COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

TO: File

pre-planning
P16(864).

DATE: 04/06/03

FROM: Iain Douglas Senior Planner

SUBJECT : Note of meeting **FILE:**

Present:

Mayo County Council	*Enterprise Oil*
Iain Douglas SP	Gerry Costello
Paddy Mahon SE Westport Region	Gavin Lawlor
John Mc Myler SEP	Conor Byrne
	Agnes McLaverty

Enterprise Oil indicated that they were still considering their position following the decision of ABP. Their options were alternative sites or alternative proposals for dealing with the issue of peat at Bellanaboy.

Discussion took place about transporting peat off site to e.g. Bellacorrick Power Station or spreading on Bord na Mona lands in the area e.g. Bangor bog. Several issues arise

(i) It is clear that the time scale for closing Bellacorrick (December 2004) and the timescale for Enterprise Oil (allowing for an application and probable appeal and Board Decision) would not be compatible.

(ii) Taking peat off-site may be considered as a waste and therefore licensable by the EPA. The same could apply to spreading and possibly to burning in Bellacorrick

(iii) The truck movements to/from the site would lead to road safety concerns

Discussion then took place on a possible solution to the handling of peat on the Bellanaboy site by means of a series of dams/terraces (in effect treating the peat in a manner similar to a liquid). The advantages of this would be

(i) that no peat export off-site would be required

(ii) vastly reduced import of fill since internal rock source is available

(iii) the visual impact would be minimal,

combined with a smaller footprint for the plant itself such an approach would be more sustainable.

This is a concept only and no decision has been made yet. There are still issues to be resolved e.g. water control etc

Mayo County Council indicated that it would use external advice in dealing with any application where required.

Mayo County Council undertook to provide an update on the Carrowmore Regional Water Scheme.

The meeting concluded with Enterprise restating that they were still investigating all options.

Iain Douglas
Senior Planner

Corrib
natural gas

Bellanaboy Bridge Terminal Option; Off Site Peat Deposition

FOR Discussion

Introduction

Several options for the handling of peat issues at Bellanaboy are being examined this is a view on one option.

- As part of the site preparation works an option is to remove unsuitable earthworks materials off site and deposit in a suitable location.

Suitable Deposition Site

- A suitable site would be a relatively flat well drained area, suitability of the site would be further enhanced if it was a site that is in need of restoration and / or reclamation.

Suitable Deposition Site cont'd

- For the purpose of this exercise a site on the western side of Bangor Erris in Co. Mayo has been chosen, the site is located in the town land of Srahmore which is in a triangle located between the R313 Belmullet Road and the L1206 Gweesalia Road. The land is in the ownership of Bord na Mona and is in its last phase of peat harvesting, as once a stockpile level sufficient to supply Bellacorrick power station has been achieved it will close immediately for the purposes of peat harvesting. The existing bog has been depleted by many years of harvesting, is well drained and only 2 to 3 feet of stiff peat remain as cover. The site is practically level. (no slopes)

Deposition Site Location Map

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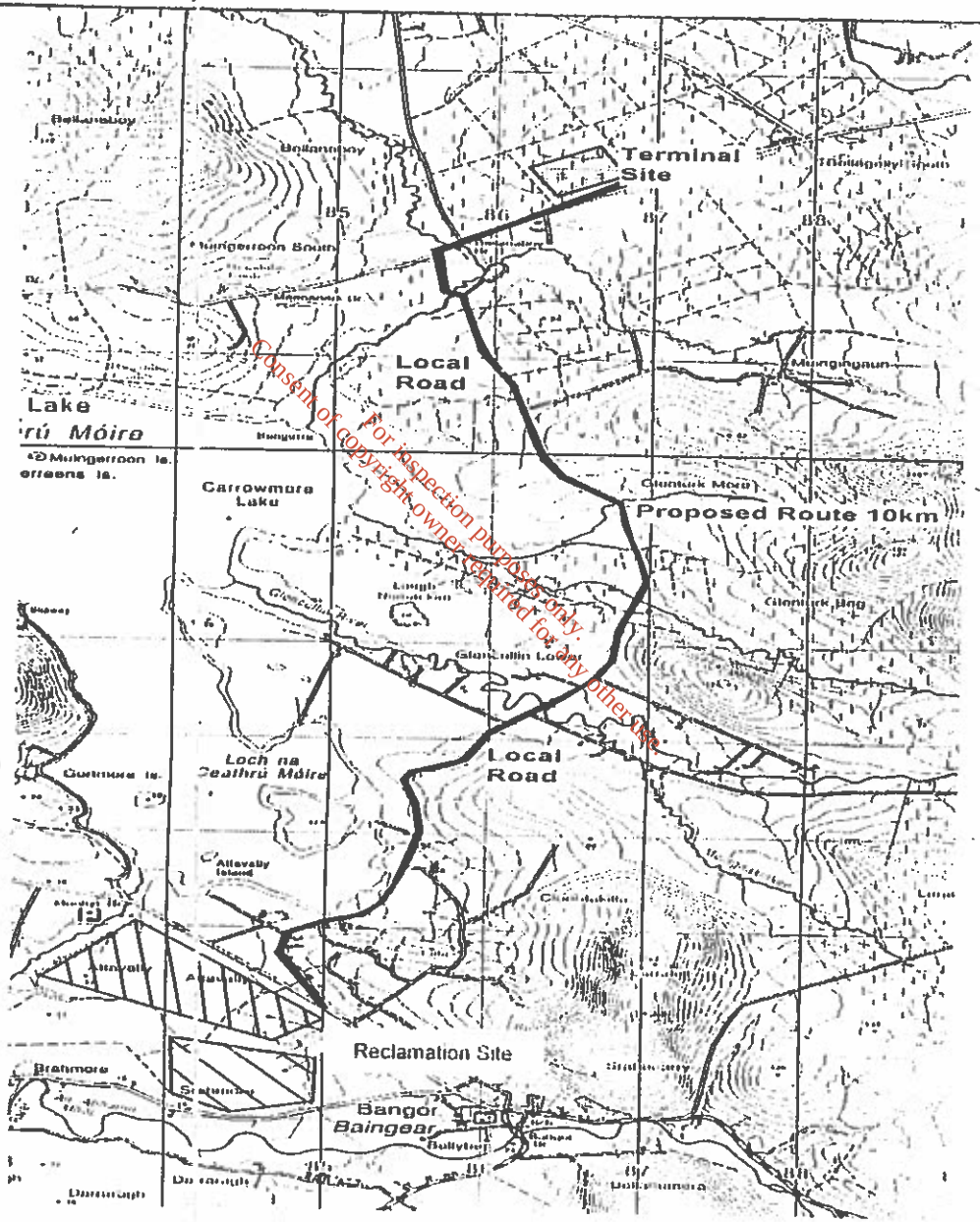
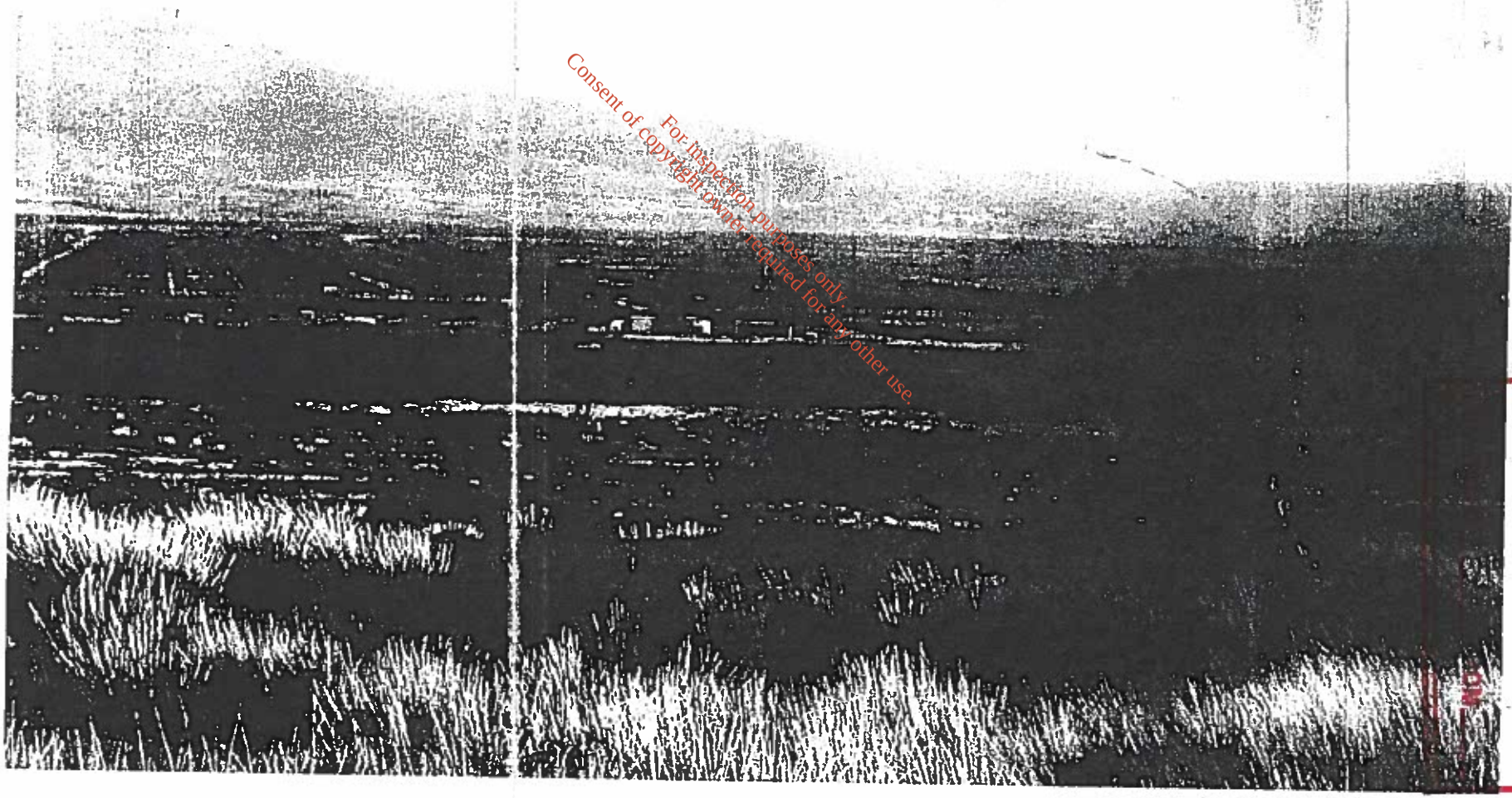


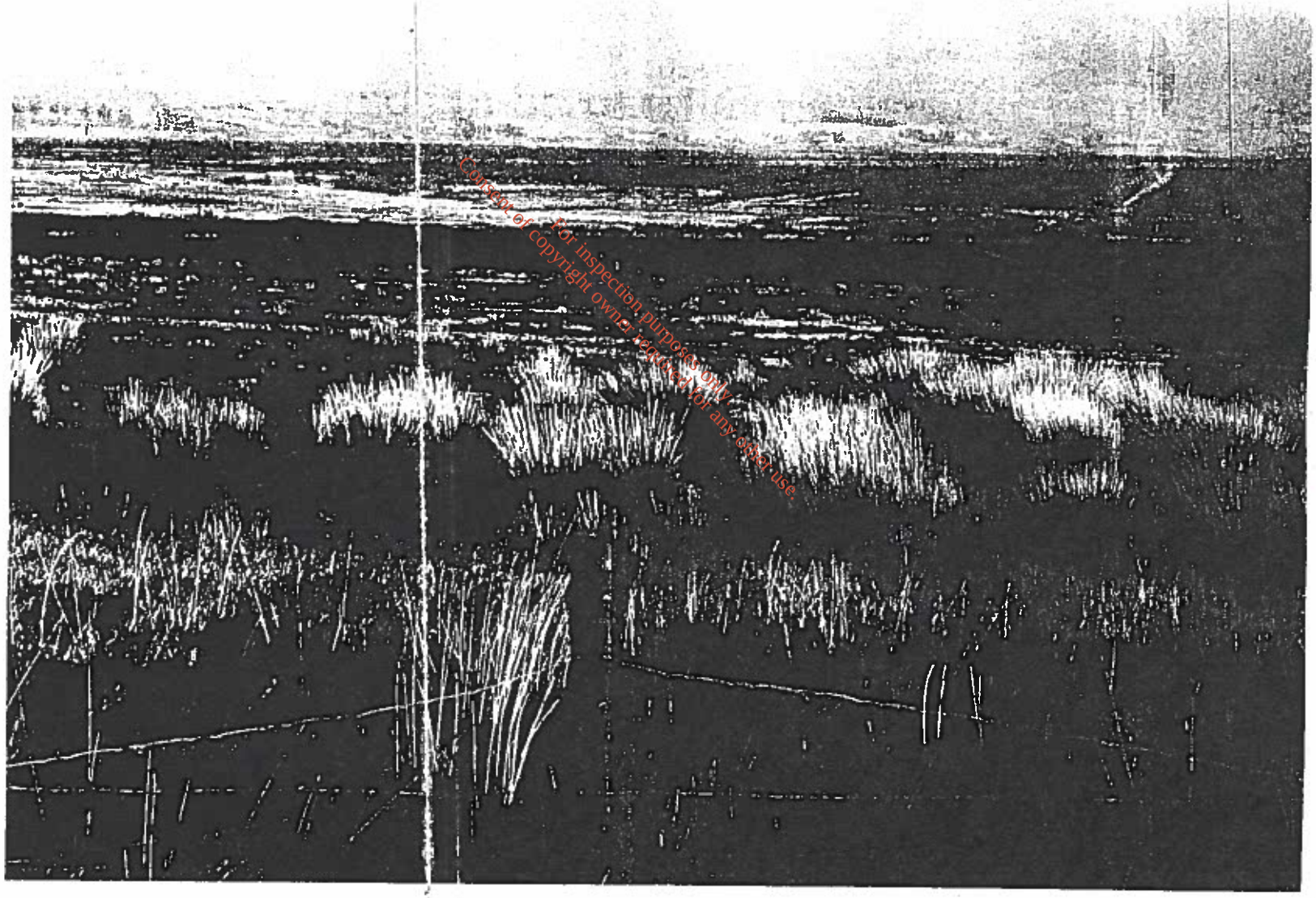
Typical Deposition Site Photographs

CORRIB
natural gas



Typical Deposition Site Photographs

CORRIO
natural gas



Strategy

CORRIB
natural gas

Existing Roads

- Upgrade existing roads to be used as haul routes to a designed pavement level, capable of carrying say 400 return truck loads per day.

  (Carriageway Geometry, Sub base, base course, wearing course, signage, roac marking and edge protection)
- Upgrade any structures in need of overhaul. — eg. Bridges
- Upon completion of haulage overlay any damaged road sections

Traffic Management

- Implement a detailed traffic management plan to control planned activities
- Operate , maintain and audit traffic management.

Strategy cont'd

Corrib natural gas

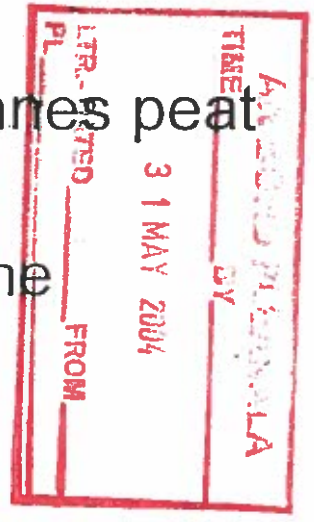
Deposition Site

- Peat to be spread at 0.5m deep over 100 ha
- Regulate and enhance existing drainage system and ponds as appropriate.
- Construct access ways to site
- Utilise conventional Bord na Mona methods to spread peat (LGP Dozers and long reach excavators)
- On completion of deposition commence drain blocking exercise to encourage re-vegetation and to maintain / raise water table level.
- Operate Environmental Management System

Execution

Corrib natural gas

- Operational hours 07.00 hrs to 18.00 hrs Monday to Friday and 0.700 to 16.00hrs Saturday.
- Fleet of 30 - 35 rigid trucks moving 1 load each every 45 minutes (400 loads per day for 25 weeks)
- Dedicated Traffic management crew (manual control)
- Dedicated Road Cleaning and Maintenance vehicles.
- Regulated and audited traffic management.
- All HCV regulated to 40 mph electronically and GPS tracked as well as usual docketing and tachograph procedures.
- Maximum load in Rigid HCV 10 m3 equates to 12.5 tonnes peat or 18 tonnes of soil (peat to soil ratio 4:1)
- Monitor Environmental Aspects / Issues and report same



Impacts / Pros and Cons

Corrib natural gas

- Existing Roads Upgraded to a designed specification
- Possible Sustainable use of peat in deposition area "peat land regeneration"
- Local Side Roads to be Upgraded as part of main works
- Operated Minibus provided to local residents for local travel during operational hours.
- No Peat dams on site
- Existing young Forest Plantations at Bellanaboy can be maintained.
- Short Term impact only, no long term residual impacts or perceived public risk issues.
- Significantly less earth moving required
  500,000m3 off site vs 1,700,000m3 on site (Sustainability)

