is based on the incidence of a number of habitats listed as priority habitats under the EU Habitats Directive such as machair and extensive sand dune systems, and the utilisation of these areas by noteworthy species. In particular, these coastal areas are rich in bird species.

First of all it is necessary to outline the possible means by which the development could impact on the aquatic ecology. The two main concerns are (a) excessive suspended solids entering watercourses off-site and (b) pollution incidents resulting in discharges to watercourses.

Therefore the mitigation measures include (a) a detailed drainage scheme with sedimentation ponds in series along the main outfall, (b) parallel terminal sedimentation ponds at the exit points of the drainage waters into the main drain in Areas 5 and 6, and (c) the provision of a controlled overflow in Area 7 to cater for an extraordinary rainfall event.

In consideration of the mitigation measures outlined here and in Section 9 of this Volume of the EIS, the direct and indirect impacts of the development on surrounding areas is expected to be of low to negligible magnitude. Due attention has been given to the fact that the watercourses draining the development site enter watercourses of international significance and strict environmental controls have been designed.

8 SOILS AND GEOLOGY

Two stages of intrusive site investigation were carried out to determine the geological and geotechnical conditions on site. The site is underlain by peat, which varies from 0.1m to a maximum of approximately 6m in thickness. Most of the peat remaining in Area 6 is less than 1.8m thick as the area was subject to industrial peat production. High fields, approximately 14m wide, cross the cutover areas. The peat thickness in the high fields is typically 3m.

Underlying the peat are various mineral soils, predominately fine sand with some gravels and clay. These deposits range from 6m to over 30m in thickness. The bedrock geology comprises metamorphic psammites and quartzites. The bedrock is a poor aquifer while the surficial mineral soil deposits are also of low permeability.

The watertable across the site dips gently from east to west and is typically 2 to 3m below ground level i.e. is located in the mineral soils. The perched watertable associated with the virgin blanket bog has been altered by the drainage of the peatlands. The aquifer potential of the mineral bedrock and mineral subsoil is considered to be poor. No boreholes or wells were identified during the baseline assessment and local information indicates that all drinking water for the region is derived from Carrowmore Lake, to the north of the proposed site.

A geotechnical assessment of global stability of existing and future conditions indicates that the Factors of Safety (FoS) available at 3 to >20 are well in excess of the standard FoS. The use of appropriate haulage and distribution equipment of peat emplacement will ensure the integrity of the internal roads during peat deposition.

Due to the nature of the development, i.e. importation and deposition of peat, there is the potential for impacting the shallow soil and geology environment. The magnitude of the potential impact is considered slight to moderate. The assessment of the magnitude has taken account of the deposition of peat on peat and also the fact that the industrial activity has resulted in the exposure of bare peat surfaces. Therefore, the deposition of peat onto an exposed peat surface will not significantly impact the geological environment, other than to raise the topographic elevation. This change will be permanent in duration. However it is not considered to present a significant hazard to the soil and geology environment.

The principal mitigation measure to ensure that the proposed facility does not impact on the soil and geology environment is that all works associated with peat deposition will be limited to optimal weather conditions.

In order to stabilise the peat within the storage area, the peat will be deposited and shaped to enhance water runoff. All bays where peat is deposited will drain to a perimeter swale, which will drain to settlement ponds. This drainage is designed to ensure the deposited peat does not become saturated.

9 HYDROLOGY AND DRAINAGE

The proposed peat deposition area at Srahmore is situated within the catchment of the Owenmore River. This watercourse flows approximately 140m to the south of the nearest edge of the proposed peat deposition area.

The Oweninny River flows southwards from Slieve Fyagh and is joined by the Altnabrocky River, which flows north from the Nephin Beg Range. The Oweninny River then flows in a westerly direction from Bellacorick to its discharge point at Tullaghan Bay. The proposed peat deposition area is located at the lower catchment zone of the river, approximately 3km from the discharge point of the watercourse at Tullaghan Bay.

A tributary of the Owenmore River, the Munhin River flows in a southerly direction and joins the Owenmore River approximately 1.2km to the west of the proposed peat deposition area. The Munhin River flows through the blanket bog terrain that has been subject to peat extraction in the past. The closest edge of the proposed peat deposition area to the Munhin River is approximately 750m.

The main drain from the Bord na Móna property discharges to the Munhin River approximately 1km south of the R313.

