



**CAUSEWAY**  
GEOTECH



**25-0001**

## **MURRENS QUARRY, OLDCASTLE GROUND INVESTIGATION REPORT**

Client:  
**JJ FLOOD & SONS**

Client's Representative:  
**MALONE O'REGAN ENVIRONMENTAL**

Date:  
**MARCH 2025**

Status:  
**FINAL**

**CAUSEWAY GEOTECH LTD**  
8 Drumahiskey Road, Ballymoney  
Co. Antrim, Northern Ireland, BT53 7QL

**+44 (0)28 2766 6640**  
[info@causewaygeotech.com](mailto:info@causewaygeotech.com)  
[www.causewaygeotech.com](http://www.causewaygeotech.com)

<b>DOCUMENT CONTROL SHEET .....</b>	<b>1</b>
<b>METHODS OF DESCRIBING SOILS AND ROCKS .....</b>	<b>1</b>
<b>1 AUTHORITY .....</b>	<b>2</b>
<b>2 PURPOSE, RATIONALE &amp; SCOPE OF THE INVESTIGATION .....</b>	<b>2</b>
<b>3 DESCRIPTION OF SITE .....</b>	<b>2</b>
<b>4 SITE OPERATIONS .....</b>	<b>3</b>
4.1 SUMMARY OF SITE WORKS .....	3
4.2 BOREHOLES .....	3
4.2.1 ROTARY DRILLED BOREHOLES .....	3
4.3 TRIAL PITS .....	3
4.4 SURVEYING .....	3
<b>5 GROUND CONDITIONS .....</b>	<b>4</b>
5.1 GENERAL GEOLOGY OF THE AREA .....	4
5.2 GROUND TYPES ENCOUNTERED DURING INVESTIGATION OF THE SITE .....	4
5.3 GROUNDWATER .....	4
<b>6 REFERENCES .....</b>	<b>5</b>

#### **LIST OF TABLES**


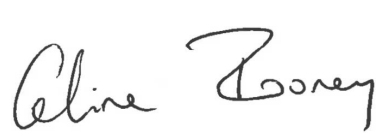

Table 1: Summary of surrounding land uses .....	2
Table 2: Groundwater strike details .....	4

#### **APPENDICES**

- APPENDIX A – SITE AND EXPLORATORY HOLE LOCATION PLANS
- APPENDIX B – BOREHOLE LOGS
- APPENDIX C – TRIAL PIT LOGS
- APPENDIX D – TRIAL PIT PHOTOGRAPHS



**DOCUMENT CONTROL SHEET**

<b>REPORT NO:</b>		25-0001			
<b>PROJECT TITLE:</b>		MURRENS QUARRY, OLDCASTLE			
<b>CLIENT:</b>		JJ FLOOD & SONS			
<b>CLIENT'S REPRESENTATIVE:</b>		MALONE O'REGAN ENVIRONMENTAL			
<b>REVISION:</b>	A00	<b>STATUS</b>	FINAL	<b>ISSUE DATE</b>	17/02/2025
<b>REVISION:</b>	A01	<b>STATUS</b>	FINAL	<b>ISSUE DATE</b>	16//03/2025
<b>PREPARED BY:</b>		<b>REVIEWED BY:</b>		<b>APPROVED BY:</b>	
 Buhlebenkosi Angie Ndebele <b>BSC. GEOLOGY</b>		 Celine Rooney <b>BSC MSC PGEO (EURGEOL)</b>		 Celine Rooney <b>BSC MSC PGEO (EURGEOL)</b>	

This report presents a factual account of the ground investigation in accordance with the Specification and Related Documents for Ground Investigation in Ireland 2<sup>nd</sup> Edition, published by Engineers Ireland (2016).



## METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Ground Investigation.

Abbreviations used on exploratory hole logs	
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler).
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler).
P	Nominal 100mm diameter undisturbed piston sample.
B	Bulk disturbed sample.
LB	Large bulk disturbed sample.
SB	Sonic bulk disturbed sample.
D	Small disturbed sample.
C	Core sub-sample (displayed in the Field Records column on the logs).
L	Liner sample from dynamic sampled borehole.
W	Water sample.
ES / EW	Soil sample for environmental testing / Water sample for environmental testing.
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained).
SPT (c)	Standard penetration test using 60 degree solid cone.
(x,x/x,x,x,x,x)	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length.
(Y for Z/ Y for Z)	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm).
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm).
HVP / HVR	Uncorrected in situ hand vane peak (HVP) and residual (HVR) result presented in kPa. Vane calibration factor has been applied, but no correction made for soil type.
V VR	Shear vane test (borehole). Shear strength stated in kPa. V: undisturbed vane shear strength VR: remoulded vane shear strength
Soil consistency description	In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of $N_{x5} = C_u$ is used (as set out in Stroud & Butler 1975).
dd-mm-yyyy	Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns.
▽	Water strike: initial depth of strike.
▼	Water strike: depth water rose to.
Abbreviations relating to rock core – reference Clause 36.4.4 of BS 5930: 2015+A1:2020	
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum) measured in millimetres.



## 1 AUTHORITY

On the instructions of Malone O'Regan Environmental, (the "Client's Representative"), acting on the behalf of JJ Flood & Sons (the "Client"), a ground investigation was undertaken at the site to provide data for groundwater assessment.

This report details the work carried out on site; it contains a description of the site and the works undertaken, and the exploratory hole logs.

All information given in this report is based upon the ground conditions encountered during the ground investigation works. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

## 2 PURPOSE, RATIONALE & SCOPE OF THE INVESTIGATION

The purpose of this investigation is to assess the ground conditions and to allow an evaluation of the groundwater issues with the current site and proposed development.

The rationale has been determined by the Client's Representative, with the extent of the investigation including boreholes, trial pits, and the preparation of a factual account of the ground investigation findings.

## 3 DESCRIPTION OF SITE

The site is located within the grounds of an active quarry, situated in Murrens, Oldcastle Co. Meath. The site location is presented in Appendix A and a summary of the surrounding land uses is presented in Table 1.

