

14. Knock & Ballyhaunis, Co. Mayo.

The towns of Knock and Ballyhaunis were analysed on both a stand-alone and a grouped basis.

14.1. Knock (Stand Alone):

14.1.1. Summary Details

Knock Town is situated in east Mayo, approximately 35km from Castlebar and 64km from Galway City. Knock airport is located approximately 13km from the centre of the town. The population of Knock is currently 1,435 as per the preliminary results of the 2006 Census, this is projected to increase to 2,500 by 2016 (see Appendix A Table 1). It is forecast approximately 400 residential units will be constructed in Knock over the next ten years.

In terms of I/C load, there is one large industrial/commercial customer in Knock town, The Knock House Hotel. There are potentially five medium I/C customers and 45 small commercial customers in the area.

Knock is located 8.4km from the town of Claremorris where it is proposed to make the connection to the Natural Gas Distribution Network. Consequentially, the feeder main from Knockroe BV Station to Claremorris would need to be reinforced to support the expected additional load.

14.1.2. Summary Load Analysis:

Knock Town, Co. Mayo.

Source: Networks cost estimates report June 2006.

I/C Load Summary Forecast:

Total EAC 2014	2,784 Mwh	95,021 Therms
Peak Day 2014	18,070 Kwh	617 Therms

New Housing Summary Forecast:

New Housing Load (Therm)	208,000 (year 10)
New Housing Load (Mwh)	6,096 (year 10)

14.1.3. Solutions:

It would be necessary to install 85 to 4 Bar pressure reduction facilities at Knockroe AGI on the existing Mayo – Galway pipeline. This AGI would feed the local network comprising of approximately 9.1 km of 250 & 180mm PE (SDR 11) feeder main and 3.7km of 180, 125 & 90mm PE (SDR 11) distribution main.

14.1.4. Cost Estimates:

Knock Town, Co. Mayo.

Source: Networks cost estimates report June 2006.

Estimated Capital expenditure Costs for feeder and Distribution Mains:

Item	Costs €
<i>Feeder / Distribution Main Construction*</i>	€2,577,101
Total Estimated Costs	€2,577,101

These estimated costs include for the following:

District regulator installations, special engineering difficulties (crossings), archaeological survey, local authority charges, adverse ground conditions, pre-tender investigations, insurance, design, administration, material procurement and construction contracts.

* The estimates do not include for:

First response costs and AGI costs.

New housing estate mains, service or meter costs.

Industrial / Commercial mains, service or meter costs.

14.1.5. Business Modelling:

€m	NPV @ 5.74%
Distribution	
Revenue	1.1
Capex	-2.9
Contributions	0.1
Opex	-0.8
Distribution NPV	-2.5
Transmission	
Onshore Revenue	0.3
Entry Revenue	0.2
Capex - AGI	0.0
Initial Capex - Land & Tee	
Opex	-0.2
Transmission NPV	0.3
Total NPV	-2.18

Connection of Knock Town to the network would result in a negative net present value (NPV) of €2.18m and therefore appears to be uneconomic on a stand-alone basis.

14.2. Ballyhaunis (Stand Alone):

14.2.1. Summary Details

Ballyhaunis is located approximately 16.5km east of Claremorris and is considered to be a strong market town. The population of Ballyhaunis is currently 2,595 as per the preliminary results of the 2006 Census, this is projected to increase to 3,950 by 2016 (see Appendix A Table 1). Ballyhaunis has existing housing numbers of approximately 550 units. It is forecast that up to 1000 new residential connections will be made over the next ten years.

There is one potential Contract / Large customer in the town namely, Dawn Meats. There are also a number of Medium to Small I/C customer with potential. The local Chamber of Commerce is currently developing a business and technology park on a 4.5 acre site.

Taking Ballyhaunis as a stand-alone town it is proposed that Ballyhaunis would be connected directly from Claremorris. Ballyhaunis is 10.1km from the town of Knock. If the option of supplying Ballyhaunis grouped with and fed from Knock town proved viable, the feeder main from Knockroe BV Station to Claremorris would need to be reinforced to support the expected additional load of both Knock and Ballyhaunis.

This section will analyse the connection of Ballyhaunis under two scenarios, i.e. Ballyhaunis on a stand-alone basis, and grouped with and fed from Knock.

14.2.2. Summary Load Analysis:

Ballyhaunis, Co. Mayo.

Source: Networks cost estimates report July 2006.

