

APPENDIX 8.7
Stability Assessments 2007 and 2010
TOBIN Consulting Engineers

BORD NA MÓNA 

COPY

SRAHMORE PEAT DEPOSITION SITE

CO. MAYO

STABILITY ASSESSMENT

December 2007

TOBIN CONSULTING ENGINEERS



TOBIN
Patrick J. Tobin & Co. Ltd.

REPORT

PROJECT:

**Strahmore Peat Deposition Site
Co. Mayo
Stability Assessment**

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1 INTRODUCTION

TOBIN Consulting Engineers have been requested by Bord na Móna to carry out a stability assessment of the Srahmore Peat Deposition Site.

The site is a cutover bog located about 1km west of Bangor-on-Erris in North West County Mayo.

Bord na Móna have completed a rehabilitation plan for the site which involved the importation of some 448,000m³ of Peat, sourced from the Corrib Terminal site at Bellnaboy, and its deposition and revegetation at the site.

A detailed Geotechnical Investigation and risk assessment was carried out prior to commencement of the works. These studies concluded that there were no significant risks with respect to major failure or instability associated with the works.

2 DESCRIPTION OF DEVELOPMENT

Overall the site is a low-lying saucer shaped depression of cut peatland, which is surrounded by perimeter banks. The site slopes gently from east to west from 20.5mOD to 14.0mOD grading at a very shallow angle of 1.8 degrees.

The deposition area is subdivided into seven bays by a series of ENE/WSW trending high fields. These high fields are typically 14m wide and about 130m apart and have been used as haul roads for the deposition of peat into the bays. V-ditch drains were cut in the floor of the bays at 15m intervals prior to deposition and at the base of the high fields, to control surface water runoff.

The development consists of:

- Access road from the R313
- Peat reception/transfer area
- Peat deposition area
- Internal drainage channels, settlement ponds and a south-western swale

The peat deposition area is subdivided into seven Bays. The status of the bays at the time of the assessment was

Bay 1, 6 & 7	No Deposition
Bay 2	Approximately 50% filled
Bay 3,4 & 5	Filled

The site has received and placed some 448,000m³ of PEAT from the Bellnaboy Terminal between May 2005 and June 2007.

3 DESCRIPTION OF DEVELOPMENT

The following information was used in the stability assessment

- Site Walkover
- Previous site walkovers in December 2003, January 2005 and September 2006
- Ground Investigation Report
- Pre-construction slope stability reviews and report
- As built plan of the deposition area

4 SITE WALKOVER

A site walkover was carried out on the 1st December 2007 to establish the condition of the perimeter of the deposition area and the peat within the bays, internal haul roads along the high fields, access road from R313, drainage network and settlement ponds.

Each section of the works was inspected and its stability status is described below:

4.1.1 Peat Reception Area

The Access Road was constructed using geogrids and rockfill resting directly on peat. The peat is generally less than a 1.0m thick except under the northern section of the access road where it is up to 6.0m deep.

Cracks and localised wheel ruts are evidence of damage to the wearing coarse were present particularly on the east side of the road.

The access road has proved fit for purpose during the importation of peat and is in a satisfactory condition to provide continuing access for maintenance vehicles

4.1.2 Peat Reception Area

These structures have been founded directly onto mineral soil. No evidence of distress to the slab and associated buildings was observed

Internal Haul Roads.

The haul roads have been placed predominantly along the high fields and consist of rockfill supported by biaxial geogrids.

Throughout the site the haul roads have been well maintained and are in good condition.