Impacts / Pros anc Cons

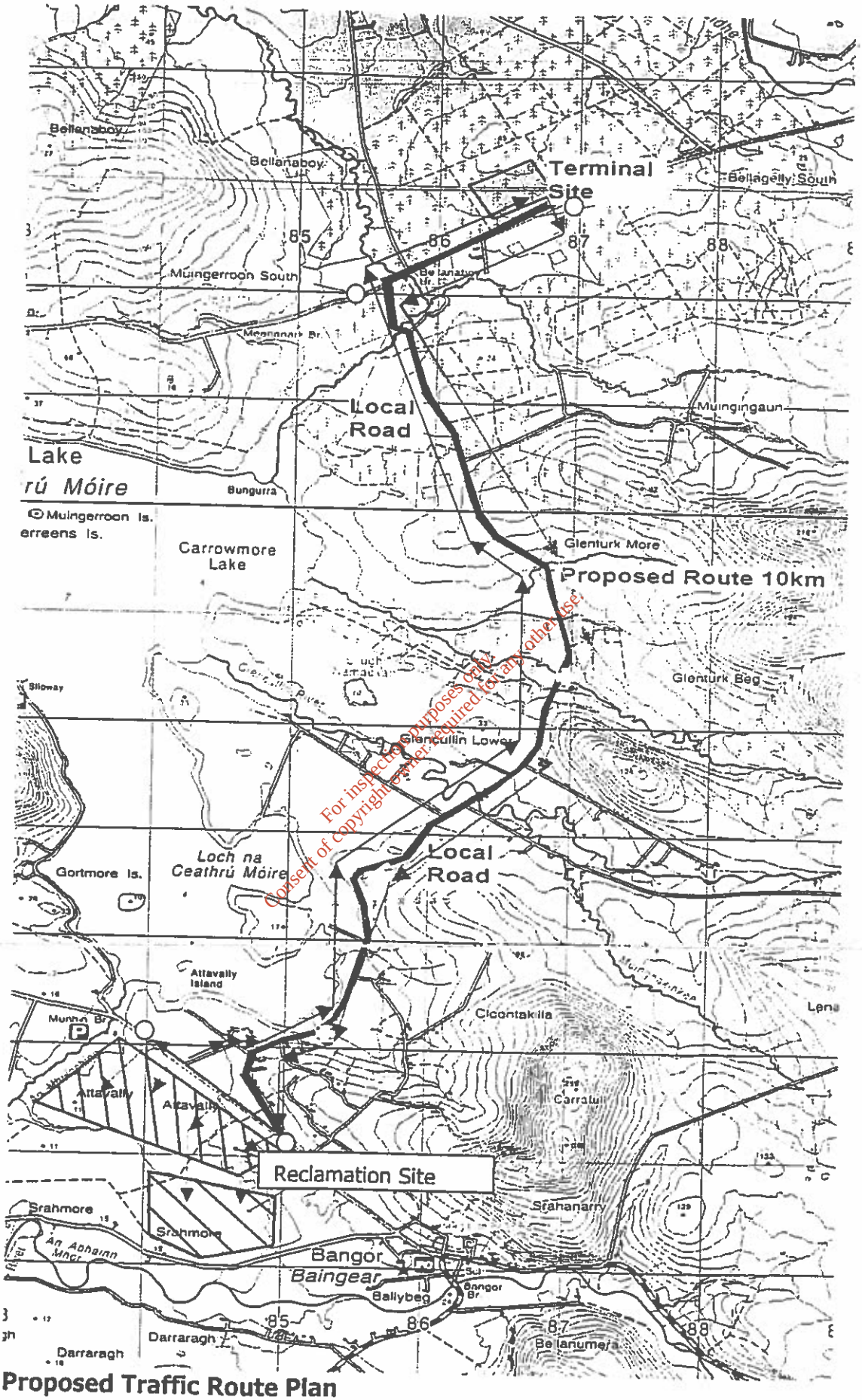
Corrib natural gas

- Temporary additional traffic on roads.
- Temporary increased exposure to traffic noise, dust and vibration on haul route.
- Temporary increased exposure to local community and residents to disruptive activities and temporary increased traffic accident risk.
- Short term impact on flora and fauna on roadside.
- Use of diversions during operational hours would result in longer journey times for some road users.

Appendices

Corrib natural gas

- Proposed Traffic Route Plan
- Road Width Assessment
- Local Residence Distribution
- Existing Road Count data



Proposed Traffic Route Plan

Legend for Proposed Traffic Route Plan

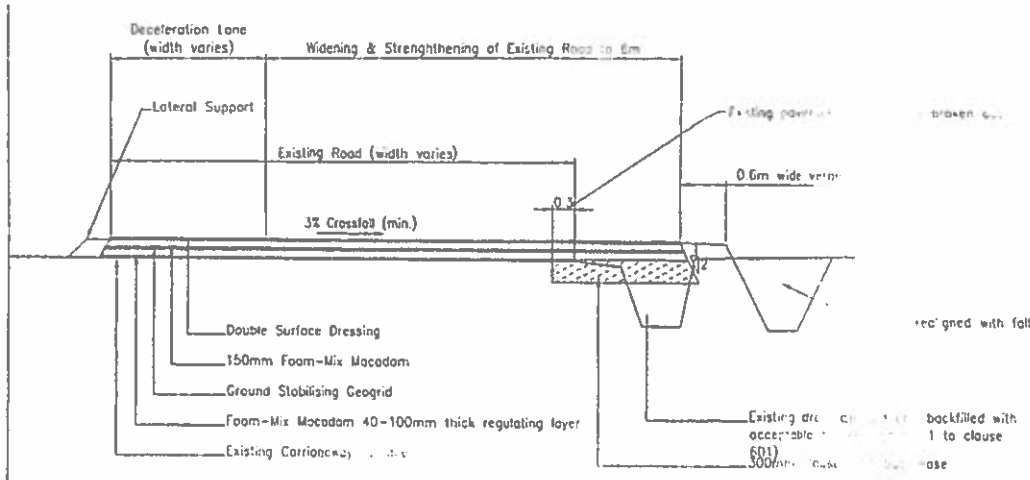
○ Attended Traffic Control

→ Route of Loaded Trucks

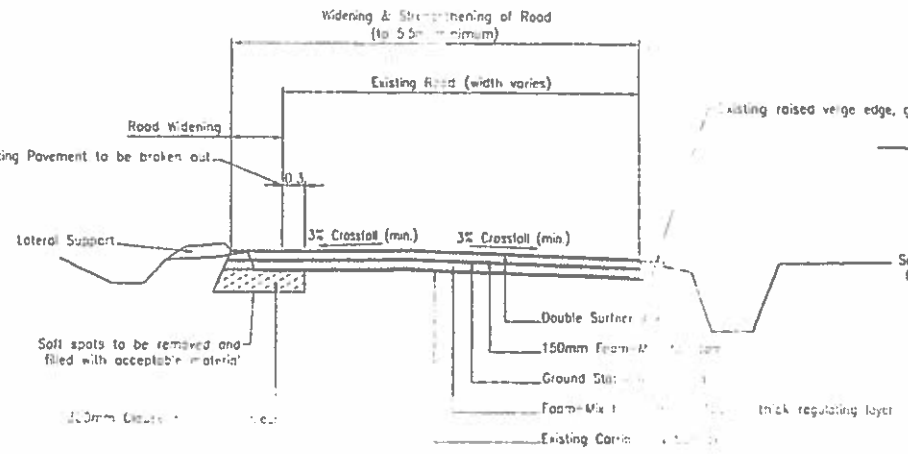
→ Route of Empty Trucks

Replaced Bridge Deck with pre-cast components

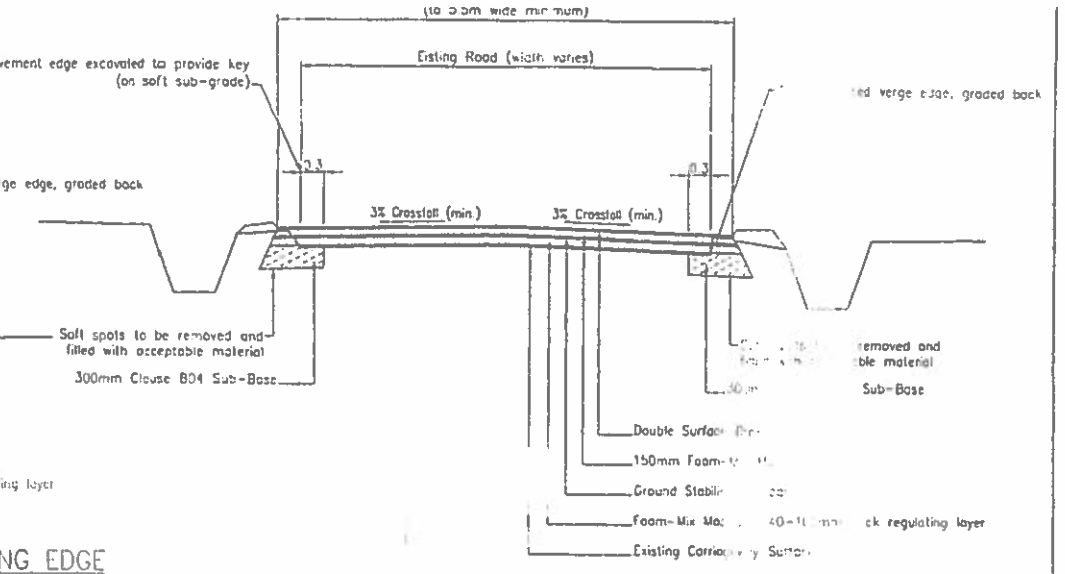
Easement of Existing bend or Install Crash Barrier System



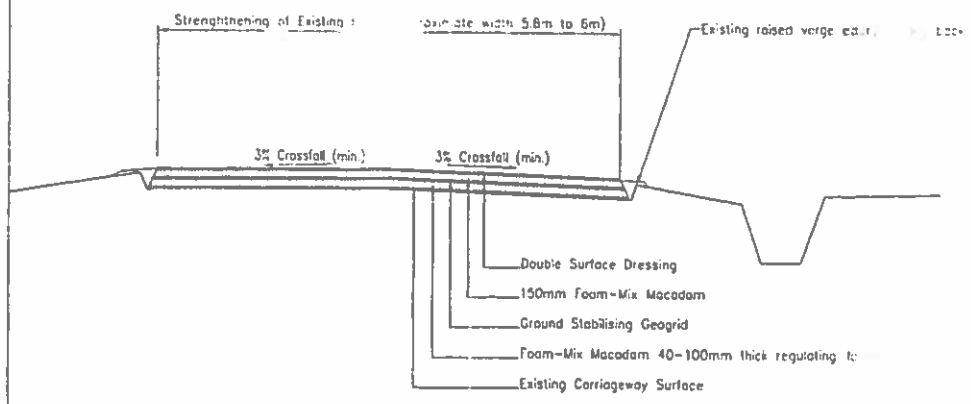
A-JUNCTION REALIGNMENT



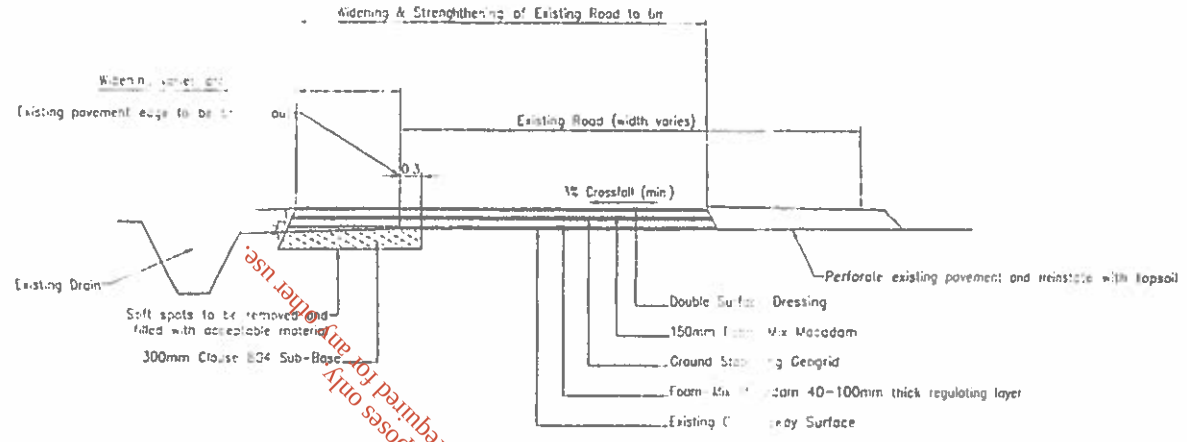
WIDENING ON ONE SIDE BY GRADING BACK EXISTING EDGE



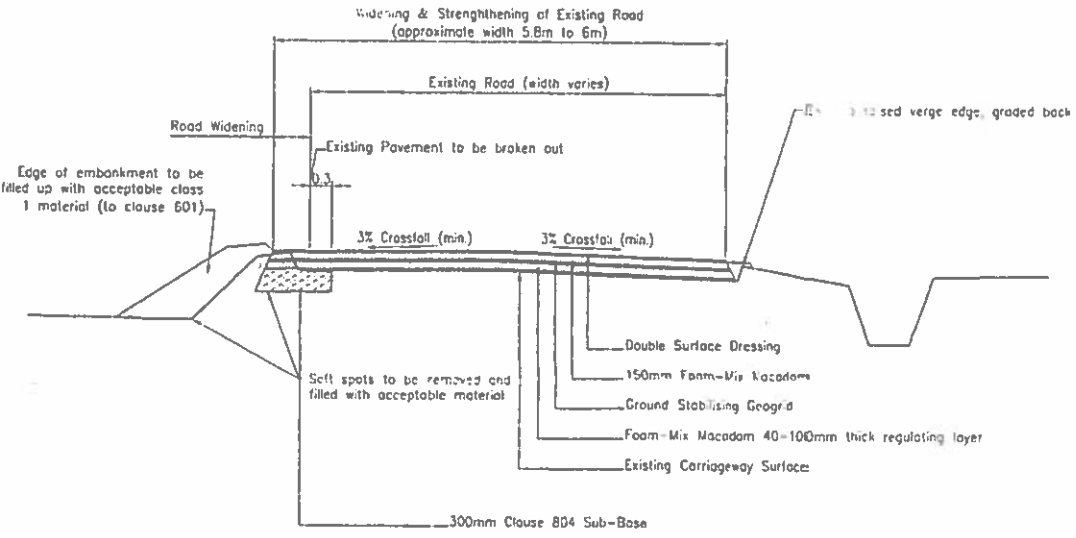
G-WIDENING ON BOTH SIDES BY GRADING BACK EXISTING EDGE



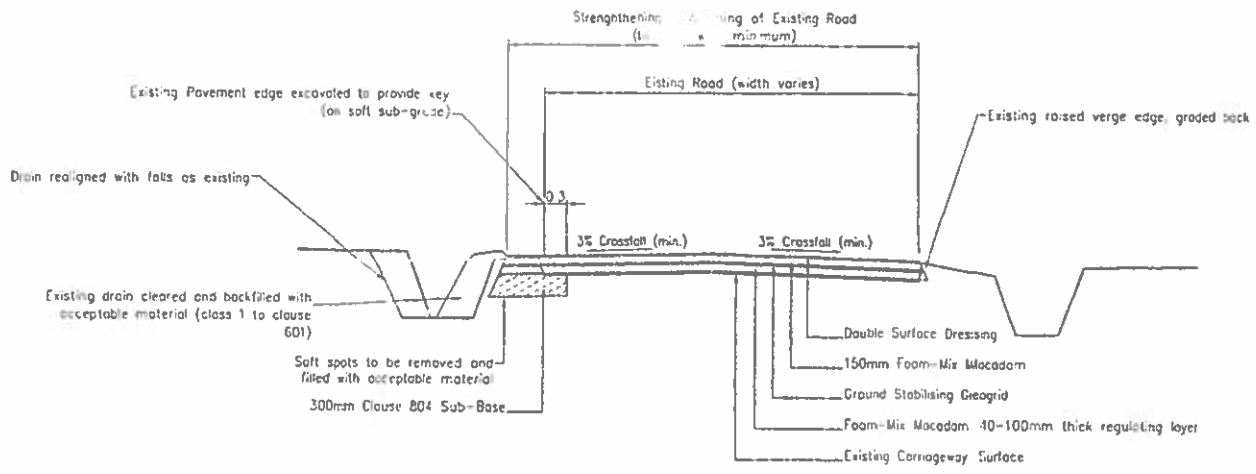
B-OVERLAY ONLY



E-SIGNIFICANT WIDENING WITHIN ROAD BOUNDARY



C-WIDENING ON ONE SIDE, PLUS FILL TO EMBANMENT



F-WIDENING ON ONE SIDE WITH DITCH REGRADING

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev.	Date	Description	By	Chkd.
A				

Client
ENTERPRISE ENERGY IRELAND LTD

Project
PEAT TRANSPORTATION & RECLAMATION PROJECT

Title
TYPICAL CROSS SECTIONS OF ROAD Type A - H

DRAFT ONLY

Scale 1:50

Prepared by:	Checked	Date
TC	TC	Nov 03

Project Director M.F.GARRICK - CASTLEBAR

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Drawing No. 2044-1017

Revision

Nearer to the interface points, specific instruction signs, to National Roads Authority standard, will caution drivers of crossing or emerging traffic, and will request cooperation with flagmen.

Along the Haul Route signage will erected to:

(a) mark Chainage points for reference of potential breakdown, road deterioration or other hazard such as stray animals
(b) mark particular hazards, such as bends, sections of poor sight distance for residents emerging onto Haul Route, etc.
(c) warn of priority rules at locally narrow sections of road, and warn of bends
(d) warn drivers to check brakes, or slow at school bus pickup points etc.

The position of signs of different type are shown on Drawing No. 2044-1000 and Schedule No. 1 details the sign types required.

5.1.5 Communication by radio, telecoms and print media

Weekly progress reports will be given to Midwest Radio and to Radio na Gaeltachta, with details of any significant milestones anticipated over the coming week. A special supplement will be prepared, in advance of the commencement of Peat Haulage Operations, and circulated with the Western People. A leaflet drop will be made as required to advise the residents and road users on progress, and of any unusual developments. A special effort will be made to raise the awareness of schoolchildren of increased traffic volumes.