I/C Load Summary Forecast:

Total EAC 2014	30,915 (Mwh)	1,055,123 (Therms)
Peak Day 2014	146,461 (Kwh)	4,999 (Therms)

New Housing Summary Forecast:

New Housing Load (Therm)	520,000 (year 10)
New Housing Load (Mwh)	15,240 (year 10)

14.2.3. Solutions:

It would be necessary to install 85 to 4 Bar pressure reduction facilities at Knockroe AGI on the existing Mayo – Galway pipeline. This AGI would feed the local network comprising of approximately 9.8km of 180mm PE (SDR 11) feeder main and 4.7km of 180mm, 125mm & 90mm PE (SDR 11) distribution main.

14.2.4. Cost Estimates:

Source: Networks cost estimates report July 2006.

Estimated Capital expenditure Costs for feeder and Distribution Mains:

Ballyhaunis Stand Alone

Item	Costs €
<i>Feeder / Distribution Main Construction*</i>	€4,476,203
Total Estimated Costs	€4,476,203

These estimated costs include for the following:

District regulator installations, special engineering difficulties (crossings), archaeological survey, local authority charges, adverse ground conditions, pre-tender investigations, insurance, design, administration, material procurement and construction contracts.

* The estimates do not include for:

First response costs and AGI costs.
New housing estate mains, service or meter costs.
Industrial / Commercial mains, service or meter costs.

14.2.5. Business Modelling:

€m	NPV @ 5.74%
Distribution	
Revenue	3.8
Capex	-5.2
Contributions	0.2
Opex	-0.9
Distribution NPV	-2.1
Transmission	
Onshore Revenue	1.4
Entry Revenue	0.8
Capex - AGI	0.0
Initial Capex - Land & Tee	
Opex	-0.2
Transmission NPV	2.1
Total NPV	-0.08

Connection of Ballyhaunis to the network would result in a negative net present value (NPV) of €0.08m and therefore appears to be uneconomic on a stand-alone basis.

14.3. Grouped Option:

This option analyses Ballyhaunis grouped with, and fed from Knock Town.

14.3.1. Cost Estimates:

Source: Networks cost estimates report July 2006.

Estimated Capital expenditure Costs for feeder and Distribution Mains:

Item	Costs €
<i>Ballyhaunis: Feeder / Distribution Main Construction*</i>	€2,816,488
<i>Knock: Feeder / Distribution Main Construction*</i>	€3,108,600
Total Estimated Costs	€5,925,088

These estimated costs include for the following:

District regulator installations, special engineering difficulties (crossings), archaeological survey, local authority charges, adverse ground conditions, pre-tender investigations, insurance, design, administration, material procurement and construction contracts.

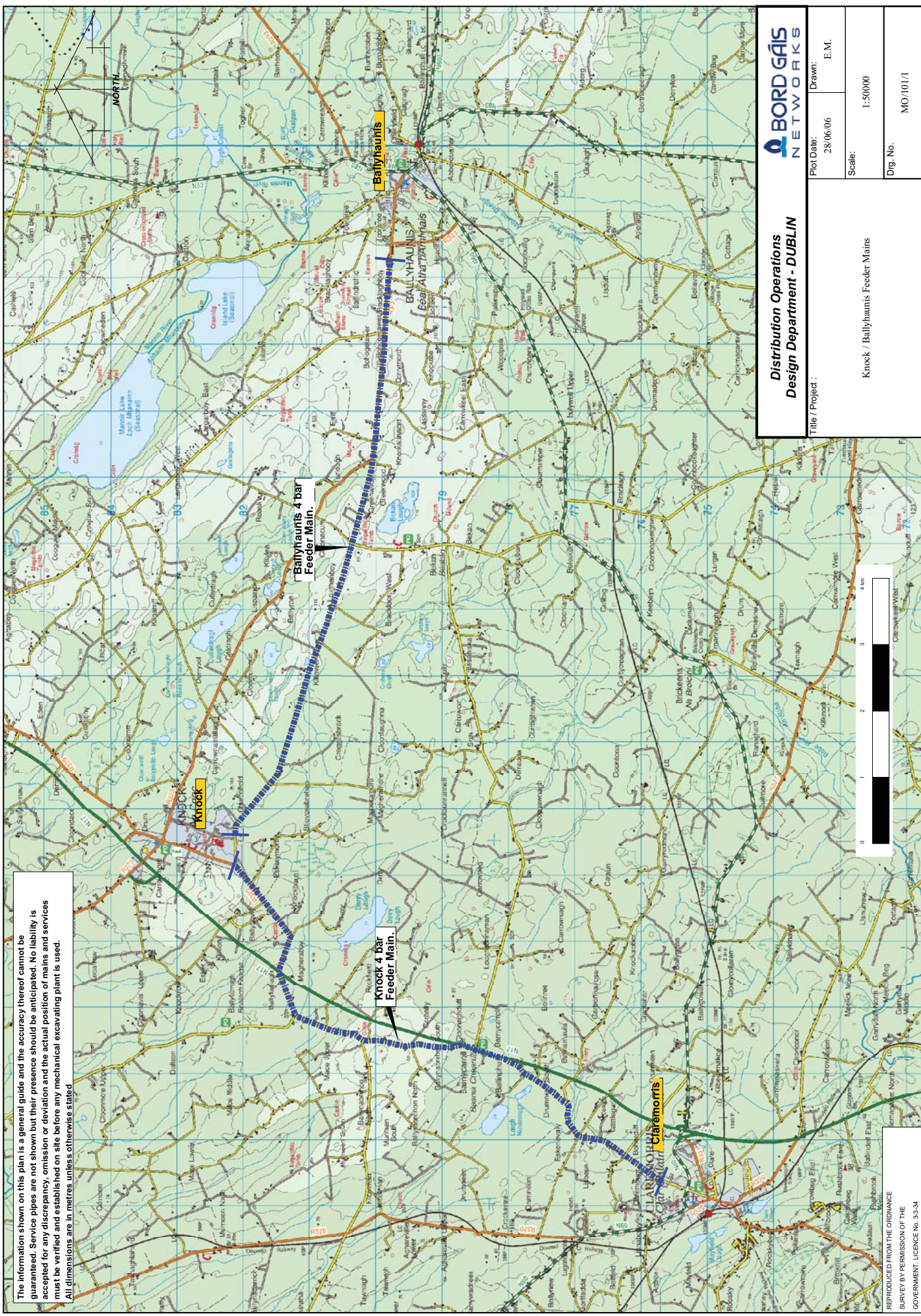
* The estimates do not include for:

First response costs and AGI costs.
New housing estate mains, service or meter costs.
Industrial / Commercial mains, service or meter costs.

14.3.2. Business Modelling:

€m	NPV @ 5.74%
Distribution	
Revenue	4.9
Capex	-7.0
Contributions	0.3
Opex	-1.7
Distribution NPV	-3.6
Transmission	
Onshore Revenue	1.7
Entry Revenue	1.0
Capex - AGI	0.0
Initial Capex - Land & Tee	
Opex	-0.3
Transmission NPV	2.4
Total NPV	-1.16

Grouping Ballyhaunis with Knock town results in a negative net present value (NPV) of €1.16m and therefore appears to be uneconomic on a stand-alone basis.



The information shown on this plan is a general guide and the accuracy thereof cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability is accepted for any discrepancy, omission or deviation and the actual position of mains and services must be verified and established on site before any mechanical excavating plant is used. All dimensions are in metres unless otherwise stated.

BORD GÁIS NETWORKS

**Distribution Operations
Design Department - DUBLIN**

Plot Date: 28/06/06 Drawn: E.M.

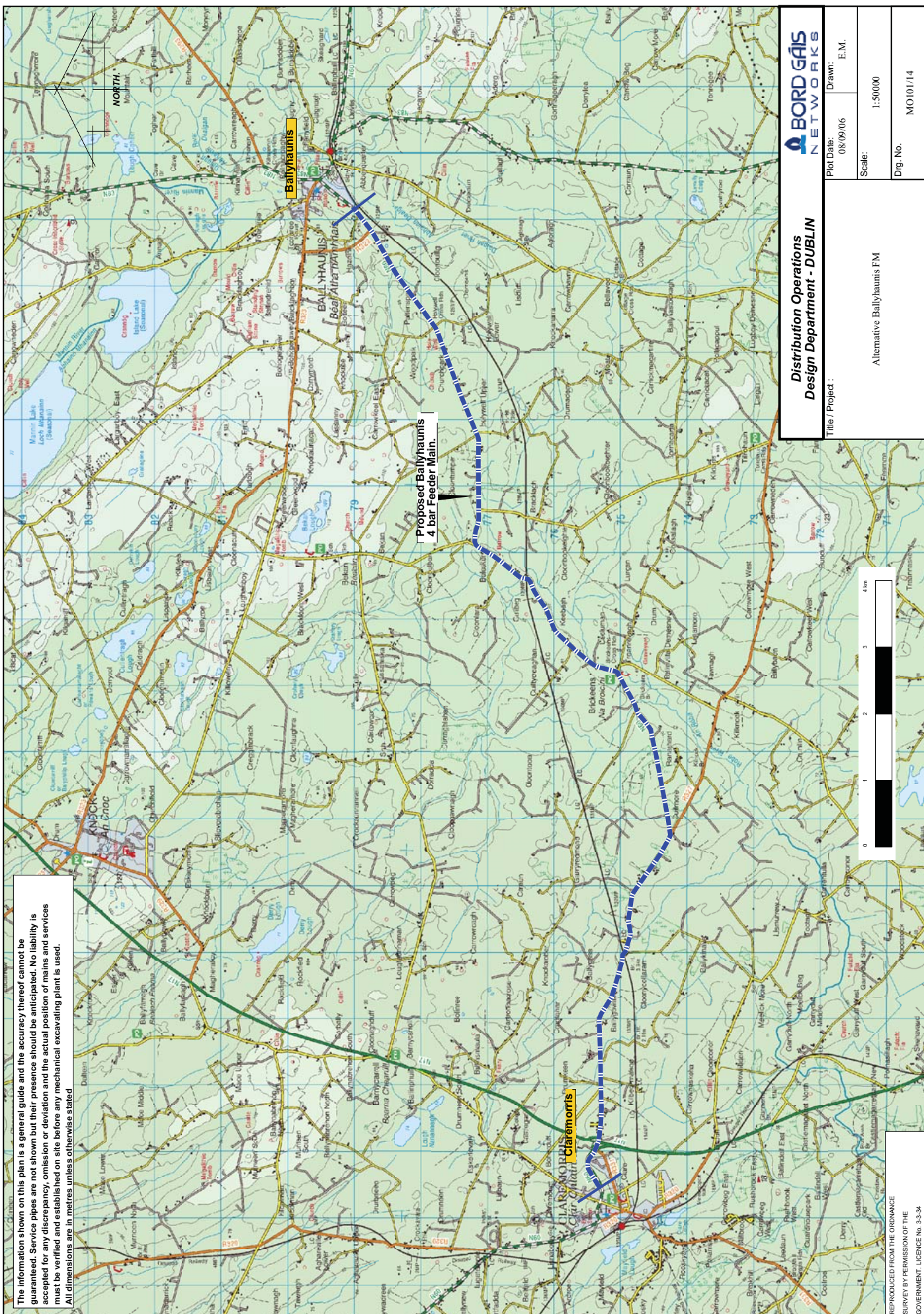
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Dr. No. MO/101/1

Title / Project : Knock / Ballyhaunis Feeder Mains

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The information shown on this plan is a general guide and the accuracy thereof cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability is accepted for any discrepancy, omission or deviation and the actual position of mains and services must be verified and established on site before any mechanical excavating plant is used. All dimensions are in metres unless otherwise stated.



Proposed Ballyhaunis
4 bar Feeder Main.