The site has been divided into a number of worked areas, referred to as bays. Within each bay linear artificial drains have been excavated at a spacing of approximately 15m, parallel to the high fields, to a depth of approximately 0.5m to 1m. Water runoff captured in the bays is transmitted offsite through culverts.

The water draining from the bays is discharged via culverts to adjoining watercourses following settlement in ponds (prior to discharge) or in settling ponds (following discharge) to lower the sediment content.

Existing water quality data, derived from EPA surveys, shows that the Owenmore River water quality was considered satisfactory over its entire length, With regard to the Munhin River, the EPA survey indicates that the water quality is slightly polluted at the sampling point just upstream of the confluence with the Owenmore River. Turbidity has always been a recorded feature of the River Munhin water quality with flows in the Munhin highly influenced by Carrowmore Lake.

In addition to the EPA surveys extensive groundwater and surface water baseline sampling has been carried out on and adjacent to the proposed site. The quality of the groundwater found below the Srahmore site is generally consistent with the established geological structure and reducing peatland environment.

The surface water quality is quite good. However it does not naturally meet drinking water standards. The elevated concentration of ammonia, which is considered to result from the environment in which the water flows, would render the water unsuitable for potable supply. The high suspended solid concentrations are considered to result from the historical activities undertaken within the site. Remedial measures to remove sedimentation from the stream bed were being undertaken during the surface water sampling survey.

The principal potential impact as a result of the development is considered to relate to an impact of the surface water quality as a result of sediment laden runoff from exposed peat surfaces, which could result in siltation of a watercourse bed. The design of the facility has taken account of the potential impacts of the development and the risks to the surface water environment.

During consultations with statutory bodies and various interested parties, the importance of maintaining and/or improving the surface water quality was stressed. The mitigation measures are proposed to ensure that all water generated by rainfall is captured, controlled, and outfalls are regulated through settlement structures to ensure the adjacent watercourses are not impacted by sediment laden runoff as a result of the development.

Temporary and permanent water control measures, comprising temporary sediment control measures and permanent settlement ponds, are proposed to control the quality of any water discharged from the site.

Regular monitoring of both surface water and groundwater in accordance with the conditions of the waste licence will be carried out at the site to ensure that the control measures are effective.

A second significant potential impact is the stability of the peat mounds when placed in the site. The effective drainage of the peat mounds, the limiting infiltration of rainwater into the mounds and the expected growth of rushes will significantly reduce the risk of the deposited peat impacting on the surrounding aquatic environment.

10 EFFLUENT

The potential sources of effluent within the site are considered to result from human and/or mechanical activity onsite.

The principal source of potential effluent will be at the reception area, where an office/canteen building is proposed for the onsite operatives. Toilet facilities and washwater are considered as effluent. The vehicular activity in the peat reception area also poses a risk with respect to uncontrolled emissions, through leakages or accidental spillage of potentially polluting material.

In order to minimise the generation of effluent within the site a number of proposals have been incorporated into the design of the facility. With respect to the office/canteen building, it is proposed that chemical toilets will be installed to eliminate the generation of toilet effluent. All washwater will be collected in a holding tank, which will be emptied periodically by an approved contractor and exported from the site to an approved wastewater treatment plant. These measures will ensure that there is no discharge of wastewater or domestic sewage to the receiving environment.

The peat reception area will be fully bunded and will be laid to falls such that any precipitation/surface water runoff is channelled toward a concrete open drain at the centre of the reception slab. The runoff from the slab will be culverted through a deep settlement tank to allow primary settlement of sediment. The runoff water will be then diverted through a grit trap (secondary settlement) and oil interceptor, to ensure that any potentially polluting material is retained at source.

11 AIR

Monitoring was carried out in the vicinity of the site for dust, nitrogen dioxide, benzene, sulphur dioxide, total volatile organic compounds and fine particulates. The results generated show that the air quality in the region is very good, with pollutant levels well below the relevant air quality standards. This is as expected for a rural area with little road traffic and few industrial sources of air pollutants.

Emissions to atmosphere will arise as a result of the transfer of peat from the Bellanaboy Bridge terminal site to the peat deposition at Srahmore by the following;

- Dust may be generated during the positioning of peat at the depository. If uncontrolled, elevated dust deposition can occur beyond the site boundary and lead to complaints arising from soiling of property, and
- Haulage and onsite vehicles and equipment will also generate exhaust fumes.

