

**APPENDIX 6**  
**PRELIMINARY SITE INVESTIGATION (PROBING)**  
**DATA**

**N5 Strategic Corridor  
Route Selection  
Site Investigation –  
Probes**

**Report No: 06-975**

**Client: Roscommon County Council**

**Engineer: National Roads Design Office**

**May 2007**

# N5 Strategic Corridor Route Selection Site Investigation – Probes

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## Appendices

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- Appendix B Dynamic Probe logs

## Methods of describing soils and rocks

Soil and rock descriptions are based on the guidance in Section 6 of BS 5930: 1999, *The Code of Practice for Site Investigation*, with the following exceptions:

- Where the strength of clay is based on field assessment without the availability of laboratory or in-situ test results the following terms are used, where applicable:
  - soft to firm: clay with undrained shear strength close to the BS5930 boundary (40kPa) between soft and firm soil.
  - firm to stiff: clay with undrained shear strength close to the BS5930 boundary (75kPa) between firm and stiff soil.
- The relative density of coarse-grained soils, described in trial pit logs, is based on field observations including stability of pit sides and the ease/difficulty of excavation. The description is for indicative purposes only: as required by BS 5930, the relative density should only be determined by use of in-situ tests, including standard penetration tests.

<b>Abbreviations used on exploratory hole logs</b>	
<b>U</b>	Nominal 100mm diameter undisturbed open tube sample
<b>P</b>	Nominal 100mm diameter undisturbed piston sample
<b>B</b>	Bulk disturbed sample
<b>D / J</b>	Small disturbed sample
<b>W</b>	Water sample
<b>ES</b>	Soil sample for environmental testing
<b>SPT</b>	Standard penetration test using a split spoon sampler (small disturbed sample obtained)
<b>CPT</b>	Standard penetration test using 60 degree solid cone
<b>X,X/X,X,X,X</b>	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length
<b>N=X</b>	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm)
<b>X*/Y</b>	Incomplete standard penetration test where the seating drive could not be completed. The blows 'X' represent the total blows for the given length of seating drive 'Y' (mm)
<b>X/Z</b>	Incomplete standard penetration test where the seating drive was achieved but the full test length was not. The blows 'X' represent the total blows for the given test length 'Z' (mm)
<b>V</b>	Shear vane test (borehole) Hand vane test (trial pit)    Shear strength in kPa
<b>dd/mm/yy: 1.0</b> <b>dd/mm/yy: dry</b>	Date &, water level at the borehole depth at the end of shift and the start of the following shift
<b>Abbreviations relating to rock core</b>	
<b>TCR %</b>	TOTAL RECOVERY: Defined as the percentage ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run
<b>SCR %</b>	SOLID CORE RECOVERY: Defined as the percentage ratio of rock core with at least one full diameter (measured along the core axis between natural fractures) to the total length of core run
<b>RQD %</b>	ROCK QUALITY DESIGNATION: Defined as the total length of solid core pieces greater than 100mm (measured along the core axis between natural fractures) to the total length of core run
<b>FI</b>	FRACTURE INDEX: Defined as the number of natural discontinuities per metre over an indicated length of core.
<b>NI</b>	NON INTACT: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.

<b>Report prepared by:</b>	<b>Dr Paul Dunlop</b>
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# **N5 Strategic Corridor Route Selection Site Investigation – Probes**

## **1 AUTHORITY**

On the instructions of the National Road Design Office Roscommon (NRDO), the Design Team, acting on behalf of the Client, Roscommon County Council, a Dynamic Probing investigation was carried out at specified locations to determine the depth of soft ground.

## **2 SCOPE**

The extent of the investigation was as directed by the Engineer and included:

1. Dynamic Probing
2. preparation of a factual report

## **3 DESCRIPTION OF SITE**

The scheme comprises the provision of approximately 34km of roadway for the N5 Strategic Corridor Scheme to upgrade the N5 National Primary Road between Tibohine and Scramoge.

## **4 SITE OPERATIONS**

The Site Operations comprised:

- Dynamic Probing at 415 locations

The locations of the exploratory holes are shown on the exploratory hole location plan in Appendix A.

The number, location and depths of exploratory holes were as directed by the Engineer.

### **4.1 Dynamic Probes**

A total of four hundred and fifteen dynamic probes were carried to ascertain the extent of the soft ground.

Dynamic probes were carried out using the DPSH method - Table 4 of BS5930 (British Standards Institute, 1999). The results are presented as counts and plots, against depth, of the number of blows per 100mm penetration. The plots are included in Appendix B.

## **5 REFERENCES**

British Standards Institute (1999) *BS 5930:1999, Code of practice for site investigations.*

**APPENDIX A**

**Exploratory Hole Location Plan**





PROJECT:

**N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000

SERIES: 01 of 26

ENGINEER: National Roads Design Office

DRWN: A.W.  
CHK: P.C.

DATE: 23/03/07

TITLE:

**Exploratory Hole Location Plan (Probe Areas 1 & 2)**

KEY:  Dynamic Probe

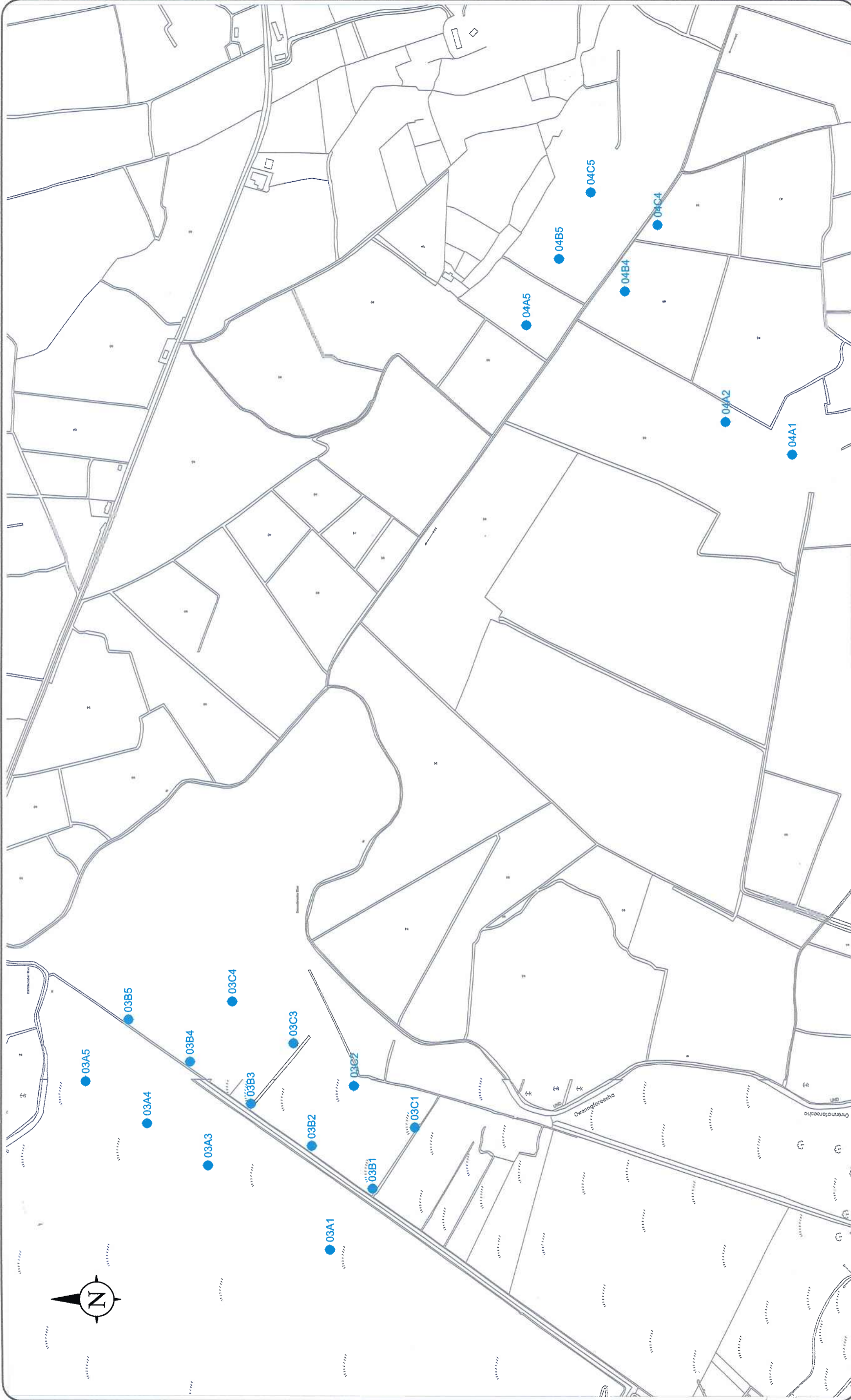
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DWG NO: 06-975-EHLoc-001

REV:

DRW: CHK:





**PROJECT:** N5 Strategic Corridor Route Selection

**TITLE:** Exploratory Hole Location Plan (Probe Areas 3 & 4)

**CLIENT:** Roscommon County Council

**ENGINEER:** National Roads Design Office

**SCALE:** 1:5000 @ A3

**SERIES:** 02 of 26

**DRWN:** A.W.

**DATE:** 23/03/07

**CHK:** P.C.

**KEY:** ● Dynamic Probe

**REV:** DATE: DETAILS: DRW: CHK: REV:

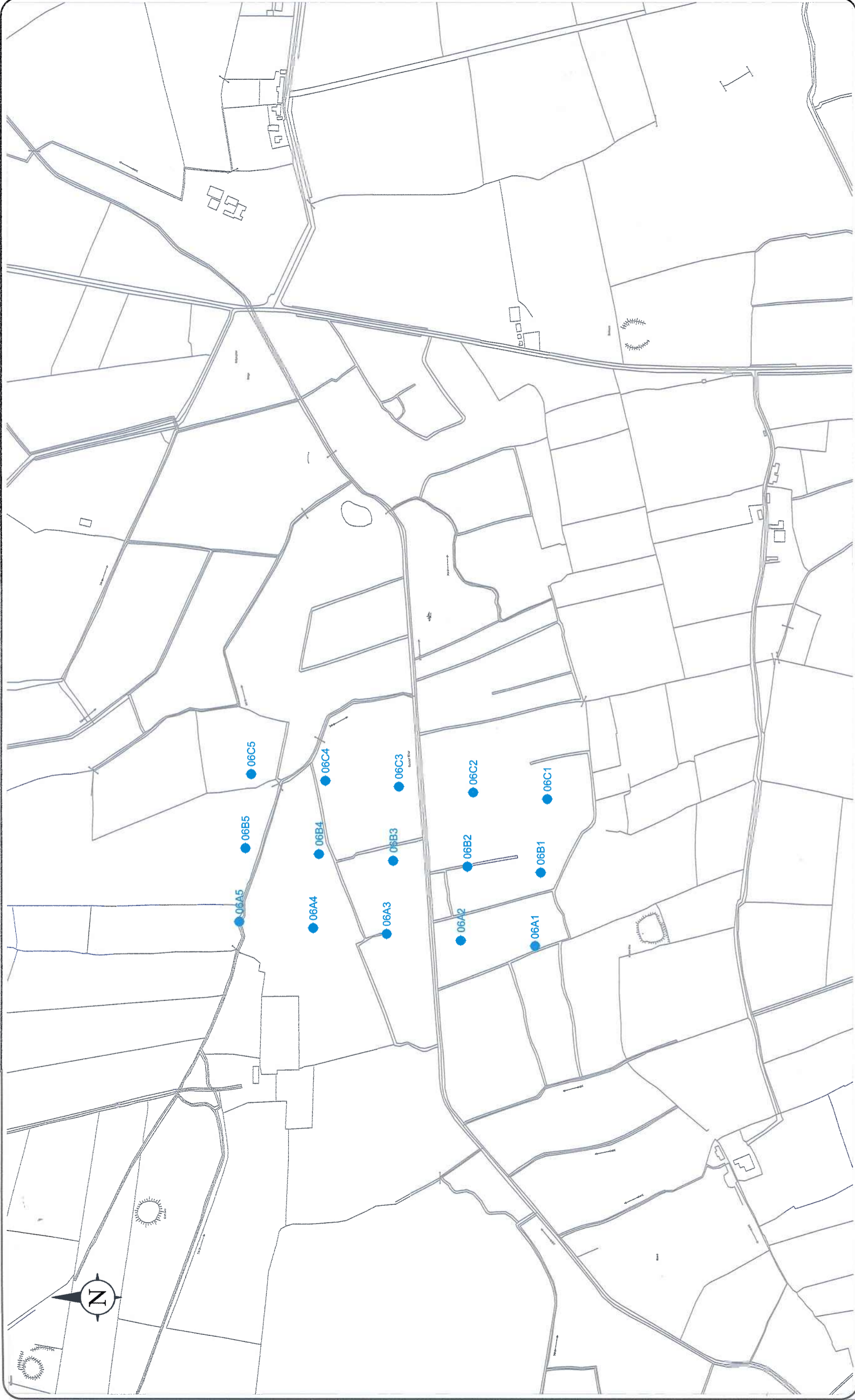
**DWG NO:** 06-975-EHLoc-002





PROJECT: N5 Strategic Corridor Route Selection		TITLE: Exploratory Hole Location Plan (Probe Area 5)											
CLIENT:  Roscommon County Council	SCALE: 1:5000	SERIES: 03 of 26	KEY:  Dynamic Probe										
ENGINEER: National Roads Design Office	DRWN: A.W.	DATE: 23/03/07											
	CHK: P.C.												
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REV:	DATE:	DETAILS:	DRW:	CHK:									
DWG NO: 06-975-EHLoc-003		REV:											





PROJECT:

**N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 04 of 26

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHCK: P.C.  
 DATE: 23/03/07

TITLE:

**Exploratory Hole Location Plan (Probe Area 6)**

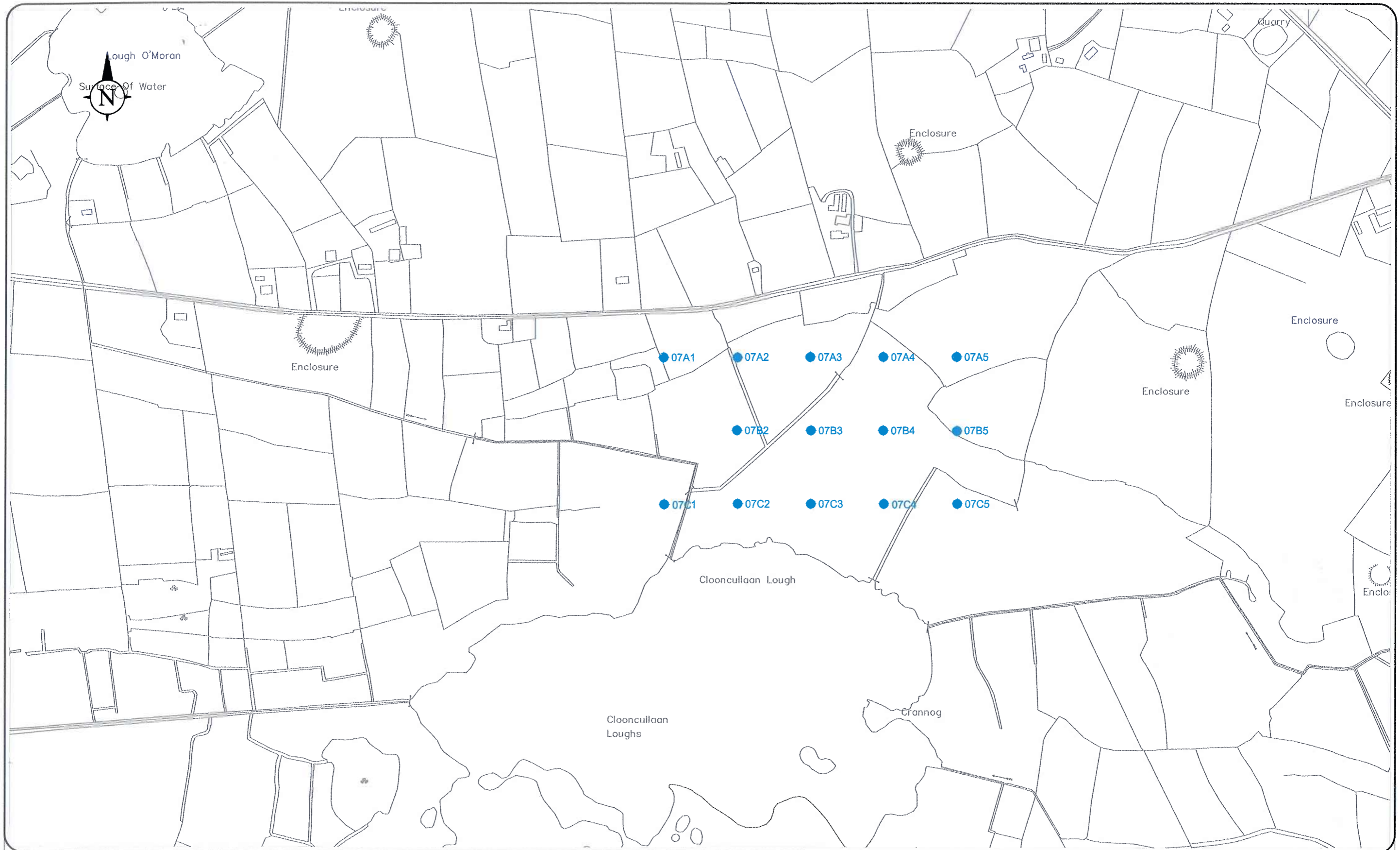
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REV: DATE: DETAILS:

DWG NO: 06-975-EHLoc-004  
 REV:

DRW: CHK:



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 05 of 26

ENGINEER: National Roads Design Office

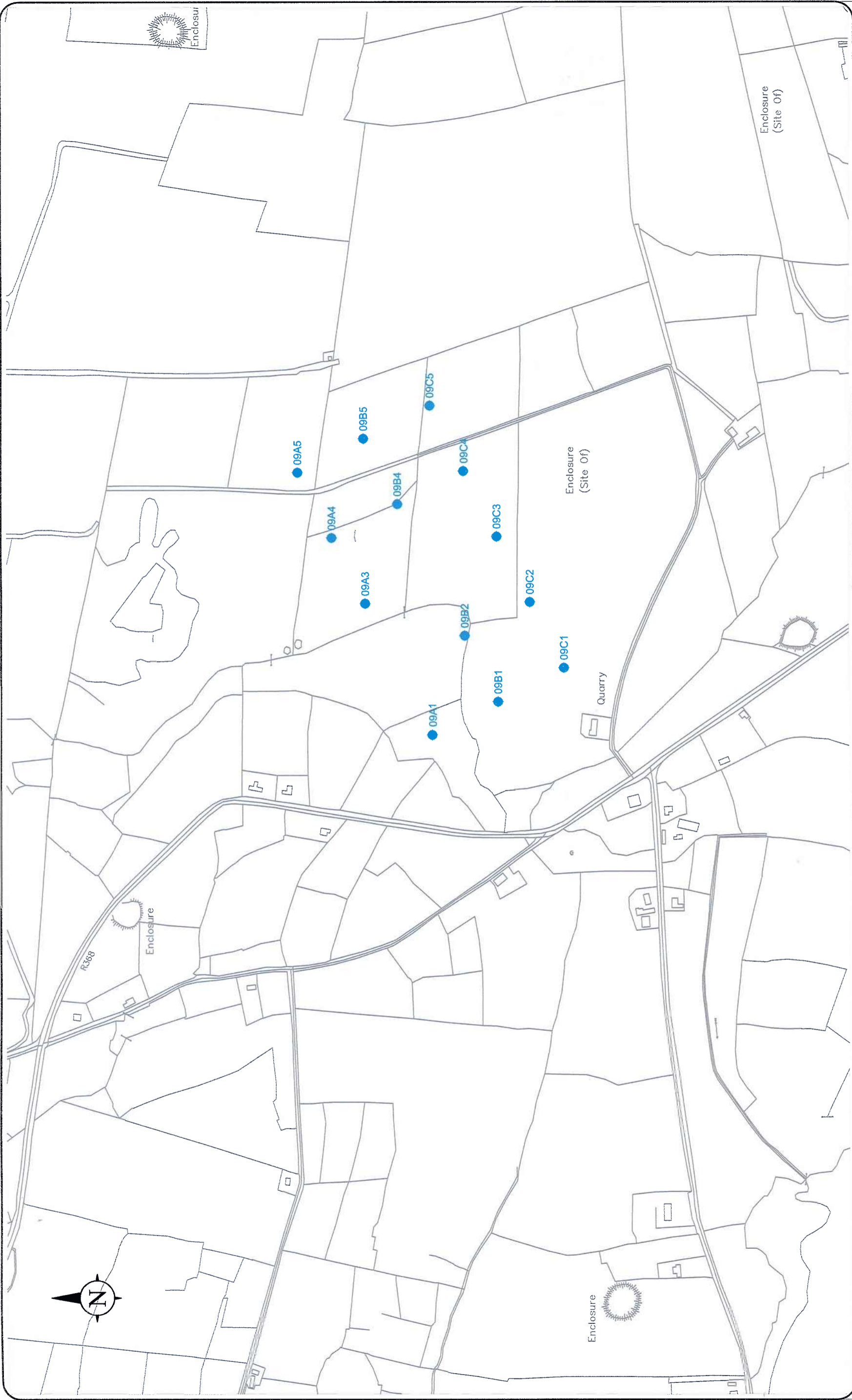
DRWN: A.W.  
 CHECK: P.C.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Area 7)**

KEY: ● Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No:		06-975-EHLoc-005	REV:	



PROJECT: **N5 Strategic Corridor Route Selection** TITLE: **Exploratory Hole Location Plan (Probe Area 9)**