BORD GÁIS
NETWORKS

Distribution Operations
Design Department - DUBLIN

Title / Project : Alternative Ballyhaunis FM

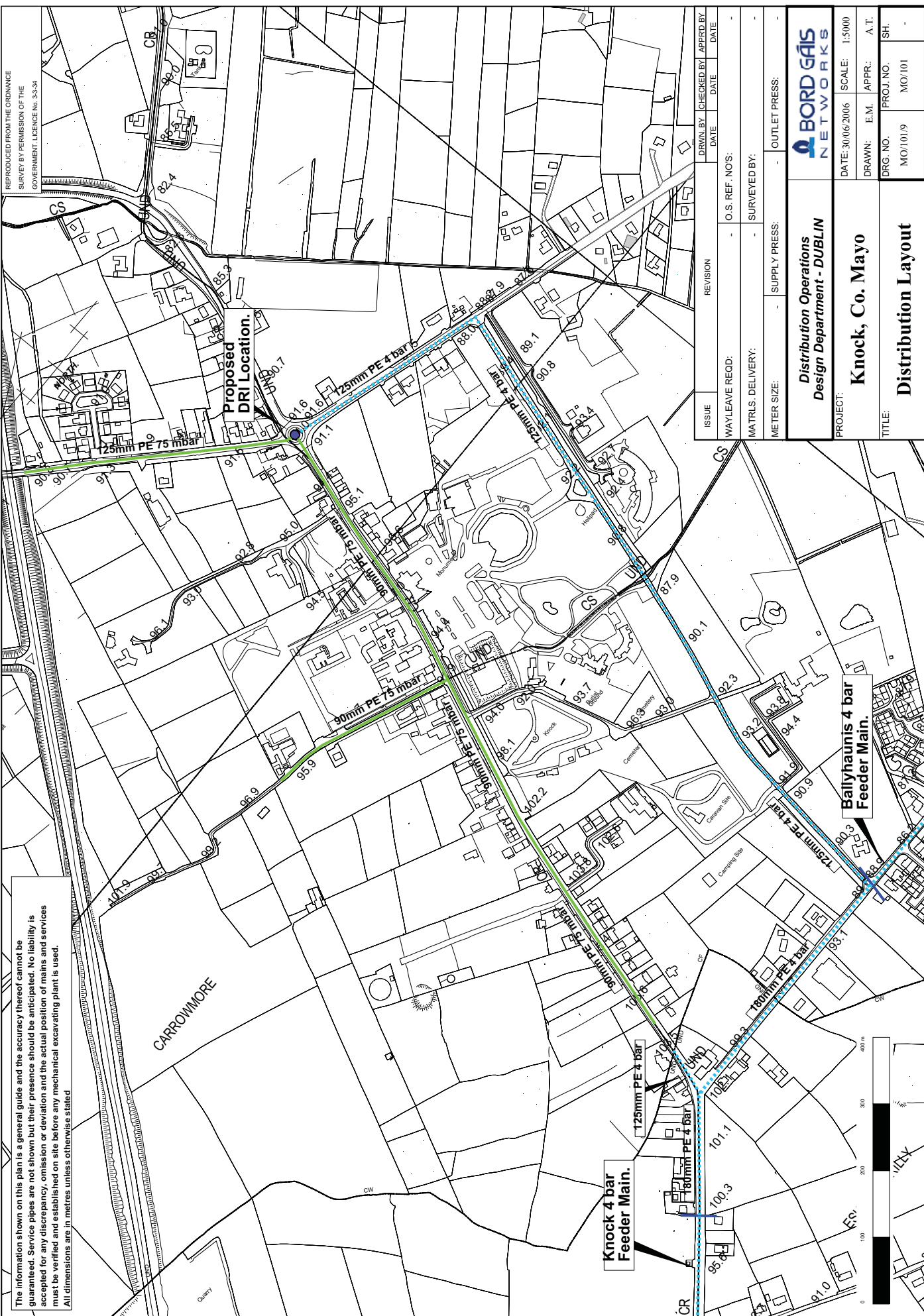
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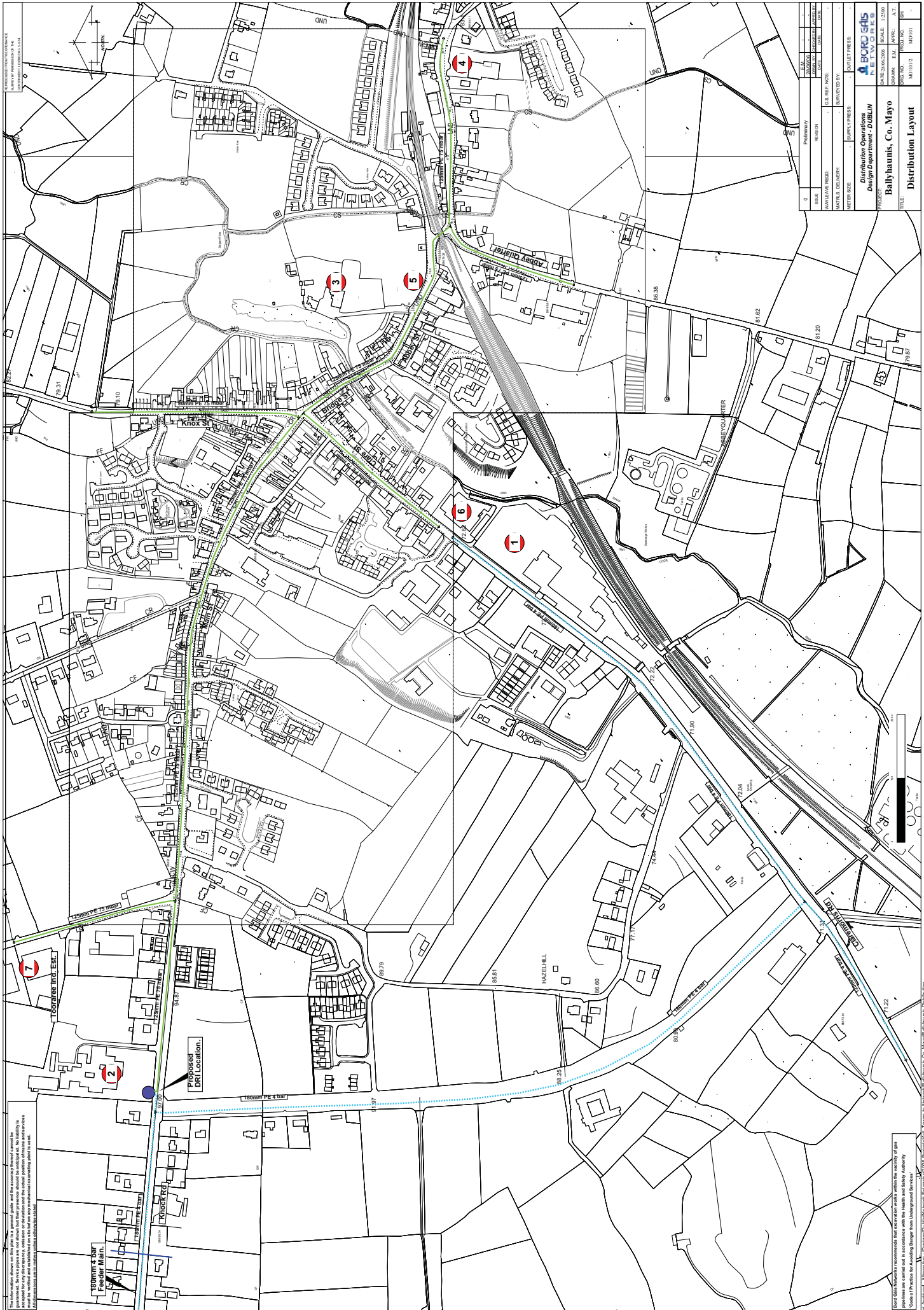
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ISSUE	REVISION	DATE	DATE	DATE
WAYLEAVE READ:	O.S. REF. NO'S:	SURVEYED BY:		
MATRLS. DELIVERY:	METER SIZE:			
SUPPLY PRESS:		OUTLET PRESS:		
Distribution Operations Design Department - DUBLIN				
PROJECT:		SCALE: 1:5000		
Knock, Co. Mayo		DRAWN: E.M. APPR.: A.T.		
TITLE:		DRG. NO. PROJ. NO. SH.		
Distribution Layout		MO/101/9 MO/101		

