Appendix 5.1

Our Ref: GH/Rp/P19012

21st November, 2019

Messrs. M.H.L & Associates Ltd.
Carraig Mor House,
10 High Street,
Douglas Road,
Cork,
Ireland.

Re: Longview, Housing Development, Ballyvolane, Co. Cork. Supplementary Ground investigation, Interpretative report.

Introduction

In January 2019, Priority Geotechnical (PGL) were requested by M.H.L & Associates Ltd., Consulting Engineers, acting on behalf of Temporis Ltd. to undertake a supplementary ground investigation at the greenfield site for the proposed housing development at Ballyvolane, Co. Cork. The site is situated immediately off the R614, Ballyhooley New Rd. The site topography was such that is rose from 67mOD to 125mOD. Previously preliminary ground investigation works were carried out by PGL between the 18th of August and the 20th of September, 2017, ref: P17105. The initial phase of the investigation focused on the bedrock profile and rockmass (solid gology) characteristics.

The purpose of this current phase of ground investigations associated with Neighbourhood [1]: 2; was to establish the type, condition and engineering characteristic

[1] Neighbourhoods: 1, 2, 3, 4, 5 and 6; were investigated to provide data for the entire development.

of the soils (superficial deposits) within the site and assess the potential for re-use of deposits within the earthworks outline and assess groundwater.

The scope of the works as defined by MHL in consultation with JBA Consulting[2] and PGL, comprised of;

- Trial pit excavations;
- Rotary boreholes;
- All associated sampling;
- Standpipe well installations;
- Laboratory testing, including improvement binder trials and
- Associated reporting.

Fieldworks

The fieldwork was carried out by PGL between the 14th and the 19th February, 2019 in general accordance with, BS 5930 (2015) Code of Practice for Site Investigation and Part 9 of BS 1377 (1990), Method of Tests for Soil for Civil Engineering Purposes, *in situ* Tests. This report should be read in conjunction with the exploratory and photographic records and laboratory test data, accompanying this report.

Trial Pits

Twenty four (24) trial pit excavations were dug to 1.8m below existing ground level (bgl) to 3.6m bgl using a 13t tracked excavator. The records accompany this report and are discussed herein.

Location	Final depth, m bgl	Location
TP01	2.10	Moderate
TP02	3.00	Moderate
TP03	3.40	Moderate.
TP04	3.40	Moderate.
TP05	2.90	Moderate.
TP06	2.10	Moderate.
TP07	3.50	Moderate.
TP08	1.80	Moderate.
TP09	3.20	Moderate.
TP10	3.60	Moderate.
TP11	3.00	Moderate.
TP12	2.40	Moderate.

[2] JBA Consulting are separately providing input into the groundwater assessment for the works.

Location	Final depth, m bgl	Location
TP13	2.50	Moderate.
TP14	2.50	Moderate.
TP15	2.90	Moderate.
TP16	2.40	Good.
TP17	2.70	Moderate.
TP18	2.90	Moderate.
TP19	1.90	Moderate.
TP20	2.50	Moderate.
TP21	3.50	Poor.
TP22	3.60	Moderate.
TP23	3.50	Poor.
TP24	3.50	Poor.

Boreholes

Nine (9) rotary boreholes were advanced to depths 3.3m bgl to 9.5m bgl using PGL's Soilmec PSM 8G. The exploratory records are accompanying this report and are discussed herein.

Location	Final depth, m bgl
RC01	6.50
RC02	6.80
RC03	9.50
RC04	6.70
RC05	7.50
RC06	3.30
RC07	4.50
RC08	3.50
RC09	3.00

Sampling

Eighty one (81) bulk disturbed samples (B) and thirteen (13) small disturbed samples (D) and 30.7lin.m of core were recovered from the exploratory excavations in accordance with Geotechnical Investigation and Sampling – Sampling Methods and Groundwater Measurements (EN ISO 22475-1:2006).

In-situ testing

Standard penetration test

Fourteen (14) standard penetration tests, N values, were carried out in the rotary boreholes using the 60^{o} solid cone in place of the standard split barrel sampler in accordance with Geotechnical Investigation and Testing, Part 3 Standard penetration test, BS EN ISO 22476-3:2005+A1:2011. The data is presented on the exploratory logs accompanying this report and are discussed herein.

Summary of *in situ* testing

Type	Quantity	Remarks
Standard Penetration Test, N_{SPT} values	14Nr.	Nspt ranging from 11 to 36 and refusal >50.

Survey and Drawings

The 'as constructed' exploratory locations were subsequently surveyed using Trimble V8 GPS equipment to the Ordinance Survey, Irish Transverse Mercator (ITM) system of co-ordinates and elevations to Malin Head datum. These locations are shown on the exploration location plans, attached.

Location	Easting	Northing	Elevation, mOD Malin	Final depth, m bgl	Date dd/mm/yyyy
RC01	568782.200	574961.680	75.070	6.50	16/02/2019
RC02	568904.960	574925.580	85.610	6.80	16/02/2019
RC03	568923.070	575058.720	80.990	9.50	17/02/2019
RC04	569032.550	575141.340	97.040	6.70	17/02/2019
RC05	569140.330	575274.500	111.050	7.50	18/02/2019
RC06	568710.160	574974.340	65.820	3.30	16/02/2019
RC07	568812.580	575111.320	74.030	4.50	17/02/2019
RC08	568954.940	575267.950	88.820	3.50	18/02/2019
RC09	568762.060	575354.430	70.770	3.00	18/02/2019
TP01	568922.660	575175.910	84.980	2.10	14/02/2019
TP02	568962.150	575103.820	86.680	3.00	14/02/2019
TP03	569001.230	574967.860	88.630	3.40	14/02/2019
TP04	568847.830	574964.510	80.100	3.40	14/02/2019
TP05	568929.780	575025.470	81.670	2.90	14/02/2019
TP06	568871.960	574999.200	78.000	2.10	14/02/2019

Location	Easting	Northing	Elevation, mOD Malin	Final depth, m bgl	Date dd/mm/yyyy
TP07	568883.970	575141.510	79.640	3.50	14/02/2019
TP08	568760.880	575006.480	69.700	1.80	14/02/2019
TP09	568853.920	575164.990	76.430	3.20	14/02/2019
TP10	568808.170	575193.230	71.020	3.60	14/02/2019
TP11	569021.940	575246.900	98.350	3.00	15/02/2019
TP12	569036.240	575318.650	98.680	2.40	15/02/2019
TP13	568916.600	575422.050	80.100	2.50	15/02/2019
TP14	569029.620	575393.960	94.290	2.50	15/02/2019
TP15	569113.960	575398.390	103.610	2.90	15/02/2019
TP16	569563.360	575058.260	127.270	2.40	15/02/2019
TP17	569676.430	574954.770	127.700	2.70	15/02/2019
TP18	569586.050	575248.560	126.650	2.90	15/02/2019
TP19	569512.200	574921.620	127.700	1.90	19/02/2019
TP20	569446.000	575181.310	128.240	2.50	19/02/2019
TP21	568757.950	575329.560	69.920	3.50	19/02/2019
TP22	568788.880	575278.440	69.380	3.60	19/02/2019
TP23	568807.480	575376.330	70.970	3.50	19/02/2019
TP24	568775.510	575386.330	70.870	3.50	19/02/2019

Laboratory Testing

Laboratory testing was scheduled by PGL on behalf of MHL and carried out in accordance with BS1377 (1990), Methods of test for soils for civil engineering purposes and the ISRM suggested methods for rock characterisation, testing and monitoring. Specialist chemical testing was undertaken by Chemtest Ltd. (UK) on behalf of PGL. The laboratory data accompanied the factual report and were summarised as follows;

SUMMARY OF LABORATORY TESTING

Type	Nr.	Remarks
Natural Moisture Content	09	9% to 33%
Atterberg Limits	14	Liquid Limit, LL 22% to 56% Plastic Limit, PL 13% to 36% Plasticity Index, PI 6 to 20
Particle Size Distribution	26	10Nr. hydrometer analysis on fine soils
pH	16	6.2 to 8.0

Type	Nr.	Remarks
Sulphate (water soluble as SO_4)	16	<0.010g/l
Sulphate (acid soluble)	16	<0.010% to 0.028%
Total Sulphur	16	<0.010% to 0.020%
Initial Consumption of Lime	04	TP02, TP03, TP04 and TP05 (+1%, +1.5% pH 12.4)
Compaction, dry density moisture content relationship	04	TP02 1.5m; TP03 0.5m; TP03 1.5m and TP04 0.5m Optimum moisture content 10.3% to 15.3% Maximum dry density 1.8Mgm^{-3} to 2.1Mgm^{-3}
Moisture condition value, MCV moisture content relationship	04	TP02 1.5m; TP03 0.5m; TP03 1.5m and TP04 0.5m
MCV	01	MCV0
California bearing ratio, CBR moisture content relationship	04	TP02 1.5m; TP03 0.5m; TP03 1.5m and TP04 0.5m
CBR	02	CBR0.2% and CBR4.0%
CBR $_{Lime; OPC}$	07	CBR2.3% to CBR75%

Chemical analysis was also undertaken on the soils post improvement with cement and lime binder additions after a period of 28day curing period.

Type	Nr.	Remarks
pH	07	9.2 to 12.6
Sulphate (water soluble as SO_4)	07	0.042g/l to 0.33g/l
Sulphate (acid soluble)	07	0.088% to 0.39%
Total Sulphur	07	0.045% to 0.45%

Ground and groundwater conditions

The full details of the ground conditions encountered are provided for on the exploratory records accompanying this report. The records provide descriptions, in accordance with BS 5930 (2015) and Eurocode 7, Geotechnical Investigation and Testing, Identification and classification of soils, Part 1, Identification and description (EN ISO 14688-1: 2002),– Identification and Classification of Soil, Part 2: Classification Principles (EN ISO 14688-2:2004) and Identification and Classification of Rock, Part 1: Identification & Description (EN ISO 14689-1:2004) of the materials encountered, *in situ* testing and details of the samples taken, together with any observations made during the ground investigation.

The ground conditions were such that Topsoil was 200mm to 400mm thick; overlying mixed glacial deposits: slightly sandy gravelly SILT, slightly sandy (slightly) gravelly CLAY, clayey gravelly SAND, (very) silty (very) sandy GRAVEL and (very) clayey sandy GRAVEL with variable Cobble contents; with shallow SANDSTONE/ SILTSTONE was encountered 0.9m below existing ground level (bgl) (TP06) to 4.3m bgl (RC03).

Groundwater conditions observed are those relating to the period of the investigation. The normal duration over which a trial excavation remains open may not allow for low volume flow to ingress in cohesive deposits; borehole casing may cut off low volume flow in cohesive deposits. The groundwater regime should be assessed from standpipe well installations, where available.

Groundwater was encountered within the trial pit excavations or borehole casing during fieldworks at depths between 0.7m bgl and 7.5m bgl. Seasonal variations may occur. Groundwater strikes are summarized as follows:

Location	Groundwater strike, m bgl	Remarks
RC01	1.3	Standpipe installed
RC02	1.5	Standpipe installed
RC03	4.3	Standpipe installed
RC03	7.5	
RC04	3.3	Standpipe installed
RC05	2.5	Standpipe installed
RC06	1.3	Standpipe installed
RC07	3.0	Standpipe installed
RC08	1.5	Standpipe installed
RC09	1.07	Standpipe installed
TP01	-	None encountered.
TP02	-	None encountered.
TP03	-	None encountered.
TP04	-	None encountered.
TP05	-	None encountered.
TP06		None encountered.
TP07	3.5	Slow flow.
TP08	1.8	Slow flow.

Location	Groundwater strike, m bgl	Remarks
TP09	1.8	Trickling flow.
TP10	3.6	Slow flow.
TP11	-	None encountered.
TP12	1.5	Slow flow.
TP13	-	None encountered.
TP14	-	None encountered.
TP15		None encountered.
TP16	2.4	Slow flow.
TP17	2.7	Slow flow.
TP18	-	None encountered.
TP19	-	None encountered.
TP20		None encountered.
TP21	0.8	Steady flow.
TP22	2.5	Steady flow.
TP23	1.2	Steady flow.
TP24	0.7	Steady flow at several points between depths shown.
TP24	2.2	

Exploratory trial holes were backfilled with arisings. 50mm diameter HDPE standpipe wells were constructed in all nine (9) rotary boreholes to allow for groundwater monitoring:

Location	Depth, m bgl		Backfill	Pipe diameter, mm	Pipe type
	from	to			
RC01	0.0	2.5	Bentonite.	50	PLAIN
RC01	2.5	6.5	Gravel.	50	SLOTTED
RC02	0.0	3.0	Bentonite.	50	PLAIN
RC02	3.0	6.0	Gravel.	50	SLOTTED
RC03	0.0	6.0	Bentonite.	50	PLAIN
RC03	6.0	9.0	Gravel	50	SLOTTED
RC04	0.0	2.7	Bentonite	50	PLAIN
RC04	2.7	5.7	Gravel	50	SLOTTED
RC05	0.0	2.0	Bentonite.	50	PLAIN
RC05	2.0	5.0	Gravel.	50	SLOTTED
RC06	0.0	1.3	Bentonite.	50	PLAIN
RC06	1.3	3.3	Gravel.	50	SLOTTED
RC07	0.0	2.5	Bentonite.	50	PLAIN
RC07	2.5	4.5	Gravel.	50	SLOTTED

Location	Depth, m bgl		Backfill	Pipe diameter, mm	Pipe type
	from	to			
RC08	0.0	1.5	Bentonite.	50	PLAIN
RC08	1.5	3.5	Gravel	50	SLOTTED
RC09	0.0	1.0	Bentonite.	50	PLAIN
RC09	1.0	3.0	Gravel	50	SLOTTED

Summary of groundwater monitoring

Location	Groundwater strike, m bgl (16 – 18/ 02/2019)	Groundwater, m bgl				
		22/03/2019	12/04/2019	dd/mm/yyyy	dd/mm/yyyy	dd/mm/yyyy
RC01	1.3	4.9	5.85			
RC02	1.5	4.3	Dry			
RC03	4.3	3.4	3.85			
RC04	3.3	4.0	5.1			
RC05	2.5	3.6	Dry			
RC06	1.3	4.3	Dry			
RC07	3.0	Dry	Dry			
RC08	1.5	Dry	Dry			
RC09	1.07	0.0 (GL)	0.3			

GL – existing ground level

To fully assess groundwater and seasonal variations, it is recommended to continue to monitor groundwater between September, 2019 and February, 2020.

Geotechnical review

The following geotechnical review provides an overview of the ground conditions identified within the site, along with the general characterisation of the deposits encountered. The following sections should be read in conjunction with the exploratory records, the proposed construction details/ plans and other reporting associated with the proposed development works.

Published Geology

The Geological Survey of Ireland, 1:100,000 mapping (Sheet 25) indicated the geology of the area was characterised by Ballytransa Formation (BS, purple Sandstone and Mudstone) and the Gyleen Formation (Sandstone, Mudstone and Siltstone). The Siltstone/ Mudstone are dominant in these formations. A geological fault is noted to the eastern bound of the site running in an N-S direction. Bedrock outcrop/ sub-crops were noted in the study area. The GSI well data base (well ref: 1407SEW046 and 1407SEW159) identified bedrock 2.4m to 7.6m deep within the study area. Yield was described as poor.

Teagasc sub-soil mapping indicated the superficial deposits in the area were characterised by glacial till derived from Devonian sandstones. The National Aquifer Vulnerability Mapping indicates high to extreme vulnerability in the area. Extreme ratings are likely attributed to shallow depth to bedrock or identified outcropping rock in the study area.

The preliminary ground model (P17105) identified 400mm Topsoil; slightly sandy (slightly) gravelly SILT overlying deposits of firm to stiff (slightly) sandy gravelly SILT and medium dense silty sandy GRAVEL with varying cobble content to depths between 2.0m below existing ground level (bgl) and 3.8m bgl. The SILT was 0.70m to 3.10m thick and the GRAVEL 0.70m to 2.50m thick. Bedrock, SANDSTONE and SILTSTONE was encountered 0.5m bgl to 3.8m bgl. Groundwater was encountered between depths of 1.8m bgl to 3.6m bgl.

Ground model

The ground model was such that Topsoil was 200mm to 400mm thick; overlying mixed glacial deposits: firm slightly sandy gravelly SILT, firm slightly sandy (slightly) gravelly CLAY, medium dense to dense clayey gravelly SAND, medium dense to dense (very) medium dense to dense silty (very) sandy GRAVEL and medium dense to dense (very) clayey sandy GRAVEL with variable Cobble contents. The mixed glacial, superficial deposits overlay weak to medium strong SANDSTONE/ SILTSTONE 0.9m below existing ground level (bgl) to 4.3m bgl.

Groundwater was encountered 0.7m bgl and 7.5m bgl (64.52mOD -108.55mOD). It has been assumed that further and more detailed assessment of the groundwater regime and hydrogeology has provided by JBA Consulting.

Geotechnical risk Register

1. Re-use of excavated deposits high moisture contents (33%), high plasticity (LL 53%) and high fines content (42% passing 63μm sieve); TP01, TP02, TP09 and TP12;
2. SAND deposits have been identified as particular risk TP21 and TP24 where groundwater is also present;
3. Groundwater in the excavations, foundations and cuttings; below 2.0m bgl is identified as a particular risk;
4. Groundwater in foundation excavations has been identified as a particular risk at RC01, RC06 and TP12 and
5. Differential settlement associated with cut-fill earthworks is identified as a particular risk.

The site is classified as geotechnical category GC2 where there is an intent to improve soil stiffness with the addition of lime or lime and ordinary portland cement, OPC binder(s) and excavations exceeding 2.0m.

Location	Depth, m bgl	Top of Rock mOD	Stability	Groundwater (initial strike)	
				m bgl	mOD, Malin
RC01	**6.5**	**73.77**	-	1.3	73.77
RC02	**6.8**	**84.31**	-	1.5	84.11
RC03	**9.5**	**76.69**	-	4.3	76.69
RC04	**6.7**	**95.54**	-	3.3	93.74
RC05	**7.5**	**109.75**	-	2.5	108.55
RC06	**3.3**	**64.52**	-	1.3	64.52
RC07	**4.5**	**71.53**	-	3.0	71.03
RC08	**3.5**	**87.32**	-	1.5	87.32
RC09	**3.0**	-	-	1.07	69.7
TP01	**2.1**	83.78	Moderate	-	-
TP02	**3.0**	84.28	Moderate	-	-
TP03	**3.4**	85.83	Moderate	-	-
TP04	**3.4**	77.7	Moderate	-	-
TP05	**2.9**	79.87	Moderate	-	-
TP06	**2.1**	77.1	Moderate	-	-
TP07	**3.5**	77.74	Moderate	3.5	76.14
TP08	**1.8**	68.6	Moderate	1.8	67.9
TP09	**3.2**	73.53	Moderate	1.8	74.63
TP10	**3.6**	68.32	Moderate	3.6	67.42
TP11	**3.0**	-	Moderate	-	-
TP12	**2.4**	-	Moderate	1.5	97.18
TP13	**2.5**	78.5	Moderate	-	-
TP14	**2.5**	-	Moderate	-	-
TP15	**2.9**	101.86	Moderate	-	-
TP16	**2.4**	125.27	Moderate	2.4	124.87
TP17	**2.7**	125.4	Moderate	2.7	125
TP18	**2.9**	126.25	Moderate	-	-
TP19	**1.9**	125.8	Moderate	-	-
TP20	**2.5**	126.14	Moderate	-	-
TP21	**3.5**	-	Moderate	0.8	69.12
TP22	**3.6**	65.78	Moderate	2.5	66.88
TP23	**3.5**	-	Moderate	1.2	69.77
TP24	**3.5**	-	Moderate	0.7 2.2	70.17 68.67

Geotechnical Category 2 should include conventional types of structure and foundation with no exceptional risk or difficult soil or loading conditions. Designs for structures in Geotechnical Category 2 should normally include quantitative geotechnical data and analysis to ensure that the fundamental requirements are satisfied.

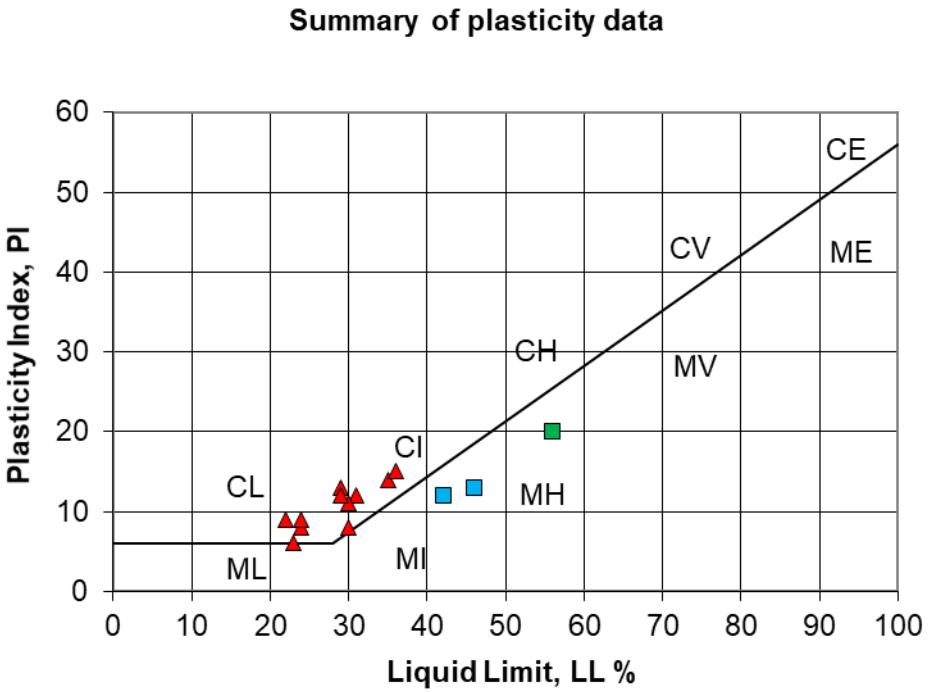
Characteristic properties

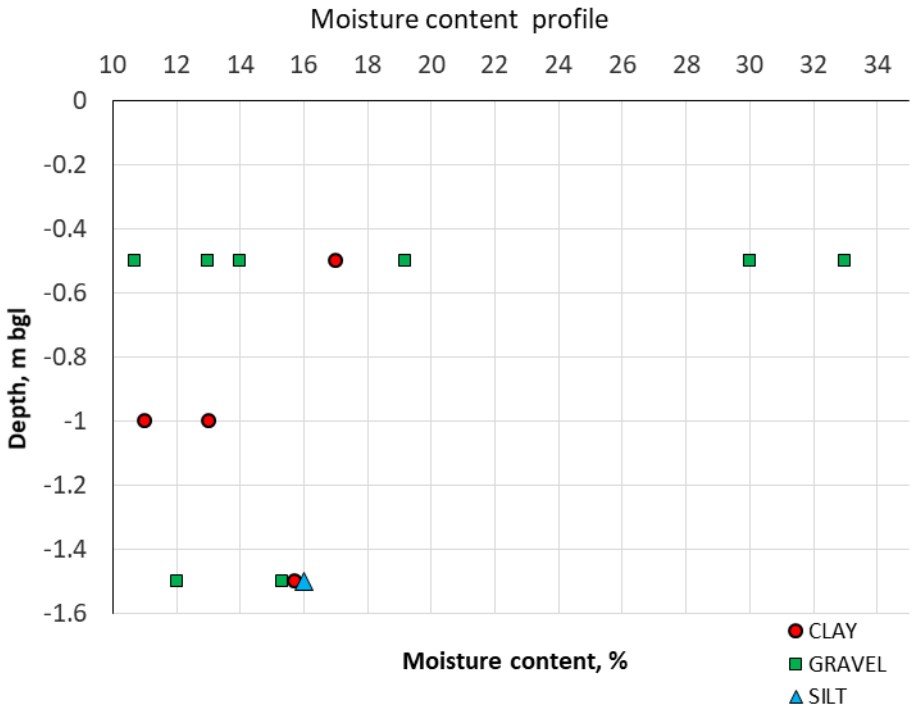
Mixed Glacial Deposits

The CLAY deposits encountered were described being of low to intermediate plasticity, (CL/ CI) with natural moisture content, *w* ranging between 11% to 17%. The grading analysis for the CLAY indicated a Clay fraction between 26% and 42%; with 25% to 52% Gravel and 22% to 32% Sand fractions.

The SILT deposits encountered were described being of intermediate plasticity, (MI) with natural moisture content, *w* ranging 16%. The grading analysis for the SILT indicated a Silt fraction 28%, with 56% Gravel and 17% Sand fractions.

The GRAVEL was characterised by natural moisture content, *w* ranging between 10% and 19% with elevated values of 30% and 33% associated with the shallow high plasticity (MH) silty GRAVEL deposits. The grading analysis or the GRAVEL indicated a Gravel fraction between 42% and 76%; with 9% to 35% Sand and 6% to 22% Silt/ Clay fractions with variable Cobble content 0% to 23%. The grading analysis for the SAND indicated a Sand fraction between 60% and 77%; with 7% to 13% Gravel and 17% to 27% Silt fractions.





In-situ tactile assessment of the cohesive deposits described soft to firm clay soils indicative of an undrained shear strength ranging 40kPa to 150kPa (BS8004, Code of practice for Foundations, 1986).

Undrained shear strength was assessed as follows:

Cu (kPa) = N_{SPT} x f_1 (Stroud, 1975),

where f_1 being function of plasticity;

PI= 9 - 20 factor f_1= 5.0;

taking a range of standard penetration test N_{SPT}= 11 to 20, undrained shear strengths of the order 55kPa to 100kPa are expected for deposits below 1.0m bgl describing firm to stiff CLAY. Elevated N_{SPT} values are attributed to coarse Cobbles particles and more granular deposits.

For Gravels a characteristic N_{SPT}= 17 to 36 for the medium dense to dense deposits, indicated an angle of friction ϕ = 29° to 36° where;

$$\phi = (12N)^{0.5}+15$$

Bulk density was determined as follows:

Cohesive: $\gamma_{sat} = 16.8 + 0.15N_{60}\ (kN/m^3)$

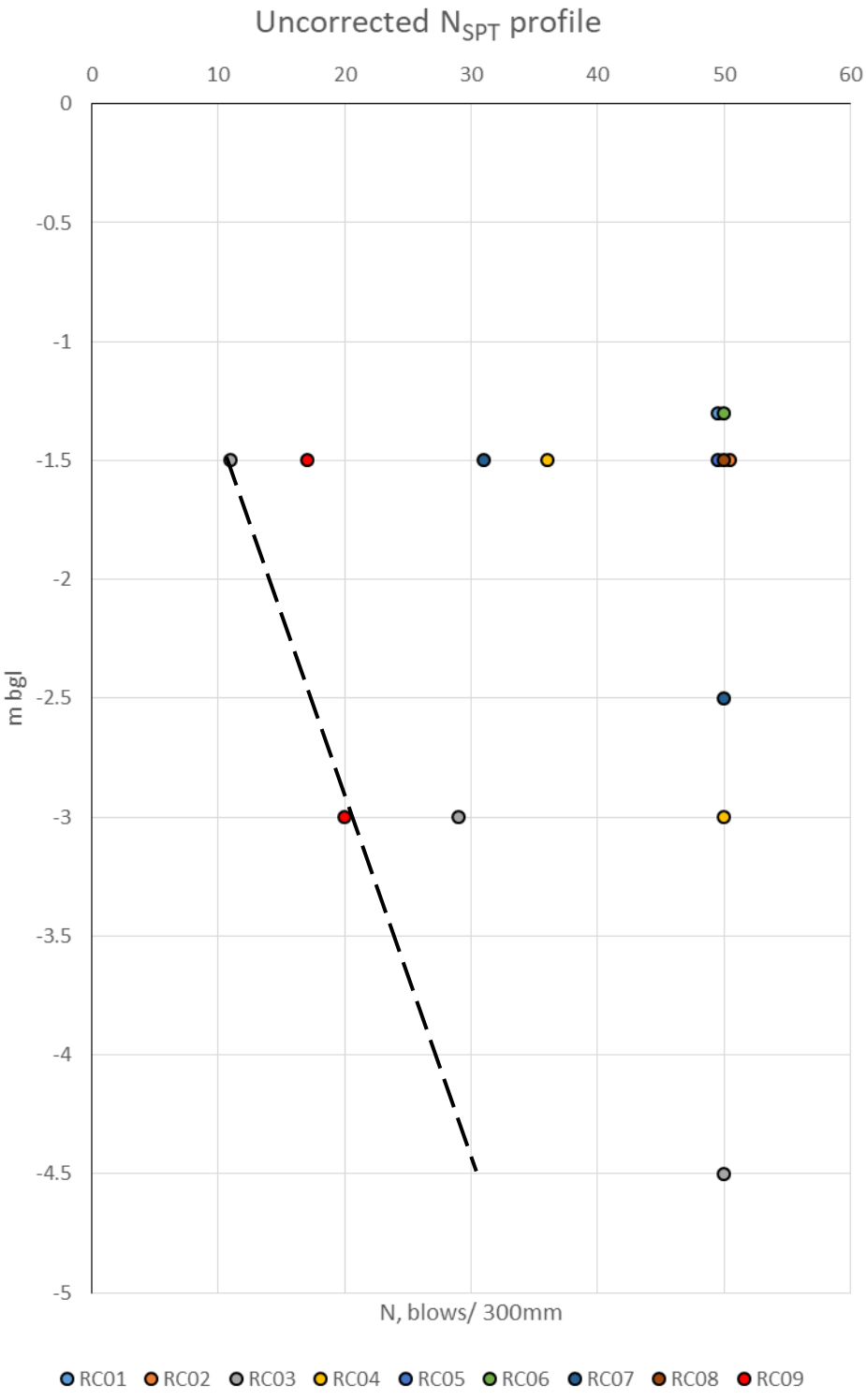
Granular: $\gamma_{sat} = 16.0 + 0.1N\ (kN/m^3)$

The unit weight has been adjusted for bulk density and dry density based on moisture content data.

Strata	Characteristic N_{SPT}	Unit weight, kPa	Moisture content, *w*%	Bulk density, Mgm^{-3}	Dry density, Mgm^{-3}	
CLAY	11	18.45	11 - 17	1.88	1.61	1.69
	20	19.80		2.02	1.73	1.82
GRAVEL	17	17.70	11 – 19 [3]	1.80	1.52	1.63
	36	19.60		2.00	1.68	1.80

A bulk factor of 1.35 is recommended for earthworks volumes.

[3] Elevated moistures 30% and 33% have been omitted from this assessment.


Uncorrected N_{SPT} profile
0
10
20
30
40
50
60
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
m bgl
N, blows/ 300mm
RC01
RC02
RC03
RC04
RC05
RC06
RC07
RC08
RC09

The SANDSTONE bedrock has not been characterised where it has been previously assessed, PGL report ref: P17105: CIV- CIII, poor to fair, weak bedrock. The rotary boreholes have been provided primarily to allow for groundwater monitoring associated with the hydrogeological reporting, by Others.

Foundations

It is recommended to found within weathered bedrock, below depths of 1.0m bgl to 1.6m bgl. It is also recommended to found within the firm cohesive CLAY and medium dense GRAVEL deposits below depths of 1.0m bgl. Shallow strip foundations are considered. Where there is a variation in elevation (topography) stepped foundations shall be considered; in accordance with Diagram 12. Elevation of steeped foundations (TG Doc A, 2012).

A presumed bearing pressure, PABV of 75kN/m^2 (kPa) to 150kPa is expected of firm CLAY deposits (BS8004 Code of practice for foundations, 1986, Table 1). A presumed bearing pressure of 200kPa to 600kPa is expected of medium dense GRAVEL deposits (BS8004, 1986).

Table 1 — Presumed allowable bearing values under static loading

NOTE These values are for preliminary design purposes only, and may need alteration upwards or downwards. No addition has been made for the depth of embedment of the foundation (see 2.1.2.3.2 and 2.1.2.3.3).

Category	Types of rocks and soils	Presumed allowable bearing value		Remarks
		kN/m^2 [a]	kgf/cm^2 [a] tonf/ft^2	
Rocks	Strong igneous and gneissic rocks in sound condition	10 000	100	These values are based on the assumption that the foundations are taken down to unweathered rock. For weak, weathered and broken rock,
	Strong limestones and strong sandstones	4 000	40	
	Schists and slates	3 000	30	
	Strong shales, strong mudstones and strong siltstones	2 000	20	
Non-cohesive soils	Dense gravel, or dense sand and gravel	> 600	> 6	Width of foundation not less than 1 m. Groundwater level assumed to be a depth not less than below the base of the foundation. For effect of relative density and groundwater level, .
	Medium dense gravel, or medium dense sand and gravel	< 200 to 600	< 2 to 6	
	Loose gravel, or loose sand and gravel	< 200	< 2	
	Compact sand	> 300	> 3	
	Medium dense sand	100 to 300	1 to 3	
	Loose sand	< 100	< 1	
		Value depending on degree of looseness		
Cohesive soils	Very stiff boulder clays and hard clays	300 to 600	3 to 6	Group 3 is susceptible to long-term consolidation settlement (see 2.1.2.3.3). For consistencies of clays, see Table 5
	Stiff clays	150 to 300	1.5 to 3	
	Firm clays	75 to 150	0.75 to 1.5	
	Soft clays and silts	<75	<0.75	
	Very soft clays and silts	Not applicable		
Peat and organic soils		Not applicable		
Made ground or fill		Not applicable		

[a] 107.25 kN/m^2 = 1.094 kgf/cm^2 = 1 tonf/ft^2.

Where foundations are to be constructed within the weathered rock mass, BS8004 (1986) identified a presumed bearing value of 2,000 kN/m^2 for non-weathered strong Sandstone/ Siltstones (Group 4). In accordance with *Figure 1 — Allowable bearing pressures for square pad foundations bearing on rock (for settlement not exceeding 0.5 % of foundation width*) this should be reduced to a value within the range of 100kPa to 250kPa for shallow strip foundations in the bedrock with non-intact fractures fracture spacing 40mm- 200mm. A minimum foundation width; 365mm to 450mm is required where founding in the weathered rockmass (TGD Pt. A; Building Regulations 2012).

A characteristic shear strength of 55kPa (N_{SPT} = 11) is recommended at a depth below 1.0m bgl. Taking a partial factor of safety, 1.4, for assumed founding dimensions yields an ultimate bearing pressure of q_{ult} 235kPa in the firm mixed glacial deposits (D 10.m to 1.3m, B_{min} 0.675m, bearing capacity factor Nc = 6.0, Skempton, 1951).

Fir the granular deposits a characteristic friction of $\phi = 30^o$ is recommended. Taking a partial factor of safety, 1.25, for assumed founding dimensions yields an ultimate bearing pressure of q_{ult} 210kPa to 235kPa in the medium dense granular deposits (D 1.0m, B_{min} 0.675m, bearing capacity factor Nc = 19.8, $N\gamma$ 6.89 and Nq 9.6, Terzaghi, 1943). Where groundwater is present a depth B below the foundation a reduction in an ultimate bearing pressure to a value of q_{ult} 115kPa, may be expected.

Location	Top of Rock mOD	Proposed depth to foundation		Groundwater		Strata	PABV, kPa
		mOD, Malin	m bgl	m bgl	mOD, Malin		
RC01	73.77	73.77	1.3	1.3	73.77	SILTSTONE	250
RC02	84.31	84.31	1.3	1.5	84.11	SANDSTONE	250
RC03	76.69	79.49	1.5	4.3	76.69	CLAY	75
RC04	95.54	95.54	1.5	3.3	93.74	SANDSTONE	250
RC05	109.75	109.75	1.3	2.5	108.55	SANDSTONE	250
RC06	64.52	64.52	1.3	1.3	64.52	SANDSTONE	250
RC07	71.53	72.53	1.5	3.0	71.03	CLAY	75
RC08	87.32	87.32	1.5	1.5	87.32	SANDSTONE	250
RC09	-	-	-	*1.07*	*69.7*	-	-
TP01	83.78	83.78	1.2	-	-	SILTSTONE	250

Location	Top of Rock mOD	Proposed depth to foundation		Groundwater		Strata	PABV, kPa
		mOD, Malin	m bgl	m bgl	mOD, Malin		
TP02	84.28	85.38	1.3	-	-	Slightly sandy gravelly SILT	75
TP03	85.83	87.13	1.5	-	-	Sandy very clayey GRAVEL	100
TP04	77.7			-	-	Clayey very sandy GRAVEL	100
TP05	79.87	80.67	1.0	-	-	Slightly sandy gravelly CLAY	75
TP06	77.1	77	1.0	-	-	SILTSTONE	250
TP07	77.74	78.6	1.0	3.5	76.14	Clayey sandy GRAVEL	100
TP08	68.6	68.6	1.1	1.8	67.9	SANDSTONE	250
TP09	73.53	75.4	1.0	1.8	74.63	Slightly sandy gravelly CLAY	75
TP10	68.32	70.0	1.0	3.6	67.42	Slightly sandy gravelly SILT	75
TP11	-	97.5	0.9	-	-	SANDSTONE	250
TP12	-	97.2	1.5	1.5	97.18	Slightly sandy gravelly CLAY	75
TP13	79.1	79.1	1.0	-	-	Clayey sandy GRAVEL	100
TP14	-	93.29	1.0	-	-	Slightly sandy gravelly SILT	75
TP15	101.86	102.61	1.0	-	-	Slightly sandy gravelly SILT	75
TP16	125.27	126.27	1.0	2.4	124.87	Slightly sandy gravelly SILT	75
TP17	125.4	126.7	1.0	2.7	125	Clayey sandy GRAVEL	100
TP18	126.25	125.65	1.0	-	-	SANDSTONE	250
TP19	125.8	127.2	0.5	-	-	GRAVEL	100
TP20	126.14	127.7	0.5	-	-	GRAVEL	100
TP21	-	-	-	0.8	69.12	-	-
TP22	65.78	-	-	2.5	66.88	-	-
TP23	-	-	-	1.2	69.77	-	-
TP24	-	-	-	0.7	70.17	-	-

Locations TP21 to TP24 and RC09 were outside the housing layout in lands on the other side of the R614.

For a characteristic N_{SPT}= 11 in the CLAY/ SILT deposits an allowable bearing pressure up to 75 to 100kPa is expected for an upper limit of 25mm settlement (Terzaghi and Peck, 1967) for a minimum foundation width 675mm.

For a characteristic N_{SPT}= 20 in the GRAVELS an allowable bearing pressure up to 100kPa is expected for an upper limit of 25mm settlement for a minimum foundation width 675mm where a factor of 0.5 has been applied to allow for the influence of groundwater (Terzaghi and Peck, 1967).

It is recommended to undertake a plate loading tests at foundation level 1.0m bgl in superficial deposits, to fully assess settlement and bearing capacity of the in situ glacial deposits.

Re-use of deposits

Trial pits TP01 – TP12 form the basis for this current assessment associated with Neighbourhood 2. With plasticity indices, PI 6 to 20 the deposits are at the lower limit of suitability for soil improvement. Ordinary Portland Cement was considered and included in the trial binder additions where the plasticity was low, PI<10. A series of initial consumption of lime, ICL tests were carried out and it was identified that 1% and 1.5% lime [4] provided for the minimum required pH 12.4.

A programme of binder additions was detailed to assess soil improvement.

Binder	
Lime, % dry wt.	**OPC, % dry wt.**
1.0	2.0
1.5	-
1.5	3.0
2.0	2.0
3.0	-

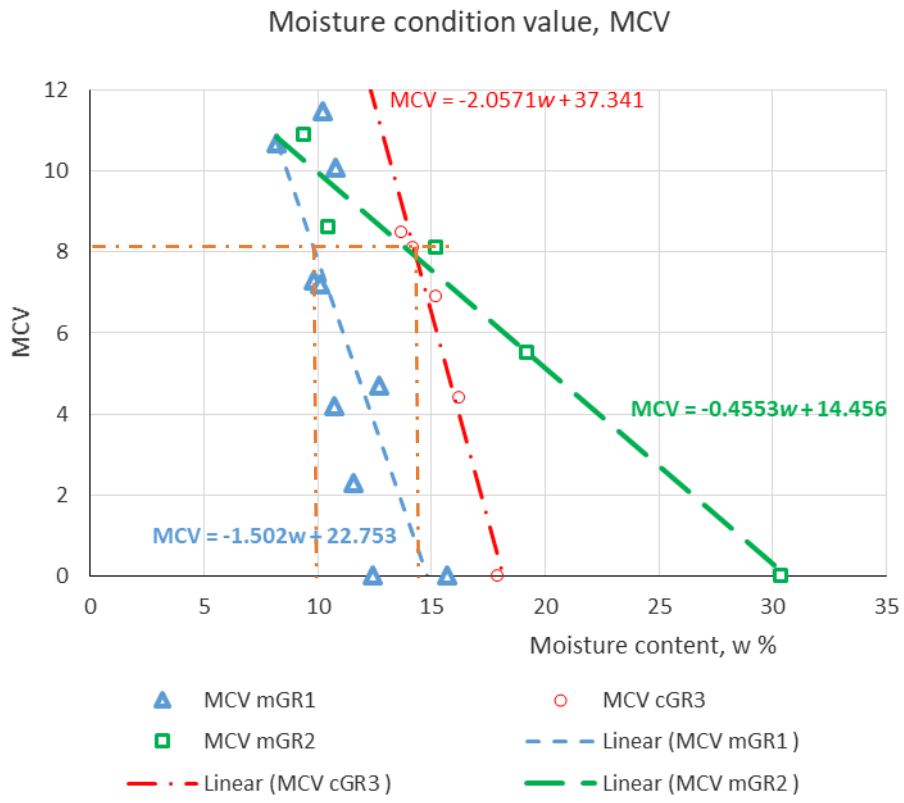
California bearing ratio, CBR was used to determine the degree of improvement. Specimen with varied binder additions were prepared and specimen cured (soaked) for a period of 28 days prior to testing.

The standard compactive effort associated with the CBR testing was applied (2.5kg drop hammer, 3 layers of 62 blows evenly distributed over each layer).

[4] Clogrennane Lime Ltd, Co. Carlow; CaO Calcium Oxide: Clayfix

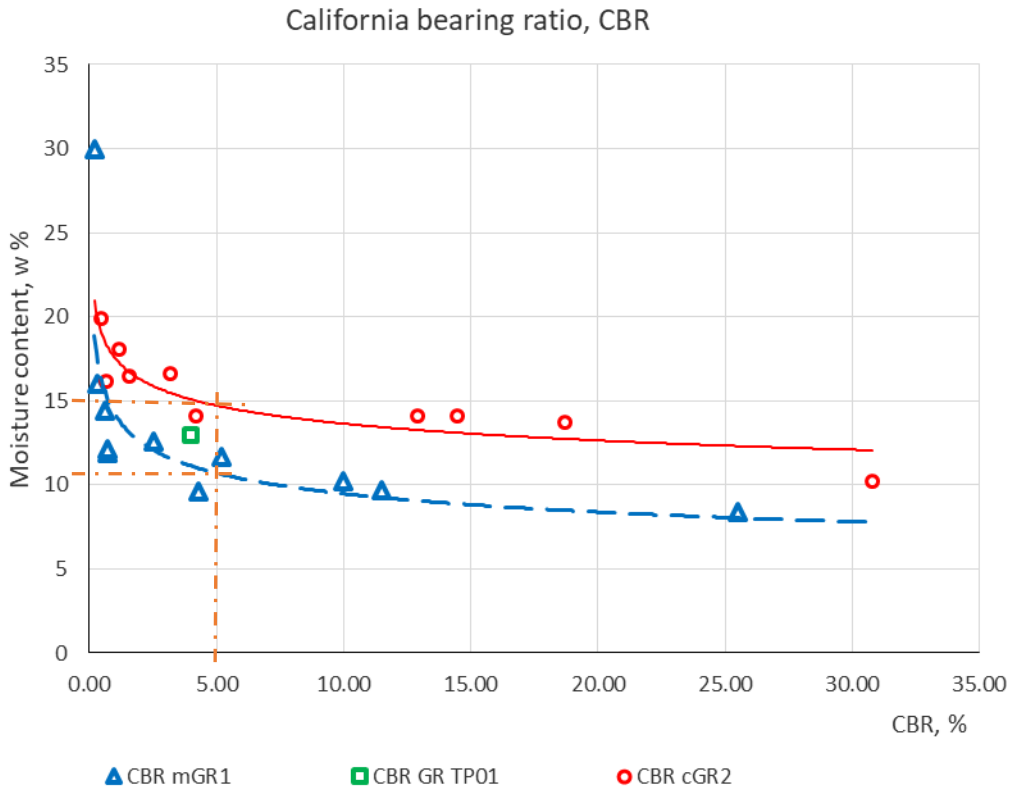
An optimum moisture content of 10.3% and 11.0% has been determined for the clayey GRAVEL deposits. Typically compaction 95% maximum dry density (2.0 - 2.1Mgm^{-3}) can be achieved within the range of moisture content 9% up to 15%. Some drying -1% may be necessary. A minimum MCV8 is achieved at optimum moisture content to moistures -2% to -4% dry of optimum.

An optimum moisture content of 14.6% and 15.3% has been determined for the silty GRAVEL deposits with higher fines contents. Typically compaction 95% maximum dry density (1.8 - 2.1Mgm^{-3}) can be achieved within the range of moisture content 8% up to 19%. A minimum MCV8 is achieved at moisture content -2% dry of optimum.



MCV8 is achieved a natural moisture content 10% to 15%. Typically drying of -1% to -4% is required for the clayey GRAVEL, cGR to be suitable for re-use as general cohesive fill. It is expected to be achievable by stockpiling and air drying with the exception of the upper silty GRAVEL, mGR of high plasticity (TP02 0.5m).

A minimum MCV8 is achieved at moisture content -2% to -4% dry of optimum.



The CBR data has been summarised and group based on optimum moisture content and maximum dry density data mGR1 (TP02 and TP04; optimum moisture content 10.3% - 11.0% 2.0Mgm^{-3} to 2.1Mgm^{-3}) and cGR2 (TP03; optimum moisture content 14.6% - 15.3% 1.8Mgm^{-3} to 1.9Mgm^{-3}). A CBR5% is achieved at moisture content below 11% and 15%.

The re-compacted deposits associated with the propose earthworks outline were assessed using the following relationship(s);

q_{ult} (kPa) = (CBR% -1.5) x 65 or

q_{ult} (kPa) = CBR% x 70;

c_u (kPa) = CBR% x 23 (TRRL 889, 1979);

Log_{10} c_u (kPa) = 0.82 + 0.126 x MCV (Davitt, 1989);

Log_{10} CBR(%) = -0.65 + 0.140 x MCV;

In general for a California bearing ratio >CBR2.0%, an undrained shear strength of greater than 50kPa is expected with equivalent Moisture condition values >MCV8 and standard penetration test N_{SPT} >10.

Processing of excavated deposits shall be by a combination of air drying for the granular deposits and improvement with Lime binder for the cohesive deposits; to provide a minimum re-compacted CBR5%.

q_{ult} 227kPa *= (5.0% -1.5) x 65*

q_{ult} 350kPa = 5% x 70

c_u 115kPa *= 5 x 23 (TRRL 889, 1979)*

c_u 75kPa = 5 x 15 (PGL, 2019)

Location	Depth, m bgl	Natural moisture content, *w* %	$CBR_{natural}$, %	Binder, % dry wt.		CBR_{binder}, %	Strata	CBR change, CBR% per % binder	Air drying, *w* % change
				Lime	OPC				
TP01	0.5	13	4.0	-		-	Silty GRAVEL	-	-4
TP02	0.5	30	0.2	-		-	Very silty GRAVEL	-	-18
TP12	0.5	30	0.2 *	3	-	2.3		0.7	
TP02	1.5	16	0.3	**1.5**	-	**8.5**	SILT	5.5	-5
TP03	0.5	19	1.2	-		-	Very silty GRAVEL	-	-4
	1.5	16	1.6	1	2	35	Clayey GRAVEL	11.1	-2
TP04	0.5	14	0.7	**1.5**	-	**15**	Clayey GRAVEL	9.5	-5
TP05	0.5	17	1.0 **	1	2	29	CLAY	9.3	-7
				2	2	49		12.0	
	1.0	11	4.0 **	1.5	3	76		16	-1

* Data referenced TP02 0.5m

** Data referenced TP02 1.5m

To allow for variance, an additional +0.5% Lime binder is provided for in the design binder. No % increase is required for OPC binder additions, where required.

It is recommended to provide for the addition of 2% Lime to improve the excavated deposits to provide a design CBR5% for foundations. It is undetermined the %binder required to improve the high plasticity (MH) deposits where binder addition 3% Lime achieved CBR2.3%. It isanticipated that a % OPC may be necessary, possibly 2%.

It is recommended to provide for the addition of 2% Lime to improve the excavated deposits to provide a design CBR5% for ground bearing floor slab with the exception of the high plasticity deposits.

A target MCV10 is recommended for basic quality control.

It is recommended to undertake a plate loading test at formation level to fully assess settlement and bearing capacity (California bearing ratio, CBR) of the re-compacted (improved) deposits where associated with the earthworks outline.

Soil improvement and Quality control procedures

A site trial and programme of quality control will be required.

- Prior to improvement, it shall be confirmed that the deposits to be improved (feed stock) are the same as those deposits assessed as part of the ground investigation and where any variance in moisture content, plasticity and sulphates are identified; the appropriate revisions to the proposed % binder reviewed/ applied.

- The natural moisture content of each volume of earthworks shall be determined to allow determination of the %binder where a value of 2% Lime is based on the soil dry weight (2% Lime is 20g Lime per 1kg dry soil).

- A site trial shall be undertaken or demonstration area prepared (minimum of 500m^2) to assess design binder content, the spread rate and bearing capacity provided by the minimum design CBR. The mixing, curing (mellowing) period, pulvarisation and compactive methods shall be assessed for their effectiveness.

- The formation shall be adequately compacted prior to placing improved soils. The binder shall be applied and the rate of spread checked and adjusted as necessary.