**Table 1: Summary of surrounding land uses**

Location	Description
North	Agricultural fields, residential premises.
East	R195, residential premises, agricultural field beyond.
South	Forestry, agricultural fields.
West	Forestry, BD Flood

## **4 SITE OPERATIONS**

### **4.1 SUMMARY OF SITE WORKS**

Site operations, which were conducted between 14/01/2025 and 23/01/2025, comprised:

- Three rotary drilled boreholes
- Six machine-dug trial pits
- GPS survey of all completed locations

The exploratory holes were located as instructed by the Client's Representative, and as shown on the exploratory hole location plan in Appendix A.

### **4.2 BOREHOLES**

#### **4.2.1 ROTARY DRILLED BOREHOLES**

Three boreholes (BH01-03) were put to their completion by rotary drilling techniques only. The boreholes were completed using a Fraste CRS-XL Duo 140 tracked rotary drilling rig.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to their completion depths.

Appendix B presents the borehole logs.

### **4.3 TRIAL PITS**

Six trial pits (TP01-06) were excavated using an 13t tracked excavator fitted with a 600mm wide bucket, to depths of 4.50m.

Any water strikes encountered during excavation were recorded and the stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arisings provided in Appendix D.

### **4.4 SURVEYING**

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole location plan presented in Appendix A shows these as-built positions.



## 5 GROUND CONDITIONS

### 5.1 GENERAL GEOLOGY OF THE AREA

Published geological mapping from the online Geological Survey Ireland spatial resources database indicate the superficial deposits underlying the site comprise gravels derived from limestone. These deposits are shown to be underlain by cherty limes and minor shale of the Derravaragh Cherts unit.

### 5.2 GROUND TYPES ENCOUNTERED DURING INVESTIGATION OF THE SITE

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Paved surface:** trial pits TP01-05 encountered between 150-300mm of bitmac surfacing.
- **Topsoil:** encountered 150mm thick of topsoil in TP06.
- **Made Ground (fill):** gravelly sand with medium cobble and boulder content with plastic up to 1.70m (TP01). Concrete blocks, metal sheets, plastic, cables are noted in TP06 up to 1.00m. Reworked sandy gravelly clay with medium cobble content is noted to 1.50m in TP04.
- **Fluvioglacial deposits:** typically sands and gravels with occasional to high cobble content.
- **Bedrock (Limestone):** Rockhead was encountered from ground level (BH02) and between 3.00m and 8.00m in BH03 and BH01 respectively.

Further details of these ground types, including their specific depths and descriptions, can be found on the individual exploratory hole logs accompanying this report.

### 5.3 GROUNDWATER

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location and in Table 2 below.

**Table 2: Groundwater strike details**

Exploratory Hole	Depth of groundwater strike (m bgl)	Comments
BH01	3.50m	Rose to 3.00m in 20 mins
BH03	7.50m	Rose to 7.30m in 20 mins

No other groundwater strikes were noted in the remaining exploratory hole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

Seasonal variation in groundwater levels should also be factored into design considerations.

## 6 REFERENCES

British Geological Society (BGS). GeoIndex. Available online at:  
<https://mapapps2.bgs.ac.uk/geoindex/home.html>

British Standards Institute (BSI). (2007) BS EN 1997-2:2007: Eurocode 7 – Geotechnical Design – Part 2: Ground investigation and testing.

British Standards Institute (BSI). (2014) PAS 128: Specification for underground utility detection, verification and location.

British Standards Institute (BSI). (2018a) BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

British Standards Institute (BSI). (2018b) BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

British Standards Institute (BSI). (2020) BS5930:2015+A1:2020: Code of practice for ground investigations.

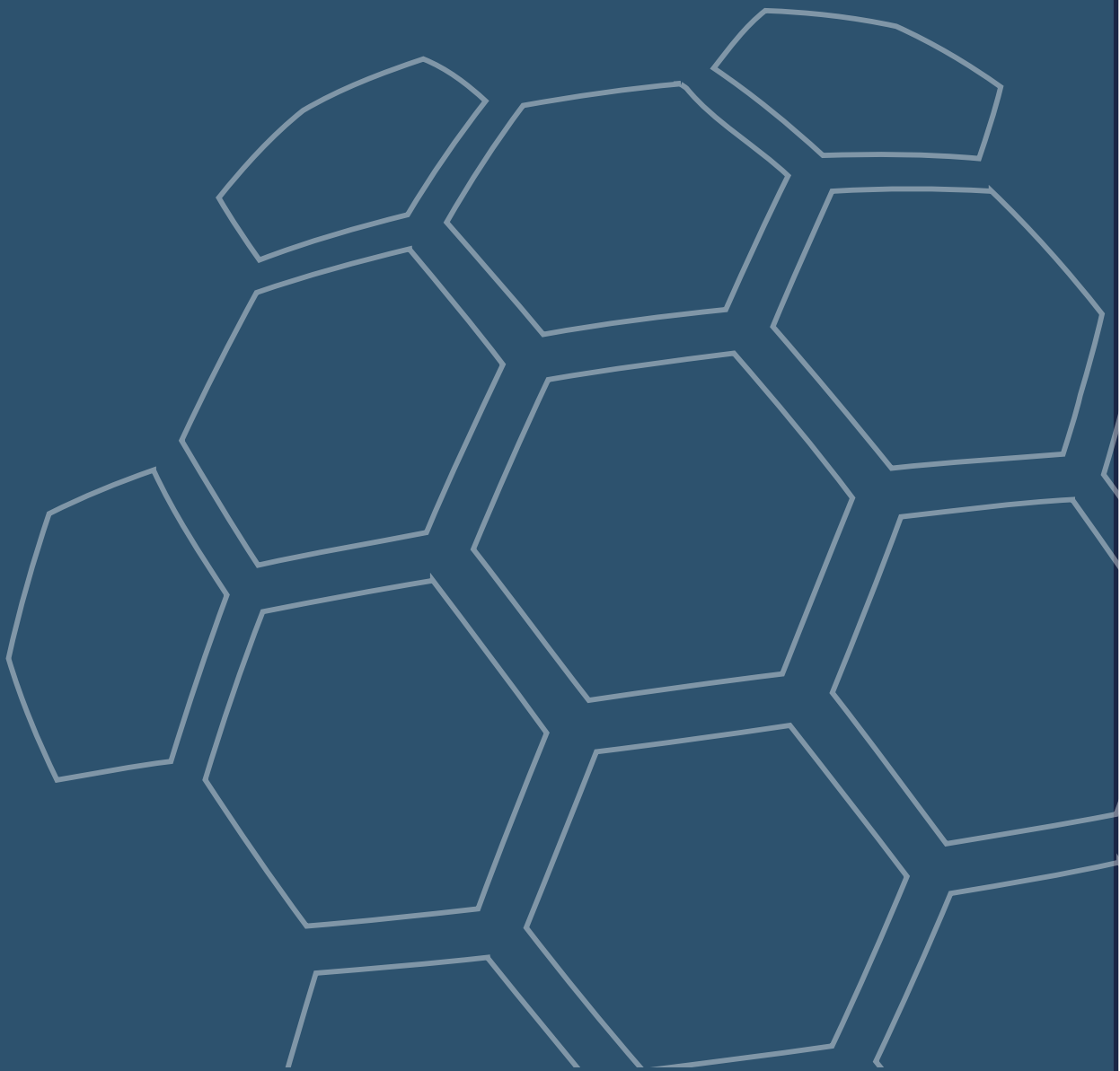
Geotechnical Society of Ireland. (2016) Specification and Related Documents for Ground Investigation in Ireland. 2<sup>nd</sup> Edition. Engineers Ireland.

