# KINGSCOURT TO WOODLAND 400kV POWER LINE

# ADDENDUM REPORT

**May 2008**

**Prepared for EirGrid by SOCOIN/TOBIN Consulting Engineers**

TOBIN CONSULTING ENGINEERS

SOCOIN

TOBIN
Patrick J. Tobin & Co. Ltd.

# REPORT

**PROJECT:** **Kingscourt to Woodland 400kV Power Line**

**CLIENT:**

EirGrid Plc
27 Lower Fitzwilliam St
Dublin 2
Ireland

**COMPANY**

**TOBIN Consulting Engineers**

Block 10-4

Blanchardstown Corporate Park

Dublin

**www.tobin.ie**

## DOCUMENT AMENDMENT RECORD

**Client:** EirGrid

**Project:** Kingscourt to Woodland 400kV Power Line

**Title:** Addendum Report

| PROJECT NUMBER: 2990 | | | | DOCUMENT REF:2990- 01-05 | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| 01 | Addendum Report Final | MH | 080508 | DG | 080508 | DG | 080508 |
| 001 | Addendum Report (DRAFT) | MH | 290408 | DG | 010508 | DG | 010508 |
| **Revision** | **Description & Rationale** | **Originated** | **Date** | **Checked** | **Date** | **Authorised** | **Date** |
| **TOBIN Consulting Engineers** | | | | | | | |

# TABLE OF CONTENTS

## List of Tables



## List of Figures

# 1 INTRODUCTION

Socoin with TOBIN Consulting Engineers were commissioned by EirGrid to prepare a Constraints Report for the construction of a new 400kV power line to connect the existing Woodland Station (near Dunshaughlin, County Meath) and the site identified for the new substation near Kingscourt, County Cavan. The study area consists of the broad geographical area within which the route corridors are located and stretches from Woodland in County Meath to the area near Kingscourt in County Cavan. This Constraints Report was furnished to EirGrid in July 2007.

This Constraints Report details the options considered for potential overhead line route options between the above mentioned termination points. The methodology employed for the identification of three route options was a combination of desktop studies, consultation with interested parties and site visits. The site visits served to verify road and river crossings and noted any areas where there were potential conflicts. Subsequent to the site visits revised route options were modified and mapped.

Figure 11.2 “Kingscourt to Woodland Combined Constraints Mapping with Classified Route Corridor Options”, completed as part of the Constraints Report.

The purpose of this Addendum to this Constraints Report is to complete the Constraints Report by updating the information contained in and to provide information on:

- Any additional studies that have been completed since the production of the Constraints Report, including the Whooper Swan study.
- Public Consultation - Socoin/Tobin attended the Open Days in order to identify the public concerns and obtain local information. Socoin/Tobin also reviewed all submissions received by members of the Public to the Stakeholder Consultation Group. Socoin/Tobin verified all information received during this process.
- All new planning applications lodged and buildings that have been constructed in the past twelve months and identifies the impact of these on the existing line route options.

# 2 PLANNING

## 2.1 STRATEGIC PLANNING CONTEXT

The National Spatial Strategy (NSS) has recognised Drogheda and Navan as part of the Dublin hinterland, and has designated Dundalk as a gateway and Cavan and Monaghan as hubs. The area is well served by updated road and rail infrastructure and by the gas network. It is therefore clear that the area will continue to see strong economic growth and thus there will be an increase

in electricity demand. It is also the main conduit for power flows to and from Northern Ireland, which can be expected to increase following the construction of the additional Cavan – Tyrone 400kV powerline.

In addition recent studies have shown that as a result of increasing demand for electricity in this region, and that, with the present network, it will not be possible to maintain a good quality and reliable electricity supply into the future in the North East Region.

# 3 KEY CONSTRAINTS

## 3.1 SOCIO-ECONOMIC

The increase in population in the North East Region is currently putting pressure on the existing electricity infrastructure in this region. Therefore this proposed power line is required to meet the growing demands of the population.

The relatively large number of farmers in this region (average farm size of approximately 50ha) will result in a large number of farmers who may be impacted upon by the proposed development. However the impact will be low, with a small loss of land area as a result of the construction of the proposed power line development. There will be some minor impacts to sensitive and vulnerable landscapes, however where feasible these areas will be avoided. There will be some impacts during construction including noise and additional traffic volumes. The proposed development will have a positive long-term impact on this region as it will ensure security of supply to the North East Region.

Since the Constraints Report was completed in July 2007, a number of new planning applications have been submitted and new houses have been constructed in the study area. In order to address this issue and bring the database up to date (April 2008) the following was completed for all route corridor options:

- Update the GeoDirectory database to include for all new buildings;
- Review of new planning applications in the local authority office; and
- Windscreen Survey to identify new buildings that have been built and verify the updated GeoDirectory points.

The **GeoDirectory** update included an update of all buildings within each of the 1km wide route corridor options. This update identified a number of new buildings within each of the route corridor options. However within close proximity to the proposed route lines only four new buildings were identified.

The **review of the Planning Applications** in the local authority office highlighted a number of new planning applications within the three route corridor options. While the majority of these were previously mapped, this search allowed for verification of all planning applications within the last two years. From this search it was identified that three new planning applications for dwellings were located in close proximity to the proposed route lines.

During the **windscreen survey** all road crossings (i.e. where the proposed power lines crossed a road) were identified. The windscreen survey allowed each road crossing to be examined in order to identify any new planning applications that were located in close proximity to the proposed route lines. The windscreen survey also verified the location of the new GeoDirectory points and the planning applications identified during the review in the local authority office.

The above studies allowed for all new buildings that have applied for planning permission, granted planning permission or are currently under construction to be identified since the production of the Constraints Report in July 2007. As a consequence of this, the proposed route lines in all of the three route corridor options were modified in certain locations (6 No. modifications in total) to ensure that all buildings are located at a distance of at least 50m from the proposed route options.