- Check the mix-depth and adjust as necessary. The mix depth shall not exceed 300mm.

- A minimum curing time of 4 hours is recommended for the Lime binder before the compactive effort is applied.

- Moisture condition value, MCV target MCV10 shall be determined prior to application of the compactive effort for each area up to 500m^2.

- Check the degree of pulvarisation prior to application of the compactive effort. It may be necessary to apply further mixing prior to compaction. A minimum of six (6) passes of a vibratory smooth wheeled roller of minimum weight 4300kg per meter width shall be applied where the grading analysis identified Class 1 general cohesive deposits (Specification for roadworks, Table 6/4).

- A specimen shall be collected and prepared for California bearing ratio, CBR testing allowing for a period of 7 days curing in the soaked condition to verify the deign CBR.

- A plate loading test shall be carried out to assess the degree of compaction and in situ CBR for each compacted layer.

The above points are provided as a guidance to aid in the specification of the soil improvement. A Specialist Contractor shall be engaged to undertaken the works to provide a suitable programme of soil improvement to provide for a minimum design CBR5%. A design binder addition of +2% Lime has been recommended.

It may be require to provide an additional 2% OPC to improve high moisture content high plasticity deposits.

Hard standing

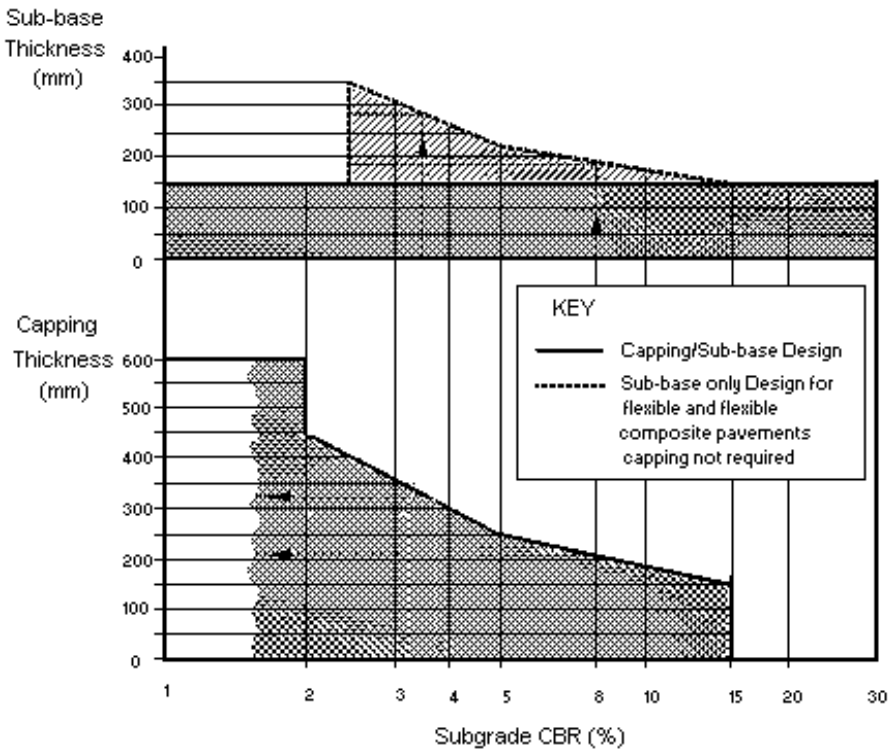
California bearing ratio, CBR of CBR0.2% to CBR4.0% in the upper layers 0.5m bgl.

Location	Depth, m bgl	Natural moisture content, *w* %	$CBR_{natural}$, %	Capping thickness, mm	Sub-base thickness, mm
TP01	0.5	13	4.0	300	150
TP02	0.5	30	0.2	600	150
TP12	0.5	30	0.2	600	150
TP03	0.5	19	1.2	600	150
TP04	0.5	14	0.7	600	150
TP05	0.5	17	1.0	600	150

Capping 600mm thick and a sub-base thickness of 150mm is recommended for hard standing and pavement construction in accordance with Tii DMRB Vol 7 Pt 2A, TD25-26/1- Figure 4.1.

The improvement of the formation using +2.0% lime binder may also be considered to provide CBR15% without a capping requirement in the GRAVEL deposits. Alternatively using +1.5% lime binder may also be considered to provide CBR8% with a capping requirement 200mm and 150mm sub-base in the more cohesive deposits, subject to finish road levels and the requirement to maintain an earthworks balance within the site.

Drainage shall be provide a minimum 600mm below the underside of capping to maintain equilibrium CBR.



Groundwater

Groundwater was encountered 0.7m bgl and 7.5m bgl (64.52mOD -108.55mOD). It has been assumed that further and more detailed assessment of the groundwater regime and hydrogeology has provided by JBA Consulting.

Groundwater was encountered, however seasonal variations may occur. Groundwater in cuttings 2.0m is identified as a design risk.

Particle size d_{10} ranged from 0.212mm to 0.02mm for the GRAVEL deposits, indicative of permeabilities within the range $4.5x10^{-4}$ ms^{-1} to $4.0x10^{-6}$ ms^{-1}, describing medium to low permeability.

Infiltration viability may be given full consideration where an infiltration coefficient of magnitude 10^{-5} ms^{-1} or greater exists (SUDS Manual C753, 2015). Soakaways may be considered as a form of drainage control within the site where further investigation is undertaken at the proposed locations.

It is recommended that soakaways are lined with a non-woven geotextile separator to prevent immigration of fines and an associated loss of capacity.

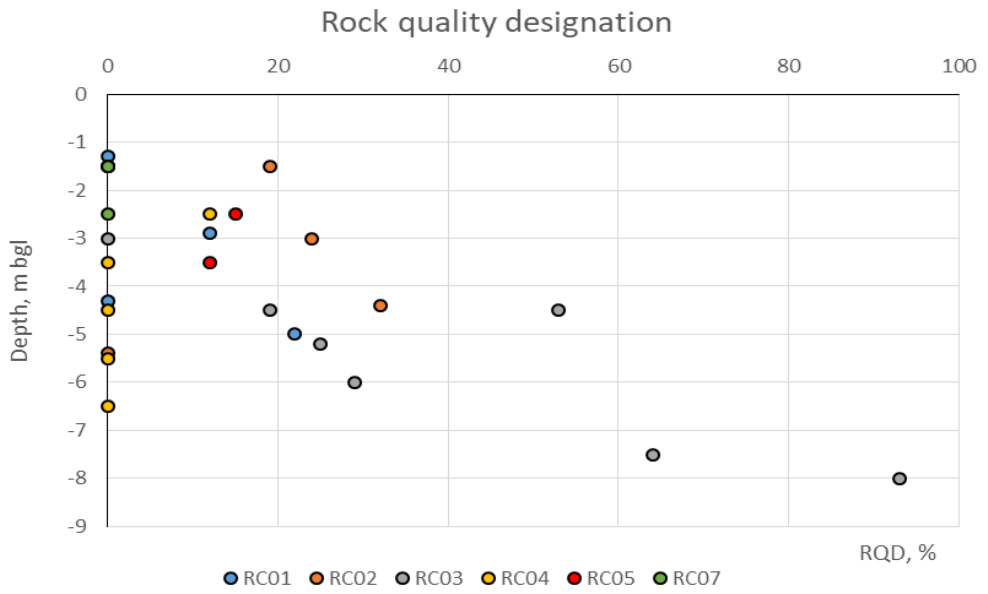
Alternative forms of surface water control such as oversized pipework and swails shall be considered. Detention or attenuation of surface water and rainfall may be considered as a means of control and provision of a non-potable water supply (harvesting).

Excavations

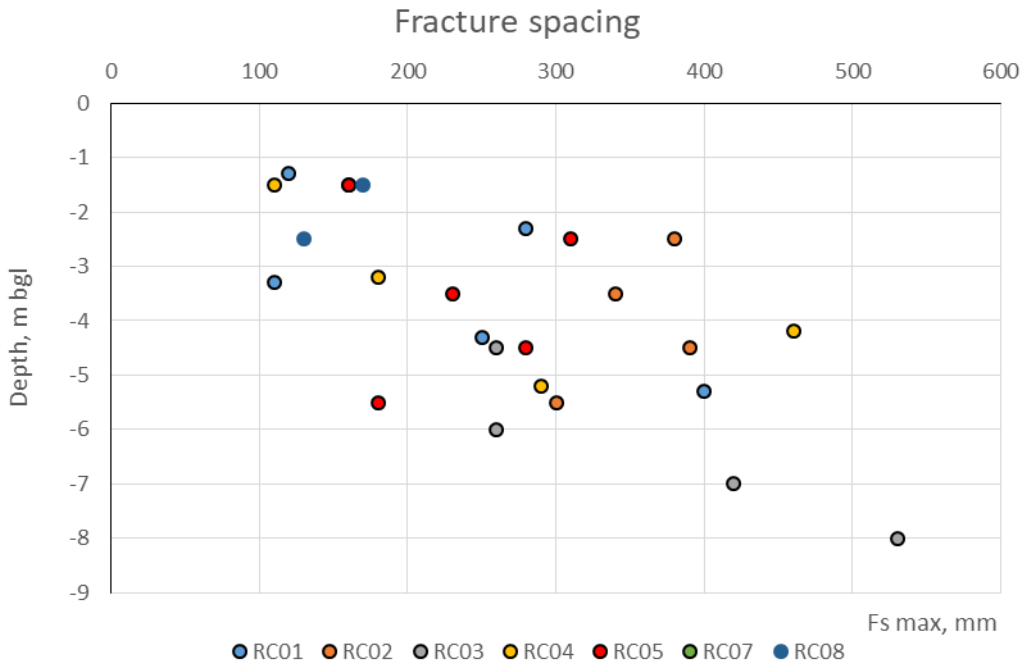
Excavations shall be by means of hydraulic excavator in the superficial deposits. Trial pit stability was described as moderate to good with poor stability at TP21 to TP24 where SAND was encountered. Excavations into the weathered rockmass up to a depth 2.5m were achieved using a 13t tracked excavator.

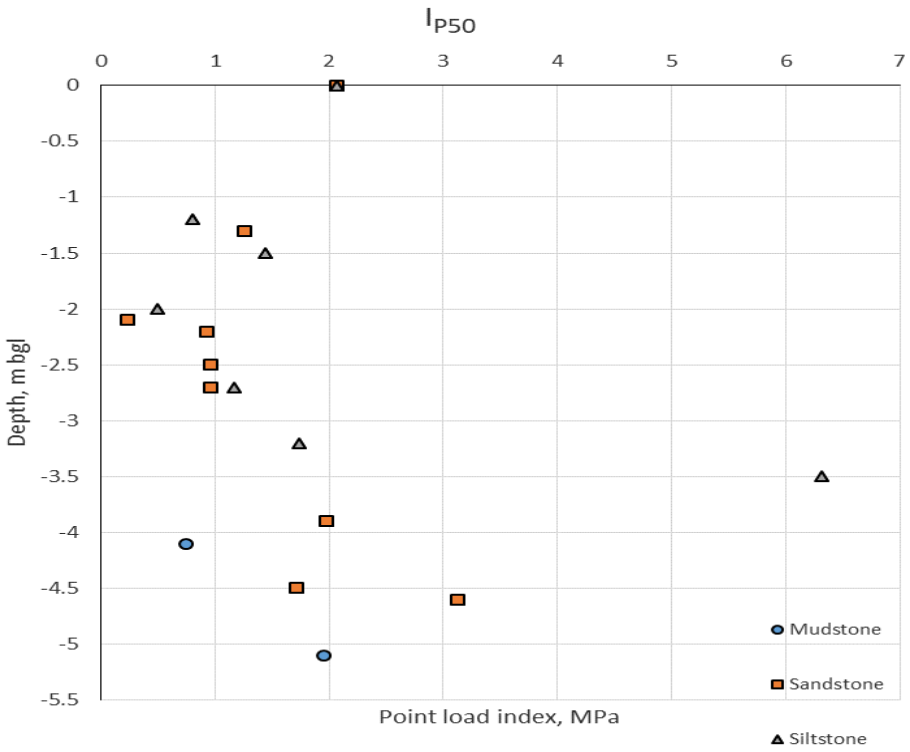
Location	Depth of excavation, m bgl	Stability	Depth to rock, m bgl
TP01	2.1	Moderate	1.2
TP02	3.0	Moderate	2.4
TP03	3.4	Moderate.	2.8
TP04	3.4	Moderate.	2.4
TP05	2.9	Moderate.	1.8
TP06	2.1	Moderate.	0.9
TP07	3.5	Moderate.	1.9
TP08	1.8	Moderate.	1.1
TP09	3.2	Moderate.	2.9
TP10	3.6	Moderate.	2.7
TP11	3.0	Moderate.	-
TP12	2.4	Moderate.	-
TP13	2.5	Moderate.	1.6
TP14	2.5	Moderate.	-
TP15	2.9	Moderate.	1.75
TP16	2.4	Good.	2.0
TP17	2.7	Moderate.	2.3
TP18	2.9	Moderate.	0.4
TP19	1.9	Moderate.	1.9
TP20	2.5	Moderate.	2.1
TP21	3.5	Poor.	-
TP22	3.6	Moderate.	3.6
TP23	3.5	Poor.	-
TP24	3.5	Poor.	-

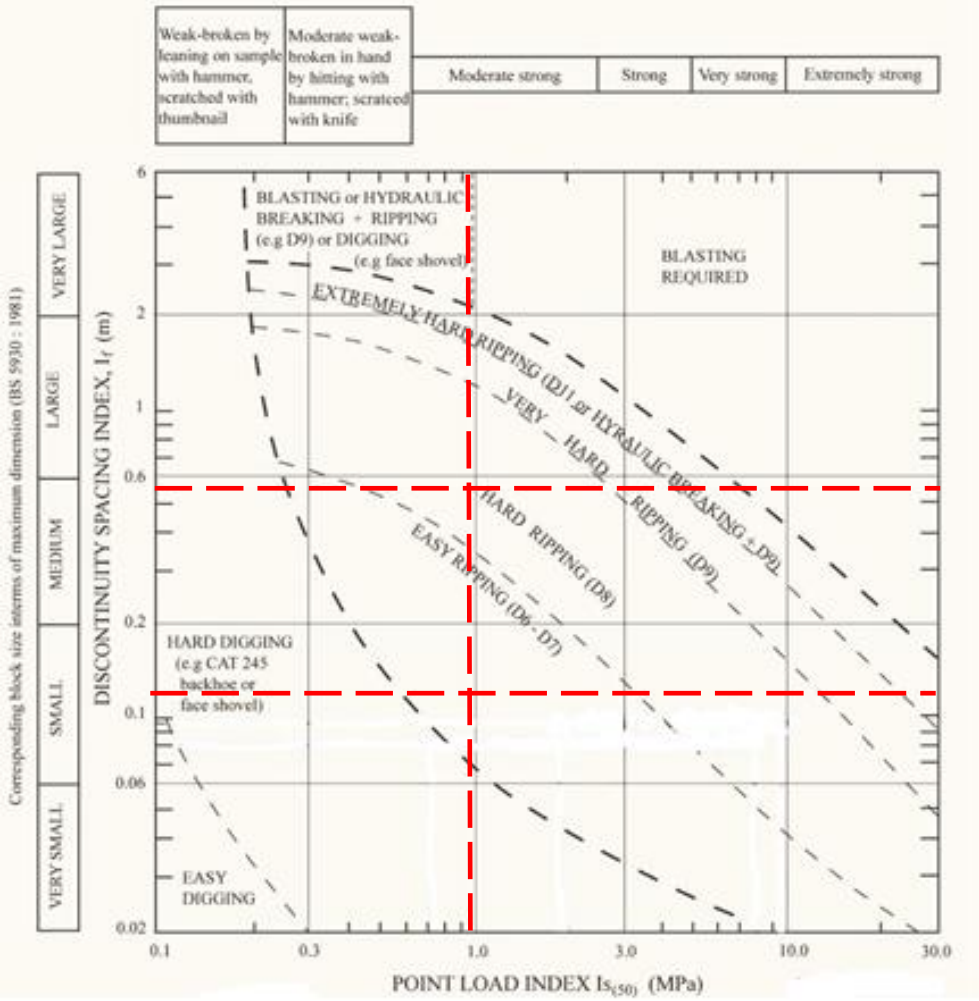
Rock quality designation typically<25% for the weak to medium strong rockmass.



With maximum fracture spacing ranging between 110mm to 530mm where strenght is assumed characterised by point load index I_{P50} 0.96MPa to 2.1MPa (P17105) excavation can be expected tobe by means of hydraulic ripping and breaking.




I_{P50}
0
1
2
3
4
5
6
7
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
Depth, m bgl
Point load index, MPa
Mudstone
Sandstone
Siltstone



Provisionally, a cut angle of 1H:1.5V is recommended where it can be expected that cuttings will be compound in superficial deposits and the weathered rock mass. No further assessment is provided at this time.

Chemical

Based on the pH (6.2 to 8.0) and sulphate (<0.010g/l and <0.010% to 0.028%) data indicate design sulphate class DS-1 in accordance with BRE Digest for concrete in aggressive ground for static groundwater conditions. With pH 6.2 (PH5.5- 6.5) acidic conditions were identified. The use of acid resistant cement is required.

It is expected to interact with the bedrock within the earthworks outline. With Total Sulphur <0.010% to 0.20% in the bedrock, there is no pyrite content (TS 0.3% to 1.0% I.S. 398 Part 1); sulphates were below the limit 0.2%.

Location	TP01	TP02	TP02	TP02	TP03	TP04	TP04
Top depth, m bgl	1.5	0.5	1.5	2.5	1.5	0.5	2.5
Moisture, %	14	21	11	14	11	9.6	9.2
pH	7.2	**6.5**	**6.4**	**6.2**	6.6	7.0	7.3
Sulphate (2:1 Water Soluble) as SO4, g/l	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur, %	< 0.010	0.013	< 0.010	0.013	< 0.010	< 0.010	< 0.010
Sulphate (Acid Soluble), %	0.028	0.022	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Location	TP05	TP06	TP09	TP09	TP09	TP19
Top depth, m bgl	1.0	1.0	1.0	2.0	2.9	0.6
Moisture, %	8.1	14	11	11	8.8	12
pH	7.5	7.2	7.0	7.1	7.5	7.1
Sulphate (2:1 Water Soluble) as SO4, g/l	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur, %	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.016
Sulphate (Acid Soluble), %	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.020

Location	TP21	TP22	TP24	TP24
Top depth, m bgl	1.0	1.5	1.0	2.5
Moisture, %	9.0	8.4	14	19
pH	7.9	8.0	7.5	7.7
Sulphate (2:1 Water Soluble) as SO4, g/l	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur, %	< 0.010	0.015	0.020	< 0.010
Sulphate (Acid Soluble), %	< 0.010	< 0.010	0.014	< 0.010

Post improvement chemistry was reviewed.

Location	TP02	TP03	TP04	TP05	TP05A	TP05B	TP12
Top depth, m bgl	1.50	1.5	0.50	1.0	0.5	0.5	0.50
Moisture, %	11	12	8.8	10	11	11	23
pH	9.2	12.3	11.2	12.5	12.4	12.6	12.2
Sulphate (2:1 Water Soluble) as SO4, g/l	**0.29**	0.13	**0.33**	0.051	0.071	0.042	0.12
Total Sulphur, %	0.19	0.048	0.071	0.069	0.051	0.045	**0.45**
Sulphate (Acid Soluble), %	**0.28**	0.13	0.12	0.15	0.091	0.088	**0.39**

The sulphate values post improvement were >0.24% requiring an increase in design sulphate class to DS-2. The no special requirements with regard to concrete mix design other than the use of acid resistant cement in untreated deposit

Should there be any queries in relation to the data collected or subsequent analysis please do not hesitate to contact our office.

Yours sincerely,
For **Priority Geotechnical,**

Greg Hayes CEng BE MEngSc MIEI
Geotechnical Specialist

No responsibility or liability can be held by PGL for ground conditions between exploratory locations. The exploratory logs provide for ground profiles and configuration of strata relevant to the investigation depths achieved during the fieldworks. Caution shall be taken when extrapolating between such exploratory locations.

The scope of the works has been defined by others. Additional works and further observations may form part of a more detailed investigation. This report may be subject to change where further information becomes available.

No account has been taken of potential subsidence or ground movement due to mineral extraction, mining works or karstification below or in proximity to the site, unless specifically addressed.

This report has been prepared for Employer and their Representative as outline, herein. The information should not be used without their prior written permission. PGL accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

KEY TO SYMBOLS ON EXPLORATORY HOLE RECORDS

All linear dimensions are in metres or millimetres

DESCRIPTIONS

**	Drillers Description
Friable	Easily crumbled

SAMPLES

U( )	Undisturbed 102mm diameter sample, ( ) denotes number of blows to drive sampler
U( )F, U( )P	F- not recovered, P-partially recovered
U38	Undisturbed 38mm diameter sample
P(F), (P)	Piston sample - disturbed
B	Bulk sample - disturbed
D	Jar Sample - disturbed
W	Water Sample
CBR	California Bearing Ratio mould sample
ES	Chemical Sample for Contamination Analysis
SPTLS	Standard Penetration Test S lump sample from split sampler

CORE RECOVERY AND ROCK QUALITY

TCR	Total Core Recovery (% of Core Run)
SCR	Solid Core Recovery (length of core having at least one full diameter as % of core run)
RQD	Rock Quality Designation (length of solid core greater than 100mm as % of core run)

Where there is insufficient space for the TCR, SCR and RQD, the results may be found in the remarks column

If	Fracture Spacing in mm (Minimum/Average/Maximum) NI - non intact, NR - no recovery
AZCL	Assumed Zone of Core Loss
NI	Non intact

GROUNDWATER

▽	Groundwater strike
▼	Groundwater level after standing period
Date/Water	Date of shift (day/month)/Depth to water at end of previous shift shown above the date and depth to water at beginning of shift given below the date

INSITU TESTING

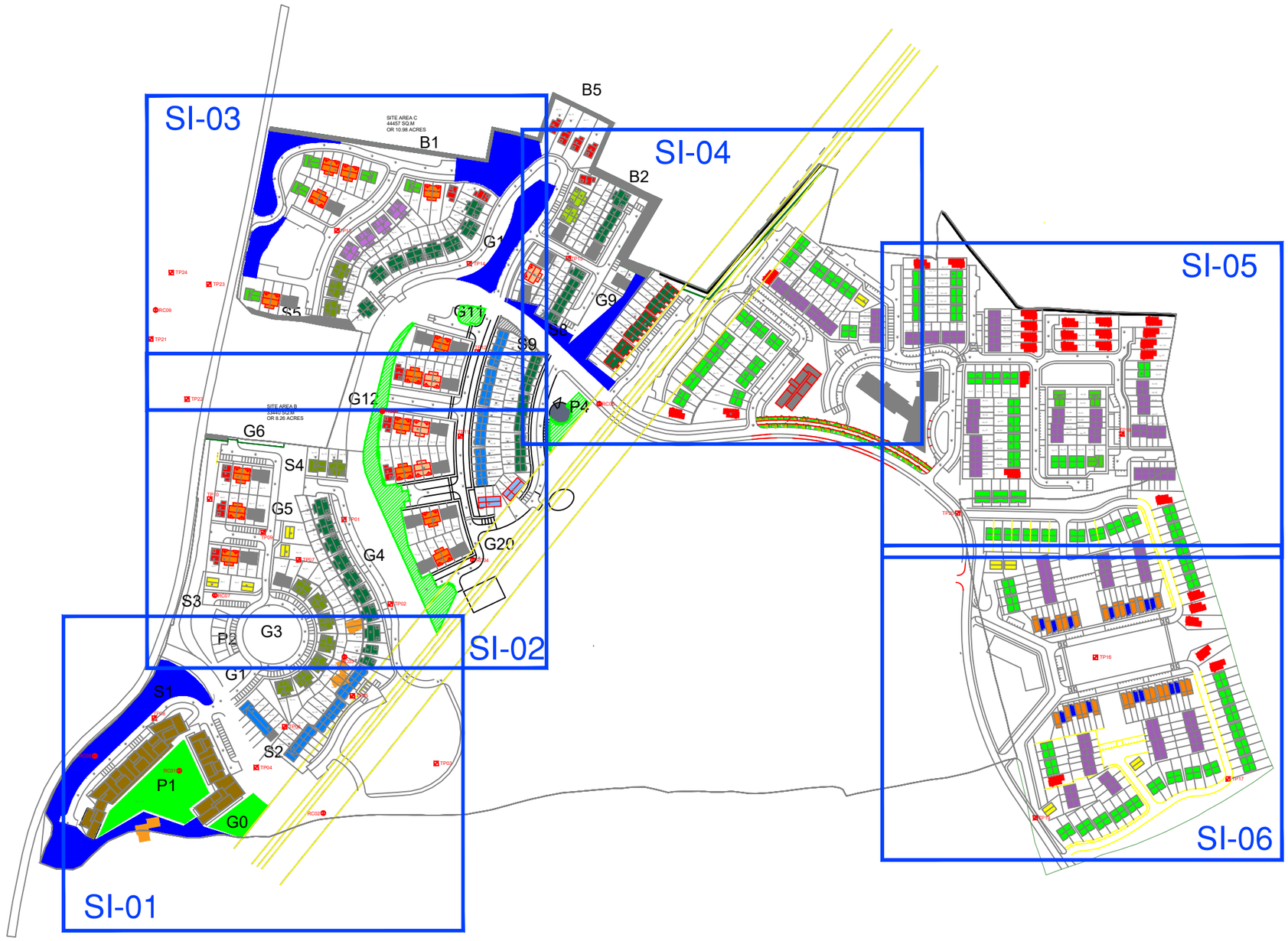
S	Standard Penetration Test - split barrel sampler
C	Standard Penetration Test - solid 60^o cone
SW	Self Weight Penetration
Ivp, HVp (R)	In Situ Vane Test, Hand Vane Test (R) demonstrates remoulded strength
K(F), (C), (R), (P)	Permeability Test
HP	Hand Penetrometer Test

MEASURED PROPERTIES

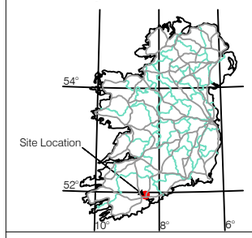
N	Standard Penetration Test - blows required to drive 300mm after seating drive
x/y	Denotes x blows for y mm within the Standard Penetration Test
x*/y	Denotes x blows for y mm within the seating drive
c_u	Undrained Shear Strength (kN/m^2)
CBR	California Bearing Ratio

ROTARY DRILLING SIZES

Index Letter	Nominal Diameter (mm)	
	Borehole	Core
N	75	54
H	99	76
P	120	92
S	146	113



Priority Geotechnical Site



JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

EXPLORATORY LOCATION LAYOUT

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-A

DRAWN BY:

Gary Curtin

DATE:

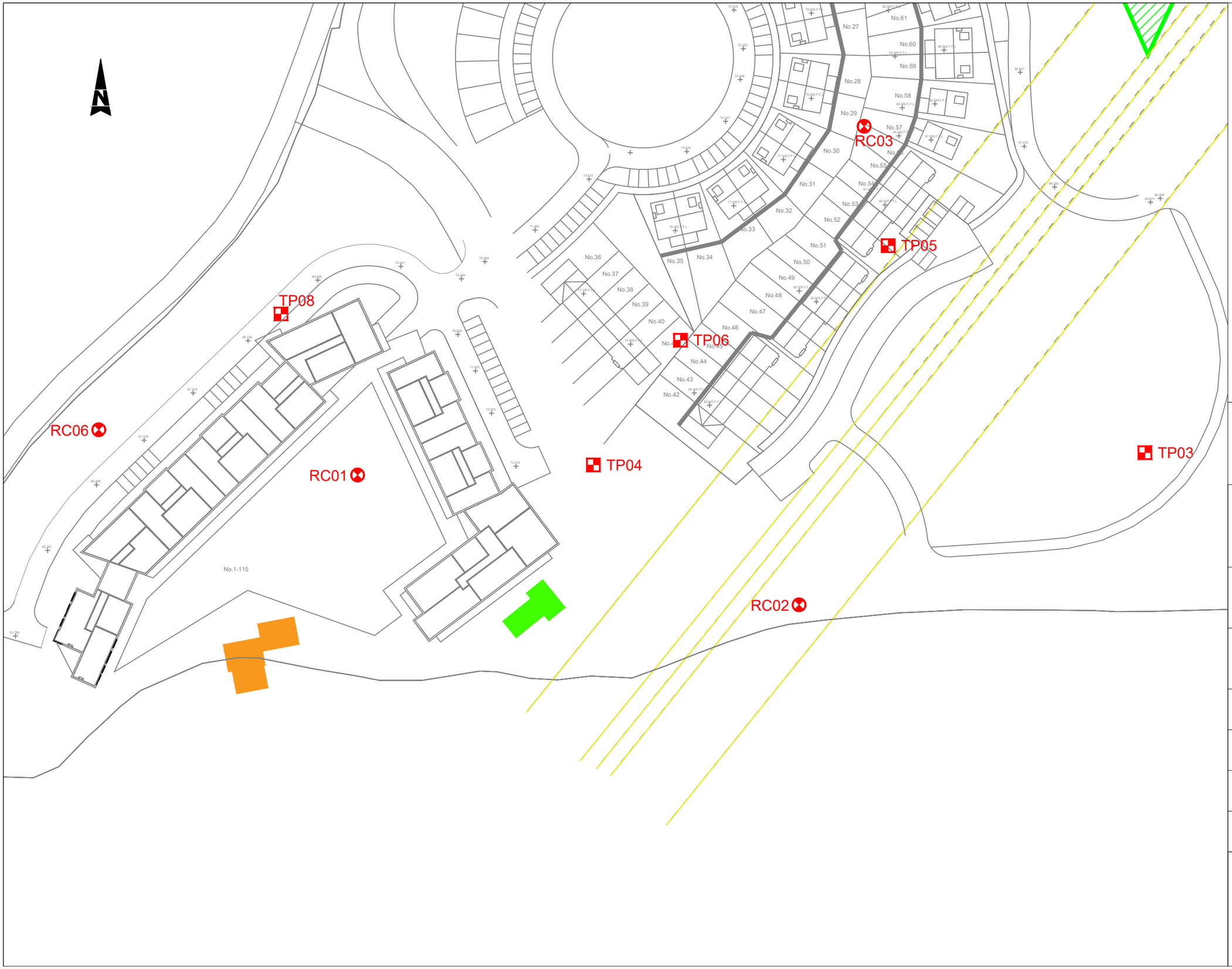
07/02/2019

SCALE:	APPROVED:
1:4000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-01

DRAWN BY:

Gary Curtin

DATE:

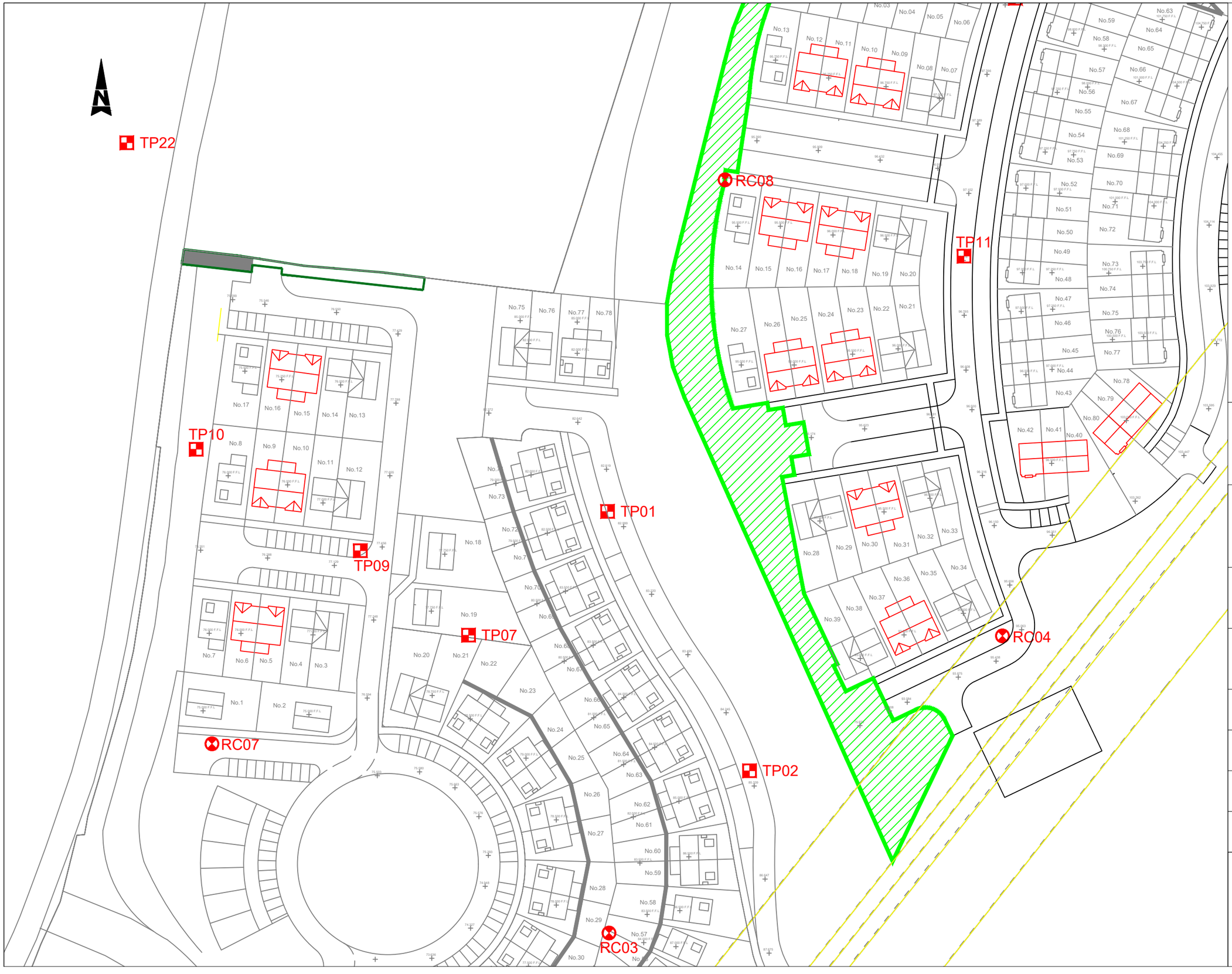
07/02/2019

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-02

DRAWN BY:

Gary Curtin

DATE:

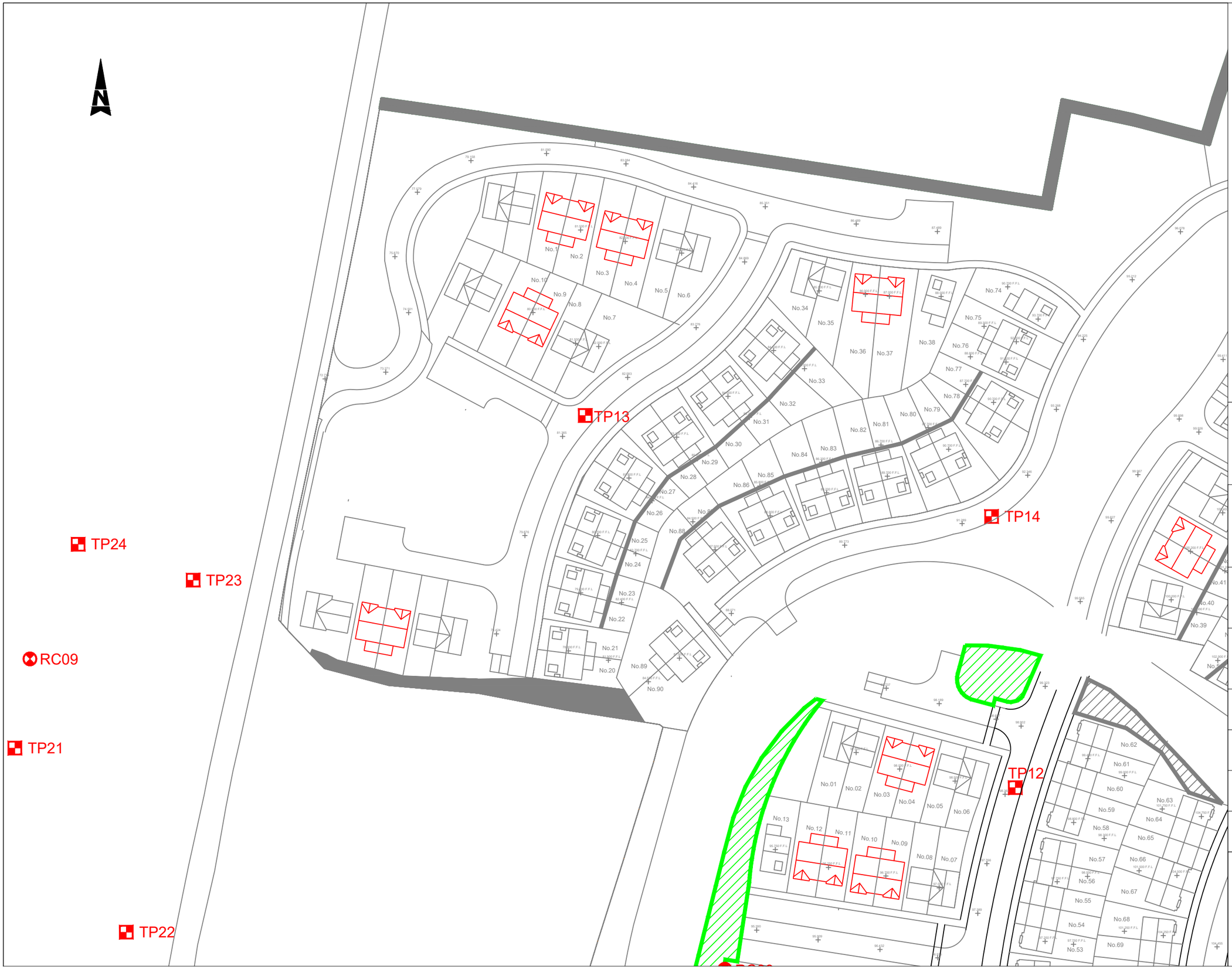
07/02/2019

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-03

DRAWN BY:

Gary Curtin

DATE:

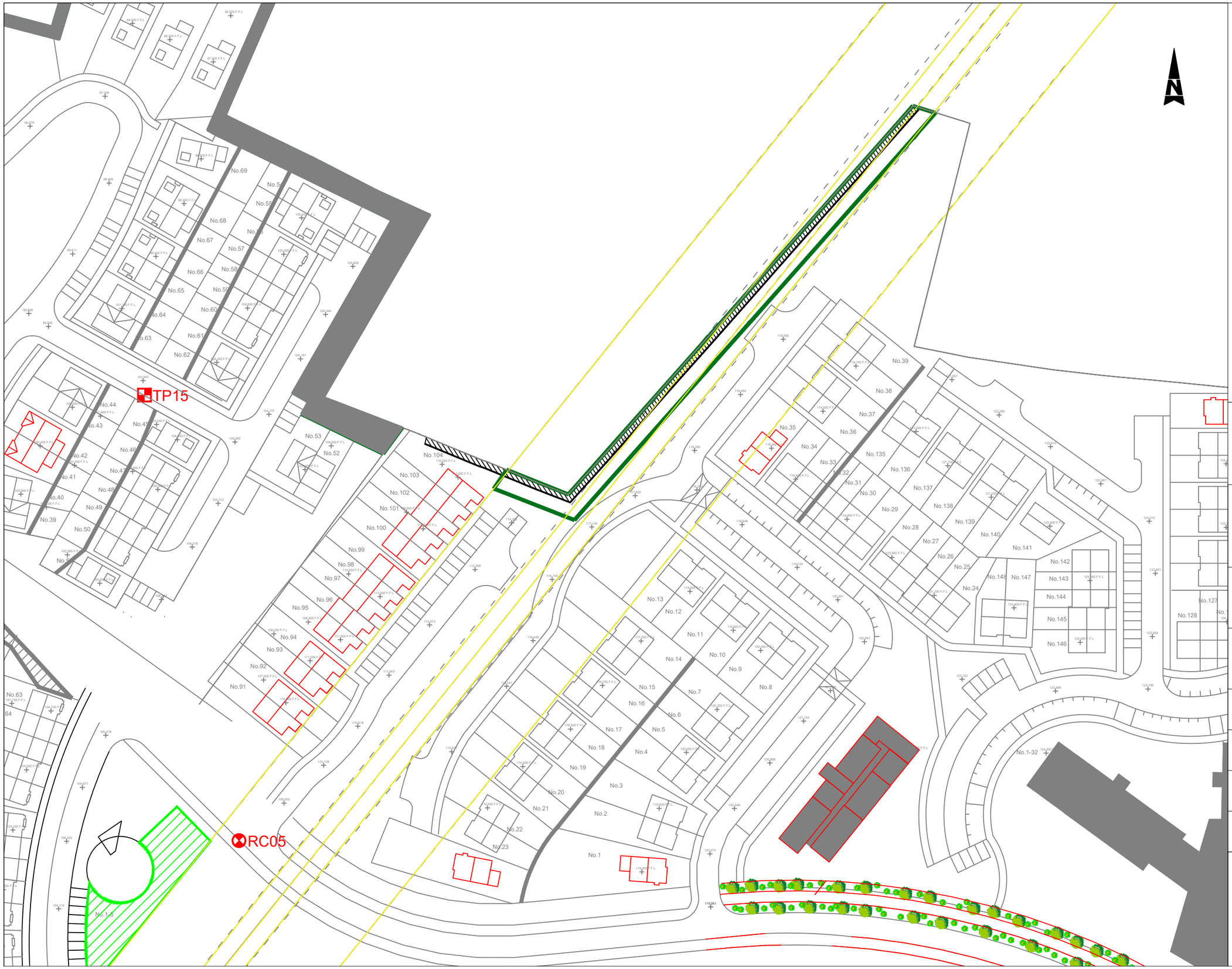
07/02/2019

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-04

DRAWN BY:

Gary Curtin

DATE:

07/02/2019

SCALE:

1:1000 ON A3

APPROVED:

GH

REVISION:

D01

pgl priority geotechnical

KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-05

DRAWN BY:

Gary Curtin

DATE:

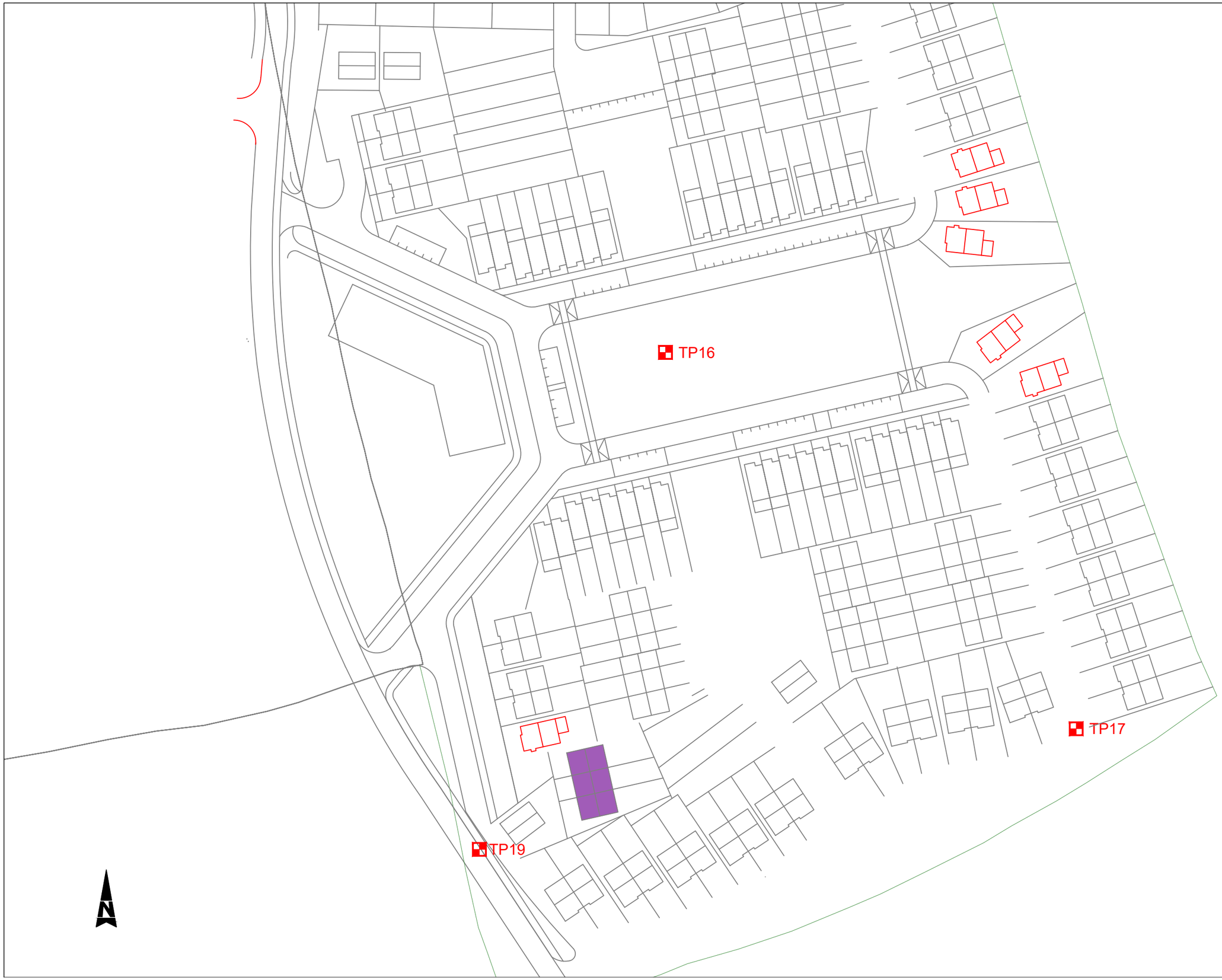
07/02/2019

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

RC00 Denotes Rotary Core location

JOB NAME:

LONGVIEW,
BALLYHOOLY RD,
CORK.

Sheet Title:

LOCATION PLAN

JOB NUMBER:

P19012

DRAWING NUMBER:

P19012-SI-06

DRAWN BY:

Gary Curtin

DATE:

07/02/2019

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

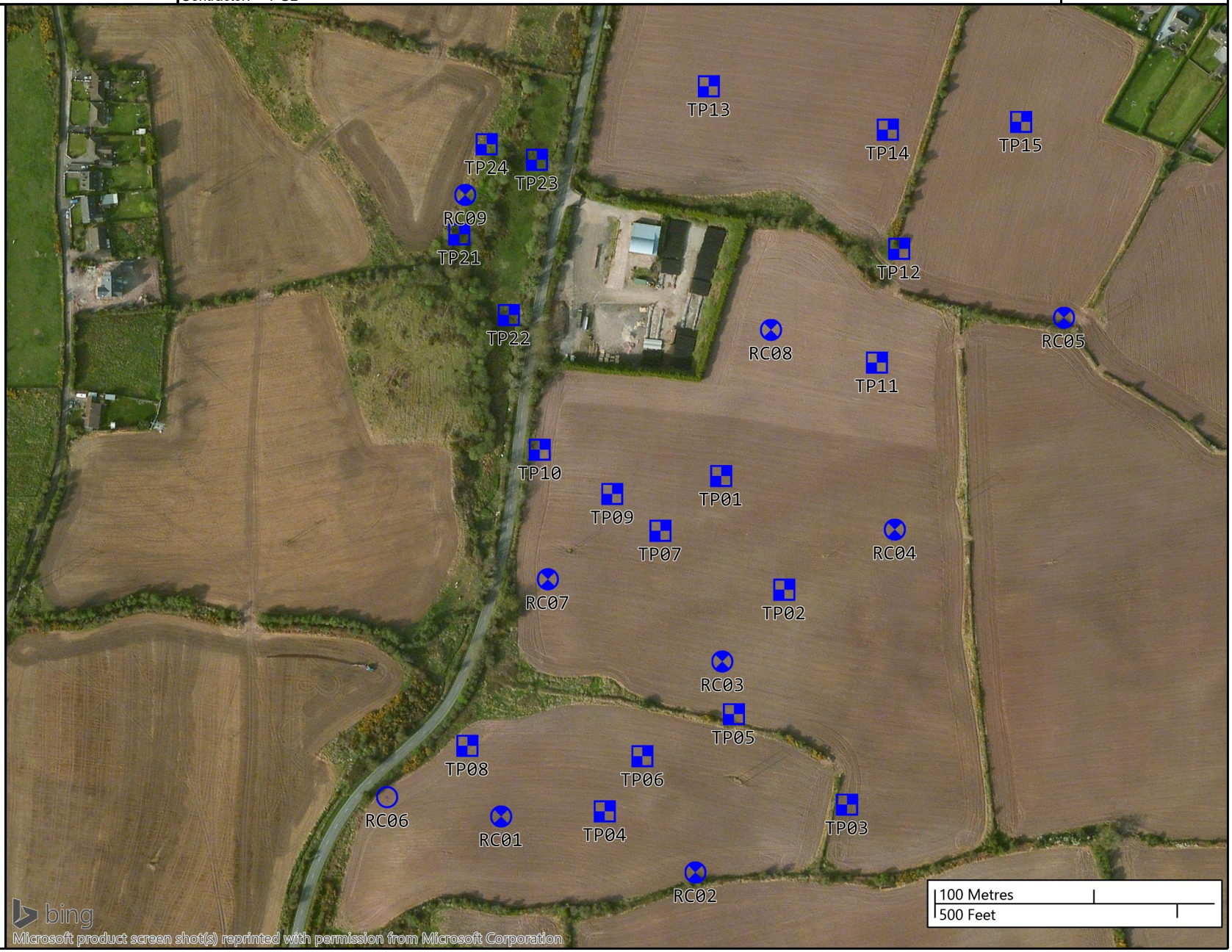
pgl priority geotechnical

Project Id:	P19012	Title:	Site Plan
Project Title:	Longview Developments	Scale:	1:3500
Location:	Cork	Engineer:	MHL Consulting Engineers
Client:		Contractor:	PGL

pgl priority geotechnical

Legend Key

- Locations By Type - Empty
- Locations By Type - RC
- Locations By Type - RO
- Locations By Type - TP



Project Id:	P19012	Title:	Site Plan
Project Title:	Longview Developments	Scale:	1:3500
Location:	Cork	Engineer:	MHL Consulting Engineers
Client:		Contractor:	PGL

pgl priority geotechnical

Legend Key

- Locations By Type - Empty
- Locations By Type - RC
- Locations By Type - RO
- Locations By Type - TP

pgl priority geotechnical	**Priority Geotechnical Ltd.** **Tel: 021 4631600** **Fax: 021 4638690** **www.prioritygeotechnical.ie**	**Drilled By:** GW **Logged By:** KH	Borehole No. **RC01** Sheet 1 of 1	

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568782E - 574962N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	75.07m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	16/02/2019	16/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
										Open hole boring. Driller described: Slightly sandy gravelly Clay.
	▼	~~50 (25 for 10mm/50 for 0mm)~~ (C) 1.30 - 2.90	5mm 120mm 20mm	63	24	0	1.30 40/m	73.77		Lithology: Medium weak to medium strong, purple, SILTSTONE with common Sandstone bands. Weathering: Weathered to slightly weathered with oxidation and minor dissolution. Fractures: 1 set dipping circa 60 degrees with close spacing and planar rough surfaces.
		2.90 - 4.30	5mm 280mm 45mm	71	34	12	10/m 10/m			
		4.30 - 5.00	10mm 110mm 40mm	100	93	0	10/m			
		5.00 - 6.50	10mm 250mm 40mm 5mm 400mm 20mm	100	63	22	10/m			
							6.50	68.57		End of Borehole at 6.500m

1 2 3 4 5 6 7 8 9

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
1.30				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
6.50	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC01 terminated at 6.5m bgl. 50mm dia. standpipe installed. Response zone from 2.5m bgl to 6.5m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	16/02/2019 08:00	0.00	Start of shift.
1.3	16/02/2019 18:00	6.50	End of borehole.

