

TIER 2


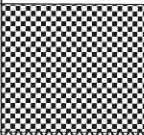
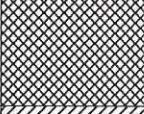
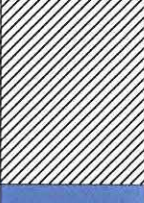


ENVIRONMENTAL RISK ASSESSMENT

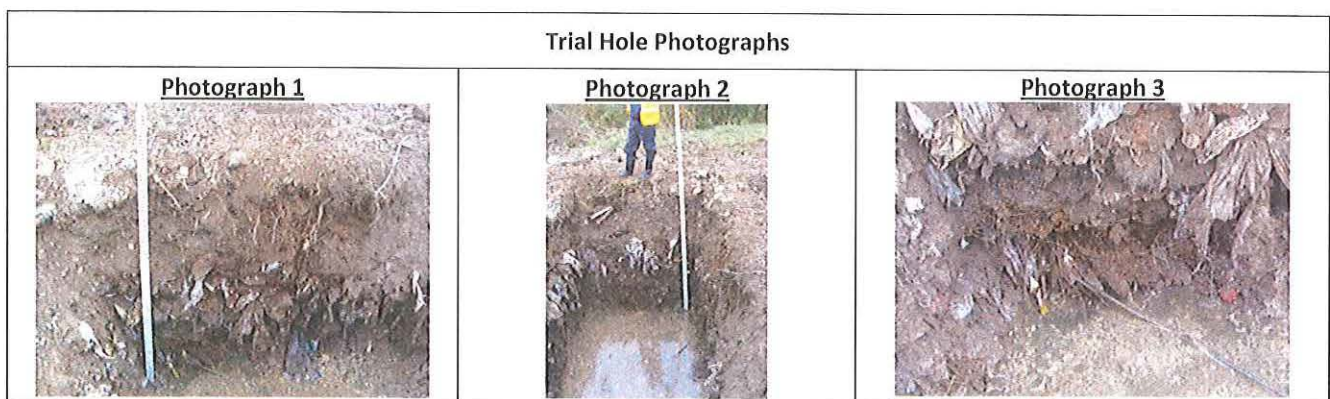
APPENDIX A

TRIAL HOLE DESCRIPTION & LOGS


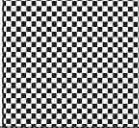
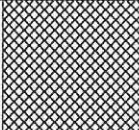



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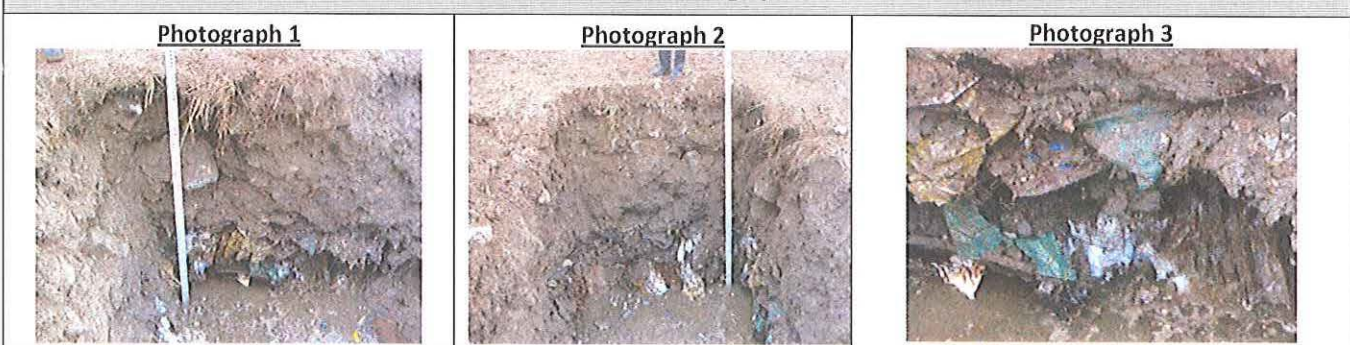
	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit Number 1	
			National Grid Reference E268048 N284242	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 1		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Silt/Clay Brown Colour with common rootlets		0.60m	0%:100%	The top 0.00m to 0.60m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with Plastic, steel Grey colour		1.00m	70%:30%	0.60m to 1.00m soil meets with the waste material. A significant amount of plastic waste with steel wire present.
Clay intermixed with Plastic and steel Grey colour Groundwater Level @ 1.60m		1.60m	90%:10%	1.00m – 1.60m large portion of steel wire with less plastic in the final 1.30m – 1.60m. Groundwater level at 1.60m BGL. Groundwater contaminated with waste oil
Clay intermixed with Plastic and steel Grey colour End of Waste @ 1.90m		1.90m	90%:10%	1.60m – 1.90m large portion of steel wire with a significant amount of plastic.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.10m		2.10m	0%:100%	The final 1.90m to 2.10m of the trial hole does not have any waste present. It appears to be natural ground.



European Waste Code Classification					
Waste Type	EWCode	Present	Waste Type	EWCode	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	Yes	End of life vehicle	160104	No
Wooden packaging	200138	No	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

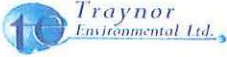
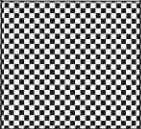
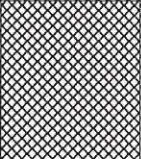
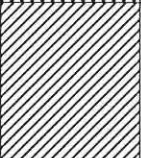


		Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 2	
				National Grid Reference E268052 N284252	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 3		Start Date 13 th October 2010	
Description		Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Silt/Clay Brown Colour with common rootlets			1.00m	0%:100%	The top 0.00m to 1.00m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Silt/Clay intermixed with Plastic, steel Grey colour			1.40m	70%:30%	1.00m to 1.40m soil meets with the waste material. A significant amount of plastic waste with a steel barrel present.
Silt/Clay intermixed with Plastic and steel Groundwater Level @ 1.70m			1.70m	90%:10%	1.40m – 1.70m large portion of plastic from 1.40m – 1.70m. Groundwater contaminated with waste oil
Clay intermixed with Plastic and steel Grey colour End of Waste @ 1.90m			1.90m	90%:10%	Large portion of plastic in the final 1.70m – 2.00m.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.20m			2.20m	0%:100%	The final 2.00m to 2.20m of the trial hole does not have any waste present. It appears to be natural ground.