Refer to Figure 5.1 Rev B: "Updated Commercial & Residential Building Locations & Planning Applications". This Figure includes for modifications to the route lines to ensure that all buildings are located at a distance of at least 50m from the proposed route options. It should be noted that this distance of 50m is an aspirational figure set having consideration for amenity issues.

## 3.2 LANDSCAPE

As part of the Constraints Report a desktop study of the Draft Meath County Development Plan 2007-2013 and the County Cavan Development Plan 2003-2009 including relevant published literature was carried out. Key landscape characteristics such as vegetation, major and minor ridgelines, land uses, designations and settlement areas were mapped using Ordnance Survey 1:50,000 mapping as a background.

The Constraints Report highlighted the following points:

***Route Option 1***

- Very high or high sensitivity viewsheds are not crossed by this route option;

- This route option traverses a medium sensitivity viewshed for 2.3km;
- This route option crosses Existing Driving Routes, Waymarked Paths and Cycle Routes three times compared to four by each of the other route options;
- This route option traverses an area of high sensitivity to power lines for 25.8km*; and
- Roads are crossed 39 times.

***Route Option 2***

- Very high or high sensitivity viewsheds are not crossed by this route option;
- This route option traverses a medium sensitivity viewshed for 6.2km;
- This route option traverses an area of high sensitivity to power lines for 21km*; and
- Roads are crossed 39 times.

***Route Option 3A***

- Very high, high or medium sensitivity viewsheds are not crossed by this route option;
- This route option traverses an area of high sensitivity to power lines for 20.5km*; and
- Roads are crossed 35 times.

***Route Option 3B***

- Very high, high or medium sensitivity viewsheds are not crossed by this route option;
- Major rivers are only crossed two times;
- This route option traverses an area of high sensitivity to power lines for 20.6km*; and
- Roads are crossed 33 times (which is the lowest number of the four route options).

In relation to "Landscape" no changes occurred in the interim period; therefore no modifications to the route lines are required.

* The Landscape Capacity Map of the Meath Landscape Character Assessment (Meath County Development Plan) rates the capacity of each Landscape Character area in County Meath to accommodate power lines.

## 3.3 ECOLOGY

For the Constraints Report the National Parks and Wildlife Services (NPWS) database of designated nature conservation areas was reviewed to identify any designated sites lying within five kilometres of the proposed route options. The publication *'Ireland's Wetlands and their Waterbirds: Status and Distribution'* by O Crowe, published by Birdwatch Ireland in 2005 was examined to identify sites that are not designated for nature conservation but are regularly used by numbers of birds.

The Constraints Report highlighted the following points:

***Route Option 1*** crosses the River Boyne and River Blackwater candidate Special Area of Conservation (cSAC) at three separate locations. Two areas designated as Natural Heritage Areas (NHA) and one other cSAC (Killyconny Bog) lie within five kilometres of this route. Also two Wintering Bird Sites lie in close proximity. Based on this literature review this route has no impact on the Whooper Swan flock that winters between Kells and Navan.

***Route Option 2*** crosses the River Boyne and River Blackwater cSAC at two separate locations and lies within three kilometres of Killyconny Bog cSAC. Two Wintering Bird Sites occur within five kilometres of route option 2. Based on this literature review this route option has no impact on the Whooper Swan flock that winters between Kells and Navan.

***Route Option 3*** (3A and 3B have similar consequences). This route option is the most easterly of the routes. It crosses the River Boyne and River Blackwater cSAC at two separate locations and it also lies within three kilometres of two NHAs. This route option also passes within five kilometres of four Wintering Bird Sites and through the Blackwater Valley between Kells and Navan, with a potential to impact on the wintering Whooper Swan flock.

The main ecological constraints are the presence of sites designated as nature conservations, and in particular, the River Boyne and Blackwater. Route Option 1 crosses the River Boyne and River Blackwater cSAC at three separate locations, while Route Options 2 and 3 cross these rivers at two locations. Further studies should be carried out at a later stage to determine which habitats are present at these crossing locations in order to avoid any impacts on priority habitats.

### *3.3.1 Further Studies*

Subsequent to the Constraints Report in July 2007, field studies were undertaken between November 2007 and March 2008 to determine the numbers and distribution of Whooper swans within the study area that includes the route corridor options for the proposed Woodland to Kingscourt 400kV overhead power line.

#### 3.3.1.1 Whooper Swans Studies

Studies were undertaken between October and April as Whooper swans are winter migrants to Ireland, generally arriving in October and leaving to return to their breeding ground in late March/early April. A desktop study showed that Whooper swans have been recorded feeding and roosting at sites, chiefly in the valley of the river Blackwater, between Kells and Navan in this study area. In addition information from the Pubic Consultation days informed Socoin/Tobin of potential additional feeding sites for Whooper swans. Field studies which were undertaken aimed to identify feeding sites, roosting sites and any flight lines between feeding and roosting sites. Socoin/Tobin liaised with local landowners and farmers throughout the Wintering Birds surveys in order to identify any additional feeding or roosting sites.

Additional consultation with the National Parks and Wildlife Service (NPWS), local birdwatchers and landowners provided additional information on sites used by Whooper swans sites and records of numbers using these sites during the study period.

Feeding sites were located at Cruicetown, Grange (although this site was not used after the New Year), Fyanstown and Teltown. Birds were only recorded at the latter two sites were in February and March. Seven Whooper swans were reported present on Newcastle Lough from November until February. This group appeared to be a family group that fed and roosted on Newcastle Lough. Whooper swans were recorded on only occasion at three other sites; Balrath, Carnaross and Breakey Lough suggesting these sites are used as staging posts as the birds move either south in the early part of the winter, or north on the return migration at the end of the winter period.

Three roosting sites were identified; Headford Estate, lying just to the east of Kells; Tara Mines Tailings Ponds, to the northwest of Navan and Whitewood Lough, between Nobber and Kilmainhamwood.