4.1.3 Deposited Peat

The Peat placed in Bays 2,3,4 and 5 is at it's maximum thickness, about 1.5m thick, in the centre of each of the bays thinning towards it's margins. The deposited peat is not loading the internal high fields. The upper surface of the peat is dry, firm with numerous desiccation cracks. The peat is densely covered by rushes, which have colonised the imported peat. V-ditch drains have been excavated in the

deposited peat, which are linked to deep edge drains at the base of each high field. V-Ditch drains are present on the north and south of each bay. The drains are open and functioning well in each Bay

The peat within each bay is contained by the high fields and there was no evidence of any movement or slumping of the deposited peat

The outer perimeter of the deposition area was inspected and no evidence of instability was observed

4.1.4 Settlement Ponds

Two pairs of rectangular settlement ponds are present in Bay 6 and North East of Bay 6. The exposed side walls of the ponds are in good condition and no indication of distress in the peat was noted

4.1.5 South Western Swale

This is a deep wide drain lined with plastic sheeting at the south-western end of the Bays. No bulges or cracks in the plastic liner were observed and no tension cracks were present at the crests of the Swale.

5 CONCLUSIONS AND RECOMMENDATIONS

The works have been carried out in accordance with the rehabilitation plan.

There is no indication of instability in the internal high fields, perimeter high fields, deposited peat and drainage network.

The deposited peat is contained within each bay. In it's current condition the risk of a mass of deposited peat flowing out of Bays 2,3,4 & 5 and entering the surrounding watercourses is very low.

In the deposition area the maintenance of the drainage network is critical to ensure the continued stability of the deposited peat. Bord na Móna have confirmed that they are monitoring the drainage system and that plant is available to re-open drains where sections of the side walls of drainage channels collapse.

APPENDIX 1

Photographs

Localised cracks and rutting Haul Road
Haku Tractor Peat Deposition area
Bay 1 Empty
Bay 2 North End partly filled with peat in 2005
Southern end of Bay 2 empty
High Field between Bay 3 and Bay 4
Bay 4 North Drain
Bay 5 Heavily vegetated
Bay 5 South Western Boundary
High Field Bay 5 and 6
High Field Bay 6 and 7
Condition of deposited peat
Settlement Ponds North Eastern End Bay 6
South Western Swale



Localised cracks and rutting Haul Road



Haku Tractor Peat Deposition Area



Bay 1 Empty



Bay 2 North End partly filled with peat in 2005



Southern end of Bay 2 empty



High Field between Bay 3 and Bay 4



Bay 4 North Drain



Bay 5 Heavily vegetated



Bay 5 South Western Boundary



High Field Bay 5 and 6



High Field Bay 6 and 7



Condition of deposited Peat



Settlement Ponds North Eastern End Bay 6



South Western Swale



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SRAHMORE PEAT DEPOSITION SITE

CO.MAYO

STABILITY ASSESSMENT

MARCH 2010

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- 1.0 Introduction
- 2.0 Description of Development
- 3.0 Information Sources
- 4.0 Site Walkover
- 5.0 Conclusions and Recommendations

Appendices

- Appendix 1 Photographs

1.0 INTRODUCTION

Tobin Consulting Engineers have been requested by Bord na Mona to carry out a visual stability assessment of the Srahmore Peat Deposition Site.

The site is a cutover bog located about 1km west of Bangor-on-Erris in North West County Mayo.

Bord na Mona have completed a rehabilitation plan for the site which involved the importation of some 448,000m³ of Peat, sourced from the Corrib Terminal site at Bellnaboy, and its deposition and revegetation at the site.

A detailed Geotechnical Investigation and risk assessment was carried out prior to commencement of the works. These studies concluded that there was no significant risks with respect to major failure or instability associated with the works.

2.0 DESCRIPTION OF DEVELOPMENT

Overall the site is a low-lying saucer shaped depression of cut peatland which is surrounded by perimeter banks. The site slopes gently from east to west from 20.5mOD to 14.0mOD grading at a very shallow angle of 1.8 degrees.

The deposition area is subdivided into seven bays by a series of ENE/WSW trending high fields. These high fields are typically 14m wide and about 130m apart and have been used as haul roads for the deposition of peat into the bays. V-ditch drains were cut in the floor of the bays at 15m intervals prior to deposition and at the base of the high fields, to control surface water runoff.