Geological Survey Ireland (GSI). Geological Survey Ireland spatial resources database. Available at:  
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>






# APPENDIX A – SITE AND EXPLORATORY HOLE LOCATION PLANS






Legend Key	
Project No.	25-0001
Client	JJ Flood & Sons
Client's Rep	Malone O'Regan Environmental
Site Location Plan	
Murrens Quarry, Oldcastle	
	
Last Revision	16/02/2025
Scale	1:20000






<div>Legend Key</div> <div><div></div>Locations By Type - RO</div>	
Project No.	25-0001
Client	JJ Flood & Sons
Client's Rep	Malone O'Regan Environmental
Exploratory Hole Location Plan	
Murrens Quarry, Oldcastle	
<div><div></div><div><div>CAUSEWAY</div><div>GEOTECH</div></div></div>	
Last Revision	16/03/2025
Scale	1:2750

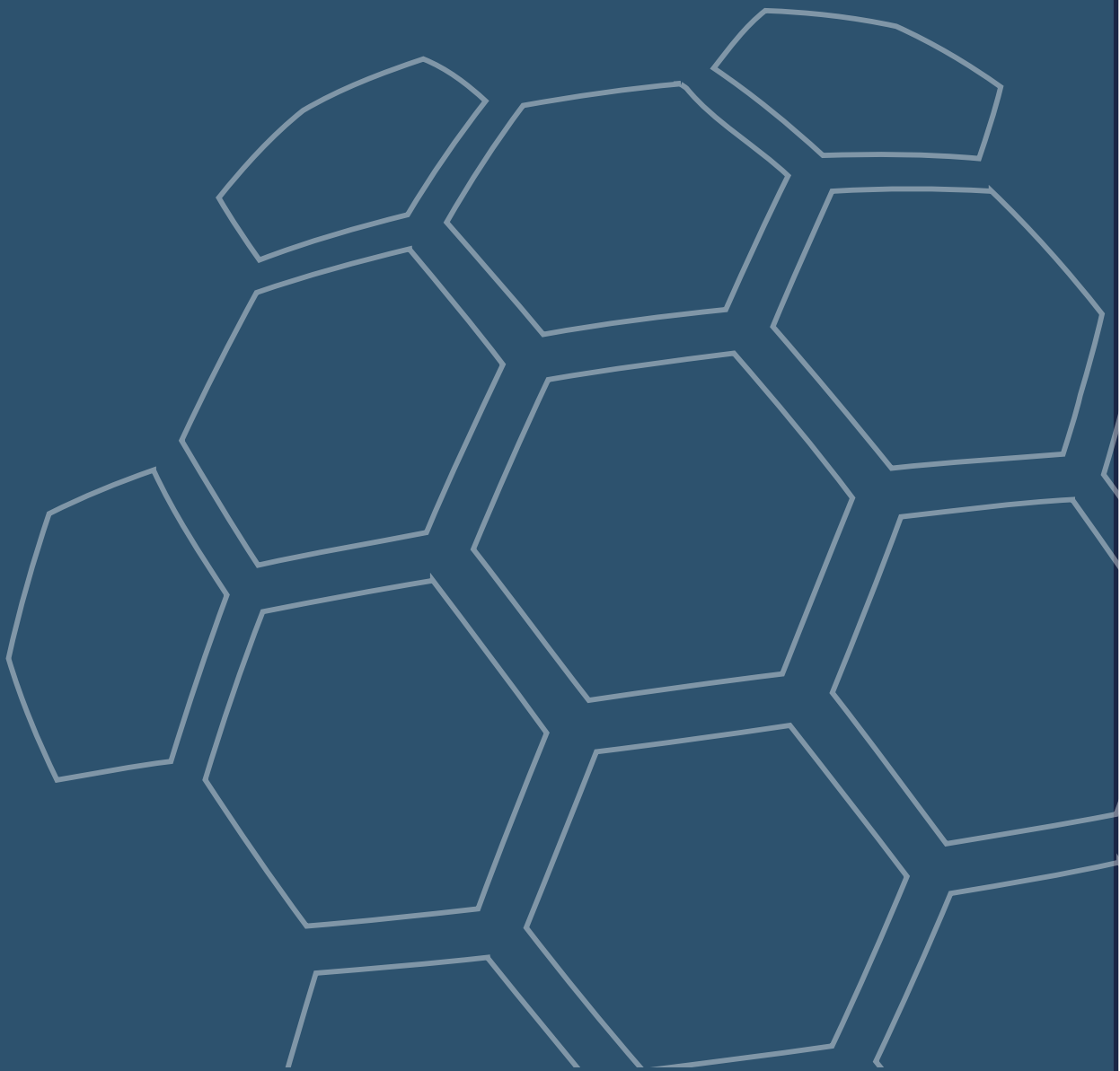


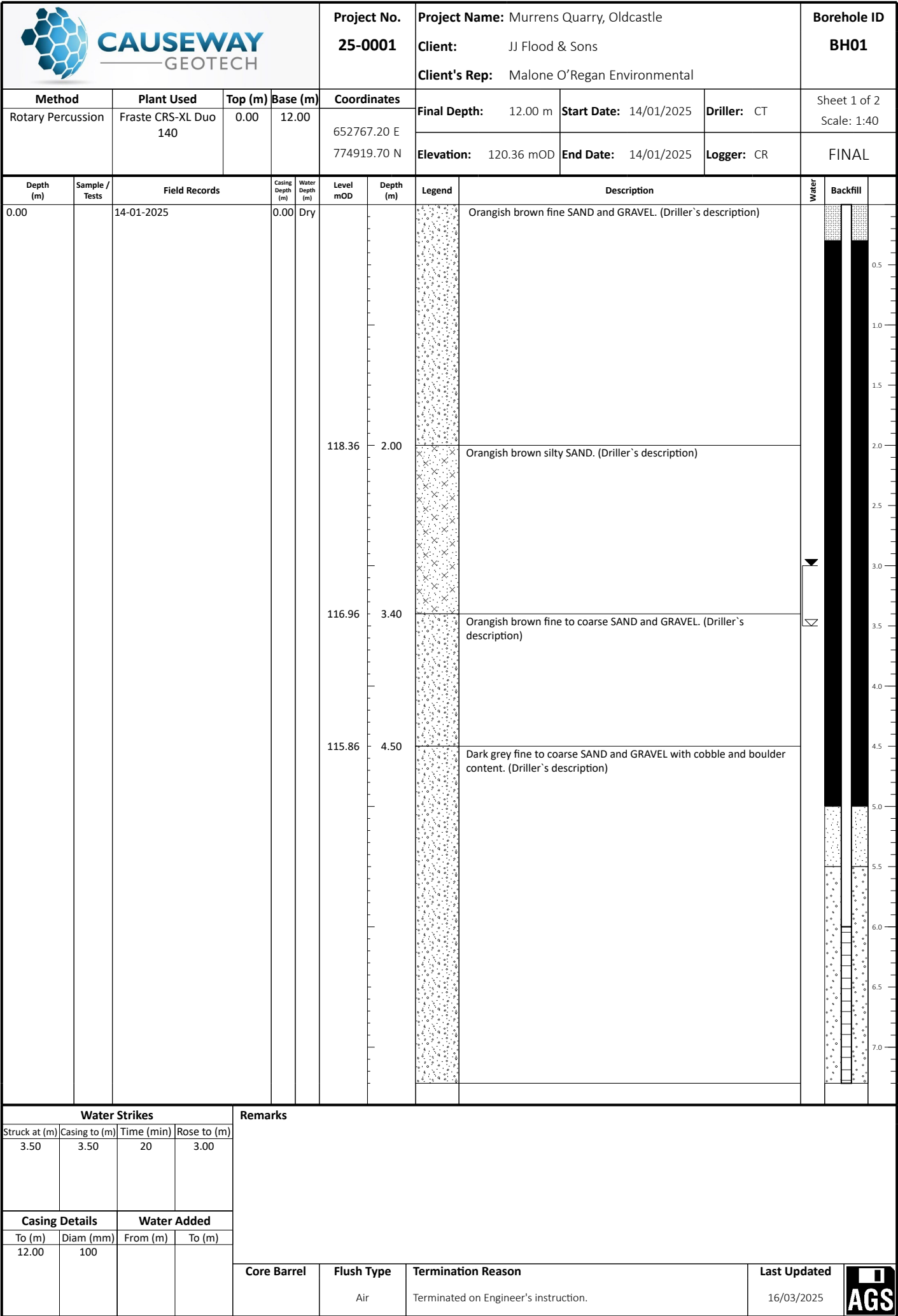


<b>Legend Key</b> ▣ Locations By Type - TP	
<b>Project No.</b>	25-0001
<b>Client</b>	JJ Flood & Sons
<b>Client's Rep</b>	Malone O'Regan Environmental
<b>Exploratory Hole Location Plan</b>	
<b>Murrens Quarry, Oldcastle</b>	
	
<b>Last Revision</b>	16/03/2025
<b>Scale</b>	1:500



## APPENDIX B – BOREHOLE LOGS












**Project Name:** Murrens Quarry, Oldcastle  
**Client:** JJ Flood & Sons  
**Client's Rep:** Malone O'Regan Environmental




**Borehole ID**  
**BH01**

Method	Plant Used	Top (m)	Base (m)	Coordinates
Rotary Percussion	Fraste CRS-XL Duo 140	0.00	12.00	652767.20 E 774919.70 N


<b>Final Depth:</b> 12.00 m	<b>Start Date:</b> 14/01/2025	<b>Driller:</b> CT	Sheet 2 of 2 Scale: 1:40
<b>Elevation:</b> 120.36 mOD	<b>End Date:</b> 14/01/2025	<b>Logger:</b> CR	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
12.00		14-01-2025	0.00	Dry	108.36	8.00		LIMESTONE. (Driller's description)		
						12.00		End of Borehole at 12.00m		





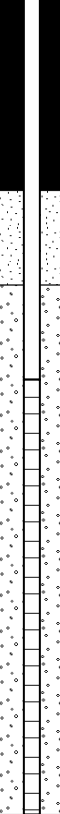


Water Strikes				Remarks				
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)					
3.50	3.50	20	3.00					
Casing Details		Water Added						
To (m)	Diam (mm)	From (m)	To (m)					
12.00	100							
				Core Barrel	Flush Type	Termination Reason	Last Updated	
					Air	Terminated on Engineer's instruction.	16/03/2025	