CLIENT: **Roscommon County Council** SCALE: **1:5000 @ A3** SERIES: **06 of 26**

ENGINEER: **National Roads Design Office** DRWN: **A.W.** DATE: **23/03/07**

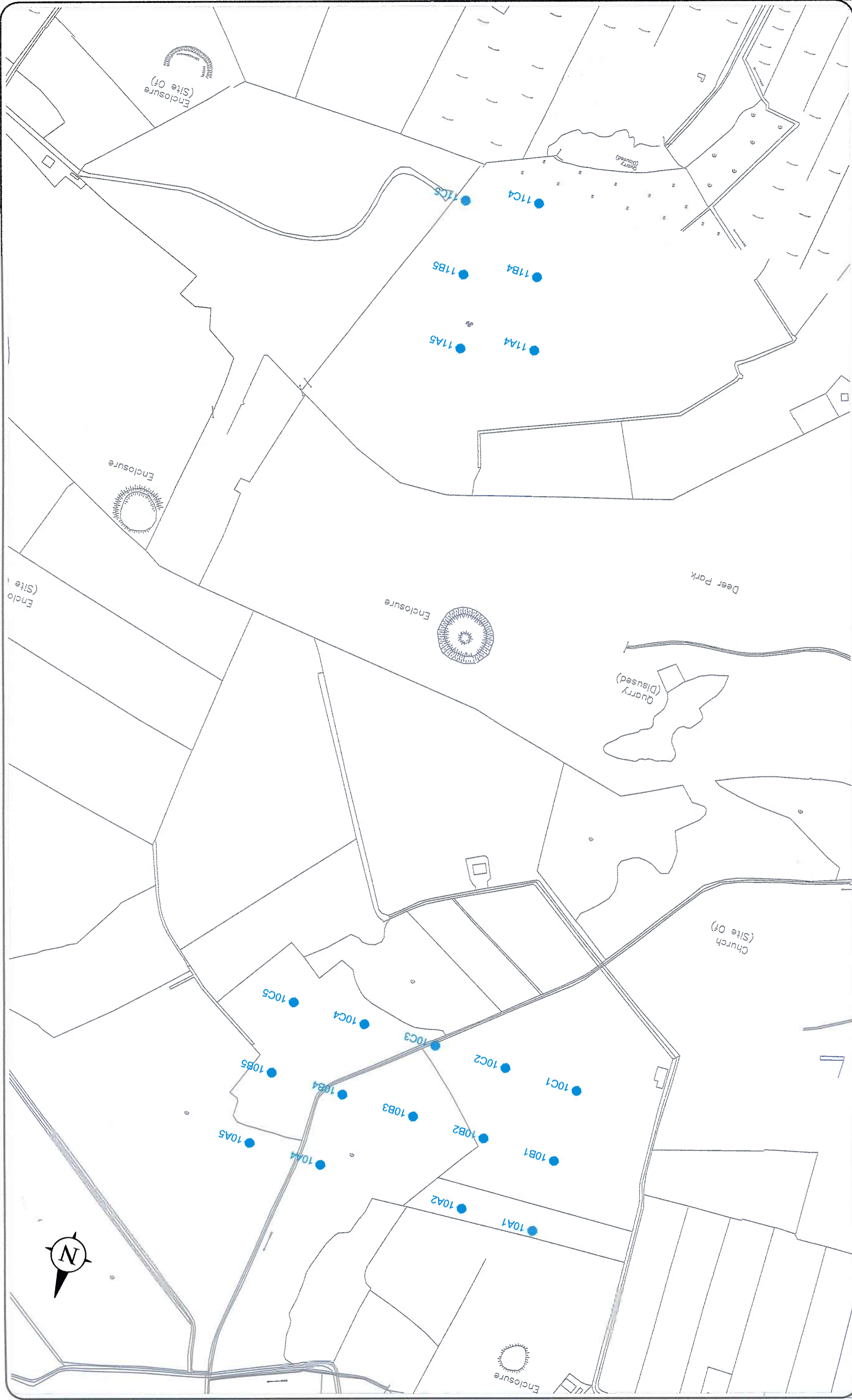
CHK: **P.C.**



KEY: Dynamic Probe

REV: DATE: DETAILS: DRW: CHK: REV:

DWG NO: **06-975-EHLoc-006**



PROJECT: N5 Strategic Corridor Route Selection

TITLE: Exploratory Hole Location Plan (Probe Areas 10 & 11)

CLIENT: Roscommon County Council	SCALE: 1:5000 @ A3	SERIES: 07 of 26
	DRWN: A.W.	DATE: 23/03/07
ENGINEER: National Roads Design Office	CHEK: P.C.	



KEY: ● Dynamic Probe

REV: DATE:	DETAILS:	DRW: DHK:
DWG NO: 06-975-EHLoc-007		REV:



PROJECT:

**N5 Strategic Corridor Route Selection**

TITLE:

**Exploratory Hole Location Plan (Probe Area 12)**

CLIENT:



Roscommon County Council

SCALE:

1:5000 @ A3

SERIES:

08 of 26

ENGINEER:

National Roads Design Office

DRWN:

A.W.

DATE:

23/03/07

KEY:

● Dynamic Probe



REV: DATE: DETAILS:

DRW: GHK:

DWG NO: 06-975-EHLoc-008

REV:





PROJECT:

**N5 Strategic Corridor Route Selection**

TITLE:

**Exploratory Hole Location Plan (Probe Area 13)**

CLIENT:



Roscommon County Council

SCALE:

1:5000 @ A3

SERIES:

09 of 26

ENGINEER:

National Roads Design Office

DRWN:

A.W.

DATE:

23/03/07

KEY:

● Dynamic Probe

REV: DATE:

DETAILS:

DRW: CHK:

DWG NO:

06-975-EHLoc-009

REV:





PROJECT: N5 Strategic Corridor Route Selection

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 10 of 26

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHECK: P.C.  
 DATE: 23/03/07



TITLE: Exploratory Hole Location Plan (Probe Area 14)

KEY: ● Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No:		06-975-EHLoc-010	REV:	



**TITLE:** Exploratory Hole Location Plan (Probe Areas 15 & 16)



**KEY:** ● Dynamic Probe

**PROJECT:** N5 Strategic Corridor Route Selection

<b>SCALE:</b>	<b>SERIES:</b>
1:5000 @ A3	11 of 25
<b>DRWN:</b>	<b>DATE:</b>
A.W.	23/03/07
<b>CHK:</b>	<b>P.D.</b>

**CLIENT:** Roscommon County Council

**ENGINEER:** National Roads Design Office

<b>REV:</b>	<b>DATE:</b>	<b>DETAILS:</b>	<b>DRW:</b>	<b>CHK:</b>
<b>DWG NO:</b>		<b>REV:</b>		
06-975-EHLoc-011				



**TITLE:** Exploratory Hole Location Plan (Probe Area 17 & 18)



**KEY:** ● Dynamic Probe

**PROJECT:** N5 Strategic Corridor Route Selection

**SCALE:** 1:5000 @ A3  
**SERIES:** 12 of 25  
**DRWN:** A.W.  
**CHK:** P.D.  
**DATE:** 23/03/07


**CLIENT:** Roscommon County Council

**ENGINEER:** National Roads Design Office

**REV:** DATE: DETAILS: DRW: CHK:  
**DWG NO:** 06-975-EHLoc-012  
**REV:**



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 13 of 25

ENGINEER: National Roads Design Office

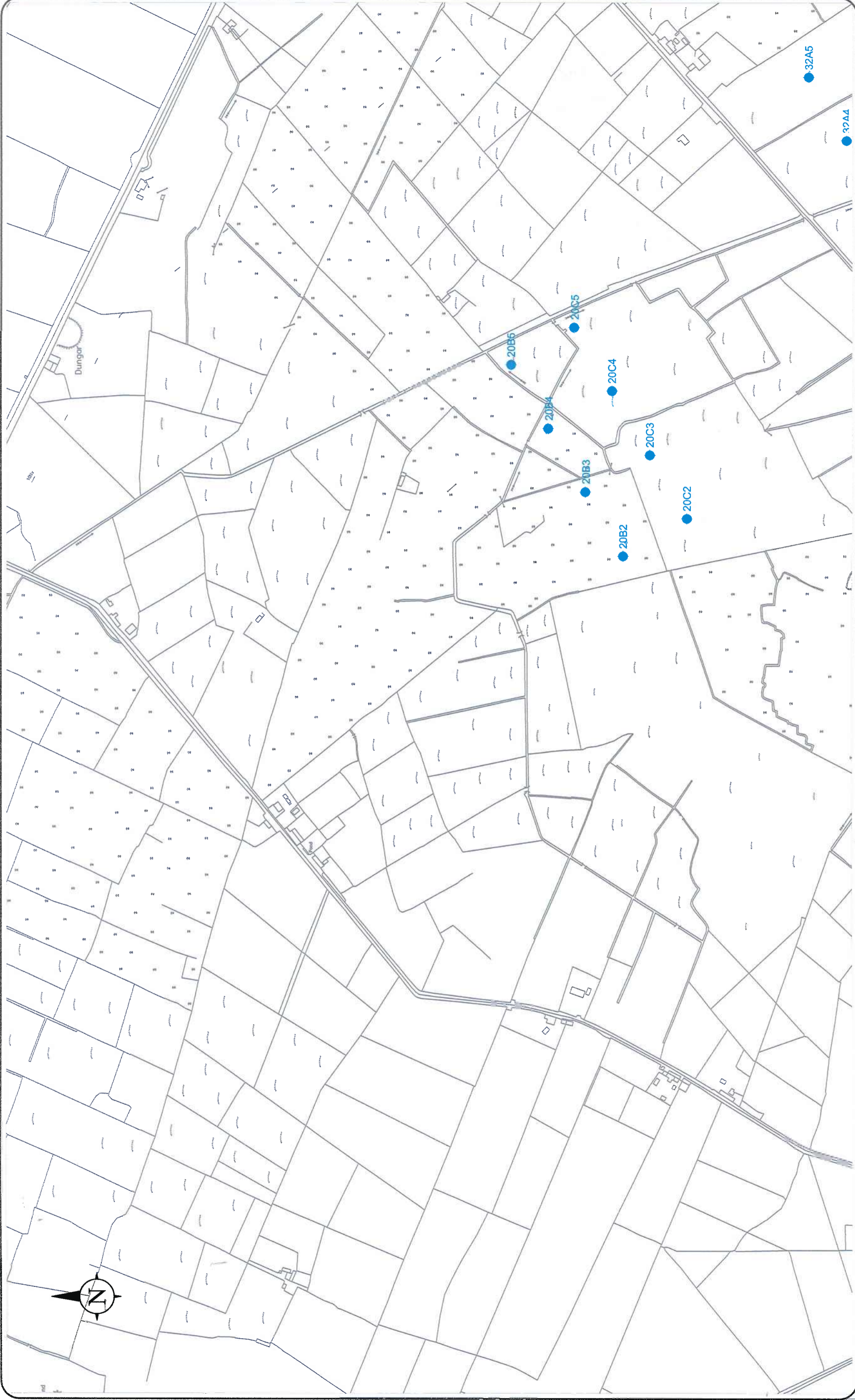
DRWN: A.W.  
 CHECK: P.D.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Area 19)**

KEY: ● Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG NO:		06-975-EHLoc-013		REV:



PROJECT:

**N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: **1:5000 @ A3**      SERIES: **14 of 25**

ENGINEER: **National Roads Design Office**

DRWN: **A.W.**      DATE: **23/03/07**  
 CHCK: **P.D.**

TITLE:

**Exploratory Hole Location Plan (Probe Area 20)**

KEY:  Dynamic Probe



REV:    DATE:    DETAILS:


DRW:    CHK:

DWG NO: **06-975-EHLoc-014**      REV:



PROJECT:

**N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 15 of 25

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07

TITLE:

**Exploratory Hole Location Plan (Probe Area 21)**

KEY: ● Dynamic Probe

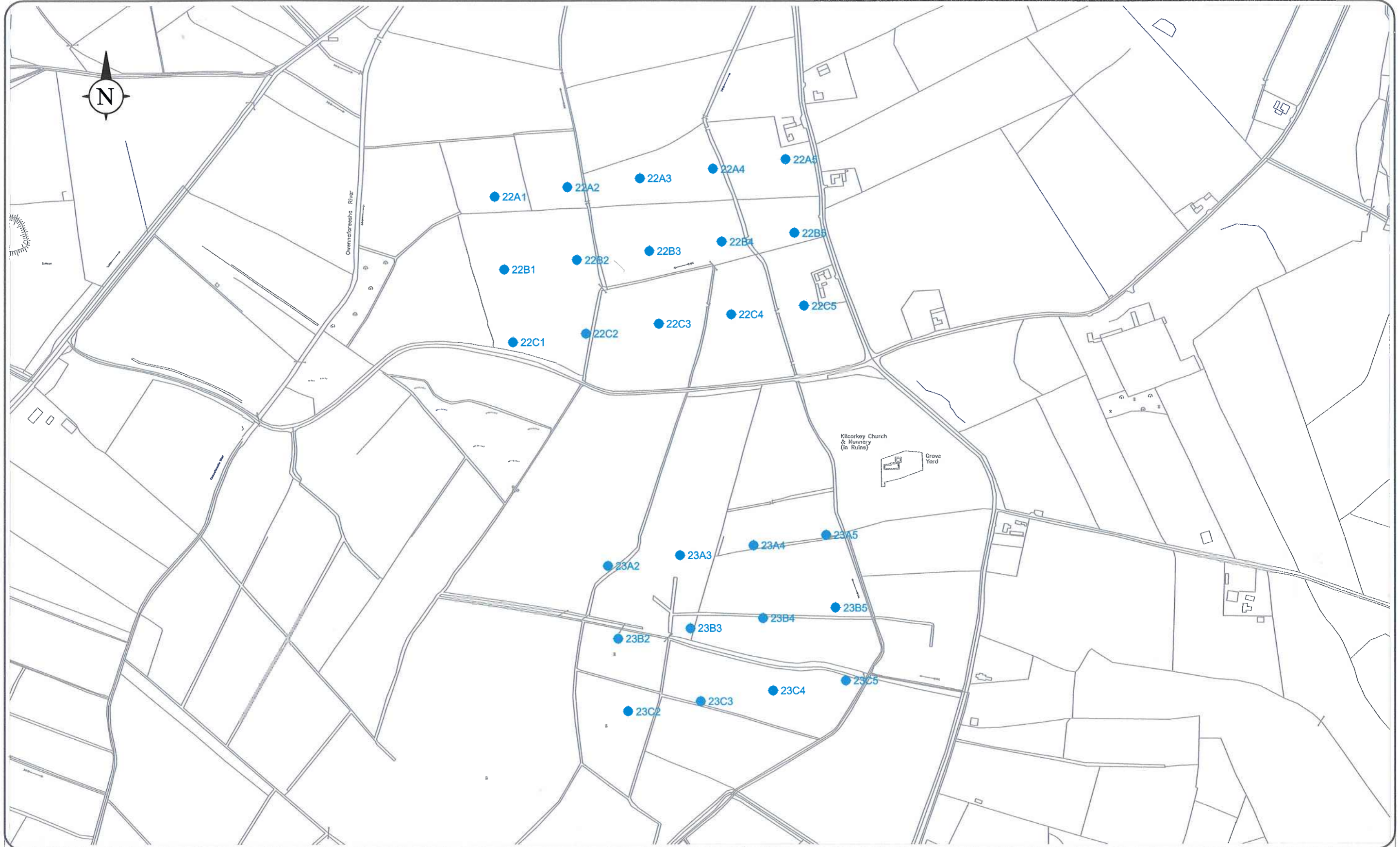


REV: DATE: DETAILS:

DWG NO: 06-975-EHLoc-015

REV:

DRW: CHK:



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


SCALE: 1:5000 @ A3  
 SERIES: 16 of 25

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Areas 22 & 23)**


KEY:  Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG NO: 06-975-EHLoc-016			REV:	





PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


SCALE: 1:5000 @ A3  
 SERIES: 17 of 25

ENGINEER: National Roads Design Office

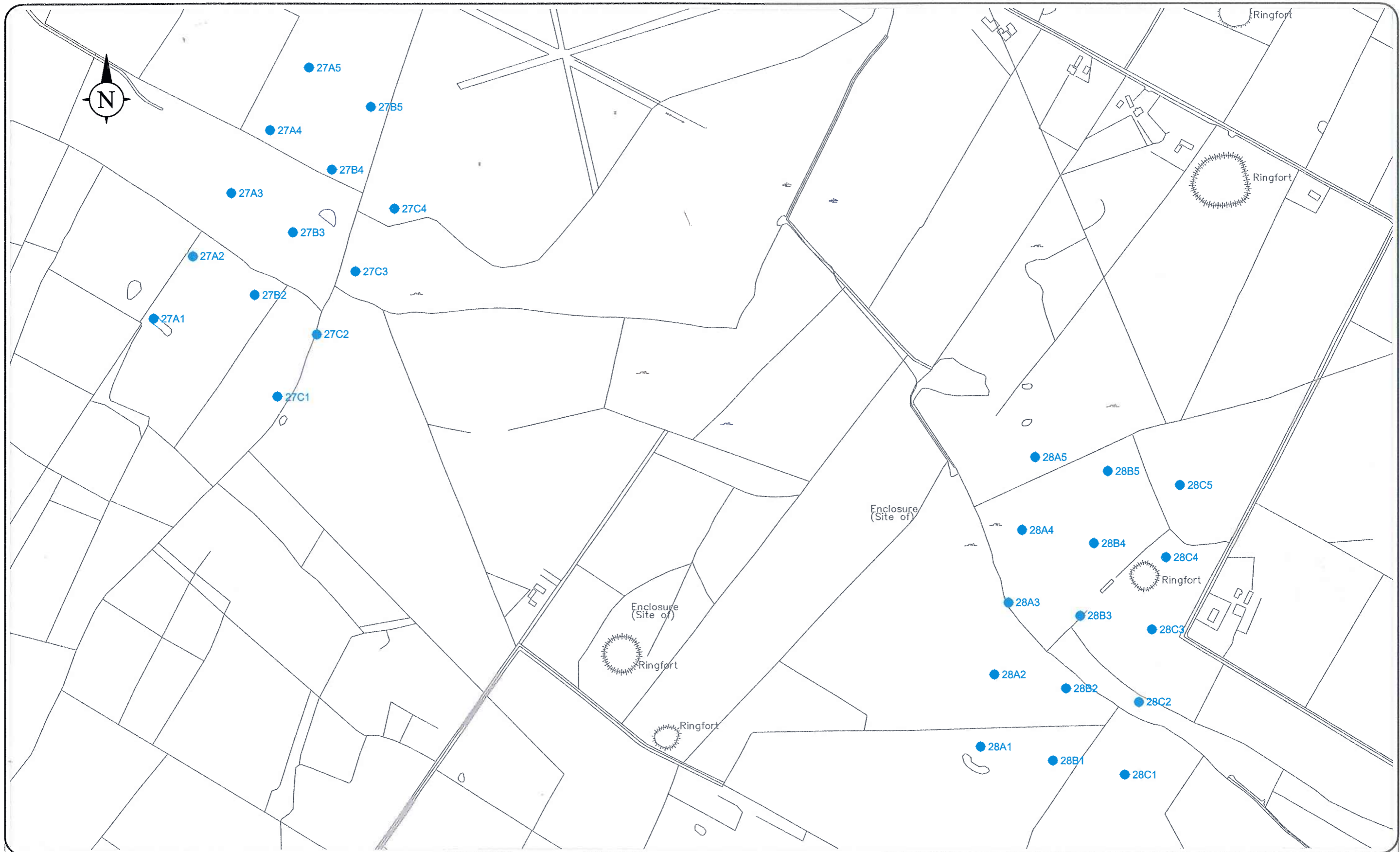
DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Areas 24 & 25)**

KEY:  Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No: 06-975-EHLoc-017				REV:



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council

SCALE: 1:5000 @ A3  
 SERIES: 18 of 25

ENGINEER: National Roads Design Office

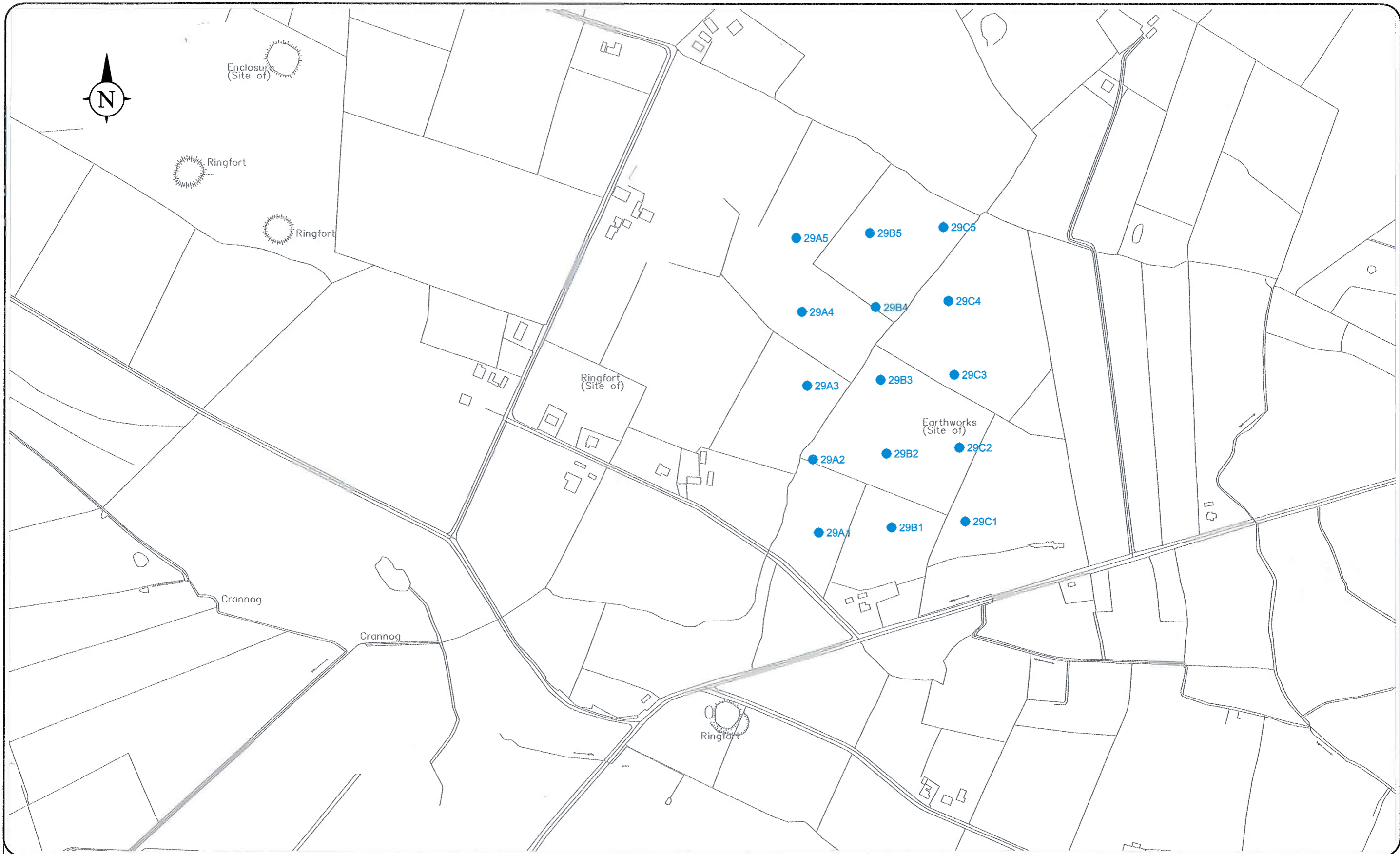
DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07




TITLE: **Exploratory Hole Location Plan (Probe Areas 27 & 28)**

KEY: ● Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	BHK:
DWG NO: 06-975-EHLoc-018			REV:	



