



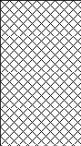
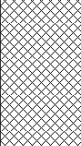

Priority Geotechnical Ltd.  
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Trial Pit No  
**CB-TP09**  
 Sheet 1 of 1

<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617267E - 775969N <b>Level:</b> 63.63m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.35m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼	0.10 - 0.50	B		0.50	63.13		(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							(MADE GROUND) Brown grey, slightly sandy gravelly SILT with plastic glass wood metal and concrete waste material.
				1.35	62.28		1.20m. Strong hydrocarbon odor with oil sheen on groundwater.
							End of Pit at 1.350m

<b>Stability:</b> Good.	<b>Groundwater:</b> 1.20m: Steady flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.35m bgl, required depth.



**Number:**

**CB – TP09**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney






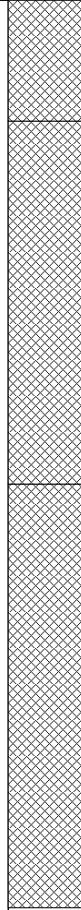
<p><b>Number:</b> CB – TP09</p>	<p><b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney</p>	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617234E - 775948N <b>Level:</b> 64.08m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 3.00m BGL	<b>Logged:</b> PH

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.40	63.68		(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse.
				1.60	62.48		(MADE GROUND) Dark brown CLAY with plastic glass metal and wood waste material.
				3.00	61.08		(MADE GROUND) Grey, slightly sandy gravelly CLAY with plastic metal wood and concrete waste material. Sand is fine to coarse. Gravel is fine to coarse.
							2.90m. Strong order in groundwater.
							End of Pit at 3.000m

<b>Stability:</b> Good.	<b>Groundwater:</b> 2.90m: Steady flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings	

**Remarks:** Trial Pit terminated at 3.00m bgl at the required depth.





**Number:**

**CB – TP10**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





<p><b>Number:</b> CB – TP10</p>	<p><b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney</p>	
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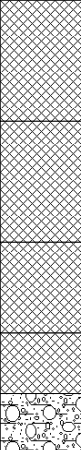




<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617212E - 775940N <b>Level:</b> 63.56m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.50m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.40	B		0.40	63.16		(MADE GROUND) Brown, slightly sandy gravelly SILT
	1.30 - 1.50	B		0.80	62.76		(MADE GROUND) Brown, slightly sandy gravel SILT with plastic glass metal and wood waste material. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-sub-rounded.
				1.10	62.46		(MADE GROUND) Grey, slightly sandy gravelly SILT with plastic metal waste material. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				1.30	62.26		(MADE GROUND) Slightly sandy gravelly SILT with dark black waste material layer.
				1.50	62.06		Grey, slightly sandy gravelly CLAY with high boulder content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							End of Pit at 1.50m

<b>Stability:</b> Good.	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.5m bgl at the required depth.





**Number:**

**CB – TP11**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





**Number:**

**CB – TP11**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





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Trial Pit No  
**CB-TP12**  
 Sheet 1 of 1

<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617269E - 775828N <b>Level:</b> 64.96m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 2.40	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.10m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
Water Strike & Backfill	0.10 - 0.80	B					(TOPSOIL) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.10 - 0.80	D					
				0.80	64.17	Water Strike & Backfill	Brown grey, silty BOULDERS. Boulders sub-angular to sub-rounded, 200mm to 800mm.
				1.10	63.86	Water Strike & Backfill	
							End of Pit at 1.100m

<b>Stability:</b> Good.	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings	

**Remarks:** Trial pit terminated at 1.10m bgl at the required depth.





**Number:**

**CB – TP12**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





**Number:**

**CB – TP12**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
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Trial Pit No  
**CB-TP13**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617288E - 775801N  
**Level:** 65.45m OD      **Date:** 01/08/2018

**Location:** Co. Longford      **Dimensions (m):** 2.90  
 1.10

**Client:**      **Depth:** 2.80m BGL      **Scale:** 1:25  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
Water Strike & Backfill				0.40	65.05	Legend	(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							(MADE GROUND) Grey black, CLAY with plastic glass and timber waste material.
				2.80	62.65		End of Pit at 2.800m

**Stability:** Good.      **Groundwater:** None encountered.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.

**Remarks:** Trial pit terminated at 2.80m bgl at the required depth.





**Number:**

**CB – TP13**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





**Number:**

**CB – TP13**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



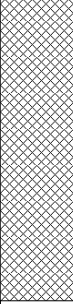




<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617240E - 775977N <b>Level:</b> 63.02m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.40m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.40	62.62		(TOPSOIL) Brown, slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel fine to coarse, sub-angular to sub-rounded.
							
				1.40	61.62		Grey CLAY with high boulder content. Boulders sub-angular to sub-rounded, 200mm to 700mm. End of Pit at 1.400m

<b>Stability:</b> Good.	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.4m bgl at the required depth.



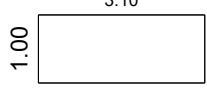


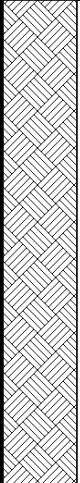
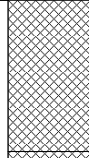
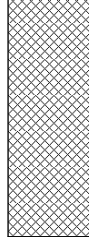

<b>Number:</b> CB – TP14	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617277E - 775980N <b>Level:</b> 63.15m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 1.60m BGL	<b>Logged PH</b>

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.50	62.65		(MADE GROUND) Brown sandy slightly gravelly SILT.
							(MADE GROUND) Dark grey, waste material with plastic timber glass and wood.
	1.30 - 1.60	B		1.30	61.85		Stiff to firm, grey, sandy CLAY. Sand is fine to coarse.
				1.60	61.55		End of Pit at 1.600m

<b>Stability:</b> Good	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.60m bgl at the required depth.





<b>Number:</b> CB – TP15	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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**Number:**

**CB – TP15**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney






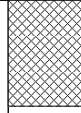
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Trial Pit No  
**CB-SA01**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617342E - 775814N  
**Level:** 65.45m OD      **Date:** 01/08/2018

**Location:** Co. Longford      **Dimensions (m):**       **Scale:** 1:25

**Client:**      **Depth:** 0.35m BGL      **Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.35	B		0.35	65.10		(MADE GROUND) Brown, slightly sandy gravelly SILT with wood and mulch. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							End of Pit at 0.350m
							1
							2
							3
							4
							5

**Stability:** Good.      **Groundwater:** None encountered.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.

**Remarks:** Trial pit terminate at 0.35m bgl, required depth. Soakaway test carried out.



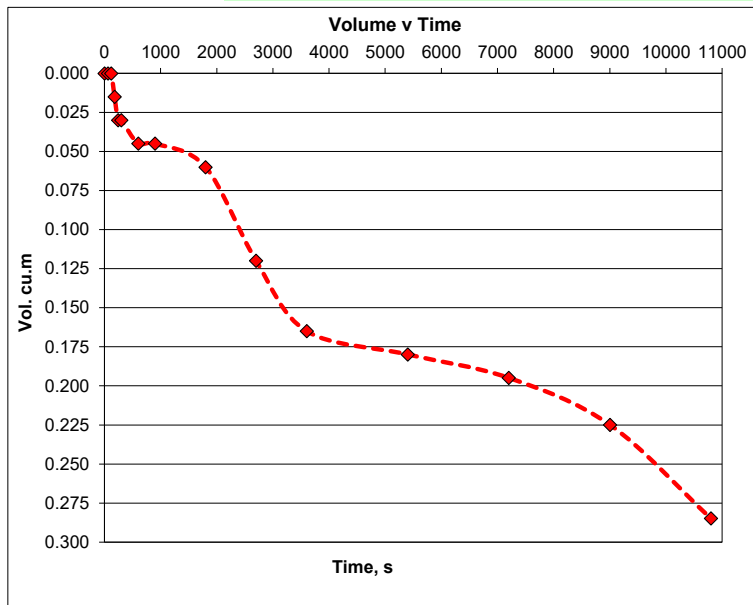
P18159

Longford Landfills - Cartron Big  
 CB - SA01  
 01/08/2018

l, m 1.00 b, m 1.10 d, m 0.35  
 l\_base, m 1.00 d\_eff, m 0.27  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.27	0.00	0.000
1	0.08	60	0.27	0.00	0.000
2	0.08	120	0.27	0.00	0.000
3	0.09	180	0.26	0.01	0.015
4	0.10	240	0.25	0.02	0.030
5	0.10	300	0.25	0.02	0.030
10	0.11	600	0.24	0.03	0.045
15	0.11	900	0.24	0.03	0.045
30	0.12	1800	0.23	0.04	0.060
45	0.16	2700	0.19	0.08	0.120
60	0.19	3600	0.16	0.11	0.165
90	0.20	5400	0.15	0.12	0.180
120	0.21	7200	0.14	0.13	0.195
150	0.23	9000	0.12	0.15	0.225
180	0.27	10800	0.08	0.19	0.285

Area 1.10 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.19 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.84 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1045 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.50 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 6316.20 s  
 Infiltration Coefficient, f 1.10E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA01 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.