The information shown on this plan is a general guide and the accuracy thereof cannot be guaranteed. Service providers are not shown for their convenience, should be indicated on the utility to be used and established on it before any construction or engineering plan is used.

180mm 4 BRN Feeder Main

Proposed DN Location



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BOARD GALS NETWORKS
 Distribution Operations
 Design Department - DUBLIN
 Ballyhannis, Co. Mayo
 Distribution Layout

BOARD GALS NETWORKS recommends that all work within the vicinity of gas pipelines be carried out in accordance with the Health and Safety Authority Code of Practice for Gas (CSG) and the Gas Safety Regulations 2008.
 NOT ADVISED - APPROVED - DRAFT/PROPOSED/IN PROGRESS/ISSUED FOR TENDERS/ISSUED FOR CONSTRUCTION/ISSUED FOR AS-BUILT

15. Mayo - Galway Towns Results

Towns on a Stand Alone Basis Only

Towns	Distribution Revenue	Distribution Capex*	Distribution Capex*	Contributions	Distribution Opex	Distribution NPV (€m)	Onshore Revenue	Entry Revenue	Transmission Capex	Initial Capex - Land & Tee	Transmission Opex	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	NPV / kWh	Included (1) / Excluded (0)
Castlebar	7.06	-6.10	0.44	-1.32	0.08	0.08	3.79	2.18	-0.37	-0.14	-0.17	5.29	5.37	1	€21.39	1	€0.73	1
Craughwell	1.93	-1.49	0.17	-0.09	0.53	0.53	0.56	0.32	-0.69	0.00	-0.17	0.02	0.55	2	€14.37	2	€0.49	1
Westport	4.71	-5.66	0.19	-1.49	-2.26	-2.26	1.99	1.15	-0.37	-0.14	-0.17	2.45	0.19	3	€1.46	4	€0.05	1
Athenry	2.41	-2.19	0.19	-0.13	0.29	0.29	0.70	0.40	-1.03	0.00	-0.17	-0.10	0.19	4	€3.98	3	€0.14	1
Ballyhaunis**	3.78	-5.22	0.21	-0.90	-2.13	-2.13	1.41	0.82	0.00	0.00	-0.17	2.05	-0.08	5	-€0.82	5	-€0.03	0
Headford*	2.07	-2.93	0.18	-0.18	-0.86	-0.86	0.60	0.35	0.00	0.00	-0.17	0.78	-0.09	6	-€2.12	6	-€0.07	1
Claremorris	2.69	-2.91	0.20	-0.78	-0.80	-0.80	0.78	0.45	-0.69	-0.29	-0.17	0.08	-0.73	7	-€13.72	7	-€0.47	1
Tuam	4.02	-5.85	0.30	-0.31	-1.84	-1.84	1.17	0.68	-0.73	-0.29	-0.17	0.65	-1.19	8	-€15.03	8	-€0.51	1
Knock**	1.07	-2.89	0.10	-0.80	-2.52	-2.52	0.32	0.19	0.00	0.00	-0.17	0.34	-2.18	9	-€99.28	10	-€3.39	0
Ballina / Crossmolina	5.59	-8.66	0.31	-2.12	-4.88	-4.88	1.99	1.15	-0.73	-0.29	-0.35	1.76	-3.12	10	-€23.66	9	-€0.81	1
Ballinrobe	1.14	-4.04	0.10	-0.86	-3.67	-3.67	0.34	0.20	0.00	0.00	0.00	0.54	-3.12	11	-€134.57	12	-€4.59	0
Foxford	0.77	-3.88	0.05	-0.71	-3.77	-3.77	0.24	0.14	0.00	0.00	0.00	0.39	-3.38	12	-€203.32	14	-€7.00	0