Trial Hole Photographs




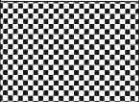
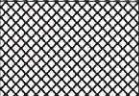

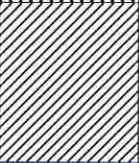


European Waste Code Classification




Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	Yes	End of life vehicle	160104	No
Wooden packaging	200138	No	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan			Trial Pit: Number 3	
				National Grid Reference E268052 N284266	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 4		Start Date 13 th October 2010	
Description		Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Silt/Clay Intermixed with Stone Brown Colour with common rootlets			0.50m	0%:100%	The top 0.00m to 0.50m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with Plastic, steel, drain pipes, oil, municipal waste, glass bottles. Grey colour			1.40m	90%:10%	0.50m to 1.40m soil meets with the waste material. A significant amount of plastic waste and pipes present.
Clay intermixed with Plastic, steel, drain pipes, oil, municipal waste, glass bottles. Groundwater Level @ 1.60m			1.60m	70%:30%	Large portion of plastic and pipes in 1.40m – 1.60m layer. Groundwater contaminated with waste oil
Clay intermixed with Plastic, steel, drain pipes, oil, municipal waste, glass bottles. Grey colour End of Waste @ 1.90m			1.90m	70%:30%	1.60m – 1.90m large portion of plastic with a significant amount of piping.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.70m			2.70m	0%:100%	The final 1.90m to 2.70m of the trial hole does not have any waste present. It appears to be natural ground.


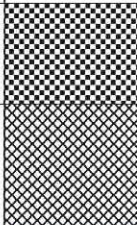

Trial Hole Photographs		
Photograph 1 	Photograph 2 	Photograph 3 




European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	Yes	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 4	
			National Grid Reference E268042 N284260	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 4		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Silt/Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay Intermixed with Stone Grey Colour and Sticky in nature		0.50m	0%:100%	0.30m to 0.50m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with Plastic, steel, oil, and wire from tyres. Grey colour		1.00m	90%:10%	0.50m to 1.00m soil meets with the waste material. A significant amount of wire from tyres present.
Clay intermixed with Plastic, steel, drain pipes, oil, municipal waste, glass bottles. Groundwater Level @ 1.40m		1.40m	70%:30%	Large portion of wire from tyres in the 1.00m – 1.40m layer. Groundwater contaminated with waste oil
Clay intermixed with Plastic, steel, drain pipes, oil, municipal waste, glass bottles. Grey colour End of Waste @ 1.90m		1.90m	90%:10%	1.40m – 1.90m large portion of steel wire with a significant amount of plastic.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.10m		2.10m	0%:100%	The final 1.90m to 2.10m of the trial hole does not have any waste present. It appears to be natural ground.


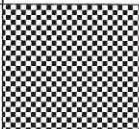

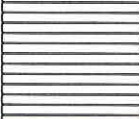


Trial Hole Photographs		
Photograph 1 	Photograph 2 	Photograph 3 

European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 5	
			National Grid Reference E268035 N284254	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 6		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay Intermixed with Stone Grey Colour and Sticky in nature Winter Groundwater Level @ 0.50m		0.50m	0%:100%	0.30m to 0.50m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with Plastic, steel, oil, fibre. Grey colour		1.00m	70%:30%	0.50m to 1.00m soil meets with the waste material. A significant amount of steel and fibre present.
Clay intermixed with Plastic, steel, oil, fibre. Grey colour Groundwater Level @ 1.40m		1.40m	90%:10%	Large portion of steel, waste oil and fibre in the 1.00m – 1.40m layer. Groundwater contaminated with waste oil
Clay intermixed with Plastic, steel, oil, fibre. Grey colour End of Waste @ 1.80m		1.80m	90%:10%	1.40m – 1.80m Large portion of steel, waste oil and fibre.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.10m		2.10m	0%:100%	The final 1.80m to 2.10m of the trial hole does not have any waste present. It appears to be natural ground.

Trial Hole Photographs		
Photograph 1 	Photograph 2 	Photograph 3 

European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No


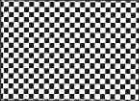




	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan			Trial Pit: Number 6
				National Grid Reference E268024 N284267
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 2		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay Intermixed with Stone Grey Colour and Sticky in Nature		0.50m	0%:100%	0.30m to 0.50m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Burnt layer with Plastic, Steel, Oil. Grey Colour		0.90m	90%:10%	0.50m to 0.90m soil meets with the burnt waste material. A small portion of steel and oil present.
Clay intermixed with Plastic, Steel, oil and Fibre. Groundwater Level @ 1.30m		1.30m	40%:60%	1.00m – 1.30m. Small portion of steel, waste oil and fibre Groundwater contaminated with waste oil
Clay intermixed with Plastic, Fibre and Steel Grey colour End of Waste @ 1.70m		1.70m	40%:60%	1.30m – 1.70m Small portion of steel and fibre
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.20m		2.20m	0%:100%	The final 1.70m to 2.20m of the trial hole does not have any waste present. It appears to be natural ground.

Trial Hole Photographs



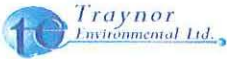

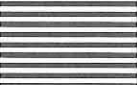
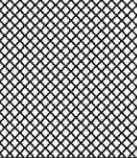
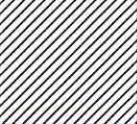


European Waste Code Classification

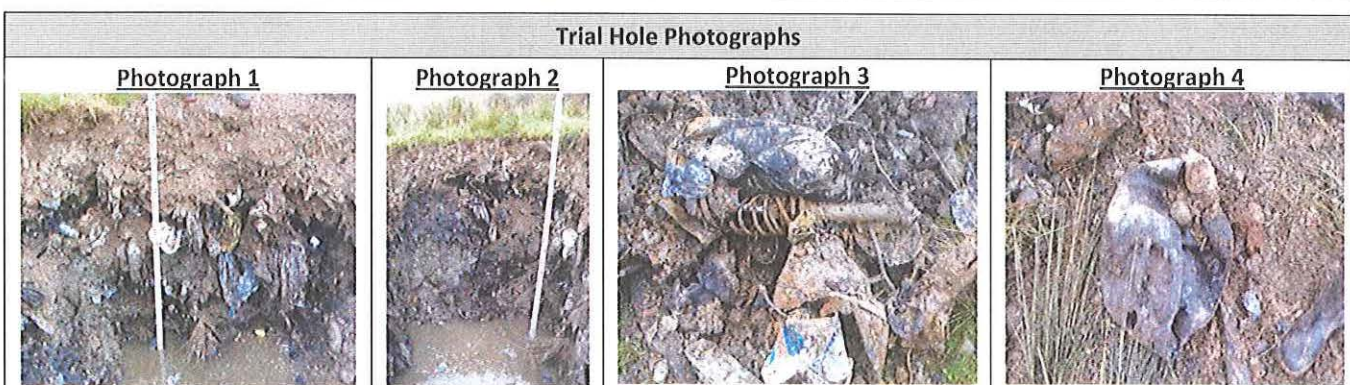
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Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 7		
			National Grid Reference E268036 N284275		
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council		
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 2		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes	
Clay Intermixed with Stone Brown Colour		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It appears to be natural ground used for capping.	
Clay Intermixed with Stone Grey Colour and Sticky in nature		0.80m	0%:100%	0.40m to 0.80m of the trial hole does not have any waste present. It appears to be natural ground used for capping.	
Clay intermixed with plastic, steel, oil, and wire from tyres. Grey colour Groundwater Level @ 1.40m		1.40m	40%:60%	0.80m – 1.40m of the trial hole has a small portion of wire from tyres, plastic and waste oil. Groundwater contaminated with waste oil	
Clay intermixed with plastic, steel, oil, and wire from tyres. Grey colour End of Waste @ 1.80m		1.80m	40%:60%	1.40m – 1.80m of the trial hole has a small portion of steel wire with a significant amount of plastic.	
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.20m		2.20m	0%:100%	The final 1.80m to 2.20m of the trial hole does not have any waste present. It appears to be natural ground.	