<p><b>Number:</b> CB – SA01</p>	<p><b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney</p>	
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Trial Pit No  
**CB-SA02**  
Sheet 1 of 1

<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617391E - 775838N <b>Level:</b> 64.80m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 1.00 x 1.30	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 0.35m BGL	<b>Logged PH</b>

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.35	B		0.35	64.45		(MADE GROUND) Brown, slightly sandy gravelly SILT with waste material. Sand is fine to coarse. Gravel os fine to coarse, sub-angular to sub-rounded.
	0.10 - 0.35	D					
							End of Pit at 0.350m

<b>Stability:</b> Good.	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 0.35m bgl, required depth. Soakaway test carried out in pit.



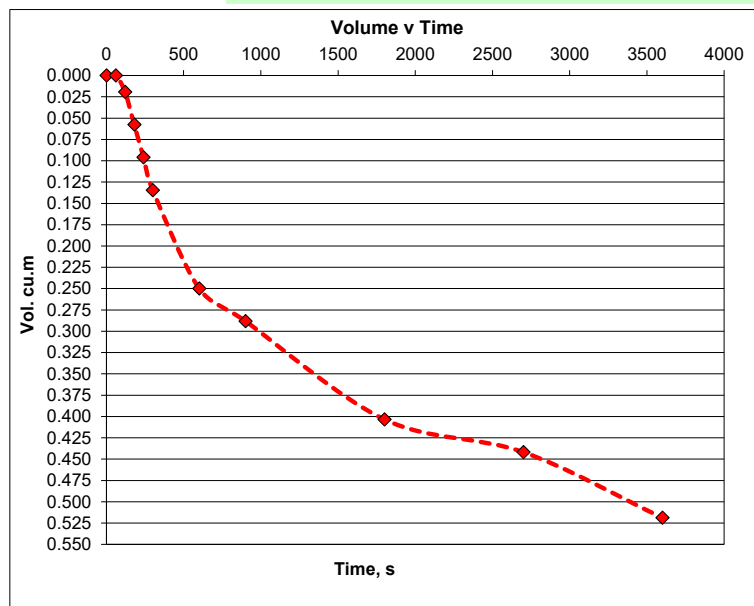
P18159

Longford Landfills - Cartron Big  
 CB - SA02\_1  
 02/08/2018

l, m 1.30 b, m 1.00 d, m 0.35  
 l\_base, m 1.30 d\_eff, m 0.27  
 l\_eff, m 1.30 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.27	0.00	0.000
1	0.08	60	0.27	0.00	0.000
2	0.09	120	0.26	0.01	0.019
3	0.11	180	0.24	0.03	0.058
4	0.13	240	0.22	0.05	0.096
5	0.15	300	0.20	0.07	0.134
10	0.21	600	0.14	0.13	0.250
15	0.23	900	0.12	0.15	0.288
30	0.29	1800	0.06	0.21	0.403
45	0.31	2700	0.04	0.23	0.442
60	0.35	3600	0.00	0.27	0.519

Area 1.30 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.23 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.11 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1755 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.92 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 1400.00 s  
 Infiltration Coefficient, f 6.53E-05 ms<sup>-1</sup>



NOTES:

See CB - SA02 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.



P18159

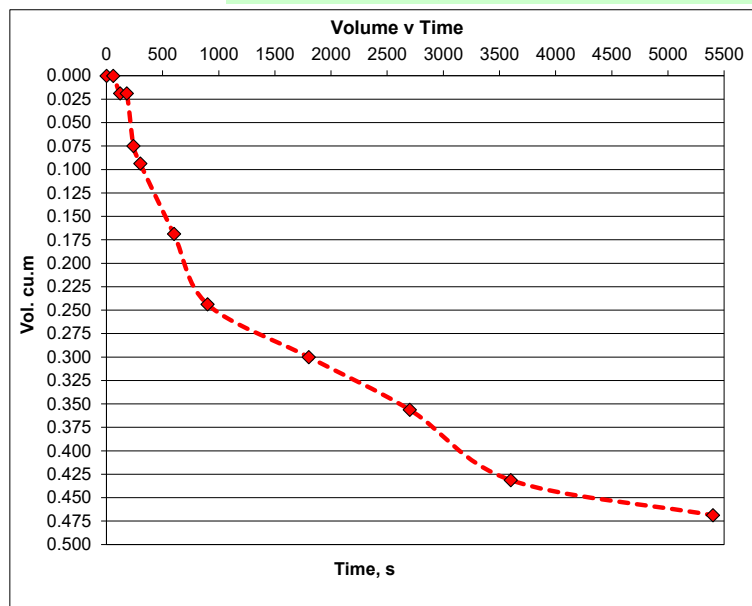
Longford Landfills - Cartron Big  
 CB - SA02\_2  
 02/08/2018

l, m 1.30 b, m 1.00 d, m 0.35  
 l\_base, m 1.30 d\_eff, m 0.25  
 l\_eff, m 1.30 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.10	0	0.25	0.00	0.000
1	0.10	60	0.25	0.00	0.000
2	0.11	120	0.24	0.01	0.019
3	0.11	180	0.24	0.01	0.019
4	0.14	240	0.21	0.04	0.075
5	0.15	300	0.20	0.05	0.094
10	0.19	600	0.16	0.09	0.169
15	0.23	900	0.12	0.13	0.244
30	0.26	1800	0.09	0.16	0.300
45	0.29	2700	0.06	0.19	0.356
60	0.33	3600	0.02	0.23	0.431
90	0.35	5400	0.00	0.25	0.469

Area 1.30 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.23 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.11 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1625 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.88 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 2226.00 s

Infiltration Coefficient, f 3.89E-05 ms<sup>-1</sup>



NOTES:

See CB - SA02 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.





**Number:**

**CB – SA02**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney





<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617325E - 775954N <b>Level:</b> 63.27m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b>	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 0.50m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.15 - 0.45	B		0.15	63.12		(TOPSOIL) Brown, sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				0.45	62.82		(MADE GROUND) Light brown, silty slightly gravelly SAND. Sand is fine to coarse.
				0.50	62.77		(MADE GROUND) Dark brown, sandy SILT with mulch. Sand is fine to coarse.
							End of Pit at 0.500m

<b>Stability:</b> Good	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 12t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 0.50m bgl at the required depth.



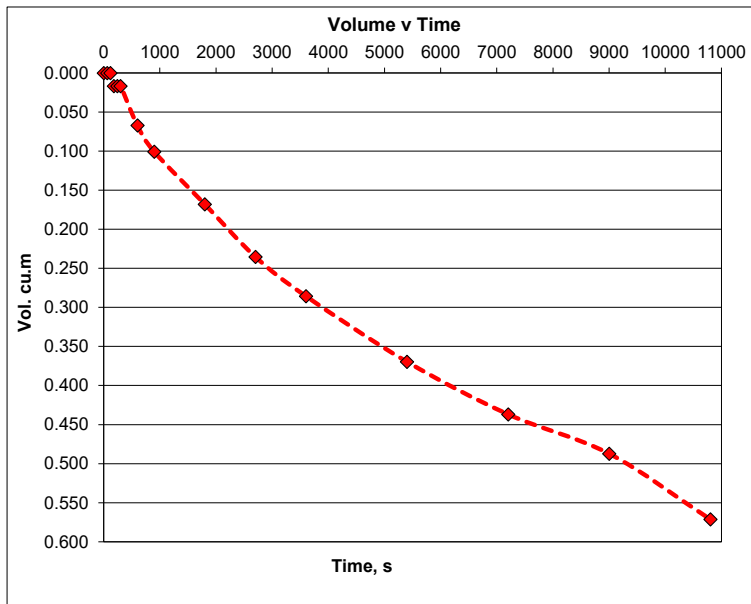
P18159

Longford Landfills - Cartron Big  
 CB - SA03  
 01/08/2018

l, m 1.00 b, m 1.00 d, m 0.50  
 l\_base, m 1.00 d\_eff, m 0.44  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.06	0	0.44	0.00	0.000
1	0.06	60	0.44	0.00	0.000
2	0.06	120	0.44	0.00	0.000
3	0.07	180	0.43	0.01	0.017
4	0.07	240	0.43	0.01	0.017
5	0.07	300	0.43	0.01	0.017
10	0.10	600	0.40	0.04	0.067
15	0.12	900	0.38	0.06	0.101
30	0.16	1800	0.34	0.10	0.168
45	0.20	2700	0.30	0.14	0.235
60	0.23	3600	0.27	0.17	0.286
90	0.28	5400	0.22	0.22	0.370
120	0.32	7200	0.18	0.26	0.437
150	0.35	9000	0.15	0.29	0.487
180	0.40	10800	0.10	0.34	0.571

Area 1.00 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.25 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.00 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.17 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.68 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 5495.00 s  
 Infiltration Coefficient, f 1.84E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA03 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.