Photographic Record

Number:	**RC01**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By: GW Logged By: KH	Borehole No. **RC02** Sheet 1 of 1

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:** 568905E - 574926N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:** 85.61m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:** 16/02/2019	16/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
										Open hole boring. Driller described: Slightly sandy gravelly Clay.
	▼	~~50 (25 for 0mm/50 for 0mm)~~ (C)					1.40	84.21		
		1.50 - 3.00	10mm 160mm 70mm	100	82	19	1.50 10/m	84.11		Open hole boring. Driller described: Rock. Assumed Siltstone lithology. Lithology: Purple, fine to medium grained SANDSTONE with minor quartz veining and Siltstone lenses. Weathering: Slightly weathered with minor dissolution apparent and minor clay smearing along fracture surfaces. Fractures: 2 fracture sets observed.
		3.00 - 4.40	20mm 380mm 80mm	100	86	24	10/m			
		4.40 - 5.40	5mm 340mm 120mm	100	95	32	10/m			
		5.40 - 6.80	10mm 390mm 160mm	100	71	0	10/m			
			5mm 300mm 60mm				6.80	78.81		End of Borehole at 6.800m

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
1.50				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
6.80	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC02 terminated at 6.8m bgl. 59mm dia. standpipe installed. Response zone from 3.0m to 6.0m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	16/02/2019 08:00	0.00	Start of shift.
1.5	16/02/2019 18:00	6.80	End of borehole.

Photographic Record

Number:	**RC02**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By: GW Logged By: KH	Borehole No. **RC03** Sheet 1 of 2

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568923E - 575059N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	80.99m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	17/02/2019	17/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / FI (/m)	Level (mOD)	Legend	Stratum Description
		N=11 (3,3/2,3,2,4) (C)								Open hole boring. Driller described: Slightly sandy gravelly Clay.
		N=29 (3,4/6,6,8,9) (C)								
	▼						4.30	76.69		
		~~50 (25 for 40mm/50 for 70mm)~~ (C)					4.50	76.49		Open hole boring. Driller described: Rock. Assumed Sandstone lithology.
		4.50 - 6.00	10mm 260mm 60mm	67	53	19	10/m			Lithology: Medium strong, purple, SANDSTONE with minor coarse lenses. Weathering: Slightly weathered with clay smearing along fracture surfaces and minor oxidation colouration. Fractures: Dipping 45 to 60 degrees with planar rough fracture surfaces and close to medium fracture spacing.
		6.00 - 7.50	10mm 260mm 120mm	100	93	29	10/m			
	▼									
		7.50 - 8.00	100mm 420mm 340mm	100	100	64	6/m			
		8.00 - 9.50	20mm 530mm 280mm	100	100	93	9/m			

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
4.30 7.50				See shift data

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC03 terminated at 9.5m bgl. 50mm dia. standpipe installed. Response zone from 6.0m to 9..0m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	17/02/2019 08:00	0.00	Start of shift.
7.5	17/02/2019 18:00	9.50	End of borehole.

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By: GW Logged By: KH	Borehole No. **RC03** Sheet 2 of 2

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568923E - 575059N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	80.99m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	17/02/2019	17/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
							9.50	71.49		Lithology: Medium strong, purple, SANDSTONE with minor coarse lenses. Weathering: Slightly weathered with clay smearing along fracture surfaces and minor oxidation colouration. Fractures: Dipping 45 to 60 degrees with planar rough fracture surfaces and close to medium fracture spacing. End of Borehole at 9.500m

10 11 12 13 14 15 16 17 18

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
4.30				See shift data
7.50				

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC03 terminated at 9.5m bgl. 50mm dia. standpipe installed. Response zone from 6.0m to 9..0m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	17/02/2019 08:00	0.00	Start of shift.
7.5	17/02/2019 18:00	9.50	End of borehole.

Photographic Record

Number:	**RC03**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By:	Borehole No. **RC04** Sheet 1 of 1
	Logged By: KH	

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	569033E - 575141N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	97.04m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	17/02/2019	17/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / FI (/m)	Level (mOD)	Legend	Stratum Description
										Open hole boring. Driller described: Slightly sandy gravelly Clay.
		~~N=36~~ (4,7/7,8,10,11) (C) 1.50 - 3.00	7mm 110mm 35mm	47	39	0	1.50 10/m	95.54		Lithology: Medium weak to medium strong, fine to medium grained SANDSTONE with minor clay bands. Weathering: Weathered with oxidation colouration and clay smearing along fracture surfaces. Fractures: 1 set dipping circa 60 degrees with planar fracture surfaces and close spacing.
	▼	~~50 (25 for 0mm/50 for 0mm)~~ (C) 3.00 - 4.50	5mm 180mm 50mm	97	93	0	10/m			
		4.50 - 5.20	8mm 460mm 70mm	100	100	53	10/m			
		5.20 - 6.70	12mm 290mm 160mm	100	97	25	8/m			
							6.70	90.34		End of Borehole at 6.700m

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
3.30				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
6.70		

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC04 terminated at 6.7m bgl. 50mm dia. standpipe installed. Response zone from 2.7m to 5.7m bgl. Falling head test carried out in borehole.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
3.3	07/02/2019 18:00	6.70	End of borehole.
	17/02/2019 08:00	0.00	Start of shift.

Photographic Record

Number:	**RC04**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By: GW Logged By: KH	Borehole No. **RC05** Sheet 1 of 1

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:** 569140E - 575274N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:** 111.05m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:** 18/02/2019	18/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
							1.30	109.75		Open hole boring. Driller described: Slightly sandy gravelly Clay.
		~~50 (25 for 0mm/50 for 0mm)~~ (C) 1.50 - 2.50	15mm 160mm 80mm	100	40	0	1.50 10/m	109.55		Open hole boring. Driller described: Rock. Assumed Sandstone lithology. Lithology: Medium strong, purple, fine grained SANDSTONE with minor clay lenses. Weathering: Weathered with clay smearing and iron oxidation colouration. Fractures: Heavily fractured with close spacing, 60 degree dipping and planar rough fracture surfaces.
	▼	2.50 - 3.50	10mm 310mm 120mm	100	80	12	10/m			
		3.50 - 4.50	5mm 230mm 80mm	100	71	0	10/m			
		4.50 - 5.50	12mm 280mm 160mm	100	78	0	10/m			
		5.50 - 6.50	5mm 180mm 70mm	100	74	0	10/m			
		6.50 - 7.50		100	90	0				
							7.50	103.55		End of Borehole at 7.500m

1 2 3 4 5 6 7 8 9

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
2.50				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist

Remarks:

RC05 terminated at 7.5m bgl. 50mm dia. standpipe installed. Response zone from 2.0m to 5.0m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	18/02/2019 08:00	0.00	Start of shift
2.5	18/02/2019 18:00	7.50	End of borehole.

Photographic Record

Number:	**RC05**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Drilled By:	Borehole No.
GW	**RC06**
Logged By:	Sheet 1 of 1
N/A	

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568710E - 574974N	**Hole Type** Rotary open hole
Location:	Ballyvolane, Cork		**Level:**	65.82m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	16/02/2019	16/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
	▼	50 (25 for 70mm/50 for 0mm) (C)					1.30	64.52		Open hole boring. Driller described: Slightly sandy gravelly Clay.
							3.30	62.52		Open hole boring. Driller described: Rock. Assumed Sandstone lithology.
										End of Borehole at 3.300m

1 2 3 4 5 6 7 8 9

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
1.30				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
3.30	100	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC06 terminated at 3.3m bgl. 50mm dia. standpipe installed. Response zone from 1.3m bgl to 3.3m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	16/02/2019 08:00	0.00	Start of shift
1.3	16/02/2019 18:00	3.30	End of borehole.

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Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568813E - 575111N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	74.03m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	17/02/2019	17/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
		N=31 (3,5/8,6,8,9) (C)								Open hole boring. Driller described: Slightly sandy gravelly Clay.
	▼	50 (25 for 20mm/50 for 40mm) (C) 2.50 - 3.50		70	52	15	2.50	71.53		Lithology: Medium weak, purple, medium grained SANDSTONE with minor pyrite minerals. Weathering: Weathered with oxidation colouration and minor dissolution along bedding planes. Fractures: 2 sets observed.
		3.50 - 4.50		85	75	12				
							4.50	69.53		End of Borehole at 4.500m

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
3.00				See shift data.

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
4.50	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC07 terminated at 4.5m bgl. 50mm dia. standpipe installed. Response zone from 2.5m to 4.5m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	17/02/2019 08:00	0.00	Start of shift
3.0	17/02/2019 18:00	4.50	End of borehole.

Photographic Record

Number:	**RC07**	**Project** **Project No** **Engineer**	Longview, Ballyhooly Rd Cork P19012 MHL Consulting Engineers	

Priority Geotechnical Ltd. Tel: 021 4631600 Fax: 021 4638690 www.prioritygeotechnical.ie	Drilled By: GW Logged By: KH	Borehole No. **RC08** Sheet 1 of 1

Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:**	568955E - 575268N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:**	88.82m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:**	18/02/2019	18/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
										Open hole boring. Driller described: Slightly sandy gravelly Clay.
		~~50 (25 for 0mm/50 for 0mm)~~ (C) 1.50 - 2.50	4mm 170mm 60mm	100	43	0	1.50 10/m	87.32		Lithology: Green, medium to coarse grained SANDSTONE with quartz veining. Weathering: Weathered with iron oxide colouration throughout. Fractures: Heavily fractures throughout.
		2.50 - 3.50	5mm 130mm 70mm	80	34	0	10/m 3.50	85.32		End of Borehole at 3.500m

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
1.50				See shift data

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
3.50	76	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

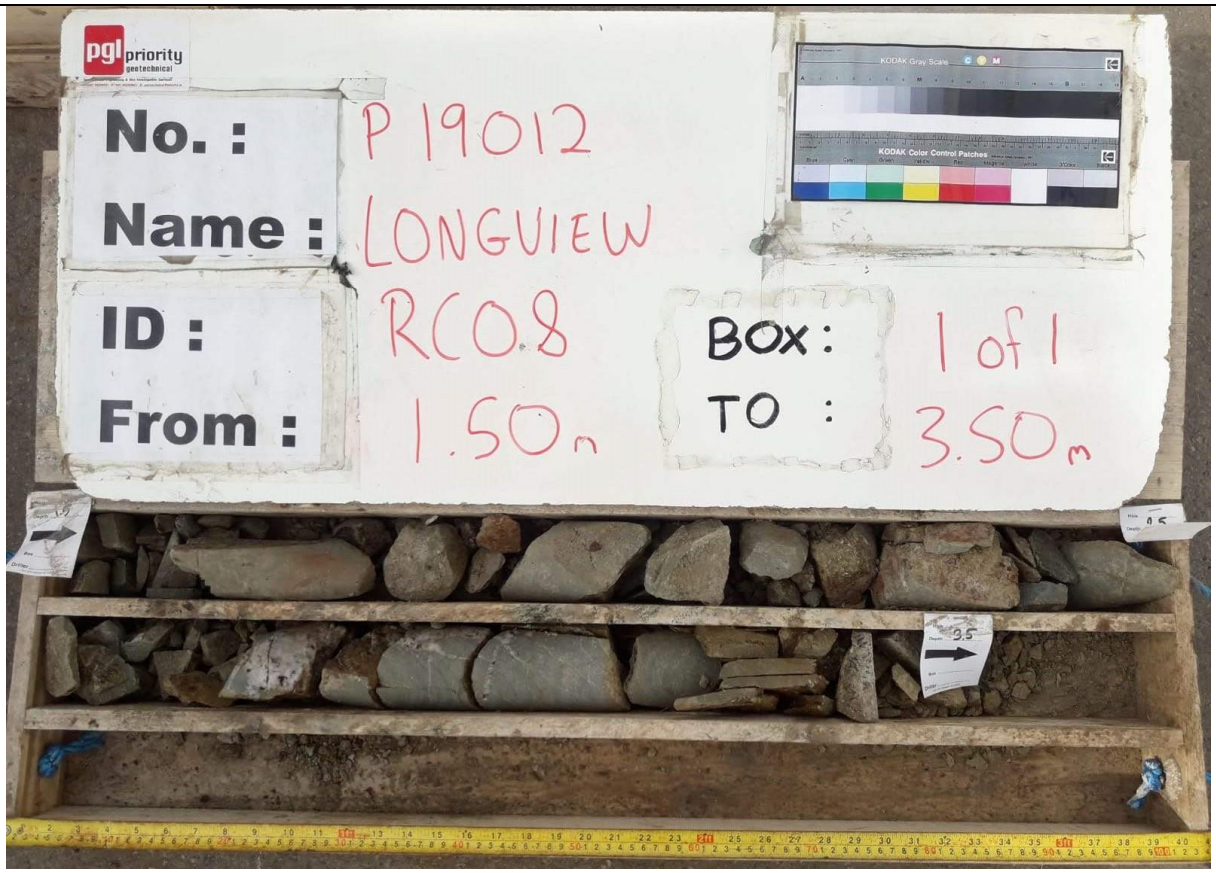
Remarks:

RC08 terminated at 3.5m bgl. 50mm dia. standpipe installed. Response zone from 1.5m to 3.5m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	18/02/2019 08:00	0.00	Start of shift.
1.5	18/02/2019 18:00	3.50	End of borehole.

Photographic Record



Number:	**RC08**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Project Name:	Longview Housing Development	**Project No.** P19012	**Co-ords:** 568762E - 575354N	**Hole Type** Rotary cored
Location:	Ballyvolane, Cork		**Level:** 70.77m OD	**Scale** 1:50
Client:	Temporis Ltd.		**Dates:** 18/02/2019	18/02/2019

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%) TCR	SCR	RQD	Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
							0.80	69.97		Open hole boring. Driller described: Slightly sandy peaty Clay.
	▼	N=17 (2,3/3,5,4,5) (C)								Open hole boring. Driller described: Sandy Gravel.
		N=20 (3,4/4,5,5,6) (C)					3.00	67.77		End of Borehole at 3.000m

1 2 3 4 5 6 7 8 9

Groundwater:

Struck (m bgl)	Rose to	After (min)	Sealed	Comment
1.07				See shift data

Hole Information:

Hole Depth (m bgl)	Hole Dia (mm)	Casing Dia (mm)
3.00	131	131

Equipment:	Soilmec PSM
Method:	Compressed air mist.

Remarks:

RC09 terminated at 3.0m bgl. 50mm dia. standpipe installed. Response zone from 1.0m to 3.0m bgl.

Shift Data:

Groundwater (m bgl)	Shift	Hole Depth (m bgl)	Remarks
	18/02/2019 08:00	0.00	Start of shif
1.07	18/02/2019 18:00	3.00	End of borehole.

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Trial Pit No
TP01
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568923E - 575176N **Level:** 84.98m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 × 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.10m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL): Soft brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
				0.35	84.63		
	0.50 - 1.00 0.50 - 1.00	B D					Orange brown silty sandy GRAVEL with low Cobble content. Gravel is fine to coarse, angular.
				1.20	83.78		
	1.50 - 2.00	B					Green SILTSTONE bedrock dipping 75 degrees, striking E-W. Recovered as: Angular and tabular COBBLES.
				2.10	82.88		End of Pit at 2.100m

Stability: Moderate
Plant: 13T track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.10m bgl due to rock.

Photographic Record

Number:	**TP01**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP01**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP02
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568962E - 575104N **Level:** 86.68m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.00m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							TOPSOIL.
				0.30	86.38		
	0.50 - 1.20 0.50 - 1.20	B D					Soft orange brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
				1.30	85.38		
	1.50 - 2.20 1.50 - 2.20	B D					Stiff brown slightly sandy gravelly SILT with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to rounded. Cobbles are 63mm to 200mm dia, sub-angular to rounded, Limestone.
				2.40	84.28		
	2.50 - 3.00	B					SANDSTONE. Recovered as brown green blocky Sandstone Cobbles and Boulders
				3.00	83.68		End of Pit at 3.000m

1 2 3 4 5

Stability: Moderate
Plant: 13T track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 3.00m bgl due to rock.

Photographic Record

Number:	**TP02**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP02**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP03
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569001E - 574968N **Level:** 88.63m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00 **Depth:** 3.40m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL).
				0.30	88.33		
	0.50 - 1.20	B					Orange, brown, soft, very silty very sandy GRAVEL. Gravel is fine to coarse.
	0.50 - 1.20	B					
	0.50 - 1.20	D					
				1.20	87.43		
	1.50 - 2.50	B					Brown, soft, sandy very clayey GRAVEL with high cobble content with high boulder content. Cobbles are 63mm to 200mm dia, angular, siltstone. Boulders are 200mm to 500mm dia, angular.
	1.50 - 2.50	B					
	1.50 - 2.50	D					
				2.80	85.83		
	3.00 - 3.40	B					SILTSTONE. Recovered as cobbles & boulders of green siltstone.
				3.40	85.23		End of Pit at 3.400m

1
2
3
4
5

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 3.40m bgl due to rock.

Photographic Record

Number:	**TP03**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP03**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP04
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568848E - 574965N **Level:** 80.10m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.40m BGL	**Logged** DMC

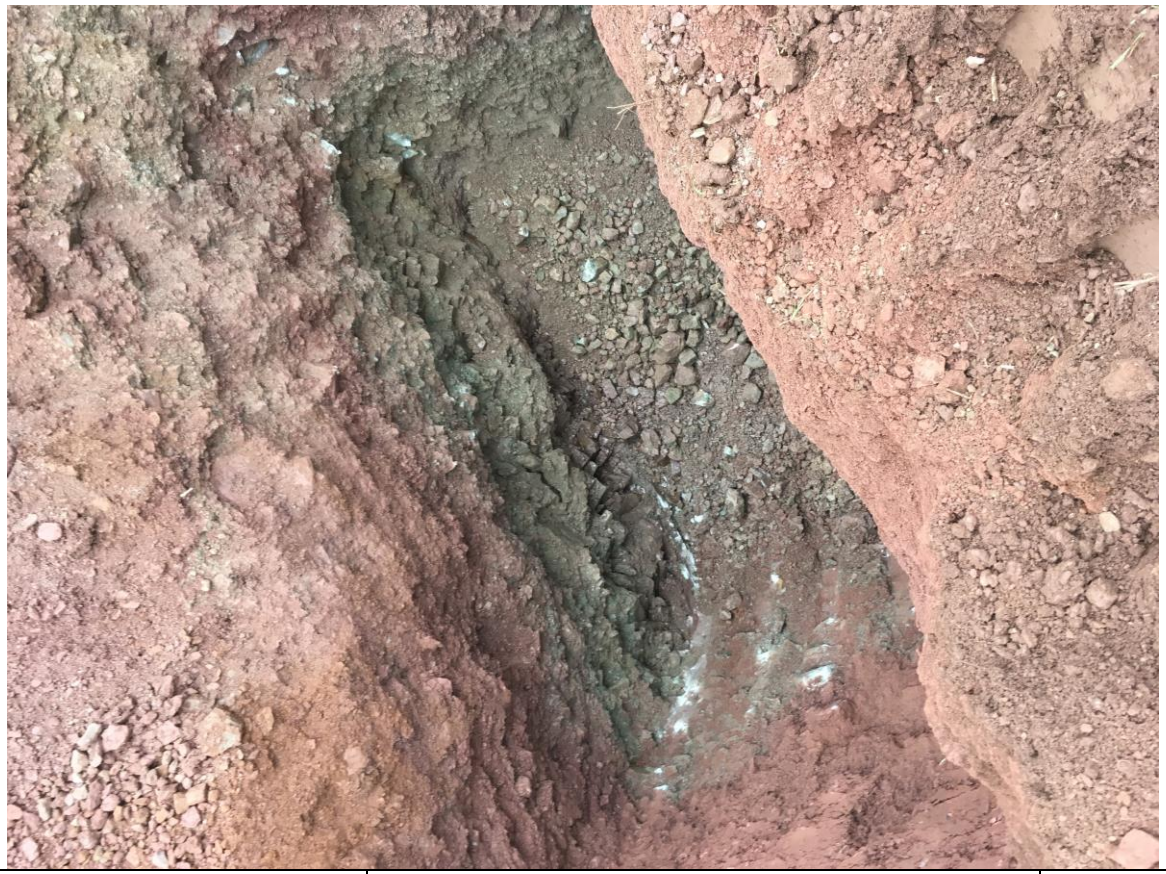
Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL).
				0.30	79.80		
	0.50 - 2.00 0.50 - 2.00	B B					Red, soft, clayey very sandy GRAVEL with high cobble content. Gravel is fine to coarse, angular. Cobbles are 63mm to 150mm dia, angular to sub-angular, sandstone.
	2.50 - 3.40	B		2.40	77.70		SILTSTONE. Rock recovered as cobbles & boulders of green siltstone.
				3.40	76.70		End of Pit at 3.400m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated 3.40m bgl due to rock.

Photographic Record



Number:	**TP04**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP04**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP05
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568930E - 575025N **Level:** 81.67m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 × 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.90m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL).
				0.30	81.37		
	0.50 - 1.00 0.50 - 1.00	B B					Orange, brown, soft, slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
	1.00 - 1.80 1.00 - 1.80	B B		1.00	80.67		Brown, purple, soft, slightly sandy gravelly CLAY with medium cobble content. Cobbles are 63mm to 200mm dia, angular to sub-angular, sandstone.
				1.80	79.87		COBBLES & BOULDERS. Rock recovered as angular tabular cobbles and boulders of green/pink weathered siltstone/sandstone.
	2.00 - 2.90	B					
				2.90	78.77		End of Pit at 2.900m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.90m bgl due to rock.

Photographic Record

Number:	**TP05**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP05**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP06
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568872E - 574999N **Level:** 78.00m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 × 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.10m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
	0.40 - 0.90 0.40 - 0.90 0.40 - 0.90	B B D		0.40	77.60		Orange, brown, soft, gravelly SILT with high cobble content. Gravel is fine to coarse, angular to sub-angular. Cobbles are 63mm to 150mm dia, angular to sub-angular, sandstone.
	1.00 - 2.00	B		0.90	77.10		SILTSTONE. Rock recovered as cobbles and boulders of green siltstone.
				2.10	75.90		End of Pit at 2.100m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.10m bgl due to rock.

Photographic Record

Number:	**TP06**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP06**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP07
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568884E - 575142N **Level:** 79.64m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.20 × 2.00 **Depth:** 3.50m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
				0.30	79.34		Orange, brown, soft, slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
	0.80 - 1.80 0.80 - 1.80	B B		0.75	78.89		Red, soft to firm, clayey sandy GRAVEL with high cobble content. Gravel is fine to coarse. Cobbles are 63mm to 120mm dia, angular to sub-angular, siltstone.
	1.90 - 2.50 1.90 - 2.50	B B		1.90	77.74		SILTSTONE. Rock recovered as angular pink siltstone gravel, cobbles & boulders. Boulder size increasing with depth.
	3.00 - 3.50	B					
				3.50	76.14		End of Pit at 3.500m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow 3.5m.

Remarks: Trial terminated at 3.50m bgl due to obstruction.

Photographic Record

Number:	**TP07**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP07**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP08
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568761E - 575006N **Level:** 69.70m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00 **Depth:** 1.80m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.30	69.40		(TOPSOIL)
	0.50 - 1.00 0.50 - 1.00	B B					Brown, purple, slightly sandy gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular. Cobbles are 63mm to 150mm dia, angular to sub-angular.
	1.20 - 1.80	B		1.10	68.60		SANDSTONE. Rock recovered as blocky cobbles and boulders of sandstone.
				1.80	67.90		End of Pit at 1.800m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow 1.8m..

Remarks: Trial pit terminated at 1.80m bgl due to rock.

Photographic Record

Number:	**TP08**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP08**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP09
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568854E - 575165N **Level:** 76.43m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.20m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
				0.30	76.13		
	0.50 - 1.00	B					Purple, brown, soft, slightly sandy gravelly CLAY. Sand is fine to coarse.
	0.50 - 1.00	D					
	1.00 - 1.70	B		1.00	75.43		
	1.00 - 1.70	B					Purple, brown, soft, slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular. Cobbles are 63mm to 120mm dia, sub-angular, sandstone.
	1.00 - 1.70	D					
▼				1.70	74.73		
							Cream, mottled black, firm, slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
	2.00 - 2.80	B					
	2.00 - 2.80	B					
	2.00 - 2.80	D					
	2.90 - 3.20	B		2.90	73.53		SILTSTONE. Rock recovered as angular pink gravel and cobbles of siltstone.
				3.20	73.23		End of Pit at 3.200m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Trickling flow 1.8m.

Remarks: Trial pit terminated at 3.20m bgl due to obstruction.

Photographic Record

Number:	**TP09**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP10
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568808E - 575193N **Level:** 71.02m OD	**Date** 14/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.30 x 2.50	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.60m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
				0.40	70.62		
	0.50 - 1.50	B					Brown, soft, slightly sandy slightly slightly gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular.
	0.50 - 1.50	B					
	0.50 - 1.50	D					
				1.60	69.42		
							Brown, purple, soft, gravelly sandy SILT. Gravel is fine to coarse, angular to sub-angular.
	2.00 - 2.70	B					
	2.00 - 2.70	B					
	2.00 - 2.70	D					
				2.70	68.32		
	2.80 - 3.60	B					SILTSTONE. Recorded as pink angular gravel and cobbles.
▼				3.60	67.42		End of Pit at 3.600m

1 2 3 4 5

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow 3.6m.

Remarks: Trial pit terminated at 3.60m bgl due to rock.

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Trial Pit No
TP11
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569022E - 575247N **Level:** 98.34m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 x 2.50 **Depth:** 3.00m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
	0.40 - 0.90 0.40 - 0.90 0.40 - 0.90	B B D		0.40	97.94		Orange, brown, soft, slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine to medium.
	1.00 - 3.00	B		0.90	97.44		COBBLES & BOULDERS. Angular blocks of sandstone.
				3.00	95.34		End of Pit at 3.000m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.
Groundwater: None encountered.
Remarks: Trial pit terminated at 3.00m bgl due to rock.

Photographic Record

Number:	**TP11**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP11**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP12
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569036E - 575319N **Level:** 98.68m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 × 2.20 **Depth:** 2.40m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
				0.30	98.38		Brown, soft, sandy very silty GRAVEL with high cobble content with high boulder content. Gravel is fine to coarse, sub-angular. Cobbles & boulders are angular sandstone.
	0.50 - 1.50 0.50 - 1.50	B B					
▼				1.50	97.18		very clayey very sandy GRAVEL clayey with high cobble content and Boulder content Cobbles & boulders are angular green Siltstone (Weathered rockmass).
	2.00 - 2.40 2.00 - 2.40	B B					
				2.40	96.28		End of Pit at 2.400m

1
2
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Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow1.5m.

Remarks: Trial pit terminated at 2.40m due to rock.

Photographic Record

Number:	**TP12**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP12**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP13
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568917E - 575422N **Level:** 80.10m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 × 2.20	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.50m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
	0.50 - 1.50 0.50 - 1.50 0.50 - 1.50	B B B		0.40	79.70		Brown, soft, slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular. Cobbles are 63mm to 120mm dia, angular.
	2.00 - 2.50 2.00 - 2.50	B B		1.60	78.50		ROCK. Recovered as pink tabular angular cobbles & boulders of siltstone dipping sub-vertical.
				2.50	77.60		End of Pit at 2.500m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.50m bgl due to obstruction.

Photographic Record

Number:	**TP13**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP13**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP14
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569030E - 575394N **Level:** 94.29m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 × 2.50	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.50m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
	0.50 - 1.50 0.50 - 1.50 0.50 - 1.50	B B B		0.40	93.89		Brown, clayey sandy GRAVEL with high cobble content. Cobbles are 63mm to 200mm dia, angular to sub-angular, siltstone.
	1.80 - 2.50	B		1.60	92.69		COBBLES & BOULDERS. Recovered as pink angular tabular cobbles & boulders, 200mm to 400mm dia.
				2.50	91.79		End of Pit at 2.500m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.50m bgl due to obstruction.

Photographic Record

Number:	**TP14**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP14**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP15
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569114E - 575398N **Level:** 103.60m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.20 x 2.00 **Depth:** 2.90m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.40	103.20		(TOPSOIL)
	0.50 - 1.70 0.50 - 1.70	B B					Brown, soft, slightly sandy gravelly SILT with high cobble content. Gravel is fine to coarse, sub-angular. Cobbles are angular to sub-angular, siltstone.
				1.75	101.86		COBBLES. Recovered as pink angular tabular cobbles of Mudstone/Siltstone.
	2.00 - 2.90 2.00 - 2.90	B B					
				2.90	100.70		End of Pit at 2.900m

1 2 3 4 5

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.90m bgl due to rock.

Photographic Record

Number:	**TP15**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP15**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP16
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569563E - 575058N **Level:** 127.27m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.40m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
				0.40	126.87		Purple, brown, soft, slightly gravelly SILT. Gravel is fine to coarse, sub-angular.
	1.00 - 2.00 1.00 - 2.00	B B		0.90	126.37		Brown, soft, very gravelly sandy SILT with high cobble content. Gravel is fine to coarse, sub-angular. Cobbles are 63mm to 200m dia, angular to sub-angular.
	2.00 - 2.40	B		2.00	125.27		COBBLES & BOULDERS. Recovered as angular blocks of brown/green cobbles & boulders of sandstone.
▼				2.40	124.87		End of Pit at 2.400m

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2
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5

Stability: Good.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow 2.4m.

Remarks: Trial pit terminated at 2.40m bgl due to rock.

Photographic Record

Number:	**TP16**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP16**	**Project**	Longview, Ballyhooly Rd Cork
		Project No	P19012
		Engineer	MHL Consulting Engineers

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Trial Pit No
TP17
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569676E - 574955N **Level:** 127.70m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 × 2.00 **Depth:** 2.70m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.40	127.30		(TOPSOIL)
							Brown, clayey sandy GRAVEL. Gravel is fine to coarse.
	1.00 - 2.00 1.00 - 2.00	B B		1.00	126.70		Brown, slightly sandy gravelly CLAY with high cobble content. Cobbles are 63mm to 200mm dia, angular, siltstone.
	2.30 - 2.70	B		2.30	125.40		COBBLES. Recovered as angular cobbles of siltstone.
				2.70	125.00		End of Pit at 2.700m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Slow flow 2.7m.

Remarks: Trial pit terminated at 2.70m bgl due to rock.

Photographic Record

Number:	**TP17**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP17**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP18
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569586E - 575249N **Level:** 126.65m OD	**Date** 15/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 × 2.20	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.90m BGL	**Logged** DMC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)
	0.50 - 1.50	B		0.40	126.25		COBBLES & BOULDERS. Rock recovered as cobbles & boulders.
	2.00 - 2.90	B					
				2.90	123.75		End of Pit at 2.900m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.90m bgl due to competent rock.

Photographic Record

Number:	**TP18**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP18**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP19
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569512E - 574922N **Level:** 127.70m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 2.50 x 1.30	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 1.90m BGL	**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL). Brown, clayey slightly gravelly SAND with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular, siltstone. Cobbles are angular, siltstone.
	0.60 - 1.00	B		0.60	127.10		Brown, clayey sandy GRAVEL with high cobble content. Gravel is fine to coarse, angular. Cobbles are angular, siltstone.
	1.50 - 1.90	B					
				1.90	125.80		End of Pit at 1.900m

Stability: Moderate.
Plant: 13 Tonne Track Machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated 1.90m bgl due to bedrock.

Photographic Record

Number:	**TP19**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP19**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP20
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 569446E - 575181N **Level:** 128.24m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 2.50 x 1.30	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 2.50m BGL	**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL). Dark brown, clayey gravelly SAND.
	0.50 - 1.00	B		0.40	127.84		Orange, brown, slightly silty, slightly sandy GRAVEL with high cobble content with low boulder content. Sand is fine to coarse. Gravel is angular, siltstone. Boulders are 200mm to 400mm dia, siltstone.
	1.50 - 2.00	B					
				2.10	126.14		COBBLES & BOULDERS. Recovered as weathered angular siltstone bedrock of cobbles & boulders.
				2.50	125.74		End of Pit at 2.500m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.50m bgl due to bedrock.

Photographic Record

Number:	**TP20**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP20**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
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Trial Pit No
TP21
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568758E - 575330N **Level:** 69.92m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 1.50	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.50m BGL	**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL). Dark brown, organic, slightly sandy slightly gravelly CLAY.
				0.60	69.32		
	1.00 - 1.50	B					Purple, clayey very sandy GRAVEL with low cobble content. Gravel is fine to coarse, sub-angular to rounded, sandstone/siltstone. Cobbles are sub-angular to rounded, sandstone/siltstone.
	2.00 - 2.50	B					
				2.50	67.42		Purple, gravelly very clayey SAND with low cobble content. Sand is fine to medium. Gravel is fine to coarse, sub-angular to rounded, sandstone/siltstone.
	3.00 - 3.50	B					
				3.50	66.42		End of Pit at 3.500m

Stability: Poor.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Steady flow 0.8m.

Remarks: Trial pit terminated at 3.50m bgl due to pit wall instability.

Photographic Record

Number:	**TP21**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP21**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP22
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568789E - 575278N **Level:** 69.38m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 x 1.50 **Depth:** 3.60m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL). Brown, clayey, slightly gravelly SAND.
				0.30	69.08		Pale purple, clayey sandy GRAVEL with low cobble content. Gravel is fine to coarse, sub-angular to rounded, sandstone. Cobbles are sub-angular to rounded, sandstone.
	0.50 - 1.00	B					
				1.00	68.38		Purple, clayey very sandy GRAVEL. Gravel is fine to coarse, angular to sub-rounded, sandstone/siltstone.
				1.20	68.18		Red/brown, clayey, sandy GRAVEL with high cobble content. Sand is fine to coarse. Gravels are angular to sub-angular, sandstone/siltstone.
	1.50 - 2.00	B					
				3.60	65.78		End of Pit at 3.600m

Stability: Moderate.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.
Groundwater: Steady flow 2.5m.
Remarks: Trial pit terminated at 3.60m bgl due to bedrock.

Photographic Record

Number:	**TP22**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP22**	**Project**	Longview, Ballyhooly Rd Cork
		Project No	P19012
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Trial Pit No
TP23
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568807E - 575376N **Level:** 70.97m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.00 x 2.00 **Depth:** 3.50m BGL	**Scale** 1:25
Client: Temporis Ltd.			**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20	70.77		(TOPSOIL). Brown, slightly organic sllghtly gravelly CLAY.
				0.40	70.57		Orange, soft, slightly organic slightly sandy slightly gravelly CLAY.
	0.50 - 1.00	B					Grey, brown, soft, slightly organic slightly sandy slightly gravelly CLAY with low cobble content. Cobbles are sub-angular, sandstone/siltstone.
	0.80	D					
▼				1.00	69.97		Purple, brown, clayey very sandy GRAVEL with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to sub-angular, sandstone/siltstone. Cobbles are sub-angular, sandstone/siltstone.
	1.50 - 2.00	B					
				3.50	67.47		End of Pit at 3.500m

1 2 3 4 5

Stability: Poor.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Steady flow 1.2m.

Remarks: Trial pit terminated at 3.50m bgl due to pit wall instability.

Photographic Record

Number:	**TP23**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP23**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

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Trial Pit No
TP24
Sheet 1 of 1

Project Name: Longview Housing Development	**Project No.** P19012	**Co-ords:** 568776E - 575386N **Level:** 70.87m OD	**Date** 19/02/2019
Location: Ballyvolane, Cork		**Dimensions (m):** 3.50 x 1.50	**Scale** 1:25
Client: Temporis Ltd.		**Depth:** 3.50m BGL	**Logged** AO

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.40	70.47		(TOPSOIL). Brown, organic slightly sandy slightly gravelly CLAY.
				0.60	70.27		Light grey, soft, slightly organic slightly sandy slightly gravelly CLAY.
	1.00 - 1.50	B					Purple, brown, clayey very sandy GRAVEL with medium cobble content. Cobbles are sub-angular, sandstone/siltstone.
				2.20	68.67		Purple, brown, clayey gravelly SAND with low cobble content. Gravel is fine to coarse, sub-angular to sub-rounded, sandstone/siltstone. Cobbles are sub-angular to sub-rounded, sandstone/siltstone.
	2.50 - 3.00	B					
				3.50	67.37		End of Pit at 3.500m

Stability: Poor.
Plant: 13 Tonne Track Machine.
Backfill: Arisings.

Groundwater: Steady flow at several points between depths 0.7m and 2.2m.

Remarks: Trial pit terminated at 3.50m bgl due to pit wall instability.

Photographic Record

Number:	**TP24**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

Photographic Record

Number:	**TP24**	**Project**	Longview, Ballyhooly Rd Cork	
		Project No	P19012	
		Engineer	MHL Consulting Engineers	

KEY TO SYMBOLS - LABORATORY TEST RESULT

U	Undisturbed Sample	
P	Piston Sample	
TWS	Thin Wall Sample	
B	Bulk Sample - Disturbed	
D	Jar Sample - Disturbed	
W	Water Sample	
pH	Acidity/Alkalinity Index	
SO_3	% - Total Sulphate Content (acid soluble)	
SO_3	g/ltr - Water Soluble Sulphate (Water or 2:1 Aqueous Soil Extract)	
+	Calcareous Reaction	
Cl	Chloride Content	
PI	Plasticity Index	
<425	% of material in sample passing 425 micron sieve	
LL	Liquid Limit	
PL	Plastic Limit	
MC	Water Content	
NP	Non Plastic	
Yb	Bulk Density	
Yd	Dry Density	
Ps	Particle Density	
U/D	Undrained/Drained Triaxial	
U/C	Unconsolidated/Consolidated Triaxial	
T/M	Single Stage/Multistage Triaxial	
100/38	Sample Diameter (mm)	
REM	Remoulded Triaxial Test Specimen	
TST	Triaxial Suction Test	
V	Vane Test	
DSB	Drained Shear Box	
RSB	Residual Shear Box	
RS	Ring Shear	
σ_3	Cell Pressure	
σ_1-σ_3	Deviator Stress	
c	Cohesion	
c_	Effective Cohesion Intercept	
ϕ	Angle of Shearing Resistance - Degrees	
ϕ_	Effective Angle of Shearing Resistance	
εf	Strain at Failure	
*	Failed under 1st Load	
**	Failed under 2nd Load	
#	Untestable	
##	Excessive Strain	
p_o	Effective Overburden Pressure	
m_v	Coefficient of Volume Decrease	
c_v	Coefficient of Consolidation	
Opt	Optimum	
Nat	Natural	
Std	Standard Compaction - 2.5kg Rammer	(¶ CBR)
Hvy	Heavy Compaction - 4.5kg Rammer	(§ CBR)
Vib	Vibratory Compaction	
CBR	California Bearing Ratio	
Sat m.c.	Saturation Moisture Content	
MCV	Moisture Condition Value	

pgl priority geotechnical	**Natural Moisture Content/Atterberg Limits Summary** **BS 1377 : Part 2 : 1990 : Clause 3**	**Job Ref**
Location	**Longview Developments**	**P19012**

Hole ID	Sample Ref	Depth (m)	Sample Type	Sample Description	MC	LL	PL	PI	% Pass 425
TP01	1	0.5	B	Silty sandy GRAVEL with low cobble content		46	33	13	31
TP01	2	0.5	D	Silty sandy GRAVEL	13				
TP02	2	0.5	D	Very sitly very sandy GRAVEL	33				
TP02	4	1.5	D	Slightly sandy gravelly SILT	16				
TP03	1	0.5	B	Very silty very sandy GRAVEL		42	30	12	54.4
TP03	3	0.5	D	Very silty very sandy GRAVEL	9				
TP03	4	1.5	B	Sandy very clayey GRAVEL		35	21	14	53.6
TP03	6	1.5	D	Sandy very clayey GRAVEL	12				
TP04	1	0.5	B	Clayey very sandy GRAVEL		30	22	8	39.5
TP05	1	0.5	B	Slightly sandy slightly gravelly CLAY	17	23	17	6	62.5
TP05	3	1	B	Slightly sandy gravelly CLAY	11	22	13	9	55.9
TP07	1	0.8	B	Clayey sandy GRAVEL		36	21	15	32.6
TP09	1	0.5	B	Very clayey very sandy GRAVEL		24	16	8	64.5
TP09	2	0.5	D	Very clayey very sandy GRAVEL	14				
TP09	3	1	B	Very clayey very sandy GRAVEL with low cobble content		24	15	9	58.7
TP09	5	1	D	Very clayey very sandy GRAVEL	13				
TP09	6	2	B	Slightly sandy slightly gravelly CLAY		29	16	13	77.4
TP12	1	0.5	B	Sandy very silty GRAVEL with medium cobble content		56	36	20	58.6
TP12	3	2	B	Very clayey very sandy GRAVEL with low cobble content		31	19	12	57.4
TP13	1	0.5	B	Clayey sandy GRAVEL with low cobble content		30	19	11	51.3

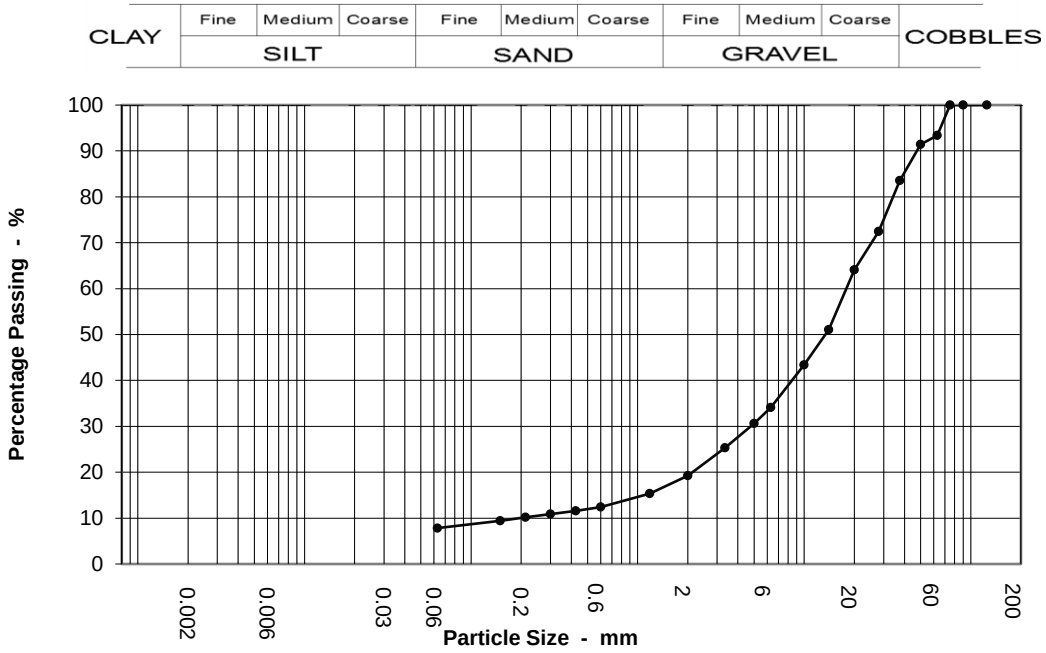
pgl priority geotechnical	**Natural Moisture Content/Atterberg Limits Summary** **BS 1377 : Part 2 : 1990 : Clause 3**	**Job Ref**
Location	**Longview Developments**	**P19012**

Hole ID	Sample Ref	Depth (m)	Sample Type	Sample Description	MC	LL	PL	PI	% Pass 425
TP17	1	1	B	Clayey sandy GRAVEL with high cobble content		29	17	12	49.8

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP01
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Silty sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	93		
50	91		
37.5	84		
28	72		
20	64		
14	51		
10	43		
6.3	34		
5	31		
3.35	25		
2	19		
1.18	15		
0.6	12		
0.425	12		
0.3	11		
0.212	10		
0.15	9		
0.063	8		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

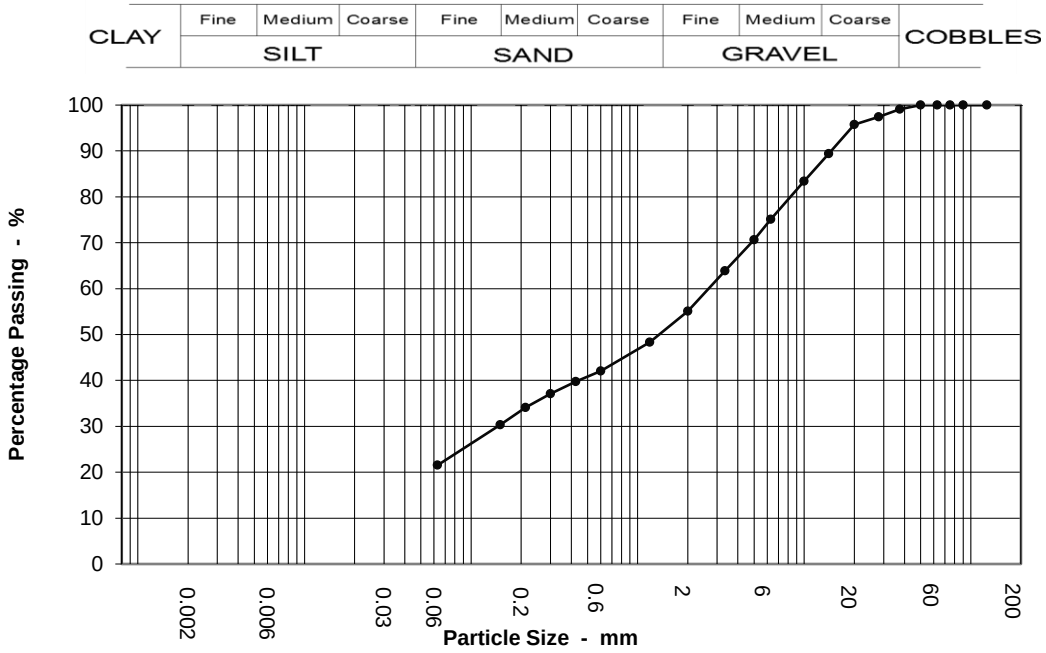
Sample Proportions	
Cobbles	7.0
Gravel	74.0
Sand	11.0
Silt & Clay	8.0

Grading Analysis	
D100	75.00
D60	17.90
D10	0.20
Uniformity Coefficient	91.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Very sitly very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	97		
20	96		
14	89		
10	83		
6.3	75		
5	71		
3.35	64		
2	55		
1.18	48		
0.6	42		
0.425	40		
0.3	37		
0.212	34		
0.15	30		
0.063	22		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

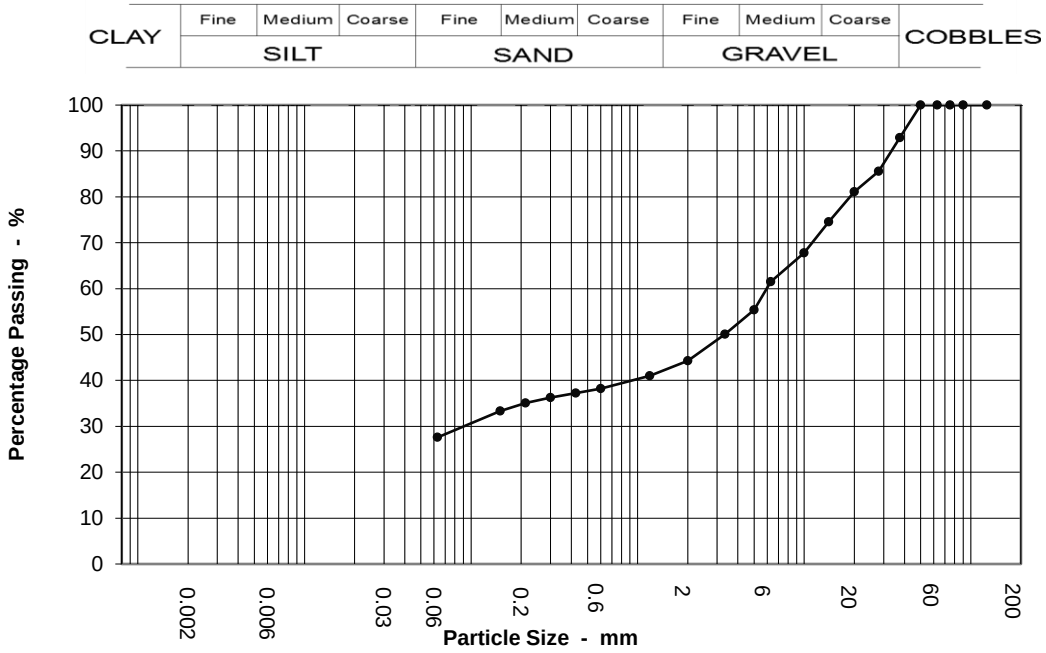
Sample Proportions	
Cobbles	0.0
Gravel	45.0
Sand	34.0
Silt & Clay	22.0