Newly released figures for the population estimates of wintering waterbirds in Ireland give a wintering population of Whooper swans of 12,730. Any site holding 1% of this population (i.e. 130 birds) is considered to be of national importance. The roost at Headford Estate and the feeding site at Grange both reached this threshold figure, with reports by a local farmer that the site at Cruicetown has held over 200 birds in the recent past. Field studies confirmed that this latter site was used during the study period although numbers of birds recorded this year did not reach the qualifying figure.

Figure 7.2 shows “Whooper Swan Distributions within Study Area”.

The staging site at Carnaross lies within route corridor option 1, although it is noted that a site that has previously held birds near Carnaross is 1km to the west of route corridor 1. Breakey Lough also lies approximately 1km from route corridor 1. No regularly used flight lines crossed this route corridor.

No flight lines were recorded crossing route corridor 2. The Balrath site where birds were only recorded on one occasion lies on the eastern boundary of this route corridor, and again, Breakey Lough lies within 1km of the route corridor. The Carnaross site also lies within route corridor option 2.

Route corridor 3 has two sub-options; 3A and 3B. In the southern part of the study area, these two sub-options follow the same route and include the feeding site at Teltown. Whooper swans were also seen to fly over this route corridor as they left the Tara Mines Tailings Ponds. It seems likely that birds that roost at Tara Mines fly westwards to feed in the Blackwater Valley at either Fyanstown or Teltown. Route corridor option 3A contains the historical sites at Carlanstown and Emlagh but no birds were recorded at these sites during this study. A flight line does exist across route option 3B as birds fly between Cruicetown and Whitewood Lough.

It can therefore be seen that route corridor 1 affects the least number of sites and flight lines, followed by route corridor 2. Route corridor 3 could potentially impact on the feeding site at Teltown and the flight line between the Blackwater Valley and Tara Mines Tailings Ponds. Additionally, route 3B will cross the flight line between Cruicetown and Whitewood Lough. Any feeding site that is currently used as a feeding site that lies within this route corridor may potentially be abandoned by the Whooper swans. This will depend on the final location of the pylons and power line with the footprint and land take of the pylon, coupled with the presence of the overhead wires and existing natural features such as tall hedgerows, deterring birds from landing in these fields. This would need to be assessed on a site by site basis and would include the presence of alternative suitable habitat within the vicinity of these sites.

Mitigation measures will be required in areas with a high risk of bird collision with the wires, notably where flight lines cross the route and known feeding sites. These mitigation measures will be in the form of marking the wires to make them more visible to the birds. A review of how effective line marking can be in reducing bird collisions with power lines was undertaken by McKenzie Bradshaw Environmental Consulting for the proposed Beauly to Denny 400kV overhead transmission line in Scotland. Their review found that most studies undertaken have shown that line marking results in significant reductions in bird collisions. The use of such mitigation measures would ensure that the proposed overhead powerline will not significantly impact on the internationally important Irish wintering population of whooper swans. This should be confirmed by undertaking further studies to determine the level of impact at individual sites where the proposed line would cross identified flight lines or feeding sites. The impact of siting

pylons within known feeding sites will need to be assessed on an individual site basis and will determine whether there is suitable alternative habitat that could be used by the birds.

## 3.4 WATER

As part of the Constraints Report a desk top study was undertaken in order to identify the hydrological and hydrogeological setting of the area. The River Boyne, in the south of the study area, dominates the natural surface water environment. It flows in a southwest to northeast direction through the towns of Trim and Navan and has three main tributaries; Tremblestown/Athboy River, Knightsbridge River and the Clady River. In general, there is a high drainage density throughout the centre and south of the study area. North of Nobber in County Meath the drainage density decreases as the relief and the number of lakes increase. All the lakes within the survey area are less than 0.5km$^2$ with the exception of Proudstown Reservoir, which is 1km$^2$, located northwest of Navan.

The Constraints Report highlighted the following points:

**Route Option 1** crosses seven rivers and it passes within 500m of two rivers from Kingscourt to Woodland. This option lies in close proximity to 5 lakes, the closest of which is White Lough, 0.5km away.

**Route Option 2** crosses seven rivers from Kingscourt to Woodland and lies in close proximity to four lakes, the closest of which is Breakey Lough, 1km away.

**Route Option 3** crosses eight rivers from Kingscourt to Woodland (one river is not a crossing point but is within close proximity of Route Option 3A). This route option lies in close proximity to 4 lakes, the closest of which is Clooney Lough, 450m away.

The 3 route options chosen do not encounter any Regionally Important Aquifers or karstified bedrock, with the exception of a 0.2km area of karstified rock along Route Option 3A.

In relation to Water, no changes occurred in the interim period; therefore no modifications to the route lines are required.

## 3.5 GEOLOGY

As part of the Constraints Report a detailed bedrock classification desktop study was undertaken to highlight the various geological bedrock formations underlying the study area. The Geological

Survey of Ireland (GSI) bedrock geology map for County Meath was examined in conjunction with the GSI aquifer classification map for County Meath.

There are a variety of soils in the study area between Kingscourt and Woodland. Cutover Peat† (Cut) and Fen peat (FenPt) are evident in a number of regions within the study area. In particular, areas of cut away‡ peat are located towards the centre and western areas of the site. Made Ground is evident in all built-up areas including the larger urban settlements of Woodland, Ashbourne, Dunshaughlin, Navan, Kells, Carlanstown, Nobber and Kingscourt.

This report highlights those parts of the study area where subsoil is defined as "cutover peat" which would not be ideal sites for locating pylons. The main reason for this constraint is that, as a subsoil, cutover peat is not of sufficient strength to provide stability for the proposed infrastructure. Subsidence and general instability during construction and operation over the lifetime of the pylons may be a significant issue. However it would not preclude the erection of pylons as certain civil engineering mitigation measures can be put in place to provide stability. Cutover peat will be avoided where possible, however if it is not feasible to avoid it, the area can be managed to ensure stability can be achieved through civil engineering measures. The impact will only be short term chiefly during construction works.

