
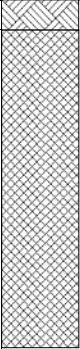



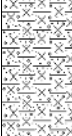
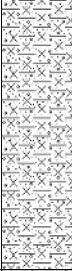



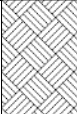
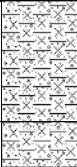













**Appendix D**  
**Trial pit logs**


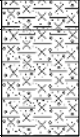

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP101		
Method: Trial Pitting		Plant: 7t tracked excavator	Co-ords: 308841.24mE 238648.55mN	Client: Irish Water		
Width: 0.50m		Bearing: D C  A B	Ground Level: 49.58MOD	Client's Representative: Tobin Consulting Engineers		
Length: 2.00m				Dates: 11/12/2014		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.20	ES		(0.10) 49.48 0.10	TOPSOIL		
0.50	B		(1.05)	MADE GROUND - Soft to firm light brown slightly sandy slightly gravelly slightly clayey SILT with fragments of plastic and glass. Gravel is subrounded to subangular fine to medium.		
0.80	ES		48.43 1.15	----- End of trial pit at 1.15 m		
Remarks		Water Strikes:		Stability:		
Refusal met on possible limestone bedrock		Struck (m)	Flow Details	Stable		
		1.40		Difficulty:		

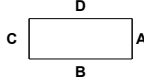

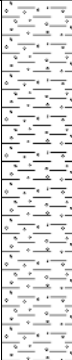


Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP102		
Method: Trial Pitting		Plant: 7t tracked excavator	Co-ords: 308968.37mE	Client: Irish Water		
Width: 0.50m		Bearing: D C  A B	238667.25mN	Client's Representative: Tobin Consulting Engineers		
Length: 2.20m				Ground Level: 54.59MOD	Dates: 11/12/2014	
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.50	B		(0.20) 54.39 0.20	TOPSOIL		
			(0.50) 53.89 0.70	Firm brown slightly sandy gravelly slightly silty CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium.		
1.50	B		(0.90) 52.99 1.60 52.94 1.65	Firm grey slightly sandy gravelly slightly silty CLAY with fragments of weathered roots. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium.		
			(1.60) 52.94 1.65	Possible limestone BEDROCK End of trial pit at 1.60 m		
Remarks		Water Strikes:		Stability:	 www.causewaygeotech.com © Causeway Geotech Ltd	
Refusal met on possible limestone bedrock		Struck (m)	Flow Details	Stable		
				Difficulty:		

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP103		
<b>Method:</b> Trial Pitting		<b>Plant:</b> 7t tracked excavator	<b>Co-ords:</b> 309248.62mE	<b>Client:</b> Irish Water		
<b>Width:</b> 0.50m		<b>Bearing:</b> D C  A B	238753.21mN	<b>Client's Representative:</b> Tobin Consulting Engineers		
<b>Length:</b> 1.80m (deg. N)			<b>Ground Level:</b> 59.12MOD	<b>Dates:</b> 11/12/2014		
<b>Depth (m)</b>	<b>Sample / Test</b>	<b>Field Records</b>	<b>Level &amp; Depth</b>	<b>Stratum Description</b>	<b>Legend &amp; Water Strikes</b>	<b>Backfill Installs</b>
0.50	B		(0.40) 58.72 0.40	TOPSOIL  Firm brown slightly sandy slightly gravelly slightly clayey SILT. Gravel is subrounded to subangular fine to medium.		
0.90	B		(0.40) 58.32 0.80 (0.15) 58.17 0.95	Firm brown slightly sandy slightly gravelly slightly clayey SILT with fragments of weathered roots and occasional cobbles. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium End of trial pit at 0.95 m		
<b>Remarks</b> Refusal met on possible limestone bedrock		<b>Water Strikes:</b> Struck (m)   Flow Details		<b>Stability:</b> Stable		
				<b>Difficulty:</b>		

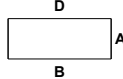
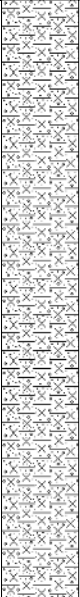
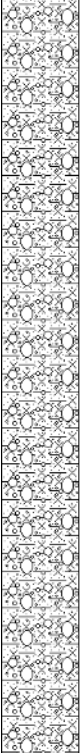