Grading Analysis	
D100	50.00
D60	2.66
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Location	**Longview Developments**	Sample No	3
		Depth	1.50 m
Soil Description	Slightly sandy gravelly SILT	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	86		
20	81		
14	75		
10	68		
6.3	62		
5	55		
3.35	50		
2	44		
1.18	41		
0.6	38		
0.425	37		
0.3	36		
0.212	35		
0.15	33		
0.063	28		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

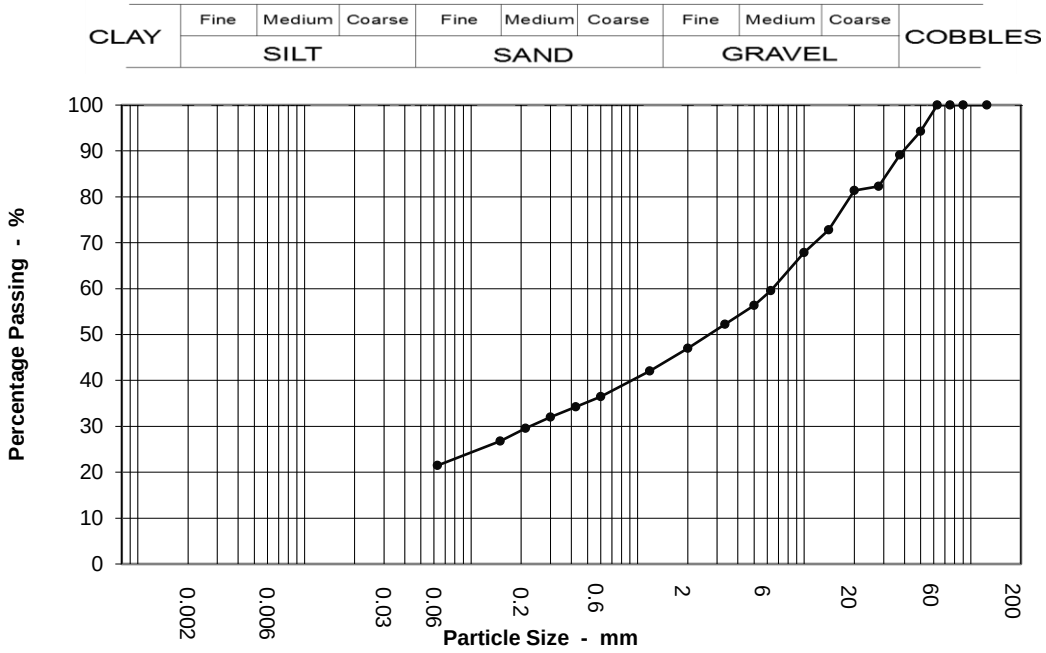
Sample Proportions	
Cobbles	0.0
Gravel	56.0
Sand	17.0
Silt & Clay	28.0

Grading Analysis	
D100	50.00
D60	5.95
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Very silty very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	94		
37.5	89		
28	82		
20	81		
14	73		
10	68		
6.3	60		
5	56		
3.35	52		
2	47		
1.18	42		
0.6	36		
0.425	34		
0.3	32		
0.212	30		
0.15	27		
0.063	21		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

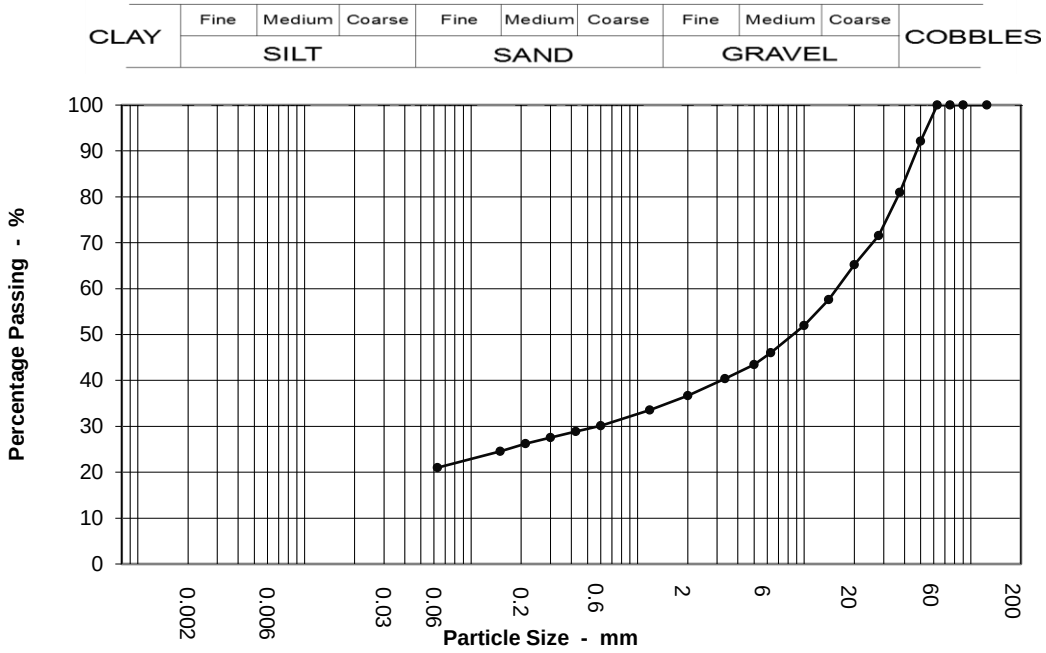
Sample Proportions	
Cobbles	0.0
Gravel	53.0
Sand	26.0
Silt & Clay	21.0

Grading Analysis	
D100	63.00
D60	6.46
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Location	**Longview Developments**	Sample No	4
		Depth	1.50 m
Soil Description	Sandy very clayey GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	81		
28	72		
20	65		
14	58		
10	52		
6.3	46		
5	43		
3.35	40		
2	37		
1.18	34		
0.6	30		
0.425	29		
0.3	28		
0.212	26		
0.15	25		
0.063	21		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

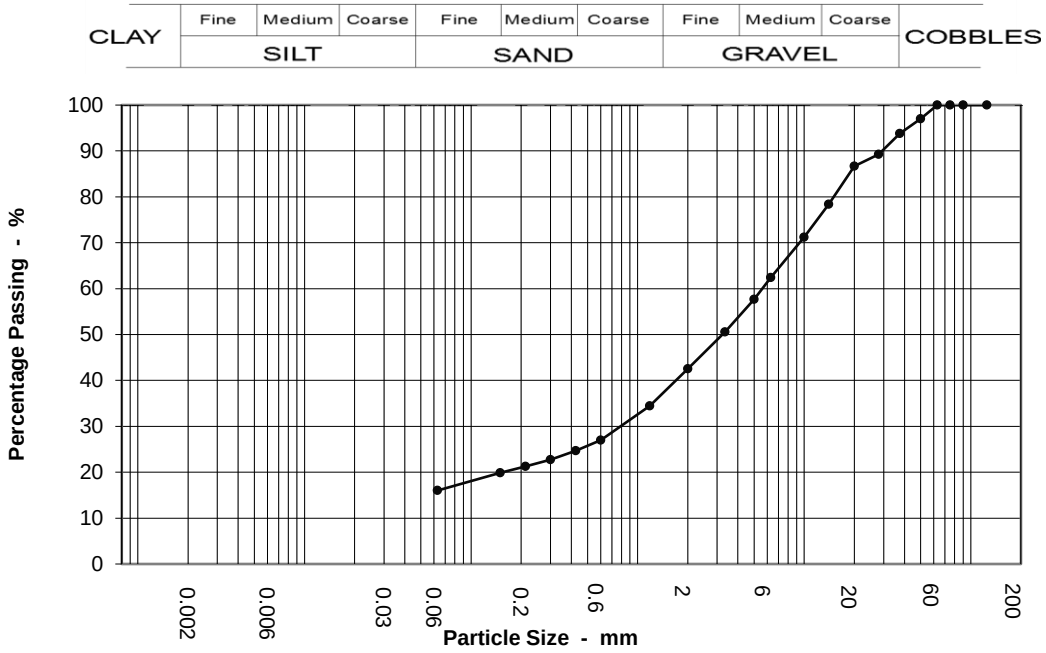
Sample Proportions	
Cobbles	0.0
Gravel	63.0
Sand	16.0
Silt & Clay	21.0

Grading Analysis	
D100	63.00
D60	15.70
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	94		
28	89		
20	87		
14	78		
10	71		
6.3	62		
5	58		
3.35	51		
2	43		
1.18	34		
0.6	27		
0.425	25		
0.3	23		
0.212	21		
0.15	20		
0.063	16		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

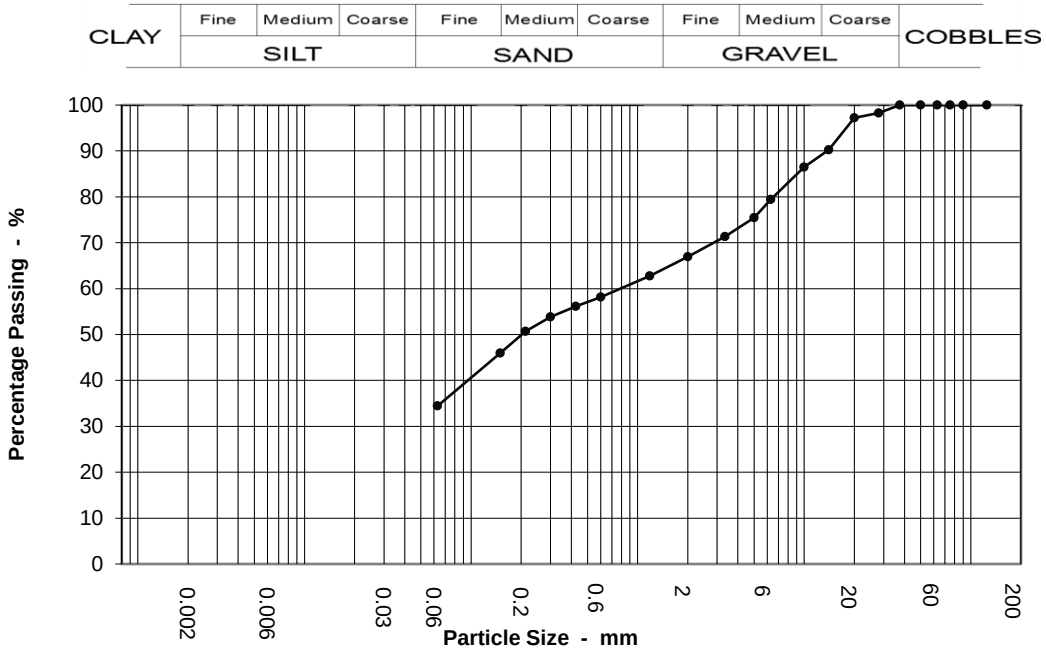
Sample Proportions	
Cobbles	0.0
Gravel	57.0
Sand	27.0
Silt & Clay	16.0

Grading Analysis	
D100	63.00
D60	5.60
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP05
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Slightly sandy slightly gravelly CLAY	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	97		
14	90		
10	86		
6.3	79		
5	75		
3.35	71		
2	67		
1.18	63		
0.6	58		
0.425	56		
0.3	54		
0.212	51		
0.15	46		
0.063	34		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

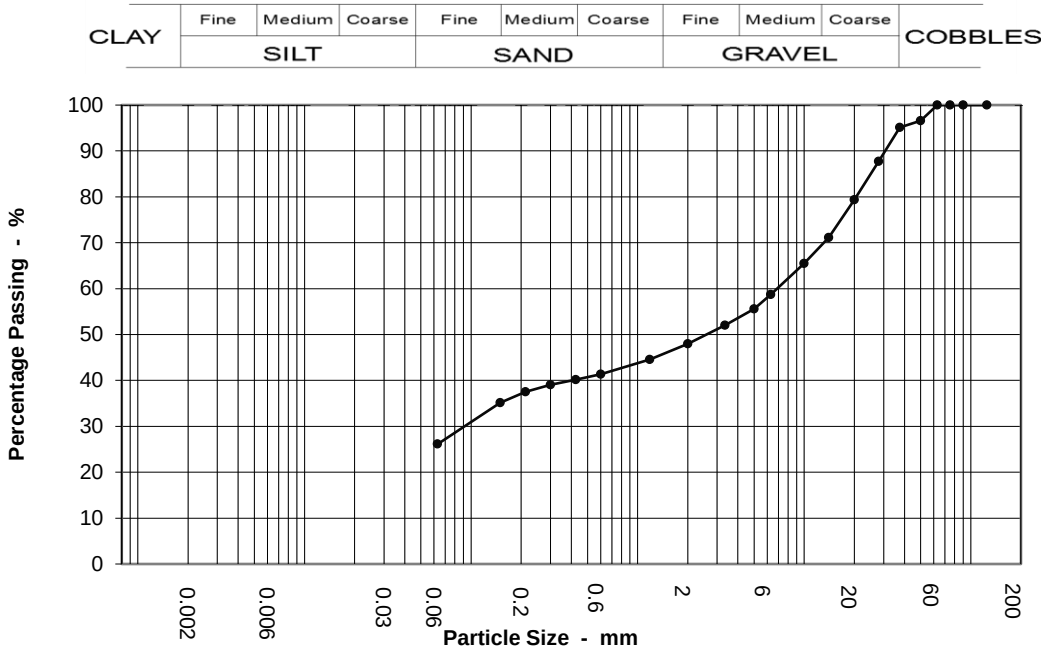
Sample Proportions	
Cobbles	0.0
Gravel	33.0
Sand	32.0
Silt & Clay	34.0

Grading Analysis	
D100	37.50
D60	0.79
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP05
Location	**Longview Developments**	Sample No	3
		Depth	1.00 m
Soil Description	Slightly sandy gravelly CLAY	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	95		
28	88		
20	79		
14	71		
10	66		
6.3	59		
5	56		
3.35	52		
2	48		
1.18	45		
0.6	41		
0.425	40		
0.3	39		
0.212	37		
0.15	35		
0.063	26		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

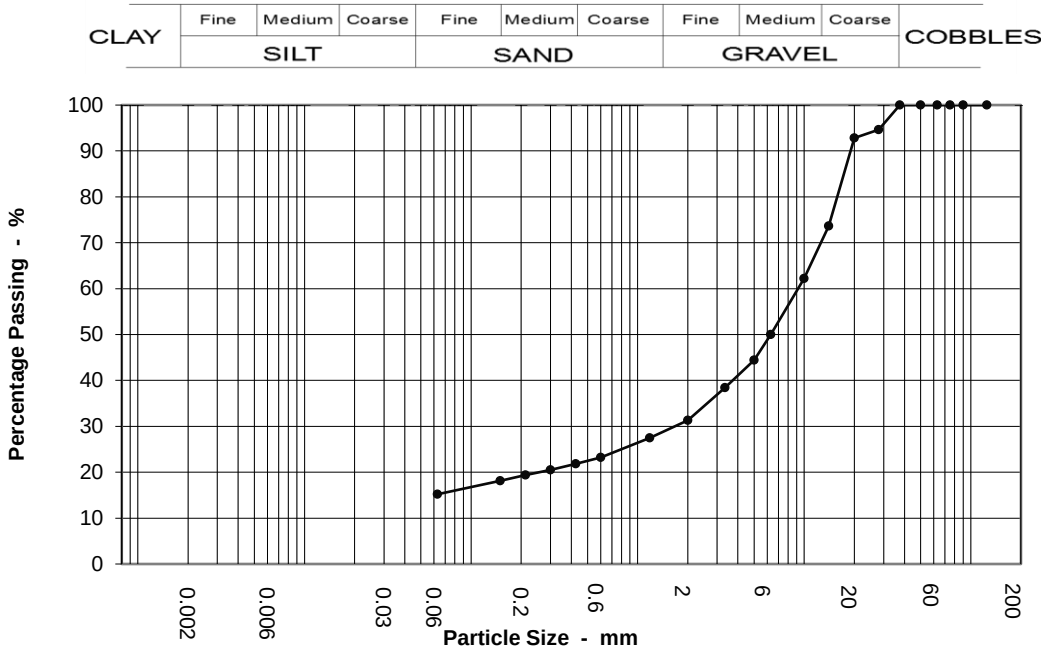
Sample Proportions	
Cobbles	0.0
Gravel	52.0
Sand	22.0
Silt & Clay	26.0

Grading Analysis	
D100	63.00
D60	6.87
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP07
Location	**Longview Developments**	Sample No	1
		Depth	0.80 m
Soil Description	Clayey sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	93		
14	74		
10	62		
6.3	50		
5	44		
3.35	38		
2	31		
1.18	27		
0.6	23		
0.425	22		
0.3	21		
0.212	19		
0.15	18		
0.063	15		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

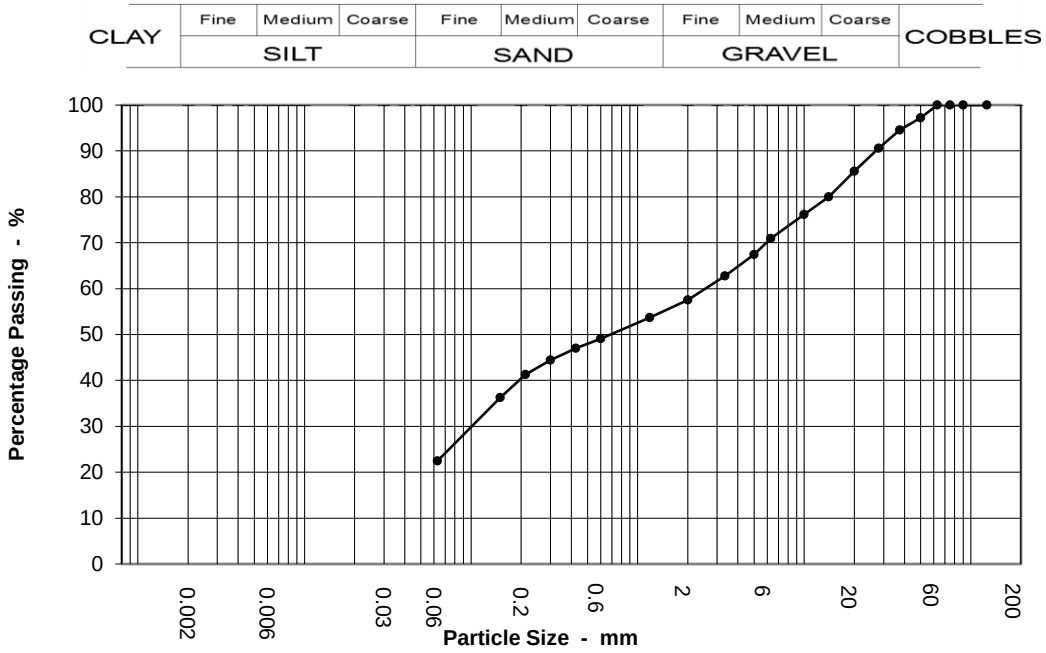
Sample Proportions	
Cobbles	0.0
Gravel	69.0
Sand	16.0
Silt & Clay	15.0

Grading Analysis	
D100	37.50
D60	9.21
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP09
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Very clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	95		
28	91		
20	86		
14	80		
10	76		
6.3	71		
5	67		
3.35	63		
2	58		
1.18	54		
0.6	49		
0.425	47		
0.3	44		
0.212	41		
0.15	36		
0.063	22		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

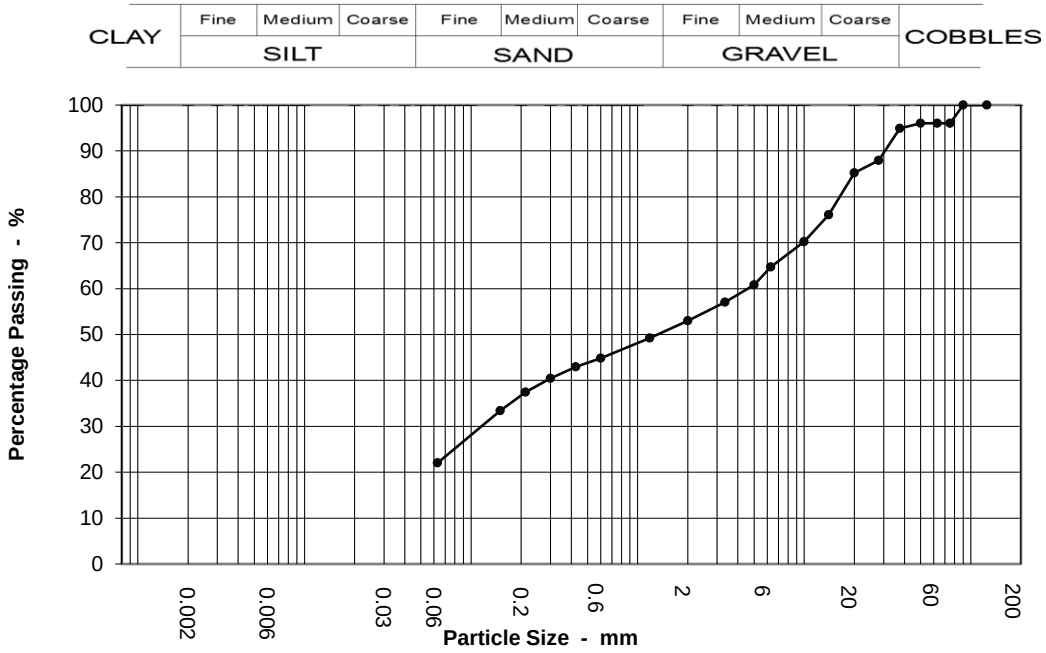
Sample Proportions	
Cobbles	0.0
Gravel	42.0
Sand	35.0
Silt & Clay	22.0

Grading Analysis	
D100	63.00
D60	2.55
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP09
Location	**Longview Developments**	Sample No	3
		Depth	1.00 m
Soil Description	Very clayey very sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	96		
63	96		
50	96		
37.5	95		
28	88		
20	85		
14	76		
10	70		
6.3	65		
5	61		
3.35	57		
2	53		
1.18	49		
0.6	45		
0.425	43		
0.3	40		
0.212	37		
0.15	33		
0.063	22		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

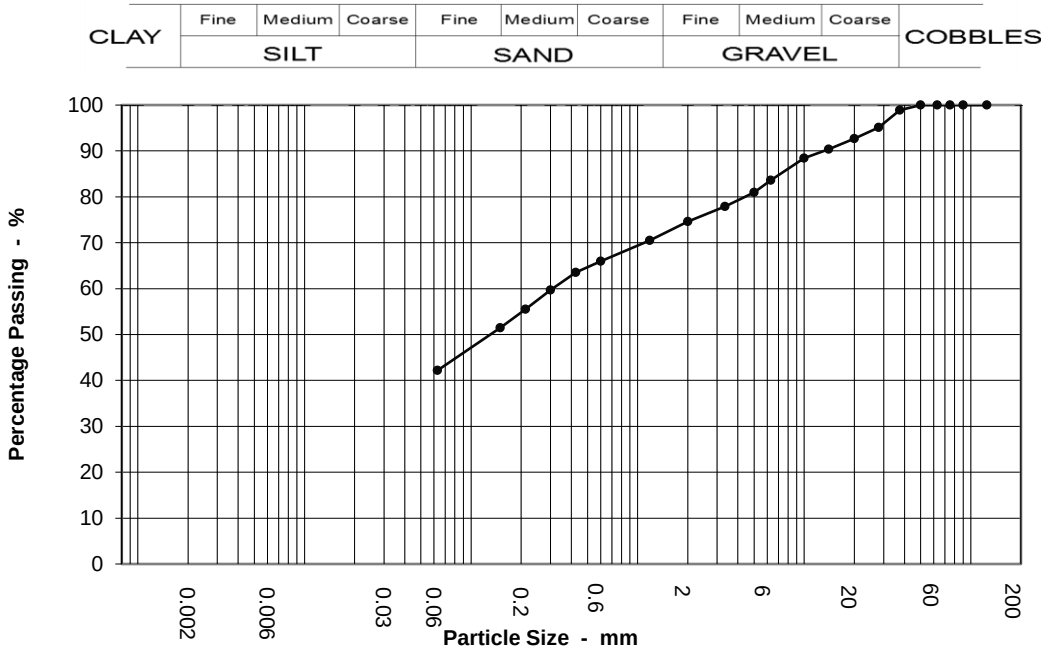
Sample Proportions	
Cobbles	4.0
Gravel	43.0
Sand	31.0
Silt & Clay	22.0

Grading Analysis	
D100	90.00
D60	4.58
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP09
Location	**Longview Developments**	Sample No	6
		Depth	2.00 m
Soil Description	Slightly sandy slightly gravelly CLAY	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	95		
20	93		
14	90		
10	88		
6.3	84		
5	81		
3.35	78		
2	75		
1.18	70		
0.6	66		
0.425	64		
0.3	60		
0.212	56		
0.15	51		
0.063	42		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

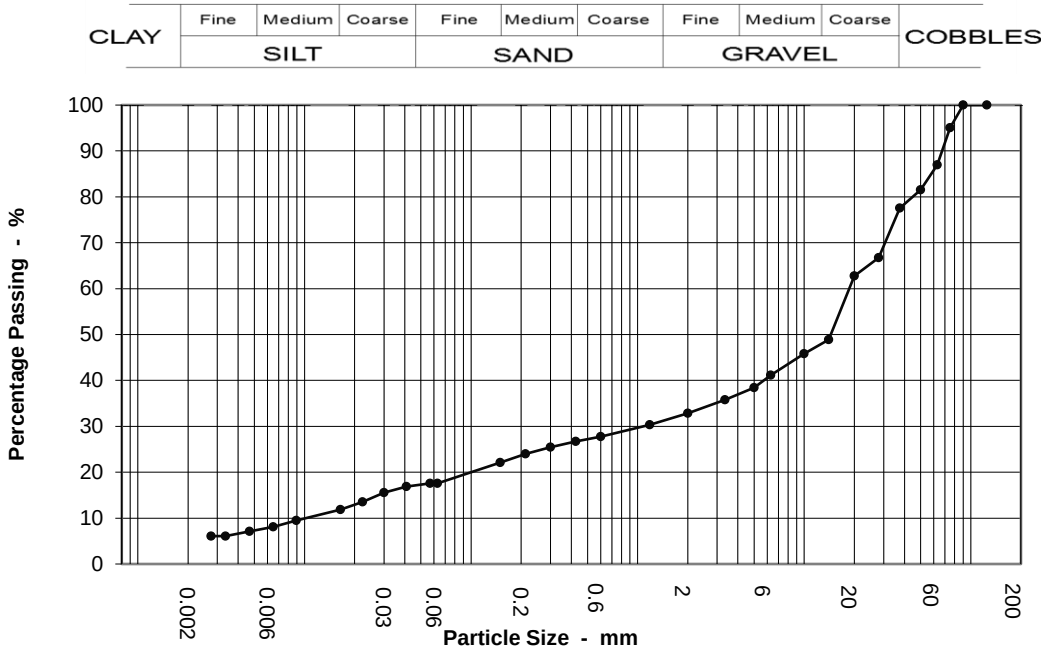
Sample Proportions	
Cobbles	0.0
Gravel	25.0
Sand	32.0
Silt & Clay	42.0

Grading Analysis	
D100	50.00
D60	0.31
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP12
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Sandy very silty GRAVEL with medium cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.057	18
90	100	0.041	17
75	95	0.030	16
63	87	0.022	14
50	82	0.016	12
37.5	78	0.009	9
28	67	0.006	8
20	63	0.005	7
14	49	0.003	6
10	46	0.003	6
6.3	41	0.001	5
5	38		
3.35	36		
2	33		
1.18	30		
0.6	28		
0.425	27		
0.3	25		
0.212	24		
0.15	22		
0.063	18		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

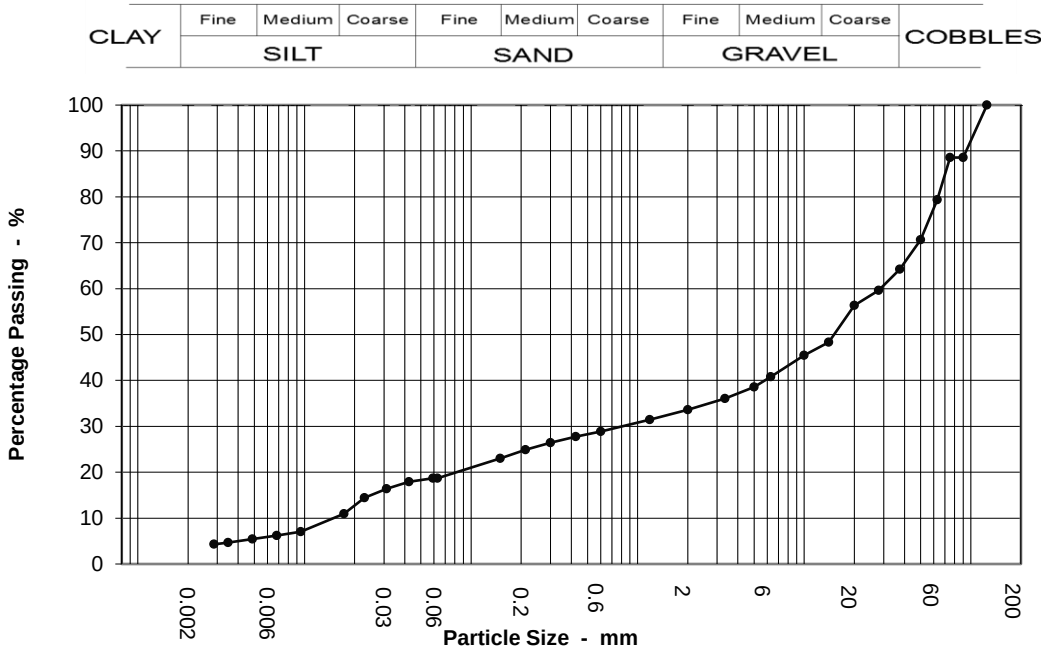
Sample Proportions	
Cobbles	13.0
Gravel	54.0
Sand	15.0
Silt	12.0
Clay	5.0

Grading Analysis	
D100	90.00
D60	18.60
D10	0.01
Uniformity Coefficient	1800.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP12
Location	**Longview Developments**	Sample No	3
		Depth	2.00 m
Soil Description	Very clayey very sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.059	19
90	89	0.042	18
75	89	0.031	16
63	79	0.023	14
50	71	0.017	11
37.5	64	0.010	7
28	60	0.007	6
20	56	0.005	5
14	48	0.003	5
10	45	0.003	4
6.3	41	0.002	4
5	39		
3.35	36		
2	34		
1.18	31		
0.6	29		
0.425	28		
0.3	26		
0.212	25		
0.15	23		
0.063	19		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

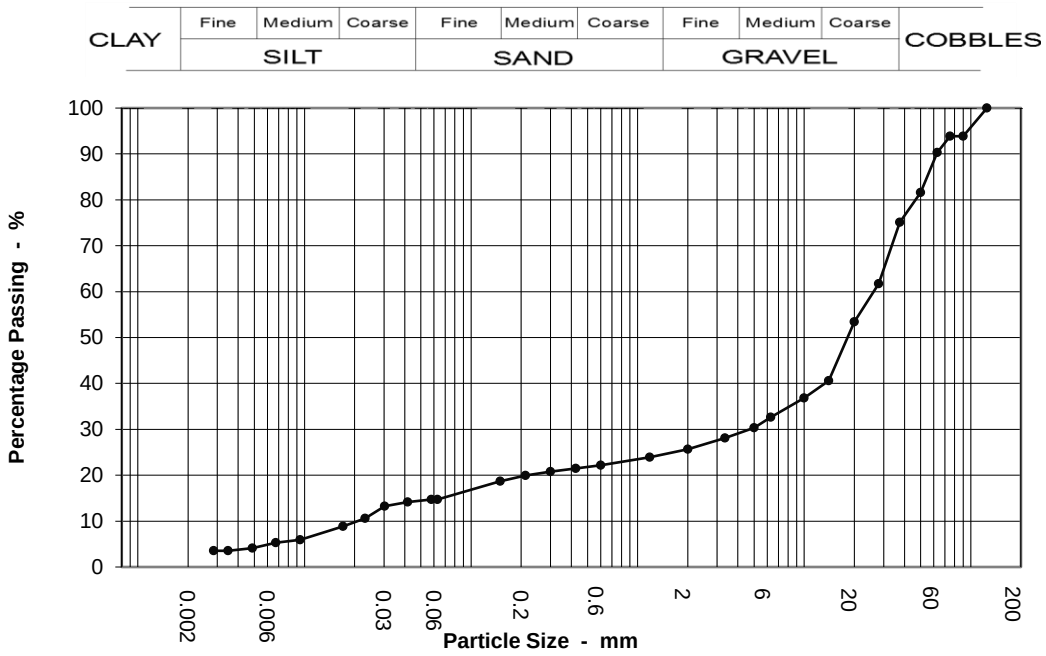
Sample Proportions	
Cobbles	21.0
Gravel	46.0
Sand	15.0
Silt	15.0
Clay	4.0

Grading Analysis	
D100	125.00
D60	28.60
D10	0.02
Uniformity Coefficient	1900.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP13
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Clayey sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.058	15
90	94	0.042	14
75	94	0.030	13
63	90	0.023	11
50	82	0.017	9
37.5	75	0.009	6
28	62	0.007	5
20	53	0.005	4
14	41	0.003	4
10	37	0.003	4
6.3	33	0.002	3
5	30		
3.35	28		
2	26		
1.18	24		
0.6	22		
0.425	22		
0.3	21		
0.212	20		
0.15	19		
0.063	15		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

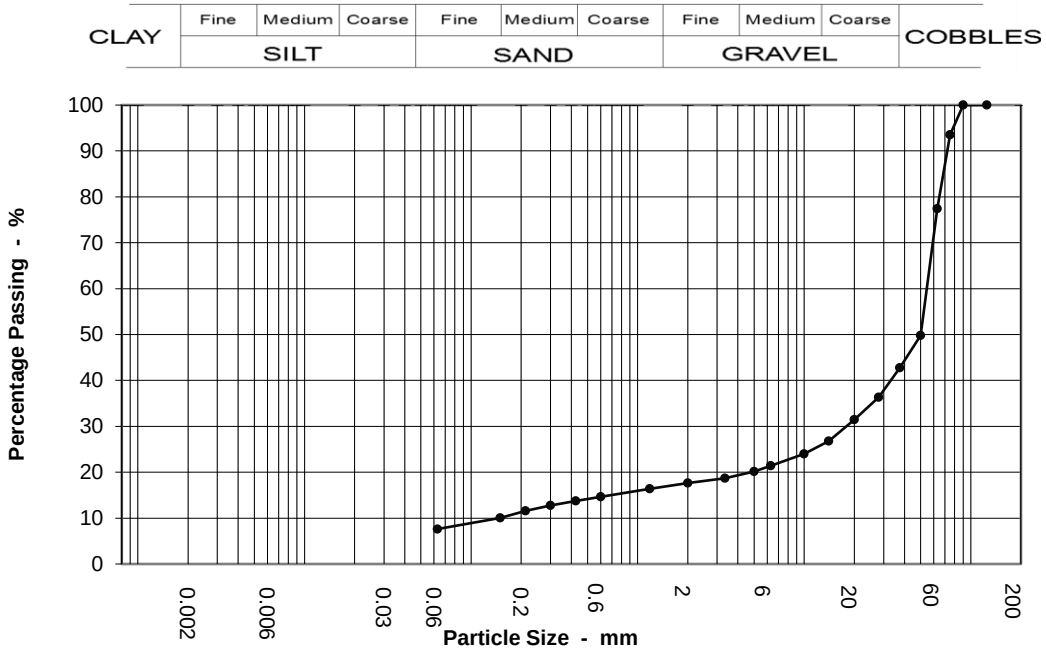
Sample Proportions	
Cobbles	10.0
Gravel	65.0
Sand	11.0
Silt	12.0
Clay	3.0

Grading Analysis	
D100	125.00
D60	26.10
D10	0.02
Uniformity Coefficient	1300.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP17
Location	**Longview Developments**	Sample No	1
		Depth	1.00 m
Soil Description	Clayey sandy GRAVEL with high cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	93		
63	77		
50	50		
37.5	43		
28	36		
20	31		
14	27		
10	24		
6.3	21		
5	20		
3.35	19		
2	18		
1.18	16		
0.6	15		
0.425	14		
0.3	13		
0.212	12		
0.15	10		
0.063	8		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

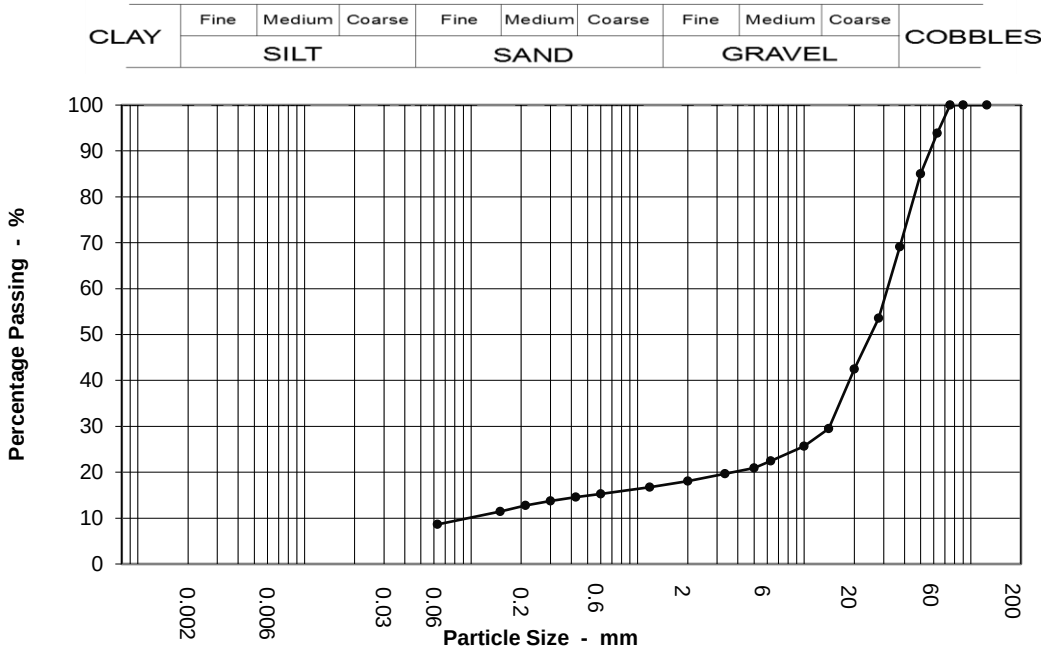
Sample Proportions	
Cobbles	23.0
Gravel	60.0
Sand	10.0
Silt & Clay	8.0

Grading Analysis	
D100	90.00
D60	54.50
D10	0.15
Uniformity Coefficient	370.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP19
Location	**Longview Developments**	Sample No	1
		Depth	0.60 m
Soil Description	Clayey sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	94		
50	85		
37.5	69		
28	54		
20	42		
14	30		
10	26		
6.3	22		
5	21		
3.35	20		
2	18		
1.18	17		
0.6	15		
0.425	15		
0.3	14		
0.212	13		
0.15	11		
0.063	9		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

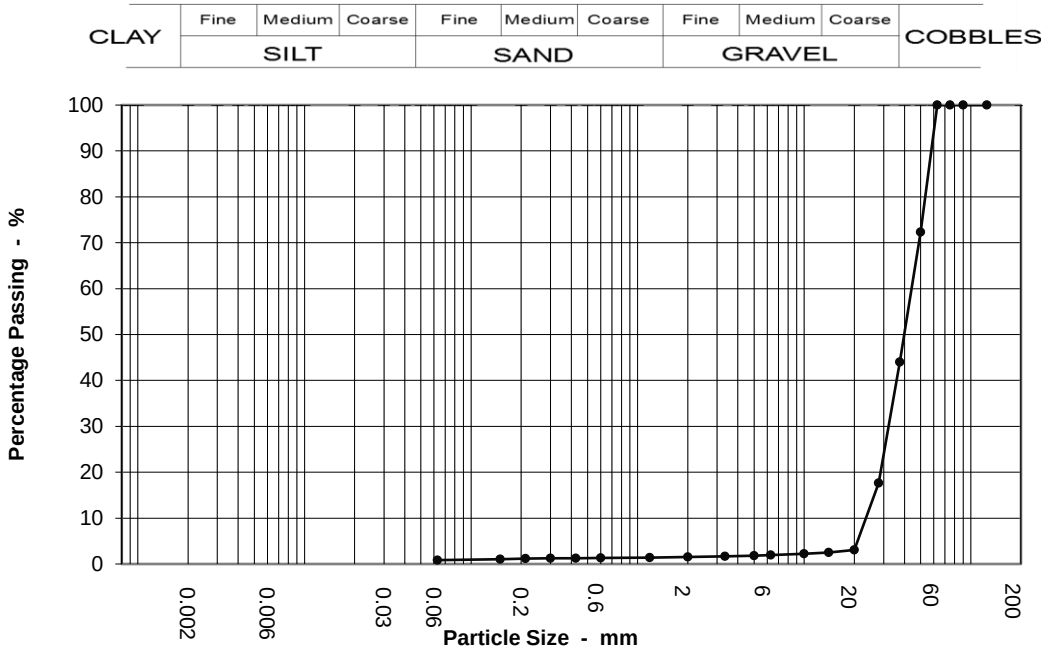
Sample Proportions	
Cobbles	6.0
Gravel	76.0
Sand	9.0
Silt & Clay	9.0

Grading Analysis	
D100	75.00
D60	31.60
D10	0.10
Uniformity Coefficient	330.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP20
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Slightly sandy slightly silty GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	72		
37.5	44		
28	18		
20	3		
14	3		
10	2		
6.3	2		
5	2		
3.35	2		
2	2		
1.18	1		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	1		
0.063	1		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

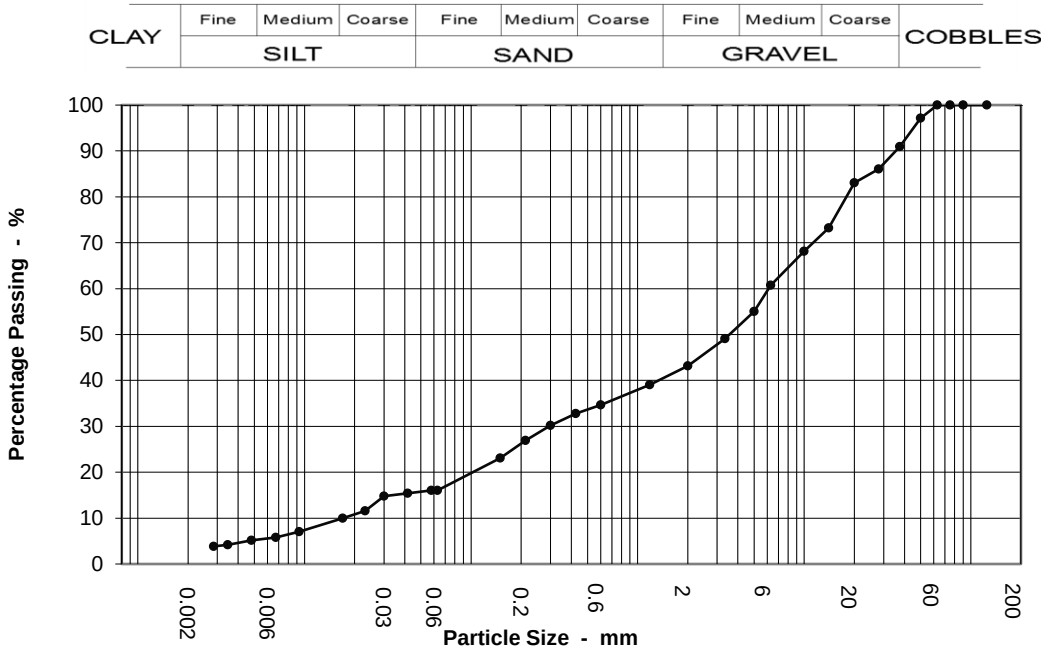
Sample Proportions	
Cobbles	0.0
Gravel	98.0
Sand	1.0
Silt & Clay	1.0

Grading Analysis	
D100	63.00
D60	44.10
D10	23.50
Uniformity Coefficient	1.90

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP21
Location	**Longview Developments**	Sample No	1
		Depth	1.00 m
Soil Description	Clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.058	16
90	100	0.042	15
75	100	0.030	15
63	100	0.023	12
50	97	0.017	10
37.5	91	0.009	7
28	86	0.007	6
20	83	0.005	5
14	73	0.003	4
10	68	0.003	4
6.3	61	0.002	3
5	55		
3.35	49		
2	43		
1.18	39		
0.6	35		
0.425	33		
0.3	30		
0.212	27		
0.15	23		
0.063	16		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

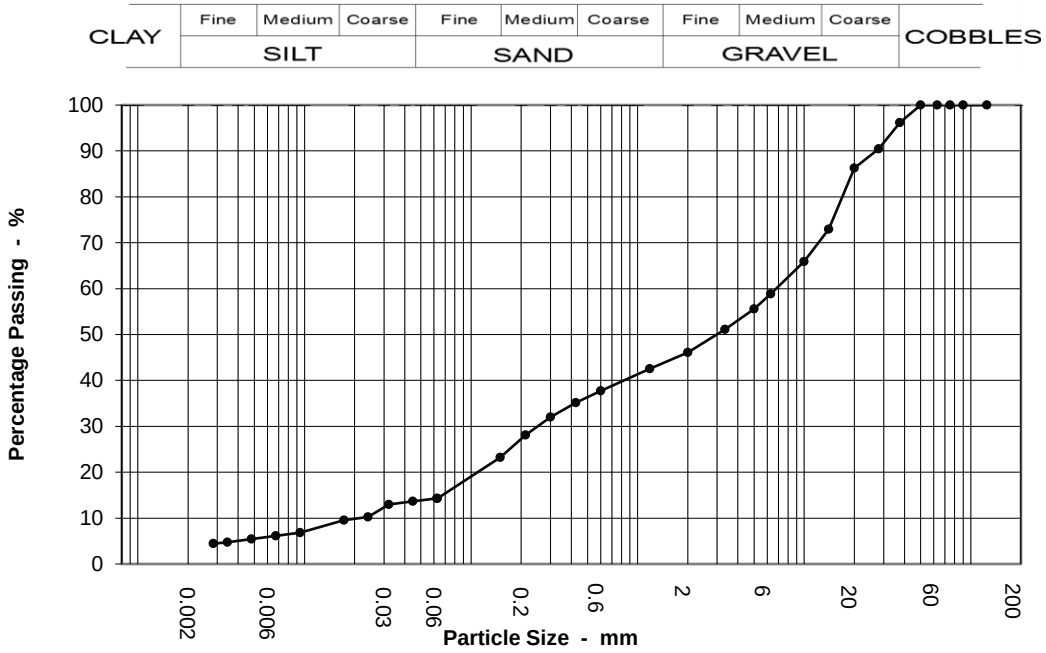
Sample Proportions	
Cobbles	0.0
Gravel	57.0
Sand	27.0
Silt	13.0
Clay	3.0

Grading Analysis	
D100	63.00
D60	6.12
D10	0.02
Uniformity Coefficient	360.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP21
Location	**Longview Developments**	Sample No	2
		Depth	2.00 m
Soil Description	Clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.062	14
90	100	0.045	14
75	100	0.032	13
63	100	0.024	10
50	100	0.017	10
37.5	96	0.009	7
28	90	0.007	6
20	86	0.005	5
14	73	0.003	5
10	66	0.003	4
6.3	59	0.002	3
5	56		
3.35	51		
2	46		
1.18	43		
0.6	38		
0.425	35		
0.3	32		
0.212	28		
0.15	23		
0.063	14		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

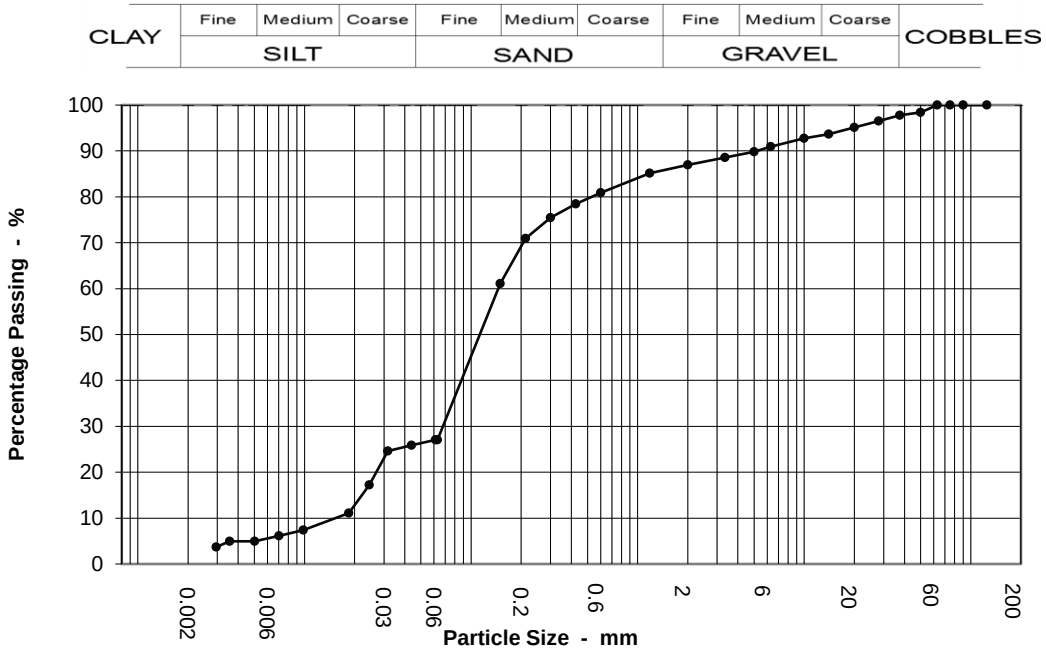
Sample Proportions	
Cobbles	0.0
Gravel	54.0
Sand	32.0
Silt	10.0
Clay	4.0