When the preferred route is selected, it is recommended that all predicted impacts are addressed and that a thorough site walkover is carried out in order to avoid complications during construction and operation.

In relation to Geology no changes occurred in the interim period; therefore no modifications to the route lines are required.

## 3.6 CULTURAL HERITAGE

To assess the potential impact of the proposed development a variety of data sources were consulted. These included:

- National Monuments – A database available through the www.heritagedata.ie website;
- Record of Monuments and Places (RMP) – databases obtained from the national monuments section of the Department of Environment Heritage & Local Government;

† Cutover bog describes any site where there is still an economic reserve of peat remaining, usually 1.5m or more.

‡ Cutaway bog describes a site where peat has been removed systematically by industrial means.

- Record of Protected Structures (RPS) – datasets obtained from Meath & Cavan Local Authorities;
- National Inventory of Architectural Heritage (NIAH) – Datasets obtained from the architectural section of the DoEHLG;
- County Development Plans were also consulted with regard to further heritage designations.

The Constraints Report highlighted the following points:

**Route Option 1:**

Within a 1000m-radius surrounding Route Option 1 a total of 171 sites were assessed. Within the immediate buffer there are 13 sites and located in the extended viewshed (up to 1000m) there are 158.

- There is a National Monument, approximately 635m east of this route option. The site (ME016-006) is classified as a church and is the location of a number of crosses in Castlekeeran townland;
- There are four NIAH sites including, a bridge, a forge, a house and an outbuilding within the vicinity of the proposed power line; and
- Within the immediate buffer zone there are 3 RMP monuments. Within the extended viewshed 103 RMP sites may be impacted upon;
- Thirty protected structures are situated within the extended buffer of this route option. Six structures are located within the immediate vicinity of the proposed power line.

**Route Option 2:**

Within a 1000m radius surrounding Route Option 2 a total of 154 sites of cultural heritage are assessed. Within the immediate buffer there are 11 sites and located in the extended viewshed there are 143.

- There are two National Monuments located within a kilometre of Route Option 2. ME016-006, an ecclesiastical complex at Castlekeeran townland lies approximately 400m east of the proposed power line. ME024-017 a church, cross & base at Rathmore townland is located approximately 360m from this route option;
- There are two NIAH sites, a bridge and a presbytery/parochial/curate's house within the vicinity of the proposed power line;
- There are 95 RMP sites within 1000m of this proposed route option; and

- Thirty-one protected structures are situated within the extended buffer along Route Option 2.

**Route Option 3A**:

Within a 1000m radius surrounding Route Option 3A a total of 184 sites of cultural heritage significance are perceived to be impacted upon based on the methodology set out in Table 10.1 of the Constraints Report. The impact is considered a perceived impact as it does not take into account existing screening, vegetation etc… Within the immediate buffer there are 14 sites and located in the extended viewshed there are 170 sites.

- There is a National Monument, at Robertstown townland on this route option. The site (ME011-006) is classified as a fortified house and is located 610m east of the proposed power line;
- There are two NIAH sites including a bridge and a school within the vicinity of the proposed power line;
- There are 101 RMP sites within 1000m of this proposed route; and
- Forty-eight protected structures are situated within the extended buffer along Route Option 3A.

**Route Option 3B**: Within a 1000m radius surrounding Route Option 3B a total of 190 sites of cultural heritage significance are perceived to be impacted upon based on the methodology set out in Table 10.1 of the Constraints Report. The impact is considered a perceived impact as it does not take into account existing screening, vegetation etc... Within the immediate buffer there are 12 sites and located in the extended viewshed are 178 sites.

- There is a National Monument, at Rahood townland on this route option. The site (ME011-007) is classified as a bivallate ringfort and is located 390m east of the proposed power line;
- There are two NIAH sites including a bridge and a school in the vicinity of the proposed power line;
- There are 112 RMP sites within 1000m of this proposed route; and
- Forty-eight protected structures are situated within the extended buffer along Route Option 3B, nine of which are located within the immediate vicinity of the proposed power line.

In addition to the above desk work studies, a great deal of information was received from members of the Public during the Public Consultation process, both during the open days and in submission received to the Stakeholder Consultation Group. This information was verified and cross checked with the data accumulated during the desk work study. During the Open Days

Socoin/Tobin meet with members of the Meath Archaeological Society. The Archaeological Maps were forwarded to the Meath Archaeological Society for discussion.

In relation to Cultural heritage no changes occurred in the interim period; therefore no modifications to the route lines are required.

# 4 PUBLIC CONSULTATION

As part of Phase 1 of this project, (the 'Strategic Constraints Scoping' phase), EirGrid has been actively engaging in consultation, with members of the public, regarding the routing of the proposed power line projects, The purpose of consultation in Phase 1 Strategic Constraints Scoping has been to:

- Provide members of the public with accurate, up-to-date information on the project;
- Address directly, with appropriate experts, the issues, questions, and concerns that stakeholders have in relation to the project; and
- Provide stakeholders with the opportunity to input information which will be considered by EirGrid as part of the decision making process.

## 4.1 STAKEHOLDER ENGAGEMENT

Since the public consultation phase began, in October 2007, the EirGrid Project Team has engaged extensively with the interested public audience. The different stakeholders engaged with thus far include:

- General members of the public
- Elected members (MEPs, TDs, etc.)
- Local businesses
- Action groups
- Key strategic stakeholders

Prior to beginning the consultation process, draft procedures were put in place to ensure that all queries were dealt with appropriately and in a timely manner. The aim of these strict procedures is to ensure that all stakeholders have their queries answered or their concerns addressed and that all information available is provided to them.

Part of the stakeholder engagement process involved two series of Open Days in Meath and Cavan during October and November 2007 which Socoin/Tobin attended. The main goals of

these events were to provide the general public with information on the projects, clarify concerns of members of the public and allow stakeholders to provide feedback for consideration for Socoin/Tobin. Two of the November 2007 Open Days were cancelled by the host hotels for health and safety reasons and security concerns. As a result of the cancellation small group meetings were organised. The first of these meetings took place in Navan and was very successful. The following night's meeting in Mullagh was also successful. However due to some protests the remainder of the weeks meetings were cancelled.