Kiltimagh	0.79	-3.94	0.06	-0.70	-3.79	-3.79	0.25	0.14	0.00	0.00	0.00	0.39	-3.40	13	-€200.31	13	-€6.90	0
Swinford	1.54	-5.16	0.10	-0.73	-4.24	-4.24	0.50	0.29	0.00	0.00	0.00	0.78	-3.46	14	-€102.88	11	-€3.54	0
Belmullet	1.01	-3.48	0.07	-3.79	-6.19	-6.19	0.32	0.19	-0.73	-0.29	0.00	-0.51	-6.70	15	-€309.59	15	-€10.56	0

+ Includes Distribution Meter and Service Costs

* Dependent on Tuam being connected

** Dependent on Claremorris being connected

Stand Alone and Grouped Towns

Towns	Distribution Revenue		Distribution Capex ⁺		Contributions		Distribution Opex		Distribution NPV (€m)		Onshore Revenue	Entry Revenue	Transmission Capex	Initial Capex - Land & Tee	Transmission Opex	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	NPV / kWh	Included (1) / Excluded (0)
	Revenue	Capex ⁺	Revenue	Capex ⁺	Contributions	Opex	NPV (€m)	NPV (€m)														
Castlebar	7.06	-6.10	0.44	-1.32	0.08	-1.32	0.44	-1.32	0.08	3.79	2.18	-0.37	-0.14	-0.17	5.29	5.37	1	€21.39	1	€0.73	1	
Craughwell	1.93	-1.49	0.17	-0.09	0.53	-0.09	0.17	-0.09	0.53	0.56	0.32	-0.69	0.00	-0.17	0.02	0.55	2	€14.37	2	€0.49	1	
Westport	4.71	-5.66	0.19	-1.49	-2.26	-1.49	0.19	-1.49	-2.26	1.99	1.15	-0.37	-0.14	-0.17	2.45	0.19	3	€1.46	4	€0.05	1	
Athenry	2.41	-2.19	0.19	-0.13	0.29	-0.13	0.19	-0.13	0.29	0.70	0.40	-1.03	0.00	-0.17	-0.10	0.19	4	€3.98	3	€0.14	1	
Headford*	2.07	-2.93	0.18	-0.18	-0.86	-0.18	0.18	-0.18	-0.86	0.60	0.35	0.00	0.00	-0.17	0.78	-0.09	5	-€2.12	5	-€0.07	1	
Claremorris	2.69	-2.91	0.20	-0.78	-0.80	-0.78	0.20	-0.78	-0.80	0.78	0.45	-0.69	-0.29	-0.17	0.08	-0.73	6	-€13.72	7	-€0.47	1	
Ballyhaunis*** - Knock**	4.86	-7.01	0.30	-1.71	-3.56	-1.71	0.30	-1.71	-3.56	1.74	1.00	0.00	0.00	-0.35	2.39	-1.16	7	-€10.04	6	-€0.34	1	
Tuam	4.02	-5.85	0.30	-0.31	-1.84	-0.31	0.30	-0.31	-1.84	1.17	0.68	-0.73	-0.29	-0.17	0.65	-1.19	8	-€15.03	8	-€0.51	1	
Ballina - Crossmolina	5.59	-8.66	0.31	-2.12	-4.88	-2.12	0.31	-2.12	-4.88	1.99	1.15	-0.73	-0.29	-0.35	1.76	-3.12	9	-€23.66	9	-€0.81	1	
Ballinrobe	1.14	-4.04	0.10	-0.86	-3.67	-0.86	0.10	-0.86	-3.67	0.34	0.20	0.00	0.00	0.00	0.54	-3.12	10	-€134.57	11	-€4.59	0	
Belmullet	1.01	-3.48	0.07	-3.79	-6.19	-3.79	0.07	-3.79	-6.19	0.32	0.19	-0.73	-0.29	0.00	-0.51	-6.70	11	-€309.59	12	-€10.56	0	
Kiltimagh - Foxford - Swinford	3.10	-10.46	0.21	-2.14	-9.29	-2.14	0.21	-2.14	-9.29	0.99	0.57	0.00	0.00	0.00	1.56	-7.73	12	-€114.97	10	-€3.96	0	