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP104		
Method: Trial Pitting	Plant: 7t tracked excavator	Co-ords: 309762.45mE 239136.59mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.50m	Bearing: (deg. N)	Ground Level: 71.56MOD	Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 3.00m			Dates: 11/12/2014	Crew:		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.50	B		(0.30) 71.26 0.30	TOPSOIL		
			(0.40) 70.86 0.70	Firm brown slightly sandy slightly gravelly slightly clayey SILT with occasional cobbles. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium.		
1.00	B		(0.50) 70.36 1.20	Firm grey brown slightly sandy slightly gravelly slightly clayey SILT with occasional cobbles. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium.		
			(0.15) 70.21 1.35	Firm grey brown slightly sandy gravelly slightly silty CLAY with fragments of weathered roots. Gravel is subrounded to subangular fine to medium.		
				----- End of trial pit at 1.35 m		
Remarks		Water Strikes:		Stability:		
Refusal met on possible limestone bedrock		Struck (m)	Flow Details	Stable		
				Difficulty:		


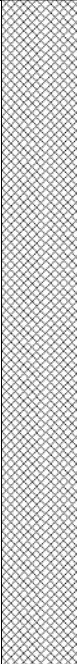
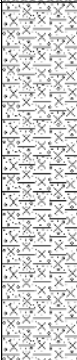

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP105		
Method: Trial Pitting	Plant: 7t tracked excavator	Co-ords: 311068.44mE 239872.32mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.50m	Bearing: (deg. N)	Ground Level: 76.51MOD	Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 1.80m			Dates: 11/12/2014	Crew:		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.30	ES		(0.10) 76.41 0.10	TOPSOIL		
0.50	B		(1.00)	MADE GROUND - Firm brown grey slightly sandy slightly gravelly slightly silty CLAY with fragments of plastic and timber. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse.		
1.00	ES		75.41 1.10	Firm brown slightly sandy slightly gravelly slightly silty CLAY with occasional cobbles. Gravel is subrounded to subangular fine to medium.		
1.50 1.50	ES B		(0.50) 74.91 1.60	End of trial pit at 1.60 m		
Remarks		Water Strikes:		Stability:		
Refusal met on possible large boulder or bedrock		Struck (m)	Flow Details	Stable		
				Difficulty:		











<b>Causeway Geotech Ltd</b>		<b>Project no.</b> 14-645	<b>Project Name:</b> Greater Dublin Drainage Scheme Ground Investigation	<b>Trialpit No.</b> TP106		
<b>Method:</b> Trial Pitting	<b>Plant:</b> 7t tracked excavator	<b>Co-ords:</b> 310989.18mE 239835.24mN	<b>Client:</b> Irish Water	Sheet 1 of 1		
<b>Width:</b> 0.50m	<b>Bearing:</b> (deg. N)		<b>Client's Representative:</b> Tobin Consulting Engineers	<b>Scale:</b> 1:25		
<b>Length:</b> 2.10m			<b>Ground Level:</b> 77.01MOD	<b>Dates:</b> 11/12/2014	<b>Crew:</b>	
<b>Logged By:</b> DOM						
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.20	ES		77.01 0.00	TOPSOIL		
0.30	B		76.91 0.10	MADE GROUND - Firm brown sandy slightly gravelly silty CLAY with fragments of brick, glass and timber. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse.		
0.60	ES		(0.35)	Firm brown slightly sandy gravelly slightly silty CLAY. Gravel is subrounded to subangular fine to medium.		
0.80	B		76.56 0.45			
				----- End of trial pit at 0.95 m		
<b>Remarks</b>		<b>Water Strikes:</b>		<b>Stability:</b>		
Refusal met on possible limestone bedrock		<b>Struck (m)</b>	<b>Flow Details</b>	Stable		
				<b>Difficulty:</b>		
<p style="text-align: right;">www.causewaygeotech.com © Causeway Geotech Ltd</p>						


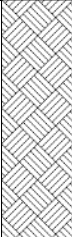
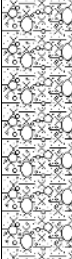


Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP107		
<b>Method:</b> Trial Pitting		<b>Plant:</b> 7t tracked excavator	<b>Co-ords:</b> 311795.47mE	Client: Irish Water		
<b>Width:</b> 0.50m		<b>Bearing:</b> D C  A B	240613.08mN	Client's Representative: Tobin Consulting Engineers		
<b>Length:</b> 2.00m (deg. N)		<b>Ground Level:</b> 78.89MOD	<b>Dates:</b> 11/12/2015	Scale: 1:25 Crew: Logged By: MG		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.50	B		(0.15) 78.74 0.15	TOPSOIL		
			(1.20)	Firm brown gravelly CLAY. Gravel is fine to medium, subrounded to subangular.		
1.50	B		77.54 1.35 (0.15) 77.39 1.50	Firm brown gravelly CLAY with occasional cobbles of weathered limestone bedrock. Gravel is fine to medium, subrounded to subangular.		
				End of trial pit at 1.50 m		
<b>Remarks</b> Refusal met on possible limestone bedrock.		<b>Water Strikes:</b> Struck (m)   Flow Details		<b>Stability:</b> Stable	 www.causewaygeotech.com © Causeway Geotech Ltd	
				<b>Difficulty:</b>		



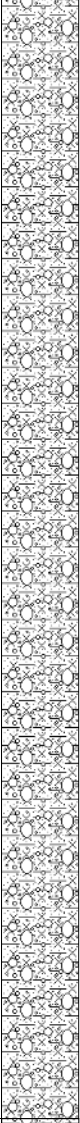
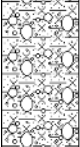



<b>Causeway Geotech Ltd</b>		<b>Project no.</b> 14-645	<b>Project Name:</b> Greater Dublin Drainage Scheme Ground Investigation	<b>Trialpit No.</b> TP108		
<b>Method:</b> Trial Pitting	<b>Plant:</b> CX130	<b>Co-ords:</b> 311891.22mE	<b>Client:</b> Irish Water	Sheet 1 of 1		
<b>Width:</b> 0.60m	<b>Bearing:</b> D C  A B	241152.78mN	<b>Client's Representative:</b> Tobin Consulting Engineers	<b>Scale:</b> 1:25		
<b>Length:</b> 2.50m	(deg. N)	<b>Ground Level:</b> 78.81MOD	<b>Dates:</b> 03/02/2015	<b>Crew:</b>		
				<b>Logged By:</b> DOM		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
1.00	B		(2.00)	Firm brown slightly sandy gravelly slightly silty CLAY. Gravel is subangular to subrounded fine to coarse.		
2.00	B		76.81 2.00	Firm to stiff dark grey slightly sandy gravelly slightly silty CLAY with occasional cobbles and boulders. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
3.00	B		(2.50)			
4.00	B		74.31 4.50	----- End of trial pit at 4.50 m		
<b>Remarks</b>		<b>Water Strikes:</b>		<b>Stability:</b>		
		<b>Struck (m)</b>	<b>Flow Details</b>	Stable		
				<b>Difficulty:</b>		
					www.causewaygeotech.com © Causeway Geotech Ltd	

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP109		
Method: Trial Pitting	Plant: CX130	Co-ords: 312371.79mE 241407.09mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.60m	Bearing: (deg. N)	Ground Level: 85.83MOD	Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 5.00m			Dates: 03/02/2015	Crew:		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.50	ES			MADE GROUND - Soft grey gravelly CLAY. Gravel is subangular to subrounded fine to medium. High content of fill material.		
1.00 1.00	B ES		(2.20)			
2.00 2.00	B ES		83.63 2.20	Soft grey slightly sandy slightly gravelly slightly silty CLAY. Gravel is subangular to subrounded fine to medium		
3.00 3.00	B ES		(1.20)			
			82.43 3.40	----- End of trial pit at 3.40 m		
Remarks Trial pit terminated at site of trench wall falling in.		Water Strikes: Struck (m)   Flow Details 0.50		Stability: Unstable - sides falling in.		 www.causewaygeotech.com © Causeway Geotech Ltd
				Difficulty:		