A freephone number will be provided, and listed on all communications, to permit the public:

(a) to comment on the driving standards they encounter with individual fleet drivers, identified by a truck number, and

(b) to raise queries, report accidents or hazards, or register complaints.

This number will be manned during working hours, with appropriate voicemail outside of such hours, and all calls will be logged and responded to. The operator on this number will have priority access to the Traffic Manager.

Ós rud é go mbéidhfimid ag obair sa Ghaeltacht, tá sé an-tabhachtach go mbéadh leagán Ghaeilge ar fail, ar na comharthaigh tráchta, agus ar na ráiteasaí éagsúla a sheólfar chuig na nuachtáin, agus chuig muintir na háite, ó am go h-am. Since we are working in a Gaeltacht area, it is very important that an Irish version of various traffic notices and briefing statements be made available to the press and the local residents.

5.1.6 *Road Cones and Traffic Separation Barriers*

We have identified the separation of the Tipping Traffic from the Mechanical Shovels at the Peat Deposition site as an important safety measure to streamline the different traffic at the Deposition Apron. This will be achieved by water filled red and white interlocking barriers, which will be moved during the working day, as the tipping area of the apron is exchanged with the shovelling area once a day.

To control traffic at junctions, and to maintain queue discipline for flagmen, it is important to lay out road cones and traffic barriers . These must be removed and repositioned each day, kept clean and ballasted, and supplemented to cover theft or damage, with reflective surfaces renewed, by the haul route maintenance team.

5.1.7 *Lighting of Junctions and Working Areas*

Traffic movement in poor daylight carries increased risks of road accident. Regardless of daylight conditions, and in response to the Mayo County Council promotion of dipped headlights in daytime, trucks will normally operate on dipped headlights. In order to address particular interfaces at the junctions with the R314 and R313, it is proposed to illuminate these promptly at lighting up time, regardless of whether photoactivation would otherwise bring on lighting in the particular conditions of the day .

5.1.8 *Areas of restricted Carriageway Width*

There are a number of sections of road where residential development and farm buildings close to the road locally restrict carriageway width. Some bridge parapets also reduce the width locally so that two trucks cannot safely pass at such points. At such points, the Code of Practice for Drivers will define a priority system to allow the right of way to the laden vehicle, and signage at such locations will warn drivers to this effect, with provision for a pause point for the yielding vehicle, with appropriate traffic cone lane control and road markings.

Lay-by's at locations of poor sight distance have been recommended in the Risk Assessment, to permit vehicles encountering one another to proceed with due caution, without the need for reversing.

5.1.9 *Speed Limits and Separation Distances*

A maximum speed limit of 40 mph will be imposed on the Haul Route. A lesser maximum speed limit of 30 mph will locally apply on bends, marked by appropriate signage, and will

be implemented and enforced for all fleet vehicles. The Operations Manager will deploy a pacing vehicle as part of the enforcement of this requirement, and feedback from the Freephone number will be used to police the speed limits on the route.

In addition to this speed control, upper limits will be placed on daily productivity, so that there will be no financial incentive for the Contractor to tolerate, or the drivers to infringe speed limits.

The operation of the wheelwash will tend to act as a separating mechanism for traffic emerging from the loading or tipping operation, assuming that the flagmen at the entrance gates can maintain this separation as they direct traffic onto the Haul Route proper. Thereafter, drivers will be instructed to maintain, as far as possible, the separation between vehicles at 400m-450m, so that the space available for lay-by's at areas of poor sight distance, and where unladen traffic must yield, need not be designed to accommodate more than two vehicles waiting.

In any queuing situation on the access road to the Filling Area or the Tipping Site, drivers will be instructed to maintain a minimum separation of 20m so that safe visibility around each vehicle can be maintained.

5.1.10 Accommodating the needs of local residents.

There are approximately ...... residents who live adjacent to the L1204, or to the minor roads which serve the villages of at Muingingaun, Glenturk More, Glenturk Beg, Glencullin Lower and Upper, Lenanadurtaun, and Cloontakilla.

The impact of the projected levels of Peat Haulage traffic will be significant, and the needs of the residents with respect to this traffic increase must be addressed. These impacts are addressed in the Environmental Impact Statement, and impacts other than those relating to transportation are addressed below.

It will not be possible to close the L1204 Road to public traffic in a formal way, so that peat haulage traffic must share the route with forestry traffic, local residents, school bus and other road users. Road signage will discourage use of the L1204 as a through-road for the duration of the operation. This common usage nevertheless presents risks, which have been assessed in Appendix No. 1 and which can be partly mitigated by:-

(a) providing minibus transport for the driving fleet and machine workers to and from work at the Terminal and Deposition Sites, and

(b) providing minibus transport for schoolchildren and other residents to prevent the need for standing at road junctions

possible cessation of traffic at peak times

It will be a matter for consultation with the residents to define how they consider this service can best be designed to meet their needs, and the timing and frequency of minibus runs will be defined by agreement with the users of the service.

5.1.11 In-cabin communications and record keeping.

Two way Vhf radio communications will be provided between each vehicle and the Traffic Operations Managers office. Each flagman and the weighbridge records office will also have access to this communications system, and will be trained in its use, and in the priorities and disciplined usage necessary for effective communication.

In order to ensure compliance with national regulations on maximum working hours and break intervals for drivers, vehicle tachographs and GPS position recorders will be fitted to all haulage vehicles. These will be recorded to archive and analysed for compliance with work duties, productivity limits and the like on a daily basis.

A docket based record system will be designed and customized to record essential and relevant information for each load of peat removed off site. This docket would be printed to record as standard the vehicle owner's name, the vehicle registration number, or fleet identification number, the tareweight of the vehicle, and then would be completed to include the assigned driver name, date and time of loading and unloading, payload carried, tip receipt stamp, and space for specific comments. These dockets will be signed on loading and unloading and counterfoils would be appropriately filed.

Other report sheets would be designed for the driver to record any incident, or vehicle maintenance requirement, and a disposable camera would be provided in each cab for the use of the driver in the event of accident or other reportable incident.

5.1.12 Driver Training

The elements to be included in the training of each vehicle driver are listed in the Code of Practice at Appendix No. 2. Training will be customized to the requirements of this particular operation, and now and replacement drivers will receive the same training before being permitted to take up duty.

5.1.13 Vehicle Maintenance Yard

It is proposed to maintain all trucks in a central vehicle maintenance yard, and to otherwise fuel them and park overnight at either the Loading or Deposition Sites as the Traffic Operations Manager may direct. Overnight security at each site will be available, and all fuel

storage will be appropriately bunded. In the alternative, refueling by dedicated mobile tanker each evening will be carried out. **[DN Outcome of discussions with BnM needed to complete description of the Yard]**

Drivers will be transported to and from the parking areas by minibuses, to avoid congestion in the working areas, to avoid fouling of roads, and to ensure timely and coordinated arrival for tool-box briefings at the start of the working day.

5.1.14 Productivity Restrictions and Operational Hours

Working hours for the fleet in terms of public road haulage are expected to extend from 08.00 hrs to 18.30hrs Monday to Friday and 08.00 to 16.00hrs on Saturdays. Preparatory work within the parking areas, end of day loading for half the fleet, and briefings will take place outside of these hours. cessation during shift breakdown, repairs etc

In order to avoid any incentive towards reckless productivity, the Haulage Contract documents will clearly define an anticipated safe maximum daily productivity, having regard to speed limits, necessary break periods and the requirements of due care and attention. Above this productivity ceiling, penalties will apply to discourage unsafe practices.

5.1.15 Road Condition Maintenance

The extent of the heavy vehicle traffic movements, and the nature of the payload will create problems of:

(a) of fugitive spills of peat slurry from less-than-watertight tailgates, and
(b) of localized areas of subgrade and wearing surface failure

A wheelwash will be installed at the Bellanaboy Site prior to vehicles entering the exit lane of the access road. All vehicles will be required to pass through it on departure, by virtue of its position related to the records and weighbridge. A wheelwash will also be installed at the Deposition Site.

Internal circulation roads leading the vehicles to the loading plant will kept as clean as operations permit, by means of regular trimming of the circulation road surface by onsite graders, and topping off with clean maintenance coatings on a regular basis.

Use of private cars by plant drivers and fleet drivers in the confines of the Loading and Deposition Sites will be discouraged.

Filling procedures at the Loading Area will attempt to place pre-windrowed peat from a stockpile at the rear of the truck deck, nearest the tailgate. This is intended to absorb as much as possible of free water draining from the remainder of the payload onto the road surface during transit to the Deposition Site. Pre-drainage of the peat in situ will also reduce, but may not completely eliminate free water. This approach will be adjusted on site, as the actual condition and free water content of the pre-drained peat becomes clear.

On the access roads and the public sections of the haul route, two road sweepers will be continuously employed. In the event of accidental loss of payload, the follow-on driver will report this to the Traffic Operations Manager, who will dispatch route maintenance crew to deal with the spilled material. This work detail would also be responsible for maintenance of road drainage systems, including interception catch-pits, the positioning and collection of road cones, and the maintainence of all road signs, protective barriers and illumination equipment. They will also be required to maintain the condition of boundary walling of residential property from soiling by splash in wet weather.

As the haulage operation progresses, the condition of the haul road itself will come under pressure. Localised depressions will quickly deteriorate under the actions of repeated load, and localised waterlogging in depressions will quickly cause potholing. Drivers will be required to be vigilant for the first signs of wearing course or subgrade failure; they will be encouraged to report this by reference to the nearest Chainage Marker Posts along the route, and the maintenance crew will attend to these, on a continuous basis, and will announce their daily location at tool-box talk time.

5.1.16 Traffic Control at Main Junctions and Filling Area/Deposition Area approaches

Traffic arriving at the junctions with the R314 and R313 will be kept in lane discipline by a row of traffic cones leading to the yield point on the road.

Traffic during haulage hours will be controlled by trained flagmen, using Stop (red) and Go (green) reflective boards. These flagmen will be trained personnel, in communication with one another by radio, and with the Traffic Operations Manager. Drivers will be instructed to obey these flagmen at junctions, and they will be instructed on minimum clear distances one vehicle from another, when queuing awaiting an instruction to proceed.

Because traffic at the deposition site will directly cross the road, trucks will have a reflective lateral band so that drivers approaching the area in poor light conditions will visually interpret the cross traffic correctly.

Discipline and the avoidance of driver frustration is essential to successful traffic management at interface points with the public. For this reason, the use of traffic lights is not

envisaged. The risks of forming queues through unbalanced green/ red periods, and the inflexibility of lights to respond to changing conditions leads us to commit to demand based traffic management at the four main junctions on the Haul Road.

Haulage vehicles will not be allowed to queue, or reverse on to or off the public road during normal operational conditions, and the circulation systems within the Loading and Tipping Areas will incorporate all necessary turning circles. Each access road will also have local emergency lay-bys in the event that a truck stalls in this location, causing a back up of trucks behind.

5.2 EXPECTED SCHEDULE OF AVAILABLE PLANT

The expected level of vehicles and supporting plant and personnel is as follows:

- Total number of Vehicles in Fleet: 40 vehicles
- Total number of active vehicles at any one time in Fleet: 35 vehicles

It is expected that the Contractor will need to provide for 40 drivers to allow for the impacts of sickness, special leave, absenteeism, and the variability in the actual number of vehicles out of service for routine or special maintenance. In addition to these, the fleet will require:

- Two Road Sweepers
- One Recovery Truck
- Fourteen traffic control flagmen, ten on duty at any time, two relief flagmen at each end of the Haul Route to cover for breaks, sickness etc.
- One Traffic Operations Manager
- One Supervisor with pacing vehicle operations truck for traffic cones
- One JCB, Dumper and Pickup with Maintenance Crew of three operatives and operations truck for traffic cones.
- One Minibus (early morning and late evening driver transport, then local service for residents).
- One clerk-typist and Freephone response person.
- One Administrator at weighbridge and document control.

This level of resourcing will be kept under review as the Plan develops under consultation with stakeholders.

6 OTHER BULK MATERIALS TRANSPORT

Apart from the haulage of surplus peat, there are a number of other distinguishable bulk materials transport elements, which are collectively of a size as to warrant detailing in this Transportation Plan.

6.1 ENABLING MATERIALS IMPORT

Prior to extracting the surplus peat from the Terminal Site, and right at the commencement of the project, it will be necessary to construct the initial access road and construction compound on the Terminal Site. It is estimated that this will require approximately 10,000 cu.m. of imported rock, together with 8,000 tonnes of cement/lime binder material.

Given the exigencies of the programme for the upgrade of the L1204 Peat Haul Route, where the upgrade work itself would commence immediately planning permission is granted for the project, it will not be possible to use the L1204 at that time to draw these enabling materials to the site, since the L1204 will itself be the subject of upgrade work at the time.

It is proposed to draw that preliminary enabling material, only, along the R313 and R314 routes over the 10 week period which it is expected it will take to upgrade the L1204 to a point where haulage of peat can commence.

On this basis, it is expected that 400 laden vehicles of stone and 320 laden vehicles of cement/lime binder materials will use the R313/R314 as a haul route at the commencement of the project, at a rate of 9 HGV's making the full and unladen journeys each day.

6.2 OTHER IMPORTED MATERIALS

Once the L1204 is upgraded, the timing of the importation of the remainder of the materials to the Terminal site, and export of unsuitable material from the site, will for the most part, not coincide with the peat haulage operation, but will follow its conclusion.

As the footprint of the working area expands on the Terminal Site, a further 10,000 cu.m of stone and 7,000 tonnes of cement/lime binder will be gradually required, and will be drawn along the L1204 at a rate of 8-9 loads per day or 68 cu.m. daily on top of the 4,000 cu.m daily peat payload, so that this will be of the order of 1-2% of the traffic load otherwise on the L1204 during that period.

In Year 2 of the construction programme. it is expected that a further 30,000 cu.m. of imported rock, and 10,000 cu.m. of imported drainage stone will be required, but this will be after the peat haulage operation has ceased. These will be drawn along the L1204, as

required, and typically this would produce not more than 10 HGV loads daily, resulting in traffic levels of 3 vehicle movements per hour. These levels of traffic are not particularly onerous, but the discipline of the peat haul operation will be a requirement of the quarry drivers also.

6.3 EXPORTED MATERIALS

It is estimated that 50,000 cu.m. of mica-schistic weathered rock may be removed off site during the construction operation, as material unsuitable for the construction purpose on site, but suitable for site remediation elsewhere, as may be regulated by Permit by Mayo County Council. This materials haulage operation will be conducted after the peat haulage operation has ceased, and would be expected to run continuously at a level of 10-15 HGV loads daily. In the event that the restoration site for the material being removed off the Terminal Site coincided with the source of the rock and drainage stone imports, then it might be expected that vehicle movements between the two operations would be minimized by having trucks travel laden in both directions. If this should not be the case, the traffic movements must be regarded as additional to those set out in Section 5 above.

7. REVIEW AND UPDATING

This Transportation Plan has thus far been developed to the Planning Stage, so that the necessary steps are taken throughout the planning proposals to support an efficient, safe transportation operation, with the least possible impact upon the lives of the residents living alongside, or close to the Haul Route.

The Plan must evolve through the process of consultation with the people of the area, with Mayo County Council, and with the Gardaí. It will then become part of the Contract Documentation for procurement of the Haulage Contractor, who will be obliged to address it in his submission, and whose tender will be obliged to fully reflect those requirements and restrictions which have been incorporated into a Plan which strikes the best balance between getting the job done and impacting on the lives of others as its done. The successful Contractor will be required to constructively contribute towards customising the Plan, improving it, adhering to it, and reviewing his performance against its objectives.

APPENDIX NO. 1 - RISK MATRIX

Shell E&P Ireland Ltd.

Peat Haulage Route

Risk Assessment Matrix

This document summarises the potential health and safety risks associated with the Peat Haul Route and the Haulage Methodology and allocates appropriate ownership of them between EEIL and the Haulage Contractor.

EEIL is EEIL retained risk to be addressed in Road Upgrade Works

BnM is a Bórd na Móna site specific risk on the Restoration Site

C is Contractor retained risk to be addressed in methodology

TOBIN

Patrick J Tobin & Co Ltd

Shell E&P Ireland Limited

This version printed: 25/11/03, 09:41 VERSION NO. 1

RISK ALLOCATION ASSESSMENT PROCESS

Objectives

The analysis of the risks to be allocated to each party under the Peat Haulage Contract is undertaken to achieve a number of objectives:

To understand and define how the risks are best allocated between the two parties according to the responsibilities that each party takes.

To monitor how the evolving Peat Haulage Contract Documents affect this allocation.

To continue to monitor the revisions to risk allocation that may be required as a result of changes to the design of the loading area, tipping area, or haul road, or the haulage methodology during the Haulage Contract.

Description of Risk Areas

The headings used in the risk assessment cover all facets of the operation

Category	Description of risk
Design impacting Risk	The risks associated with the existing conditions along the Haul Route, and the proposed configurations of the Loading and Tipping Areas
Transitional Risks	The risks associated with transferring responsibility for the Road & Culvert Improvement Works to the Council, including the transfer of the upgraded Haul Road into the Contractors' primary but not exclusive control.
Operational Risks	The risks associated with operating the services during the contract period, including those associated with the costs of unavailability and under performance of the services, damage or loss to equipment and property, third-party claims for compensation or damages and the impact of Force Majeure or Relief events.

Volume Risks	The costs and risks associated with duration of the contract may differ from those estimated at the outset because volume estimates for the material to be moved, or the unit carrying capacity, vary from the levels assumed.