<p><b>Number:</b> CB – SA03</p>	<p><b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney</p>	
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Priority Geotechnical Ltd.  
 Tel: 021 4631600  
 Fax: 021 4638690  
 www.prioritygeotechnical.ie

Trial Pit No  
**CB-SA04**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617235E - 775940N  
**Level:** 64.20m OD      **Date:** 01/08/2018

**Location:** Co. Longford      **Dimensions (m):**       **Scale:** 1:25

**Client:**      **Depth:** 0.40m BGL      **Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.40	B		0.40	63.80		(TOPSOIL) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub rounded.
							End of Pit at 0.400m

**Stability:** Good.      **Groundwater:** None encountered.  
**Plant:** 14t tracked excavator.  
**Backfill:** Arisings.

**Remarks:** Trial pit terminated at 0.40m bgl at the required depth. Soakaway test carried out in pit.



P18159

Longford Landfills - Cartron Big

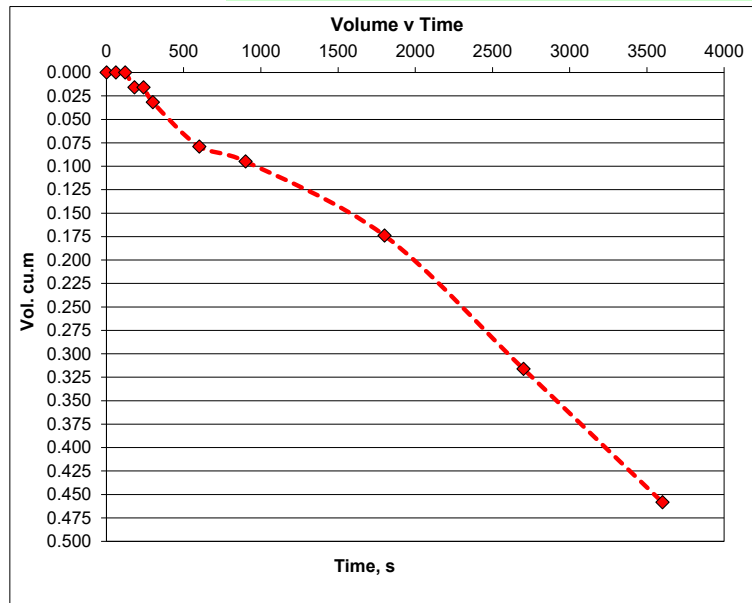
CB - SA04\_1

01/08/2018

l, m 1.00 b, m 1.00 d, m 0.40  
 l\_base, m 1.00 d\_eff, m 0.29  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.11	0	0.29	0.00	0.000
1	0.11	60	0.29	0.00	0.000
2	0.11	120	0.29	0.00	0.000
3	0.12	180	0.28	0.01	0.016
4	0.12	240	0.28	0.01	0.016
5	0.13	300	0.27	0.02	0.032
10	0.16	600	0.24	0.05	0.079
15	0.17	900	0.23	0.06	0.095
30	0.22	1800	0.18	0.11	0.174
45	0.31	2700	0.09	0.20	0.316
60	0.40	3600	0.00	0.29	0.458

Area 1.00 m<sup>2</sup>  $V_{p75-25 \text{ theory}}$  volume 0.20 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.80 m<sup>2</sup>  $V_{p75-25 \text{ actual}}$  volume 0.145 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.58 m<sup>2</sup>  $t_{p75-25 \text{ actual}}$  time 1755.00 s  
 Infiltration Coefficient, f 5.23E-05 ms<sup>-1</sup>

**NOTES:**

See CB - SA04\_1 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.

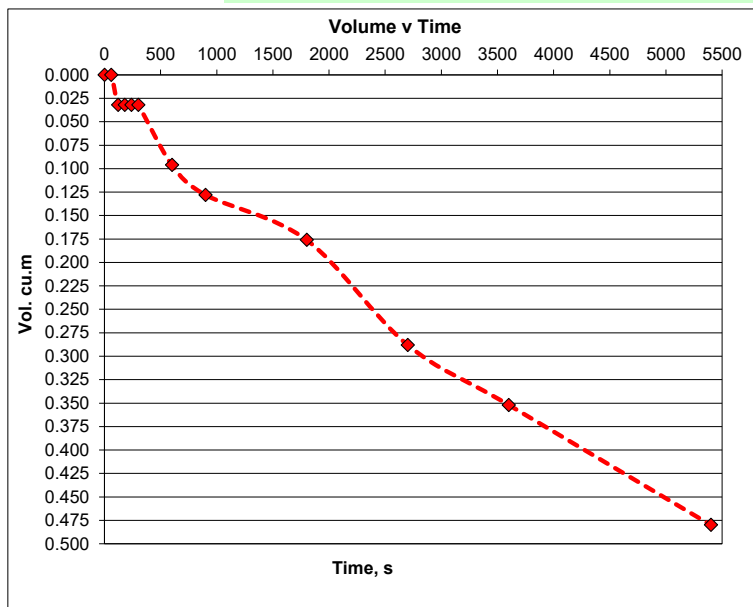
P18159

Longford Landfills - Cartron Big  
 CB - SA04\_2  
 01/08/2018

l, m 1.00 b, m 1.00 d, m 0.40  
 l\_base, m 1.00 d\_eff, m 0.32  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.32	0.00	0.000
1	0.08	60	0.32	0.00	0.000
2	0.10	120	0.30	0.02	0.032
3	0.10	180	0.30	0.02	0.032
4	0.10	240	0.30	0.02	0.032
5	0.10	300	0.30	0.02	0.032
10	0.14	600	0.26	0.06	0.096
15	0.16	900	0.24	0.08	0.128
30	0.19	1800	0.21	0.11	0.176
45	0.26	2700	0.14	0.18	0.288
60	0.30	3600	0.10	0.22	0.352
90	0.38	5400	0.02	0.30	0.480
120	0.40	7200	0.00	0.32	0.512

Area 1.00 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.20 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.80 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.15 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.60 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 3150.00 s  
 Infiltration Coefficient, f 2.98E-05 ms<sup>-1</sup>



NOTES:

See CB - SA04 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.





**Number:**

**CB – SA04**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



## APPENDIX B: DRAWINGS

<b>Drawing Number</b>	<b>Description</b>	<b>Scale</b>
N/A	Intrusive works Location Map	1:1700
P18159-GP-D01	Geophysical Profiles Location Map	As stated at A1
P18159-GP-D02	Cross Section and Interpretation	As stated at A1.
P18159-GP-D03	Cross Section and Interpretation	As stated at A1
P18159-GP-D04	Cross Section and Interpretation	As stated at A1
P18159-GP-D05	Cross Section and Interpretation	As stated at A1
P18159-GP-D06	Cross Section and Interpretation	As stated at A1




Project Id:	P18159
Project Title:	Longford Landfills - Cartron Big
Location:	Co. Longford
Client:	