The open days allowed Socoin/Tobin to clarify concerns of members of the public; it also allows stakeholders to provide feedback for consideration by the Project Team in the decision making process. Arising from the open days, small group meetings and considering/ analysis of all submissions (5,000 +) received by the Stakeholder Consultation Group, Socoin/Tobin were advised of a number of archaeological sites, sports grounds, golf courses, schools etc… All of this information was reviewed to ensure that it had been included in the Constraints Report.

Engagement with the public is allowing the EirGrid Project Team to assess and address the key issues and primary concerns for members of the public with regard to these proposed power lines. Issues relating to health, and the possibility of placing these power lines underground, were raised. Additionally, many people are concerned about the impact of the power lines on the landscape, environment, property values, and cultural heritage of the area. Information received during the consultation process is allowing EirGrid to obtain local knowledge and specific information to augment the knowledge already established in the desktop studies and site investigations. These findings will be taken into consideration in the decision making process and will be further dealt with through the EIA.

# 5 EVALUATION OF CONSTRAINTS

## 5.1 INTRODUCTION

The following chapter combines all of the constraints mentioned in Chapter three of this Addendum Report and details how each route option was compared and contrasted taken into account these constraints. This chapter details the methodology for classification of each route option and subsequently explains why a particular route option has emerged as being preferable to the other options.

All of the data that had been gathered during the course of the Constraints Report was analysed and compared using Geographical Information System (GIS) as a tool to assign a classification to each part of the route options. The classifications for each section of the route options have been determined by examining the level of sensitivity of the area that it passes through. The route lines

were re-classified in April 2008, to take into account modifications to the route lines since the production of the Constraints Report in July 2007.

## 5.2 METHODOLOGY

The methodology used in determining the Emerging Preferred Route corridor option included:

- **Step 1**: Developing a matrix for each of the constraints, which may impact or exclude a route option. Table 5.1 overleaf details the constraints that were taken into account, as detailed throughout the report;

- **Step 2**: The subsequent step included colour coding the various route options using GIS i.e. very “high sensitivity” was coloured red, while “low sensitivity” was coloured green;

- **Step 3**: Analysing the classifications by tabulating the information obtained from the GIS System and using this to graph the results and compare each of the route options.

- **Step 4**: Comparing the route classification from July 2007 to the modified route classification in April 2008.

Each route option was classified, and in cases where the route passed through more than one type of classified area the highest classification was used in colour coding the route option. For example if a section of the route passed through both a “medium” sensitivity landscape area and a “high” sensitivity heritage site, then the “high” classification was used to colour code that section of the route.

**Table 5-1 Matrix Developed for Classification of Route Options**

| Classification | Buildings | Heritage Sites | Landscape | Conservation | Subsoil | Surface Water |
|---|---|---|---|---|---|---|
| **Very High Sensitivity** | <60m from GeoDirectory point* | <250m from Very High feature centre point | In Very High Sensitivity Area | In a Designated Area | N/A | N/A |
| **High Sensitivity** | N/A | <150m from High feature centre point | In High Sensitivity Area | N/A | N/A | Water Crossing |
| **Medium Sensitivity** | N/A | <100m from Medium feature centre point | In Medium Sensitivity Area | N/A | Significant subsoil where a pylon is required** | N/A |
| **Medium to Low Sensitivity** | N/A | <50m from Low feature centre point | In Low Sensitivity Area | N/A | N/A | N/A |
| **Low Sensitivity** | N/A | No Heritage Sites | In Very Low Sensitivity Area | Not in a Designated Area | No Significant Subsoil | No Water |

**Note:**

In all cases the distances are taken from the outer extremity of the pylon, which is 10m from the centre of the route line.

*It is assumed that if a GeoDirectory point is less than 60m from the outer extremity of the power line then the outer wall of the building will be less than 50m away.

** Significant subsoil where a pylon is required is either at a point where the route option changes direction, or crosses the subsoil for a continuous distance of >300m. (Significant subsoil includes cutover bog and soft glacial till)

## 5.3 ORIGINAL EVALUATION OF ROUTE OPTIONS – JULY 2007

In the Constraints Report, each route option was evaluated using the GIS data. The following is a synopsis of this analysis.

Using the GIS data, the graph in Figure 5.1 was produced and was used to analyse the route options. On comparing this data, it is apparent that all of the route options evaluated could be viable as they have similar characteristics when classified. In balance however, in the Constraints Report Route Option 3A and Route Option 3B both appear as the Emerging Preferred Route Options, as they have very similar merits.

In the Constraints Mapping route options 3A and 3B are approximately 53.5km long, which are significantly shorter than the other route options. Route Option 1 is approximately 63km long and Route Option 2 is approximately 59km in length. This means that the potential impacts associated with the power lines are spread over a shorter distance for Route Options 3A and 3B in comparison with Route Options 1 and 2.

In the Constraints Report it was highlighted that Route Options 3A and 3B have the shortest lengths of “Very High Sensitivity” classifications, less “High Sensitivity” classifications than Route Option 2, and only slightly more “High Sensitivity” classifications than Route Option 1. Route Option 3A and 3B also have significantly less “Medium Sensitivity” compared to the other route options, and they have the lowest overall impact when all of the factors are taken into account.