Grading Analysis	
D100	50.00
D60	6.80
D10	0.02
Uniformity Coefficient	310.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP21
Location	**Longview Developments**	Sample No	3
		Depth	3.00 m
Soil Description	Gravelly very clayey SAND	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.061	27
90	100	0.044	26
75	100	0.032	25
63	100	0.024	17
50	98	0.018	11
37.5	98	0.010	7
28	97	0.007	6
20	95	0.005	5
14	94	0.004	5
10	93	0.003	4
6.3	91	0.002	4
5	90		
3.35	89		
2	87		
1.18	85		
0.6	81		
0.425	78		
0.3	75		
0.212	71		
0.15	61		
0.063	27		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	Clause 9.5

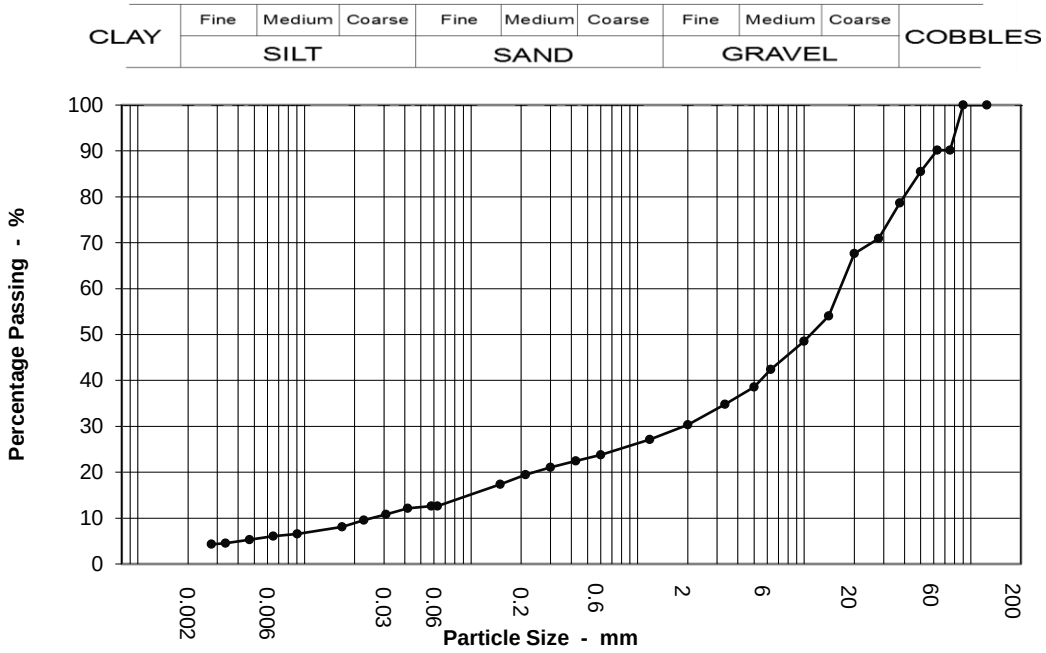
Sample Proportions	
Cobbles	0.0
Gravel	13.0
Sand	60.0
Silt	23.0
Clay	4.0

Grading Analysis	
D100	63.00
D60	0.15
D10	0.02
Uniformity Coefficient	9.50

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP22
Location	**Longview Developments**	Sample No	1
		Depth	0.50 m
Soil Description	Clayey sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.058	13
90	100	0.042	12
75	90	0.031	11
63	90	0.023	10
50	86	0.017	8
37.5	79	0.009	7
28	71	0.006	6
20	68	0.005	5
14	54	0.003	5
10	49	0.003	4
6.3	42	0.001	4
5	39		
3.35	35		
2	30		
1.18	27		
0.6	24		
0.425	22		
0.3	21		
0.212	19		
0.15	17		
0.063	13		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

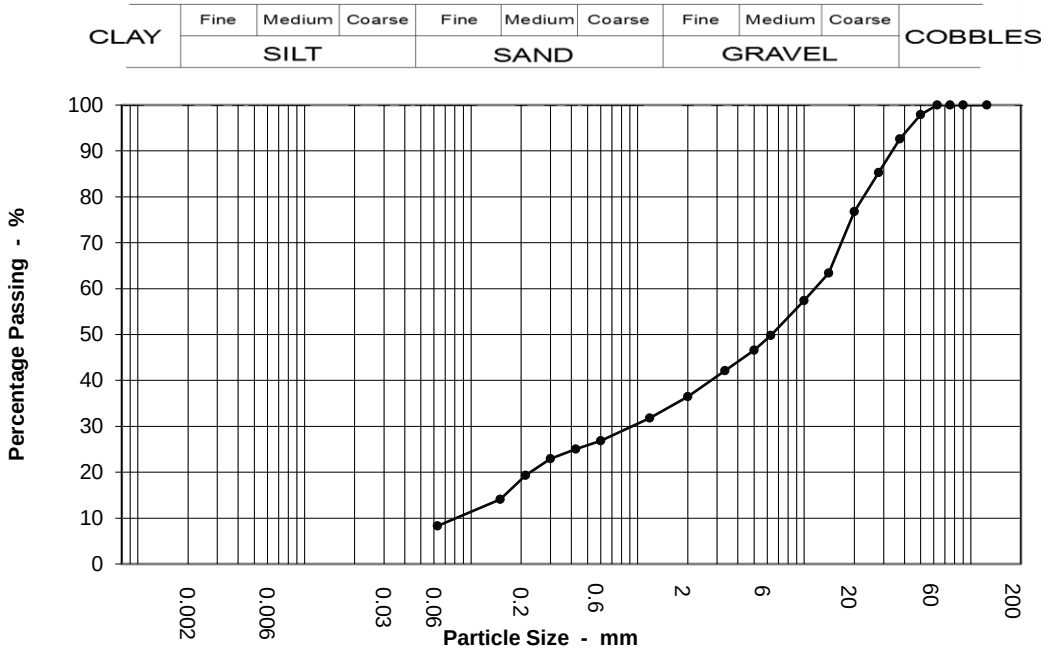
Sample Proportions	
Cobbles	10.0
Gravel	60.0
Sand	18.0
Silt	9.0
Clay	4.0

Grading Analysis	
D100	90.00
D60	16.40
D10	0.03
Uniformity Coefficient	650.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP22
Location	**Longview Developments**	Sample No	2
		Depth	1.50 m
Soil Description	Clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	98		
37.5	93		
28	85		
20	77		
14	63		
10	57		
6.3	50		
5	47		
3.35	42		
2	36		
1.18	32		
0.6	27		
0.425	25		
0.3	23		
0.212	19		
0.15	14		
0.063	8		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

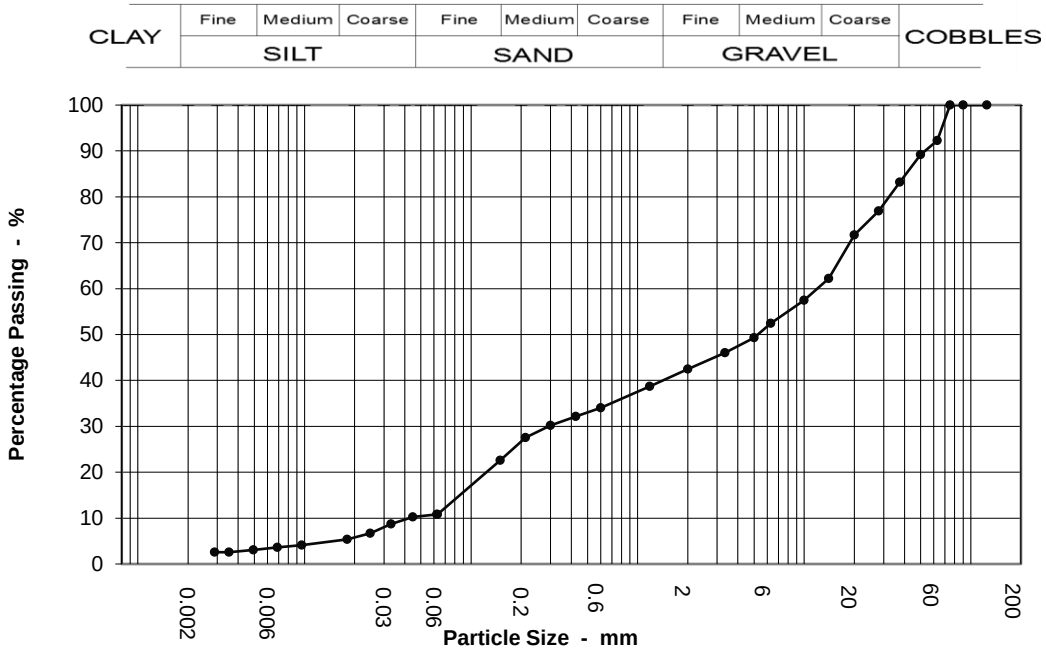
Sample Proportions	
Cobbles	0.0
Gravel	64.0
Sand	28.0
Silt & Clay	8.0

Grading Analysis	
D100	63.00
D60	11.60
D10	0.08
Uniformity Coefficient	140.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP23
Location	**Longview Developments**	Sample No	3
		Depth	1.50 m
Soil Description	Clayey very sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.062	11
90	100	0.045	10
75	100	0.033	9
63	92	0.025	7
50	89	0.018	5
37.5	83	0.010	4
28	77	0.007	4
20	72	0.005	3
14	62	0.004	3
10	57	0.003	3
6.3	52	0.002	2
5	49		
3.35	46		
2	42		
1.18	39		
0.6	34		
0.425	32		
0.3	30		
0.212	28		
0.15	23		
0.063	11		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

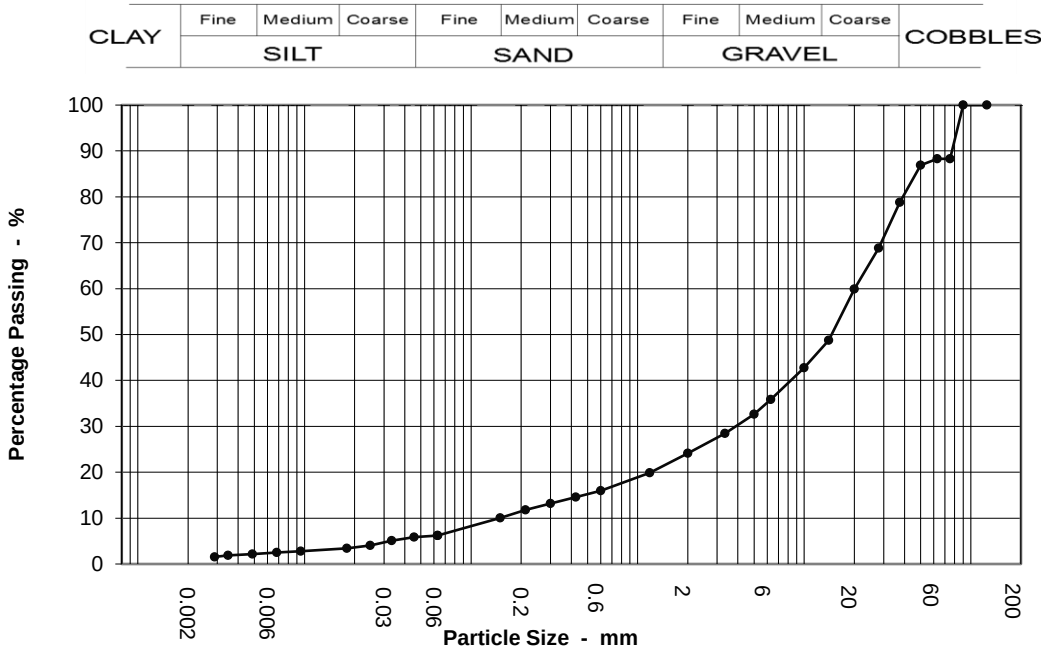
Sample Proportions	
Cobbles	8.0
Gravel	50.0
Sand	32.0
Silt	9.0
Clay	2.0

Grading Analysis	
D100	75.00
D60	12.00
D10	0.04
Uniformity Coefficient	280.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P19012**
		Borehole / Pit No	TP24
Location	**Longview Developments**	Sample No	1
		Depth	1.00 m
Soil Description	Clayey very sandy GRAVEL with medium cobble content	Sample type	B



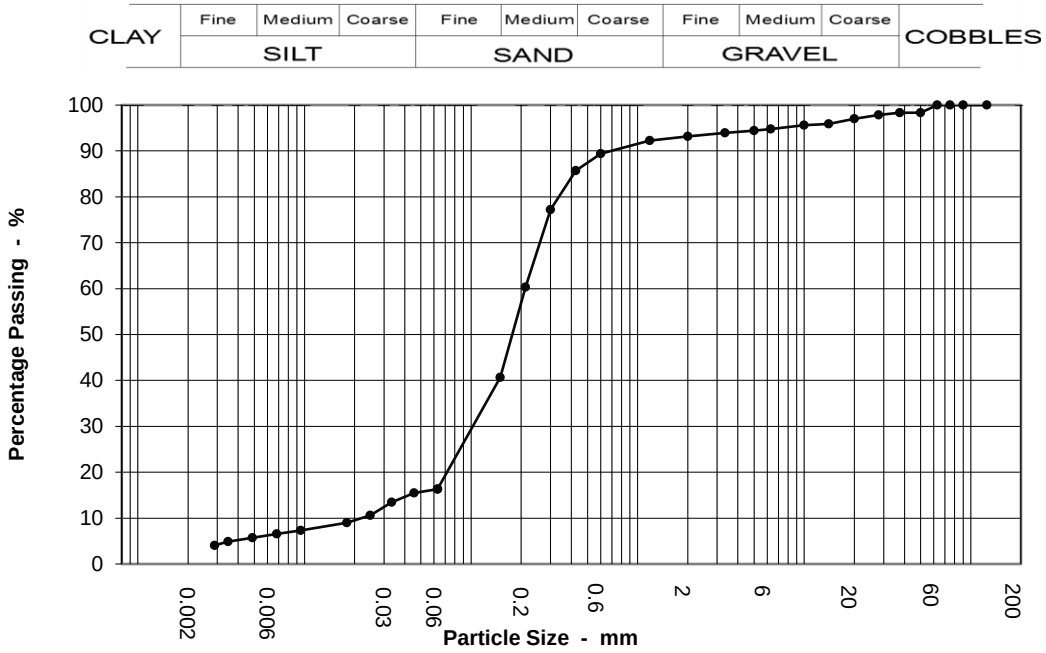
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.063	6
90	100	0.045	6
75	88	0.033	5
63	88	0.025	4
50	87	0.018	3
37.5	79	0.010	3
28	69	0.007	2
20	60	0.005	2
14	49	0.003	2
10	43	0.003	2
6.3	36	0.002	1
5	33		
3.35	28		
2	24		
1.18	20		
0.6	16		
0.425	15		
0.3	13		
0.212	12		
0.15	10		
0.063	6		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	
Sedimentation	Clause 9.5

Sample Proportions	
Cobbles	12.0
Gravel	64.0
Sand	18.0
Silt	5.0
Clay	1.0

Grading Analysis	
D100	90.00
D60	20.10
D10	0.15
Uniformity Coefficient	130.00

pgl priority geotechnical	**PARTICLE SIZE DISTRIBUTION** **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**P19012**
		Borehole / Pit No	TP24
Location	**Longview Developments**	Sample No	2
		Depth	2.50 m
Soil Description	Clayey gravelly SAND	Sample type	B



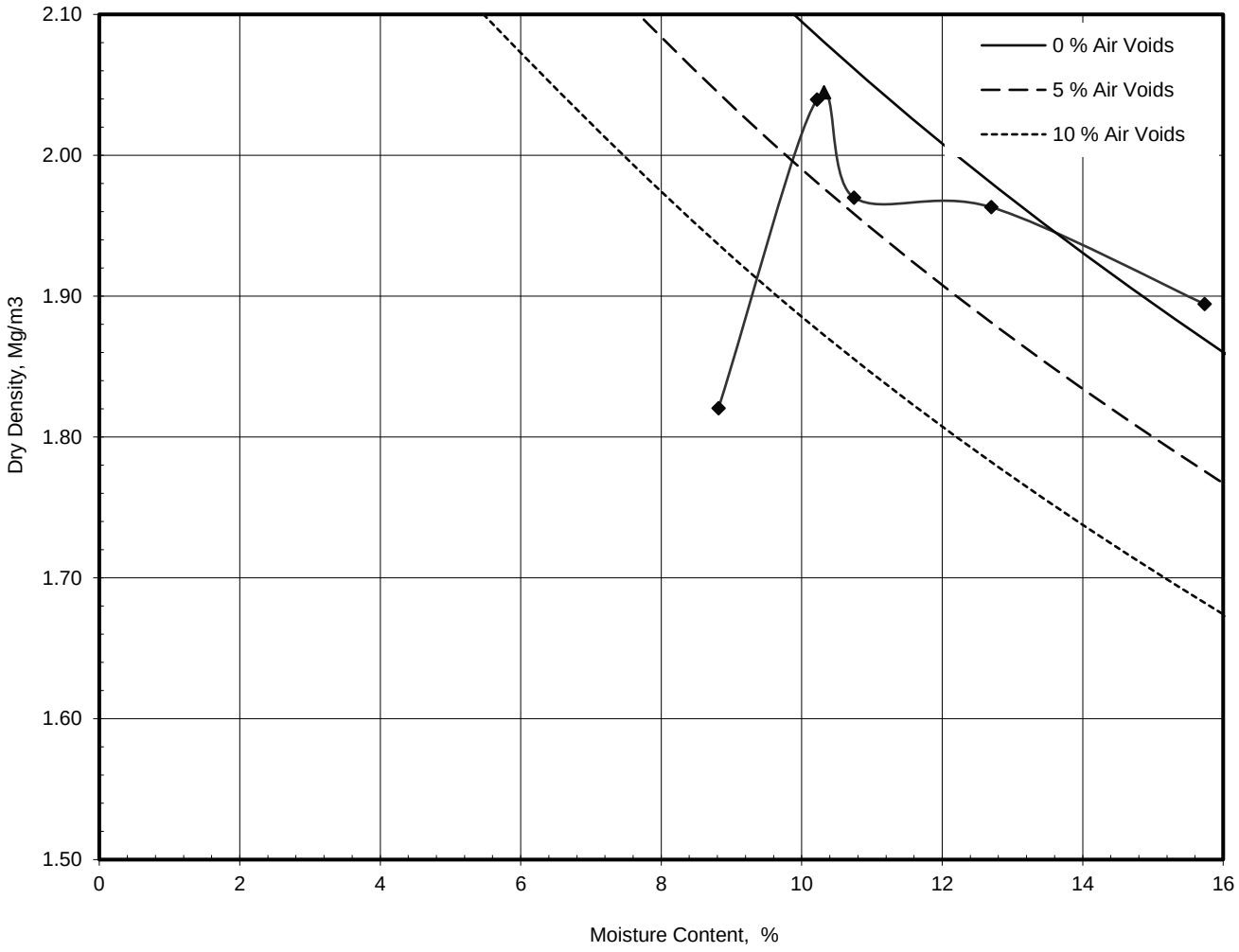
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.063	16
90	100	0.045	15
75	100	0.033	13
63	100	0.025	11
50	98	0.018	9
37.5	98	0.010	7
28	98	0.007	7
20	97	0.005	6
14	96	0.003	5
10	96	0.003	4
6.3	95	0.002	3
5	94		
3.35	94		
2	93		
1.18	92		
0.6	89		
0.425	86		
0.3	77		
0.212	60		
0.15	41		
0.063	16		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

Sample Proportions	
Cobbles	0.0
Gravel	7.0
Sand	77.0
Silt	13.0
Clay	4.0

Grading Analysis	
D100	63.00
D60	0.21
D10	0.02
Uniformity Coefficient	9.60

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	P19012
				Borehole / Pit No	TP02
Location	**Longview Developments**			Sample No	3
Soil Description	Slightly sandy gravelly SILT			Depth	1.50 m
				Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	PGL12019030425
				Compaction Test Reference/No.	



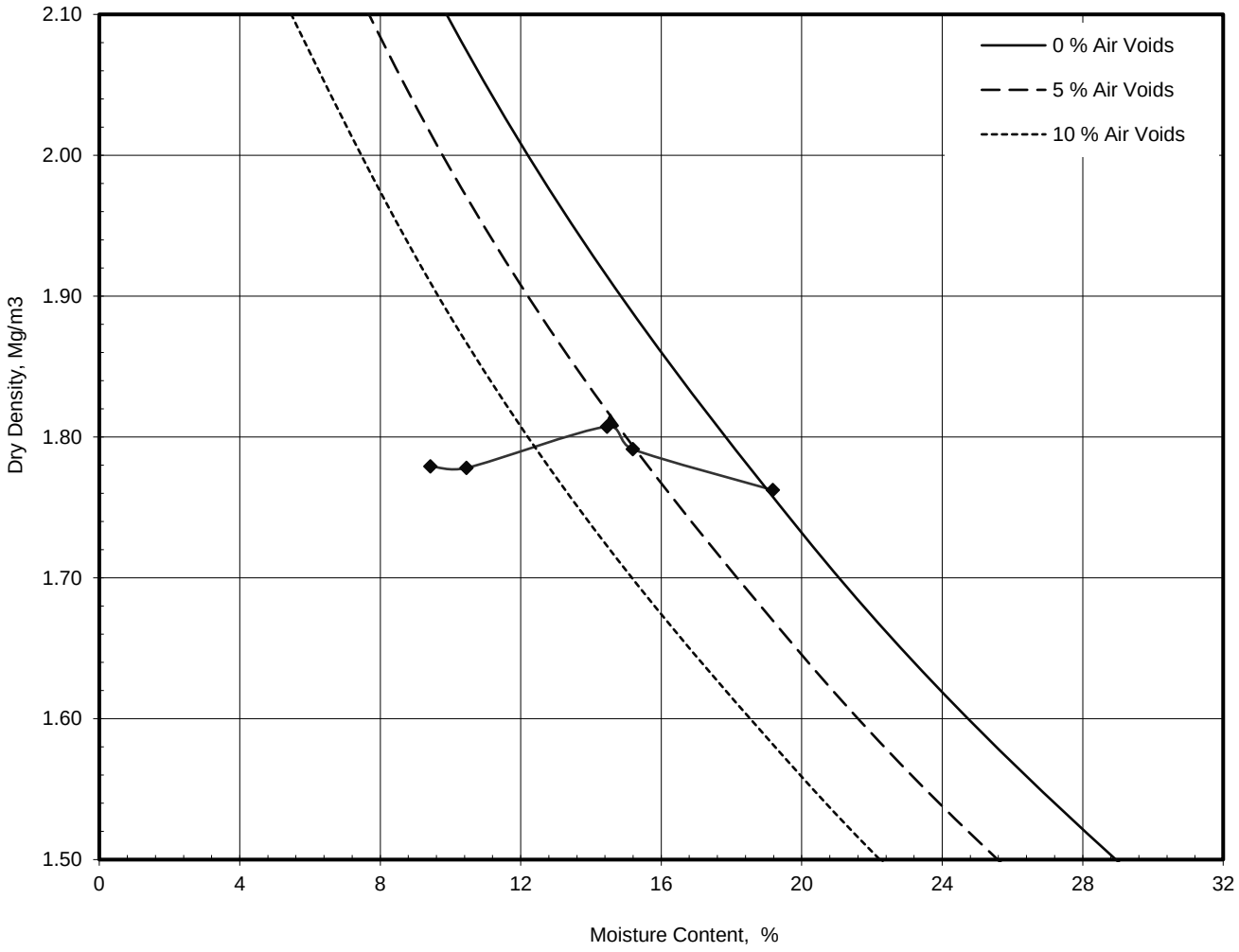
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	4
Material Retained on 20.0 mm Sieve	%	18
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.00**

Optimum Moisture Content	%	**10.3**
Natural Mositure Content	**%**	**15.74**

Operator	Checked	Approved	Remarks	Fig
		Cilla		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction	Job Ref	**P19012**
		Borehole / Pit No	TP03
Location	**Longview Developments**	Sample No	2
Soil Description	Very silty very sandy GRAVEL	Depth	0.50 m
		Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer	Keylab ID	PGL12019030430
		Compaction Test Reference/No.	



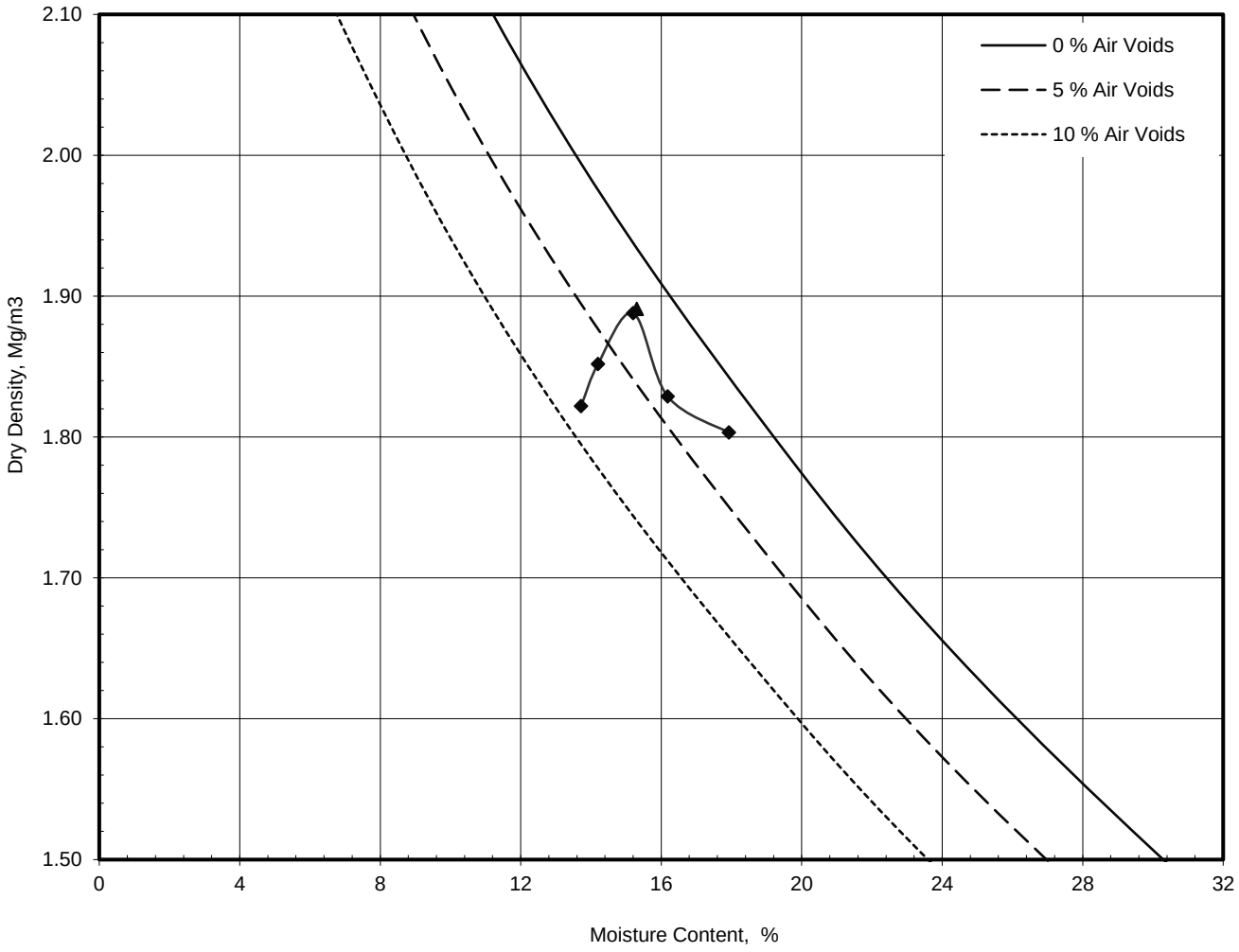
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	6
Material Retained on 20.0 mm Sieve	%	14
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**1.80**

Optimum Moisture Content	%	**14.6**
Natural Mositure Content	**%**	**19.18**

Operator	Checked	Approved	Remarks	**Fig**
		Cilla		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	P19012
				Borehole / Pit No	TP03
Location	**Longview Developments**			Sample No	5
Soil Description	Sandy very clayey GRAVEL			Depth	1.50 m
				Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	PGL12019030432
				Compaction Test Reference/No.	



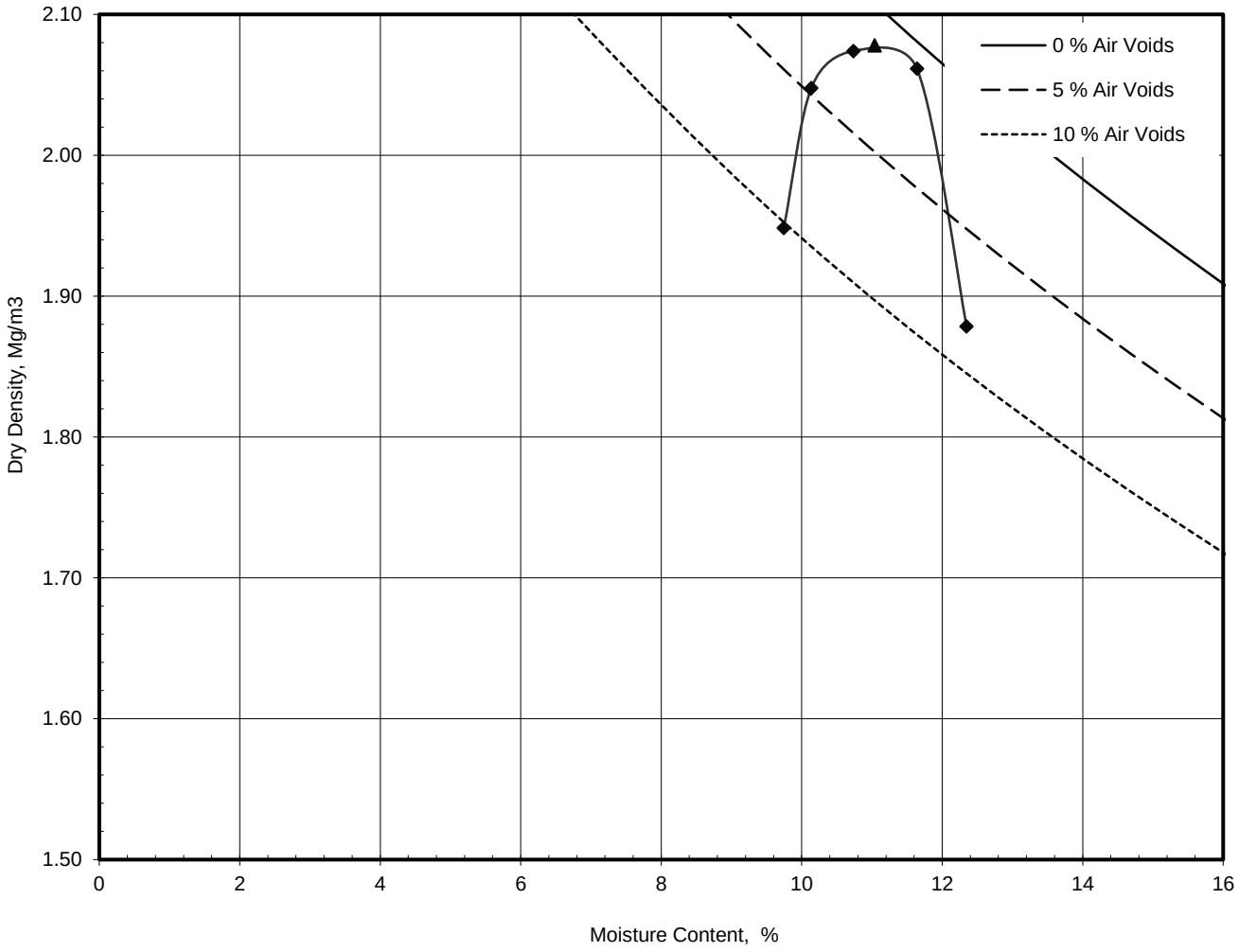
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	16
Material Retained on 20.0 mm Sieve	%	27
Particle Density - Assumed	Mg/m³	2.75

Maximum Dry Density	Mg/m³	**1.90**

Optimum Moisture Content	%	**15.3**
Natural Mositure Content	**%**	**15.2**

Operator	Checked	Approved	Remarks	Fig
		Cilla		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction	Job Ref	P19012
		Borehole / Pit No	TP04
Location	**Longview Developments**	Sample No	1
Soil Description	Clayey very sandy GRAVEL	Depth	0.50 m
		Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer	Keylab ID	PGL12019030436
		Compaction Test Reference/No.	



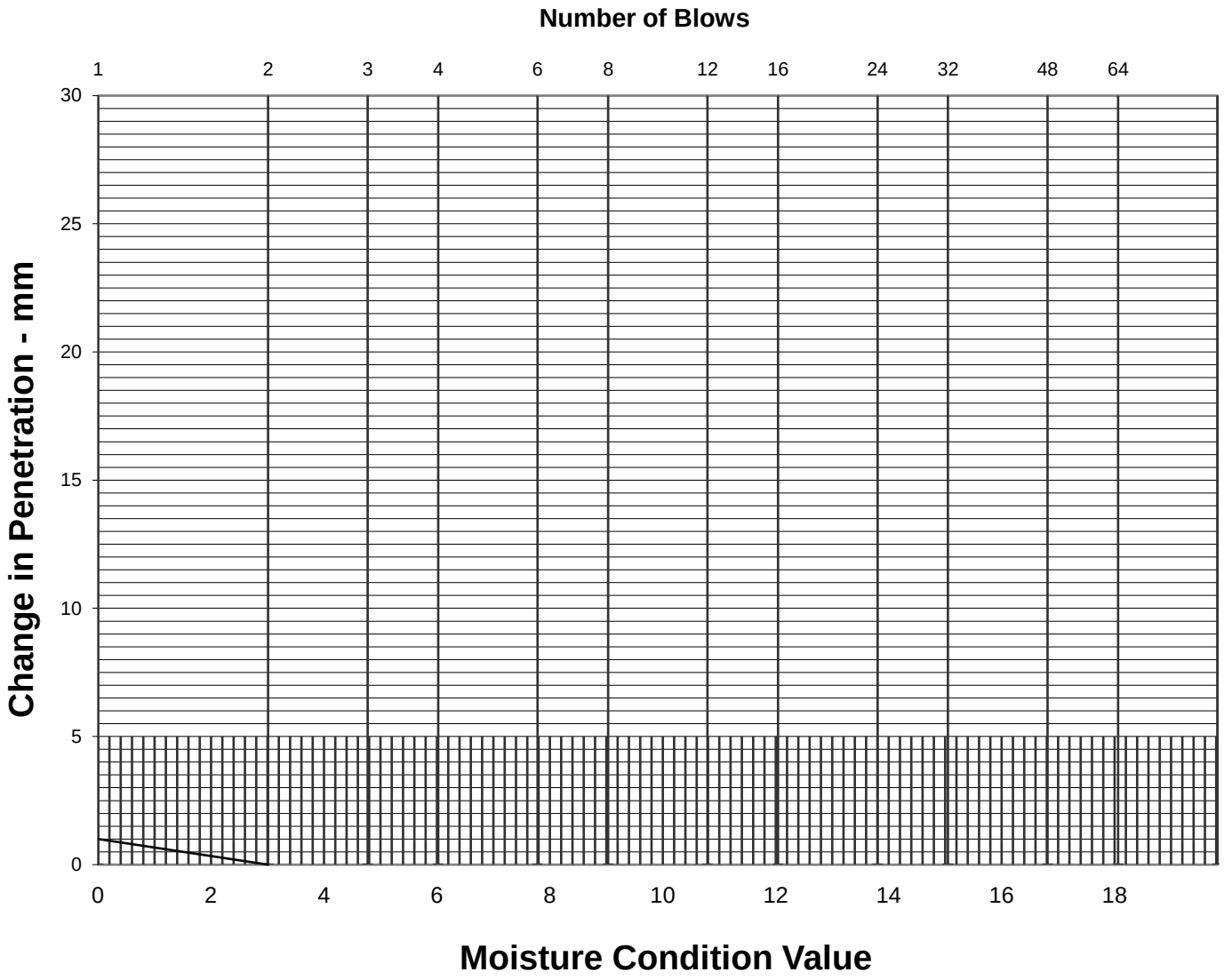
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	5
Material Retained on 20.0 mm Sieve	%	12
Particle Density - Assumed	Mg/m³	2.75

Maximum Dry Density	Mg/m³	**2.10**

Optimum Moisture Content	%	**11**
Natural Mositure Content	**%**	**10.74**

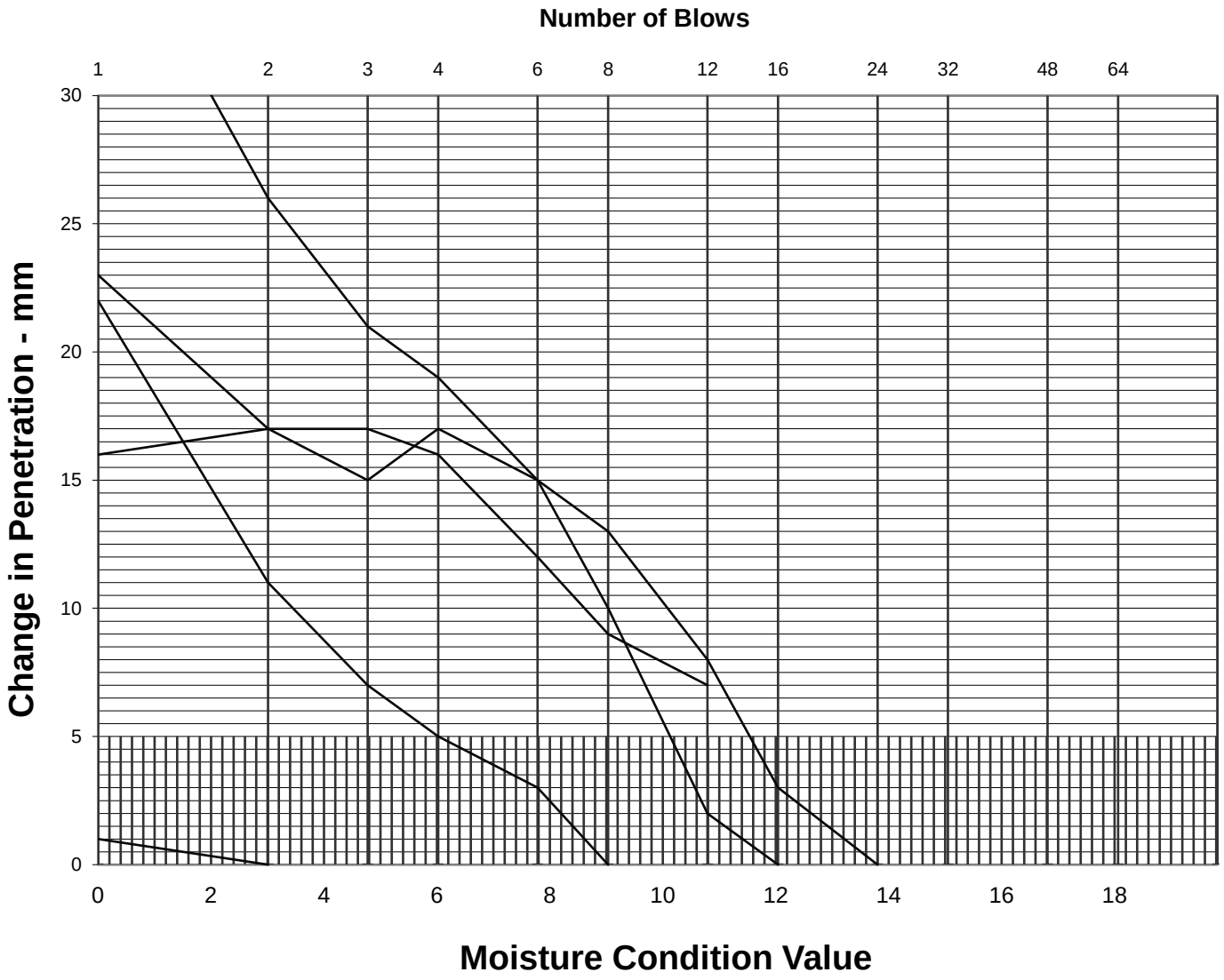
Operator	Checked	Approved	Remarks	Fig
		Cilla		Sheet 1 of 1

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP02
Location	Longview Developments	Sample No	1
Soil Description	Very sitly very sandy GRAVEL	Sample Type	B
		Depth	0.50 m



Specimen No		1	2	3	4	5	6
Moisture Condition Value		0.0					
Moisture Content	%	30.42					
Bulk density after compaction	Mg/m³	2.01					
Dry density after compaction	Mg/m³	1.54					
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	3.4					

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP02
Location	Longview Developments	Sample No	3
Soil Description	Slightly sandy gravelly SILT	Sample Type	B
		Depth	1.50 m

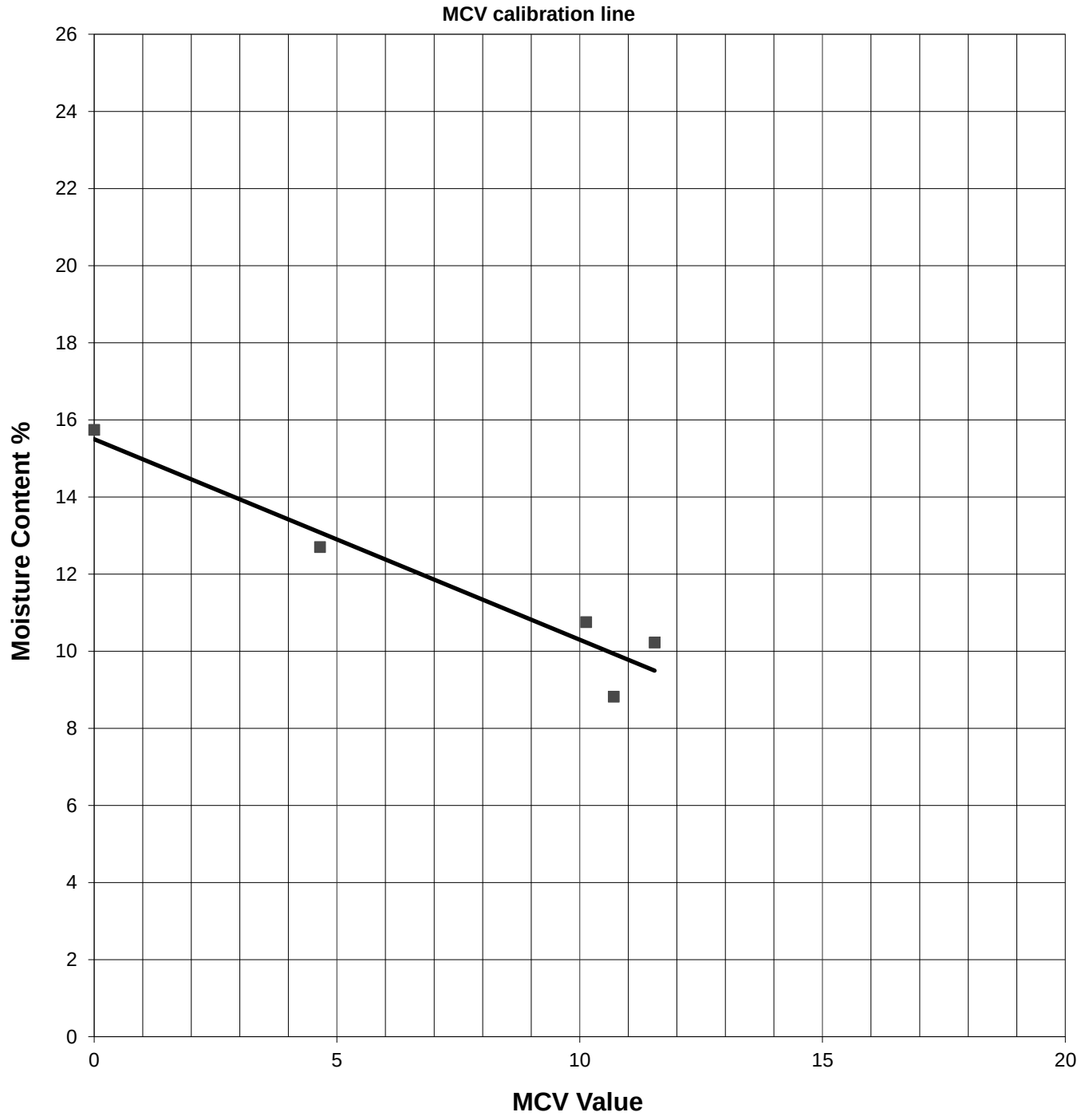


Specimen No		1	2	3	4	5	6
Moisture Condition Value		0.0	10.1	10.7	4.7	11.5	
Moisture Content	%	15.74	10.75	8.82	12.70	10.22	
Bulk density after compaction	Mg/m³	2.17	2.18	2.07	2.18	2.18	
Dry density after compaction	Mg/m³	1.87	1.97	1.90	1.93	1.98	
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	18.5					

MCV Relationship Graph

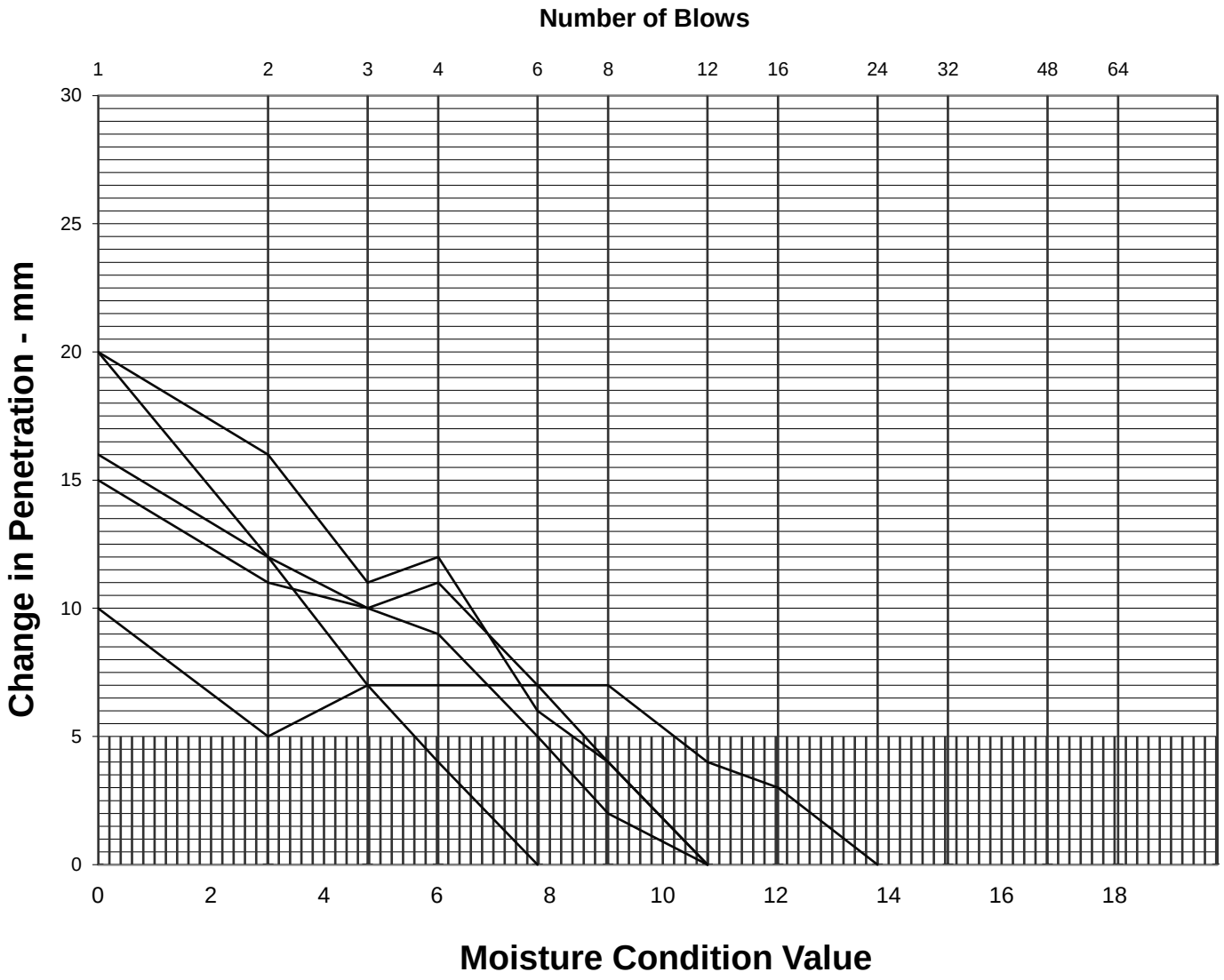
BS 1377 : Part 4 : 1990 Clause 5

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Location	Longview	Sample No	3
Soil Description	Slightly sandy gravelly SILT	Sample Type	B
		Depth	1.50 m



Operator	Checked	Approved	Remarks Single sample / Separate batches tested

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP03
Location	Longview Developments	Sample No	2
Soil Description	Very silty very sandy GRAVEL	Sample Type	B
		Depth	0.50 m