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


ENGINEER: **National Roads Design Office**

SCALE: **1:5000 @ A3**  
 SERIES: **19 of 25**

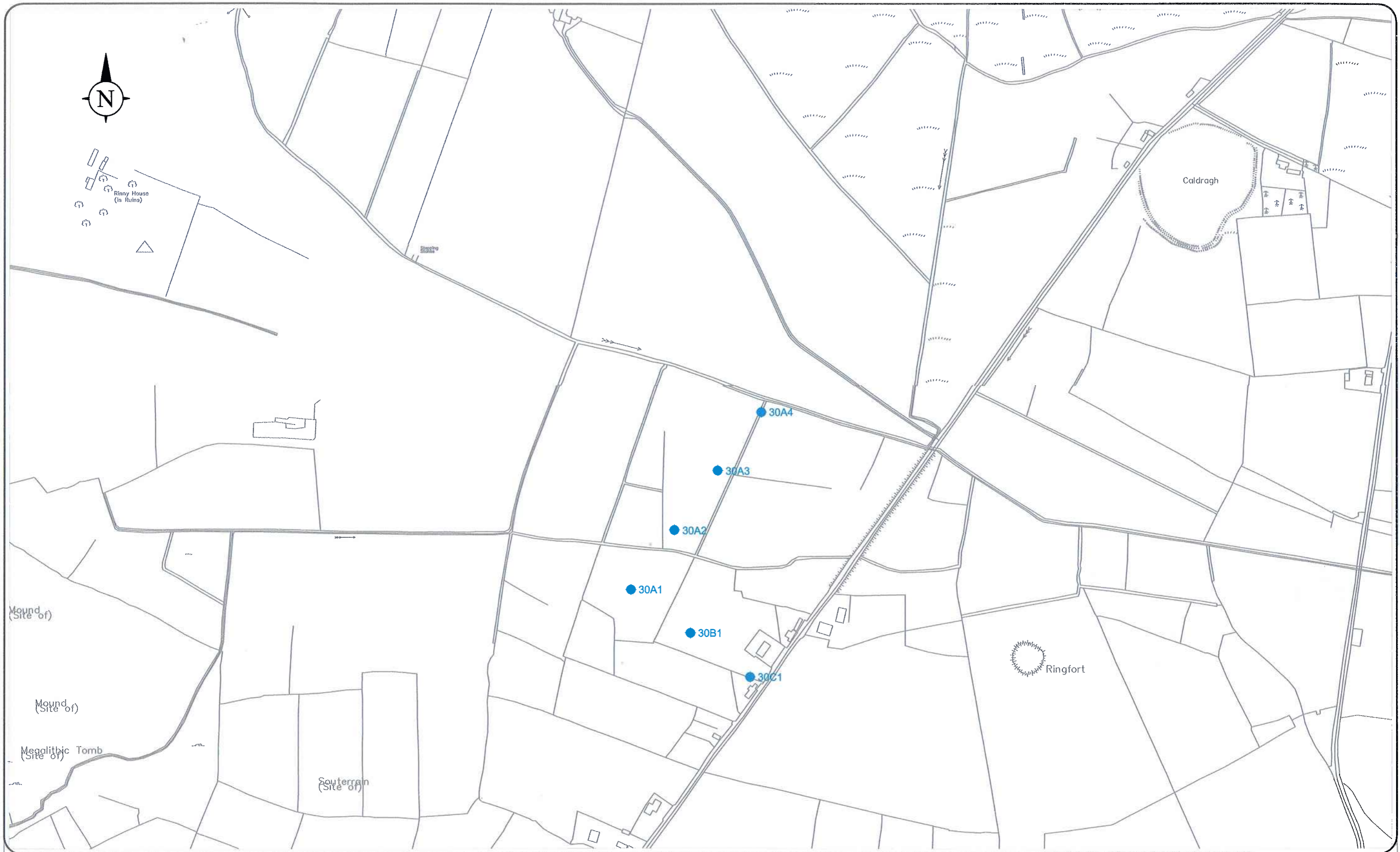
DRWN: **A.W.** DATE: **23/03/07**  
 CHCK: **P.D.**



TITLE: **Exploratory Hole Location Plan (Probe Area 29)**

KEY:  **Dynamic Probe**

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No: <b>06-975-EHLoc-019</b>			REV:	



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


ENGINEER: **National Roads Design Office**

SCALE: **1:5000 @ A3**  
 SERIES: **20 of 25**

DRWN: **A.W.** DATE: **23/03/07**  
 CHCK: **P.D.**



TITLE: **Exploratory Hole Location Plan (Probe Area 30)**

KEY:  Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No: <b>06-975-EHLoc-020</b>			REV:	



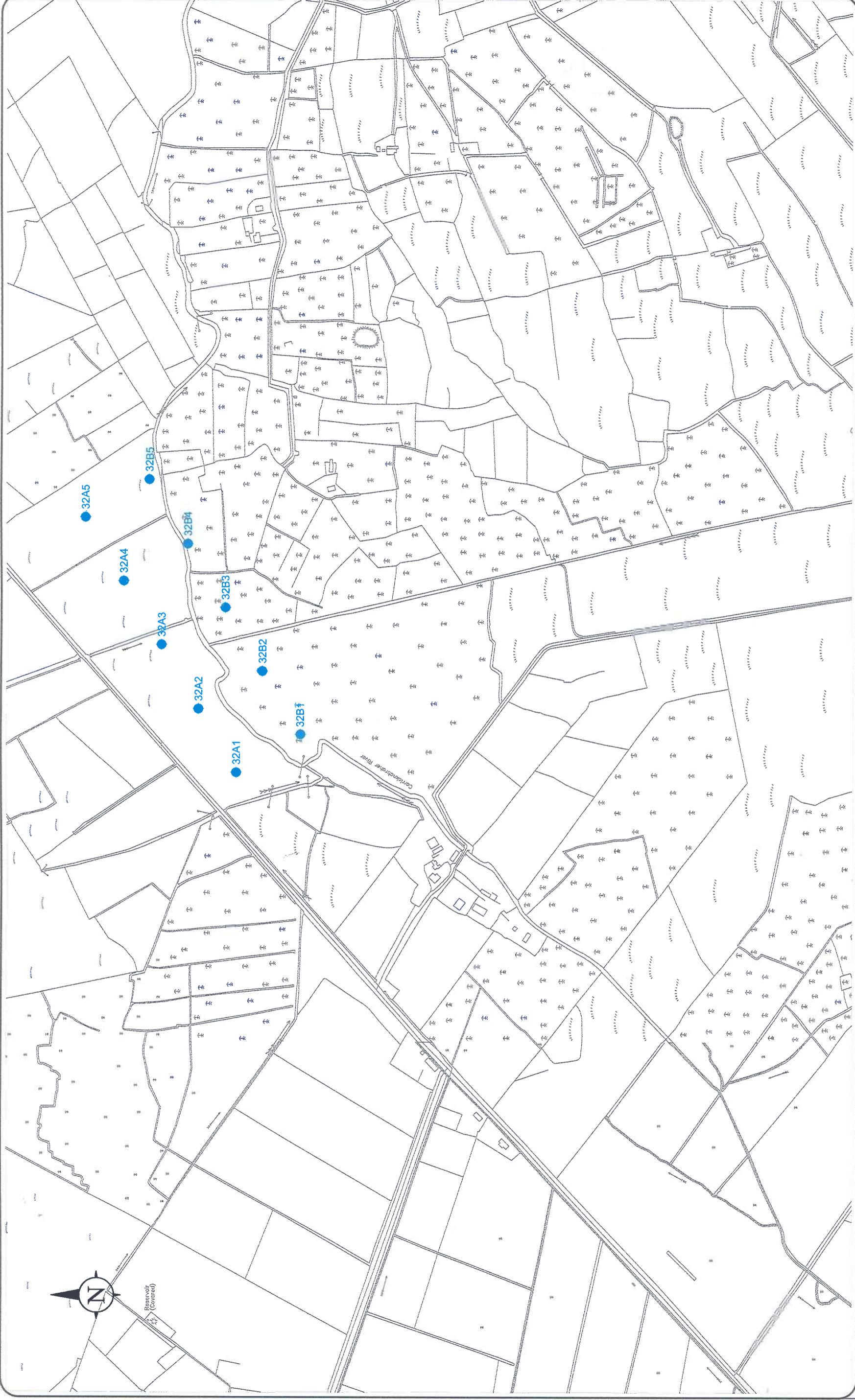
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**KEY:** ● Dynamic Probe

**PROJECT:** N5 Strategic Corridor Route Selection

<b>CLIENT:</b> Roscommon County Council	<b>SCALE:</b> 1:5000 @ A3	<b>SERIES:</b> 21 of 25
	<b>DRWN:</b> A.W.	<b>DATE:</b> 23/03/07
<b>ENGINEER:</b> National Roads Design Office	<b>CHK:</b> P.D.	

<b>REV:</b>	<b>DATE:</b>	<b>DETAILS:</b>	<b>DRW:</b>	<b>CHK:</b>
<b>DWG NO:</b> 06-975-EHLoc-021		<b>REV:</b>		



PROJECT:

**N5 Strategic Corridor Route Selection**

TITLE:

**Exploratory Hole Location Plan (Probe Area 32)**

CLIENT:

Roscommon County Council

SCALE:

1:5000 @ A3

SERIES:

22 of 25

ENGINEER:

National Roads Design Office

DRWN:

A.W.

DATE:

23/03/07

CHK:

P.D.

KEY:

● Dynamic Probe



REV: DATE:

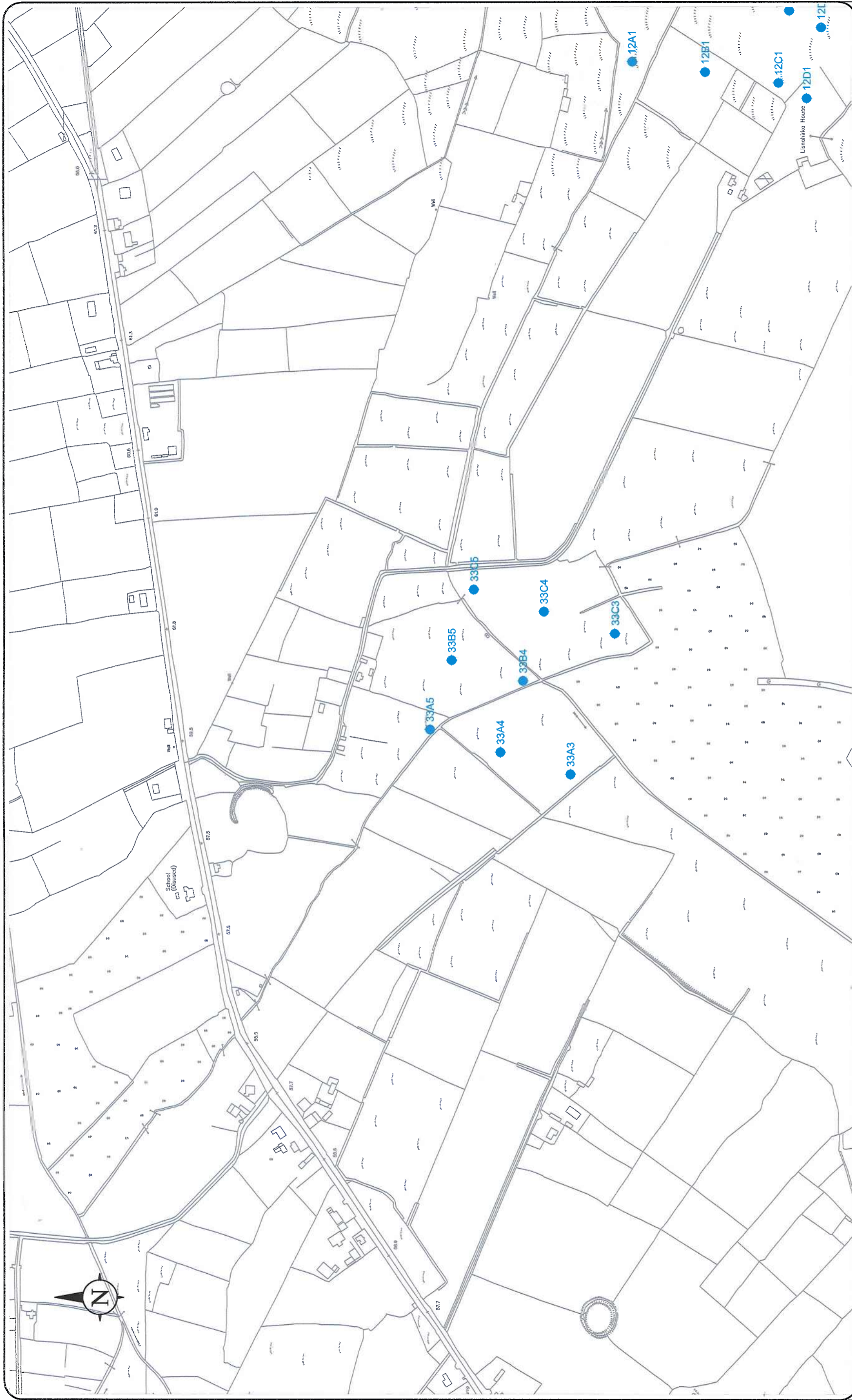
DETAILS:

DRW: DHK:

DWG NO:

06-975-EHLoc-022

REV:



PROJECT:

**N5 Strategic Corridor Route Selection**

TITLE:

**Exploratory Hole Location Plan (Probe Area 33)**

CLIENT:



Roscommon County Council

SCALE:

1:5000 @ A3

SERIES:

23 of 25

ENGINEER:

National Roads Design Office

DRWN:

A.W.