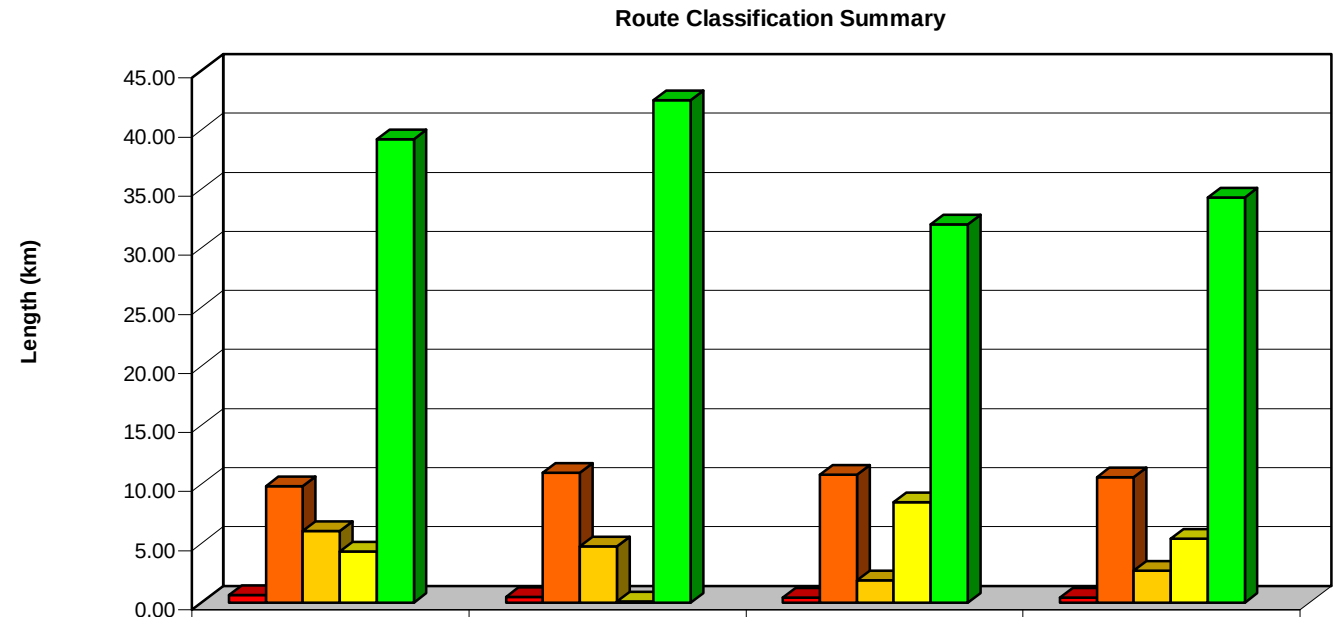
In all of the route options, the single biggest factor differentiating the classifications of the lines was the presence of landscape visual impact areas. These are a combination of scenic views, scenic route corridors and vulnerable landscapes, and account for the majority of “High Sensitivity” sections as well as a significant amount of “Very High Sensitivity” classifications on all of the route options. Rivers and streams account for the “High Sensitivity” ratings for surface water crossings that contribute to the classifications of each route options significantly. Only one designated conservation area is crossed by each route option, which contributes to the “Very High Sensitivity” classifications. Only a few buildings are encountered by the route options, but upon closer inspection of these points it is apparent that all of these could be avoided by changing the route line slightly to move it further from buildings. Modifications to the mapping were completed after the Constraints Mapping was produced in July 2007.

As part of the Constraints Report, Figure 5.1 overleaf was prepared, which depicts the classifications assigned to each of the route options on a single graph to allow for direct comparisons. It quantifies the length of power line that falls into each of the classification categories, ranging from “Very High Sensitivity “to “Low Sensitivity”.

Refer to Table 5.2 below which details the initial route classification summary completed in July 2007, while Table 5.3 illustrates the modified route classification summary completed in April 2008.

**Table 5-2 Route Classification Summary – July 2007**

| Classified Routes July 2007 | | | | |
|---|---|---|---|---|
| **Sensitivity** | **Route1 (km)** | **Route 2 (km)** | **Route 3A (km)** | **Route 3B (km)** |
| **Very high** | 0.62 | 0.50 | 0.41 | 0.44 |
| **High** | 9.86 | 10.99 | 10.81 | 10.60 |
| **Medium** | 6.06 | 4.74 | 1.88 | 2.68 |
| **Med-Low** | 4.31 | 0.11 | 8.48 | 5.41 |
| **Low** | 39.2 | 42.53 | 31.99 | 34.30 |
| **Total Length (km)** | 63.03 | 58.87 | 53.56 | 53.42 |




| Classification | Route 1 (km) | Route 2 (km) | Route 3A (km) | Route 3B (km) |
|---|---|---|---|---|
| Very High | 0.62 | 0.50 | 0.41 | 0.44 |
| High | 9.86 | 10.99 | 10.81 | 10.60 |
| Medium | 6.06 | 4.74 | 1.88 | 2.68 |
| Med-Low | 4.31 | 0.11 | 8.48 | 5.41 |
| Low | 39.20 | 42.53 | 31.99 | 34.30 |
| Total | 63.03 | 58.87 | 53.56 | 53.42 |

**Figure 5-1 Constraints Report (Original) Route Classification Summary - July 2007**

## 5.4 EVALUATION OF ROUTE OPTIONS – APRIL 2008

As part of the Addendum Report, all route options were re-examined to take into account all modifications to the route options that have occurred since the production of the Constraints Report in July 2007. This included updating the mapping to include for new houses, new planning applications and modifications to the route lines following further windscreen surveys etc…

The modifications outlined above adjust the route classification on all routes. Refer to Table 5.3 below which details the modified route classification summary completed in April 2008.