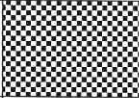
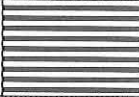
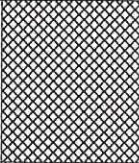



Trial Hole Photographs		
Photograph 1	Photograph 2	Photograph 3
		





European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 8	
			National Grid Reference E268047 N284289	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 5		Start Date 13 th October 2010
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Burnt layer with Plastic, steel, oil. Grey colour		0.60m	90%:10%	0.40m to 0.60m soil meets with the burnt waste material. A significant amount of steel, plastic and oil present.
Clay intermixed with Plastic, steel, tyre. Vehicle suspension, 20L drum, oil, municipal waste, timber, glass bottles. Grey colour		1.40m	90%:10%	0.60m to 1.40m soil meets with the waste material. A significant amount of plastic waste and pipes present.
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Groundwater Level @ 1.90m		1.90m	80%:20%	Large portion of waste plastic, steel, oil, municipal waste in the 1.40m–1.90m layer. Groundwater contaminated with waste oil
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour End of Waste @ 2.10m		2.10m	80%:20%	1.90m – 2.10m of the trial hole has a large portion of steel wire with a significant amount of plastic.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.40m		2.40m	0%:100%	The final 2.10m to 2.40m of the trial hole does not have any waste present. It appears to be natural ground.


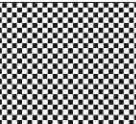

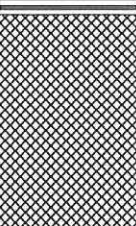




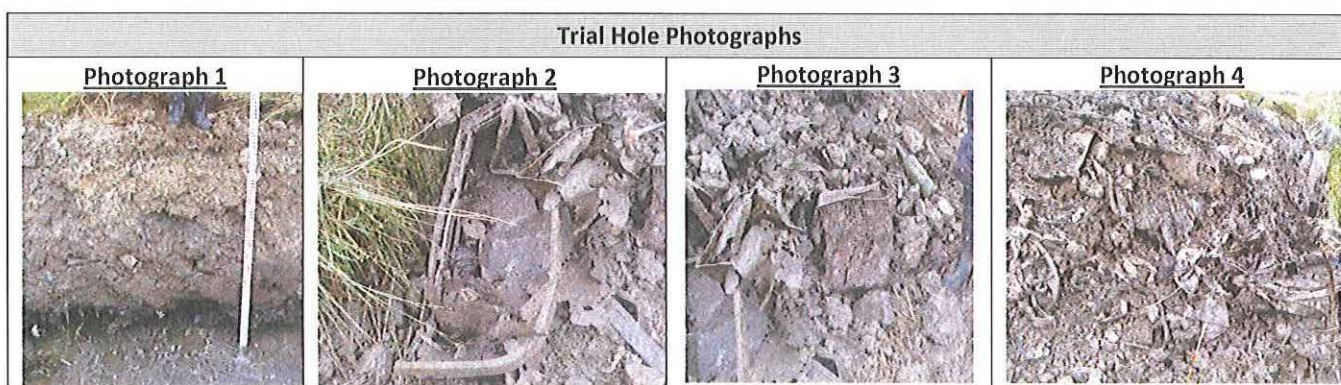
European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	Yes	End of life vehicle	160104	Yes
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan			Trial Pit: Number 9
				National Grid Reference E268037 N284304
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 8		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Burnt layer with Plastic, steel, oil. Grey colour		0.70m	90%:10%	0.40m to 0.70m soil meets with the burnt waste material. A significant amount of steel, plastic and oil present.
Clay intermixed with Plastic, steel, tyres, vehicle parts, 20L drum, oil, municipal waste, timber, wire, glass bottles. Grey colour		1.40m	90%:10%	0.70m to 1.40m soil meets with the waste material. A significant amount of vehicle parts, 20L drum, oil, municipal waste, timber, wire present.
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour Groundwater Level @ 2.00m		2.00m	80%:20%	Large portion of waste plastic, steel, oil, municipal waste in the 1.40m–2.00m layer. Groundwater contaminated with waste oil
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour End of Waste @ 2.20m		2.20m	70%:30%	2.00m – 2.20m of the trial hole has a large portion of steel with a significant amount of plastic and tyres.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.50m		2.50m	0%:100%	2.20m to 2.50m of the trial hole does not have any waste present. It appears to be natural ground.

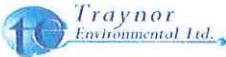
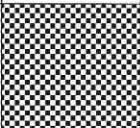

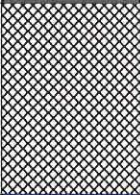


Trial Hole Photographs			
Photograph 1 	Photograph 2 	Photograph 3 	Photograph 4 

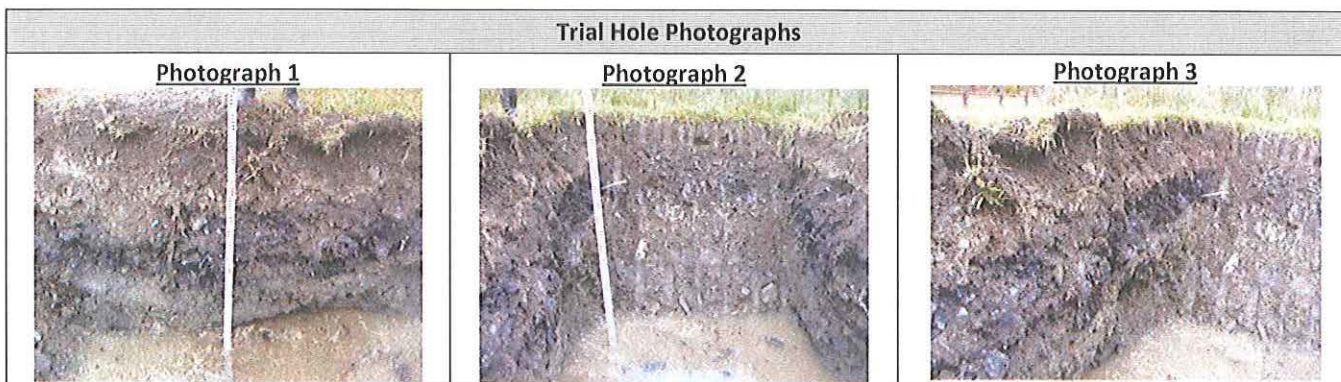
European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	Yes	End of life vehicle	160104	Yes
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 10	
			National Grid Reference E268027 N284299	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 6		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay Intermixed with Stone Grey colour		1.00m	0%:100%	0.40m to 1.00m of the trial hole does not have any waste present. It appears to be natural ground.
Clay intermixed with Plastic, steel, tyres, vehicle parts, 20L drum, oil, municipal waste, timber, wire, glass bottles. Grey colour Groundwater Level @ 1.30m		1.30m	90%:10%	1.00m to 1.30m soil meets with the waste material. A significant amount of vehicle parts, 20L drums, oil, municipal waste, timber, wire present. Groundwater contaminated with waste oil
Clay intermixed with Plastic, steel, tyres, vehicle parts, 20L drum, oil, municipal waste, timber, wire, glass bottles. Grey colour End of Waste @ 1.80m		1.80m	90%:10%	1.30m – 1.80m of the trial hole has a significant amount of vehicle parts, 20L drums, oil, municipal waste and wire present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.40m		2.40m	0%:100%	The final 1.80m to 2.40m of the trial hole does not have any waste present. It appears to be natural ground.