+ Includes Distribution Meter and Service Costs

* Dependent on Tuam being connected

** Dependent on Claremorris being connected

*** Dependent on Claremorris and Knock being connected

Viable Towns	Distribution NPV (€m)	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	Connection Ranking ⁺
Castlebar	0.08	5.29	€5.37	1	€21.39	1	1
Craughwell	0.53	0.02	€0.55	2	€14.37	2	2
Westport	-2.26	2.45	€0.19	3	€1.46	4	3
Athenry	0.29	-0.10	€0.19	4	€3.98	3	4
Claremorris	-0.80	0.08	-€0.73	6	-€13.72	7	5
Ballyhaunis ^{***} & Knock ^{**}	-3.56	2.39	-€1.16	7	-€10.04	6	6
Tuam	-1.84	0.65	-€1.19	8	-€15.03	8	7
Headford*	-0.86	0.78	-€0.09	5	-€2.12	5	8
Ballina & Crossmolina	-4.88	1.76	-€3.12	9	-€23.66	9	9

Total NPV €0.01

Non - Viable Towns	Distribution NPV (€m)	Transmission NPV (€m)	TOTAL NPV (€m)	RANK NPV	NPV / Therm	RANK NPV / Therm	Connection Ranking ⁺
Kiltimagh, Foxford & Swinford	-9.29	1.56	-€7.73	12	-€114.97	10	10
Ballinrobe	-3.67	0.54	-€3.12	10	-€134.57	11	11
Belmullet	-6.19	-0.51	-€6.70	11	-€309.59	12	12

+ Please note that this connection ranking takes into account that the connection of some towns is dependent on other towns e.g. Headford, Ballyhaunis & Knock and hence is different from the straight forward NPV ranking.

* Dependent on Tuam being connected

** Dependent on Claremorris being connected

*** Dependent on Claremorris and Knock being connected

Appendix A

Population Growth in Prospective New Towns:

Town	Preliminary Results of 2006 Census	Forecast Population 2016	Forecast New Domestic Connections by 2016
Athenry	4041	6450	1000
Tuam	7897	13000	1600
Claremorris	3170	6000	1000
Westport	6598	8000	500
Castlebar	12884	19500	2000
Ballina	11449	15500	1100
Crossmolina	1769	2070	100
Belmullet	2009	2230	200
Headford	1350	4150	1000
Craughwell	1351	2700	1000
Ballinrobe	3160	4240	400
Foxford	878	1420	200
Swinford	2678	3760	400
Kiltimagh	1538	2000	185
Knock Town	1435	2500	400
Ballyhaunis	2595	3950	1000

Appendix B

Cumulative Projected Customer Numbers

Town	2010		2013		2017	
	Industrial and Commercial	Housing	Industrial and Commercial	Housing	Industrial and Commercial	Housing
Ballina	63	330	78	660	81	1100
Crossmolina	10	30	13	60	14	100
Castlebar	77	600	94	1200	99	2000
Claremorris	33	300	40	600	42	1000
Westport	62	150	79	300	83	500
Athenry	19	300	23	600	25	1000
Tuam	27	480	34	960	35	1600
Craughwell	4	300	5	600	5	1000
Headford	10	300	12	600	13	1000
Ballyhaunis	27	300	33	600	35	1000
Knock	12	120	15	240	15	400
Total	344	3210	426	6420	447	10700