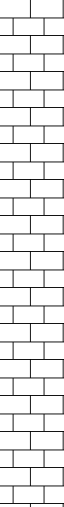

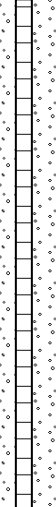
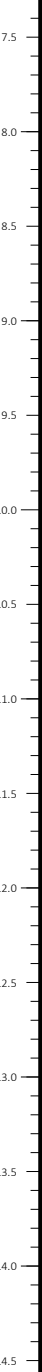

<div><div>CAUSEWAY GEOTECH</div></div>					Project No. 25-0001		Project Name: Murrens Quarry, Oldcastle Client: JJ Flood & Sons Client's Rep: Malone O'Regan Environmental				Borehole ID BH02							
Method Rotary Percussion		Plant Used Fraste CRS-XL Duo 140		Top (m) 0.00		Base (m) 20.00		Coordinates 652221.50 E 774730.80 N		Final Depth: 20.00 m		Start Date: 15/01/2025		Driller: CT		Sheet 1 of 3 Scale: 1:40		
										Elevation: 128.65 mOD		End Date: 15/01/2025		Logger: CR		FINAL		
Depth (m)	Sample / Tests	Field Records				Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description					Water	Backfill	
0.00		15-01-2025				0.00	Dry				LIMESTONE. (Driller's description)							



<div><div>CAUSEWAY GEOTECH</div></div>					Project No. 25-0001		Project Name: Murrens Quarry, Oldcastle Client: JJ Flood & Sons Client's Rep: Malone O'Regan Environmental				Borehole ID BH02				
Method Rotary Percussion		Plant Used Fraste CRS-XL Duo 140		Top (m) 0.00	Base (m) 20.00	Coordinates 652221.50 E 774730.80 N		Final Depth: 20.00 m	Start Date: 15/01/2025	Driller: CT	Sheet 2 of 3 Scale: 1:40				
								Elevation: 128.65 mOD	End Date: 15/01/2025	Logger: CR	FINAL				
Depth (m)	Sample / Tests	Field Records			Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description			Water	Backfill	









<div><div>CAUSEWAY GEOTECH</div></div>					Project No. 25-0001		Project Name: Murrens Quarry, Oldcastle Client: JJ Flood & Sons Client's Rep: Malone O'Regan Environmental				Borehole ID BH03				
Method Rotary Percussion		Plant Used Fraste CRS-XL Duo 140		Top (m) 0.00	Base (m) 10.00	Coordinates 652585.10 E 774527.30 N		Final Depth: 10.00 m		Start Date: 14/01/2025	Driller: CT	Sheet 1 of 2 Scale: 1:40			
								Elevation: 118.58 mOD		End Date: 14/01/2025	Logger: CR	FINAL			
Depth (m)	Sample / Tests	Field Records			Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description			Water	Backfill	
0.00		14-01-2025			0.00	0.00				Greyish brown slightly clayey fine to coarse SAND and GRAVEL with cobble and boulder content. (Driller's description)					
							115.58	3.00		LIMESTONE. (Driller's description)					
															
Water Strikes				Remarks											
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)												
7.50	7.50	20	7.30												
Casing Details				Water Added											
To (m)	Diam (mm)	From (m)	To (m)												
10.00	100			Core Barrel	Flush Type	Termination Reason			Last Updated						
					Air	Terminated at scheduled depth.			16/03/2025						

 <b>CAUSEWAY</b> GEOTECH				<b>Project No.</b> 25-0001		<b>Project Name:</b> Murrens Quarry, Oldcastle <b>Client:</b> JJ Flood & Sons <b>Client's Rep:</b> Malone O'Regan Environmental				<b>Borehole ID</b> BH03							
<b>Method</b> Rotary Percussion		<b>Plant Used</b> Fraste CRS-XL Duo 140		<b>Top (m)</b> 0.00		<b>Base (m)</b> 10.00		<b>Coordinates</b> 652585.10 E 774527.30 N		<b>Final Depth:</b> 10.00 m <b>Start Date:</b> 14/01/2025 <b>Driller:</b> CT		Sheet 2 of 2 Scale: 1:40					
								<b>Elevation:</b> 118.58 mOD <b>End Date:</b> 14/01/2025 <b>Logger:</b> CR		FINAL							
<b>Depth (m)</b>	<b>Sample / Tests</b>	<b>Field Records</b>			<b>Casing Depth (m)</b>	<b>Water Depth (m)</b>	<b>Level mOD</b>	<b>Depth (m)</b>	<b>Legend</b>	<b>Description</b>				<b>Water</b>	<b>Backfill</b>		
10.00		14-01-2025			0.00	Dry	108.58	10.00		End of Borehole at 10.00m							
<b>Water Strikes</b>				<b>Remarks</b>													
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)														
7.50	7.50	20	7.30														
<b>Casing Details</b>				<b>Water Added</b>													
To (m)	Diam (mm)	From (m)	To (m)														
10.00	100																
				<b>Core Barrel</b>		<b>Flush Type</b>		<b>Termination Reason</b>				<b>Last Updated</b>					
						Air		Terminated at scheduled depth.				16/03/2025					



## APPENDIX C – TRIAL PIT LOGS



<div><div>CAUSEWAY GEOTECH</div></div>			Project No. 25-0001		Project Name: Murrens Quarry, Oldcastle			Trial Pit ID  TP01				
			Coordinates 652643.10 E 775151.50 N		Client: JJ Flood & Sons							
Method: Trial Pitting					Client's Representative: Malone O'Regan Environmental			Sheet 1 of 1 Scale: 1:25				
Plant: 13t Tracked Excavator			Elevation 128.20 mOD		Date: 23/01/2025			Logger: SK				
Field Records			Level (mOD)		Depth (m)		Legend		Description			
			128.05		0.15				BITMAC			
			126.50		1.70				MADE GROUND: Brown slightly gravelly fine to coarse SAND with low cobble content and occasional rootlets and plastic throughout. Gravel is subangular fine to coarse. Cobbles are subrounded of limestone.			
		124.40		3.80				Light brown slightly sandy slightly clayey angular fine to coarse GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.				
		123.70		4.50				End of trial pit at 4.50m				
Water Strikes			Depth: 4.50		Remarks:		No groundwater encountered.					
Struck at (m)			Width: 0.70		Termination Reason						Last Updated	
Remarks			Length: 3.90		Terminated at scheduled depth.						16/03/2025	
			Stability: Moderately stable									