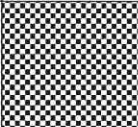
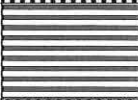
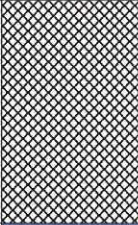




European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	Yes	End of life vehicle	160104	Yes
Wooden packaging	200138	Yes	Oil Filter	160107	Yes
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 11		
			National Grid Reference E268011 N284285		
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council		
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 8		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes	
Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.	
Clay Intermixed with Stone Grey colour, Sticky soil structure		0.70m	0%:100%	0.30m to 0.70m of the trial hole does not have any waste present. It appears to be natural ground.	
Clay intermixed with plastic, steel, oil, municipal waste, timber, wire, glass bottles. Grey colour Groundwater Level @ 1.40m		1.40m	90%:10%	0.70m to 1.40m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, wire present.	
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour End of Waste @ 1.80m		1.80m	70%:30%	1.40m – 1.80m of the trial hole has a large portion of steel with a significant amount of plastic and municipal waste.	
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.30m		2.30m	0%:100%	The final 1.80m to 2.30m of the trial hole does not have any waste present. It appears to be natural ground.	


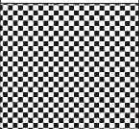
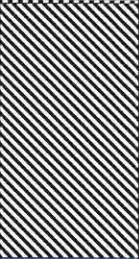




European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

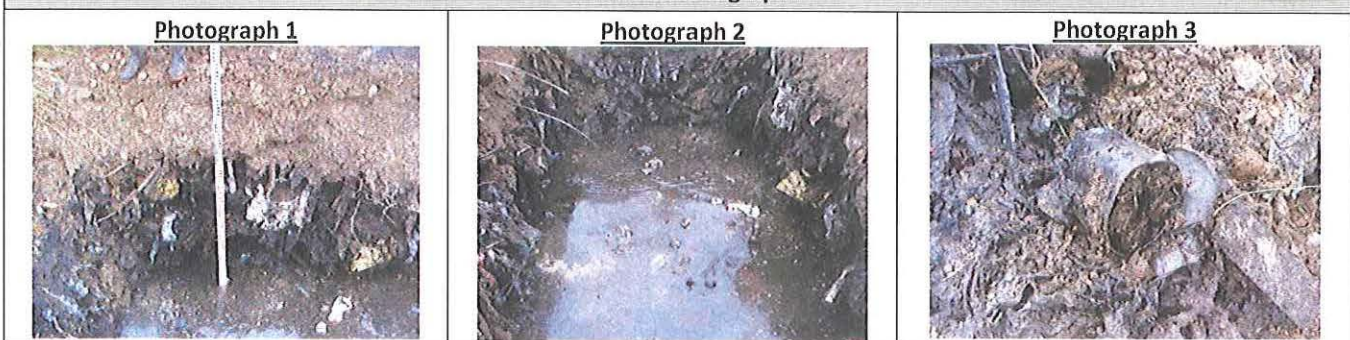
		Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 12	
				National Grid Reference E267995 N284299	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 8		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes	
Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.	
Clay Intermixed with Stone Grey colour, Sticky soil structure		0.60m	0%:100%	0.30m to 0.60m of the trial hole does not have any waste present. It appears to be natural ground.	
Clay intermixed with plastic, steel, oil, municipal waste, timber, wire from tyres, drain pipes, glass bottles. Grey colour Groundwater Level @ 1.30m		1.30m	90%:10%	0.60m to 1.30m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, wire from tyres present. Groundwater contaminated with waste oil	
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour End of Waste @ 1.90m		1.90m	90%:10%	1.30m – 1.90m of the trial hole has a large portion of steel with a significant amount of plastic and municipal waste.	
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.30m		2.30m	0%:100%	The final 1.90m to 2.30m of the trial hole does not have any waste present. It appears to be natural ground.	

Trial Hole Photographs		
Photograph 1	Photograph 2	Photograph 3
		

European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No


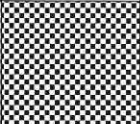
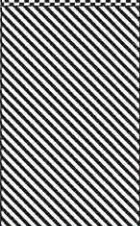


	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 13	
			National Grid Reference E268012 N284316	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 8		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.50m	0%:100%	The top 0.00m to 0.50m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, steel, oil, municipal waste, timber, shoes, clothes, drums, glass bottles, detergent bottles. Grey colour Groundwater Level @ 1.60m		1.60m	90%:10%	0.50m to 1.60m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles and detergent bottles. Grey colour End of Waste @ 2.00m		2.00m	90%:10%	1.60m – 2.00m of the trial hole has a significant amount of plastic, oil, municipal waste, timber, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.40m		2.40m	0%:100%	The final 2.00m to 2.40m of the trial hole does not have any waste present. It appears to be natural ground.

Trial Hole Photographs



European Waste Code Classification

Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	Yes	Synthetic Oil	130206	No


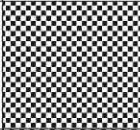
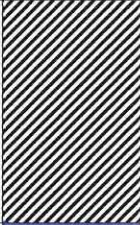


	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 14	
			National Grid Reference E268026 N284333	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 4		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.30m	0%:100%	The top 0.00m to 0.30m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, oil, municipal waste, timber, glass bottles. Grey colour Groundwater Level @ 1.20m		1.20m	60%:40%	0.30m to 1.20m of the trial hole has a significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, oil, municipal waste, timber, glass bottles. Grey colour End of Waste @ 1.70m		1.70m	60%:40%	1.20m – 1.70m of the trial hole has a large portion of plastic, oil, municipal waste, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.00m		2.00m	0%:100%	1.70m to 2.00m of the trial hole does not have any waste present. It appears to be natural ground.