The development consists of;

Access road from the R313

Peat reception/transfer area

Peat deposition area

Internal drainage channels, settlement ponds and a southwestern swale

The peat deposition area is subdivided into seven Bays. The status of the bays at the time of the assessment was

Bay 1, 6 & 7	No Deposition
Bay 2	Approximately 50% filled
Bay 3,4 & 5	Filled

The site has received and placed some 448,000m³ of PEAT from the Bellnaboy Terminal between May 2005 and June 2007.

3.0 INFORMATION SOURCES

The following information was used in the stability assessment

- Site Walkover
- Previous site walkovers in December 2003, January 2005, September 2006 and December 2007
- Ground Investigation Report
- Pre-construction slope stability reviews and report
- As built plan of the deposition area

4.0 SITE WALKOVER

A site walkover was carried out on the 1st March 2010 to establish the condition of the perimeter of the deposition area and the peat within the bays, internal haul roads along the high fields, access road from R313, drainage network and settlement ponds.

Each section of the works was inspected and its stability status is described below:

Access Road from R313

The Access Road was constructed using geogrids and rockfill resting directly on peat. The peat is generally less than a 1.0m thick except under the northern section of the access road where it is up to 6.0m deep.

Cracks and localised wheel ruts are evidence of damage to the wearing coarse were present particularly on the east side of the road. Slight rotation of the lighting columns was also observed

The access road has proved fit for purpose during the importation of peat and is in a satisfactory condition to provide continuing access for any further works

Peat Reception Area

These structures have been founded directly onto mineral soil. No evidence of distress to the slab and associated buildings was observed

Internal Haul Roads.

The haul roads have been placed predominantly along the high fields and consist of rockfill supported by biaxial geogrids.

Throughout the site the haul roads have been well maintained and are in good condition.

Deposited Peat

The Peat placed in Bays 2,3,4 and 5 is a maximum of 1.50m thick in the centre of each bay thinning to less than about 0.50m toward it's margins. The deposited peat is not loading the internal high fields. The upper surface of the peat is dry, firm with numerous desiccation cracks. The peat is densely covered by rushes which have colonised the imported peat. V-ditch drains have been excavated in the deposited peat which are linked to deep edge drains at the base of each high field. V-Ditch drains are also present on the north and south of each bay. The drains are open and functioning well in each Bay

The peat within each bay is contained by the high fields and there was no evidence of any significant movement or slumping of the deposited peat

The outer perimeter of the deposition area was inspected and no evidence of instability was observed

Settlement Ponds

Two pairs of rectangular settlement ponds are present in Bay 6 and North East of Bay 6. The exposed side walls of the ponds are in good condition and no indication of distress in the peat was noted

South Western Swale

This is a deep wide drain lined with plastic sheeting at the south western end of the Bays. No bulges or cracks in the plastic liner were observed and no tension cracks were present at the crests of the Swale.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The works have been carried out in accordance with the rehabilitation plan.

There is no indication of any significant deterioration in the stability the perimeter high fields, deposited peat and drainage network since the site was last inspected in December 2007.

The deposited peat is contained within each bay. In it's current condition the risk of a mass of deposited peat flowing out of Bays 2,3,4 & 5 and entering the surrounding watercourses is very low.

In the deposition area the maintenance of the drainage network is critical to ensure the continued stability of the deposited peat. Bord na Mona have confirmed that they are monitoring the drainage system and that plant is available to re-open drains where sections of the side walls of drainage channels collapse.

APPENDIX 1

PHOTOGRAPHS



Condition of Access Road from R313



Peat Reception Area



Bay 2 Partly Filled with peat



Bay 2-3 High field and western internal drain



Bay 3-4 High Field Southern End



Bay 4 Open Drain Southern Boundary



Bay 4-5 High Field Southern End



Bay 5-6 High Field Southern End



Condition of Deposited Peat



V-Ditch Drain North of Bays 2, 3 and 4



V-Ditch Drain South of Bay 2



Double V-Ditch Drains Southern End of Bays 3 and 4



Partly Lined SW Swale South of Bay 5



Settlement Ponds Bay 6



Settlement Ponds NE of Bay 6