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP110		
Method: Trial Pitting	Plant: CX130	Co-ords: 312439.57mE 241496.47mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.60m	Bearing: (deg. N)	Ground Level: 83.87MOD	Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 3.50m			Dates: 03/02/2015	Crew:		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
			(0.30)	TOPSOIL		
0.50	B		83.57 0.30	Firm brown slightly sandy slightly gravelly CLAY with occasional cobbles and boulders. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.		
0.50	ES					
1.00	ES		(1.60)			
1.50	B					
2.00	B		81.97 1.90	Firm to stiff dark grey slightly sandy gravelly slightly silty CLAY with occasional cobbles and boulders with fragments of weathered rock. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.		
2.00	ES		(0.30)			
			81.67 2.20	Weathered bedrock (dark grey LIMESTONE).		
			(0.20)			
			81.47 2.40	----- End of trial pit at 2.40 m		
Remarks		Water Strikes:		Stability:		
Refusal met on possible limestone bedrock		Struck (m)	Flow Details	Stable		
		2.40		Difficulty:		

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP112		
Method: Trial Pitting	Plant: CX130	Co-ords: 313162.95mE 241596.95mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.60m	Bearing: (deg. N)		Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 3.00m			Dates: 03/02/2015	Crew:		
Ground Level: 75.80MOD				Logged By: DOM		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
0.50	B		(0.80) 75.00 0.80	TOPSOIL		
1.50	B		(0.90) 74.10 1.70 (0.20) 73.90 1.90	Firm to stiff dark grey slightly sandy gravelly slightly silty CLAY with cobbles and boulders. Gravel is subangular to subrounded fine to medium. Cobbles and boulders subangular to subrounded.		
				Weathered bedrock (dark grey LIMESTONE).		
				End of trial pit at 1.90 m		
Remarks		Water Strikes:		Stability:		
Refusal met on possible limestone bedrock		Struck (m)	Flow Details	Stable		
		1.70		Difficulty:		
<p style="text-align: right;">www.causewaygeotech.com © Causeway Geotech Ltd</p>						

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP113		
Method: Trial Pitting	Plant: CX130	Co-ords: 323393.78mE 241487.97mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.60m	Bearing: (deg. N)	Ground Level: 4.84MOD	Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 3.00m			Dates: 03/02/2015	Crew:		
				Logged By: DOM		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
1.00	B		(0.30) 4.54 0.30	TOPSOIL		
2.00	B		(3.70)	Firm brown slightly sandy gravelly slightly silty CLAY with occasional cobbles and boulders. Gravel is subangular to subrounded fine to medium. Cobbles and boulders are subangular to subrounded		
3.00	B					
4.00	B		0.84 4.00 (0.50)	Firm to stiff dark grey slightly sandy slightly gravelly slightly silty CLAY with occasional cobbles and rare boulders. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.		
			0.34 4.50	----- End of trial pit at 4.50 m		
Remarks		Water Strikes: Struck (m)   Flow Details		Stability: Stable		
				Difficulty:		
www.causewaygeotech.com © Causeway Geotech Ltd						

Causeway Geotech Ltd		Project no. 14-645	Project Name: Greater Dublin Drainage Scheme Ground Investigation	Trialpit No. TP114		
Method: Trial Pitting	Plant: CX130	Co-ords: 323399.33mE 241458.33mN	Client: Irish Water	Sheet 1 of 1		
Width: 0.60m	Bearing: (deg. N)		Client's Representative: Tobin Consulting Engineers	Scale: 1:25		
Length: 3.50m			Dates: 03/02/2015	Crew:		
		Ground Level: 3.98MOD		Logged By: DOM		
Depth (m)	Sample / Test	Field Records	Level & Depth	Stratum Description	Legend & Water Strikes	Backfill Installs
			(0.25)	TOPSOIL		
1.00	B		3.73 0.25	Firm brown slightly sandy gravelly slightly silty CLAY with occasional cobbles and boulders. Gravel is subangular to subrounded fine to medium. Cobbles and boulders are subangular to subrounded.		
			(1.85)			
2.00	B		1.88 2.10	Firm to stiff dark grey slightly sandy slightly gravelly slightly silty CLAY with occasional cobbles and boulders. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.		
			(2.40)			
3.00	B					
4.00	B					
			-0.52 4.50	----- End of trial pit at 4.50 m		
Remarks		Water Strikes: Struck (m)   Flow Details		Stability: Stable		
				Difficulty:		