Dust will be mitigated by the application of best practice dust suppression and containment techniques including the prevention of dust accumulation and ensuring dusty materials are either moist or sheeted. A wheel wash will be provided for vehicles leaving the site. The main access road will be black topped and cleaned as required.

Traffic emissions will be minimised through appropriate vehicle maintenance and route selection to and from the peat deposition site. Existing dust deposition monitoring will be continued at the site during construction and the period of peat deposition to ensure proposed mitigation measures are effective.

As a result of this study, atmospheric emissions resulting from the peat deposition site are not deemed likely to have a significant impact on the local environment either through emissions from vehicles or from dust generation. No significant air quality impacts are predicted to arise from the peat deposition site.

12 NOISE

The scale of the proposed development is such that there will be an inevitable noise impact generated by the transfer of material to the site and movement within the site.

Mitigation of the inevitable noise generated by the construction phase will be required to protect the amenity of the dwellings immediately opposite the site. This will be achieved using a combination of good site practice, use of modern methods and equipment (which complies with EU directive 2000/14/EC) and expeditious site management to minimise the duration of noise exposure.

Local residents will be given prior notice of any specific activities or processes likely to generate unusually high noise levels. Contact details for the person responsible for day-to-day management of the site will also be made available through the Corrib Natural Gas Information Office.

Noise emissions from the site throughout the six month deposition process are not expected to be excessive considering the location and previous history of the site, and the projected duration of the scheme.

A form of mitigation is provided by prevailing wind conditions; which promote noise propagation in the direction of the higher ambient noise levels (close to the R313) and generate significant background noise.

In accordance with methodologies recommended by several authorities within the Republic, general control of noise emissions from the site will be provided by observing the guidance given in BS5228 'Noise Control on Construction and Open Sites', and by using modern and well-maintained plant and vehicles.

Peat lorry movements along the L1204 local road will result in a moderate to high short-term noise impact along that route. A package of mitigation has been defined in order to minimise this impact and is summarised as follows:

- Road surface works will be carried out in the areas identified by the road condition survey as *'mitigation required'* (two sections identified)and a need for them will be investigated in the areas defined as *'mitigation may be required'*.(two such sections identified)
- In addition, road sections in which physical features have raised concerns, which cannot be addressed by resurfacing works, will be subject to a speed restriction for site traffic of 30 mph.

- Drivers on the peat haul route will be given clear instructions on considerate use of the local roads and will be required to comply with the proposed traffic management plan.

With the above mitigation measures in place the negative impact of the proposed development as a result of noise is expected to be greatly reduced.

13 LANDSCAPE AND VISUAL

Area 5, the peat reception area, will be in short-term use for the duration of the peat reception activity and for some years thereafter for monitoring purposes until the peat has fully stabilised. Actual peat importation is expected to take up to 6 months (though timeframe is weather dependent and may be spread over two seasons) and thereafter any temporary buildings and ancillary facilities will be removed. The entrance off the R313 Bangor – Belmullet Road and the associated site roads will be retained during the stabilisation period.

Area 6, the peat deposition area, is a saucer shaped, cutover peatland set lower than the surrounding fringe peatland habitats. A number of 'high fields' located within the area are some 1 to 2 m higher than the adjoining 'low fields'. The deposition of the peat will see the low areas (bays) covered to depths of on average 1.4-1.8m. It is envisaged that complete re-vegetation of the peat will take up to 5 years primarily by soft rush (*Juncus effusus*). Thereafter it is proposed to monitor and evaluate various options, which may include re-wetting in order to facilitate reinstatement of peat forming conditions.

Introduction of peat onto the site will initially entail cambering the surface of the deposited peat and installation and maintenance of a competent drainage system. Following cessation of the temporary peat importation/reception activities the proposed development will have no adverse impact. The gradual re-vegetation of the cutover peatland will have a positive impact in terms of landscape rehabilitation and visual integration.

14 CLIMATE

The emissions associated with the Srahmore deposition site activities that have the potential to affect or contribute to global warming (releases of 'greenhouse' gases, GHGs) include vehicular emissions and to a much lesser extent potential peat related emissions. No releases are anticipated that can lead to other regional or global air quality issues such as ozone depletion.