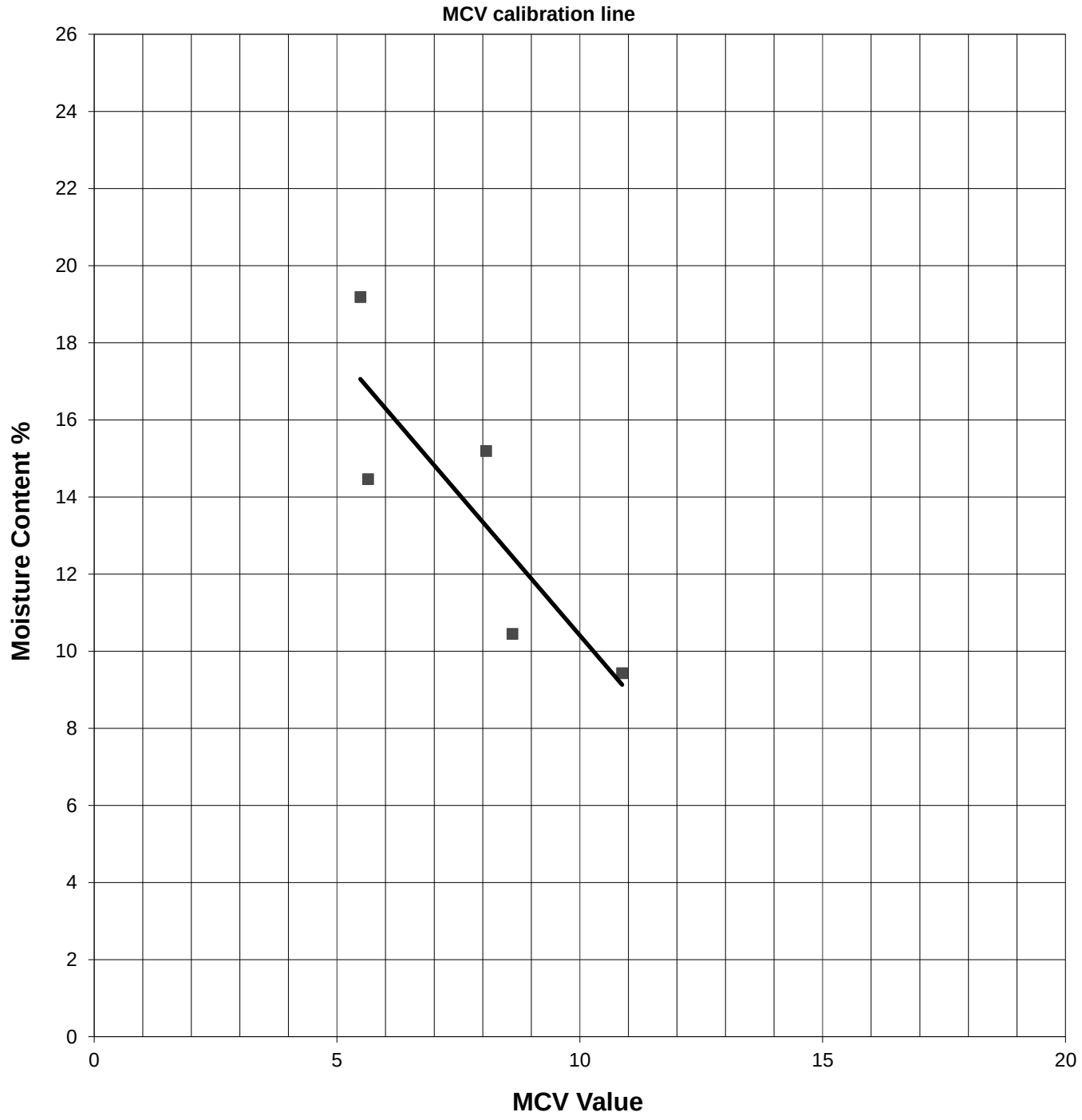


Specimen No		1	2	3	4	5	6
Moisture Condition Value		5.5	8.1	8.6	5.6	10.9	
Moisture Content	%	19.18	15.19	10.45	14.46	9.43	
Bulk density after compaction	Mg/m³	2.05	2.05	1.91	1.97	2.01	
Dry density after compaction	Mg/m³	1.72	1.78	1.73	1.72	1.84	
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	14.3					

MCV Relationship Graph

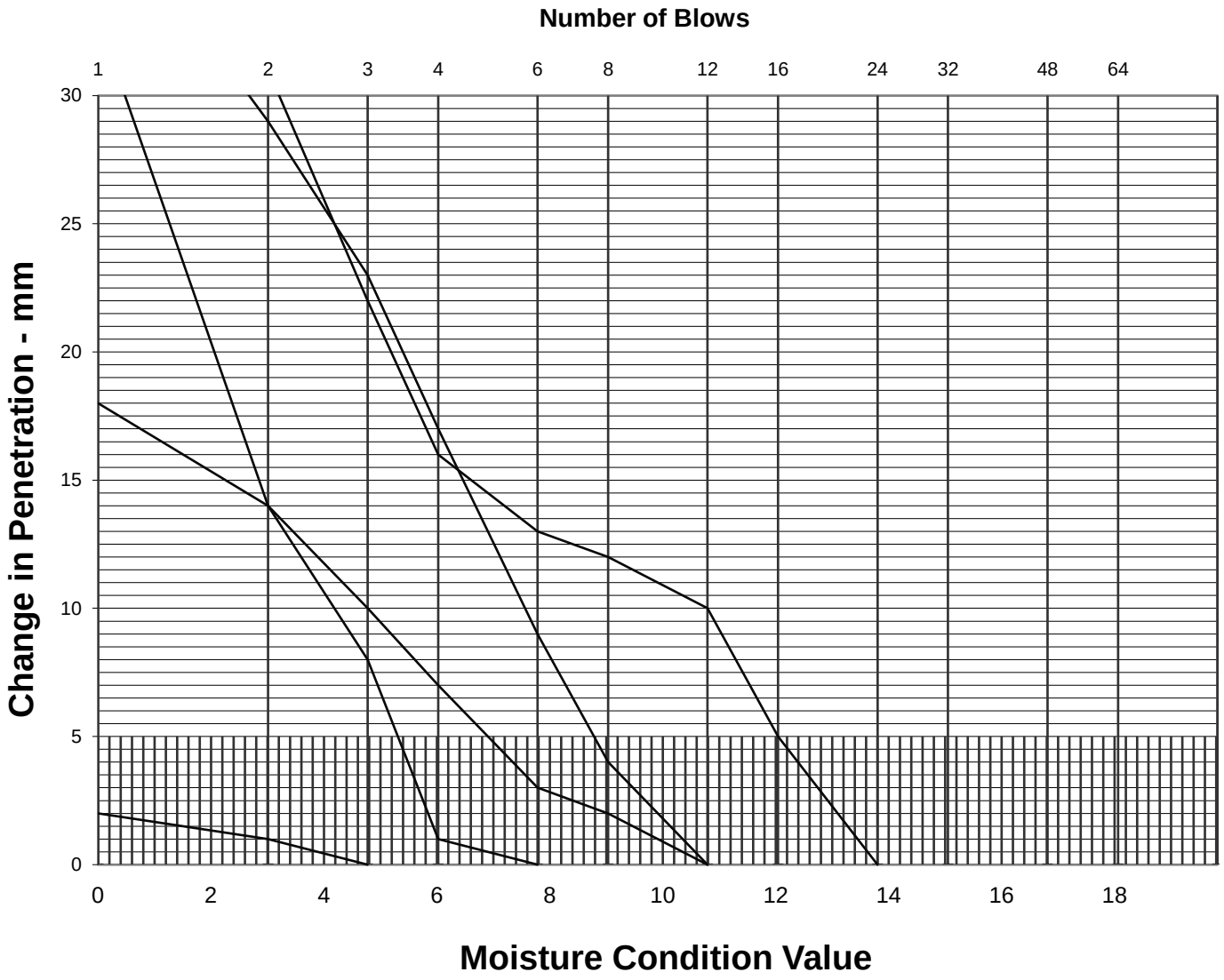
BS 1377 : Part 4 : 1990 Clause 5

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Location	Longview	Sample No	2
Soil Description	Very silty very sandy GRAVEL	Sample Type	B
		Depth	0.50 m



Operator	Checked	Approved	Remarks Single sample / Separate batches tested

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP03
Location	Longview Developments	Sample No	5
Soil Description	Sandy very clayey GRAVEL	Sample Type	B
		Depth	1.50 m

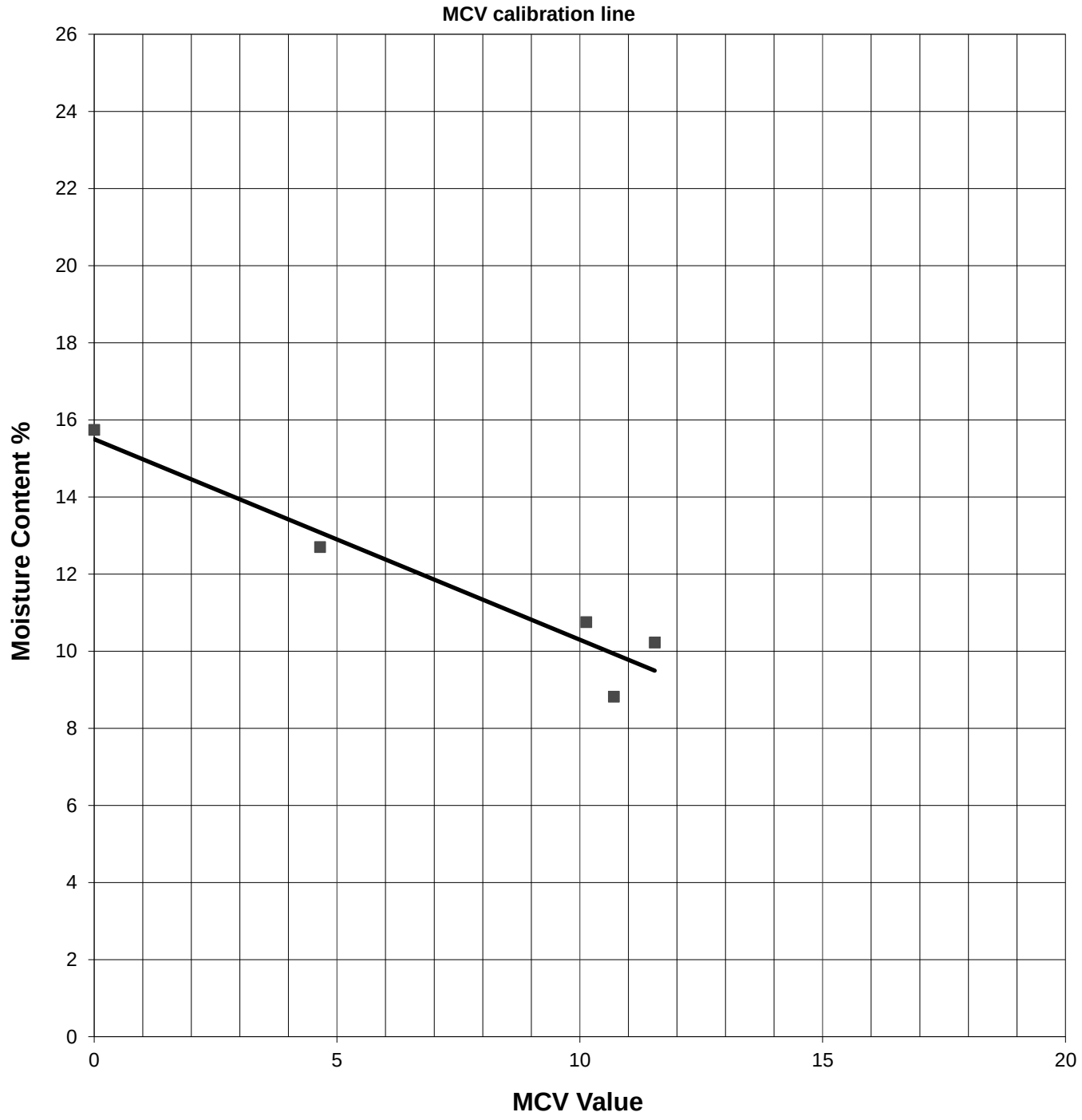


Specimen No		1	2	3	4	5	6
Moisture Condition Value		6.9	8.1	4.4	8.5	0.0	
Moisture Content	%	15.20	14.20	16.18	13.72	17.93	
Bulk density after compaction	Mg/m³						
Dry density after compaction	Mg/m³	0.00	0.00	0.00	0.00	0.00	
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	26.7					

MCV Relationship Graph

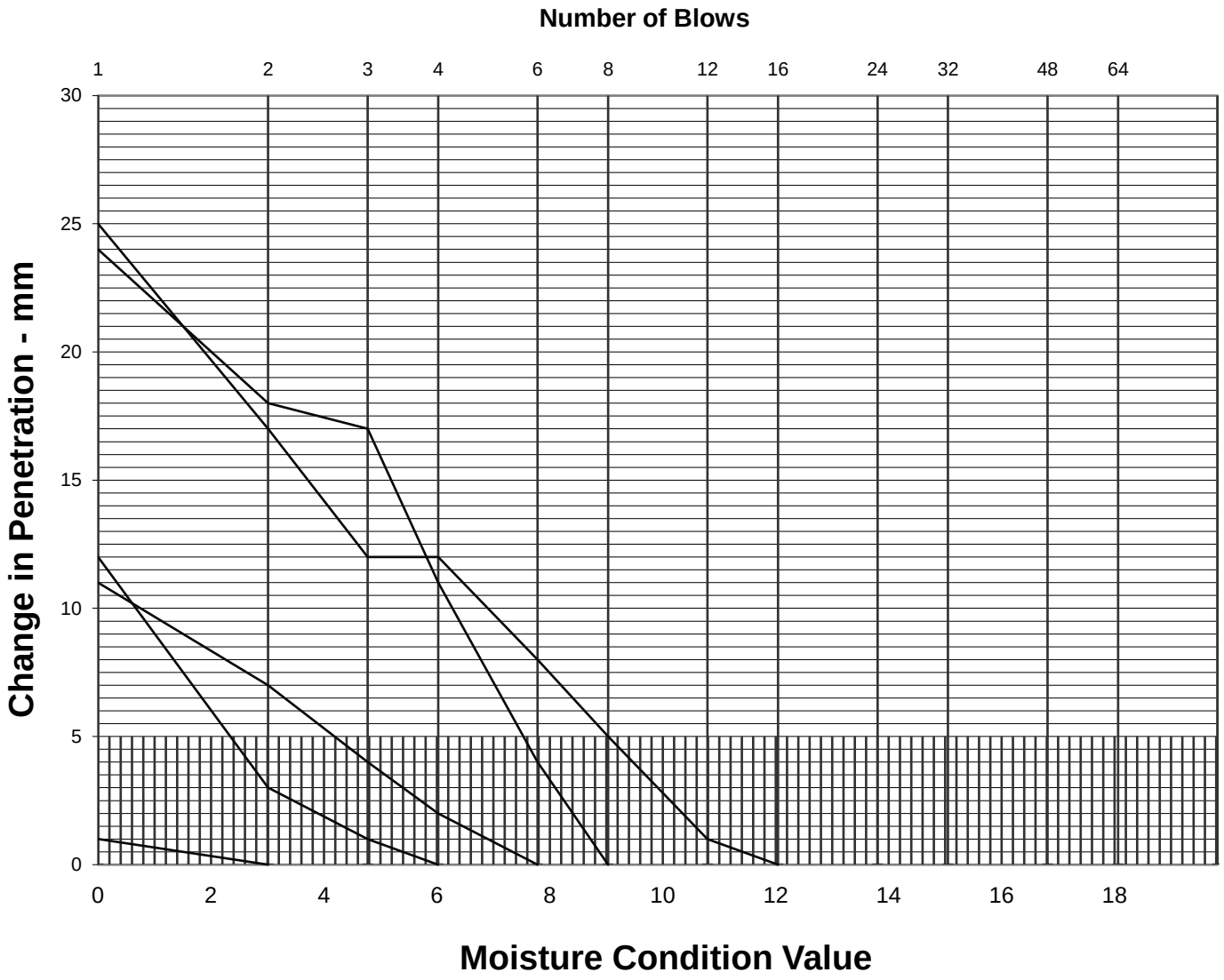
BS 1377 : Part 4 : 1990 Clause 5

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Location	Longview	Sample No	5
Soil Description	Sandy very clayey GRAVEL	Sample Type	B
		Depth	1.50 m



Operator	Checked	Approved	Remarks Single sample / Separate batches tested

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP04
Location	Longview Developments	Sample No	1
Soil Description	Clayey very sandy GRAVEL	Sample Type	B
		Depth	0.50 m

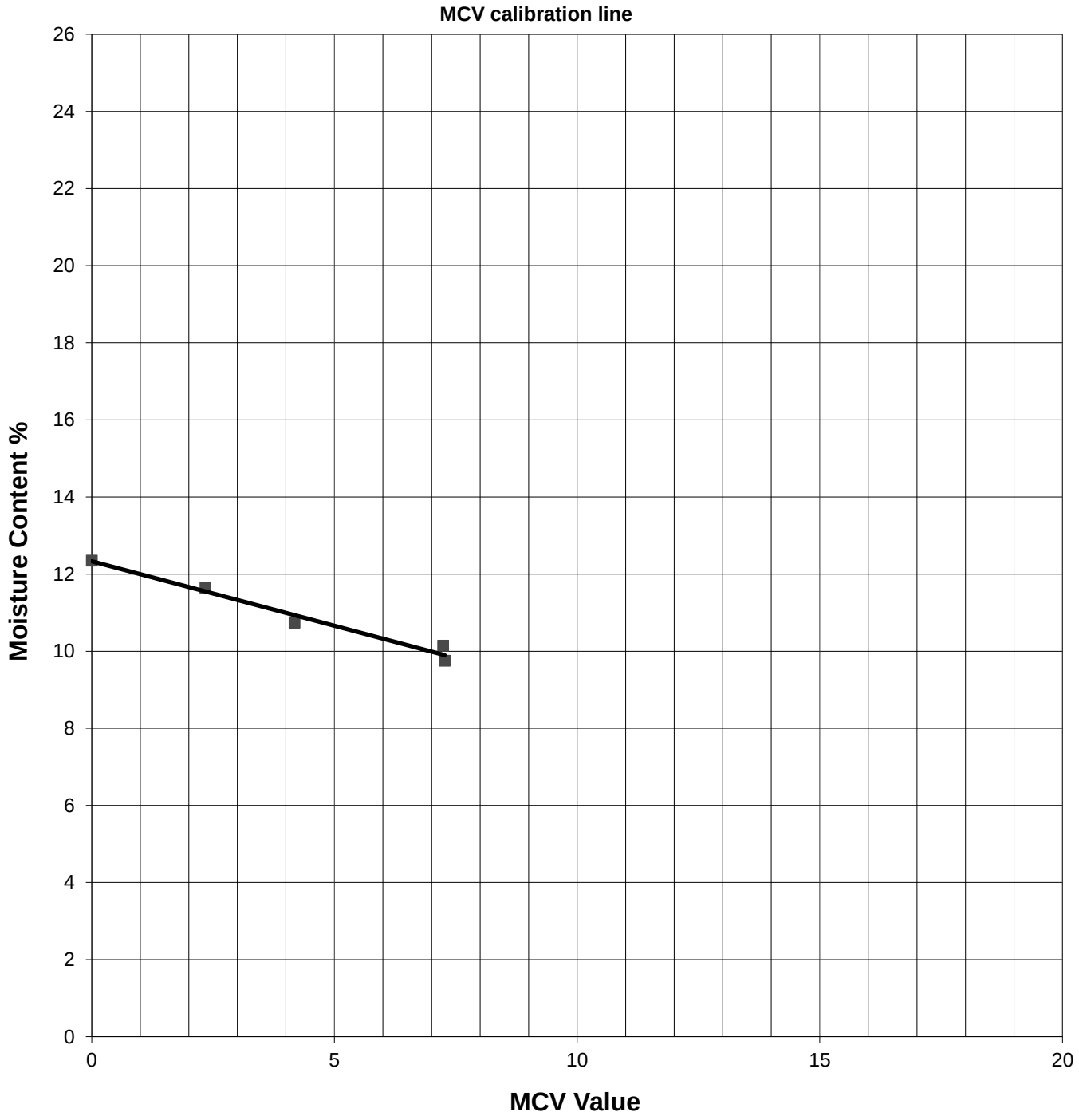


Specimen No		1	2	3	4	5	6
Moisture Condition Value		4.2	7.3	2.3	0.0	7.2	
Moisture Content	%	10.74	9.75	11.64	12.35	10.14	
Bulk density after compaction	Mg/m³	2.29	2.19	2.25	2.25	2.32	
Dry density after compaction	Mg/m³	2.07	2.00	2.02	2.00	2.11	
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	12.5					

MCV Relationship Graph

BS 1377 : Part 4 : 1990 Clause 5

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Location	Longview	Sample No	
Soil Description	Clayey very sandy GRAVEL	Sample Type	B
		Depth	0.50 m



Operator	Checked	Approved	Remarks Single sample / Separate batches tested

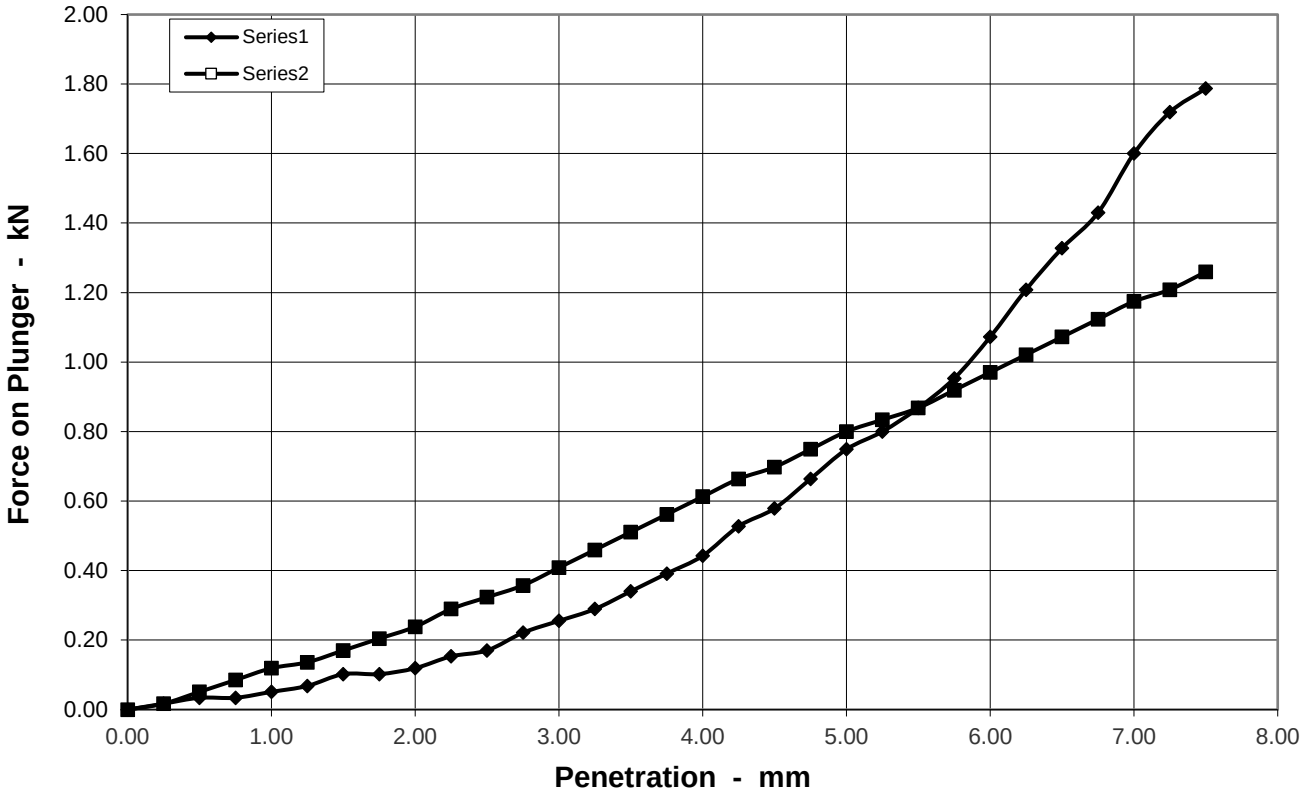
P19012 Longview
Initial Consumption of Lime

Location	Depth, m bgl	pH oC	% Lime								
			0.5	1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0
TP02	1.50	19oC		12.4	12.7	12.8		12.9	12.9	13.0	13.0
		25oC		12.4	12.7	12.8		12.9	12.9	13.0	13.0
TP03	0.50	19oC		12.3	12.6	12.6		12.8	12.8	12.6	12.8
		25oC		12.3	12.6	12.6		12.8	12.8	12.7	12.8
TP04	0.50	19oC	12.2	12.9	13.0	13.0	13.0				
		25oC	12.3	12.9	13.0	13.0	13.0				
TP05	1.00	19oC	12.2	12.6	12.8	12.9	13.0				
		25oC	12.2	12.6	12.8	13.0	13.0				

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP01
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Silty sandy GRAVEL with low cobble content		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	13.0
Moisture Content - TOP	%	13.1
Moisture Content - BASE	%	13.4
Bulk Density	Mg/m³	2.10
Dry Density	Mg/m³	1.86

Test Conditions		
Sample Retained on 20 mm sieve	%	25.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

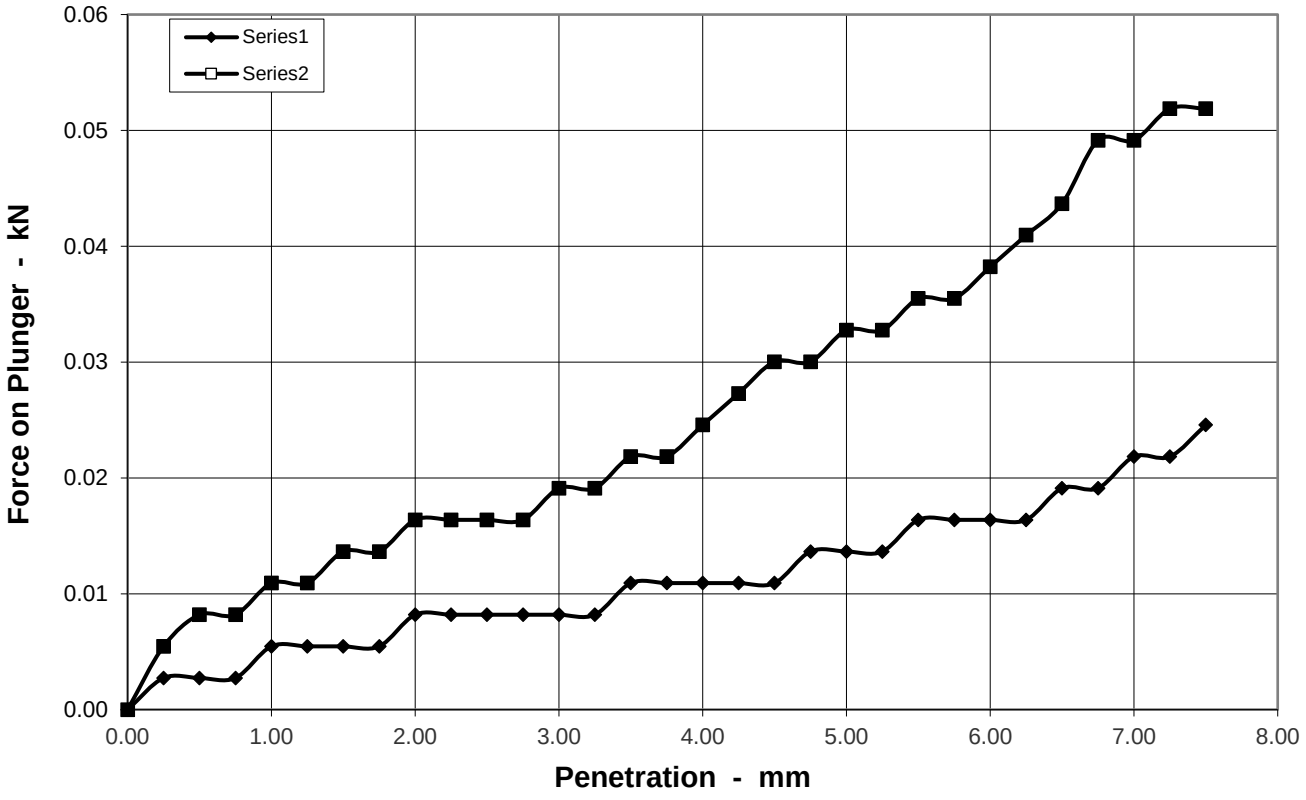
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.3	2.4
5	3.7	4.0
Accepted CBR	**3.7**	**4.0**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Very sitly very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	30.0
Moisture Content - TOP	%	29.8
Moisture Content - BASE	%	27.1
Bulk Density	Mg/m³	1.94
Dry Density	Mg/m³	1.50

Test Conditions		
Sample Retained on 20 mm sieve	%	3.4
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

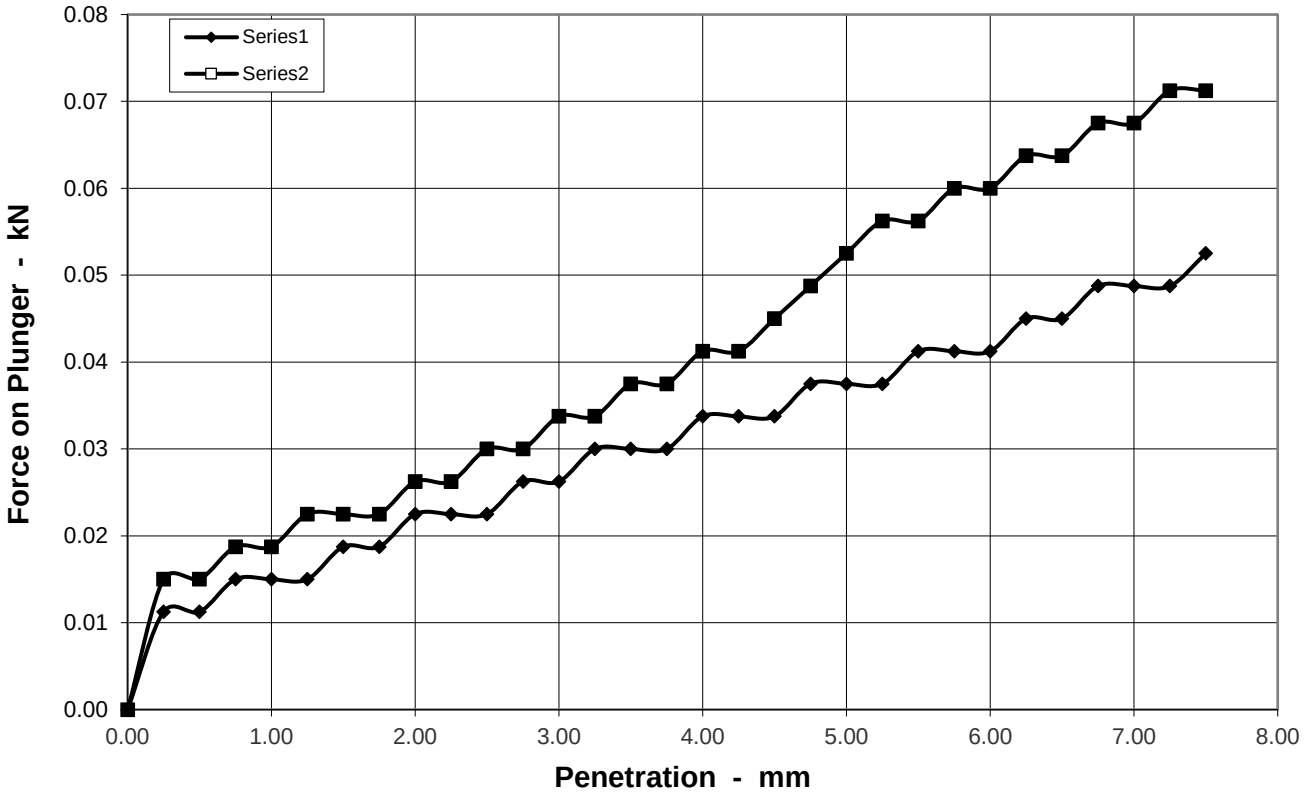
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.1	0.1
5	0.1	0.2
Accepted CBR	**0.1**	**0.2**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	3
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	16.0
Moisture Content - TOP	%	15.9
Moisture Content - BASE	%	14.3
Bulk Density	Mg/m³	2.19
Dry Density	Mg/m³	1.89

Test Conditions		
Sample Retained on 20 mm sieve	%	18.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

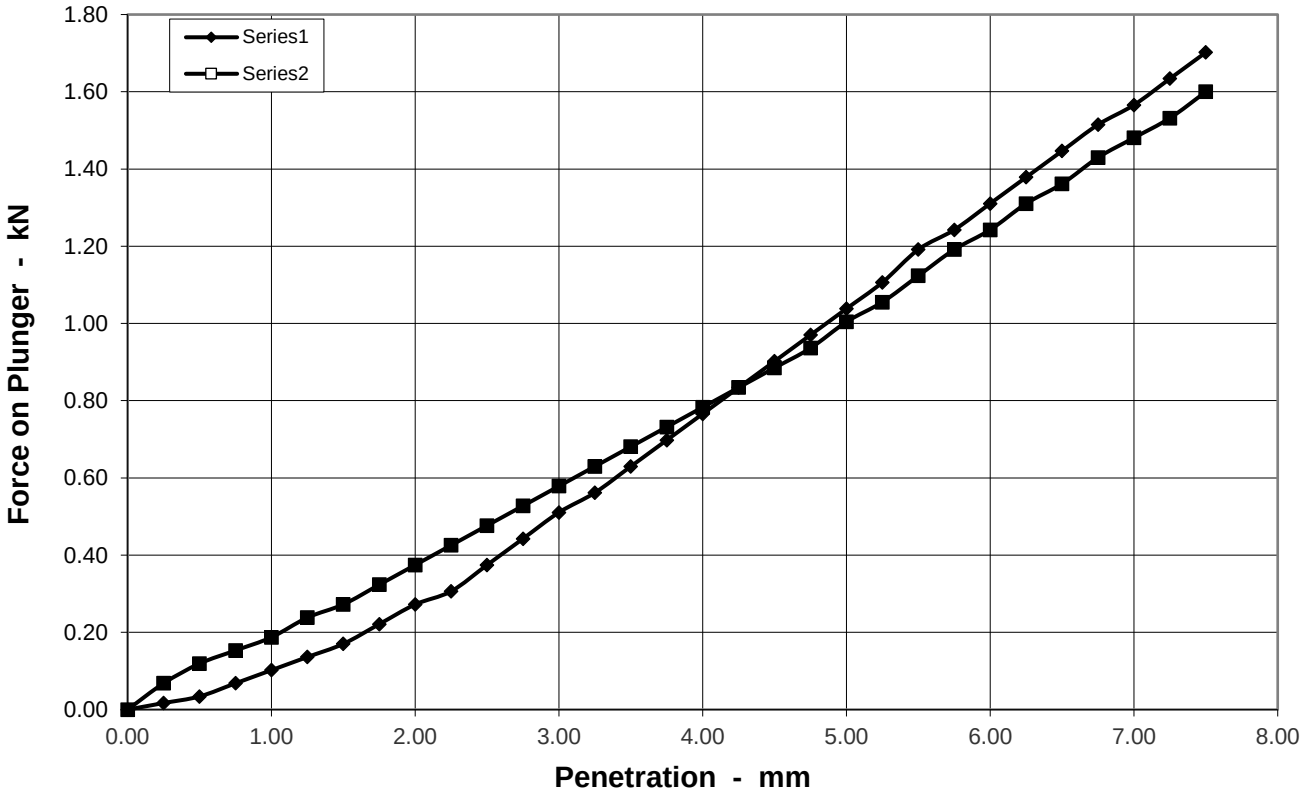
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.2	0.2
5	0.2	0.3
Accepted CBR	**0.2**	**0.3**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	3
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	16.0
Moisture Content - TOP	%	11.7
Moisture Content - BASE	%	12.1
Bulk Density	Mg/m³	2.18
Dry Density	Mg/m³	1.88

Test Conditions		
Sample Retained on 20 mm sieve	%	18.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

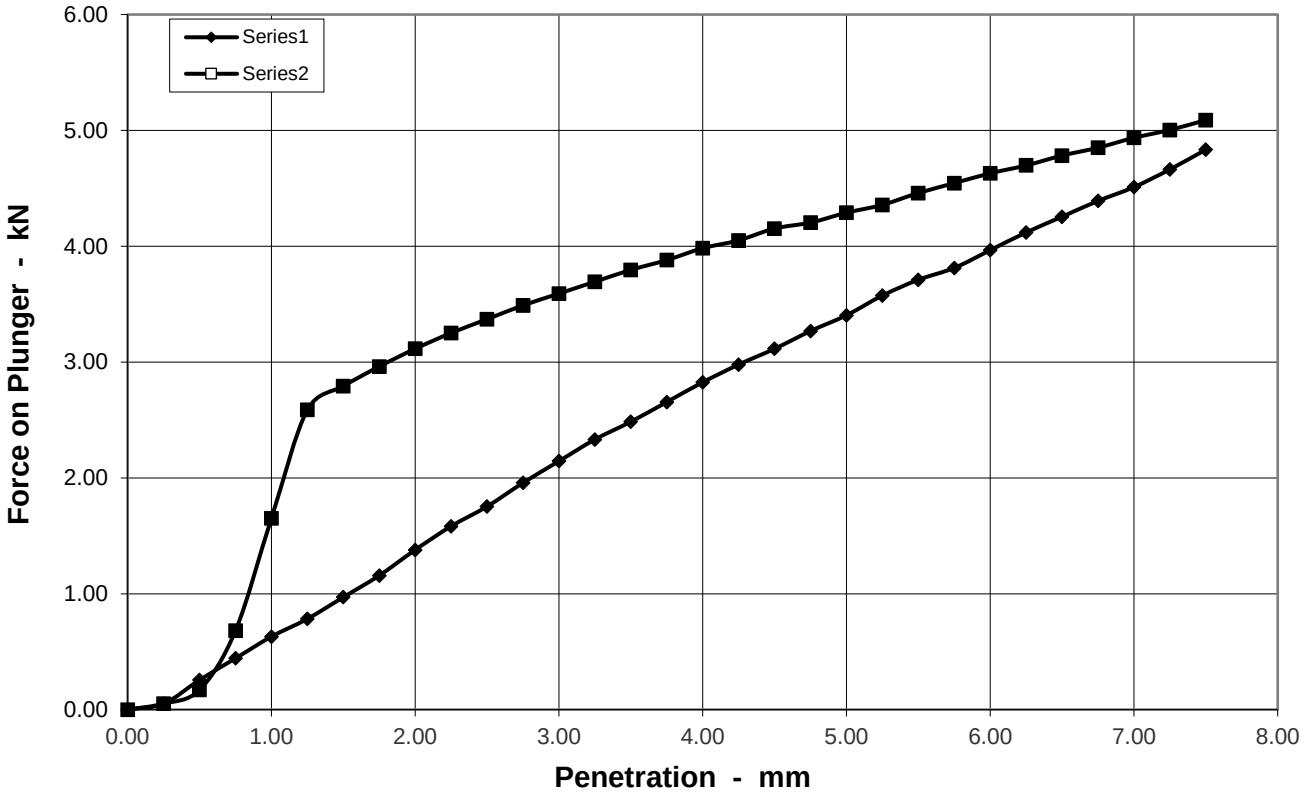
Penetration mm	CBR Values %	
	TOP	BASE
2.5	2.8	3.6
5	5.2	5.0
Accepted CBR	**5.2**	**5.0**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	3
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	16.0
Moisture Content - TOP	%	7.8
Moisture Content - BASE	%	8.4
Bulk Density	Mg/m³	1.98
Dry Density	Mg/m³	1.71

Test Conditions		
Sample Retained on 20 mm sieve	%	18.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

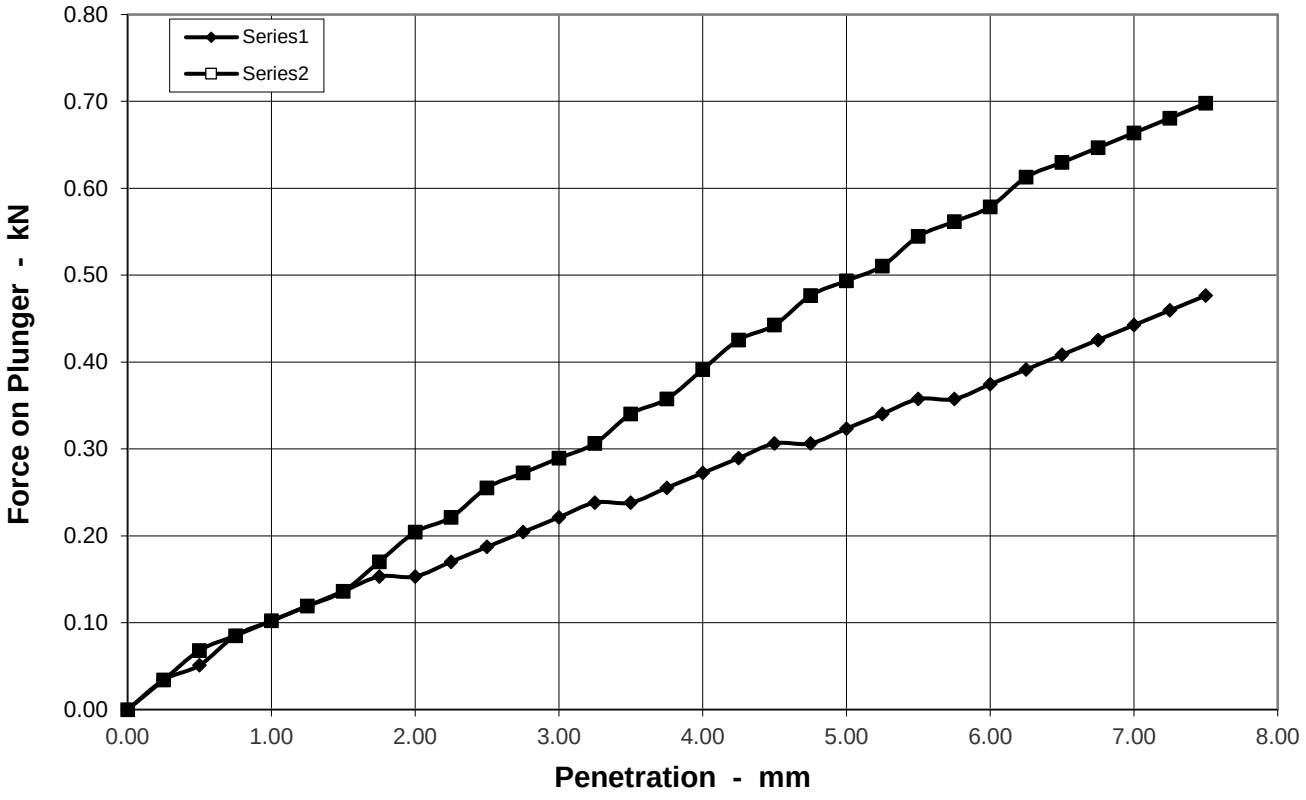
Penetration mm	CBR Values %	
	TOP	BASE
2.5	13.3	25.5
5	17.0	21.4
Accepted CBR	**17.0**	**25.5**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	3
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	16.0
Moisture Content - TOP	%	12.6
Moisture Content - BASE	%	11.7
Bulk Density	Mg/m³	2.21
Dry Density	Mg/m³	1.91

Test Conditions		
Sample Retained on 20 mm sieve	%	18.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

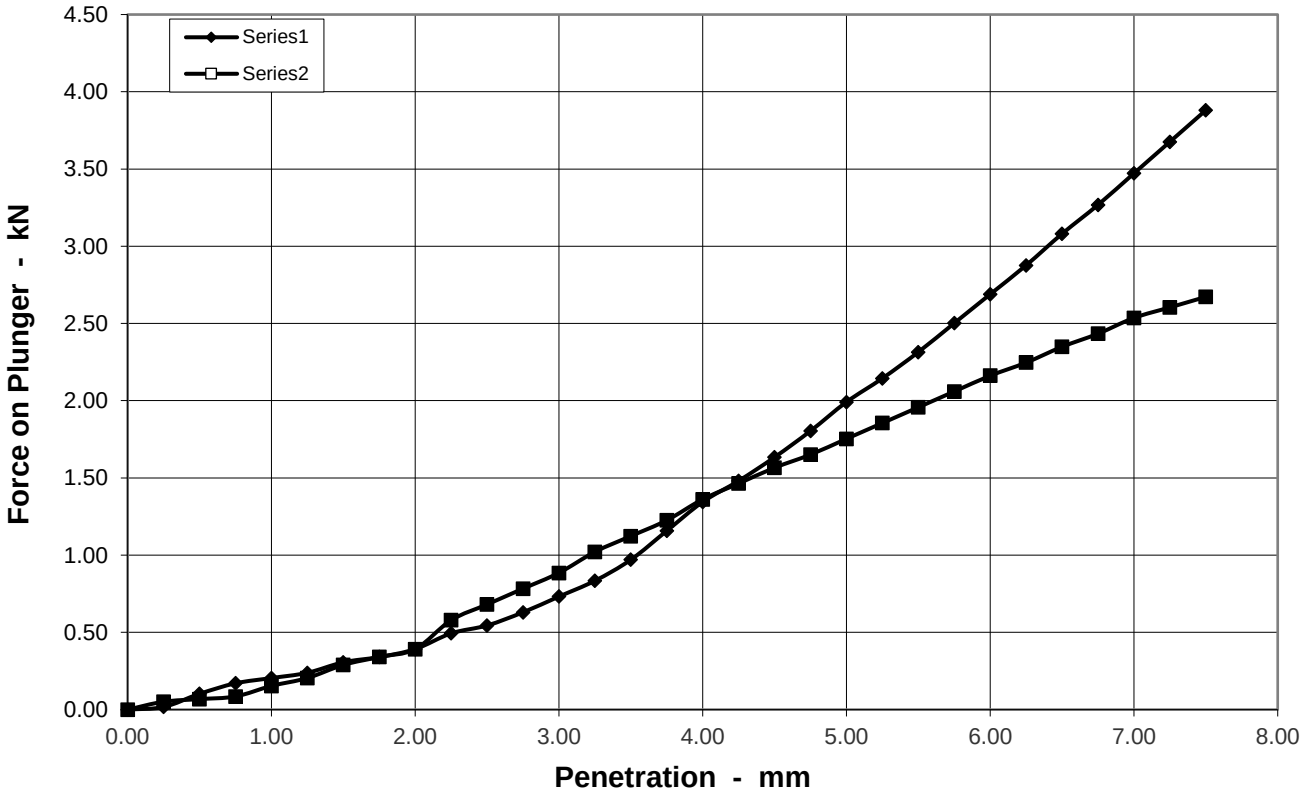
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.4	1.9
5	1.6	2.5
Accepted CBR	**1.6**	**2.5**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	3
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	16.0
Moisture Content - TOP	%	10.2
Moisture Content - BASE	%	9.9
Bulk Density	Mg/m³	2.25
Dry Density	Mg/m³	1.94

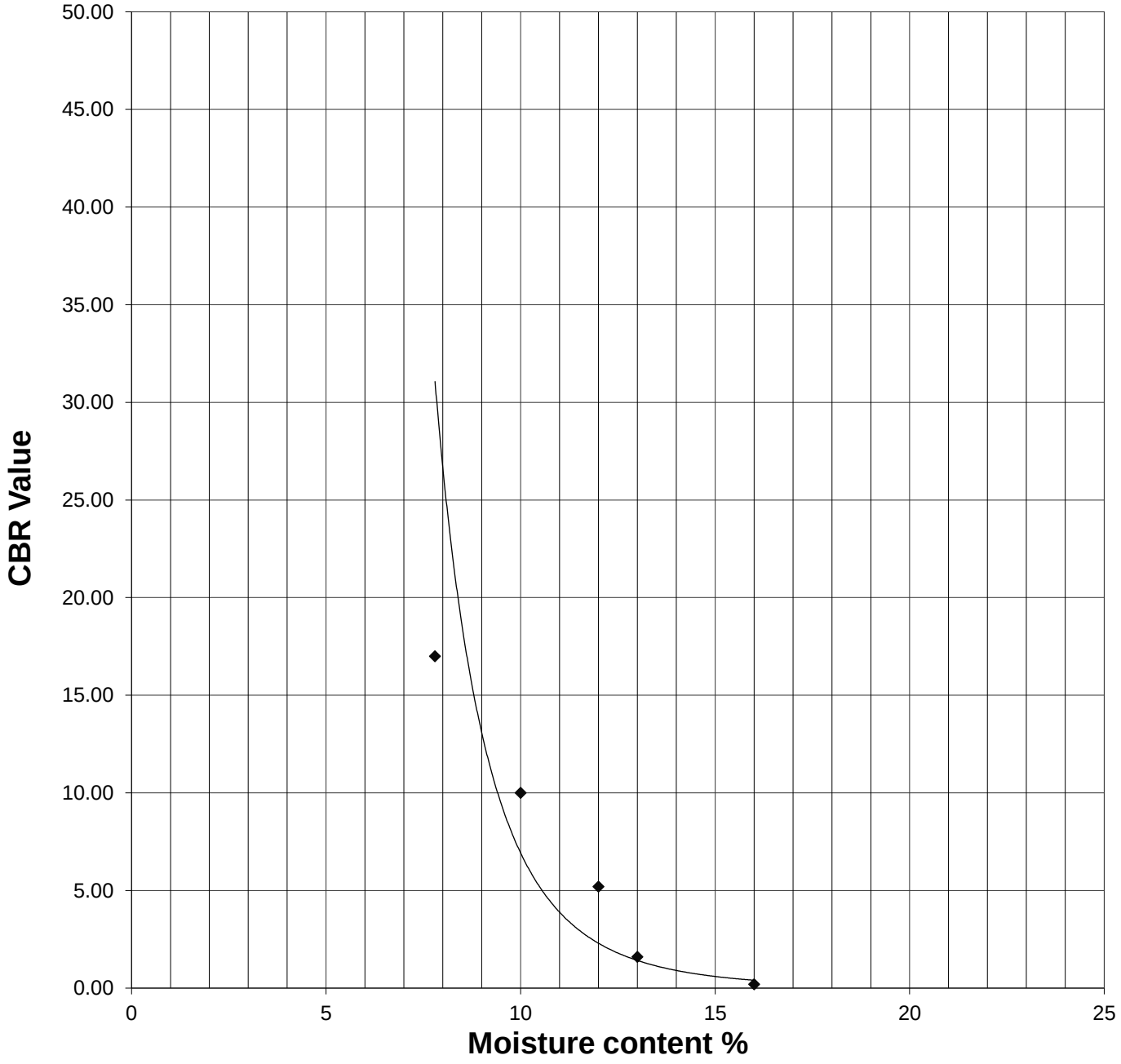
Test Conditions		
Sample Retained on 20 mm sieve	%	18.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	4.1	5.2
5	10.0	8.8
Accepted CBR	**10.0**	**8.8**