Risk Allocation Principles

The purpose of risk allocation is to identify which party should bear the impact of any identified risk (i.e. has the ownership of the risk).

Specifically:

- Where a risk is identified as being owned by the Contractor, the financial impact of the risk and the responsibility to provide for it will fall within the scope of the Haulage Contract.

- Conversely, where a risk is identified as being owned by EEIL, the risk must be covered in the design of the Haul Route and the temporary works areas for loading and tipping. In the Deposition Area, these risks need to be addressed by BnM.

The principles of risk allocation need to be summarised in the following table (examples of probable principles included for discussion).

Risk Area	Key principles (examples)
Design impacting risk	EEIL are responsible for producing a safe loading area, properly lit and traffic controlled, with clear signage for hazards, and clear road markings for circulation. While BnM nominally carry this risk at the Deposition Site, EEIL as the promoting company carry an overarching responsibility to ensure that the deposition operation can be safely carried out there. EEIL have a responsibility to ensure the L1204 upgrade addresses design inadequacies which exist at present.
Transitional Risks	EEIL has overall responsibility for the timely delivery of the upgraded Haul Route into service to avoid later risks associated with un-seasonal working. This responsibility includes necessary support to Mayo County Council to keep them on an agreed programme of upgrade works. Transitional risks at the end of the haulage operation must also be covered.

Operational Risks	The Contractor has the practical responsibility for the health and safety aspects of his haulage operation, but EEIL carry the responsibilities that attach to the Employer in such circumstances. The Contractors' approach to this may be expected to take the form of a Code of Practice for fleet drivers, with proper safety induction sessions, and real sanctions against infringers. EEIL is responsible for defining appropriate performance measurement standards that are set as safety limits in the Haulage Contract Documents.
Volume related Risks	EEIL carries the risks associated with prolongation of the work due to underestimation of the volume to be moved, or the condition of it at the time it requires to be moved.

RISK AREA | Design Impacting Risks

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
A1	Sight distances to the L1204/R313 Junction from Bangor side are inadequate given the hazard represented by crossing haul traffic.	Warning signs accompanied by a flashing light are required prior to the crest of the hill between Bangor and the junction. All trucks should carry reflective lateral bands to increase visibility in dusk conditions. Junction to be flagman controlled, Hi-Viz jackets and torch-lit batons to be provided.	EEIL	M	M
A2	Circulation of haulage traffic and peat placement vehicle loading shovels in the deposition platform cause vehicle accident or injury to flagmen	EEIL risk, to be addressed by safe working procedures for BnM staff operating shovels, and delineation of working area by water filled barriers separating shovels from Haul Route traffic. Lighting of the platform must be addressed by BnM. Haul Route Contractor to obey flagmen at Deposition Site.	S	M	M
A3	All risks arising between the BnM loading shovels and the end placement of peat in position in the Restoration Area	These are all to be addressed by BnM as part of their safety procedures for the site. These have no interface with the Haulage Contractor	BnM	L	L
A4	Queing along the Deposition Area Access Road reduces sight distance and causes hazard for personnel circulating on foot.	Include a Specified Requirement that Queuing vehicles remain a minimum distance of 20m apart.	C	L	L
A5	Driver distraction in the deposition area causes accident or injury when tipping or lowering the truck deck post tipping.	No in cabin radios to be permitted to play in the Deposition Site, no movement of empty truck to be permitted until deck has been lowered into fully down position.	C	H	H
A6	Driver confusion in the wheelwash approach area causes accident or injury.	Those charged with directing trucks into the tipping position have not completed the task until they have so ordered priority at the tipping face that they have effectively directed the empty truck into the queue for the wheelwash.	EEIL	L	L
A7	Trucks stall or breakdown crossing the L1204/R313 Junction.	Flagman on the junction must control the safe movement of traffic there. Tow Vehicle must be on standby to remove broken down trucks causing traffic hazard.	C	L	M
A8	Mechanical failure of braking systems, or poor tyre condition, cause accident or injury in the congested conditions of the Deposition Area.	Onus is on Haulage Contractor to have a regular visual check of any element of the Fleet, the failure of which could cause death or injury. Procedures to track hours-to-service of trucks and to record service mechanic notes to be in place as Specified Requirement. Insurance status of accidents in the Deposition Area to be established with BnM, who may be self insured.	C	L	H

Owner: EEIL = EEIL retained risk; C = CONTRACTOR retained risk; S = Shared risk, BnM = Bórd na Móna risk

Likelihood: L=1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
A9	Fouling of the circulation area by peat slurry causes accident or injury in the congested conditions of the Deposition Area.	BnM are obliged to sweep or wash down the deposition area to prevent this risk developing. They are also responsible for maintaining the wheelwash in working condition. Regular surfacing of the Access Road to the Deposition Area must make it possible to sweep that surface, notwithstanding the wheelwash.	S	H	L
A10	Stayed Utility Pole along the R314 at Chainage 290m marginally overhangs carriageway on empty truck return lane, and presents a collision risk at truck cabin roof level	Utilities should be requested to realign, and to lighten stays on poles generally along the route, many of which have loosened so as no longer to be effective lateral restraints.	EEIL	L	L
A11	Low level transverse utility service cables at Chainages 630m and 880m, from pole to customers on a downward catenary represent potential collision risks	Utilities should be requested to realign,	EEIL	L	L
A12	Lateral restraint barriers are missing at Bellanaboy Bridge, and parapet ends are poorly defined as front-on hazards. These present risks of collision, or significant fall risk into water.	Armco or equivalent Barriers required at this location	EEIL	L	H
A13	High Voltage cables crossing at Chainage 1475m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A14	Lateral restraint barriers are missing on approach bends to and at Muingeroon Bridge, and parapets are structurally light vis a vis collision hazards. These present significant fall risks into water.	Armco or equivalent Barrier required at the northern approach bend on the outer edge of the curve, structural assessment of the parapet walls to withstand collision by laden truck is required.	EEIL	L	H
A15	Lateral restraint barriers are missing on second bend at Muingeroon Bridge; this bend represents a collision hazard for any truck with failed brakes on the	Armco or equivalent Barrier required at the southern approach bend on the outer edge of the curve, consideration to be given to stockpiling sand on available ground as a collision precaution against brake failure on northwards approach incline	EEIL	L	H
A16	Diminished sight distance at Chainage 2800 due to vertical road profile causes unplanned braking and collision hazard	Consider a layby for returning unladen vehicles to pause near Chainage 2900	EEIL	L	L
A17	Diminished sight distance at Chainage 3550 due to vertical road profile causes unplanned braking and collision hazard	Consider a layby for returning unladen vehicles to pause near Chainage 3725m and 3875m	EEIL	L	L
A18	Lateral restraint barriers are missing on outer bend at Chainage 4075m; this bend represents a runoff and drop hazard for any returning unladen truck	Armco or equivalent Barriers required at this location	EEIL	L	L
A19	Properties and outbuildings form a pinch point at Chainage 4475m, and High Voltage cables cross the carriageway	Reduced sight distance and increased risks of vibration damage to structures, consider vibration monitoring and local widening to form a passing area. Cables unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	M	M

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Likelihood: L=1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
A20	Diminished sight distance at Chainage 4800 due to horizontal road profile causes unplanned braking and collision hazard	Little scope for mitigation; consider pause point if the adjacent side road junctions are otherwise likely to become unapproved pause points	EEIL	L	M
A21	Bridge parapet at Chainage 5525 m represents a pinch point hazard and walls are not delineated at the front edges, increasing collision hazard	Paint Hi Viz delineation on front edges, provide widened section on the approaches for unladen trucks to pause and give right of way to oncoming laden traffic.	EEIL	L	L
A22	High Voltage cables crossing at Chainage 5675m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A23	High Voltage cables crossing at Chainage 6125m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A24	House cluster forms a pinch point at Chainage 6750m, and diminished sight distance presents a collision risk	Provide widened section on the approaches for unladen trucks to pause and give right of way to oncoming laden traffic. Monitor for vibration levels.	EEIL	L	H
A25	High Voltage cables crossing at Chainage 6875m and 6975m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A26	Diminished sight distance at Chainage 7625m and its vicinity due to vertical road profile causes unplanned braking and collision hazard	Form a pause area on the nearby outer bend at Chainage 8000 m	EEIL	L	L
A27	Outer bend at Chainage 8000 m lacks restraints against runoff of a truck and a fall hazard.	Armco or equivalent Barriers required at this location	EEIL	L	L
A28	Low Voltage cables crossing at Chainage 9575m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A29	High Voltage cables crossing at Chainage 10120m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A30	Seriously restrictive sight distances in vicinity of Chainage 10100m -10300m, blind exits from private dwellings represent significant collision hazard	Consider provision of convex mirrors opposite entrances. This may not be enough to mitigate what we consider to be a significant risk here	EEIL	H	H
A31	Low Voltage cables crossing at Chainage 10375m	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L
A32	Three strand HT Cables at Chainage 10775	Unlikely to represent a significant risk because of their elevation. Position to be noted for other plant of exceptional height	EEIL	L	L

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Likelihood: L=1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

RISK AREA Transitional Risks

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
31	The initial establishment of the Loading Area footprint leads to restricted circulation space, limited visibility during manoevre and causes accidents	Contractors drivers need to be advised of hazardous circulation areas at the start-up phase of the work at the Loading Area	C	L	L
32	Reduced initial output from the Loading Area causes extended queing of fleet on access road with potential for accidents	Specification should include a ramp-up provision where the fleet is brought up to full productivity as the Loading Area is opened	C	L	M
33	Flagmen are initially unfamiliar with overall plan, communication systems, emergency procedures, priority rules, leading to disjointed operation control at key junctions, and public complaints or increased risk of accidents through frustration.	An induction course needs to be held for flagmen, who should be experienced, capable people, with adequate relief provision of the same calibre. Extensive " What if?" scenario testing should be pursued with them	EEIL	L	M
34	Drivers are initially unfamiliar with overall plan, communication systems, emergency procedures, priority rules, leading to disjointed action at points of decision, and increased risk of accidents	An induction course and Canteen Safety Update Talks need to be held for Drivers, particular care needs to be taken with new or replacement drivers, who should be mentored on the route hazards by accompanying experienced drivers for at least one trip.	C	M	M
35	Gardaí or Mayo Co. Council issue overriding local instructions which conflict with the transport plan	A Liaison Meeting with these, and the Contractor, at which the Plan is discussed and if necessary adapted, is required before operations commence.	EEIL	L	L
36	Signposting of Haul Route and adjacent roads not in place at commencement of operation	Mayo County Council need to be aware that completion means signs and road markings	EEIL	M	H
37	Haul Road upgrading works are delayed, leading to consequent unseasonal haulage	A contingent strategy of windrowing and Loading Area Development needs to be developed, consider later transport of driest material stockpiled against bad weather windows	EEIL	M	H
38	School bus drivers and pupils are unaware of the scale of the transport operation, and fail to commence their own safety measures in the first weeks	The detailed schedule of the school buses serving the area needs to be identified, communicated to drivers, and bus drivers need to be warned in good time of the start of the operation, so they can pass advice to pupils in the manner they are used to hearing such things.	EEIL	L	H
39					

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Likelihood: L=1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

RESTRICTED-COMMERCIAL

RISK AREA Operational Risks

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
C1	A truck collides with animals broken out or being moved along the L1: 04	These situations are common along this road. The Contractor must emphasize the need for alert driving, particularly in areas of reduced sight distances along the L1204	C	L	M
C2	A Fuel Spill on the Haul Road causes hazardous driving conditions	Contractor must place an onus on drivers to report an event leading to hazardous driving conditions. Vehicle Service providers must include facilities to make safe a road surface affected by diesel spill	C	L	L
C3	A driver under the influence of alcohol or drugs causes an accident r sulting in death or injury	The Contractors' safety statement and procedures must be proactive and decisive on such issues	C	L	H
C4	Truck breakdown in an area of poor sight distance results in accident or injury	The Contractors system of in-cab communications and vehicle recovery must address response time and general warning of hazards by Chainage references to curtail risk. Reflective triangle warning signs must be regularly checked as part of the truck safety inventory	C	L	H
C5	Loading or Deposition Site affected by failure of power supply for ligh ing or pumping where BnM or EEIL does not have back-up for the site	EEIL Site Safety Officer must have authority to call for temporary cessation in operations when this occurs. Parking facilities should be examined for ability to accept more than half the fleet on an emergency basis if vehicle movements present a hazard on the affected site	S	L	H
C5	Road surfaces become hazardous due to fugitive spillages from payl oad	Road brushing vehicle needs to be on call to supplement routine brushing as conditions require	C	L	M
C6	Breaches of security or sabotage with safety implications occurs to t e fleet vehicles when parked overnight	EEIL must address this at the parking areas on each of the Loading and Deposition Sites	EEIL	L	H
C7	Localised purging of the haul road, or failure of the subbase, causes rollir.g of the load or loss of steering control by drivers	A system of reporting from the Drivers, by reference to Chainage Markers on posts, of road condition needs to be coordinated into a response of temporary repairs by an assigned repair party, with suitable safety gear to restrict traffic on areas being worked	EEIL	H	M
C8	An adjacent civil engineering operation commences and disrupts transport routes	Check with Mayo County Council Planning Section & Area Office	EEIL	L	M

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Likelihood: L= 1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
C9	Action by third parties, perhaps with threats to drivers or contractors staff, impacts on the Haulage Operation	*All Staff require instruction on how to deal with such situations, in the context of dealing with the public. Care needs to be taken not to provoke such conflicts by discourteous behaviour by drivers or staff.*	C	L	M
C10	Weather conditions deteriorate, fog, ice, or intense rainfall	Operation rules in fog may need to consider temporary cessation, Met Eireann ice warnings need to be availed of, perhaps via Mayo County Council	EEIL	L	M
C11	Injury to Contractor staff from exposure to Truck Machinery, Electrical Shock or other injury from defective equipment	*Contractor's risk having instructed staff clearly on the trucks they drive, and on repairs or adjustments they should not attempt without qualified assistance*	C	L	H
C12	Injury to Contractor staff on account of Repetitive Strain, Posture, Back or other Strains from improper working conditions.	*All Drivers must take the work breaks they are entitled to; no "flexitime" compromises on this issue ought to be permitted.*	C	L	L
C13	Pollution/loss/degradation of 3rd party land/assets as a result of Load loss, fuel spill brought about as a result of accident; and all costs arising.	This must be covered against a background of proper insurance, operations on best practice and identification of particular risk points	EEIL	L	L
C14	Pollution/loss/degradation of 3rd party land/assets as a result of malicious action by Contractor staff or subcontractor staff (and all costs arising)	Contractors Risk; Operations Manager must maintain a diary of attendance by drivers, and a work history by date for each driver and vehicle	C	L	L
C15	School children standing at road junctions on the L1204 in low visibility winter wear are an injury risk	Drivers need to be cautioned not to use junctions as pause points without due care, and to be extra vigilant at a paused school bus. Consider providing hi-viz armbands to pedestrians, and transport which avoids pupils standing by the roadside on the L1204 in poor light conditions.	C	L	H

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RISK AREA | Volume or Material Condition Risks

	RISK	COMMENTARY	OWN.	LIKE.	IMPACT
D1	The volume of material to be moved is greater than expected, resulting in prolongation of the haulage operation into unseasonal weather and light conditions.	Quality Assurance of the initial volume estimate should be carefully examined. Availability of the Contractors fleet on an extended basis should be ascertained in the tender documents, and limits on the deposition season should be established with BnM.	EEIL	M	L
D2	The volume of each payload is less than anticipated resulting in prolongation of the haulage operation into unseasonal weather and light conditions.	This risk is low.	EEIL	L	L
D3	The available active fleet is reduced because of higher than expected frequency of breakdown or absenteeism, leading to slippage in programme into more hazardous working season	Contractor Selection procedures need to address the reliability issue, and contingent response to signs of slippage in operation needs to be agreed even before work commences	C	L	M
D4	The transport operation is delayed to a point where material condition deteriorates and BnM are obliged to cease accepting the peat for Deposition	The precise conditions under which this may occur must be agreed with BnM; and a contingent plan developed for on site storage of residual surplus peat at the Terminal Site, for following season removal, needs to be evolved.	EEIL	M	H
D5	Mixing of material at interface layers makes the material unsuitable for transport to the Deposition Site	Rules for handling marginal material need to be agreed with BnM; plant at the Loading Area and experienced operators must be selected to minimise the mixing of suitable with unsuitable during excavation.	S	M	L

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Likelihood: L=1-20%; M=20-50%; H>50% Impact: L = Low, M = Medium, H = High

APPENDIX NO. 2 - DRIVER TRAINING CODE OF PRACTICE

Outline Code of Practice for Truck Drivers operating on the Peat Haul Route

This outline code is indicative of a standard which will be specified in the Haulage Contract Document. It is not exhaustive and it will be customised by the successful Contractor for his own workforce.

A. Driver Behaviour

A1 Drivers are required to be respectful towards, and courteous to other road users, towards residents, and towards those reporting problems or registering complaints, at all times. Discourtesy will not be tolerated.

A2 Drivers are required to be attentive to in-cabin communications, formal training days and daily morning briefings, where they shall sign in for work.

A3 Drivers shall obey speed limits and signpost directions throughout the Haul Route and on the Filling and Tipping Sites.

A4 Drivers are to adhere to working hour limits, productivity limits and payload limits which are set for health and safety reasons, and to obey any statutory limits on working hours, and are obliged to take such break periods as may be specified.

A5 Drivers shall maintain such records as they may be required to keep of loads transported, tonnages etc., and shall produce these on request by an authorized person. They shall cooperate courteously with others whose responsibility it is to record tareweights and payloads.