GHG releases during peat excavation/ transfer and deposition will not be significant. Any releases from the proposed deposition site in combination with the Bellanaboy Bridge gas terminal should be viewed in the context of:

- the benefits of providing a secure and indigenous supply of natural gas. The combustion of natural gas releases lower global warming emissions in comparison to alternative fossil fuels;
- the requirement to minimise releases during the transfer and deposition of peat;
- the incorporation of peat from the Bellanaboy site on to a cutover peatland and subsequent rewetting would result in the formation of a net carbon sink.

15 ARCHAEOLOGY

An extensive archaeological assessment was carried out at the proposed site. The archaeological assessment was conducted in order to determine if any previously unrecorded sites exist. The assessment involved a walkover survey of the site of the proposed development, concentrating on the areas of cutover peatland, drain faces and remaining high peat banks, where it would be possible to identify archaeological features more readily. No evidence of archaeological remains or features was identified.

It is predicted that the development will not have a significant archaeological impact. It is possible however that some stray finds may be uncovered during the construction. The imported peat will provide extra cover for any potential archaeological material as well as guaranteeing long-term preservation in situ.

A suitably qualified archaeologist will monitor any soil disturbance in the activity area. Any mitigation measures proposed herein or resulting from any further studies are subject to ratification by The Heritage and Planning Division of the Department of Environment, Heritage and Local Government.

16 MATERIAL ASSETS

The peat removal phase will involve the removal of circa 450,000m³ of peat from the gas terminal development site and relocation to the peat deposition site. It is envisaged that the peat removal process will take place over a 6 month period. The process however is weather dependant and may need to take place over two seasons.

It is estimated that up to 18,000 m³ of construction materials (mainly granular material such as gravel) will be required to construct the proposed deposition facility. The majority of importation of this construction material will take place before any peat is moved from the terminal site. It is anticipated that this material will be imported from a local quarry.

A detailed network inventory was undertaken for all roads in the vicinity of the proposed peat deposition site. As well as examining the pavement condition and carriageway design of all links, the geometry of each individual junction was also recorded to determine any remedial measures, which might be required.

Based on these surveys the options for transporting the peat from the terminal site to the deposition area were examined before a preferred route was chosen. This was subsequently subjected to more detailed surveys and analyses.

The route recommended to be used to transport peat from the gas terminal site to the peat deposition site is the regional road the R314 to County Road L1204; County Road L1204 to the regional road the R313; and thence to the peat deposition site access road.

Trucks on the return journey to the gas terminal will turn left on exiting the peat deposition site onto the regional road R313, then turn right onto the minor road L12044, turn left onto County Road L1204, and finally turn right onto the R314 off which access is gained to the gas terminal site.

An analysis, carried out in order to determine if the junctions have sufficient capacity to accommodate the traffic volumes, has demonstrated that the study area road network can adequately cater for the traffic volumes generated by the proposed development.

The main impact of the construction vehicles will be in the context of possible damage to the pavement due to the amount of traffic using the route during the peat deposition phase.

This haul road will be strengthened to mitigate against the damaging effects of the heavy goods vehicles (HGVs) on the road pavement and structures along the route. The extent of strengthening works has been agreed as part of the pre-planning discussions with Mayo County Council. Where necessary the haul route will be widened to ensure that vehicles can pass safely and again the extent of the road widening has been agreed with Mayo County Council.

A traffic / transportation plan has been prepared to assess and control the movement of vehicles during the construction phase. This plan has been discussed and broadly agreed with both Mayo County Council and the Gardai.

Whilst it has been demonstrated that the road network and proposed haulage routes can cater for the overall traffic generated by the scheme, it is important to minimise the overall affect on the residents and general environment within the study area. With this in mind, a Traffic Management Strategy has been developed to actively control the number and types of vehicles arriving/departing from the development sites.

In summary, the development at Srahmore will not have any significant traffic effects when the peat deposition is complete. During the construction and peat deposition phases the volumes of traffic can be catered for on the road network as demonstrated in the junction analysis results and a specific haul route has been identified.

Proposed construction activities including construction of the access road, peat reception area, accommodation area and internal site haul roads will require road / surfacing materials. However the material requirements are not significant and given proposed mitigation measures including the reuse of construction materials the environmental impacts associated with the use of road / surfacing construction materials are judged to be insignificant.

Service and potable water for the peat deposition site will be provided by connecting to the mains supply running along the R313. No significant environmental impact is anticipated from this activity.