Trial Hole Photographs




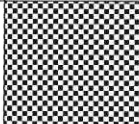
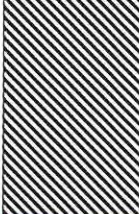


European Waste Code Classification




Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 15	
			National Grid Reference E268013 N284352	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 5	Start Date 13 th October 2010		
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.20m	0%:100%	The top 0.00m to 0.20m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, oil, municipal waste, timber, fibre, glass bottles. Grey colour Groundwater Level @ 1.10m		1.10m	60%:40%	0.20m to 1.10m of the trial hole has a significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, steel, oil, municipal waste, glass bottles. Grey colour End of Waste @ 1.50m		1.50m	70%:30%	1.10m – 1.50m of the trial hole has a significant amount of plastic, oil, municipal waste, timber, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 1.80m		1.80m	0%:100%	1.50m to 1.80m of the trial hole does not have any waste present. It appears to be natural ground.


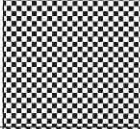
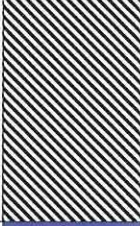




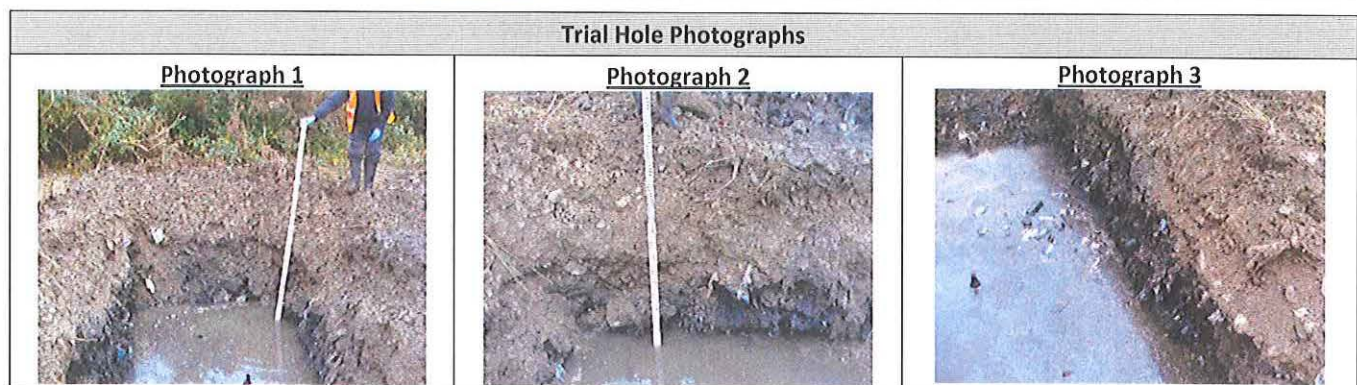
European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

		Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 16	
				National Grid Reference E267975 N284340	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 5		Start Date 13 th October 2010	
Description		Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets			0.20m	0%:100%	The top 0.00m to 0.20m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, oil, steel, municipal waste, timber, fibre, glass bottles. Grey colour Groundwater Level @ 0.70m			0.70m	60%:40%	0.20m to 0.70m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, oil, steel, municipal waste, timber, fibre, glass bottles. Grey colour End of Waste @ 1.30m			1.30m	60%:40%	0.70m – 1.30m of the trial hole has a large portion of plastic with a significant oil, municipal waste, timber, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 1.60m			1.60m	0%:100%	1.30m to 1.60m of the trial hole does not have any waste present. It appears to be natural ground.

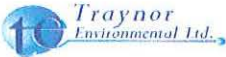
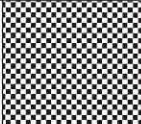

Trial Hole Photographs		
Photograph 1 	Photograph 2 	Photograph 3 


European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

		Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 17	
				National Grid Reference E267975 N284324	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 7		Start Date 13 th October 2010	
Description		Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets			0.60m	0%:100%	The top 0.00m to 0.60m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, oil, steel, municipal waste, timber, fibre, glass bottles. Grey colour Groundwater Level @ 1.20m			1.20m	60%:40%	0.60m to 1.20m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, oil, steel, municipal waste, fibre, glass bottles. Grey colour End of Waste @ 1.60m			1.60m	60%:40%	1.20m – 1.60m of the trial hole has a significant amount of plastic, oil, municipal waste, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 2.40m			2.40m	0%:100%	1.60m to 2.40m of the trial hole does not have any waste present. It appears to be natural ground.


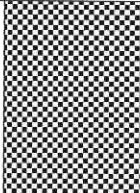
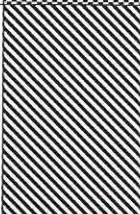



European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	Yes	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No

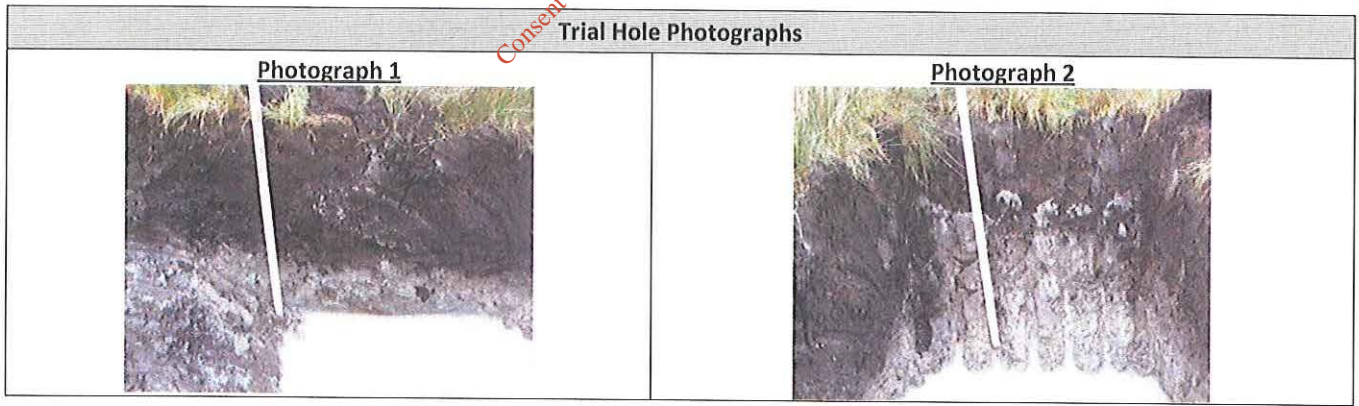
	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 18	
			National Grid Reference E267970 N284340	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 9		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Clay Intermixed with Stone Brown Colour with common rootlets		0.20m	0%:100%	The top 0.00m to 0.20m of the trial hole does not have any waste present. It appears to be natural ground used for capping.
Clay intermixed with plastic, oil, tyre, steel, municipal waste, timber, fibre, glass bottles. Grey colour Groundwater Level @ 0.60m		0.60m	70%:30%	0.20m to 0.60m soil meets with the waste material. A significant amount of plastic, oil, municipal waste, timber, bottles present. Groundwater contaminated with waste oil
Clay intermixed with plastic, oil, tyre, steel, municipal waste, timber, fibre, glass bottles. Grey colour End of Waste @ 1.20m		1.20m	70%:30%	0.60m – 1.20m of the trial hole has a significant amount of plastic, oil, municipal waste, timber, bottles present.
Peaty Clay (Natural Ground) Dark Brown Colour End of Trial Hole @ 1.50m		1.50m	0%:100%	1.20m to 1.50m of the trial hole does not have any waste present. It appears to be natural ground.