CHCK:

P.D.

DATE:

23/03/07

KEY:

● Dynamic Probe



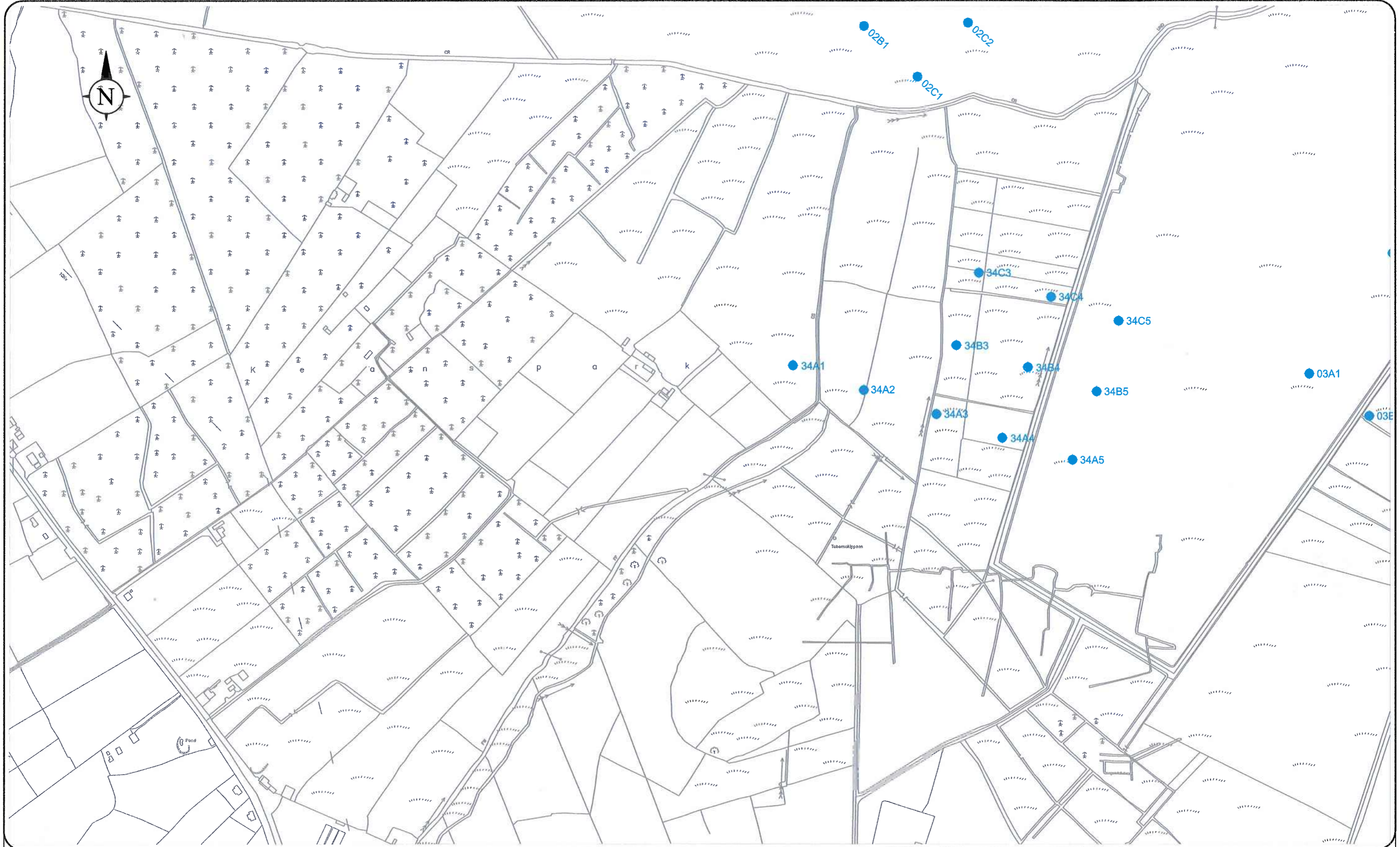
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DETAILS:


DRW: | CHK:

DWG NO: 06-975-EHLoc-023

REV:



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


SCALE: 1:5000 @ A3  
 SERIES: 24 of 26

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Area 34)**

KEY:  Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:

DWG No: 06-975-EHLoc-024  
 REV:





**PROJECT:** N5 Strategic Corridor Route Selection

**CLIENT:**  Roscommon County Council

**ENGINEER:** National Roads Design Office

**SCALE:** 1:5000 @ A3  
**SERIES:** 25 of 26

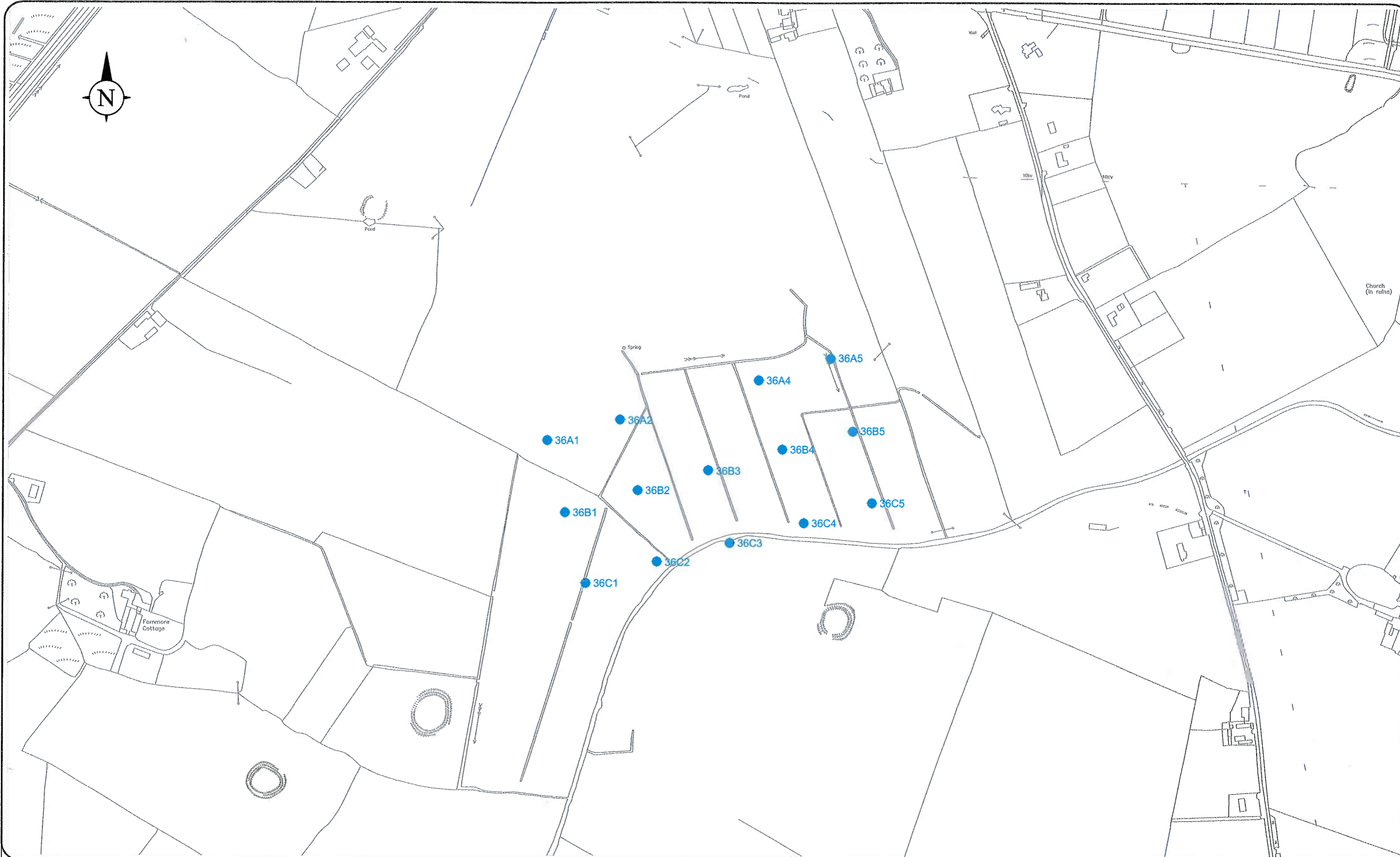
**DRWN:** A.W.  
**CHK:** P.D.  
**DATE:** 23/03/07



**TITLE:** Exploratory Hole Location Plan (Probe Area 35)

**KEY:** ● Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No:		06-975-EHLoc-025		REV:



PROJECT: **N5 Strategic Corridor Route Selection**

CLIENT:  Roscommon County Council


SCALE: 1:5000 @ A3  
 SERIES: 26 of 26

ENGINEER: National Roads Design Office

DRWN: A.W.  
 CHCK: P.D.  
 DATE: 23/03/07



TITLE: **Exploratory Hole Location Plan (Probe Area 36)**

KEY:  Dynamic Probe

REV:	DATE:	DETAILS:	DRW:	CHK:
DWG No: 06-975-EHLoc-026			REV:	



**APPENDIX B**

**Dynamic Probe Logs**

Replaced by Summary Sheets

Original Documents are available from  
Roscommon County Council

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
1	A1	174337	291109	<b>2.10</b>
1	A2	174409	291178	<b>3.70</b>
1	A3	174481	291248	<b>6.30</b>
1	A4	174553	291317	<b>7.20</b>
1	A5	174625	291386	<b>8.10</b>
1	B1	174406	291037	<b>2.20</b>
1	B2	174478	291106	<b>3.30</b>
1	B3	174550	291176	<b>6.90</b>
1	B4	174662	291245	
1	B5	174695	291314	
1	C1	174476	290965	<b>2.20</b>
1	C2	174548	291034	<b>3.50</b>
1	C3	174620	291104	<b>6.90</b>
1	C4	174692	291173	
1	C5	174764	291242	
<hr/>				
2	A1	175090	290394	<b>3.50</b>
2	A2	175159	290467	<b>5.10</b>
2	A3	175228	290539	<b>5.70</b>
2	A4	175296	290612	<b>6.00</b>
2	A5	175365	290684	<b>9.80</b>
2	B1	175162	290325	<b>4.40</b>
2	B2	175231	290398	<b>5.70</b>
2	B3	175300	290470	<b>3.80</b>
2	B4	175369	290543	<b>5.10</b>
2	B5	175438	290615	<b>8.40</b>
2	C1	175235	290256	<b>7.90</b>
2	C2	175304	290329	<b>9.20</b>
2	C3	175373	290401	<b>5.90</b>
2	C4	175441	290474	<b>5.80</b>
2	C5	175510	290546	<b>7.10</b>
<hr/>				
3	A1	175770	289852	<b>8.60</b>
3	A2	175827	289934	
3	A3	175884	290016	
3	A4	175941	290098	<b>12.90</b>
3	A5	175998	290181	<b>13.40</b>
3	B1	175852	289795	<b>6.00</b>
3	B2	175910	289877	<b>5.90</b>
3	B3	175967	289959	<b>9.60</b>
3	B4	176024	290041	<b>11.30</b>
3	B5	176081	290124	<b>12.60</b>
3	C1	175935	289738	<b>6.00</b>
3	C2	175992	289820	<b>5.90</b>
3	C3	176049	289902	<b>9.30</b>
3	C4	176106	289984	<b>12.60</b>
3	C5	176163	290067	
<hr/>				
4	A1	176847	289228	<b>10.30</b>
4	A2	176891	289318	<b>10.40</b>