			Remarks	

pgl priority geotechnical	**CALIFORNIA BEARING RATIO RELATIONSHIP** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP02
Location	Longview	Sample No	3
Soil Description	Slightly sandy gravelly SILT	Sample Type	B
		Depth	1.50 m

CBR/ Moisture Content Relationship

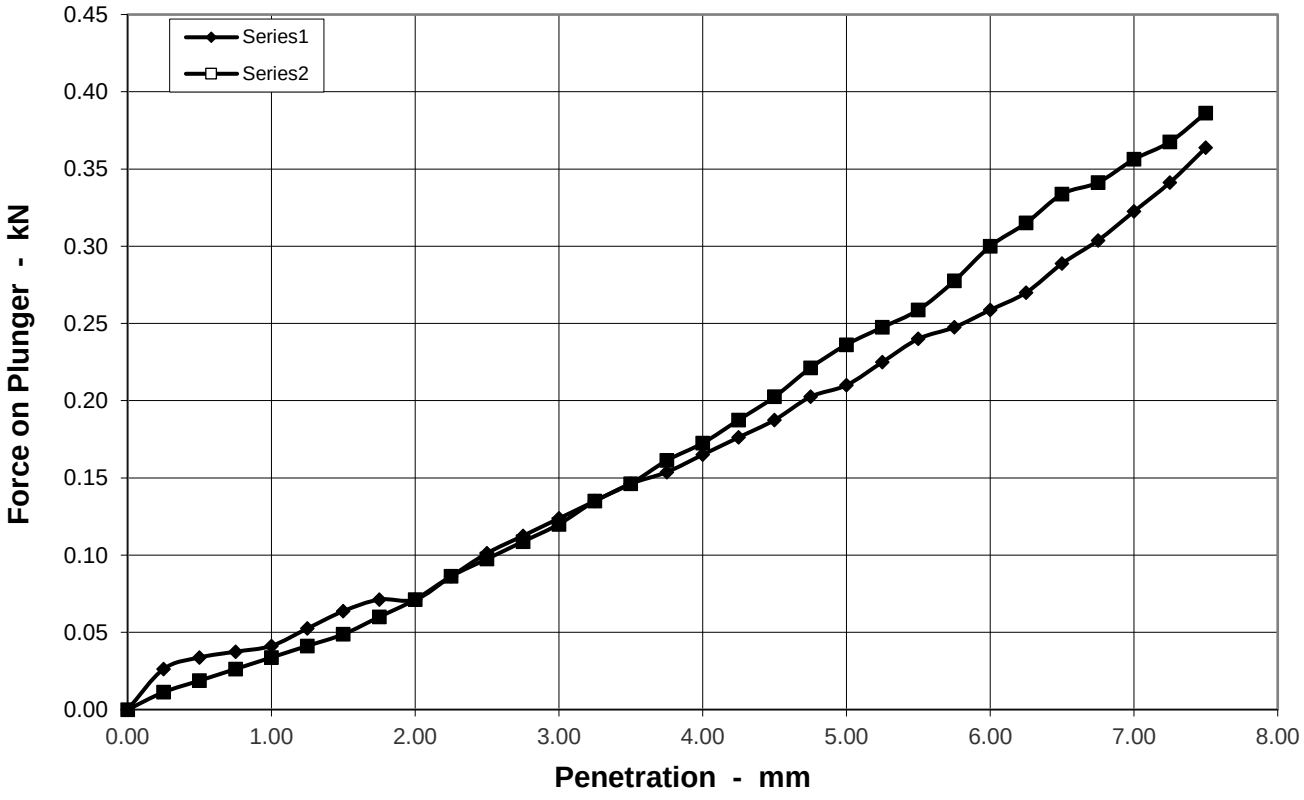


Operator	Checked	Approved

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	2
		Depth	0.5 m
Soil Description	Very silty very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	19.0
Moisture Content - TOP	%	18.0
Moisture Content - BASE	%	19.7
Bulk Density	Mg/m³	2.10
Dry Density	Mg/m³	1.76

Test Conditions		
Sample Retained on 20 mm sieve	%	14.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

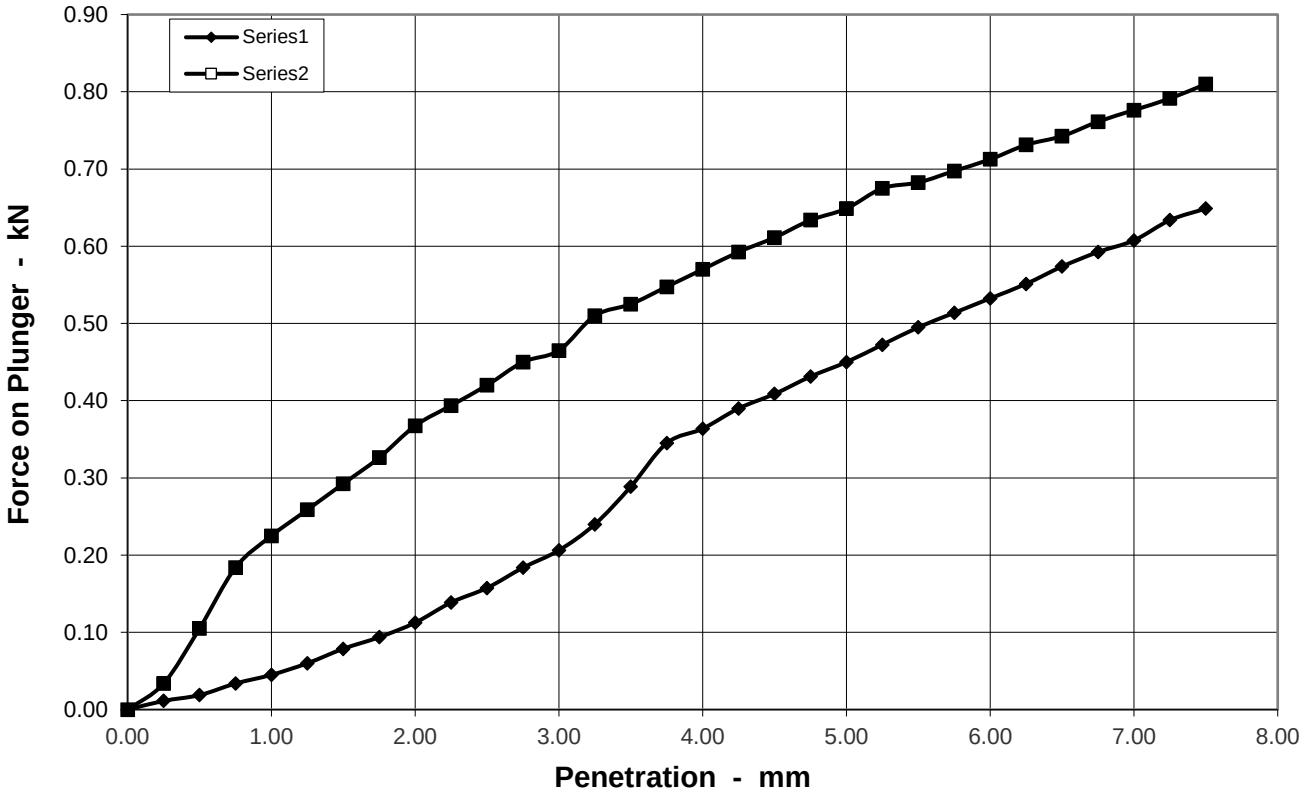
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.8	0.7
5	1.1	1.2
Accepted CBR	**1.1**	**1.2**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	2
		Depth	0.5 m
Soil Description	Very silty very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	19.0
Moisture Content - TOP	%	16.6
Moisture Content - BASE	%	14.7
Bulk Density	Mg/m³	2.06
Dry Density	Mg/m³	1.73

Test Conditions		
Sample Retained on 20 mm sieve	%	14.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

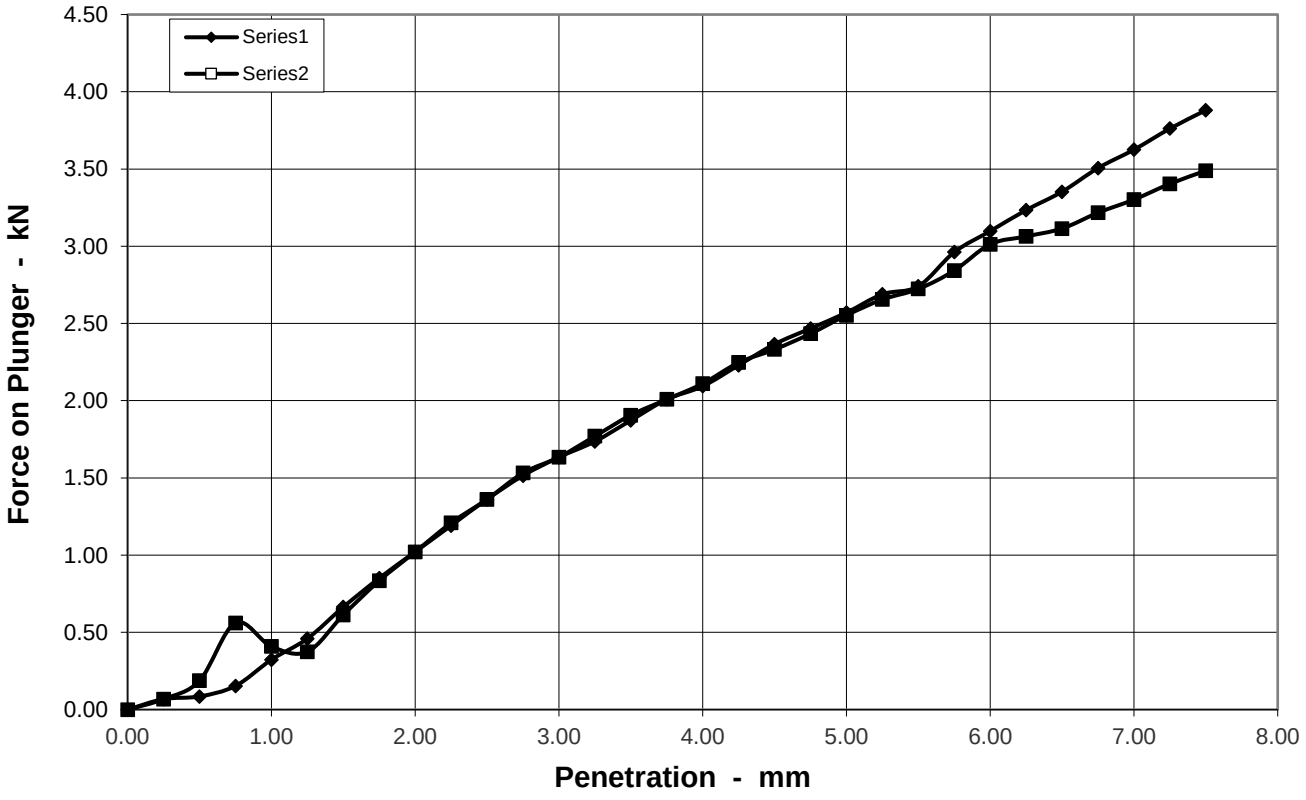
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.2	3.2
5	2.3	3.2
Accepted CBR	**2.3**	**3.2**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	2
		Depth	0.5 m
Soil Description	Very silty very sandy GRAVEL		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	19.0
Moisture Content - TOP	%	14.1
Moisture Content - BASE	%	11.9
Bulk Density	Mg/m³	1.96
Dry Density	Mg/m³	1.65

Test Conditions		
Sample Retained on 20 mm sieve	%	14.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

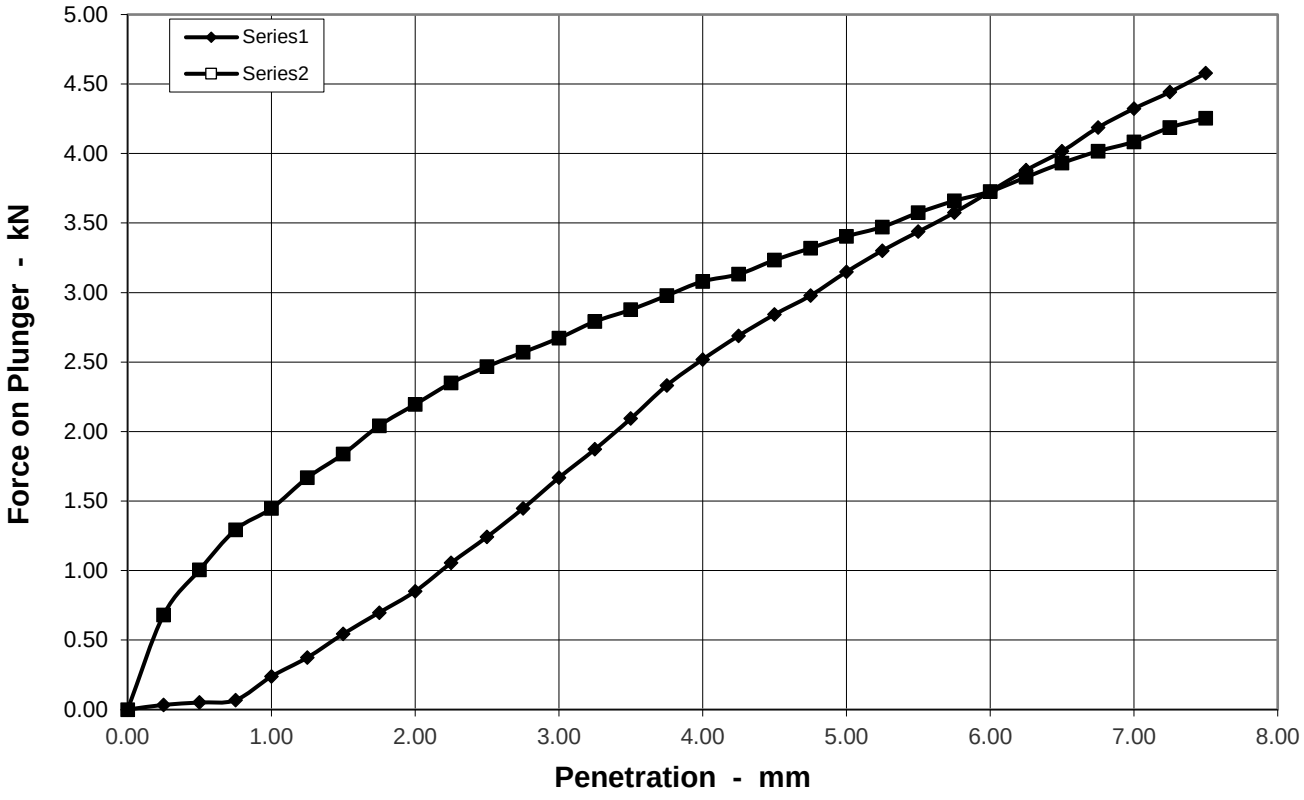
Penetration mm	CBR Values %	
	TOP	BASE
2.5	10.3	10.3
5	12.9	12.8
Accepted CBR	**12.9**	**12.8**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	2
		Depth	0.5 m
Soil Description	Very silty very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	19.0
Moisture Content - TOP	%	14.8
Moisture Content - BASE	%	13.7
Bulk Density	Mg/m³	2.07
Dry Density	Mg/m³	1.74

Test Conditions		
Sample Retained on 20 mm sieve	%	14.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

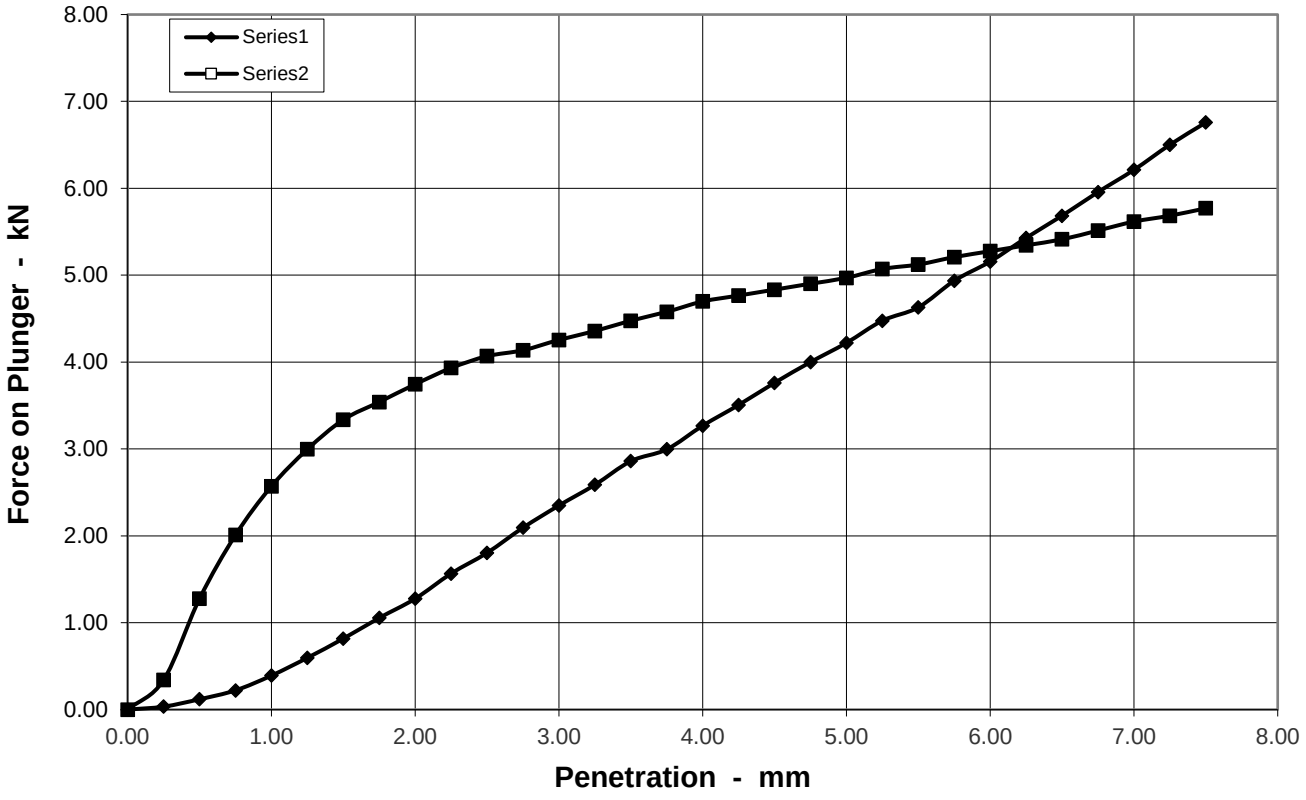
Penetration mm	CBR Values %	
	TOP	BASE
2.5	9.4	18.7
5	15.7	17.0
Accepted CBR	**15.7**	**18.7**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	2
		Depth	0.5 m
Soil Description	Very silty very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	19.0
Moisture Content - TOP	%	10.2
Moisture Content - BASE	%	10.3
Bulk Density	Mg/m³	2.03
Dry Density	Mg/m³	1.70

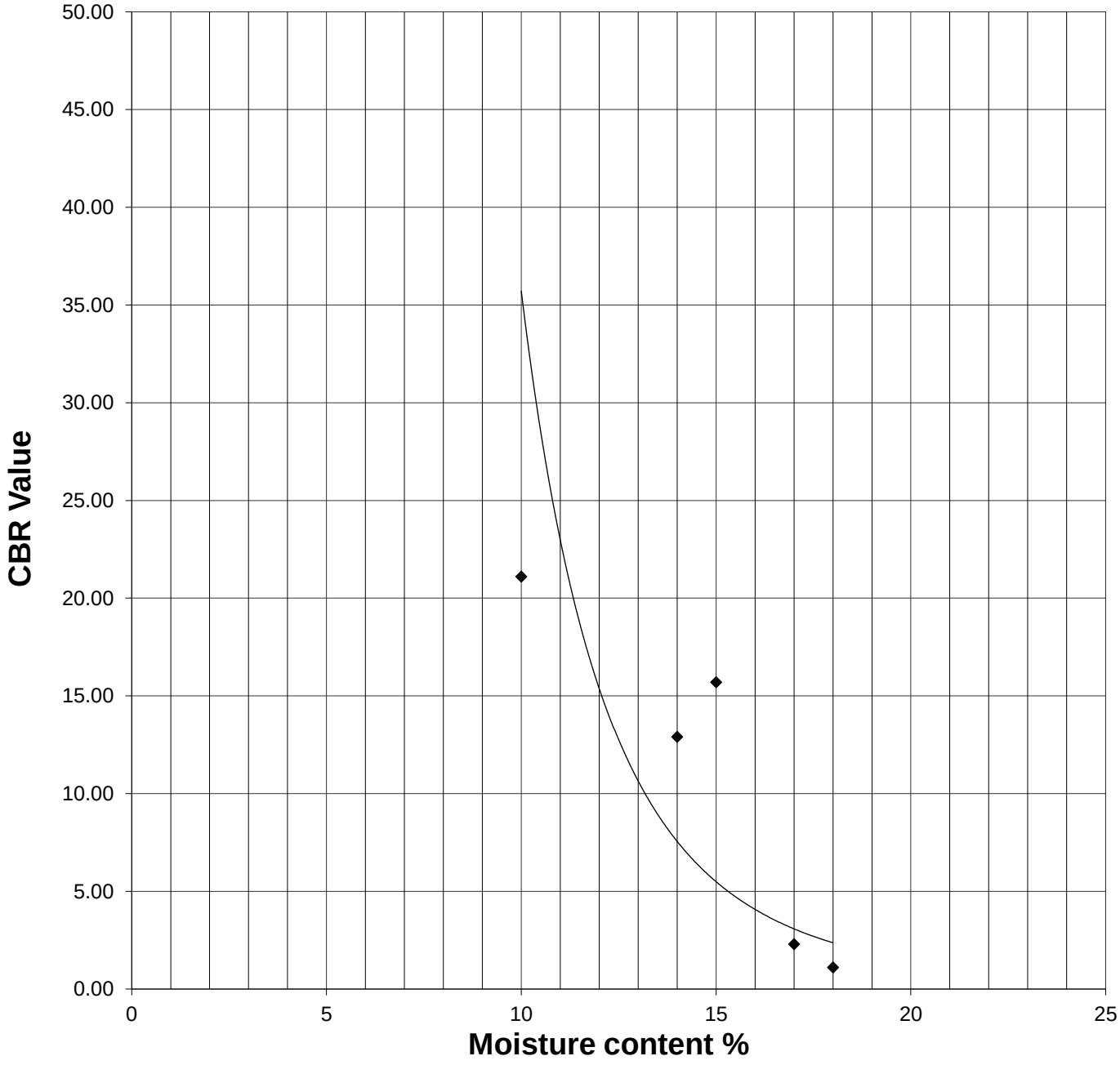
Test Conditions		
Sample Retained on 20 mm sieve	%	14.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	13.7	30.8
5	21.1	24.8
Accepted CBR	**21.1**	**30.8**

Remarks

pgl priority geotechnical	**CALIFORNIA BEARING RATIO RELATIONSHIP** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP03
Location	Longview	Sample No	2
Soil Description	Very silty very sandy GRAVEL	Sample Type	B
		Depth	0.50 m

CBR/ Moisture Content Relationship

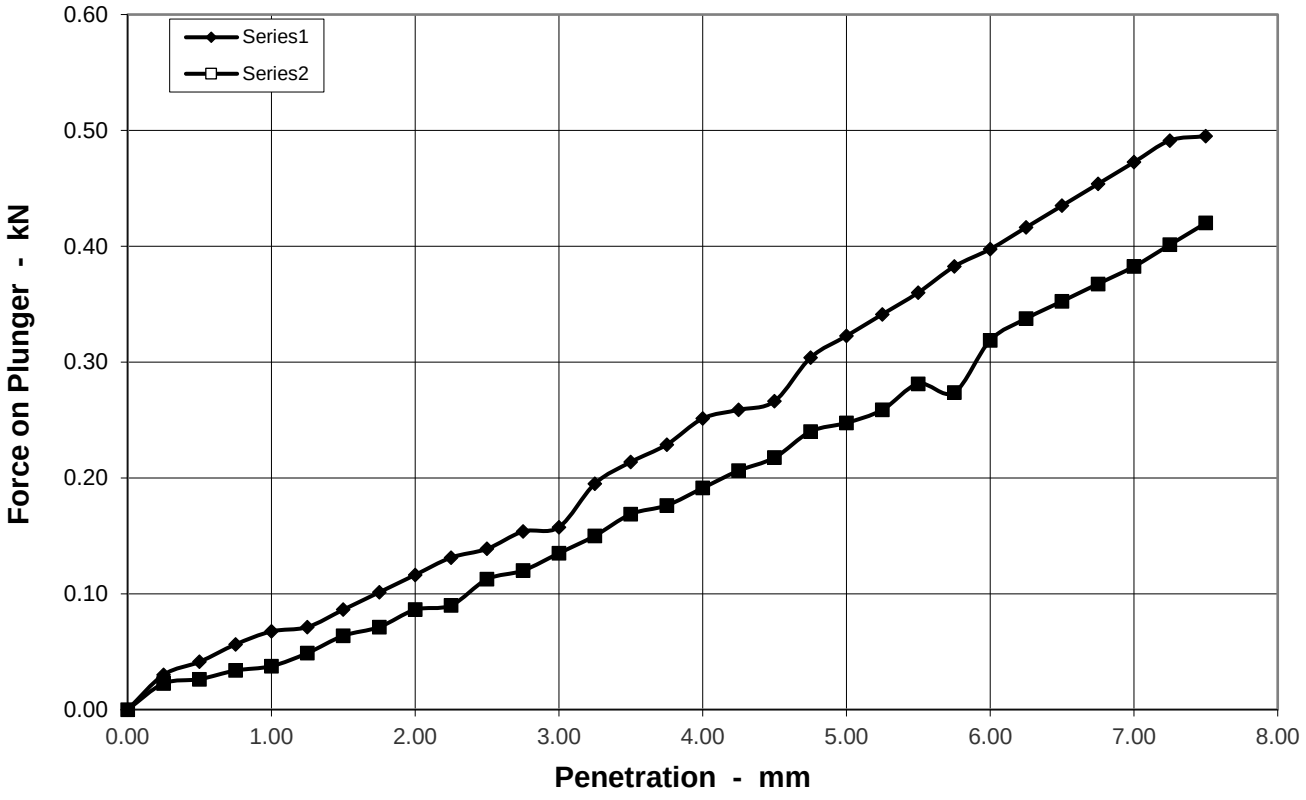


Operator	Checked	Approved

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	5
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	16.4
Moisture Content - BASE	%	15.2
Bulk Density	Mg/m³	2.17
Dry Density	Mg/m³	1.89

Test Conditions		
Sample Retained on 20 mm sieve	%	26.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

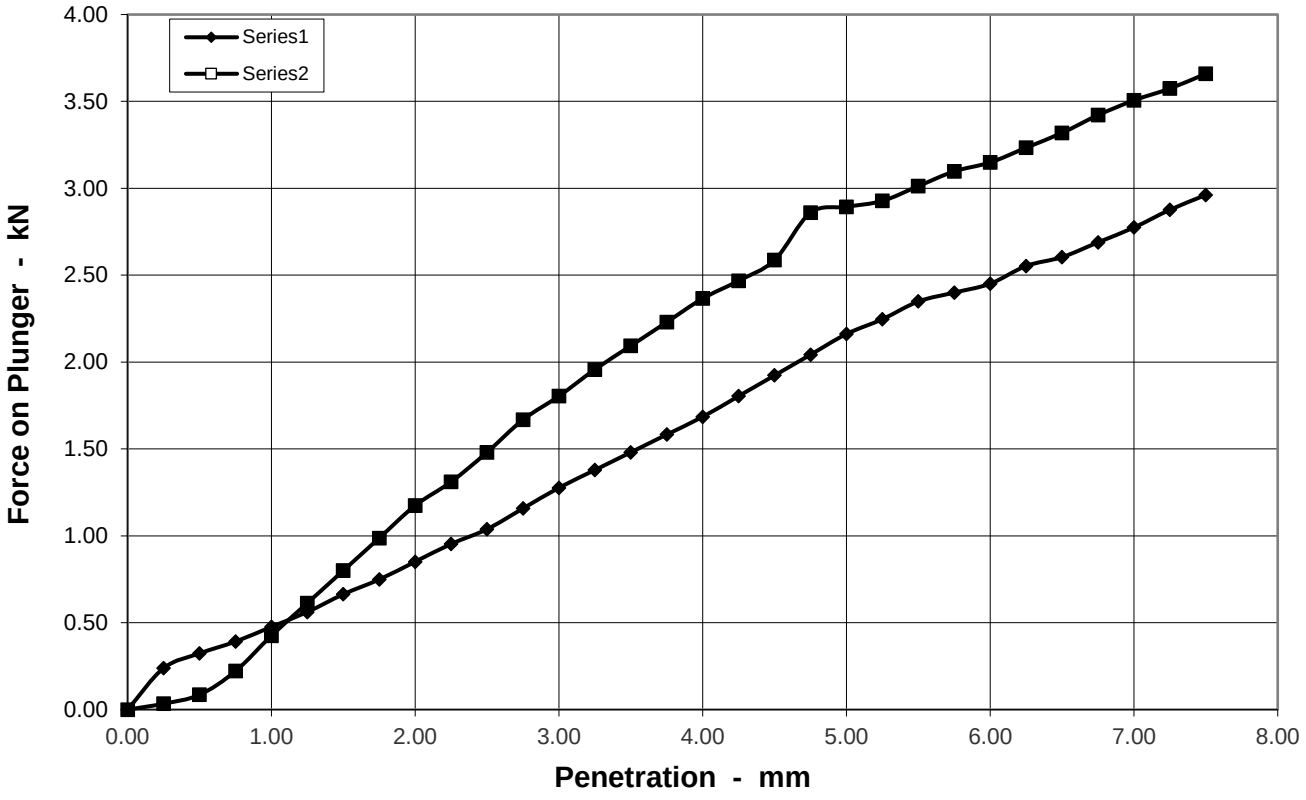
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.1	0.9
5	1.6	1.2
Accepted CBR	**1.6**	**1.2**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	5
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	14.1
Moisture Content - BASE	%	13.0
Bulk Density	Mg/m³	2.11
Dry Density	Mg/m³	1.84

Test Conditions		
Sample Retained on 20 mm sieve	%	26.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

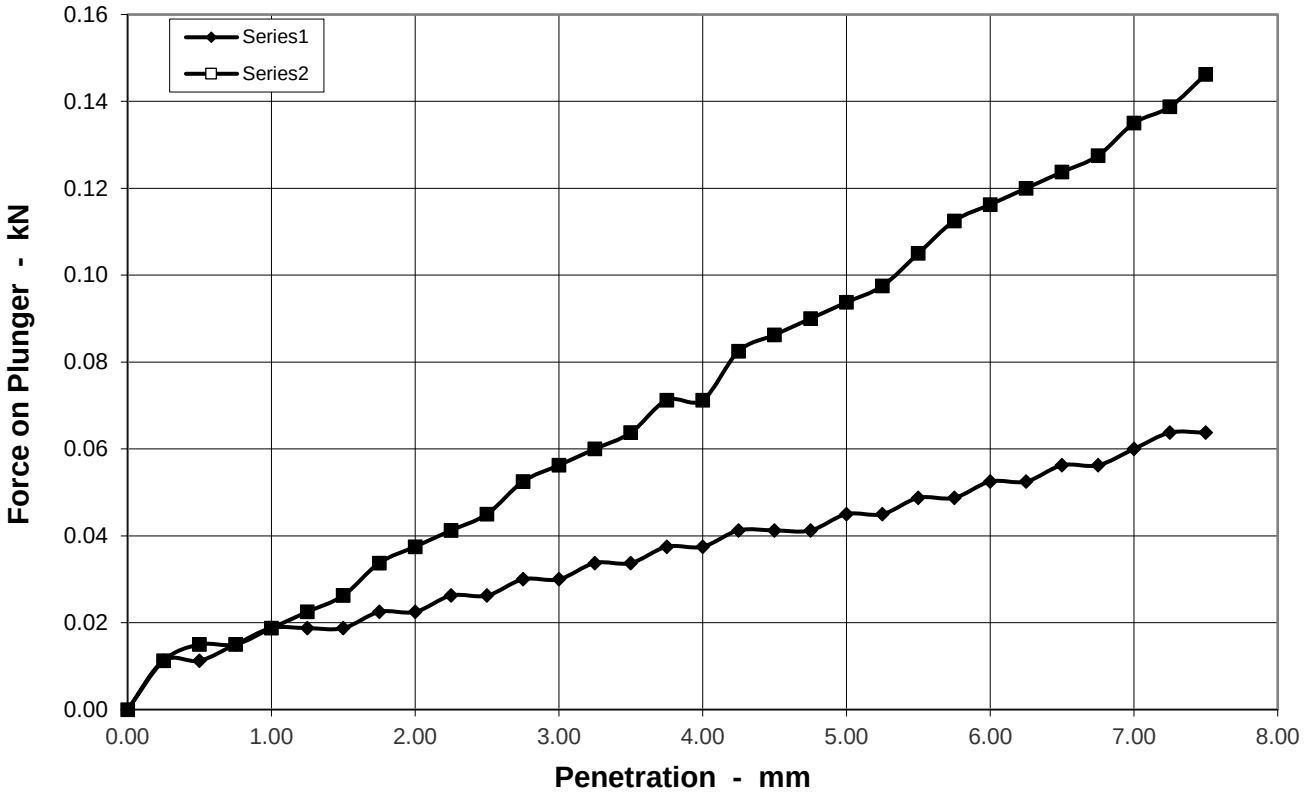
Penetration mm	CBR Values %	
	TOP	BASE
2.5	7.9	11.2
5	10.8	14.5
Accepted CBR	**10.8**	**14.5**

Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	5
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	19.9
Moisture Content - BASE	%	15.8
Bulk Density	Mg/m³	2.12
Dry Density	Mg/m³	1.84

Test Conditions		
Sample Retained on 20 mm sieve	%	2.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

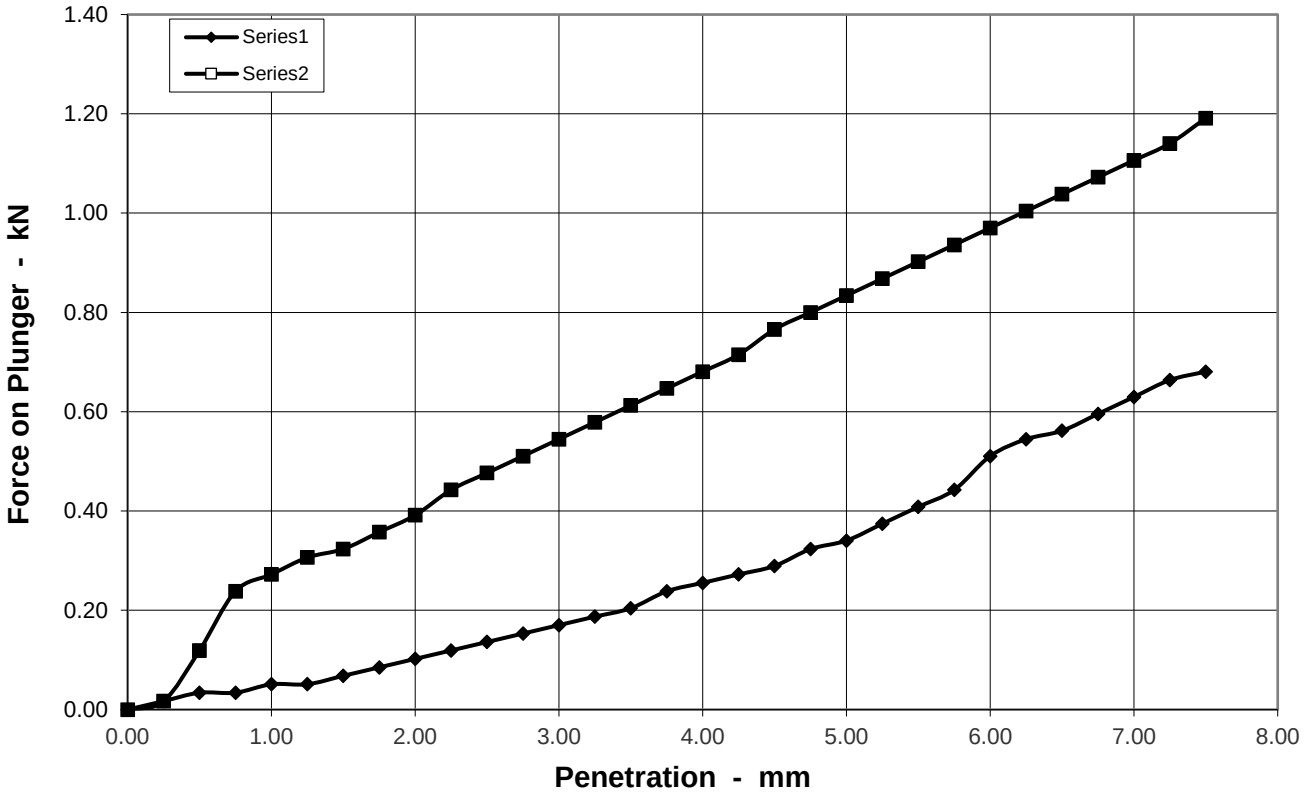
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.2	0.3
5	0.2	0.5
Accepted CBR	**0.2**	**0.5**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	5
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	14.9
Moisture Content - BASE	%	14.1
Bulk Density	Mg/m³	2.07
Dry Density	Mg/m³	1.80

Test Conditions		
Sample Retained on 20 mm sieve	%	26.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

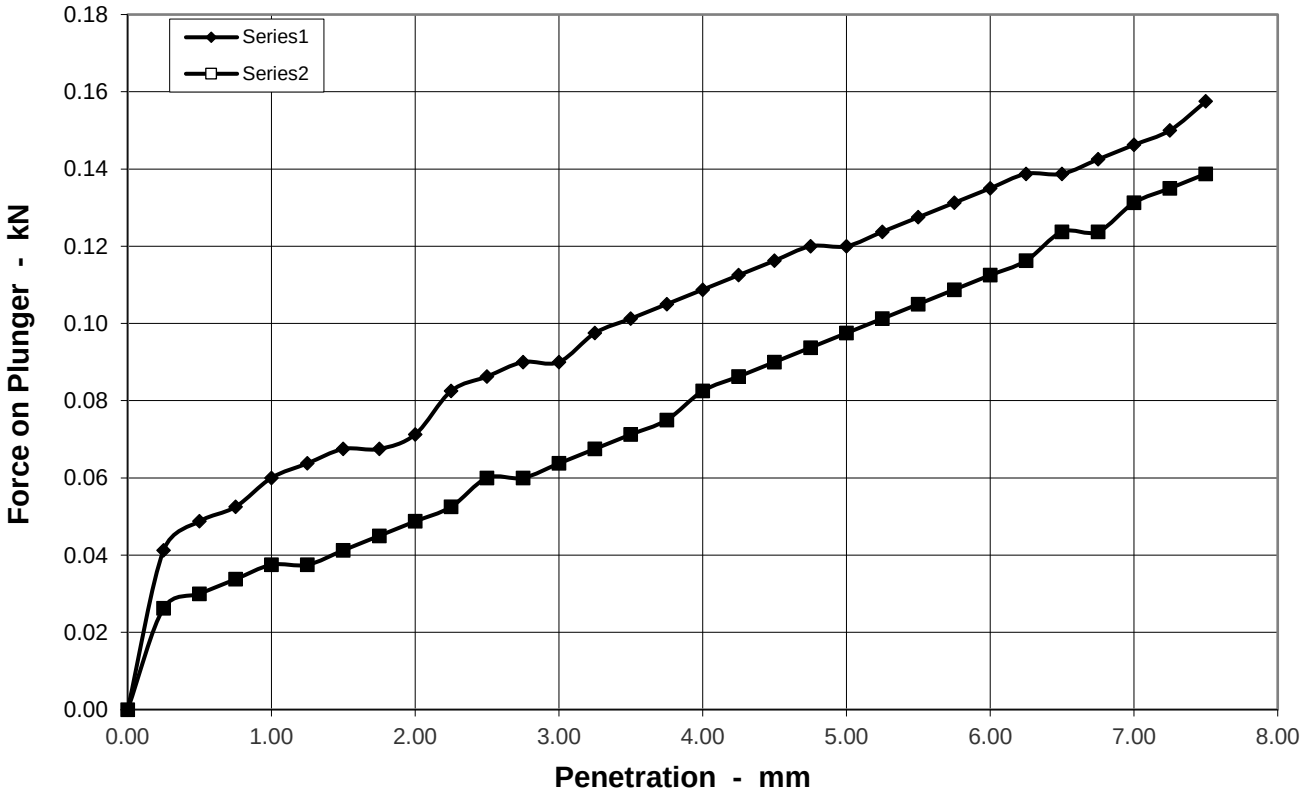
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.0	3.6
5	1.7	4.2
Accepted CBR	**1.7**	**4.2**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	5
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	16.1
Moisture Content - BASE	%	17.9
Bulk Density	Mg/m³	2.17
Dry Density	Mg/m³	1.88

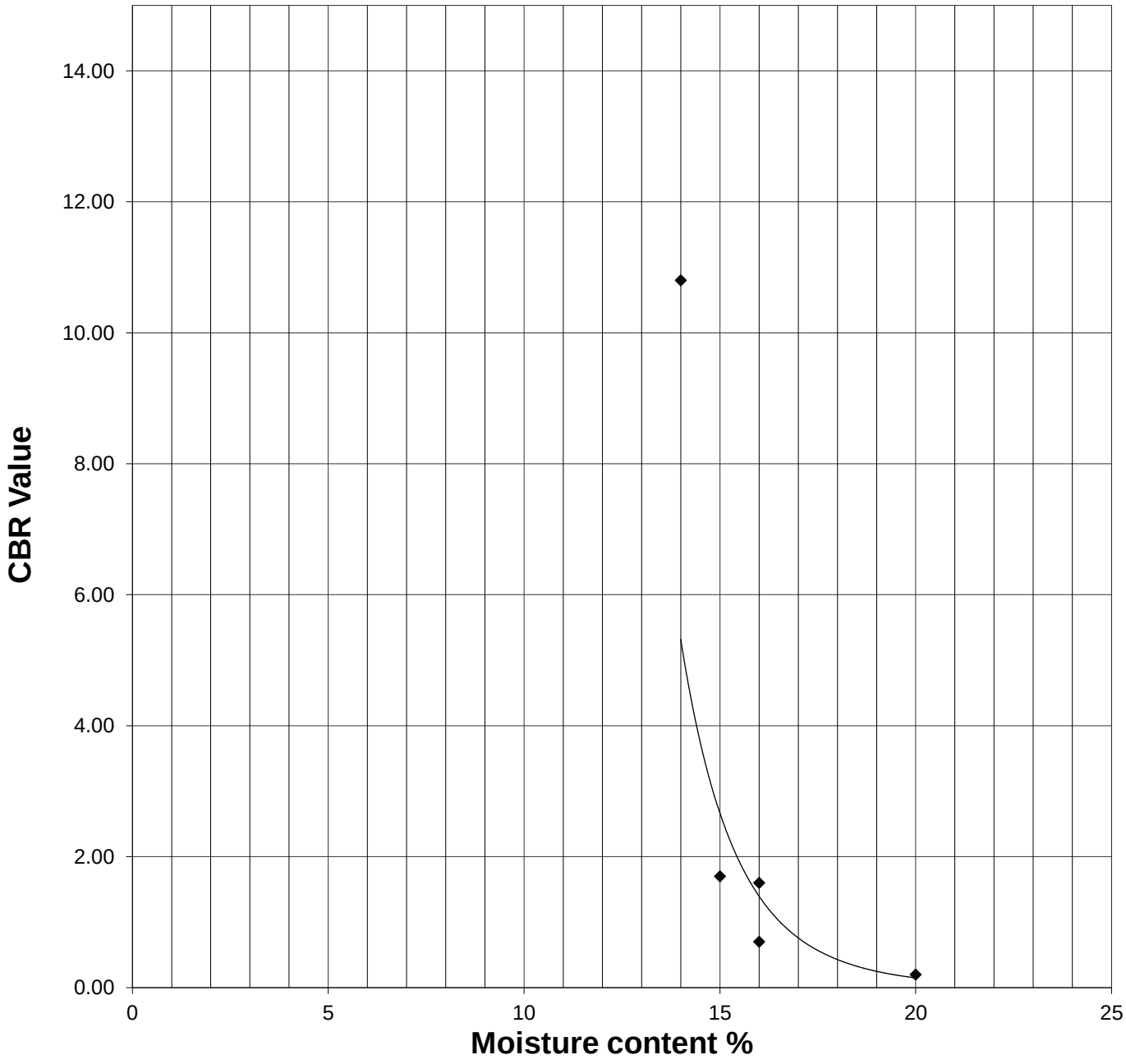
Test Conditions		
Sample Retained on 20 mm sieve	%	26.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.7	0.5
5	0.6	0.5
Accepted CBR	**0.7**	**0.5**

			Remarks	

pgl priority geotechnical	**CALIFORNIA BEARING RATIO RELATIONSHIP** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP03
Location	Longview	Sample No	5
Soil Description	Sandy very clayey GRAVEL	Sample Type	B
		Depth	1.50 m

CBR/ Moisture Content Relationship

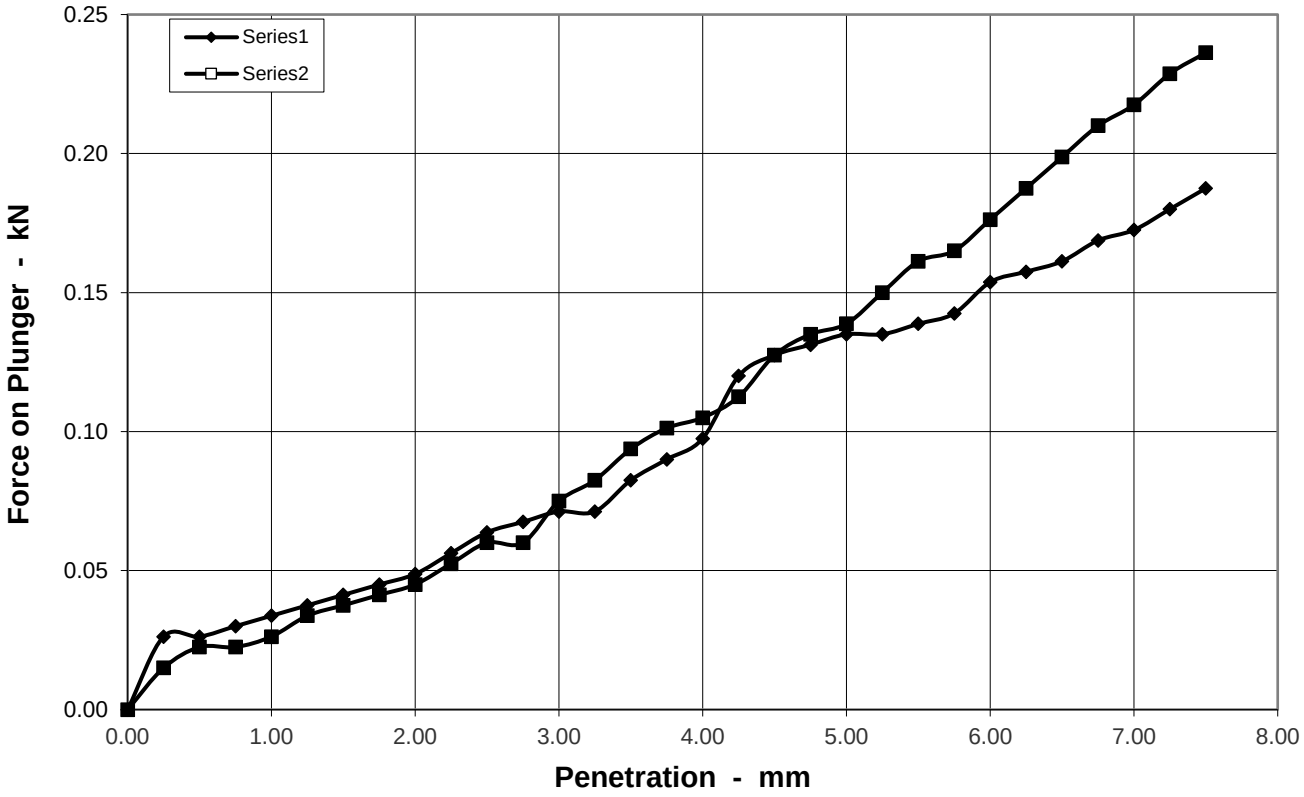


Operator	Checked	Approved

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	13.7
Moisture Content - BASE	%	11.9
Bulk Density	Mg/m³	2.30
Dry Density	Mg/m³	2.07

Test Conditions		
Sample Retained on 20 mm sieve	%	12.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