Title:	Site Plan
Scale:	1:1700
Engineer:	Fehily Timoney
Contractor:	PGL



**Legend Key**

- CB - RC - CB - RC
- ◆ CB - SA - CB - SA
- CB - TP - CB - TP



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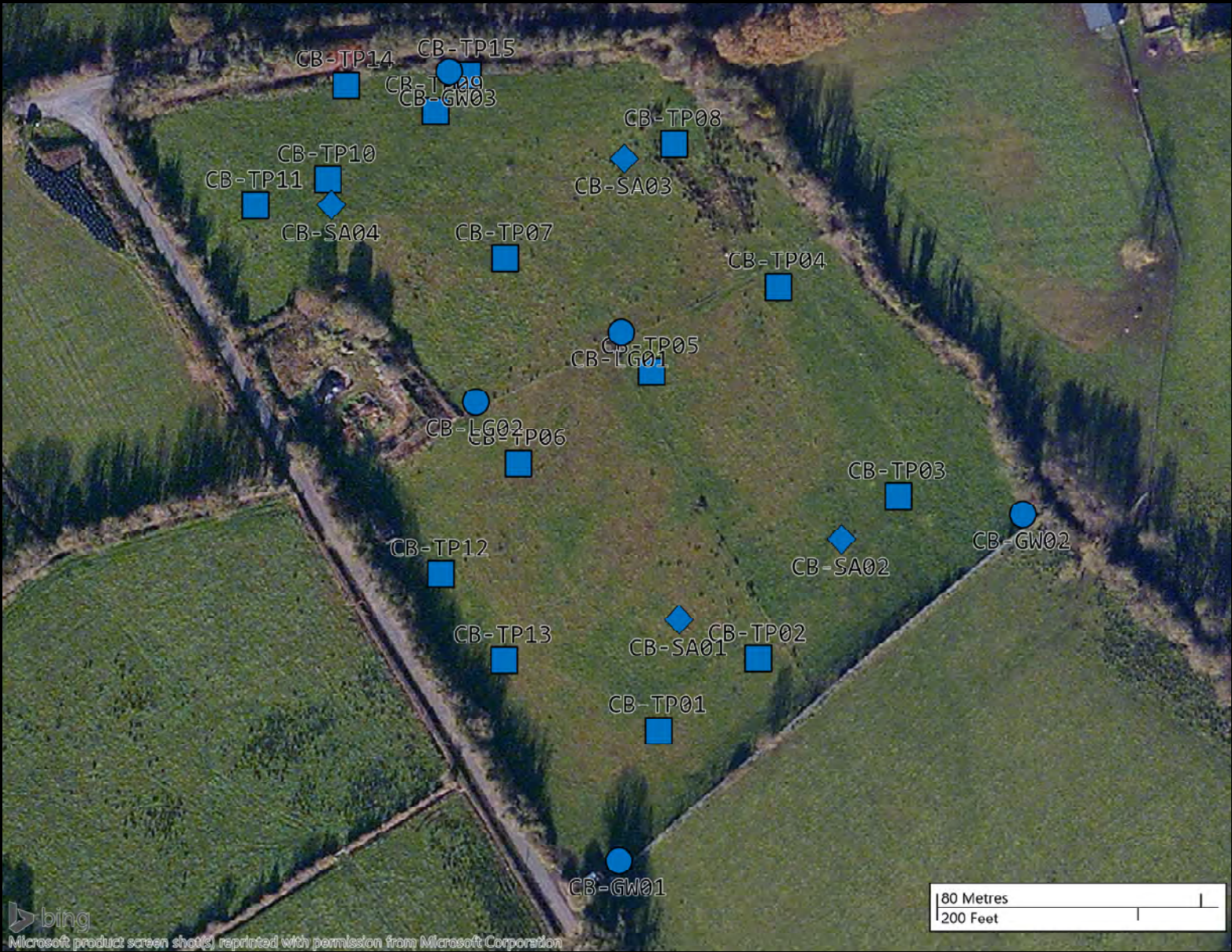




FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
 SCALE: 1:1000



PROJECT: GROUND INVESTIGATIONS AT CARTRON BIG LANDFILL, LONGFORD	CONSULTING ENGINEERS: FEHILY TIMONEY	JOB NUMBER: P18159	DRAWN BY: HP	APPROVED: GH	Legend: 1. Approximate landfill material lateral extent indicated by orange hatch.	
Sheet Title: LOCATION MAP	SURVEYED BY: PRIORITY GEOTECHNICAL LTD.	DRAWING NUMBER: P18159_GP_D01	COORDINATE SYSTEM: ING	VERTICAL DATUM: Malin		
			SCALE: As specified @ A1	ISSUE DATE: 24/09/2018		
			REVISION: D01 - DRAFT FOR COMMENT			



FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
SCALE: 1:1000

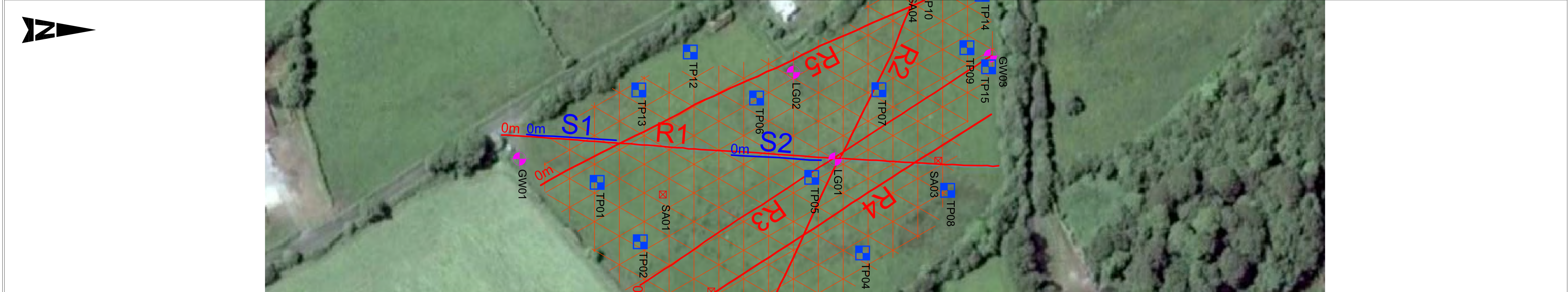
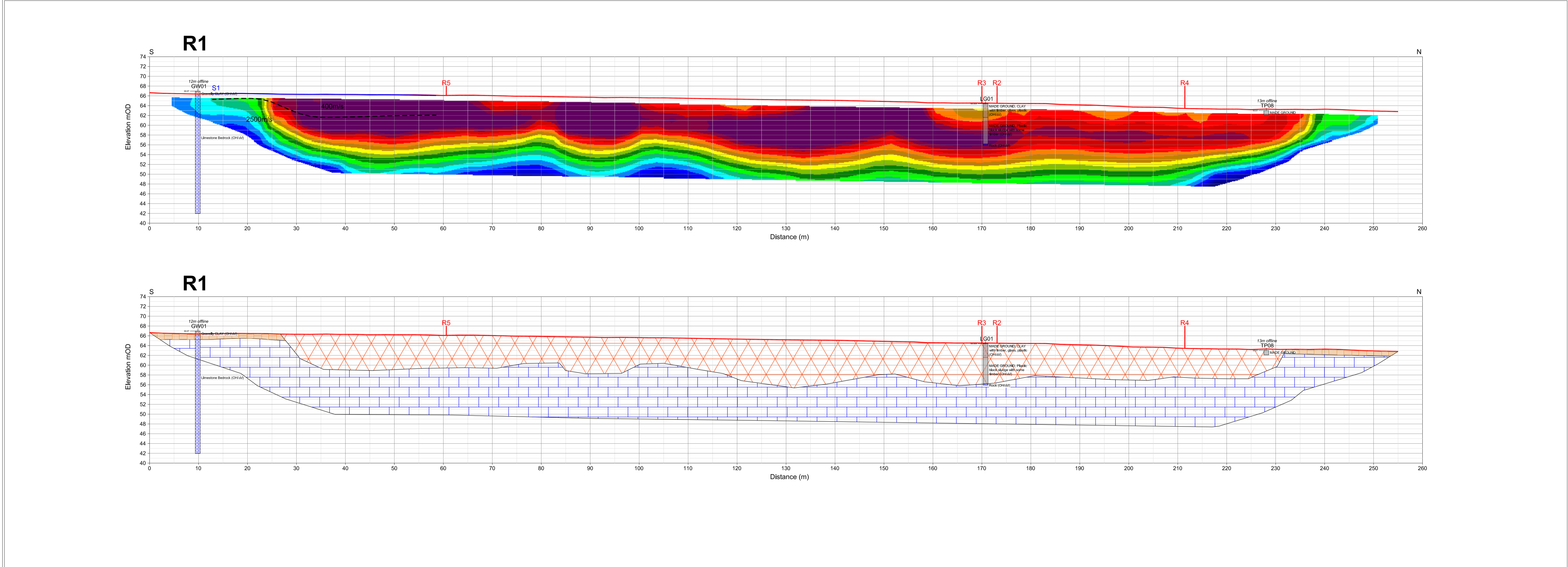