25-0001

Murrens Quarry, Oldcastle

TP02

## Trial Pitting

652652.20 E

775168.70 N

JJ Flood &amp; Sons

Malone O'Regan Environmental

Scale: 1:25



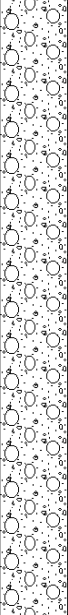
## 13t Tracked Excavator


128.49 mOD

23/01/2025

SK

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
						BITMAC		
			128.19	0.30				
			128.09	0.40		Light orangish brown gravelly slightly clayey fine to coarse SAND. Gravel is subangular fine to coarse.		0.5
						Dark brownish grey gravelly medium to coarse SAND with high cobble content and medium boulder content. Gravel is subrounded fine to coarse. Cobbles and boulders are rounded of limestone up to 400mm in diameter.		1.0 1.5 2.0
			125.99	2.50		End of trial pit at 2.50m		2.5 3.0 3.5 4.0 4.5

Water Strikes		<b>Depth:</b> 2.50 <b>Width:</b> 3.90 <b>Length:</b> 1.30	<b>Remarks:</b> No groundwater encountered		
Struck at (m)	Remarks				
		<b>Stability:</b> Unstable below 0.4m.	<b>Termination Reason</b> Terminated on Engineer's instruction.	<b>Last Updated</b> 16/03/2025	