A6 Drivers shall wear such high visability clothing and protective gear as may be provided for their use when walking in the Loading or Deposition Areas.

A7 Drivers shall not report for work under the influence of alcohol or other drugs, nor shall these substances be consumed during working hours, and shall submit to testing to verify compliance with this requirement on request.

A8 Drivers shall not operate in cabin radio, CD or cassette players in a manner which would detract from their awareness of their surroundings so as to present a hazard to pedestrians or other road users.

A9 Drivers shall, in addition to the rules of the road, observe such other rules on priority rights of way etc., and such directions from authorized traffic management personnel, as may be laid down for the optimum operation of the transportation operation overall.

A10 Drivers shall use toilet and eating facilities that are provided for them.

A11 Drivers shall not park their vehicles, in such a manner as to cause a hazard or obstruction to other road users.

A12 Drivers are obliged to note road pavement conditions, traffic hazards etc., and to report these to the Traffic Manager for onward advice to other users and for pavement

maintenance. Drivers shall use such chainage identification posts as may be provided to assist him in reporting the location of such problems.

A13 Each Driver shall adopt good driving practices, anticipatory of hazards, including periodic safe testing of brakes.

A14 Each Driver shall maintain a minimum distance of 20m from the vehicle in front when queuing, so as to maintain adequate visibility around the vehicles. Drivers shall cooperate in maintaining average distances between vehicles on the Haul Route, other health and safety matters permitting.

B. *Vehicle Maintenance*

B1 Each Driver shall be obliged to inspect and maintain his vehicle in a clean condition, so that windshields, side windows, mirrors, headlamps, tail lights, registration plates, identification plates and reflective bands are unobstructed by dirt. He shall ensure that mudguards are in place and that the windshield washers are functioning at the start of each working day.

B2 Each driver shall ensure that he has a properly inflated and safe spare tyre, breakdown warning triangles and sufficient fuel to complete transit to a refuelling point.

C. *Haulage Contractor Obligations*

C1 The Contractor shall ensure that Health and Safety Induction of each Driver takes place, based on an approved Site Specific Safety Statement.

C2 The Contractor shall ensure that each replacement Driver receives the same Instruction as set out in C1, together with an introductory trip around the cycle of load, transport, tip, and return, with an experienced Driver before joining the fleet.

C3 The Contractor shall maintain and produce records of Insurances relating to Employers Liability, Public Liability and Motor Vehicle for each vehicle, including due dates for renewal for inspection by an authorized officer of the Employer.

C4 The Contractor shall maintain proper toilet, washup, changing and canteen facilities for the Drivers, all in a high standard of cleanliness.

C5 The Contractor shall maintain the fleet of vehicles in a roadworthy condition, with those elements of vehicle condition impacting on safety, such as tyre pressures, tyre condition, brakes, lights, reverse and tipping warning beepers checked daily as part of routine refuelling. Each vehicle shall be regularly serviced and a service record maintained for inspection.

C6 The Contractor shall, in drafting his procedures and preparing his method statements and contingency plans, recognise that he is in partnership with the Employer, the Roads Authority, the Gardaí and the residents who live along the Haul Route, to ensure a planned operation, cognizant of the needs of residents and other road users.

D. Driver Training

Driver Induction will take the form of a preliminary training day, with visual aids capable of being repeated for new and replacement drivers. This will be supplemented by tool box talks on particular issues of programming, temporary hazards and the like.

The training module will cover the following areas:-

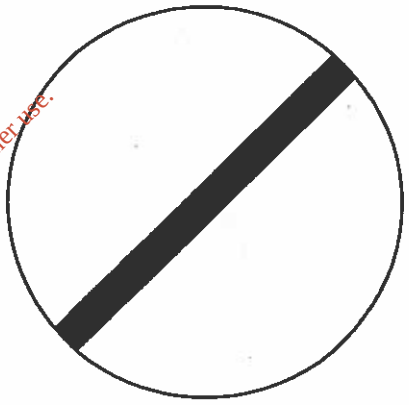
- ξ Vehicle and driver documentation and insurance requirements.
- ξ Vehicle familiarisation, technical specification.
- ξ Introduction to the village clusters on the L1204 and adjoining roads, at Muingingaun, Glenturk More, Glenturk Beg, Glencullin Lower and Upper, Lenanadurtaun, Cloontakilla.
- ξ Profile of the residential community, schoolgoers, workers, elderly, and those with special needs or access requirements.
- ξ School bus routine and pick-up times.
- ξ Standards of required Driver Behaviour.
- ξ Local traffic regulations, agreements with Gardaí and the Council, traffic signs and markings.
- ξ Role of the traffic controllers at exits, entrances and junctions.
- ξ Priority rules for laden and unladen vehicles meeting on the road, for queuing
- ξ Risk assessment and accident black spots.
- ξ Record keeping, in-cab communications discipline, accident or incident reporting procedures.
- ξ Rules on substance abuse, and behaviour in the community, outside working hours.
- ξ Familiarisation with the peat payload, tendencies for load shift etc.
- ξ Daily vehicle inspection routine, and maintenance requirement reporting.
- ξ Road pavement condition reporting and hazard reporting by Chainage Marker.
- ξ Emergency Procedures and Contingencies.

APPENDIX NO. 3 – SCHEDULE OF ROAD SIGNS

TYPE 2

TYPE 2A

TYPE 3



TYPE 3A

TYPE 4

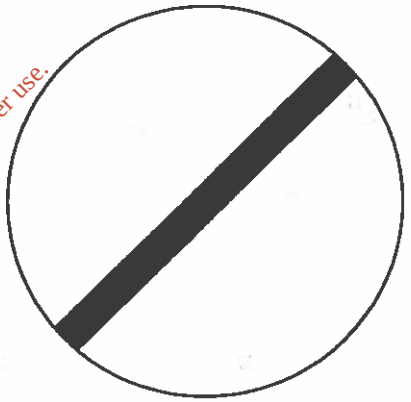
TYPE 5

ROAD SIGNS -TYPE 2,3,4 & 5

TYPE 2

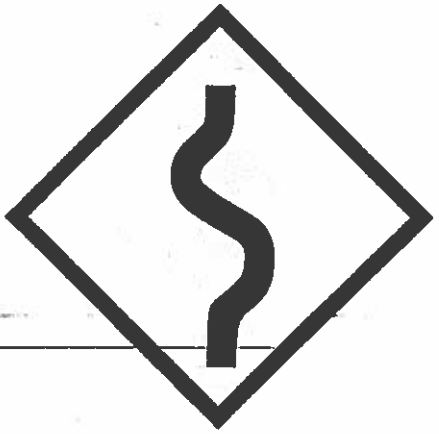
TYPE 2A

TYPE 3



TYPE 3A

TYPE 4



TYPE 5

ROAD SIGNS -TYPE 2,3,4 & 5

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Mr. Iain Douglas
Planning Department
Aras an Chontae
Altamount Street
Westport
Co. Mayo

12th December 2003

Dear Mr. Douglas

Subject: Corrib Natural Gas Project

Please find attached a copy of a letter issued to local stakeholders today. Please do not hesitate to contact me if you have any queries.

Your sincerely

Andy C Pyle
Managing Director

Shell Exploration & Production

Ap/Sm

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12 December 2003

Subject: Corrib Natural Gas Project

I am writing to confirm that we have reached the decision to submit a new planning application for an onshore gas terminal at the Bellanaboy Bridge site. This intention will be advertised in the Irish Independent on Saturday, 13th December and the application will be lodged before the end of December.

The new application will incorporate the proposal for the removal of peat from the proposed site and deposition at the Bord na Móna cut-over peatland at Srahmore. This new proposal was well received during extensive consultations and at the recent exhibitions. Apart from the new proposal regarding peat deposition, the new application has not changed substantially from that previously considered by the relevant planning authorities.

We understand that the planning application, once submitted, will be available for members of the public to view at the Mayo County Council offices in Castlebar and the local council office in Belmullet. The local authority has also advised us that nine days will be added to the statutory period to compensate for time lost over the Christmas and New Year holiday season.

An Environmental Impact Statement (EIS) to accompany the planning application has been prepared and, under the Planning and Development Act 2000, the local authority is responsible for addressing requests for copies. Copies of the non-technical summary of the EIS will be available on our website **www.shellireland.com** once the application has been lodged.

May I take this opportunity to thank you for your support throughout 2003 and to wish you a very Happy Christmas and a Peaceful New Year.

Yours sincerely

Andy C Pyle
Managing Director

Registered Office
Corrib House,
52 Lower Leeson Street,
Dublin 2, Ireland
Registered in Ireland
Number: 316588
VAT Number: IE.6336588 P

COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

TO: File **DATE:** 22/12/03

FROM: Iain Douglas Senior Planner

SUBJECT : **Note of Meeting.** **FILE:**

Present:

Mayo County Council	**Enterprise Energy Ireland**
Iain Douglas SP	Gavin Lawlor Gerry Costello

I met with Enterprise Energy Ireland on 24th November 2003.

The purpose of the meeting was for EEI to update Mayo County Council on their progress to date regarding issues on the use of Local Road L1204 and to outline a provisional timetable for finalising their EIS and submission of the planning application

EEI explained that Bord na Mona was preparing the second volume of the EIS and it was hoped to lodge the application in or around the 15th December2003.

I indicated that, for operational reasons it would suit Mayo County Council to receive the application on a Friday.

Iain Douglas
Senior Planner

Shell Exploration & Production

Shell E&P Ireland Limited
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Ireland
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AP/kc/kod

19 November 2003

Mr Iain Douglas
Planning Dept
Aras an Chontae
The Mall
Castlebar
Co. Mayo

Dear Mr Douglas

Corrib Natural Gas Project

Further to our recent letter to you in regard to the Corrib project, we will be holding an exhibition at Teach Iorrais, Geesala as part of our ongoing public consultation exercise. The exhibition will take place on Friday, 28th of November, from 9am to 1pm and I would be delighted if you could drop in at a time convenient to you. The exhibition, which is jointly organised with Bord Na Móna, will outline proposals that, if found broadly acceptable, could form the basis of a new planning application. These proposals have been prepared following discussions with a number of local stakeholders.

Members of my team will be available to meet with you throughout the morning and answer any queries you may have. A buffet lunch will be available at 12.30 pm. The exhibition will also be open by invitation to local residents on Friday afternoon and evening and to members of the public all day Saturday.

The material will also be available for viewing in the Corrib Gas Information Centre in Bangor Erris for one week, commencing Monday, 1st December. The Bangor office can be contacted on 097-83955 in regard to any queries

Kind regards

Andy Pyle
Managing Director

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52 Lower Leeson Street,
Dublin 2, Ireland

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Shell E&P Ireland Limited

File copy

Corrib natural gas

Enterprise Energy Ireland Ltd.

Bellanaboy Terminal Project

Draft

Peat Haulage Transportation Plan

TOBIN
Patrick J. Tobin & Co. Ltd.

TOBIN Consulting Engineers

GALWAY AND CASTLEBAR

DUNDALK AND LIMERICK

November, 2003

DOCUMENT AMENDMENT RECORD

Client	Enterprise Energy Ireland Ltd.
Project	Corrib Gasfield Terminal
Title	Peat Haulage Transportation Plan

Project No.	2044	**Document Ref:**	2044 EEIL Transportation Plan		
Revision	**Purpose / Description**	**Originated**	**Checked**	**Authorised**	**Date**
0	Draft issued to Client	MFG	MFG	MFG	05/11/03
A	Draft issued to Client	MFG	MFG	MFG	25/11/03

TOBIN CONSULTING ENGINEERS, MARKET SQUARE, CASTLEBAR, COUNTY MAYO

TABLE OF CONTENTS

1. INTRODUCTION & TERMS OF REFERENCE

Prior to the construction of a gas processing terminal on the designated Bellanaboy Bridge site, it is necessary to excavate the peat overburden from the footprint area of the proposed terminal, its circulation areas and the adjacent areas which need to be worked to achieve proposed finished ground levels around the terminal.

Detailed contour surveys of the site, and definition of the formation levels of the Terminal complex, have resulted in a pre-works estimated quantity of 400,000 cu.m. of peat. Feasibility studies carried out with Bórd na Móna on the option to transport the surplus peat to a reclaimation site within the ownership of An Bórd near Bangor have proven that the option is feasible, and has many collateral advantages in terms of restoration of the Bangor site. The proposed Deposition Site is located in the townland of Srahmore, directly opposite the junction between the R313 Belmullet Road and the L1204 Road towards Pollathomais and Glenamoy.

Movement of such a volume of peat, from the proposed Bellanaboy Terminal Site to the Bórd na Móna Deposition Site on the outskirts of Bangor, nevertheless requires detailed planning of the logistics of the operation:

(a) in order to resource the transport fleet properly,
(b) in order to describe the environmental impacts adequately, and particularly those on adjacent residences and other road users,
(c) in order to highlight and address potential imbalances in the filling, transport and deposition operations, potentially leading to queing and inefficient application of resources
(d) in order to assess the demands upon the road infrastructure in the area,
(e) in order to highlight risks and contingencies, so as
(f) to conduct a thorough Health and Safety review of the operation.

This Transportation Plan examines the logistics of filling transport vehicles at the Bellanaboy Terminal Site, transporting the peat via a dedicated Haul Road to the Bangor Deposition Site, and discharging the payload at that site, with all of the associated traffic controls, recording systems, and the necessary work procedures and codes of good practice that are required to support a planned, coherent operation.

1.1 DRAWINGS

The following Drawings accompany this Transportation Plan.

Drawing No.	Title
2044-1000	Layout Plan showing Road Network and distance signage
2044-1001	Layout Plan showing Terminal Site, Haul Route and Peat Deposition Site
2044-1002	Key Plan to Layout Plans
2044-1003	reserved number for future drawing
2044-1004	reserved number for future drawing
2044-1005	Layout Plan and Longitudinal Section of Haul Route Sheet 1 of 7
2044-1006	Layout Plan and Longitudinal Section of Haul Route Sheet 2 of 7
2044-1007	Layout Plan and Longitudinal Section of Haul Route Sheet 3 of 7
2044-1008	Layout Plan and Longitudinal Section of Haul Route Sheet 4 of 7
2044-1009	Layout Plan and Longitudinal Section of Haul Route Sheet 5 of 7
2044-1010	Layout Plan and Longitudinal Section of Haul Route Sheet 6 of 7
2044-1011	Layout Plan and Longitudinal Section of Haul Route Sheet 7 of 7

2. THE PROPOSED HAUL ROUTE

For the purposes of this Plan, and for reckoning chainage distance along the route, the proposed Haul Route commences at the gate of the loading area at the northeastern sector of the Terminal Site and terminates at the proposed tipping area within the Deposition Site. The main section of the Haul Route lies along the L1204 county road, linking Bellanboy to the R313 at Bangor. Drg.No.2044/1001 indicates the limits of the Haul Route, and the road numbers which collectively form it.

The entire Haul Route has been surveyed for line, crossfalls and level related to Ordnance Datum (Malin Head) and the road layout and longitudinal sections are shown on Drgs No 2044/1005 to 2044/1011 inclusive.

3. EXISTING TRAFFIC AND ROAD CONDITIONS

The sections of Haul Road, and the chainages from a Chainage Zero at the gate of the Terminal Site, are as follows;

Road	From	To	Distance	Existing Road Width
Terminal Access Road	Filling Location	Proposed Terminal Entrance on R314	(tba)	(tba)
R314	Proposed Terminal Entrance	R314 / L1204 Junction	1.3 Km	5.9 m
L1204	R314 / L1204 Junction at Bellanaboy	L1204 / R313 Junction at Bangor	9.5 km	5.4 m
R313	L1204 / R313 Junction at Bangor	Entrance to the Deposition Site	0.01 km	6.1 m
Deposition Site Access Road	Entrance to the Deposition Site	Tipping Location	(tba)	(tba)

In broad terms, peat transportation traffic leaving the proposed Terminal Site will travel a short distance along the R314 before taking a left hand turn onto the L1204. Other than for side roads, serving housing clusters off the L1204, there are no further main junctions until the junction with the R313. Since this is directly opposite the proposed entrance point to the Deposition Site, a straightforward crossing of the R313 is involved, with the remainder of the Haul Route along the access road within the Deposition Site itself.

3.1 EXISTING TRAFFIC

Taking the initial section along the R314 from the Terminal Site Gate heading westwards, peak hourly traffic counts on this section of road are 11 vehicle movements in the morning and 44 vehicle movements in the evening, at present.

The main section of the route, the L1204, caters mainly for logging traffic and private cars of residents living in the housing clusters which are accessed off the L1204 itself. Peak hourly traffic counts along the L1204 are typically 19 vehicle movements in the morning and 27 vehicle movements in the evening.

At the southern end of the L1204, it will be necessary to cross the R313 to gain access to the Deposition Site. This section of the R313 is the main road to Belmullet and the Erris

peninsula. It carries a wide range of traffic, including cars, heavy goods vehicles, buses, aggregate and concrete transport coming to and from local quarries, and light industrial traffic. Peak hourly traffic counts on this section of road are 118 vehicle movements in the morning and 142 vehicle movements in the evening under present traffic conditions.

Overall daily road traffic counts of 800 vehicles per day have been recorded on this section of road, of which a significant amount are heavy goods vehicles, and at a time when peat harvesting operations by Bórd na Móna at their Srahmore site were not in progress.

3.2 ROAD PROFILE

Commencing at Chainage zero at the Terminal Site entrance, and proceeding towards the R314 / L1204 Junction, the road profile is a gentle downgrade and the carriageway width is 5.9 m. Horizontal alignment approaching the junction with the L12xx to Pollathomas results in poor sight distance at this point. The road surface has broken down in lateral banding, probably due to heavy vehicles associated with forestry or quarrying payloads.