Grid	Point	Easting	Northing	Depth to refusal
4	A3	176934	289408	
4	A4	176978	289497	
4	A5	177022	289587	<b>6.30</b>
4	B1	176937	289184	
4	B2	176980	289274	
4	B3	177024	289364	
4	B4	177068	289454	<b>7.70</b>
4	B5	177112	289543	<b>5.80</b>
4	C1	177026	289140	
4	C2	177070	289230	
4	C3	177114	289320	
4	C4	177158	289410	<b>4.10</b>
4	C5	177202	289500	<b>3.30</b>
<b>5</b>				
5	A1	182739	287346	<b>1.70</b>
5	A2	182770	287441	<b>0.80</b>
5	A3	182802	287536	<b>1.10</b>
5	A4	182833	287631	
5	A5	182865	287726	<b>2.10</b>
5	B1	182834	287314	<b>1.40</b>
5	B2	182865	287409	
5	B3	182897	287504	
5	B4	182928	287599	
5	B5	182960	287695	<b>2.00</b>
5	C1	182929	287283	<b>1.80</b>
5	C2	182960	287378	
5	C3	182992	287473	
5	C4	183023	287568	
5	C5	183054	287663	<b>1.60</b>
<b>6</b>				
6	A1	186395	286151	<b>6.30</b>
6	A2	186403	286251	<b>9.70</b>
6	A3	186412	286351	<b>10.90</b>
6	A4	186420	286450	<b>4.90</b>
6	A5	186428	286550	<b>1.70</b>
6	B1	186495	286143	<b>7.50</b>
6	B2	186503	286242	<b>8.90</b>
6	B3	186511	286342	<b>11.60</b>
6	B4	186520	286442	<b>5.40</b>
6	B5	186528	286541	<b>5.80</b>
6	C1	186594	286134	<b>7.70</b>
6	C2	186603	286234	<b>10.50</b>
6	C3	186611	286334	<b>11.70</b>
6	C4	186619	286433	<b>11.20</b>
6	C5	186628	286533	<b>10.50</b>
<b>7</b>				
7	A1	188813	286327	<b>1.60</b>
7	A2	188913	286328	<b>0.60</b>
7	A3	189013	286328	<b>2.00</b>
7	A4	189113	286328	<b>1.00</b>

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
7	A5	189213	286328	<b>1.60</b>
7	A7			<b>0.60</b>
7	A7RB			<b>1.10</b>
7	B1	188813	286227	
7	B2	188913	286228	<b>1.60</b>
7	B3	189014	286228	<b>5.90</b>
7	B4	189113	286228	<b>0.80</b>
7	B5	189213	286228	<b>1.50</b>
7	C1	188814	286127	<b>5.20</b>
7	C2	188914	286128	<b>5.40</b>
7	C3	189014	286128	<b>2.90</b>
7	C4	189114	286128	<b>5.90</b>
7	C5	189214	286128	<b>5.60</b>
<hr/>				
9	A1	191667	284499	<b>0.70</b>
9	A2	191756	284545	
9	A3	191845	284590	<b>0.60</b>
9	A4	191934	284636	<b>1.20</b>
9	A5	192023	284681	<b>3.20</b>
9	B1	191712	284410	<b>0.50</b>
9	B2	191801	284456	<b>1.10</b>
9	B3	191890	284501	
9	B4	191980	284547	<b>1.30</b>
9	B5	192069	284592	<b>3.50</b>
9	C1	191758	284321	<b>0.30</b>
9	C2	191847	284367	<b>1.10</b>
9	C3	191936	284412	<b>0.70</b>
9	C4	192025	284457	<b>0.40</b>
9	C5	192114	284503	<b>1.50</b>
<hr/>				
10	A1	194265	281356	<b>0.80</b>
10	A2	194365	281356	<b>2.90</b>
10	A3	194465	281357	
10	A4	194565	281358	<b>5.70</b>
10	A5	194665	281359	<b>7.80</b>
10	B1	194266	281256	<b>0.70</b>
10	B2	194366	281256	<b>1.40</b>
10	B3	194466	281257	<b>1.10</b>
10	B4	194566	281258	<b>11.60</b>
10	B5	194666	281259	<b>0.70</b>
10	C1	194266	281156	<b>0.40</b>
10	C2	194367	281156	<b>4.80</b>
10	C3	194467	281157	<b>3.70</b>
10	C4	194567	281158	<b>2.70</b>
10	C5	194667	281159	<b>1.10</b>
<hr/>				
11	A1	194339	280134	
11	A2	194435	280162	
11	A3	194532	280189	
11	A4	194628	280216	<b>3.90</b>

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
11	A5	194724	280244	<b>3.50</b>
11	B1	194367	280038	
11	B2	194463	280065	
11	B3	194559	280093	
11	B4	194655	280120	<b>8.30</b>
11	B5	194751	280147	<b>7.90</b>
11	C1	194394	279942	
11	C2	194490	279969	
11	C3	194586	279996	
11	C4	194683	280024	<b>8.60</b>
11	C5	194779	280051	<b>3.00</b>
12	A1	190160	279231	<b>3.20</b>
12	A2	190259	279216	<b>3.10</b>
12	A3	190358	279201	<b>4.50</b>
12	A4	190457	279186	<b>7.30</b>
12	A5	190556	279171	<b>7.60</b>
12	B1	190146	279132	<b>3.90</b>
12	B2	190245	279117	<b>3.00</b>
12	B3	190343	279102	<b>5.70</b>
12	B4	190442	279087	<b>7.20</b>
12	B5	190541	279073	<b>4.30</b>
12	C1	190131	279033	<b>3.70</b>
12	C2	190230	279018	<b>3.30</b>
12	C3	190329	279003	<b>6.50</b>
12	C4	190428	278988	<b>6.50</b>
12	C5	190527	278974	<b>1.40</b>
12	D1	190110	278995	<b>3.80</b>
12	D2	190207	278975	<b>3.10</b>
12	D3	190305	278954	<b>4.80</b>
12	D4	190403	278933	<b>5.60</b>
12	D5	190501	278913	<b>2.20</b>
12	E1	190089	278897	
12	E2	190187	278877	
12	E3	190285	278856	<b>4.90</b>
12	E4	190382	278835	<b>5.50</b>
12	E5	190480	278815	<b>3.60</b>
12	F1	190068	278800	
12	F2	190166	278779	
12	F3	190264	278758	<b>5.90</b>
12	F4	190362	278738	<b>2.70</b>
12	F5	190460	278717	<b>2.90</b>
13	A1	187305	280108	<b>2.00</b>
13	A2	187350	280197	<b>2.20</b>
13	A3	187395	280286	<b>2.80</b>
13	A4	187439	280376	<b>4.60</b>
13	A5	187484	280465	<b>4.70</b>
13	B1	187394	280063	<b>1.20</b>
13	B2	187439	280152	<b>3.10</b>



<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
13	B3	187484	280242	<b>2.90</b>
13	B4	187529	280331	<b>4.70</b>
13	B5	187574	280420	<b>4.90</b>
13	C1	187484	280018	<b>1.60</b>
13	C2	187529	280107	<b>1.40</b>
13	C3	187574	280197	<b>2.70</b>
13	C4	187618	280286	
13	C5	187663	280376	
<hr/>				
14	A1	185410	281615	<b>2.20</b>
14	A2	185499	281569	<b>2.90</b>
14	A3	185588	281524	<b>2.00</b>
14	A4	185677	281479	<b>1.80</b>
14	A5	185766	281433	<b>2.10</b>
14	B1	185364	281525	<b>1.40</b>
14	B2	185454	281480	<b>2.20</b>
14	B3	185543	281435	<b>2.20</b>
14	B4	185632	281390	<b>2.40</b>
14	B5	185721	281344	<b>1.90</b>
14	C1	185319	281437	<b>1.50</b>
14	C2	185408	281391	<b>2.60</b>
14	C3	185497	281346	<b>0.70</b>
14	C4	185586	281300	<b>0.70</b>
14	C5	185676	281255	<b>1.60</b>
<hr/>				
15	A1	183780	281666	<b>14.00</b>
15	A2	183869	281713	
15	A3	183957	281760	<b>10.70</b>
15	A4	184045	281807	<b>12.60</b>
15	A5	184134	281854	<b>10.60</b>
15	B1	183827	281578	<b>15.00</b>
15	B2	183916	281625	<b>15.00</b>
15	B3	184004	281672	<b>14.20</b>
15	B4	184092	281719	<b>8.90</b>
15	B5	184181	281765	<b>12.00</b>
15	C1	183874	281490	
15	C2	183962	281537	<b>13.20</b>
15	C3	184051	281583	<b>15.00</b>
15	C4	184139	281630	<b>6.10</b>
15	C5	184227	281677	
<hr/>				
16	A1	183554	282216	<b>2.40</b>
16	A2	183644	282261	<b>2.00</b>
16	A3	183733	282306	<b>3.20</b>
16	A4	183823	282350	<b>1.90</b>
16	A5	183912	282395	
16	B1	183599	282127	<b>7.00</b>
16	B2	183688	282171	
16	B3	183778	282216	<b>3.40</b>
16	B4	183867	282261	<b>2.00</b>

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
16	B5	183957	282306	<b>3.50</b>
16	C1	183644	282037	<b>4.00</b>
16	C2	183733	282082	<b>5.70</b>
16	C3	183823	282127	<b>2.60</b>
16	C4	183912	282171	<b>5.30</b>
16	C5	184002	282216	<b>5.20</b>
<hr/>				
17	A1	176102	288041	
17	A2	176112	288140	
17	A3	176123	288240	<b>11.70</b>
17	A4	176133	288339	
17	A5	176143	288439	
17	B1	176201	288030	
17	B2	176212	288130	<b>7.70</b>
17	B3	176222	288229	
17	B4	176232	288329	
17	B5	176243	288428	
17	C1	176301	288020	
17	C2	176311	288119	<b>7.30</b>
17	C3	176321	288219	
17	C4	176332	288318	
17	C5	176342	288418	
<hr/>				
18	A1	175778	288088	
18	A2	175791	288187	<b>8.60</b>
18	A3	175805	288286	
18	A4	175819	288385	
18	A5	175833	288484	
18	B1	175877	288074	<b>5.10</b>
18	B2	175890	288173	<b>6.30</b>
18	B3	175904	288272	
18	B4	175918	288371	
18	B5	175932	288471	
18	C1	175976	288060	
18	C2	175989	288160	<b>8.00</b>
18	C3	176003	288259	<b>11.70</b>
18	C4	176017	288358	<b>11.10</b>
18	C5	176031	288457	
<hr/>				
19	A1	173272	289196	
19	A2	173346	289263	
19	A3	173421	289330	<b>2.20</b>
19	A4	173495	289397	<b>2.20</b>
19	A5	173569	289464	<b>1.90</b>
19	B1	173339	289121	
19	B2	173413	289188	
19	B3	173487	289255	<b>2.50</b>
19	B4	173562	289322	<b>2.20</b>
19	B5	173636	289389	<b>0.70</b>
19	C1	173406	289047	