Trial Hole Photographs		
Photograph 1 	Photograph 2 	Photograph 3 



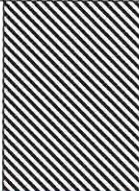
European Waste Code Classification					
Waste Type	EWCode	Present	Waste Type	EWCode	Present
Plastics	200139	Yes	End of life tyres	160103	Yes
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	Yes	Oil Filter	160107	No
Metals	200140	Yes	Ferrous Metal	160117	No
Glass Packaging	200102	Yes	Non Ferrous Metal	160118	No
Textiles	200111	Yes	Waste containing oil	160708	Yes
Clothes	200110	No	Synthetic Oil	130206	No


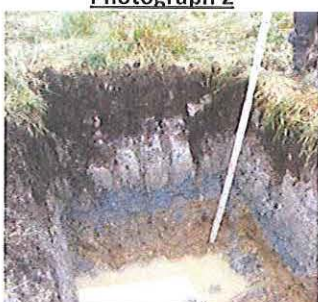
	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 19	
			National Grid Reference E268071 N284240	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator		Pollution Scale Pollution Rating of 1		Start Date 13 th October 2010
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Peaty Clay Low Density Dark Brown Colour with common rootlets		0.90m	0%:100%	The top 0.00m to 0.90m of the trial hole does not have any waste present. It is natural ground.
Clay Medium to High Density Grey Colour and Sticky in Structure Groundwater Level @ 1.60m		1.60m	0%:100%	0.90m to 1.60m of the trial hole does not have any waste present.
Clay High Density Grey Colour and Sticky in Structure End of Trial Hole @ 2.00m		2.00m	0%:100%	1.60m to 2.00m of the trial hole does not have any waste present.

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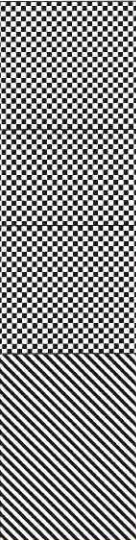



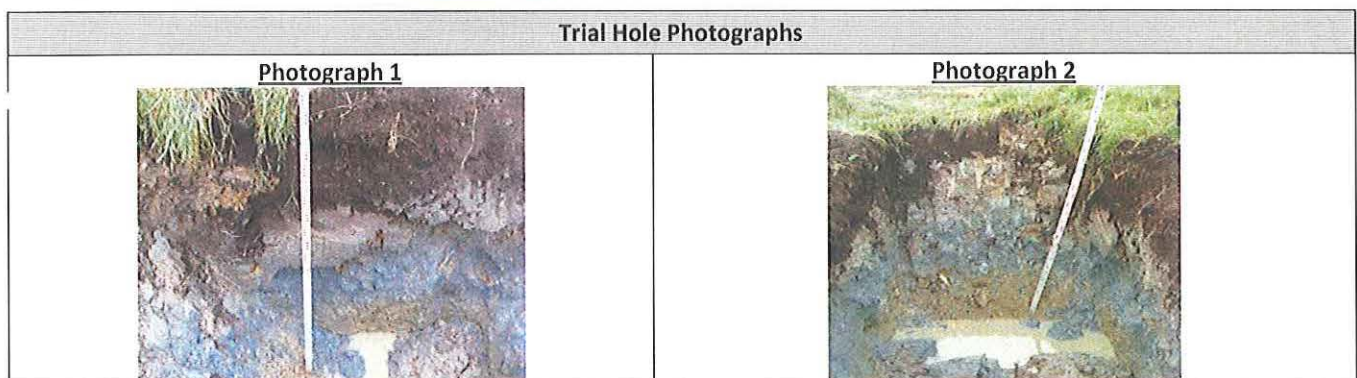
European Waste Code Classification					
Waste Type	EWCode	Present	Waste Type	EWCode	Present
Plastics	200139	No	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	No	Oil Filter	160107	No
Metals	200140	No	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	No	Waste containing oil	160708	No
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan		Trial Pit: Number 20	
			National Grid Reference E268101 N284215	
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan			Client Cavan County Council	
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 1	Start Date 13 th October 2010		
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Peaty Clay Low Density Dark Brown Colour with common rootlets		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It is natural ground.
Clay Medium Density Grey Colour and Sticky in Structure		0.90m	0%:100%	0.40m to 0.90m of the trial hole does not have any waste present.
Clay Medium to High Density Grey/Blue Colour and Sticky in Structure		1.20m	0%:100%	0.90m to 1.20m of the trial hole does not have any waste present.
Clay High Density Orange Colour and Sticky in Structure Groundwater Level @ 1.80m		1.80m	0%:100%	1.20m to 1.80m of the trial hole does not have any waste present.
Clay High Density Orange Colour and Sticky in Structure End of Trial Hole @ 2.10m		2.10m	0%:100%	1.80m to 2.10m of the trial hole does not have any waste present.

Trial Hole Photographs	
Photograph 1 	Photograph 2 

European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	No	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	No	Oil Filter	160107	No
Metals	200140	No	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	No	Waste containing oil	160708	No
Clothes	200110	No	Synthetic Oil	130206	No

	Traynor Environmental Ltd Unit 6, Belturbet Business Park Creeny Belturbet Co. Cavan			Trial Pit: Number 21
				National Grid Reference E268129 N284185
Project Mullagh Historic Landfill located at Rantavan, Mullagh, Co. Cavan				Client Cavan County Council
Method 12 Ton Track Excavator	Pollution Scale Pollution Rating of 1		Start Date 13 th October 2010	
Description	Legend	Depth	Waste Material : Soil	Waste Material : Soil Notes
Peaty Clay Low Density Dark Brown Colour with common rootlets		0.40m	0%:100%	The top 0.00m to 0.40m of the trial hole does not have any waste present. It is natural ground.
Clay Medium Density Grey Colour and Sticky in Structure		0.70m	0%:100%	0.40m to 0.70m of the trial hole does not have any waste present.
Clay Medium to High Density Grey/Blue Colour and Sticky in Structure		1.20m	0%:100%	0.70m to 1.20m of the trial hole does not have any waste present.
Clay High Density Orange Colour and Sticky in Structure Groundwater Level @ 1.90m		1.90m	0%:100%	1.20m to 1.90m of the trial hole does not have any waste present.
Clay High Density Orange Grey Colour and Sticky in Structure End of Trial Hole @ 2.40m		2.40m	0%:100%	1.90m to 2.40m of the trial hole does not have any waste present.