25-0001

Murrens Quarry, Oldcastle

TP03

## Trial Pitting

652648.50 E

JJ Flood &amp; Sons

Malone O'Regan Environmental

Scale: 1:25

## 13t Tracked Excavator

127.80 mOD



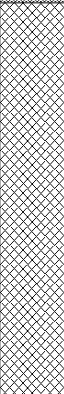

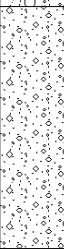

23/01/2025

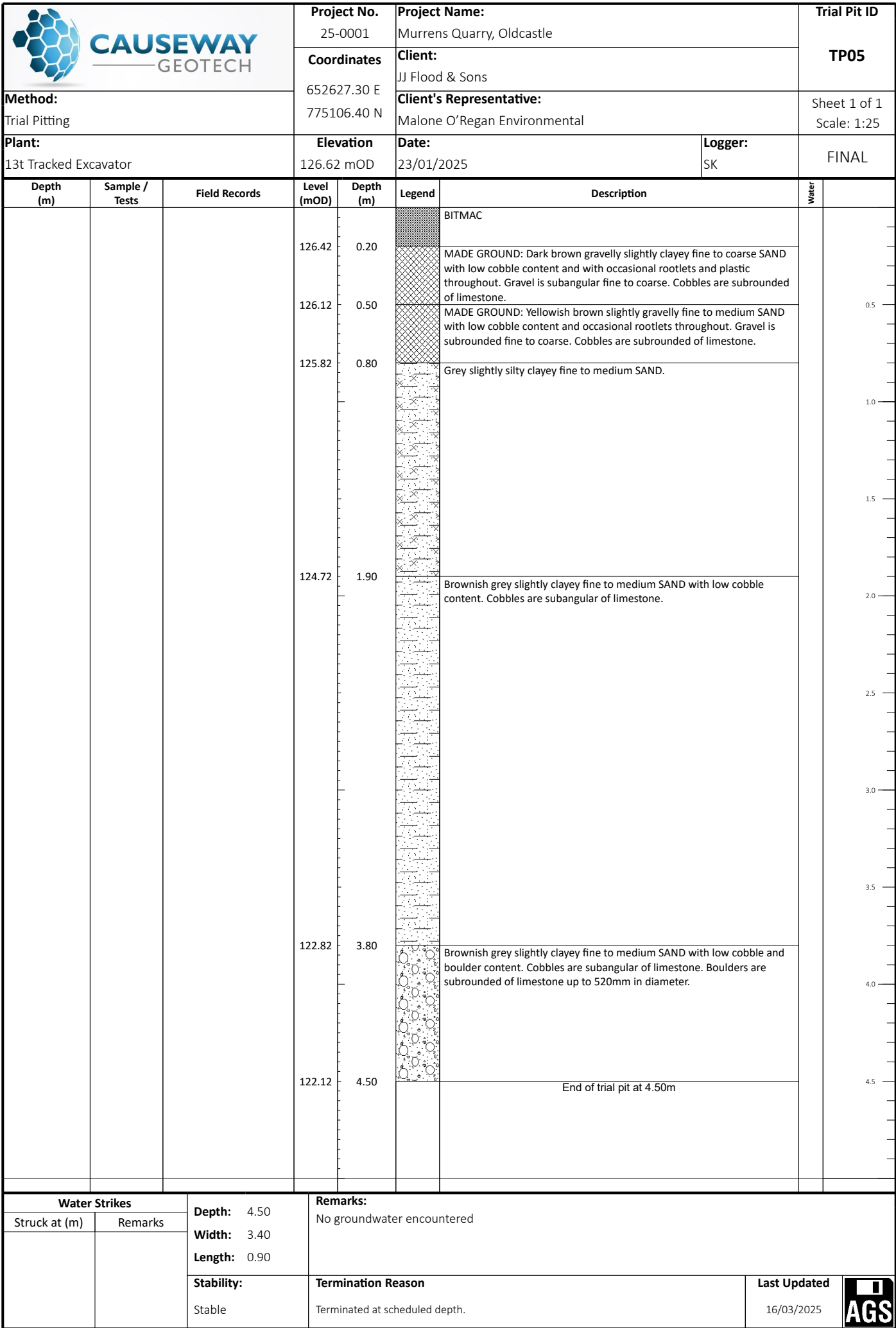
SK

FINAL

0.5  
1.0  
1.5  
2.0  
2.5  
3.0  
3.5  
4.0



<div><div>CAUSEWAY GEOTECH</div></div>			Project No. 25-0001		Project Name: Murrens Quarry, Oldcastle			Trial Pit ID  TP04			
			Coordinates 652658.30 E 775136.60 N		Client: JJ Flood & Sons						
Method: Trial Pitting					Client's Representative: Malone O'Regan Environmental			Sheet 1 of 1 Scale: 1:25			
Plant: 13t Tracked Excavator			Elevation 128.12 mOD		Date: 23/01/2025			Logger: SK			
Field Records			Level (mOD)		Depth (m)		Legend		Description		
			127.92		0.20				BITMAC		
			126.62		1.50				MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with medium cobble content and occasional rootlets throughout. Sand is fine to medium. Gravel is subrounded fine to coarse. Cobbles are subrounded of limestone.		
									Dark brownish grey gravelly medium to coarse SAND with medium cobble and boulder content. Gravel is subrounded fine to coarse. Cobbles and boulders are rounded of limestone up to 490mm in diameter.		
									Dark grey gravelly medium to coarse SAND with low cobble content. Gravel is subrounded fine to coarse. Cobbles are rounded of limestone.		