The Haul Route turns south onto the L1204 road from the R314 - L1204 Junction and runs at generally level grade for 380m into the double bends at the Muingeroon Bridge over the Bellanaboy River, in a section with mean width 5.4m and good sight distances across open country. Moving southwards from the Muingeroon Bridge, there is a steady climbing grade over a distance of 1km to a small dip followed by a second length of 0.7km on a rising grade.

At Ch. 4.0 km, there is a sharp bend at a section of restricted sight distance, followed by a 400m downward grade to a local pinch point where residential development and farm outbuildings have constricted available carriageway width. From this point to Ch. 5.15km, horizontal alignment is poor, and two active logging roads adjoin the haul route either side of a narrow bridge crossing. A second housing cluster limits carriageway width at Ch 6.7km, and sight distances are limited at both this location and Ch. 7.65km. Another sharp bend occurs at Ch.8km, after which point there is a 1 km section of road with good visibility and sight distance.

Over the final kilometre, approaching the R313 Junction and at a distance of 900m from the junction, there is a long horizontal bend, with not only poor sight distance along the carriageway, but limited sight distance for those private residence driveways exiting westwards onto the L1204. These locations have been given particular attention in the upgrade works for the Haul Road, and in the procedures for Haulage Fleet methodology and driver behaviour.

Apart from housing directly fronting onto the L1204, there are three distinct clusters of housing forming villages served by side roads off the Haul Route, and dependent on it as a means of access and egress from the properties concerned.

3.3 EXISTING PAVEMENT STRUCTURE

Despite its generally wider cross section the pavement of the short section of the R314 can be regarded as similar in its construction and maintenance history to that of the L1204, and a single description will suffice for both.

In general these roads are founded on peat deposits of depths ranging from perhaps 0.5 metre to as much as 2.5 to 3.0 metres, except where the widespread peat deposits have been eroded over time, particularly in areas of steep contours towards the Southern end of the R1204 and in the vicinity of the numerous stream and river crossings where fluvial action has either eroded the peat layer or has perhaps deposited effluvium from upstream.

The pavement construction in both cases is quite basic with overall depth of granular material overlying peat typically not exceeding 300mm. This depth is comprised of successive layers of surface dressing applied to the original basic pavement of local gravel or aggregate applied to hand spalled stone.

In places this may be added to by a regulation layer of graded granular material (in more recent times clause 804 or 810) sealed with a double surface dressing. In general the overall pavement construction is insufficient to accommodate the wheel and axle loads imposed by modern day Heavy Commercial Vehicles both because of its insufficient depth and the lack of cohesion between its constituent elements.

This is compounded by the fact that the pavement is founded in general on a highly compressible peat subgrade, which is subject to distortion under loading. This can result in the creation of longitudinal rutting where the upper pavement has a reasonable degree of strength and in the creation of a regular "washboard" transverse cracking pattern where the upper pavement is weaker still and failure is widespread.

In general this type of damage may be sustained more easily in prolonged periods of low rainfall than when the underlying peat dries out and experiences compression more readily in the absence of pore water pressure from moisture trapped in the peat fibre matrix.

As has been stated above, along certain sections of the L1204, the pavement is founded directly on the underlying granular subgrade with the result that overall pavement strength is more appreciable and its behaviours under loading more predictable.

Accordingly, it is proposed that with the agreement of Mayo County Council, a programme of route improvements would be carried out in advance of the haulage operation at the expense of Shell/EEIL.

These works would be comprised of:

1. A widening of the Haul Route to provide a minimum of 5.5m paved width throughout its length.
2. The removal of visibility deficiencies through a combination of minor realignments and hedge trimming.
3. The replacement of weak bridge structures at Cloontakilla and Glenturk Beg, and a piped culvert at Cloontakilla.
4. The carrying out of pavement strengthening works over the full extent of the route.

4.2 ROAD IMPROVEMENT DETAILS

In discussions with Mayo County Council, the most appropriate rehabilitation method for the haul route in this context was to use the Department of the Environment and Local Government "Guidelines on the Depth of Overlay to be used on Rural Non National Roads". With an existing granular thickness of not less than 201 to 300mm and an Annual Average Daily Traffic in the range 201-1000 vehicles, it is recommended to overlay the road with a minimum layer of 150mm thick Wet Mix Macadam for a Subgrade CBR of 1.5-3%, (Table 5 of DoE guidelines). However due to the intensity of lorry movements for the estimated 100 days haulage exercise, it is considered that an overlay of 200mm thick Wet Mix Macadam would assist in spreading the load through to the sub-grade and prolong the life of the pavement. This 200mm thick Wet Mix Macadam is equivalent to 150mm of a stabilised Wet mix Macadam, (Table 6 of DoE guidelines).

As the subgrade of the road is peat along the majority of the route, a CBR of less than 1.5% is envisaged. Therefore it is recommended to use a geogrid to reinforce the overlay construction.

It has been agreed with Mayo County Council that the strengthening of the haul route shall consist of the following:

- A regulating layer of Foam Mix Macadam of 40-100mm (or more where the carriageway is to be re-shaped);
- A layer of geosynthetics in the form of geogrid;
- 150mm Foam Mix Macadam
- Apply double surface dressing.

A visual inspection and video record of the L1204 and a stretch of the R314 was carried out by Pavement Management Services Ltd on 18th October 2003.

A modified version of the Corps of Engineers Pavement Condition Index (PCI) methodology was used to identify pavement distress and produce an overall condition rating.

The survey was divided into three sections:

Section 1 – R314 from the Terminal Site Entrance to the R314/L1204 junction – "Poor" rating category;
Section 2 – Approximately 5km of the L1204 (north) – "Very Poor" rating category;
Section 3 – Approximately 5km of the L1204 (south) – " Fair" rating category.

Along the section of the R314, the most dominant distresses are bleeding and ravelling (medium severity). The next largest quantities of distress are rutting (low and medium severity) and longitudinal and transverse cracking (low severity). There are also considerable quantities of rutting (high severity), patching (medium severity) and ravelling (low severity) on this section.

Along the full length of the L1204, the most dominant distress that can be seen is patching (high severity), with the next largest quantities of distress are rutting (low severity) and bleeding. There are also very considerable quantities of ravelling, (medium severity), rutting (low, medium and high severity), longitudinal and transverse cracking (low severity) and patching (medium severity).

4. PROPOSED ROAD IMPROVEMENTS

4.1 BACKGROUND

From the foregoing description of the R314 and L1204, it is clear that in their present condition they are incapable of sustaining the level of loading required to transport 400,000 cu.m of peat from Bellanaboy to Shrahmore within a limited period of time.

Their deficiencies are threefold.

1. The road pavement is generally too weak to carry the cumulative loading envisaged.
2. The road cross section, (and in places) alignment and forward visibility are insufficient to cater for the level of traffic involved in safety and without occasioning an unacceptable level of disruption and potential hazard to other road users.
3. The route proposed contains a small number of bridge or culvert structures, whose behaviour under such loading cannot be relied upon.

- (Foam mix macadam is a stabilised wet-mix macadam, with a cement binder).

This maintenance technique has an estimated life of 10 years under normal operating conditions. However it is important to note that the level of intensity of the haulage exercise over a short summer period, which coincides with lower water table levels and lower peat pore water pressures, exposes the design philosophy to potential threats which are not predictable with any degree of certainty.

According to the Department of the Environment and Local Government publication "Guidelines on the Rehabilitation of Roads over Peat", it would be desirable to surcharge any embankment widening prior to any pavement rehabilitation works. However due to the timescales involved, it would be necessary to traffic the route as soon as practicable. With this in mind, the widened section of pavement will apply extra loading to the underlying peat subgrade and induce settlement relative to the existing pavement. It may prove too impracticable to remove all the peat under the widened sections of road, (to be confirmed on completion of probe investigation). Therefore it could be envisaged that during the haulage operation, there would be noticeable settlement in the widened section of road compared to the existing pavement edge. This drop in level may have to be maintained during the peat transportation and will have to be made up on completion of the haulage exercise

4.3 CARRIAGEWAYS

In order to accommodate the additional lorries travelling along the haul route, the carriageway will need to be widened along the majority of the route.

A typical width of a 4 axle rigid lorry is in the order of 2.5m. A carriageway at 5.5m in width allows all vehicles to pass each other, with an overall tolerance of 0.5m for the largest vehicles. This width will allow the largest vehicles to pass whilst travelling in the order of 30mph. Where physically possible, a width greater than 5.5m is recommended.

Drawing No's. 2044-1005 to 1011 show details of the type of rehabilitation/widening proposed along the haul route and drawing 2044-1013 shows details of the typical cross sections along the route. In general there are three basic rehabilitation methods involved along the route are:

- Strengthening and overlay of existing road without widening;
- Strengthening and overlay of existing with widening into existing verges;
- Strengthening and overlay of existing with widening by filling up road embankment and or realigning ditches.

Along the bend on approach to the R313, there is little space between the road boundaries to widen the road to a minimum of 5.5m. It would be desirable to try and acquire sufficient lands to allow the improvement works to be completed, however, the necessary land acquisition may not be complete in the timescales involved. An alternative one-way route has therefore been assessed to run the un-laden load a different route from the deposition site. This route is shown on Drawing No. 2044-1012.

4.4 BRIDGES & CULVERTS

Barriers (crash) needed on approaches + exits.

A visual survey of all bridge and culvert structures on the route was carried out by TOBIN Staff on 11th November 2003. This examination identified three structures about which there appeared to be doubt in relation to behaviour under the proposed loading conditions.

It is worth noting that because of the low density of the peat, the loads arising from the haulage exercise are not expected to exceed 24 Tonnes Gross Vehicle Weight while the current legal limit for rigid 4 axle rigid body trucks is up to 32 Tonnes (laden).

Nevertheless in order to ensure that damage will not be sustained by the weaker structure identified it is proposed with the agreement of Mayo County Council that these will be replaced by modern structures capable of carrying HA and HB highway loading in advance of the haulage exercise.

In order to maximise the speed of construction while minimising the potential disruption to the stream / river beds and aquatic life, it is proposed to employ the use of precast structural elements for the locations concerned. These structures will be delivered to site in prefabricated box culvert units of varying cross sections in lengths of 1.5m, 2.0m or 2.5m.

The existing and proposed cross sections are lists below:

use these boxes this size

Bridge Location	Existing Cross Section	Proposed Cross Section (standard sizes)
Bridge @ Glenturk Beg	5.2m wide x 1.75m high	5.1m wide x 2.4m high
Bridge @ Cloontakilla	4.0m wide x 1.3m high	4.2m wide x 2.4m high
Culvert @ Cloontakilla	2no. piped culverts	1.5m wide x 1.0m high

is this new size (not me)

It is envisaged that the three structures concerned would be installed in quick succession so that the cost of cranage, pumping and other specialist items could be shared with resulting economies and minimisation of disruption due to road closures.

Glenturk Bridge - survey req'd — scouring + old masonry

4.5 METHODOLOGY

1. The installation of these structures would be confined to the period between 1st April and 1st November during which disruption to fish spawning activities will not arise.
2. In so far as is possible, installation will also be confined to periods of low water.
3. Construction methods would ensure that no fresh concrete, hydrocarbons or other toxic material would be permitted to enter the waterway.
4. Pumping, where necessary to dry out portions of the waterway channel for levelling / regulation would be arranged so as to discharge pumped water into on-site temporary stilling lagoons to ensure that no silt is carried over into the waterways proper.
5. All regulation work will be carried out using clean graded material.
6. Concreting where necessary will be carried out in the dry and will not be flooded by river water until set.
7. Any flow diversions work will be carried out with the utmost caution to avoid mobilizing silt or fine peat particles into the waterway flow.

5. TRANSPORTATION PLAN

The Transportation Plan is an evolving document, and will ultimately require the input of the Gardaí, the Local Authority, the residents and the appointed Haulage Contractor in order to be complete. Nonetheless, at the Planning stage of the project, it quantifies the transportation operation and makes the necessary commitments to permit stakeholders to engage with it, and respond to its approach.

5.1 TRAFFIC MANAGEMENT

The following elements are commitments which collectively form the Traffic Management Plan. This Plan, amended following consultation with stakeholders, will be part of the tender documents for procurement of the Peat Haulage Contract, and it will be part of the commitments lodged with Mayo County Council and the Gardaí as part of the process of planning the transport operation safely and efficiently.

5.1.1 Expected Travel Times and Working Day

The cycle to be completed by each vehicle, several times per day, includes the following basic elements:

(a) Filling of the Payload
(b) Weighbridge and recording procedures, followed by wheelwash
(c) Haulage of the Payload

(d) Manoevre into tipping position, tipping, and truck deck lowering followed by wheelwash

(e) Return trip unladen

(f) Manoeuvre into loading position.

Having examined each element of the cycle, we have estimated the time involved to complete that element, and the cycle overall. We anticipate the following times:

Cycle timing	No Queuing at Terminal	Queuing at Terminal
Filling Time	6.25 mins	10.50 mins
Laden Transport time	16.10 mins	16.10 mins
Deposit time	5.33 mins	5.33 mins
Unladen Transport Time	16.10 mins	16.10 mins
Minimum Cycle Time	**43.8 mins**	**48.0 mins**
	0.73 hrs	**0.80 hrs**

Overall therefore, we anticipate that the cycle time will lie between 43 mins and 48 mins approximately, and given a starting time of 8am, two fifteen minute morning and afternoon breaks, and one 40 minute break at lunchtime, then 11 to 12 cycles are possible depending on the development of queues.

Overall, we have assumed an average of 10 cycles per working day is possible for volume rate of flow calculations, and a total of between 44 and 48 vehicles per hour will arrive at the Filling and Tipping Areas, but in a daily volume of the order of 4000 cu.m/d of peat moved.

In terms of the working day therefore, the following is the expected typical working day:

- ξ 07.00 hrs Minibus collects drivers from their residential accommodation. Machine Fitters in parking areas visually check over all vehicles.
- ξ 07.30 hrs Transport Operations Manager briefs all drivers in canteen
- ξ 07.40 hrs Drivers visually check vehicles, tyres, oil, fuel, windscreen washer, mirrors, fuel level, spare tyre, wheel nuts.
- ξ 07.45 check docket books, note records of work done overnight with fitters.
- ξ 07.50 hrs Drivers complete tachograph details for the day and wait clearance to depart parking area.

At this point, the working day evolves as queuing permits, as follows:-

Typical Vehicle Day (refueling for all, and first load for half of the fleet in place by 8 am)

"With Queues" Trip lengths			"Without Queues" Trip lengths		
8 am - 11.12 am	3.20 hrs	4 trips	2.92 hrs	4 trips	8 am - 10.55 am
11.12 am -11.27 am	0.25 hrs	break	0.25 hrs	break	10.55 am -11.10 am
11.27 am - 1.51 pm	2.40 hrs	3 trips	2.19 hrs	3 trips	11.10 am - 1.21 pm
1.51 pm - 2.30 pm	0.62 hrs	break	0.62 hrs	break	1.21 pm - 1.58 pm
2.30 pm - 4.06 pm	1.60 hrs	2 trips	2.92 hrs	3 trips	1.58 pm - 4.53 pm
4.06 pm - 4.21 pm	0.25 hrs	break	0.25 hrs	break	4.53 pm - 5.08 pm
4.21 pm - 5.57pm	1.60 hrs	2 trips	1.46 hrs	2 trips	5.08 pm - 6.35pm
	9.92 hrs	**11 trips**	**10.60 hrs**	**12 trips**	

- ξ 18.30 hrs Return to assigned parking area, submit dockets & report sheets, submit tachograph records
- ξ 18.30-19.00 Those trucks assigned to the Loading Area load up and park in loaded condition.
- ξ 18.30-19.30 hrs Fitters and assistants refuel trucks, change any damaged tyres, carry out essential repairs, rotate trucks out for maintenance etc.

5.1.2 Logistics at the Tipping Area

Bórd na Móna plan to operate two shifts of eight hours each moving material from the Tipping Apron into the Peatland placement vehicles. The Tipping Area is broadly shaped as a "hammer head" with two wings acting as peat buffer storage areas.

All traffic will be directed toward one of the two buffer areas for tipping purposes, while the other area is being worked by the mechanical shovels, moving tipped peat into the low bearing pressure transport vehicles for placement. Once one side is exhausted, the shovels will move to the other side, and redirect tipping traffic to the side which has just been emptied.

Since the shovels work a two shift basis, whereas the transportation trucks do not, the buffer is necessary both to prevent the two streams of traffic crossing each others circulation area, and to provide enough storage for the productive working of the shovels when material is not being transported.

Assuming the shovels empty the buffer each evening, then productive working of the shovels the following morning requires a particular practice to be followed in terms of start-of-shift for the truck drivers.

5.1.3 *Logistics of the Loading Area*

Each evening, half of the Truck Fleet will be parked at the Deposition Site hardstand, and half will be parked at the Loading Area. This proportion may change slightly depending on operational conditions encountered. Those vehicles which are parked at the Loading Area, will be preloaded for the following morning before parking, so that they commence their first cycle with a loaded payload, which will give productive working for the mechanical shovels at the Tipping Area almost immediately.

All vehicles will have been fuelled and safety checked during overnight downtime at either the Loading or Tipping Sites, and the Loading Area excavators will commence to fill those trucks which have travelled empty from the Deposition Site as they commence their cycle each day.

We have examined the option of parking the entire fleet for loading overnight at the Loading Area, but we have ruled this out because of the impact which it would have on the initial startup cycles in the morning, with a heavier than usual traffic count on the Haul Road potentially disrupting the lives of residents attempting to move out to work and school. There is also the risk of large queues developing when the fleet returns empty to the loading area following the first cycle, and on balance, we have recommended against this approach unless particularly pressing circumstances warrant it.