European Waste Code Classification					
Waste Type	EWC Code	Present	Waste Type	EWC Code	Present
Plastics	200139	No	End of life tyres	160103	No
Paper and Cardboard	200101	No	End of life vehicle	160104	No
Wooden packaging	200138	No	Oil Filter	160107	No
Metals	200140	No	Ferrous Metal	160117	No
Glass Packaging	200102	No	Non Ferrous Metal	160118	No
Textiles	200111	No	Waste containing oil	160708	No
Clothes	200110	No	Synthetic Oil	130206	No

TIER 2

ENVIRONMENTAL RISK ASSESSMENT

APPENDIX B

ECOLOGICAL ASSESSMENT

CARRIED OUT BY NOREEN MC LOUGHLIN MSc. MIEEM



**ECOLOGICAL REPORT OF A DISUSED HISTORIC LANDFILL
SITE AT RANTAVAN, MULLAGH, CO. CAVAN.**

October 19th 2010

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II TOC

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1: Site Location and Description

The site in question is located in the townland of Rantavan, approximately 1.5km south-west of the town of Mullagh, Co. Cavan. It is located just off a small, local road and it is surrounded by raised bog, broadleaf forest and agricultural land.

The site was once an unlicensed landfill for the disposal of waste. Since the closure of the landfill it has been capped with soil and it has re-vegetated with grass. Recent investigations on the site have resulted in the vegetative cover being disturbed and the bare soil is now exposed in many parts. A small stream runs along the north-eastern boundary of the site. This stream is joined by one drain within the site and at least two more downstream of the site.

The site is approximately 2.2 acres in area. The original land cover on site was raised bog and the remaining original soils and sub-soils on the site are peat (Source: EPA.ie).

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2: Survey Methods

Prior to the site visit, the websites of the National Parks and Wildlife Service (NPWS), the National Biodiversity Data Centre and the EPA were consulted for information on nature conservation areas and records of notable species within the area.

An ecological survey of the old landfill site at Rantavan was carried out on October 15th 2010 by Noreen McLoughlin, MSc. MIEEM On behalf of Traynor Environmental Ltd. This survey included a Q assessment of the small stream that runs along the perimeter of the site.

Three biological water samples were taken, the locations of which are listed in Table 1.

Station No.	Location
1	Main Stream within Site
2	Drain feeding Stream
3	~ 70m Downstream of Site

Table 1 – Location of Samples

The EPA recommends that for a standard Q assessment, a two minute kick sample and stone wash is undertaken. This method was used at station 3. However, at stations 1 and 2 the conditions of the watercourse did not allow a standard sampling methodology. Both stations were heavily silted with low flow and there were no suitable riffle areas to sample from. Although not ideal, the water and surrounding vegetation was swept for two minutes with a Freshwater Biological Association approved hand held sweep net with a mesh diameter of 500µm. Samples were removed and later assessed by determining the abundances of various indicator groups of macro-invertebrates that were obtained in the sweep. Based on the relative abundance of these indicator species, a biotic index (Q rating) was determined for the sites in accordance with the biological assessment procedure used by the Environmental Protection Agency (Toner *et al.* 2005). All indicator species are assigned to one of five different groups based on their tolerance to pollution. Group A are the most sensitive invertebrates and Group E are the least sensitive.

3: Description of Existing Environment

3-1: Designated Areas

The site of the old landfill lies approximately 0.8km North of Killyconny Bog SAC 000006. This is a raised bog habitat of approximately 191 hectares. The site comprises a core of uncut high bog occurring as two distinct lobes, joined by a narrow strip of bog. This intact area is surrounded by cutover raised bog surfaces. The uncut high bog dome covers an area of approximately 85 hectares (Derwin et al., 2002) and contains a well developed raised bog flora. Common plant species of the intact bog surface include ling (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), bog asphodel (*Narthecium ossifragum*), deer grass (*Trichophorum cespitosum*), hare's tail cottongrass (*Eriophorum vaginatum*) and common cottongrass (*Eriophorum angustifolium*). The cover of Sphagnum moss is locally high and includes species such as *Sphagnum capillifolium*, *S. papillosum* and *S. magellanicum*. In the central areas of the site there are a number of discrete wet areas which support active raised bog. Such areas also support occasional pool systems which contain species such as *Sphagnum cuspidatum*, *Eriophorum angustifolium* and white-beaked sedge (*Rhynchospora alba*). (Source:www.raisedbogrestoration.ie). Despite drainage and cutting on the edge of this bog, the majority of it remains relatively intact.

Killyconny bog is a good example of a raised bog habitat which supports significant areas of the Annex 1 habitats active raised bog, degraded raised bog (capable of regeneration) and vegetation of depressions (Rhynchosporion). The habitat assessment presented in the Natura 2000 form gives a global rating of B (good value) for active raised bog habitat at this site. Raised bog habitats are now very rare in Europe and it has recently been estimated that the Republic of Ireland contains 50% of the relatively intact oceanic raised bog systems in Europe (O'Connell, 1998).

Though the site is rather small in terms of Irish raised bog systems this bog is especially important from a biogeographical point of view as it is the most north-easterly example of a relatively intact raised bog system in the Republic of Ireland. Areas of relatively intact raised bog were previously common in the north-east of the country however almost all of these have been lost to peat cutting over the last few centuries (Cross, 1990).

Recently, Killyconny Bog has taken part in an EU Life-Nature Programme run by Coillte Teoranta, which saw a number of midland raised bogs being restored. Restoration of bog involved the clear-felling and removal of mature conifers, wind-rowing of the remaining brash and blocking of drains with peat dams. Follow-up work included the control of the natural regeneration of conifer seedlings. Birch woodland was allowed to establish on the drier sections of cutover. Monitoring since the beginning of this project has shown that there has been a significant rise in the water-table of certain areas of the bog and this has allowed for the colonisation of *Sphagnum* mosses (Derwin, 2008).

The full NPWS site synopsis for Killyconny Bog is attached in Appendix I.

3-2: Habitats

The main habitat on the site of the disused landfill is grassland (now disturbed). Habitats adjacent to the site include wet grassland, birch woodland and drains. A significant area of raised bog occurs on the opposite side of the road to the landfill. Overall, the areas surrounding the site are quite natural and have a moderately high level of biodiversity that is important on a local level. However, biodiversity within the footprint of the old landfill site is low.