FIGURE 2: GEOPHYSICAL PROFILE CROSS SECTIONS  
SCALE: 1:400



<p>PROJECT: GROUND INVESTIGATIONS AT CARTRON BIG LANDFILL, LONGFORD</p>	<p>CONSULTING ENGINEERS: FEHILY TIMONEY</p>	<p>JOB NUMBER: P18159</p>	<p>DRAWN BY: HP</p>	<p>APPROVED: GH</p>	<p>Legend:</p> <ul style="list-style-type: none"> <li>ERT Profile</li> <li>Seismic Refraction Profile</li> </ul> <p>Resistivity in ohm.m</p> <table border="1"> <tr> <td>7.23</td> <td>15.6</td> <td>33.7</td> <td>72.6</td> <td>157</td> <td>338</td> <td>738</td> <td>1575</td> </tr> </table> <p>Seismic refraction boundaries with P-wave velocities (m/s):</p> <ul style="list-style-type: none"> <li>Layer 1 p-wave velocity: 400m/s</li> <li>Layer 2 p-wave velocity: 1000m/s</li> <li>Layer 3 p-wave velocity: 3000m/s</li> </ul>	7.23	15.6	33.7	72.6	157	338	738	1575	<p>Geophysical Interpretation</p> <p>Overburden</p> <ul style="list-style-type: none"> <li>Topsoil</li> <li>Landfill Material</li> </ul> <p>Bedrock</p> <ul style="list-style-type: none"> <li>LIMESTONE possibly argillaceous in nature</li> </ul>	<p>Site Location</p>
7.23	15.6	33.7	72.6	157		338	738	1575							
<p>Sheet Title: GEOPHYSICAL PROFILE LOCATION MAP AND INTERPRETED CROSS SECTIONS - R1</p>	<p>SURVEYED BY: PRIORITY GEOTECHNICAL LTD.</p>	<p>DRAWING NUMBER: P18159_GP_D02</p>	<p>COORDINATE SYSTEM: ING</p>	<p>VERTICAL DATUM: Malin</p>											
<p>REVISION: D01 - DRAFT FOR COMMENT</p>	<p>SCALE: As specified @ A1</p>	<p>ISSUE DATE: 24/09/2018</p>													



FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
SCALE: 1:1000

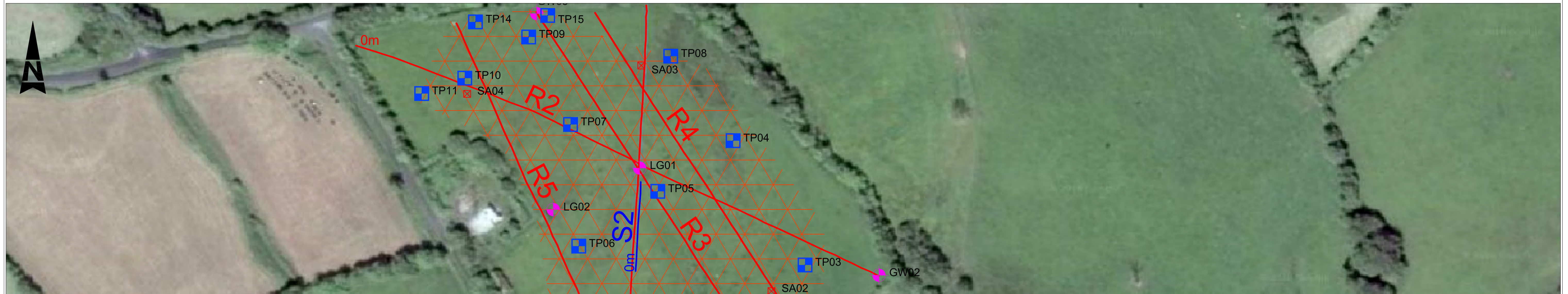
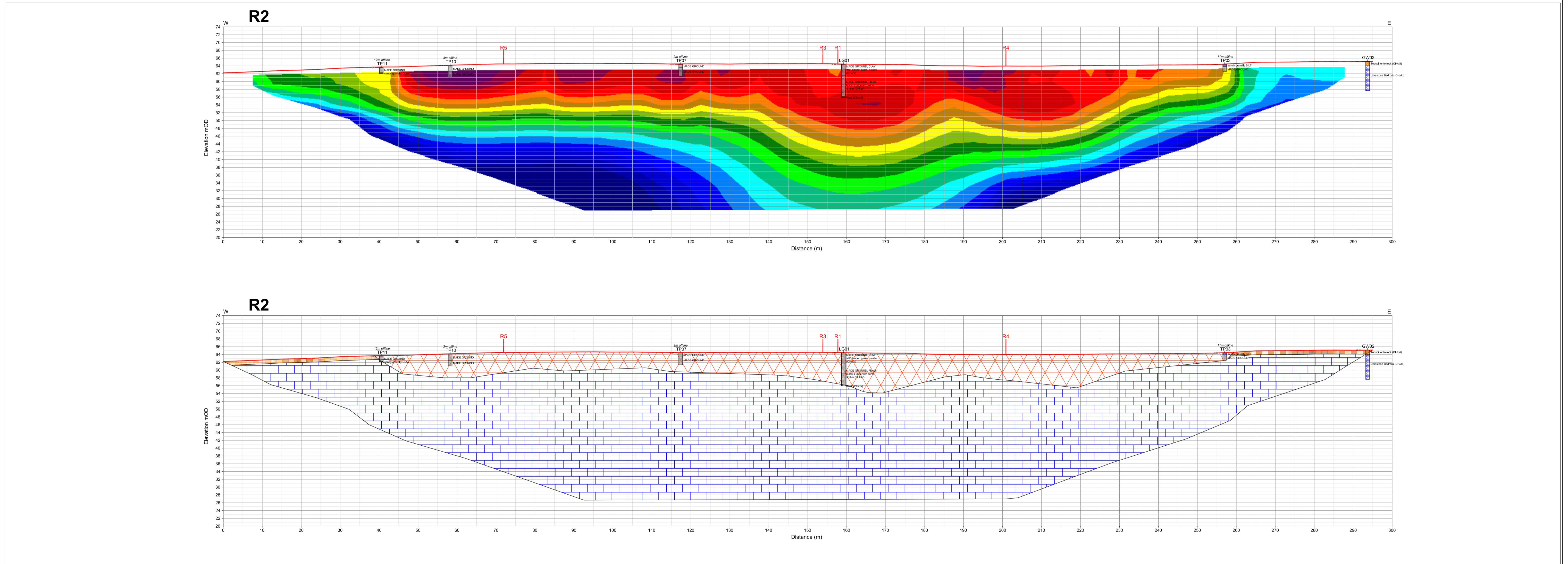


FIGURE 2: GEOPHYSICAL PROFILE CROSS SECTIONS  
SCALE: 1:500



<p>PROJECT: GROUND INVESTIGATIONS AT CARTRON BIG LANDFILL, LONGFORD</p>	<p>CONSULTING ENGINEERS: FEHILY TIMONEY</p>	<p>JOB NUMBER: P18159</p>	<p>DRAWN BY: HP</p>	<p>APPROVED: GH</p>	<p>Legend:</p> <ul style="list-style-type: none"> <li>ERT Profile</li> <li>Seismic Refraction Profile</li> </ul> <p>Resistivity in ohm.m</p> <table border="1"> <tr> <td>7.23</td> <td>15.6</td> <td>33.7</td> <td>72.6</td> <td>157</td> <td>338</td> <td>730</td> <td>1575</td> </tr> </table> <p>Seismic refraction boundaries with P-wave velocities (m/s):</p> <ul style="list-style-type: none"> <li>Layer 1 p-wave velocity: 400m/s</li> <li>Layer 2 p-wave velocity: 1000m/s</li> <li>Layer 3 p-wave velocity: 3000m/s</li> </ul> <p>Geophysical Interpretation</p> <ul style="list-style-type: none"> <li>Overburden <ul style="list-style-type: none"> <li>Topsoil</li> <li>Landfill Material</li> </ul> </li> <li>Bedrock <ul style="list-style-type: none"> <li>LIMESTONE possibly argillaceous in nature</li> </ul> </li> </ul>	7.23	15.6	33.7	72.6	157	338	730	1575
7.23	15.6	33.7	72.6	157		338	730	1575					
<p>Sheet Title: GEOPHYSICAL PROFILE LOCATION MAP AND INTERPRETED CROSS SECTIONS - R2</p>	<p>SURVEYED BY: PRIORITY GEOTECHNICAL LTD.</p>	<p>DRAWING NUMBER: P18159_GP_D03</p>	<p>COORDINATE SYSTEM: ING</p>	<p>VERTICAL DATUM: Malin</p>									
<p>REVISION: D01 - DRAFT FOR COMMENT</p>			<p>SCALE: As specified @ A1</p>	<p>ISSUE DATE: 24/09/2018</p>									