**Table 5-3 Route Classification Summary – April 2008**

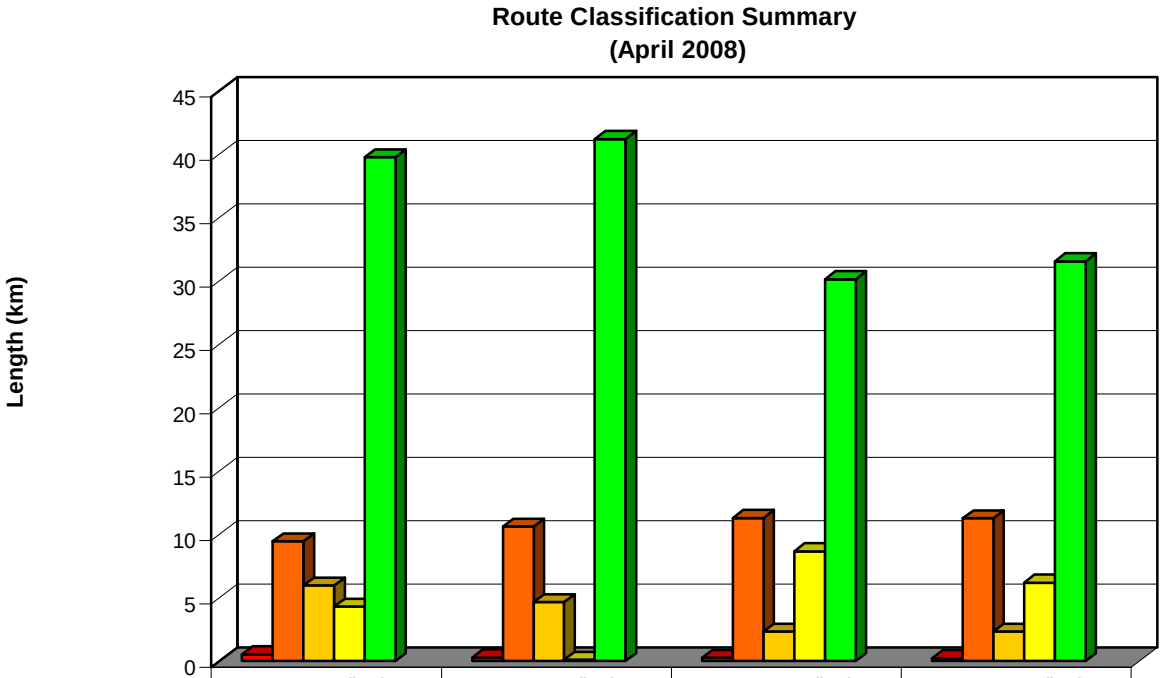
| Modified Classified Routes April 2008 | | | | |
|---|---|---|---|---|
| **Sensitivity** | **Route 1 (km)** | **Route 2 (km)** | **Route 3A (km)** | **Route 3B (km)** |
| **Very high** | 0.55 | 0.30 | 0.28 | 0.25 |
| **High** | 9.46 | 10.63 | 11.3 | 11.27 |
| **Medium** | 5.98 | 4.67 | 2.34 | 2.34 |
| **Med-Low** | 4.31 | 0.11 | 8.68 | 6.20 |
| **Low** | 39.75 | 41.2 | 30.13 | 31.55 |
| **Low - Existing power line** | 2.97 | 2.78 | 2.78 | 2.78 |
| **Total Length (km)** | 63.02 | 59.69 | 55.51 | 54.38 |

From Table 5.2 and 5.3 above it is apparent that route options 3A and 3B have less “very high-sensitivity” areas that will be affected compared to route options 1 and 2.

Also Route Option 3A and 3B remain the shortest routes, though the length of line has increased slightly from the original route lines, this is as a consequence of the modifications to the route lines detailed above. Route Option 3B is approximately 8.6km shorter than route option 1, while route option 3A is 7.5km shorter than route option 1. As Route Option 3A and 3B are the shortest line route options, less environmental footprint will be impacted upon.

Note route options 2, 3A and 3B were also modified to ensure that all route options follow an existing 400kV power line near Woodland, this means that existing pylons can be utilised for approximately 2.78Km of these route lines.

From Table 5.3 above it is apparent that all route options are comparable in the length of “very high-sensitivity” areas that will be affected, although Route Options 3A and 3B have less “very-high sensitivity” areas. Route Option 3A and 3B has have significantly less “Medium Sensitivity” compared to the other route options, and they have the lowest overall impact when all of the factors are taken into account.




| Classification | Route 1 (km) | Route 2 (km) | Route 3A (km) | Route 3B (km) |
|---|---|---|---|---|
| Very high | 0.55 | 0.3 | 0.28 | 0.25 |
| High | 9.46 | 10.63 | 11.3 | 11.27 |
| Medium | 5.98 | 4.67 | 2.34 | 2.34 |
| Med-Low | 4.31 | 0.11 | 8.68 | 6.2 |
| Low | 39.75 | 41.2 | 30.13 | 31.55 |
| Total | 63.02 | 59.69 | 55.51 | 54.38 |

**Figure 5-2 Revised Route Classification Summary – April 2008**

# 6 JUSTIFICATION OF THE EMERGING PREFERRED ROUTE OPTION 3A & 3B

There are a number of reasons why 3A and 3B are considered the Emerging Preferred Route Options, as mentioned above these include the fact that they have less “very high-sensitivity” areas that will be affected compared to route options 1 and 2 and they are shorter than the alternative route options. Route Option 3A and 3B, will have less impact on the designated landmark and scenic viewpoint, the Tower of Lloyd.

## 6.1 DESIGNATED LANDMARK AND SCENIC VIEWPOINT IS THE TOWER OF LLOYD

One of the reasons Socoin/Tobin is leaning towards Route Option 3A and 3B as the Emerging Preferred Route Options is that Route Options 1 and 2 pass through the viewshed of a prominent landmark with a significant scenic view, while Route Option 3A and 3B do not. This designated landmark and scenic viewpoint is the Tower of Lloyd, which is located in The People’s Park approximately two kilometres north west of Kells.

The Tower of Lloyd is designated as a “landmark” on the Landmarks Map of the Meath Landscape Character Assessment, which accompanies the Draft Meath County Development Plan 2007 – 2013. The policy regarding landmarks is “*To maintain scenic vistas and panoramic views from key vantage points and towards key landmarks and features within the landscape*”. This landmark is a particularly important scenic viewpoint, as it is a tourist attraction that is renowned for its views of the countryside. Tourists walk up to the top of the Tower of Lloyd to admire the views of the surrounding landscape, which can be seen in all directions (see Plates 1 below).