The stream that runs along the north-eastern boundary of the site was assessed and a Q rating was obtained at two points along its course. This stream flows in a south-easterly direction, flowing adjacent to the Killyconny Bog SAC. Beyond the SAC, there is an extensive network of streams and drains, so tracing this stream proved difficult. However, it is possible that it eventually joins the Moynalty (Owenroe) River. The results for the Q rating obtained are presented in Table 2 below. A full list of species obtained can be seen in Appendix I.

Station	Location	Q Rating	Status	Quality
1	Main Stream within Site	Q2	Seriously Polluted	Poor
2	Drain feeding Stream	Q2-3	Moderately	Poor
3	~ 70m Downstream of	Q3	Moderately	Poor

Table 2 - Summary of Q Assessment Findings

Station 1 had extremely high levels of sediment visible. There was also a foul odour and a type of sewage fungus visible on the surface. Diversity at this station was low and the sample was dominated by the small freshwater mussel Sphaeriidae, a Group D taxa that is tolerant of relatively high levels of pollution. Other tolerant Group D taxa present included leeches and the water louse *Asellus aquaticus*. Station 1 was determined to be seriously polluted.

Station 2 was taken from a drain which joined the main stream. This drain had a high sediment level and there in-stream aquatic vegetation was abundant. There was no foul smell evident. This station was dominated by Group C taxa, which are moderately tolerant of pollution. Midge larvae from the family Chironomidae were most common. The more tolerant Group D taxa were numerous and mostly represented by *Asellus aquaticus*. Station 2 was determined to be moderately polluted and it is likely that the pollution is due to eutrophication from run off from agricultural land.

Station 3 was taken approximately 70m downstream of the site and here the water quality had recovered slightly. The sediment load was low and the water was quite clear. Flow was extremely low here though, with the water depth barely reaching 5cm in some parts. Overall, the number of invertebrates in this sample was low – 28 organisms in total and the majority of these were the freshwater shrimp *Gammarus duebeni*, a Group C taxon that is moderately tolerant of organic pollution. While the water quality at this point is better than Station 1, it is still unsatisfactory. It is likely that it suffers from diffuse organic pollution from the surrounding agricultural land.

4: Ongoing Impacts & Assessment

The site of the old landfill is directly connected to Killyconny Bog SAC via the small stream. At the present time, there are no ongoing impacts from the old landfill that are resulting in the direct loss of habitats or species within the Killyconny Bog SAC.

It is possible that leachate from the landfill site is impacting upon the groundwater of the landfill site and its environs. However, raised bogs are ombrotrophic systems, which means that they are dependent on precipitation rather than groundwater. Therefore, it is unlikely that contaminated groundwater is having an impact upon Killyconny Bog SAC. Further groundwater investigations will be needed in order to assess this in greater detail.

Leachate from the old landfill is having a significant impact on the small stream that runs along its perimeter. It is seriously polluted along this particular stretch but it does recover somewhat downstream of the site. However, it is likely that water quality in this stream is also being reduced by diffuse agricultural run-off.

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Appendix I: Killyconny Bog Site Description

Killyconny Bog is situated approximately half way between Virginia and Kells on the Cavan/Meath border and some 8km from each. It is underlain by Lower Palaeozoic shales and consists of two small basins which have coalesced over a low drumlin ridge.

There are few raised bog in the area and Killyconny Bog seems to be one of the best developed. Though some marginal drainage and cutting has taken place the central part of the bog is relatively intact.

Much of the bog is very wet and there are many areas of pool and hummock formation. The pools support the moss *Sphagnum cuspidatum*, and a good growth of algae in summer. Wet areas about the pools support other *Sphagnum* mosses such as *S. magellanicum*, while *S. papillosum*, *S. fuscum*, *S. capillifolium* and *Hypnum cupressiforme* are important components of hummocks. Vascular plants are also found on the bog: Bog Cotton (*Eriophorum angustifolium* and *E. vaginatum*), the heathers (*Calluna vulgaris* and *Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*) and White Beak-sedge (*Rhynchospora alba*). Also occurring on the site is Bog Rosemary (*Andromeda polifolia*) which is found almost exclusively on raised bogs and which is rare in N.E. Ireland.

While the surface of the bog is generally homogeneous some higher areas with dense tussocks of Bog Cotton (*Eriophorum vaginatum*) are found; these provide shelter for Hares. There are also lines of water movement, shown by the occurrence of Common Sedge (*Carex nigra*) and Soft Rush (*Juncus effusus*). Bird species found on the bog include Meadow Pipit and Curlew, and sometimes also Kestrel and Long-eared Owl which hunt over it for beetles, Pygmy Shrews and Frogs.

Appendix II: Q Analysis Results

Indicator Group	Taxon	Number
Group A		0
(Very sensitive)	Absent	
Group B		0
(Moderately sensitive)	Absent	
Group C		8
(Moderately tolerant)	Diptera (Winged Fly)	
	Chironomidae (exl Chironomous)	8
Group D		743++
(Very tolerant)	Isopoda (Lice)	
	<i>Asellus aquaticus</i>	30
	Hirudnea (Leeches)	
	Glossiphonidae	8
	Hirudinidae	5
	Bivalves	
	Sphaeriidae	700++
Group E		11
(Most tolerant)	Diptera (Winged Fly)	
	Chironomous	1
	Oligochaeta (Worm)	
	Tubificidae	10
Total Abundance		762
Q Value		Q2

Results from Station 1, Stream Within Site

Indicator Group	Taxon	Number
Group A		0
(Very sensitive)	Absent	
Group B		0
(Moderately sensitive)	Absent	
Group C		31
(Moderately tolerant)	Diptera (Winged Fly)	
	Chironomidae	24
	Amphipoda (Shrimp)	
	<i>Gammarus duebeni</i>	4
	Caseless Tricoptera (Caddis-fly)	
	Philopotamidae	3
Group D		19
(Very tolerant)	Isopoda (Lice)	
	<i>Asellus aquaticus</i>	11
	Hirudinea (Leeches)	
	Hirudinidae	2
	Bivalves	
	Sphaeriidae	6
Group E		2
(Most tolerant)	Oligochaeta (Worm)	
	Tubificidae	2
Total Abundance		52
Q Value		Q2-3

Station 2 – Drain Feeding Stream

Indicator Group	Taxon	Number
Group A		0
(Very sensitive)	Absent	
Group B		1
(Moderately sensitive)	Cased Tricoptera (Caddis-fly)	
	Limnephilidae	1
Group C		25
(Moderately tolerant)	Diptera (Winged Fly)	
	Chironomidae	1
	Amphipoda (Shrimp)	
	<i>Gammarus duebeni</i>	24
Group D		1
(Very tolerant)	Isopoda (Lice)	
	<i>Asellus aquaticus</i>	1
Group E		1
(Most tolerant)	Oligochaeta (Worm)	
	Tubificidae	1
Total Abundance		28
Q Value		Q3

Station 3 - 70m Downstream of Site

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Appendix III: References & Further Reading

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