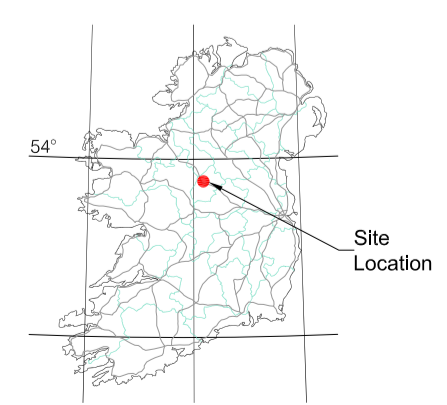




FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
SCALE: 1:1000

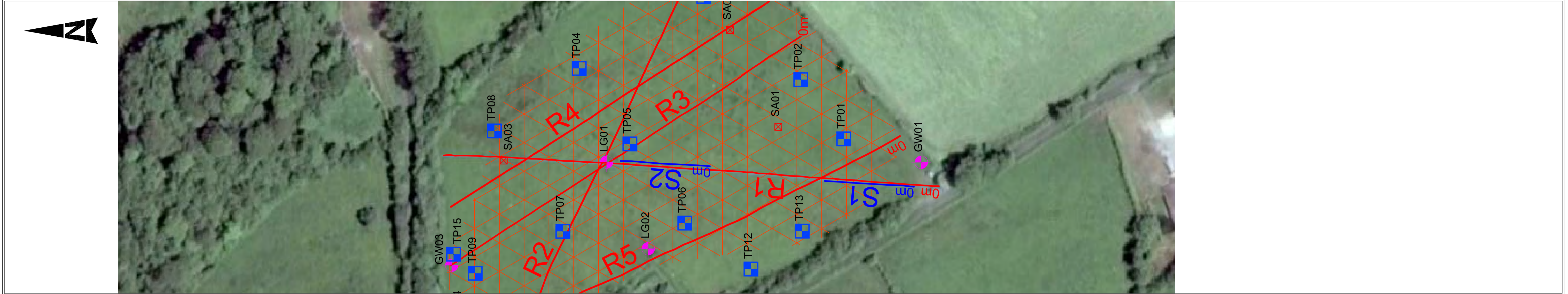
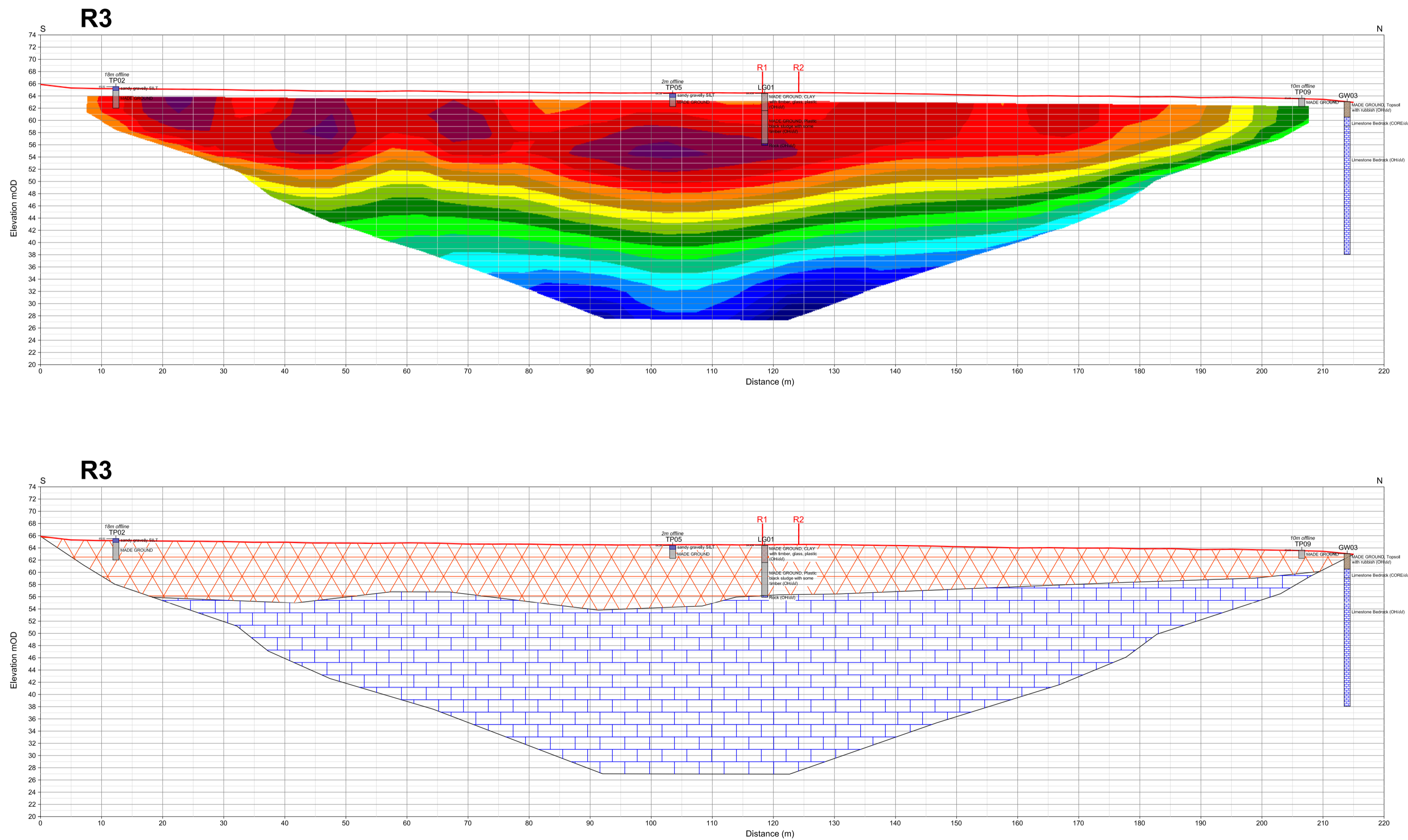


FIGURE 2: GEOPHYSICAL PROFILE CROSS SECTIONS  
SCALE: 1:500



PROJECT:  
GROUND INVESTIGATIONS  
AT CARTRON BIG  
LANDFILL, LONGFORD

CONSULTING ENGINEERS:  
FEHILY TIMONEY

JOB NUMBER:  
P18159

DRAWN BY:  
HP

APPROVED:  
GH

Legend:

— ERT Profile  
— Seismic Refraction Profile

Resistivity in ohm.m  
7.23 15.6 33.7 72.6 157 338 730 1575

Seismic refraction  
boundaries with  
P-wave velocities  
(m/s):  
400m/s  
1000m/s  
3000m/s

Geophysical Interpretation  
Overburden  
Topsoil  
Landfill Material

Bedrock  
LIMESTONE possibly  
argillaceous in nature

Sheet Title:  
GEOPHYSICAL PROFILE  
LOCATION MAP AND  
INTERPRETED CROSS  
SECTIONS - R3

SURVEYED BY:  
PRIORITY GEOTECHNICAL  
LTD.