It will take time to develop the working front at the Loading Area, to provide sufficient space to allow trucks to approach the filling excavators, and circulate safely, without queues longer than one vehicle developing. This will require a ramping up of the fleet size over the first week or ten days of hauling material, so that all trucks operate productively, and do not overload the available circulation space in the working area. We accordingly see the initial fleet size as being of the order of 20-25 vehicles, increasing to 40 over a ten day period.

5.1.4 *Signage*

New Road Signs will be erected on the approaches to the Haul Route from Bangor, Glenamoy and from Belmullet, at locations to be agreed with Mayo County Council, but typically 2- 3 km from any point of traffic control. These signs will be as detailed in the attached Schedule, Sign Type 1, and will act as a preliminary warning to road users of works traffic and traffic controls extending over a stated time period, as well as advising of possible restrictions and alternative routes. A Freephone Number to permit the public to raise queries on conditions on the day will be prominently displayed on the main approach signs.

4. Treatment of R313 crossing point at its junction with L1204.

5. Signage / Delineation Programme.

6. Standard of Pavement Strengthening – pre and post Haulage.

7. Timing of pre haulage strengthening and improvement works.

8. Method of execution of works
   a. Agents of Shell / EEIL
   b. Agents of Mayo County Council
   c. County Council Direct Works
   d. Combination of above.

9. Local Consultation / Public Information Exercise.

Prepared by: _____

John K. Colleran

Dated: **22nd October, 2003**

4. Treatment of R313 crossing point at its junction with L1204.

5. Signage / Delineation Programme.

6. Standard of Pavement Strengthening – pre and post Haulage.

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Prepared by: _____

John K. Colleran

Dated: **22nd October, 2003**

4. The replacement of two inadequate bridges (Glenturk Beg and Cloontakilla) by means of new composite decks designed to appropriate load standards, and constructed on existing abutments (extended) or new abutments if necessary (subject to Site Investigations and further Structural Assessment).
5. The replacement of any minor culverts which are considered to be at risk from the haulage exercise.
6. The provision of road marking and signage throughout the route.

Note

All of the above works will be subject to full agreement with Mayo County Council based on joint inspection / assessment on an open book basis.

Transportation Plan

In addition to the physical improvement works proposed to the Haul Route, the movements of all haulage vehicles will be carefully controlled so as to minimise the creation of hazard or inconvenience to local inhabitants and road users.

- The Peat Haulage exercise will be based on the transfer of 4,000 cub. metres of peat from the Terminal Site to Attavalley / Srahmore each day by means of 400 loads of 10m³ each. This will necessitate approximately 800 HGV passages on the haul route evenly distributed over each 10 hour (approx.) working day.

- Each vehicle will be fitted with a G.P.S. tracking device which will enable a central controller to determine the precise location of each vehicle at any given time.

- Each vehicle will have radio communication with the Transportation Controller.

- The volume of each load will be carefully controlled at 10 cub. metres. The transportation contract will be issued on the basis of a precise number of return trips being made by each vehicle per day and penalties will be invoked for activity in excess of this number. This will ensure that there is no incentive for the Haulage Contractor to raise the operational speed or load capacity of vehicles so as to maximise profits. In this way the public / road users can be guaranteed that the haulage fleet will operate safely and with due courtesy.

- The haulage contract will also contain provision for adequate induction training for all drivers to be reinforced with daily briefing / debriefings sessions which will focus on road safety.

As of this time the principal road related items associated with the Peat Haul exercise which require agreement with Mayo County Council are as follows:-

1. Geometric requirements at Terminal Site Access Point Bellanaboy.

2. Geometric improvement at Junction of R314 and L1204.

3. Identification of key pinch points and appropriate treatment.

4. The replacement of two inadequate bridges (Glenturk Beg and Cloontakilla) by means of new composite decks designed to appropriate load standards, and constructed on existing abutments (extended) or new abutments if necessary (subject to Site Investigations and further Structural Assessment).
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1. Geometric requirements at Terminal Site Access Point Bellanaboy.

2. Geometric improvement at Junction of R314 and L1204.

3. Identification of key pinch points and appropriate treatment.

- From a statutory point of view the peat haulage exercise will be dealt with as a construction activity related to the development of the Terminal Site which will have a definite and quantifiable impact on both the material asset of the road network, and on the day to day lives of the local populace who live along, and use the route in question.

- By way of mitigating these impacts, it is proposed, with the agreement of Mayo County Council that:

    1. Road Pavement damage will be dealt with by means of pre and post haulage pavement strengthening / improvement work to be agreed in detail with the Council.

    2. Traffic Impact from a human standpoint will be mitigated in part by the above mentioned pavement strengthening works but also by the execution of a set of additional physical works which will include road widening at narrow / pinch points to eliminate potential hazard or inconvenience to road users, and the provision of appropriate road marking, delineation and advisory road signage.

    3. A Transportation Plan will be prepared which will set out in detail how the peat haulage operation (as part of the overall construction related Vehicular Activity) will be controlled and regulated.

Route Improvement

The route proposed for the haulage operation is via the L1204 which runs from North to South a little to the East of Carrowmore Lake. The developer proposes to make a considerable investment in the improvement of this road. It is intended to maximise the value of this investment by confining all haulage of incoming / outgoing construction related HGVs to this route.

As a result it is not envisaged that the project will give rise to any measurable increase in HGVs on any route to the site apart from Routes N59, R311, R312, R313, R314 (small portion) and L1204 via Castlebar (Ballina), Bellacorrick, Bangor Erris, Attavally and Bellanaboy.

In addition some heavy vehicular traffic of local origin (quarry material etc.) may use the R313 coming from the Belmullet / Glencastle direction via the L1204 to Ballinaboy.

In this way the impact of HGVs both on the physical road fabric and the local populace will be confined to the R313 the L1204 and the short section of the R314 between its junction with L1204 and the site entrance at Bellavaley.

Subject to final agreement the improvement of the Haul Route will include for:

1. Geometric improvement at the Terminal Site access at Ballinaboy.
2. Geometric improvement at the Junction of R314 and L1204.
3. The treatment of pinch points or sections of inadequate width through a combination of widening where possible, provision of passing bays or appropriate road marking / signage.

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TOBIN
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Fax: +353 (0)61 409378

Our ref: JKC/SG 9172

22nd October 2003

Shell / Energy Enterprise Ireland Ltd.
Gas Terminal Project at Bellanaboy

Peat Haulage from Bellanaboy to Srahmore

Introduction

- Before end November 2003 Shell / Enterprise Energy Ireland Ltd. propose to lodge a fresh Planning Application for the construction of the Corrib Gas Field Terminal at Bellanaboy, Erris.

- Through a combination of design modification and optimisation of the construction use of on site granular material, the volume of surplus peat to be dealt with has been reduced to approximately 400,000 (four hundred thousand) cubic metres.

- It is proposed to remove this material off site and dispose of it on lands owned by Bord na Mona at Attavally / Srahmore (adjoining R313 immediately South of Carrowmore Lake).

- The deposition of this material on the Bord na Mona lands will be subject of a separate Planning Application and EIS which will be lodged roughly in parallel with the Terminal Site project.

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COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

TO: File **DATE:** 22/12/03

FROM: Iain Douglas Senior Planner

SUBJECT : **Note of Meeting.** **FILE:**

Present:

Mayo County Council	**Enterprise Energy Ireland**	**Bord na Mona**
Iain Douglas SP	Gavin Lawlor Gerry Costello Agnes McLaverty	Sean Finlay TES Various BnM

I met with Enterprise Energy Ireland on 23rd October 2003.

The purpose of the meeting was to indicate and clarify Mayo County Council's requirements regarding the EIS & Planning Documentation.

I also met with Bord na Mona and their consultants who explained their proposals regarding the reception and spreading of peat at the Shramore site. I outlined to them the same information that I had previously given EEI.

Iain Douglas
Senior Planner

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Iain Douglas
Senior Planner

Mayo County Council
Development Contribution Scheme

1. Introduction.

This Development Contribution Scheme is made pursuant to Section 48 of the Planning and Development Act 2000, and indicates the financial contributions, which Mayo County Council may include as conditions of planning permission in respect of specific infrastructure and facilities benefiting development in the area which Mayo County Council have already provided or that it is intended will be provided by or on behalf of Mayo County Council.

2. Nature and extent of the Development Contribution Scheme.

2.1. The Development Contribution Scheme applies to ***"public infrastructure and facilities"*** which are defined as :-

(a) the acquisition of land,
(b) the provision of open spaces, recreational and community facilities & amenities and landscaping works,
(c) the provision of roads, car parks, car parking places, sewers, waste-water and water treatment facilities, drains and watermains,
(d) the provision of bus corridors, bus lanes, bus interchange facilities (including car parks for those facilities), infra-structure to facilitate public transport, cycle and pedestrian facilities, and traffic calming measures,
(e) the refurbishment, upgrading, enlargement or replacement of roads, car parks, car parking places, sewers, waste-water and water treatment facilities drains or watermains,
(f) any matters ancillary to *paragraphs (a)* to *(e)*.

2.2. The Development Contribution Scheme indicates the amount of contribution to be paid in respect of different classes of specific infrastructure and facilities that are provided or are to be provided by the local authority.

In determining the amount of contribution Mayo County Council has had regard to the actual estimated cost of providing the classes of specific infrastructure and facilities.

2.3. The Development Contribution Scheme includes a statement of the basis for determination of the contributions.

2.4 The Development Contribution Scheme **may** allow for the payment of a reduced contribution or no contribution in certain circumstances in accordance with the provisions of the Scheme.

3. Appeal of Development Contributions.

3.1 No appeal shall lie to An Bord Pleanála in relation to a condition requiring a contribution to be paid in accordance with the Scheme.

Project No; 1169; EEIL/BnM Peat Deposition

Meeting with EPA 9th October 2003 at EPA HQ

Present; Dr. J. Derham, Yvonne Clooney, Eve O'Sullivan from EPA
G. McNally, D. Wynne from Bord na Mona
G.Costelloe, A. McLaverty, L. Finnegan from EEIL
S. Finlay from TES

Main Issues which EPA consider important in EIS to support Waste Licence Application (WLA); (not necessarily in *order* of importance);

- Identify Applicant; = BnM in this case
- Geology/Hydrogeology; establish groundwater flow directions; establish 3 monitoring wells ; establish permeabilities.
- Water Supplies; assess effects on public/private water supplies.
- Water Quality; note seasonal variations; ammonia issue in peaty waters; consider flood events and ensure met data used are current.
- Rehabilitation; ensure/demonstrate stability, security and safety of proposed installation; cover these points in EMS for facility also.
- Consultation/Scoping; ensure Mayo CC, Fisheries (public and private) and community covered.
- Site selection; demonstrate how covered.

Other Issues which EPA need covered;

- Ecology
- Archaeology
- Noise; construction phase
- Reception Area; examination facility; water specs.
- Prevention of flytipping
- Fleet Maintenance / fuelling
- Boundary of existing IPCL will be altered

Issues not material but should be mentioned;

- Leachate, gas, lining, odour

From File Notes 27th Oct 2003 by Sean Finlay

MEETING WITH IAN DOUGLAS ON 23/10/03

Venue: Corrib House, Sligo Room

Time 11.30 – 13.00

Attendees:

Shell	Gerry Costello
	Agnes Mc Laverty
	Susannah Uglow
	Conor Byrne
TPA	Gavin Lawlor
BnM	Donal Wynne
TES	Sean Finlay

AGENDA

1. Statement of Shell intent to apply for planning permission for a gas terminal at Bellanaboy
   Key differences between current and previous application

2. Statement of BnM intent to apply for planning permission for a peat repository at Srahmore and a waste licence.

3. Issues arising from Shell and BnM making separate applications for linked projects

4. Public consultation process to be followed by Shell and BnM
   Exhibitions, contents of exhibition and compliance with planning requirements.

5. Format and content of Shell planning application and EIS and consultation process with MCC going forward

6. Ditto for BnM

7. Planning issues around the L1204 haul road

AOB

Douglas Iain

From: Healy, Kate EEI-EEI [kate.healy@shell.com]
Sent: 22 October 2003 13:16
To: Douglas Iain
Subject: RE: Meeting with Gerry Costello, Enterprise Energy Ireland

Ian

Below is a guideline agenda for tomorrows meeting.

Gerry intends the meeting to cover some EEI & some BNM questions.

1) We intend to apply for planning permission for a terminal at Bellanaboy and Bord na Mona intend to apply for a deposition area near Srahmore both applications to be submitted approx end November 2003

2) Discuss the format of the applications
3) Discuss proposed contents of the EIS's
4) Issues arising if EEIL and BnM make separate planning applications for linked projects
5) Planning issues around the L1204 haul route
6) Discuss the consultation process going forward.

Thanks & regards
Kate

-----Original Message-----
From: Healy, Kate EEI-EEI
Sent: 20 October 2003 13:33
To: 'idouglas@mayococo.ie'
Subject: Meeting with Gerry Costello, Enterprise Energy Ireland

Ian

Further to our conversation on Friday last, I would like to confirm the meeting arranged for 11.30am on Thursday next 23rd October in EEI offices at Corrib House, 52 Lower Lesson Street, Dublin 2. The building is on the corner of Lower Lesson Street & Adelaide Road. Contact Number 01 6694100.

Thank you for your assistance & co-operation on this matter.
Regards

Kate

Kate Healy
PR Administrator
Enterprise Energy Ireland
Bangor Erris, Ballina, Co.Mayo

Tel: +3539783955 201
Email: kate.healy@shell.com
Internet: http://www.shell.com

22/10/2003

COMHAIRLE CHONTAE MHAIGH EO
MAYO COUNTY COUNCIL

TO: File **DATE:** 01/07/03

FROM: Iain Douglas Senior Planner

SUBJECT : **Note of Meeting.** **FILE:**

Present:

Mayo County Council	**Enterprise Energy Ireland**
Iain Douglas SP	Gerry Costello

I met with Enterprise Energy Ireland on 30th July 2003.

The purpose of the meeting was that Enterprise Energy could appraise Mayo County Council as to their progress and attitude towards development at Bellanboy.

Enterprise indicated that they were still evaluating on-site/off site options but as yet no decision had been made as to a preferred solution or even if the project would proceed at all.

Some discussion took place about implications of using the road along Carrowmore lake and again I emphasised that close consultation with our roads section would be essential.

Iain Douglas
Senior Planner

Bellanaboy Bridge Terminal EIS resubmission					Status		
OLD Ch No.	OLD Ch Title	NEW Ch No.	Title	AUTHOR	Mapping & graphics	Text	Comments
	NTS		NTS	Agnes			
	Preamble		Preamble	DIT/WH	Fig 1	2nd Draft	rec'd
1	Introduction	1	Introduction	DIT/WH		2nd Draft	rec'd
2	Description of the Proposed Development	2	Description of the Proposed Development	DIT/WH		1st Draft	rec'd
3	Construction	3	Construction	DIT		1st Draft	rec'd needs formating
4	Alternatives	4	Alternatives	DIT/Ria Lyden		1st Draft/Ria Due Thursday 23rd	rec'd dit section
5	Planning and Development Context	X	now: separate report				Section removed from ES
6	Human Beings	5	Human Beings	TPA/ Gavin Lawlor		1st Draft	rec'd
7	Flora and Fauna	6 X	Terrestrial Flora and Fauna	JENNY NEFF	Fig 7.1 to 7.3	1st Draft	rec'd 21/10/03
		7 X	Aquatic Flora and Fauna	David Watson/Tom Smith		1st Draft DW/TS due Friday 24th	combining old text with new survey results
8	Soils and Geology	8	Soils and Geology	Peter Constantine	2 or 3 figs from Arup report	1st Draft PC due Friday 24th	
9	Water	9 X	Hydrology and Drainage	Peter Constantine		1st Draft PC due Friday 24th	
		10 X	Effluent	DIT			
10	Air Emissions	11	Air	JAMES GARVIE		1st Draft JG due Wed 29th	
11	Noise	12	Noise	ALAN SAUNDERS ASSOCIATES / ED CLARKE		1st Draft EC due Wed 29th	
12	Landscape and Visual Impact	13	Landscape and Visual Impact	JENNY WILSON/BRADY SHIPMAN MARTIN JOHN KELLY/THOMAS BURNS		1st Draft JW due Friday 24th	
13	Climatic Impact	14	Climate	JAMES GARVIE		1st Draft JG due Wed 29th	
14	Cultural Heritage	15	Archaeology and Cultural Heritage	MARGARET GOWAN ASSOC LISA Courtney	1 fig from old ES updated	1st Draft	rec'd
15	Material Assets	16	Material Assets	OLLY BRANDON/PSW/ Cormac O'Brien		1st Draft / waste rec'd	text awaited from Thomas / Cormac
16	Assessment of Potential Environmental effects	17	Mitigation and Impacts Summary and Impact Interactions	DIT/JAN SWAN/WH		JW/WH Thurs 30th	
17	Cumulative Impacts	18	Cumulative Impacts	DIT/JAN SWAN/WH		JW/WH Thurs 30th	
		19 X	Sustainable Development	Lucy Speirs		2nd Draft due Friday 24th	rec'd, info still required from Enterprise to complete section
18	Environmental Management	20	Environmental Management	Olly Brandon		2nd Draft	rec'd
	Appendices		Appendices				