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
19	C2	173480	289114	
19	C3	173555	289181	<b>2.10</b>
19	C4	173629	289248	<b>2.30</b>
19	C5	173703	289315	<b>2.70</b>
<hr/>				
20	A1	171925	290887	
20	A2	172011	290937	
20	A3	172097	290989	
20	A4	172183	291039	
20	A5	172269	291090	
20	B1	171975	290801	
20	B2	172061	290852	<b>4.20</b>
20	B3	172148	290903	<b>4.10</b>
20	B4	172234	290953	<b>2.50</b>
20	B5	172320	291004	<b>1.90</b>
20	C1	172026	290715	
20	C2	172112	290766	<b>3.90</b>
20	C3	172198	290816	<b>3.80</b>
20	C4	172285	290867	<b>2.50</b>
20	C5	172371	290918	<b>1.70</b>
<hr/>				
21	A1	173671	288292	<b>3.60</b>
21	A2	173760	288337	<b>3.20</b>
21	A3	173849	288382	<b>1.10</b>
21	A4	173939	288428	<b>1.60</b>
21	A5	174028	288473	<b>1.30</b>
21	B1	173716	288203	<b>6.00</b>
21	B2	173805	288248	<b>2.80</b>
21	B3	173895	288293	<b>2.90</b>
21	B4	173984	288338	
21	B5	174073	288384	<b>0.80</b>
21	C1	173761	288114	<b>6.40</b>
21	C2	173851	288159	
21	C3	173940	288204	
21	C4	174029	288249	
21	C5	174118	288294	
<hr/>				
22	A1	174345	286462	<b>2.00</b>
22	A2	174444	286475	<b>3.00</b>
22	A3	174543	286487	<b>2.80</b>
22	A4	174643	286500	<b>2.10</b>
22	A5	174742	286513	<b>3.00</b>
22	B1	174358	286363	<b>3.60</b>
22	B2	174457	286376	<b>2.60</b>
22	B3	174556	286388	<b>1.40</b>
22	B4	174655	286401	<b>3.60</b>
22	B5	174754	286413	<b>2.60</b>
22	C1	174370	286264	<b>3.00</b>
22	C2	174469	286276	<b>2.80</b>
22	C3	174569	286289	<b>2.20</b>

(Indicative Only - Not Verified)

Grid	Point	Easting	Northing	Depth to refusal
22	C4	174668	286302	<b>3.20</b>
22	C5	174767	286314	<b>3.30</b>
23	A1	174400	285946	
23	A2	174499	285960	<b>3.90</b>
23	A3	174598	285974	<b>7.60</b>
23	A4	174698	285988	<b>4.60</b>
23	A5	174797	286002	<b>3.20</b>
23	B1	174414	285847	
23	B2	174513	285861	<b>8.50</b>
23	B3	174612	285875	<b>4.70</b>
23	B4	174711	285889	<b>4.30</b>
23	B5	174810	285903	<b>3.30</b>
23	C1	174428	285748	
23	C2	174527	285762	<b>3.60</b>
23	C3	174626	285776	<b>4.70</b>
23	C4	174725	285790	<b>2.00</b>
23	C5	174824	285804	<b>1.50</b>
24	A1	174690	284141	<b>2.00</b>
24	A2	174789	284150	<b>0.90</b>
24	A3	174889	284159	<b>2.50</b>
24	A4	174989	284167	<b>2.80</b>
24	A5	175088	284176	
24	B1	174698	284042	<b>1.70</b>
24	B2	174798	284050	<b>2.40</b>
24	B3	174898	284059	<b>2.60</b>
24	B4	174997	284068	<b>2.60</b>
24	B5	175097	284076	
24	C1	174707	283942	<b>2.30</b>
24	C2	174807	283951	<b>3.10</b>
24	C3	174906	283959	<b>1.30</b>
24	C4	175006	283968	<b>2.30</b>
24	C5	175106	283977	
25	A1	174760	283470	
25	A2	174851	283513	
25	A3	174941	283556	
25	A4	175031	283600	
25	A5	175121	283643	
25	B1	174803	283380	
25	B2	174894	283423	
25	B3	174984	283466	
25	B4	175074	283509	
25	B5	175164	283552	
25	C1	174847	283290	<b>1.50</b>
25	C2	174937	283333	<b>3.90</b>
25	C3	175027	283376	
25	C4	175117	283419	
25	C5	175207	283462	

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
27	A1	179778	278010	<b>2.40</b>
27	A2	179831	278095	<b>1.30</b>
27	A3	179884	278180	<b>2.00</b>
27	A4	179937	278265	<b>1.30</b>
27	A5	179990	278350	<b>1.20</b>
27	B1	179863	277957	
27	B2	179916	278042	<b>3.30</b>
27	B3	179968	278127	<b>1.70</b>
27	B4	180021	278212	<b>1.30</b>
27	B5	180074	278297	<b>1.20</b>
27	C1	179947	277904	<b>2.00</b>
27	C2	180000	277989	<b>1.80</b>
27	C3	180053	278074	<b>1.30</b>
27	C4	180106	278159	<b>1.20</b>
27	C5	180159	278244	
28	A1	180905	277428	<b>1.70</b>
28	A2	180924	277526	<b>2.30</b>
28	A3	180943	277624	<b>2.50</b>
28	A4	180962	277722	<b>0.80</b>
28	A5	180980	277821	<b>0.90</b>
28	B1	181004	277409	<b>2.80</b>
28	B2	181022	277507	<b>2.00</b>
28	B3	181041	277606	<b>1.80</b>
28	B4	181060	277704	<b>2.00</b>
28	B5	181079	277802	<b>0.50</b>
28	C1	181102	277390	<b>2.70</b>
28	C2	181121	277489	<b>1.90</b>
28	C3	181139	277587	<b>1.50</b>
28	C4	181158	277685	<b>1.60</b>
28	C5	181177	277783	<b>0.90</b>
29	A1	182442	277163	<b>2.00</b>
29	A2	182434	277262	<b>2.60</b>
29	A3	182426	277362	<b>1.50</b>
29	A4	182419	277462	<b>1.00</b>
29	A5	182411	277562	<b>2.30</b>
29	B1	182541	277170	<b>2.00</b>
29	B2	182534	277270	<b>1.60</b>
29	B3	182526	277370	<b>2.40</b>
29	B4	182519	277469	<b>2.00</b>
29	B5	182511	277569	<b>2.50</b>
29	C1	182641	277178	<b>2.20</b>
29	C2	182633	277278	<b>2.40</b>
29	C3	182626	277377	<b>2.50</b>
29	C4	182618	277477	<b>2.50</b>
29	C5	182611	277577	<b>1.00</b>
30	A1	185559	278222	<b>2.00</b>

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
30	A2	185618	278303	<b>7.90</b>
30	A3	185677	278384	<b>7.80</b>
30	A4	185736	278464	<b>6.90</b>
30	A5	185795	278545	
30	B1	185640	278163	<b>1.10</b>
30	B2	185699	278244	
30	B3	185758	278325	
30	B4	185817	278406	
30	B5	185875	278487	
30	C1	185721	278104	<b>2.00</b>
30	C2	185780	278185	
30	C3	185389	278266	
30	C4	185898	278347	
30	C5	185956	278428	
30	D1			<b>2.30</b>
30	D2			<b>7.80</b>
30	D3			<b>6.30</b>
30	D4			<b>3.70</b>
30	D5			
31	A1	186764	279432	<b>1.50</b>
31	A2	186807	279342	<b>2.60</b>
31	A3	186850	279251	<b>3.60</b>
31	A4	186893	279161	<b>2.20</b>
31	A5	186936	279070	<b>5.50</b>
31	B1	186855	279475	<b>1.30</b>
31	B2	186898	279384	<b>4.90</b>
31	B3	186941	279294	<b>1.80</b>
31	B4	186983	279204	<b>4.80</b>
31	B5	187026	279113	<b>8.80</b>
31	C1	186945	279518	<b>1.70</b>
31	C2	186988	279427	<b>5.50</b>
31	C3	187031	279337	<b>5.20</b>
31	C4	187074	279247	<b>7.90</b>
31	C5	187117	279156	<b>9.00</b>
32	A1	172365	290399	<b>2.70</b>
32	A2	172451	290450	<b>2.60</b>
32	A3	172538	290500	<b>2.80</b>
32	A4	172624	290551	<b>1.60</b>
32	A5	172710	290602	<b>2.80</b>
32	B1	172416	290313	<b>2.70</b>
32	B2	172502	290364	<b>2.60</b>
32	B3	172588	290414	<b>2.50</b>
32	B4	172674	290465	<b>2.00</b>
32	B5	172761	290516	<b>2.20</b>
32	C1	172467	290227	
32	C2	172553	290277	
32	C3	172639	290328	
32	C4	172725	290379	

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
32	C5	172811	290430	
33	A1	189133	279124	
33	A2	189163	279219	
33	A3	189192	279315	<b>5.00</b>
33	A4	189222	279410	<b>4.80</b>
33	A5	189252	279506	<b>6.20</b>
33	B1	189228	279094	
33	B2	189258	279189	
33	B3	189288	279285	
33	B4	189318	279380	<b>8.10</b>
33	B5	189347	279476	<b>3.00</b>
33	C1	189324	279064	
33	C2	189354	279160	
33	C3	189383	279255	<b>3.80</b>
33	C4	189413	279351	<b>3.60</b>
33	C5	189443	279446	<b>2.60</b>
34	A1	175065.1	289863.6	
34	A2	175161.2	289830.8	<b>8.60</b>
34	A3	175259.9	289797.9	<b>8.60</b>
34	A4	175350.9	289765.0	<b>7.60</b>
34	A5	175447.1	289734.7	<b>8.50</b>
34	B1	175100.5	289957.1	
34	B2	175191.6	289924.3	
34	B3	175287.7	289891.4	<b>8.20</b>
34	B4	175386.4	289861.1	<b>7.80</b>
34	B5	175480.0	289828.2	<b>9.50</b>
34	C1	175133.4	290050.6	
34	C2	175227.0	290022.8	
34	C3	175318.1	289989.8	<b>8.20</b>
34	C4	175416.7	289957.1	<b>7.60</b>
34	C5	175510.3	289924.3	<b>9.80</b>
35	A1	195026.0	279183.7	<b>9.20</b>
35	A2	195122.2	279211.1	<b>9.40</b>
35	A3	195218.4	279238.4	<b>7.30</b>
35	A4	195314.6	279265.7	<b>5.10</b>
35	A5	195410.8	279293.1	<b>3.40</b>
35	B1	195053.4	279087.5	<b>9.00</b>
35	B2	195149.6	279114.9	<b>5.60</b>
35	B3	195245.7	279142.2	<b>2.30</b>
35	B4	195341.9	279169.5	<b>4.70</b>
35	B5	195438.1	279196.9	<b>4.80</b>
35	C1	195273.1	279046.0	<b>6.60</b>
35	C2	195176.9	279018.7	<b>3.30</b>
35	C3	195080.7	278991.3	<b>4.40</b>
35	C4	195465.5	279100.7	<b>3.80</b>
35	C5	195369.3	279073.4	<b>3.60</b>

<b>Grid</b>	<b>Point</b>	<b>Easting</b>	<b>Northing</b>	<b>Depth to refusal</b>
36	A1	193333.0	279111.0	<b>2.90</b>
36	A2	193431.0	279139.0	<b>3.50</b>
36	A3	193525.0	279167.0	
36	A4	193618.0	279192.0	<b>1.70</b>
36	A5	193715.0	279222.0	<b>1.80</b>
36	B1	193357.0	279014.0	<b>3.40</b>
36	B2	193455.0	279044.0	<b>3.30</b>
36	B3	193550.0	279071.0	<b>3.00</b>
36	B4	193650.0	279099.0	<b>2.20</b>
36	B5	193745.0	279124.0	<b>1.90</b>
36	C1	193385.0	278919.0	<b>3.80</b>
36	C2	193481.0	278948.0	<b>3.30</b>
36	C3	193579.0	278974.0	<b>3.00</b>
36	C4	193679.0	279000.0	<b>2.90</b>
36	C5	193771.0	279027.0	<b>2.50</b>