DRAWING NUMBER:  
P18159\_GP\_D04

SCALE:  
As specified @ A1

ISSUE DATE:  
24/09/2018

REVISION:  
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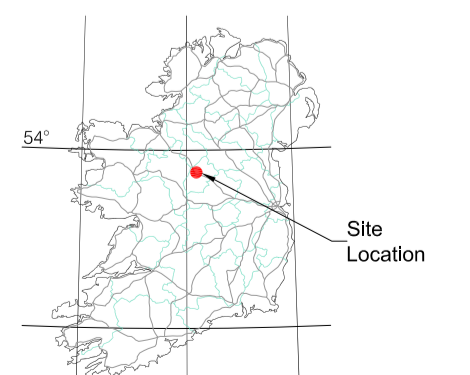




FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
SCALE: 1:1000

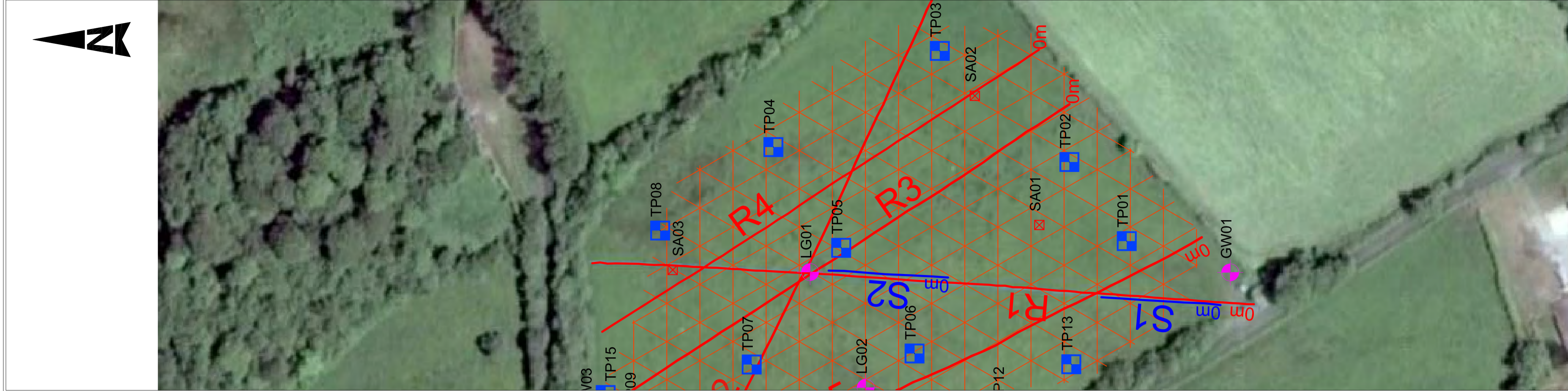
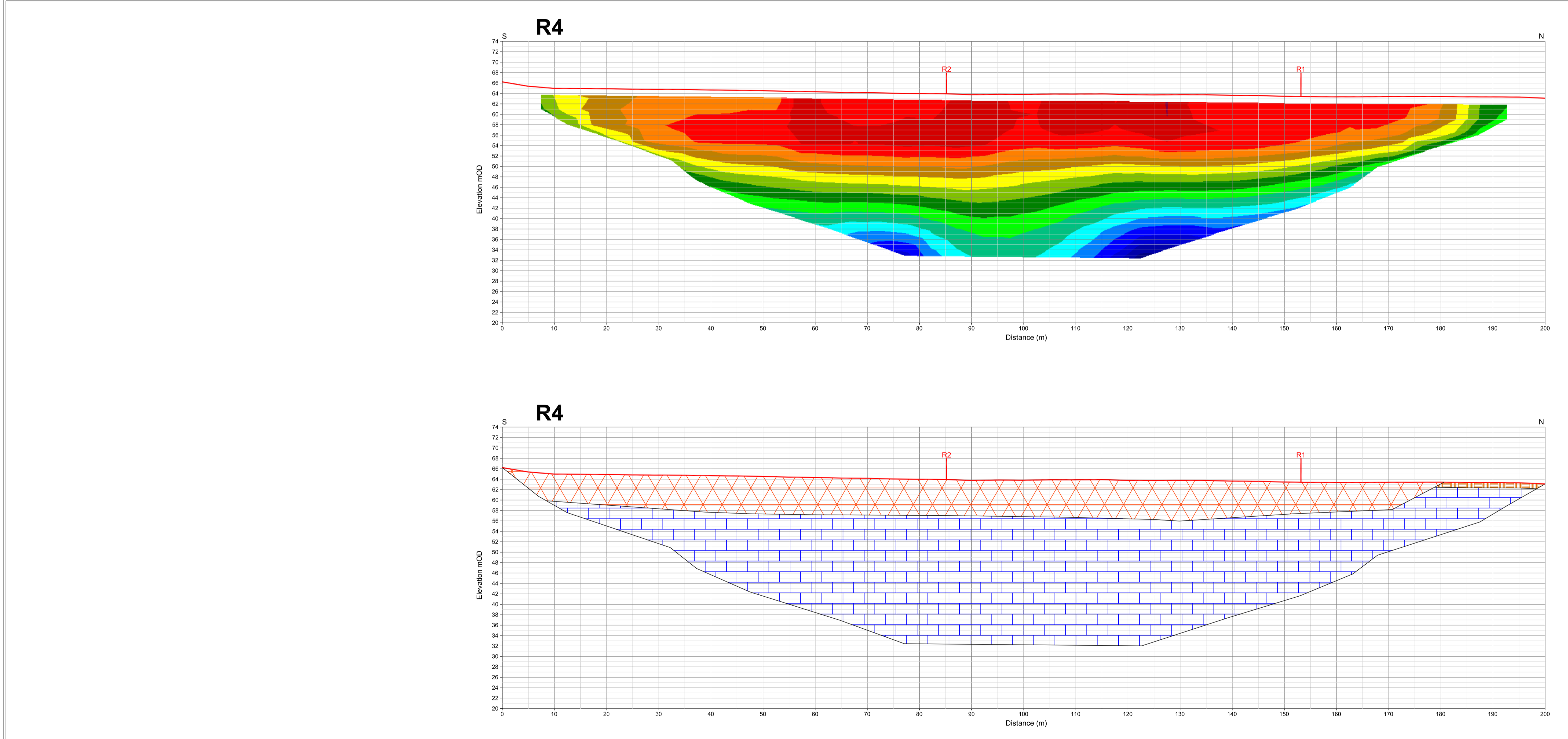


FIGURE 2: GEOPHYSICAL PROFILE CROSS SECTIONS  
SCALE: 1:500



PROJECT:  
GROUND INVESTIGATIONS  
AT CARTRON BIG  
LANDFILL, LONGFORD

CONSULTING ENGINEERS:  
FEHILY TIMONEY

JOB NUMBER:  
P18159

DRAWN BY:  
HP

APPROVED:  
GH

Legend:

— ERT Profile  
— Seismic Refraction Profile

Resistivity in ohm.m  
7.23 15.6 33.7 72.6 157 338 730 1575

Seismic refraction  
boundaries with  
P-wave velocities  
(m/s):  
400m/s  
1000m/s  
3000m/s

Geophysical Interpretation  
Overburden  
Topsoil  
Landfill Material

Bedrock  
LIMESTONE possibly  
argillaceous in nature

Sheet Title:  
GEOPHYSICAL PROFILE  
LOCATION MAP AND  
INTERPRETED CROSS  
SECTIONS - R4

SURVEYED BY:  
PRIORITY GEOTECHNICAL  
LTD.

DRAWING NUMBER:  
P18159\_GP\_D05

SCALE:  
As specified @ A1

ISSUE DATE:  
24/09/2018

REVISION:  
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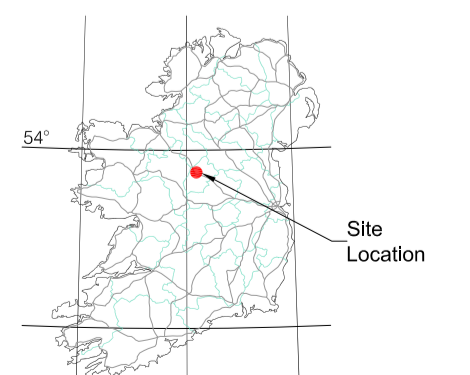