Route Options 1 and 2 are situated approximately 3.5km to the west of The Tower of Lloyd, in an area that is predominantly rolling green hills and trees (see Plate 2 below). Loughcrew is a scenic viewpoint and heritage site and is also located in this direction, on the prominent hill that is in the background of the photograph.

Route Options 3A and 3B are situated to the east of The Tower of Lloyd, at distances of approximately 6.5km and 9km respectively. Both of these route options are much further away from the view point than Route Options 1 and 2, with Route Option 3B being the most preferable at the furthest distance away. As shown in Plate 1, the view to the north east has an industrial area in the foreground and is not as scenic as the view to the west. The view directly to the east includes a number of buildings and part of the urban extent of Kells.

**Plate 1 View of the Tower of Lloyd at The People's Park, near Kells**

## 6.2 WHOOPER SWANS

The Whooper swans desktop study showed feeding and roosting sites have been recorded in the study area in the valley of the River Blackwater, between Kells and Navan. The field studies identified three roosting sites in Headford Estate, lying just to the east of Kells; Tara Mines Tailings Ponds, to the northwest of Navan and Whitewood Lough, between Nobber and Kilmainhamwood. None of these roosting sites will be affected by the proposed power line development. The Headford estate roost held nationally important numbers of birds.

The study revealed a number of feeding sites in all route options, sites near route options 1 and 2 includes Balrath, Carnaross and Breakey Lough and sites on route option 3 include Cruicetown, Grange, Teltown and Newcastle Lough. Numbers of birds using the Grange feeding site reached the threshold figure to qualify as a nationally important site. Whooper swans were recorded on only one occasion at; Balrath, Carnaross and Breakey Lough, suggesting that these are staging sites as the birds migrate south in the early winter period or north in the late winter.

There were no regularly used flight lines crossing route option 1 or 2. There are regularly used flight lines in 3A and 3B including for a flight line which crosses route 3B as birds fly between Cruicetown and Whitewood Lough. Whooper swans were also seen to fly over this route corridor as they left the Tara Mines Tailings Ponds, flying west.

All route options will require some level of mitigation measures to be employed. Mitigation measures in the form of wire markers will be required in order to reduce the risk of collision. A review of how effective line marking can be in reducing bird collisions with powerlines was undertaken by McKenzie Bradshaw Environmental Consulting for the proposed Beauly to Denny 400kv overhead transmission line in Scotland. Their review found that most studies undertaken have shown that line marking results in significant reductions in bird collisions. The specific mitigation measures will depend on the route option chosen. The use of such mitigation measures would ensure that the proposed overhead powerline will not significantly impact on the internationally important Irish wintering population of whooper swans. This should be confirmed by undertaking further studies to determine the level of impact at individual sites where the proposed line would cross identified flight lines or feeding sites.

# 7 COMPARISON OF ROUTE OPTION 3A AND 3B

From the desktop studies and the site visits which took place as part of the Constraint Report in July 2007 and the recent windscreen studies, planning searches and wintering bird surveys which took place in April 2008, route options 3A and 3B were identified as the Emerging Preferred route corridor options.

Since Route Option 3A and 3B have similar characteristics, the deciding factor in determining whether Route Option 3A or 3B was more preferable was the investigation of the key viewpoints. There is a key viewpoint named as “view toward hills above Slane and Navan” is identified in the Visual Amenity Map of the Meath Landscape Character Assessment, which accompanies the Draft Meath County Development Plan 2007-2013. This viewpoint is located between Route Option 3A and 3B, near a significant heritage feature, namely a “motte” site.

The County Development Plan specifies that this scenic view is in the direction of “view toward hills above Slane and Navan”. This would therefore look toward towards Route Option 3B, however from site visits, it was determined that the hills between this viewpoint and Route Option 3B, would provide natural screening and avoid any impact on this view. However from this same viewpoint but looking in the opposite direction, Route Option 3A would be passing nearby and be clearly visible from this location. Although this is not a designated scenic view, Socoin/Tobin considered that as the power line would be situated in close proximity to the viewpoint there could be a negative impact on the amenity of this area.

Another scenic view that was investigated in more detail is that from The Tower of Lloyd. Route Option 3B is further away from this viewpoint than Route Option 3A, so it is preferable in this regard. Route Option 3B also has the least number of houses (14 No.) within 100m of the proposed line routes.

# 8 CONCLUSIONS

The Constraints Report (July 2007) including this Addendum (May 2008) has been prepared for and submitted to EirGrid in order to detail the alternatives considered by Socoin/Tobin for potential overhead line route options connecting the existing Woodland Station (near Dunshaughlin, County Meath) and the site identified for the new substation near Kingscourt, County Cavan

From the desktop studies and the site visits which took place as part of the Constraint Report in July 2007 route options 3A and 3B were proposed by Socoin/Tobin as the Emerging Preferred route corridor options.

For the purpose of the Addendum Report, Route Options 1, 2, 3A and 3B have all been revised to take into consideration recent windscreen studies, planning searches and wintering bird surveys which took place in April 2008.

However, when all these factors were taken into account, Socoin/Tobin still considers Route Option 3B to be the Emerging Preferred Route Corridor Option.

TOBIN
Patrick J. Tobin & Co. Ltd.

visit us @ www.tobin.ie

## NATIONAL NETWORK

| Galway | Dublin | Cork | Limerick | Castlebar | Dundalk |
|---|---|---|---|---|---|
| Fairgreen House, | Block 10-4, | Northpoint House, | Bedford Place, | Market Square, | 2nd Floor, Elgee Building |
| Fairgreen Road, | Blanchardstown Corporate Park | New Mallow Road, | Howley's Quay, | Castlebar, | Market Square |
| | | | | | Dundalk |
| | | | | | Co. Louth. |