**Appendix E**  
**Trial pit photographs**



Trial pit TP101



Trial pit TP101





Trail pit TP101



Trial pit TP102



Trial pit TP102



Trial pit TP102



Trial pit TP103



Trial pit TP103



**Trial pit TP103**



Trial pit TP104



Trial pit TP104



Trial pit TP104



Trial pit TP105



Trial pit TP105





**Trial pit TP105**



**Trial pit TP106**



**Trial pit TP106**



Trial pit TP106



Trial pit TP107



Trial pit TP107



**Trial pit TP107**



Trial pit TP108



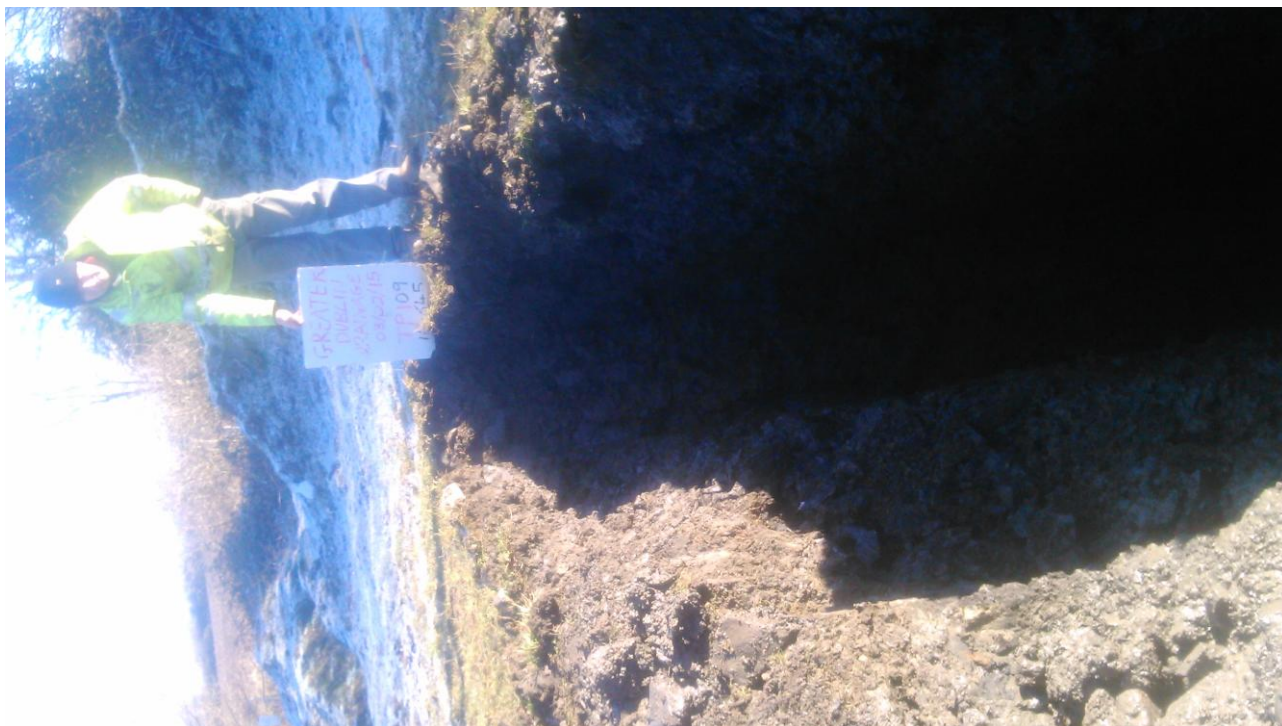
Trial pit TP108



**Trial pit TP108**



Trial pit TP109



Trial pit TP109





**Trial pit TP109**



Trial pit TP110



Trial pit TP110



**Trial pit TP110**



Trial pit TP112



Trial pit TP112



Trial pit TP112



**Trial pit TP113**



**Trial pit TP113**



**Trial pit TP113**



Trial pit TP114



Trial pit TP114





**Trial pit TP114**