FIGURE 1: LOCATION MAP SHOWING GEOPHYSICAL PROFILE LOCATIONS  
SCALE: 1:1000

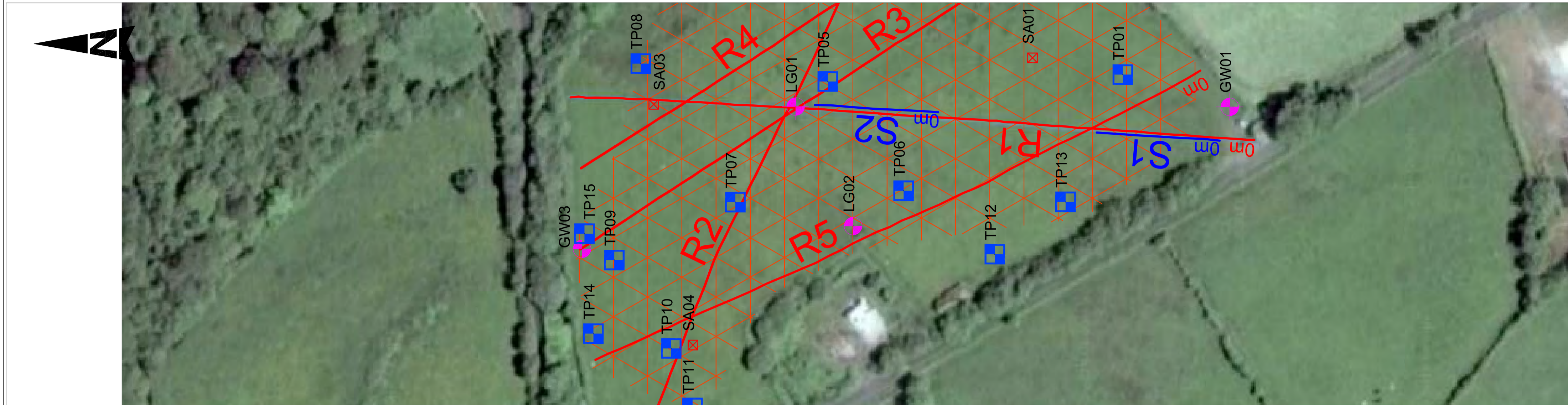
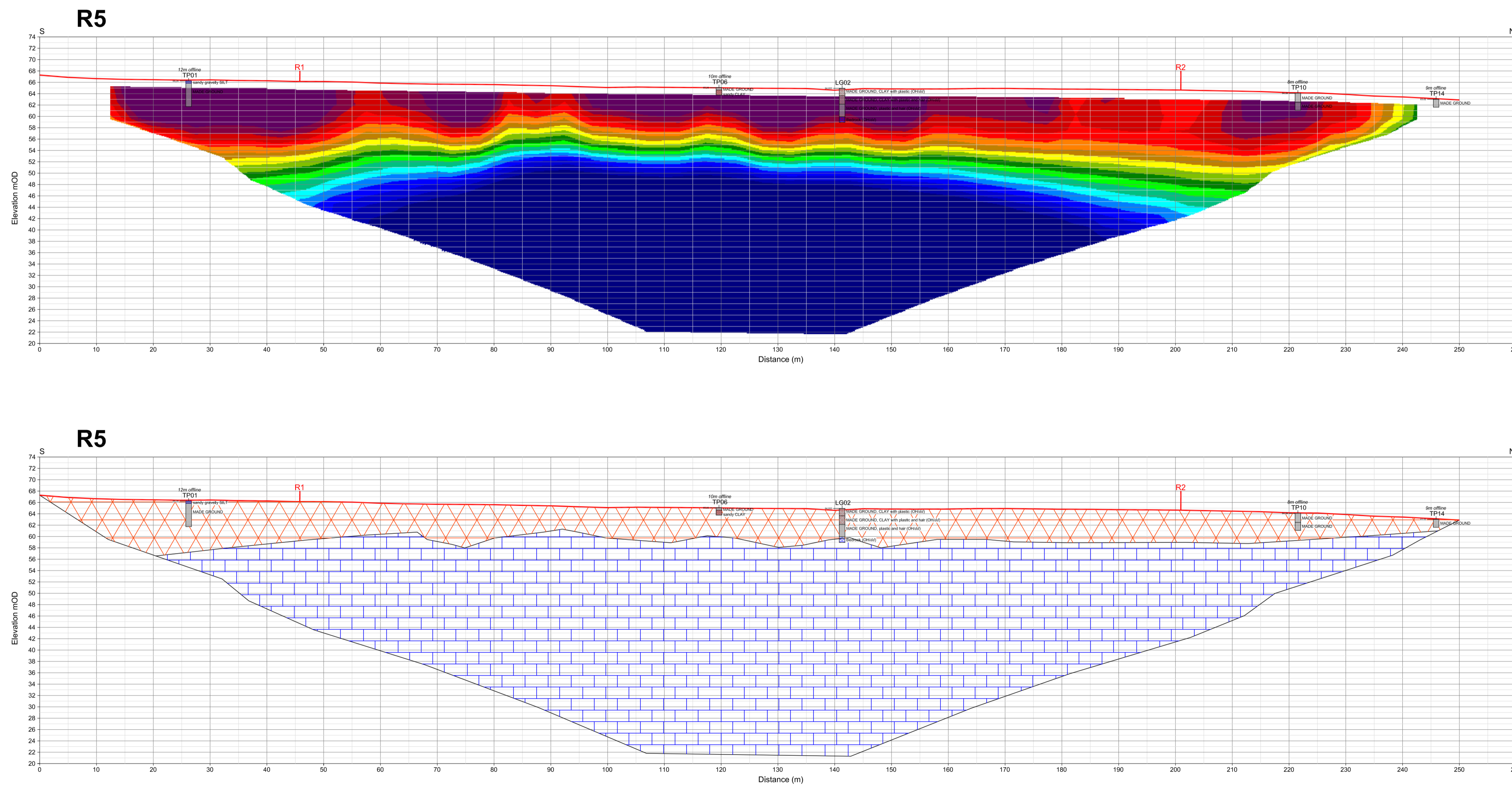


FIGURE 2: GEOPHYSICAL PROFILE CROSS SECTIONS  
SCALE: 1:500



PROJECT:  
GROUND INVESTIGATIONS  
AT CARTRON BIG  
LANDFILL, LONGFORD

CONSULTING ENGINEERS:  
FEHILY TIMONEY

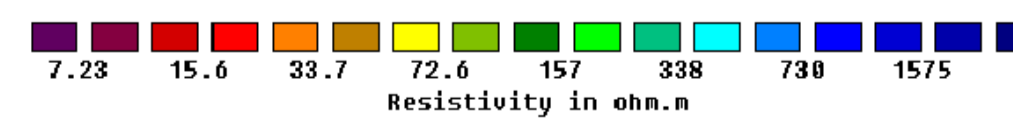
JOB NUMBER:  
P18159

DRAWN BY:  
HP

APPROVED:  
GH

Legend:

— ERT Profile  
— Seismic Refraction Profile



Seismic refraction  
boundaries with  
P-wave velocities  
(m/s):

- Ground Surface
- Layer 1 p-wave velocity: 400m/s
- Layer 1 / Layer 2 boundary: 1000m/s
- Layer 2 / Layer 3 boundary: 3000m/s
- Layer 3 p-wave velocity: 3000m/s

Geophysical Interpretation  
Overburden  
Topsoil  
Landfill Material

Bedrock  
LIMESTONE possibly  
argillaceous in nature

Sheet Title:  
GEOPHYSICAL PROFILE  
LOCATION MAP AND  
INTERPRETED CROSS  
SECTIONS - R5

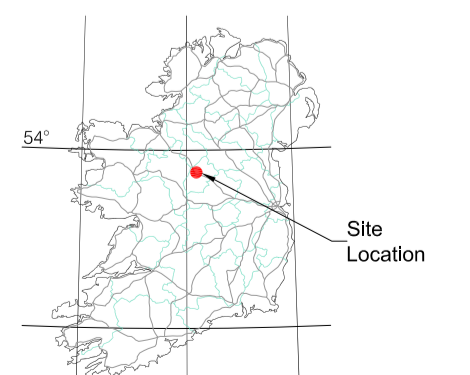
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PRIORITY GEOTECHNICAL  
LTD.

DRAWING NUMBER:  
P18159\_GP\_D06

SCALE:  
As specified @ A1

ISSUE DATE:  
24/09/2018

REVISION:  
D01 - DRAFT FOR COMMENT





## REFERENCES

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Williamson E.D and Adams L.H. (1923). Density distribution in the Earth. *J. Wash. Acad. Sci.*, 13, p413-28.



## REFERENCES

BANERJEE, B. and GUPTA, S. (1975). HIDDEN LAYER PROBLEM IN SEISMIC REFRACTION WORK\*. *Geophysical Prospecting*, 23(4), pp.642-652.

GSEG (2002) Geophysics in Engineering Investigations. Geological Society Engineering Geology Special Publication 19, London, 2002.

Loke, M. (2000). Electrical imaging surveys for environmental and engineering studies.

Milsom, (1989). Field Geophysics. John Wiley and Sons.

Soske, J. (1959). THE BLIND ZONE PROBLEM IN ENGINEERING GEOPHYSICS. *GEOPHYSICS*, 24(2), pp.359-365.

Telford W.S., Geldart L.P, Sheriff R.E. (1990) Applied Geophysics Second Edition (Cambridge University Press) 769pp

Williamson E.D and Adams L.H. (1923). Density distribution in the Earth. *J. Wash. Acad. Sci.*, 13, p413-28.