Where waste is generated at the peat deposition site it will be stored securely, transported and ultimately disposed of in strict accordance with EU and Irish legislation. On-site waste management will ensure that these materials cannot be released into the environment at the peat deposition site.

17 CUMULATIVE IMPACTS

Potential impacts of each aspect considered under the scope of the EIA, have been outlined individually in the Peat Deposition Site and Bellanaboy Bridge Terminal Volumes of this the EIS. Mitigation measures have been identified and outlined. However, in any development with the potential for environmental impact there is also potential for interaction between impacts of each environmental aspect. The results of these interactions may either increase the magnitude of the impact or may in fact decrease it. These interactions are also described in this EIS.

While there is potential for the impacts to interact and result in a cumulative impact, it is unlikely as a result of the various mitigation measures proposed for the development that any of these cumulative impacts will result in significant environmental degradation. It is likely that the overall cumulative impact of the development will be positive.

The project team for the Peat Deposition Site and Bellanaboy Bridge Terminal will work closely with the managers the other elements of the Corrib Field development project as well as of other concurrent development projects to pre-empt and resolve any conflicts in terms of use of materials, waste disposal, traffic management etc. It is understood that an environmental monitoring group will be established by the relevant authorities to monitor developments across the Corrib project including to review progress, impacts and other issues arising during the construction, peat deposition and stabilisation phases for the Srahmore site.

18 SUSTAINABLE DEVELOPMENT

Sustainable development is a very broad concept that has become widely used in recent years particularly following the Earth Summit in Rio de Janeiro in 1992. Ireland's National Sustainable Development Strategy, published in 1997, aims

"to ensure that the economy and society in Ireland can develop to their full potential within a well protected environment, without compromising the quality of that environment and with responsibility towards present and future generations and the wider international community"

As sustainable development is measured at a project wide level, the development of the terminal and associated peat deposition site was considered as a whole, rather than considering the peat deposition site in isolation.

As well as complying with national goals through the planning process, Shell aims to contribute to sustainable development in their activities in Ireland in full compliance with the requirements of the Shell Group Sustainable Development Principles (July 1999). Bord na Móna's environmental policy supports several principles which align with Shell Group principles in regard to Sustainable Development.

In order to apply these principles to the development of the terminal and associated peat deposition, a sustainability appraisal has been carried out using a sustainability checklist. The Building Research Establishment (BRE) in the UK has developed this checklist.

Further assessment of the extent to which the project complies with Ireland's National Development Objectives was carried out as follows

- *Promotion of Energy Efficiency in Industry:* The terminal equipment installations have been chosen to optimise power generation and minimise power and fuel consumption. The project supports Ireland's proposed National strategic fuel switch from solid fuel and oil to natural gas and renewables.
- *Nitrogen Oxide and Sulphur Oxide Emissions Limited:* As the terminal will serve to encourage a national fuel switch from oil and coal towards gas, this is likely to result in lower NOx and SOx levels nationally.
- *Increased Focus on Waste Prevention and Minimisation:* A waste management plan has been developed for construction and operation phases.
- *Producer Responsibility to Encourage Reuse and Recycling of Wastes:* The project will take excavated peat to a cutover peatland where it will be stabilised and integrated into a replacement peatland habitat. The material, which will be removed during decommissioning, will be recycled or disposed of at landfill.

The project will increase competitiveness in the domestic energy market and will help ensure security of gas supply for Ireland throughout the life of the field. It will also provide balanced regional development by promotion of the Northwest of Ireland.

19 ENVIRONMENTAL MANAGEMENT SYSTEMS

Bord na Móna seeks to conduct all aspects of its business in an environmentally sensitive manner. It is committed to the compilation of information on all aspects of its impact on the environment, and making this information available to the public.

The company has established a draft Environmental Management System (EMS) for this development, which specifically addresses the following impacts:

- Discharges to water
- Emissions to atmosphere
- Waste disposal/minimisation
- Noise, vibration, dust and visual effects
- Use of natural resources
- Natural environment and ecosystem effects
- Continuous environmental improvement programmes

The EMS will also address the following elements.

- Incident reporting and investigation
- Roles and Responsibilities
- Training and Competence
- Document Control
- Records

The draft EMS will be finalised following grant of Planning Permission and Waste Licence. Any conditions resulting from both the Planning Permission and Waste Licence will also be included.

The environmental management system will be monitored and continually improved. A system of regular environmental audits will be established, and the company will continue to invest in research into its impact on the natural environment.