Haul Route R314 / L1204 Road Pavement Width Assessment

Chainage M	Chainage Miles	Paved Width	Verge to Verge	Comments
0	0.00	6	8	R314
500	0.31	5.7	6.7	R314
1,000	0.63	5.9	7.3	R314
1,500	0.94	5.7	6.5	Bridge R314
2,000	1.25	5.6	5.9	Bridge L1204
2,500	1.56	5.7	7.2	L1204
3,000	1.88	5.9	7	L1204
3,500	2.19	5.5	7.3	L1204
4,000	2.50	5.5	6.5	L1204
4,500	2.81	5.7	8.8	Bridge
5,000	3.13	5.4	6.8	L1204
5,500	3.44	5.5	6.1	L1204
6,000	3.75	3.8	4.4	Bridge (Pinch Point)
6,500	4.06	5.6	6.9	L1204
7,000	4.38	5.6	6.5	L1204
7,500	4.69	5.8	6.8	L1204
8,000	5.00	5.9	7.4	L1204
8,500	5.31	7.1	8.6	L1204
9,000	5.63	5.7	6.2	L1204
9,500	5.94	6	7	L1204
10,000	6.25	5.9	7.9	L1204
10,500	6.56	5.2	5.8	L1204
11,000	6.88	5.2	5.8	L1204
11,500	7.19	5.9	7.5	L1204
		5.7	6.9	Average Width

Preferred Minimum Pavement Width 3.0m each carriageway

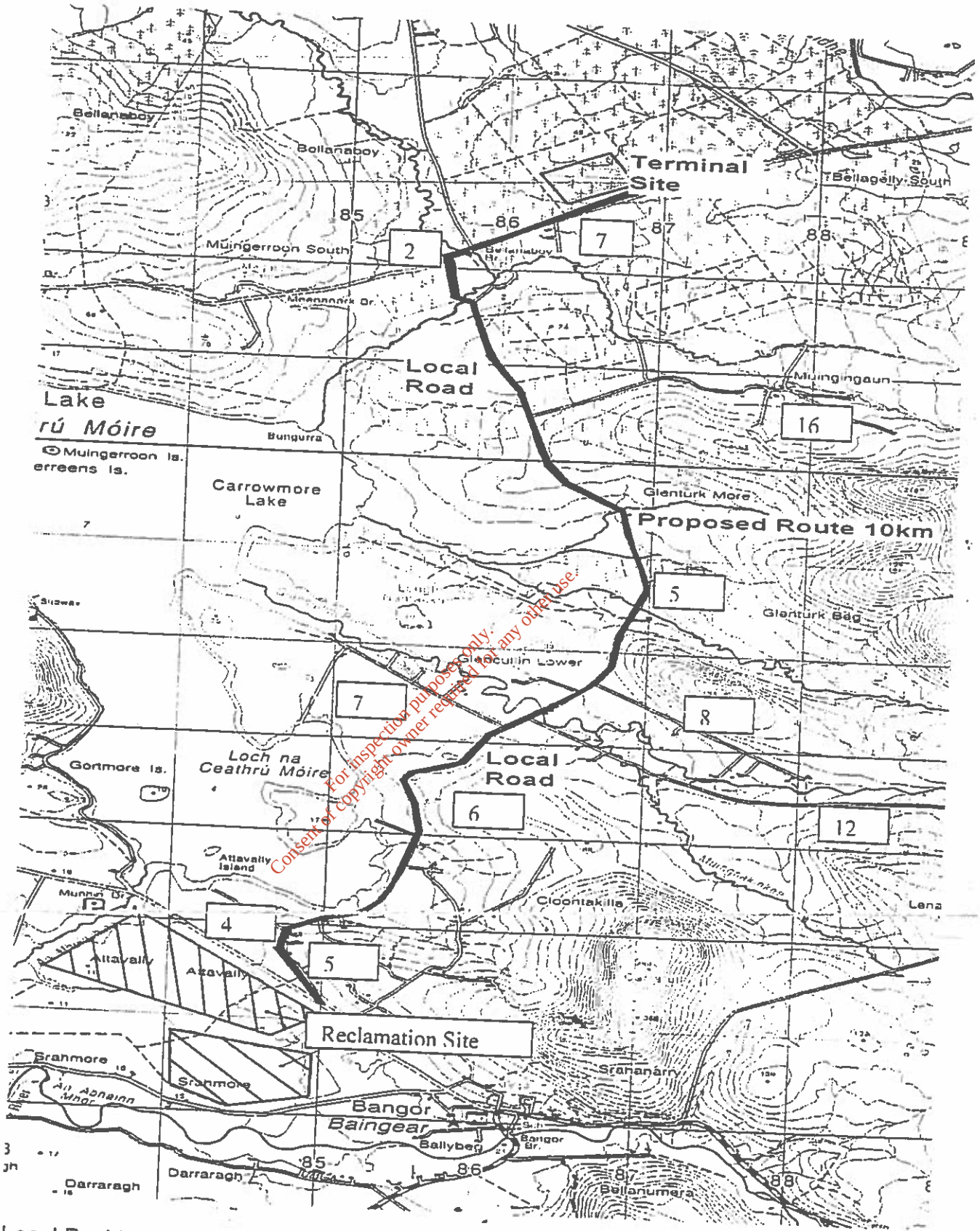
Proposal

Trim verges with grader and overlay to obtain minimum 6.0 m overall road width

Upgrade Pavement with grid reinforcement and Regulate levels with stabilised wet mix macadam. 150mm min

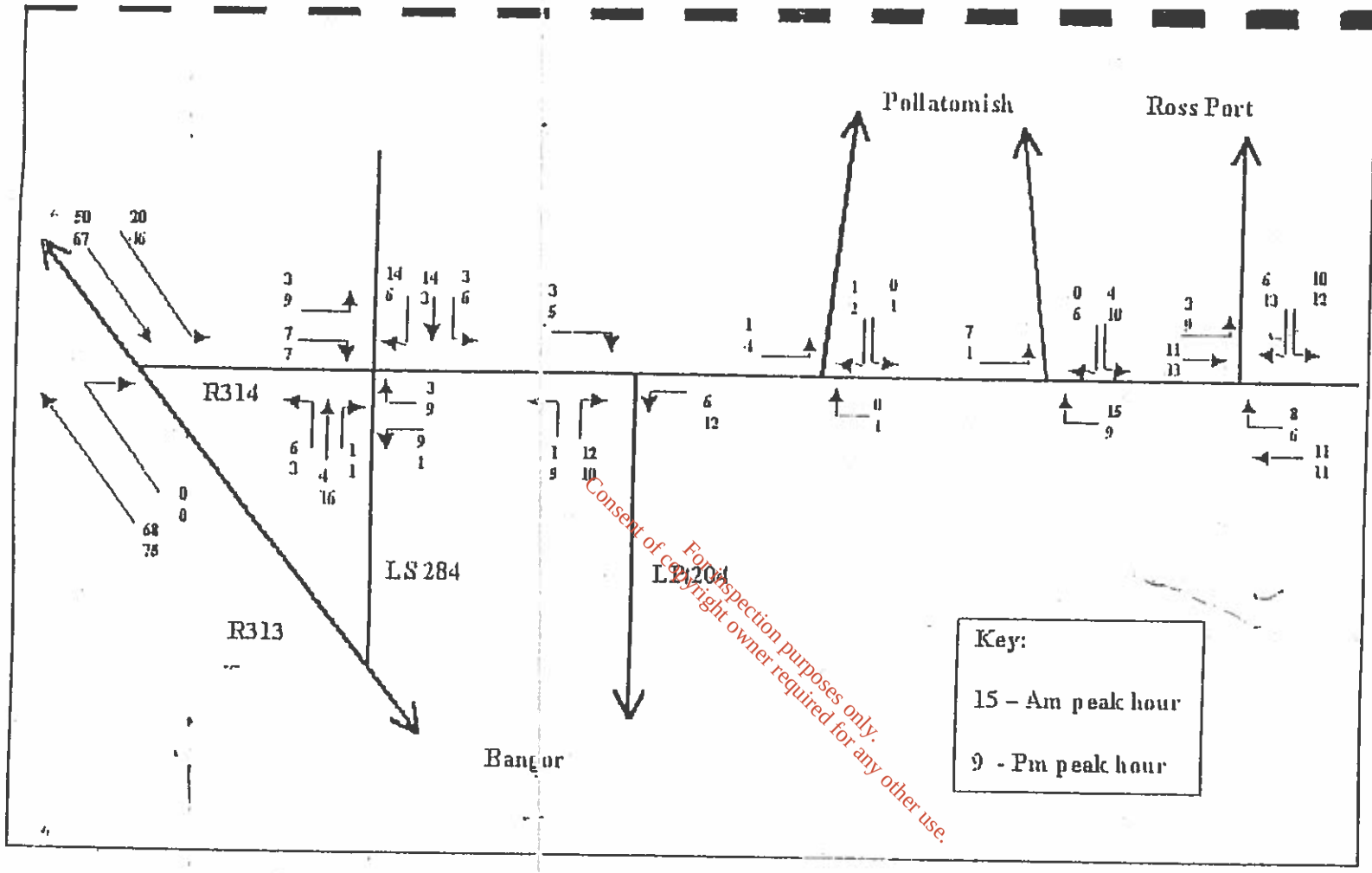
Surface seal wetmix and overlay with 60mm DBM and 45mm HRA

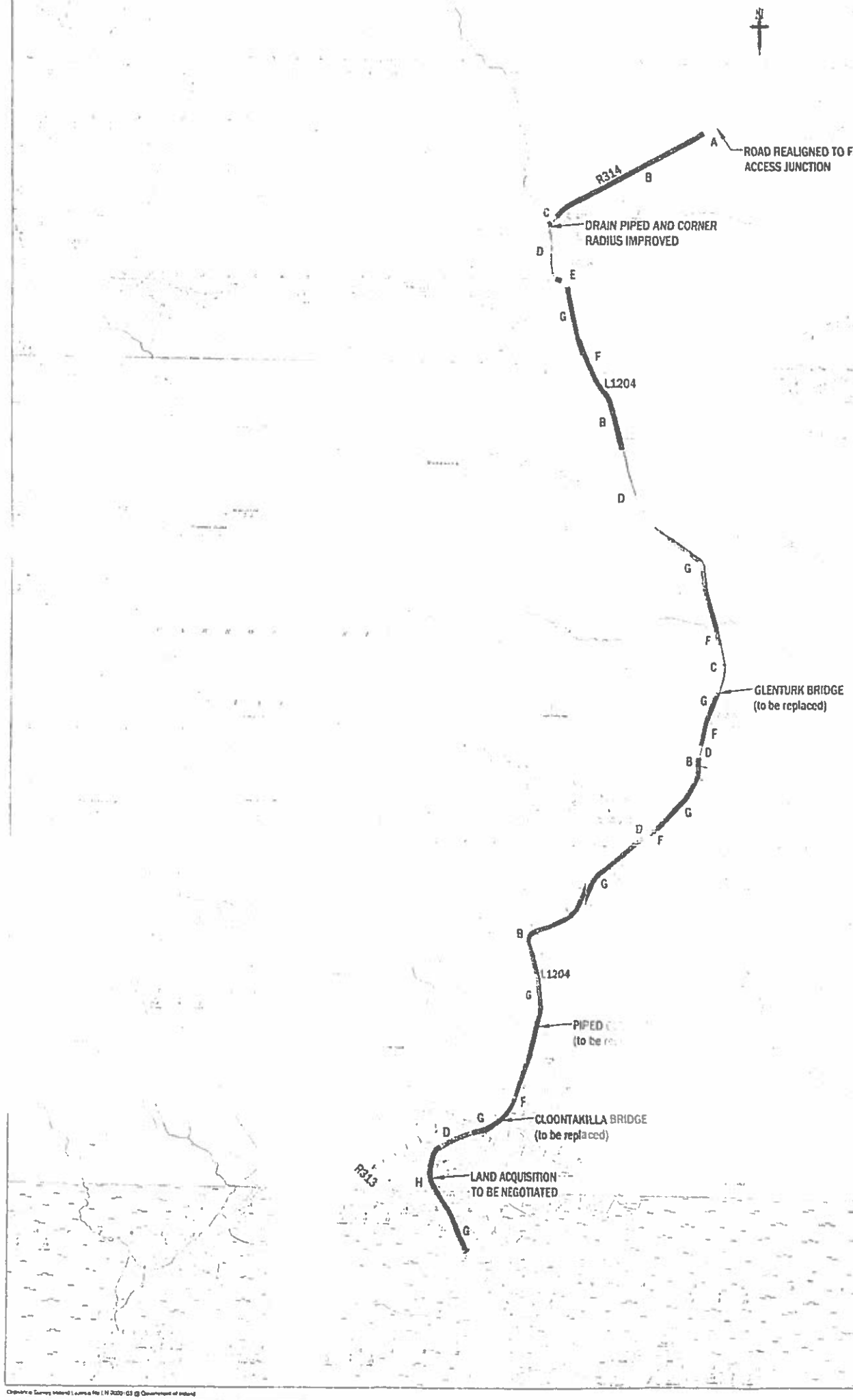
At Pinch Points Install traffic calming or control to give way to laden vehicles

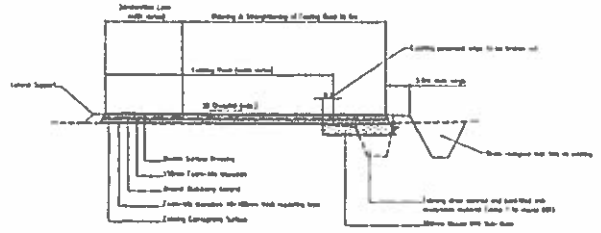


Local Residence Distribution
Summary

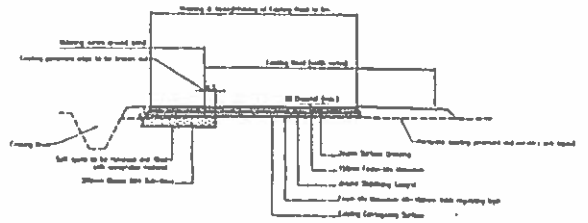
Total No. 72
3 under construction,
12 abandoned or derelict
57 approximately occupied and 8-10 with Children.



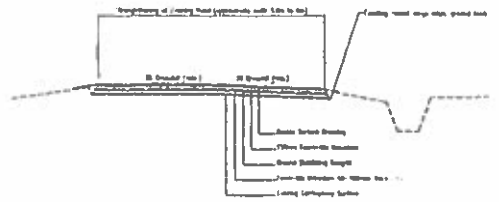




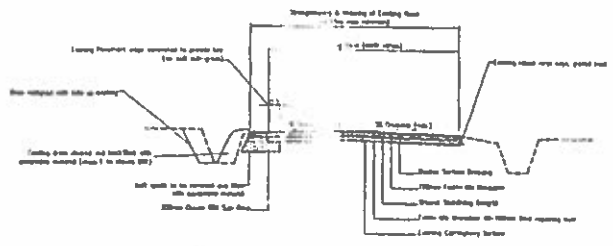
A - JUNCTION REALIGNMENT



E - SIGNIFICANT WIDENING WITHIN ROAD BOUNDARY

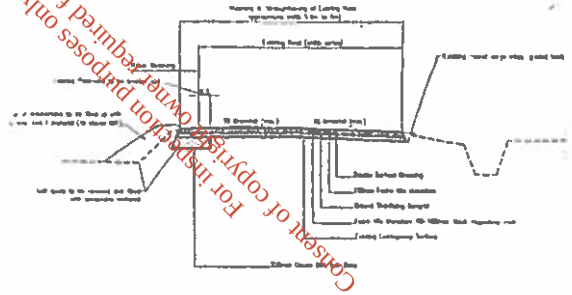


B - OVERLAY ONLY

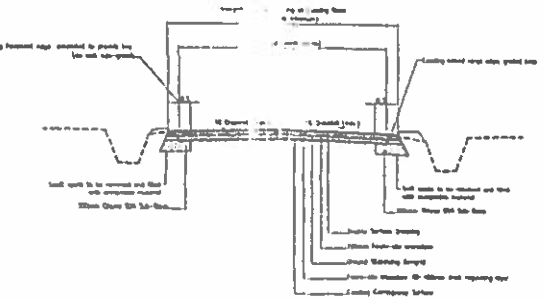


E - WIDENING

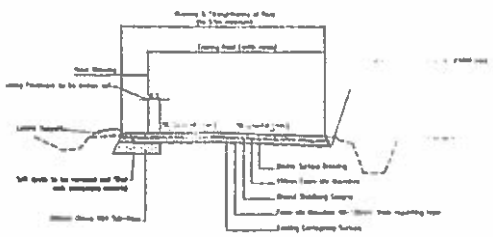
F - WITH DITCH REGRADING



C - WIDENING ON ONE SIDE, PLUS FILL TO EMBANKMENT



G - WIDENING ON BOTH SIDES BY GRADING BACK EXISTING EDGE



D - WIDENING ON ONE SIDE BY GRADING BACK EXISTING EDGE

KEY

A JUNCTION REALIGNMENT
B OVERLAY ONLY
C WIDENING ON ONE SIDE PLUS FILL TO EMBANKMENT
D WIDENING ON ONE SIDE BY GRADING BACK EXISTING EDGE
E SIGNIFICANT WIDENING WITHIN ROAD BOUNDARY
F WIDENING ON ONE SIDE WITH DITCH REGRADING
G WIDENING ON BOTH SIDES BY GRADING BACK EXISTING EDGE
H LAND ACQUISITION REQUIRED

NOTES:

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd

Client
ENTERPRISE ENERGY IRELAND LTD

Project
PEAT TRANSP ATION & RECLOMATI OJECT

Title
ROAD IMPRO ENT PHILOSOPHY
DRAFT 7

Scale 1:20,000

Prepared by:	Checked	Date
TC		13-11-03

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