			124.42		3.70						
			123.62		4.50				End of trial pit at 4.50m		
Water Strikes			Depth: 4.50		Remarks:						
Struck at (m)			Width: 1.30		No groundwater encountered						
Remarks			Length: 2.80								
			Stability: Moderately stable		Termination Reason				Last Updated		
					Terminated at scheduled depth.				16/03/2025		
											





25-0001

Murrens Quarry, Oldcastle

TP06

## Trial Pitting

652633.20 E

652633.20 E

775142.70 N

JJ Flood &amp; Sons

Malone O'Regan Environmental

Scale: 1:25


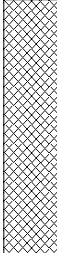

## 13t Tracked Excavator

128.23 mOD


23/01/2025

SK

FINAL

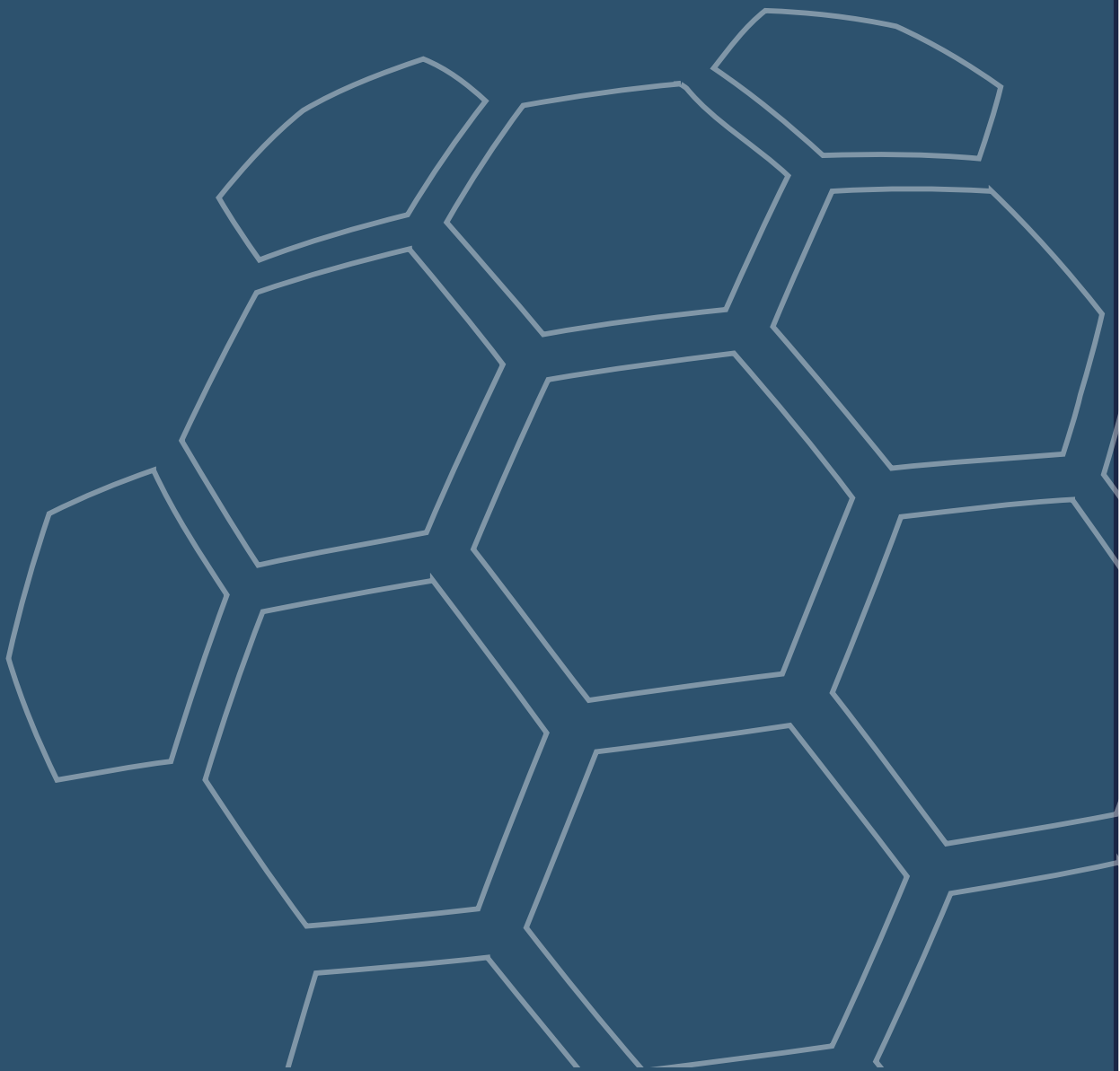
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			128.08	0.15		TOPSOIL	
						MADE GROUND: Dark grey very gravelly medium to coarse SAND with medium cobble and boulder content and abundant concrete blocks, cables, metal sheets, plastic and rootlets throughout. Gravel is subangular fine to coarse. Cobbles are subangular of mixed lithologies predominantly limestone. Boulders are subrounded of limestone up to 410mm in diameter.	
			127.23	1.00		Brown slightly gravelly fine to coarse SAND with medium cobble content with occasional rootlets throughout. Gravel is subangular fine to coarse. Cobbles and boulders are subrounded of limestone up to 360mm in diameter.	
			125.73	2.50		End of trial pit at 2.50m	

Water Strikes		Depth: 2.50 Width: 2.20 Length: 3.10	Remarks:		
Struck at (m)	Remarks		No groundwater encountered		
		Stability:	Termination Reason		Last Updated
		Unstable	Terminated on Engineer's instruction.		16/03/2025





# APPENDIX D – TRIAL PIT PHOTOGRAPHS





TP01





TP01





TP01



TP01





TP01





**TP01**





TP01





TP01





TP02





TP02





TP02



TP02





TP02





TP02





TP02





TP02





TP03





TP03





**TP03**



**TP03**





TP03





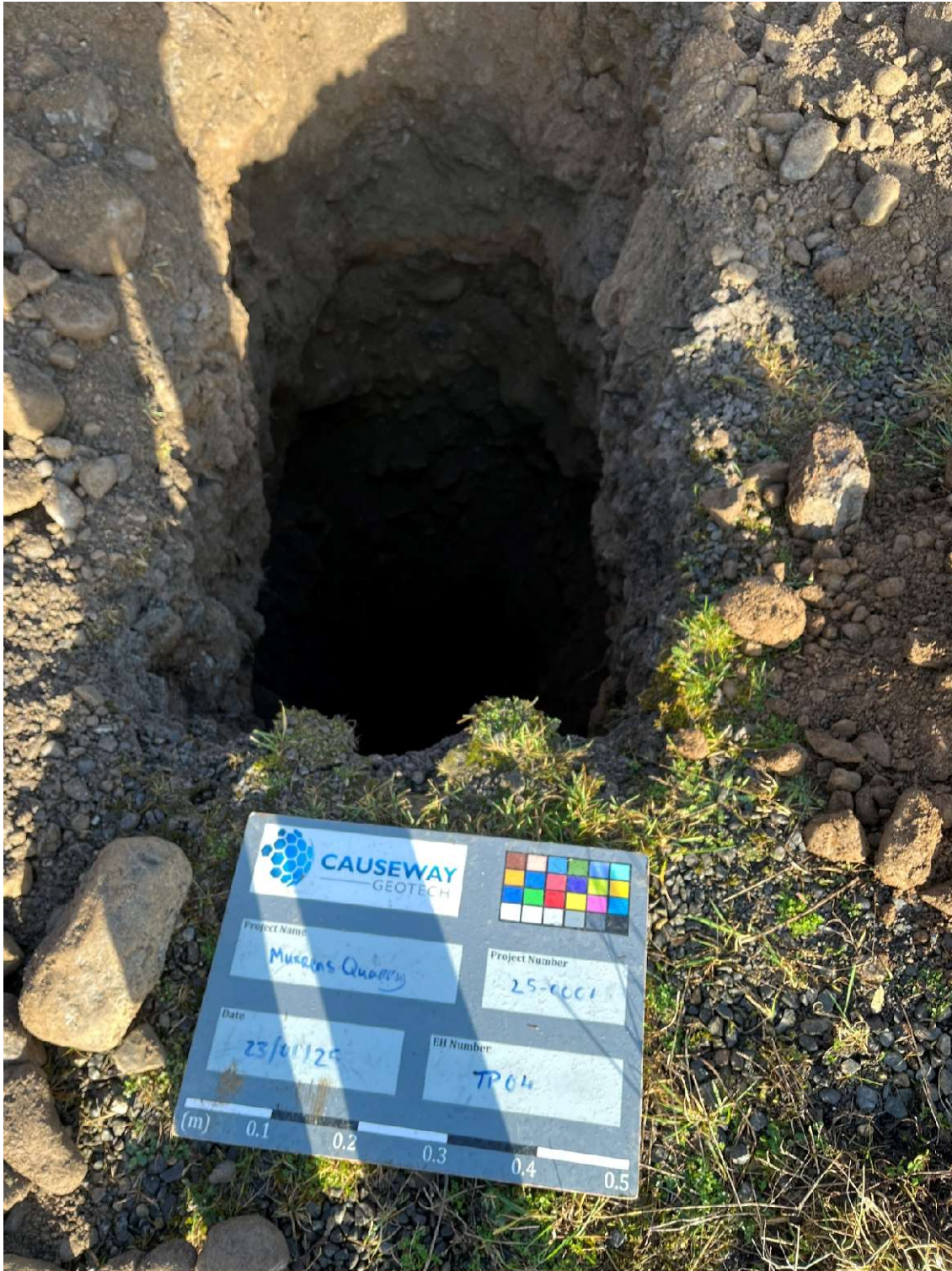
TP03





TP03





TP04





TP04



TP04





TP04





**TP04**





TP04





TP04





TP05





TP05



TP05





TP05





**TP05**





TP05





TP05





TP06





TP06



TP06





TP06





**TP06**





TP06





**CAUSEWAY**  
GEOTECH

**Causeway Geotech Limited** has made its commitment to health and safety of people, the environment and the quality of its services an integral part of our strategy.

Whether it be ensuring people's safety or meeting the challenges of operating in an ecologically diverse environment, we aim to act in a sustainable and responsible manner at all times.

#### CERTIFICATIONS



#### MEMBERSHIP



#### CAUSEWAY GEOTECH LTD

8 Drumahiskey Road, Ballymoney  
Co. Antrim, Northern Ireland, BT53  
7QL

**+44 (0)28 2766 6640**

info@causewaygeotech.  
com