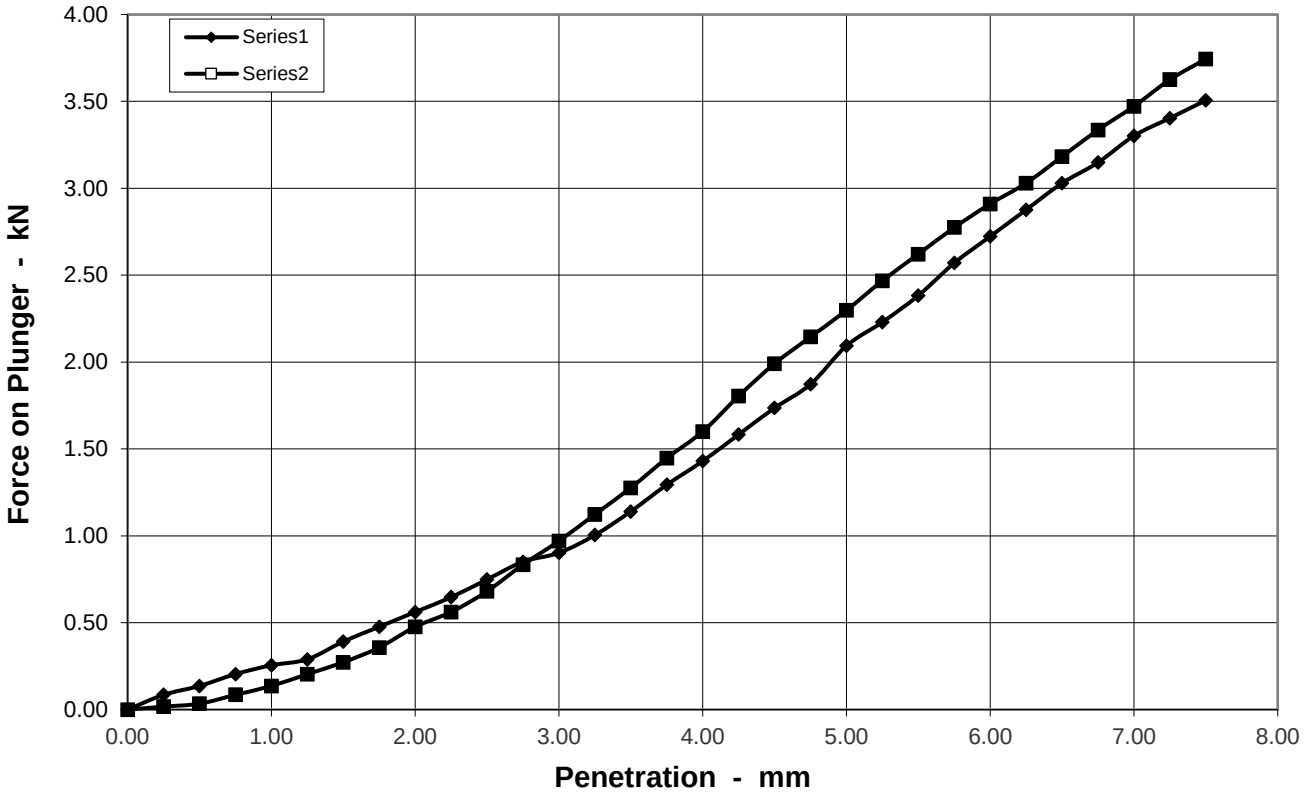
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.5	0.5
5	0.7	0.7
Accepted CBR	**0.7**	**0.7**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation	
	Hammer type	2.5kg Rammer
	Soaking Period days	
	Amount of Swell mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	8.7
Moisture Content - BASE	%	9.7
Bulk Density	Mg/m³	2.14
Dry Density	Mg/m³	1.93

Test Conditions		
Sample Retained on 20 mm sieve	%	12.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

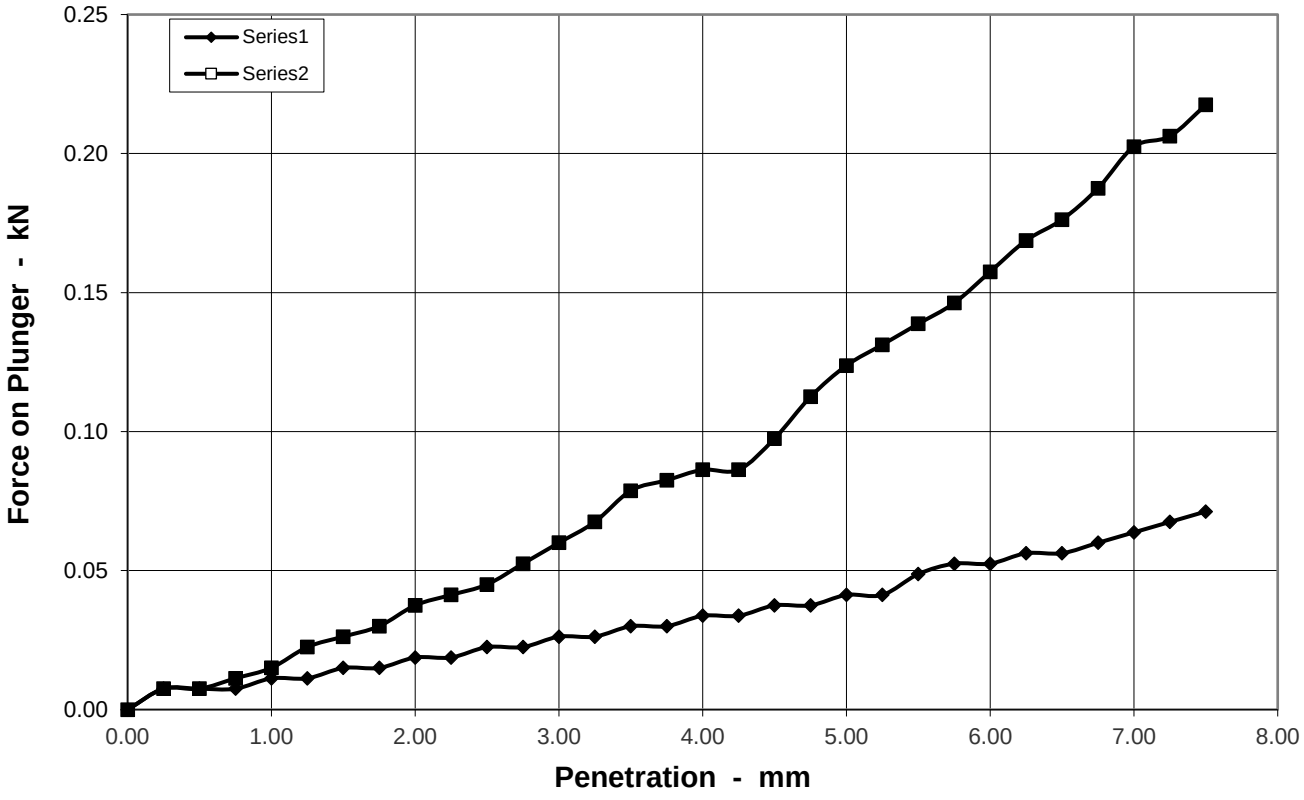
Penetration mm	CBR Values %	
	TOP	BASE
2.5	5.7	5.2
5	10.5	11.5
Accepted CBR	**10.5**	**11.5**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	14.4
Moisture Content - BASE	%	11.6
Bulk Density	Mg/m³	2.30
Dry Density	Mg/m³	2.08

Test Conditions		
Sample Retained on 20 mm sieve	%	12.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

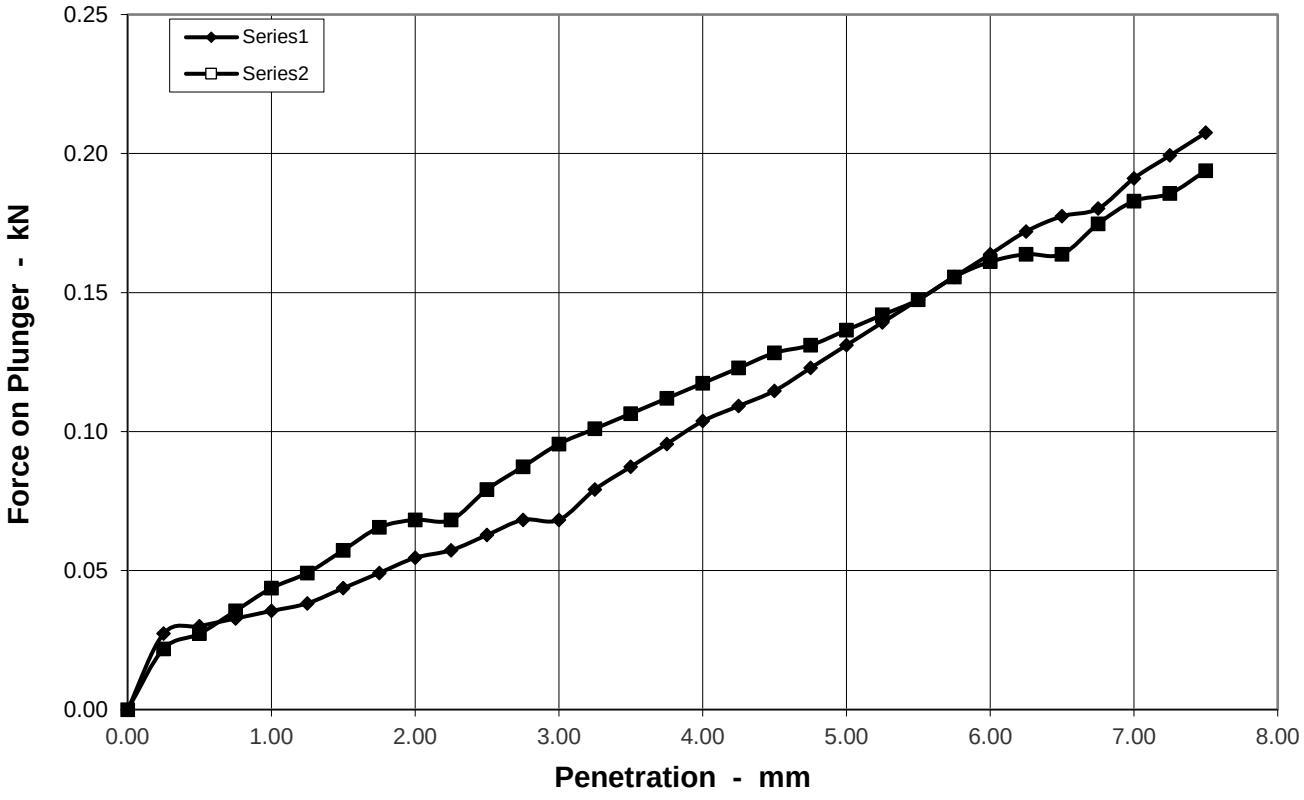
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.2	0.3
5	0.2	0.6
Accepted CBR	**0.2**	**0.6**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	12.1
Moisture Content - BASE	%	11.7
Bulk Density	Mg/m³	2.11
Dry Density	Mg/m³	1.91

Test Conditions		
Sample Retained on 20 mm sieve	%	12.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

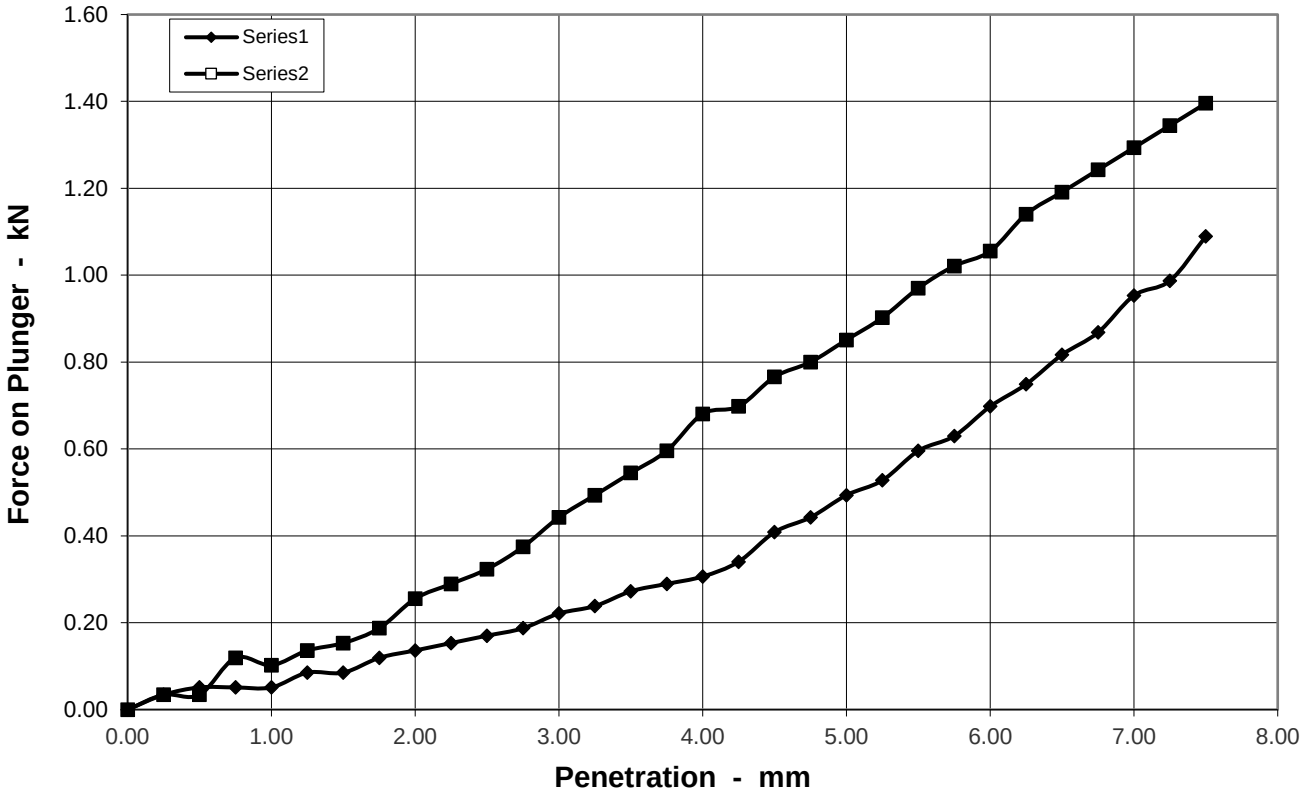
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.5	0.6
5	0.7	0.7
Accepted CBR	**0.7**	**0.7**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	9.4
Moisture Content - BASE	%	9.6
Bulk Density	Mg/m³	2.26
Dry Density	Mg/m³	2.04

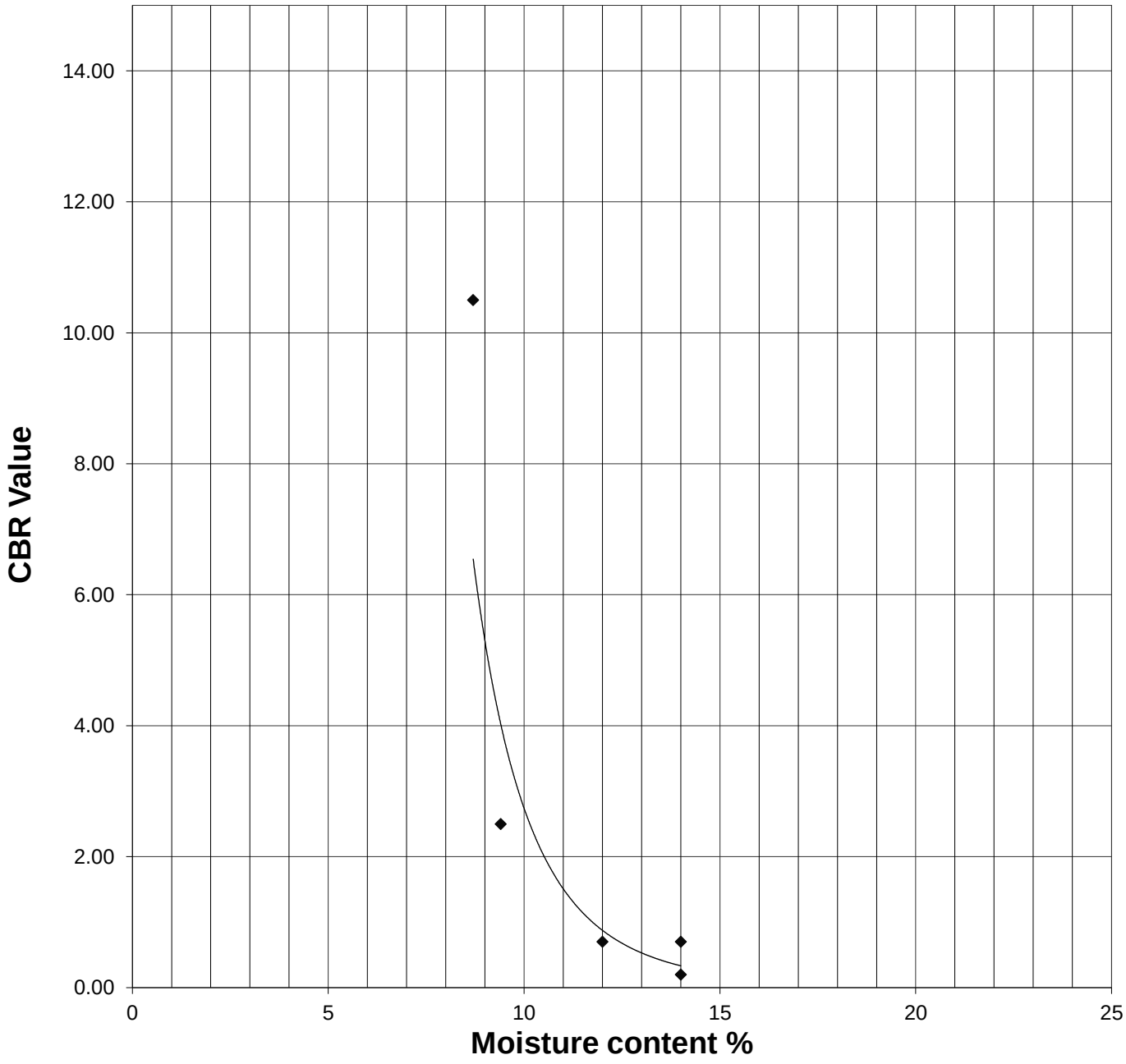
Test Conditions		
Sample Retained on 20 mm sieve	%	12.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.3	2.4
5	2.5	4.3
Accepted CBR	**2.5**	**4.3**

			Remarks	

pgl priority geotechnical	**CALIFORNIA BEARING RATIO RELATIONSHIP** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P19012**
		Borehole / Pit No	TP04
Location	Longview	Sample No	1
Soil Description	Clayey very sandy GRAVEL	Sample Type	B
		Depth	0.50 m

CBR/ Moisture Content Relationship

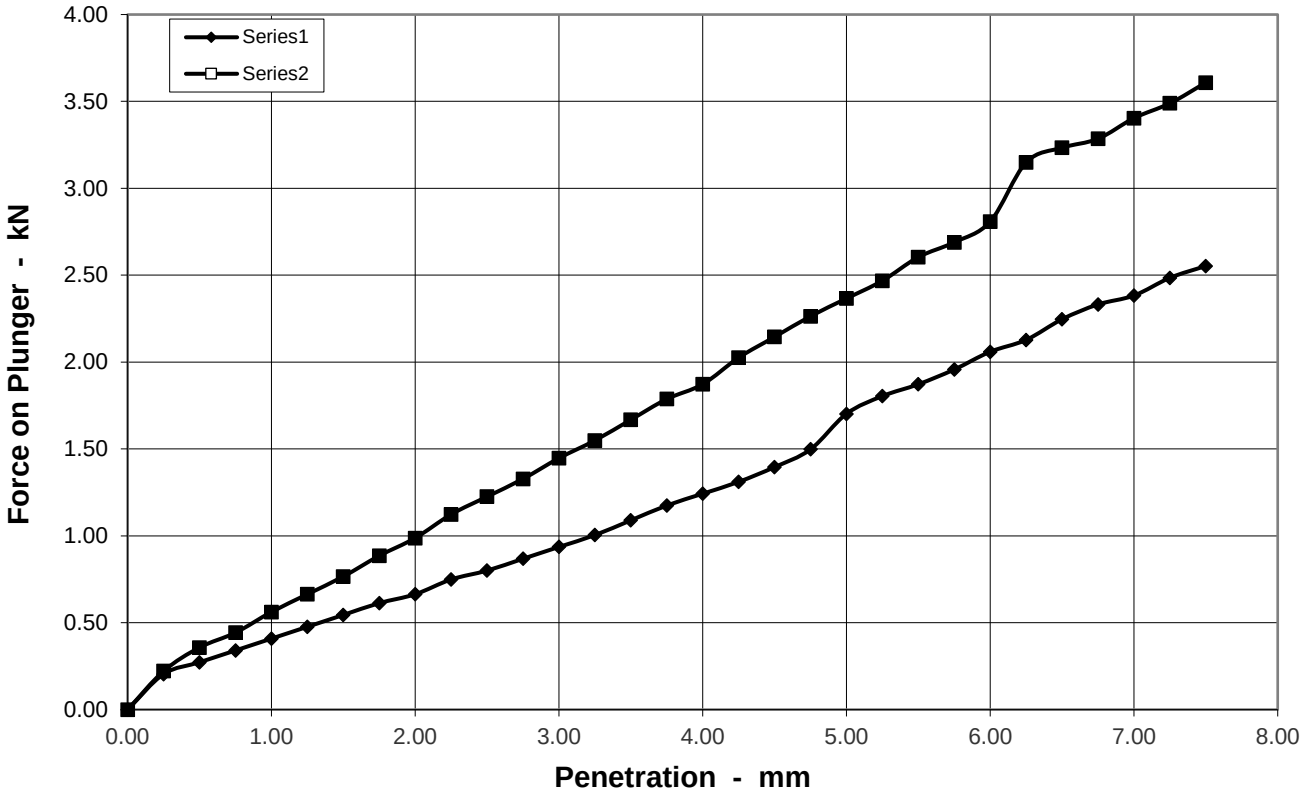


Operator	Checked	Approved

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP02
Site Name	**Longview Developments**	Sample No	CBR
		Depth	1.5 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	16.0
Moisture Content - BASE	%	15.5
Bulk Density	Mg/m³	2.23
Dry Density	Mg/m³	1.93

Test Conditions		
Sample Retained on 20 mm sieve	%	26.9
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

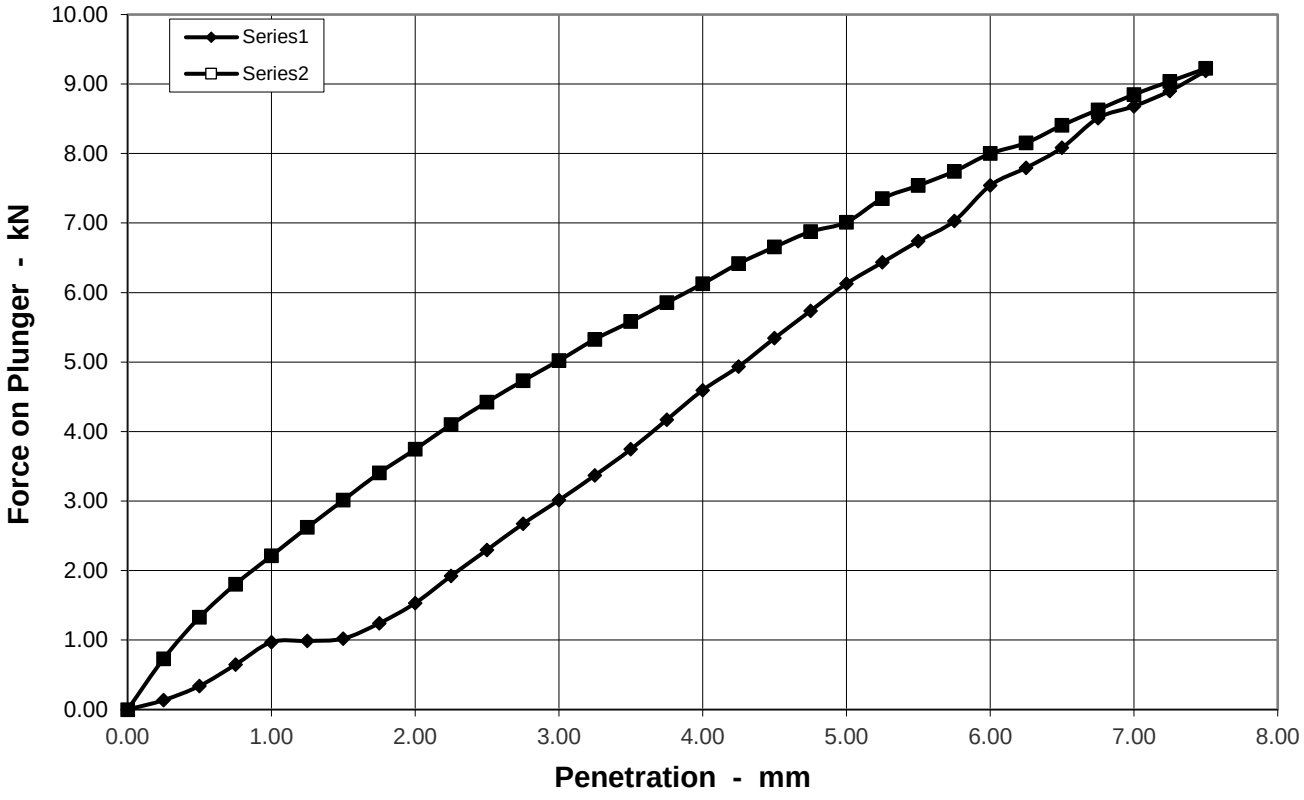
Penetration mm	CBR Values %	
	TOP	BASE
2.5	6.1	9.3
5	8.5	11.8
Accepted CBR	**8.5**	**11.8**

			Remarks
			1.5% Lime added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP03
Site Name	**Longview Developments**	Sample No	CBR
		Depth	1.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	17.0
Moisture Content - TOP	%	15.4
Moisture Content - BASE	%	15.4
Bulk Density	Mg/m³	2.15
Dry Density	Mg/m³	1.84

Test Conditions		
Sample Retained on 20 mm sieve	%	12.8
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	17.4	33.5
5	30.6	35.1
Accepted CBR	**30.6**	**35.1**

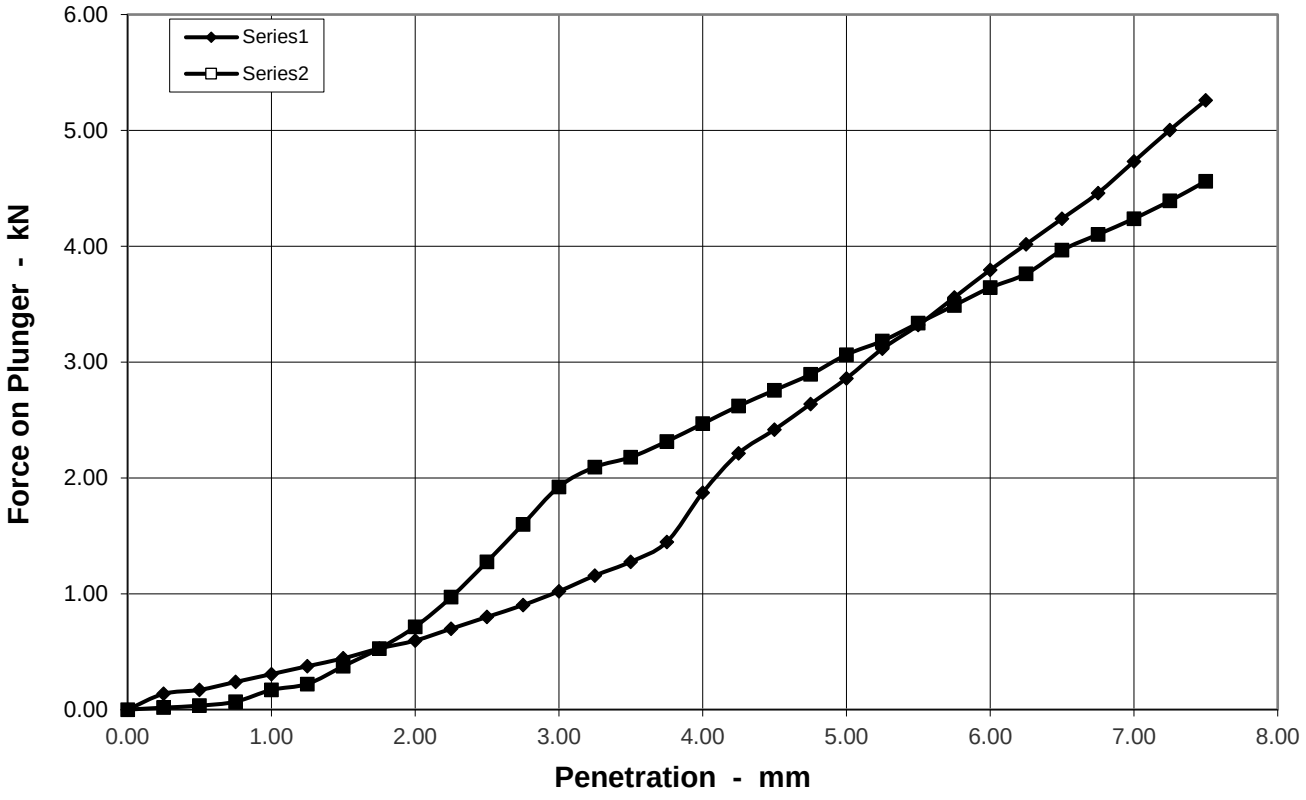
Remarks

1% Lime + 2% OPC added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP04
Site Name	**Longview Developments**	Sample No	CBR
		Depth	0.5 m
Soil Description	Sandy very clayey GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	12.0
Moisture Content - TOP	%	11.1
Moisture Content - BASE	%	11.2
Bulk Density	Mg/m³	2.27
Dry Density	Mg/m³	2.03

Test Conditions		
Sample Retained on 20 mm sieve	%	21.7
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

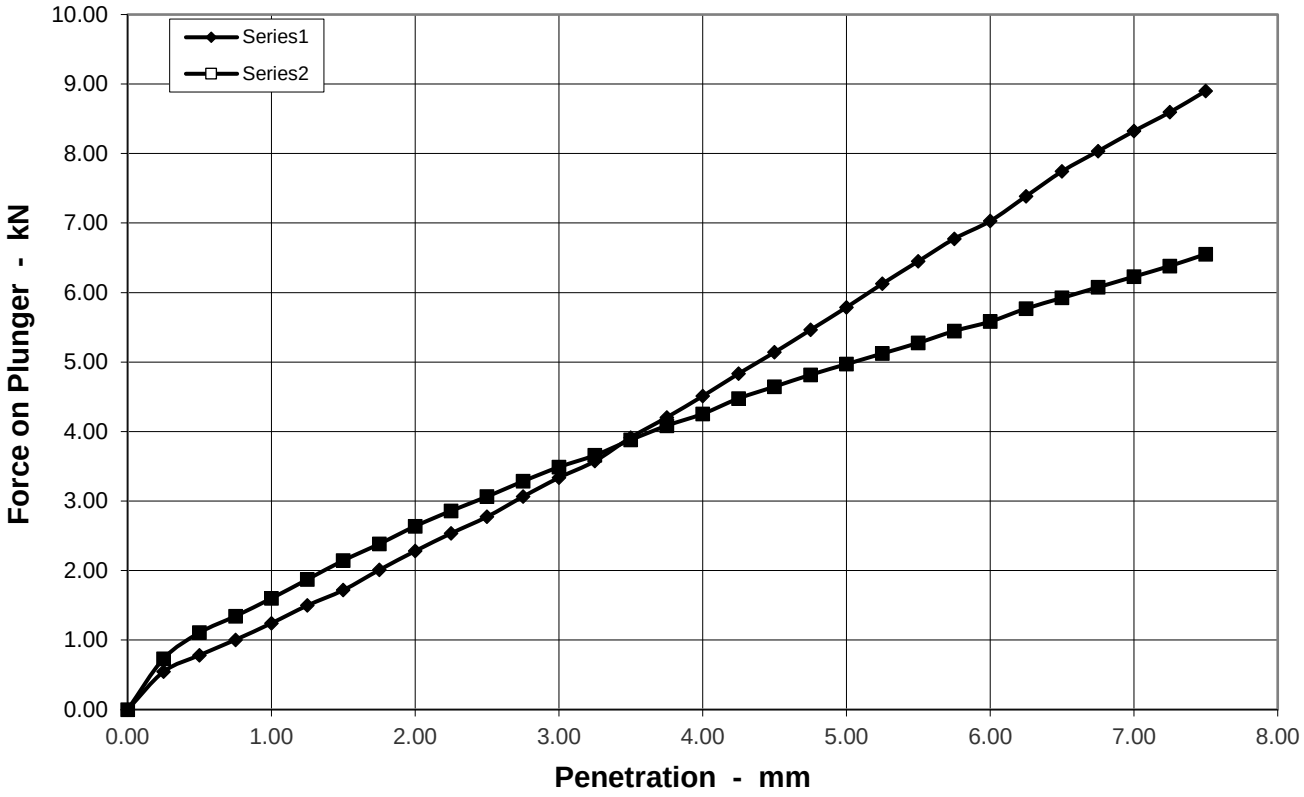
Penetration mm	CBR Values %	
	TOP	BASE
2.5	6.1	9.7
5	14.3	15.3
Accepted CBR	**14.3**	**15.3**

			Remarks
			1.5% Lime added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP05
Site Name	**Longview Developments**	Sample No	CBR A
		Depth	0.5 m
Soil Description	Slightly sandy slightly gravelly CLAY		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	14.0
Moisture Content - BASE	%	13.2
Bulk Density	Mg/m³	2.17
Dry Density	Mg/m³	1.88

Test Conditions		
Sample Retained on 20 mm sieve	%	2.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	21.0	23.2
5	28.9	24.8
Accepted CBR	**28.9**	**24.8**

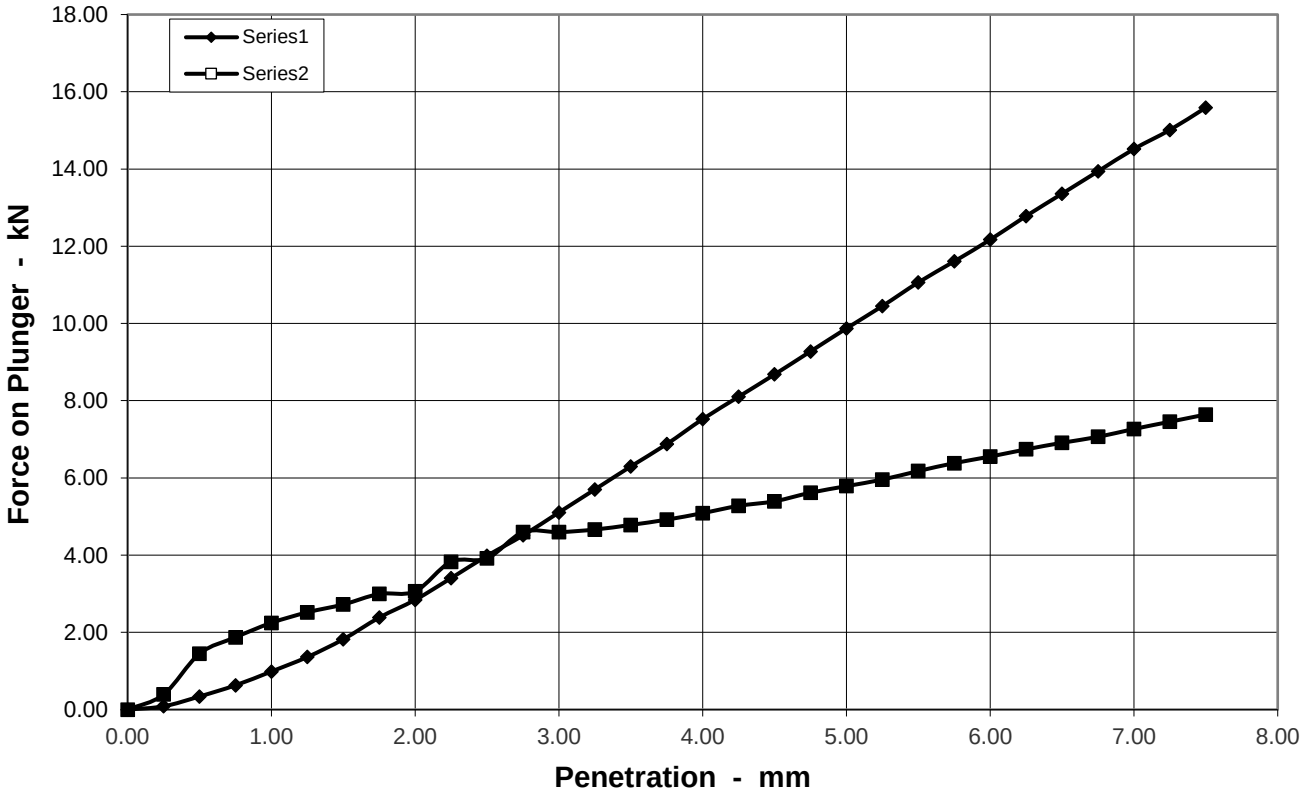
Remarks

1%Lime + 2%OPC added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP05
Site Name	**Longview Developments**	Sample No	CBR B
		Depth	0.5 m
Soil Description	Slightly sandy slightly gravelly CLAY		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	15.0
Moisture Content - TOP	%	14.6
Moisture Content - BASE	%	13.3
Bulk Density	Mg/m³	2.11
Dry Density	Mg/m³	1.83

Test Conditions		
Sample Retained on 20 mm sieve	%	2.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	30.2	29.7
5	49.4	28.9
Accepted CBR	**49.4**	**29.7**

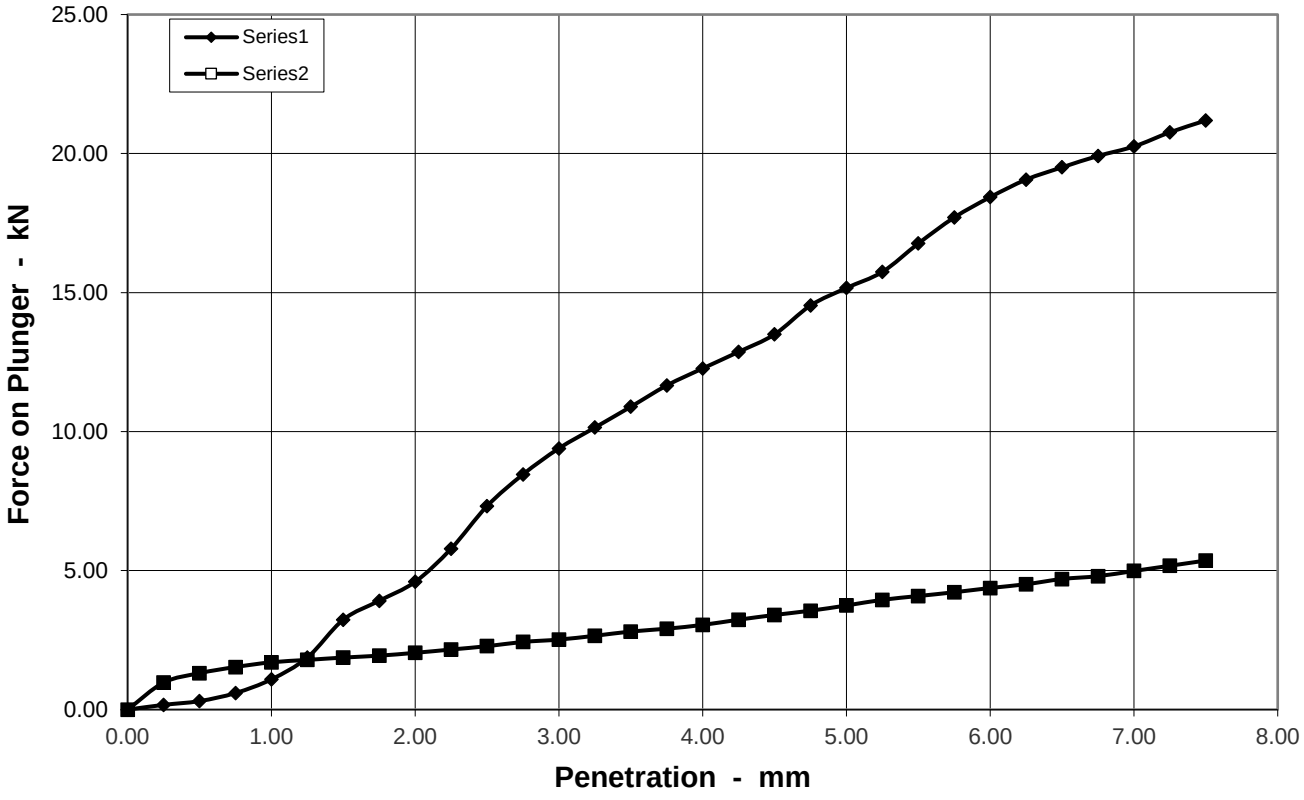
Remarks

2% Lime + 2% OPC added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP05
Site Name	**Longview Developments**	Sample No	CBR
		Depth	1 m
Soil Description	Slightly sandy gravelly CLAY		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	11.0
Moisture Content - TOP	%	15.1
Moisture Content - BASE	%	13.1
Bulk Density	Mg/m³	2.10
Dry Density	Mg/m³	1.89

Test Conditions		
Sample Retained on 20 mm sieve	%	28.1
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	55.4	17.3
5	75.8	18.7
Accepted CBR	**75.8**	**18.7**

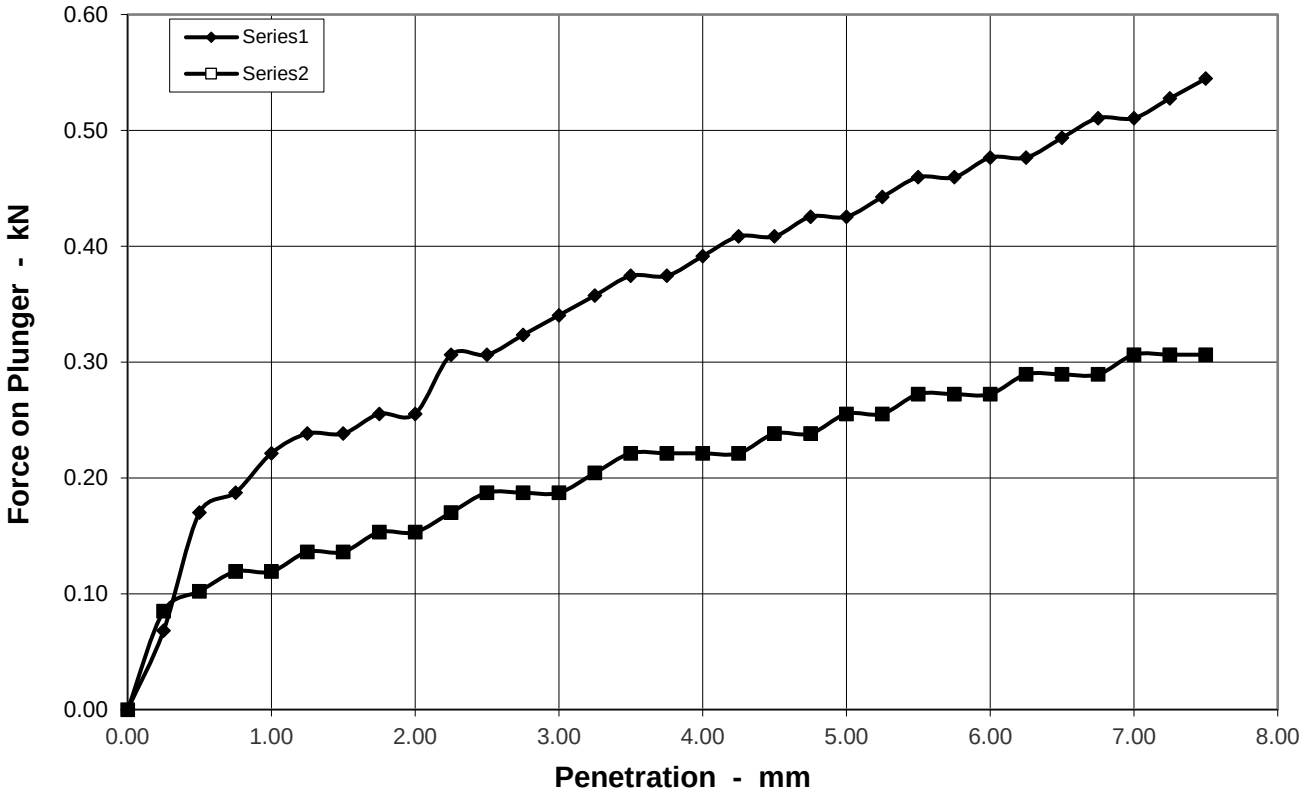
Remarks

1.5% Lime + 3% OPC added

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P19012**
		Borehole / Pit No	TP12
Site Name	**Longview Developments**	Sample No	CBR
		Depth	0.5 m
Soil Description	Sandy very silty GRAVEL with medium cobble content		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	33.0
Moisture Content - TOP	%	30.5
Moisture Content - BASE	%	32.5
Bulk Density	Mg/m³	1.90
Dry Density	Mg/m³	1.42

Test Conditions		
Sample Retained on 20 mm sieve	%	37.5
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	2.3	1.4
5	2.1	1.3
Accepted CBR	**2.3**	**1.4**

			Remarks
			3%Lime added

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Final Report

Report No.:	19-19751-1
Initial Date of Issue:	17-Jun-2019
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P19012 Longview

Quotation No.:		**Date Received:**	12-Jun-2019
Order No.:	11589	**Date Instructed:**	12-Jun-2019
No. of Samples:	4		
Turnaround (Wkdays):	7	**Results Due:**	20-Jun-2019
Date Approved:	17-Jun-2019		

Approved By:

Details: Martin Dyer, Laboratory Manager

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Results - Soil

Project: P19012 Longview

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			19-19751	19-19751	19-19751	19-19751
Quotation No.:		**Chemtest Sample ID.:**			841564	841565	841566	841567
		Sample Location:			TP03	TP05A	TP05B	TP05
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.5	0.5	0.5	1.0
		Date Sampled:			10-Jun-2019	10-Jun-2019	10-Jun-2019	10-Jun-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Moisture	N	2030	%	0.020	12	11	11	10
pH	U	2010		N/A	12.3	12.4	12.6	12.5
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.13	0.071	0.042	0.051
Total Sulphur	U	2175	%	0.010	0.048	0.051	0.045	0.069
Sulphate (Acid Soluble)	U	2430	%	0.010	0.13	0.091	0.088	0.15

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

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Final Report

Report No.:	19-18420-1
Initial Date of Issue:	10-Jun-2019
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P19012 Longview

Quotation No.:		**Date Received:**	31-May-2019
Order No.:	11589	**Date Instructed:**	31-May-2019
No. of Samples:	3		
Turnaround (Wkdays):	7	**Results Due:**	10-Jun-2019
Date Approved:	10-Jun-2019		

Approved By:

Details: Martin Dyer, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: P19012 Longview

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			19-18420	19-18420	19-18420
Quotation No.:		**Chemtest Sample ID.:**			835453	835454	835455
		Client Sample ID.:			TP02	TP04	TP12
		Sample Type:			SOIL	SOIL	SOIL
		Top Depth (m):			1.50	0.50	0.50
		Date Sampled:			29-May-2019	29-May-2019	29-May-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Moisture	N	2030	%	0.020	11	8.8	23
pH	U	2010		N/A	9.2	11.2	12.2
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.29	0.33	0.12
Total Sulphur	U	2175	%	0.010	0.19	0.071	0.45
Sulphate (Acid Soluble)	U	2430	%	0.010	0.28	0.12	0.39

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

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Final Report

Report No.:	19-10538-1
Initial Date of Issue:	04-Apr-2019
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P19012 Longview

Quotation No.:		**Date Received:**	27-Mar-2019
Order No.:	11589	**Date Instructed:**	27-Mar-2019
No. of Samples:	10		
Turnaround (Wkdays):	7	**Results Due:**	04-Apr-2019
Date Approved:	04-Apr-2019		

Approved By:

Details: Robert Monk, Technical Manager

Chemtest
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Results - Soil

Project: P19012 Longview

Client: Priority Geotechnical Ltd			**Chemtest Job No.:**		19-10538	19-10538	19-10538	19-10538	19-10538	19-10538	19-10538	19-10538	19-10538
Quotation No.:			**Chemtest Sample ID.:**		800351	800352	800353	800354	800355	800356	800357	800358	800359
			Sample Location:		TP24	TP05	TP01	TP24	TP19	TP04	TP02	TP22	TP21
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.5	2.5	0.6	2.5	2.5	1.5	1.0
			Date Sampled:		22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019	22-Mar-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020	14	8.1	14	19	12	9.2	14	8.4	9.0
pH	U	2010		N/A	7.5	7.5	7.2	7.7	7.1	7.3	6.2	8.0	7.9
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010	0.020	< 0.010	< 0.010	< 0.010	0.016	< 0.010	0.013	0.015	< 0.010
Sulphate (Acid Soluble)	U	2430	%	0.010	0.014	< 0.010	0.028	< 0.010	0.020	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: P19012 Longview

Client: Priority Geotechnical Ltd			**Chemtest Job No.:**		19-10538
Quotation No.:			**Chemtest Sample ID.:**		800360
			Sample Location:		TP6
			Sample Type:		SOIL
			Top Depth (m):		1.0
			Date Sampled:		22-Mar-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture	N	2030	%	0.020	14
pH	U	2010		N/A	7.2
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010
Total Sulphur	U	2175	%	0.010	< 0.010
Sulphate (Acid Soluble)	U	2430	%	0.010	< 0.010

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

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Final Report

Report No.:	19-08568-1
Initial Date of Issue:	20-Mar-2019
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P19012 Longview

Quotation No.:		**Date Received:**	08-Mar-2019
Order No.:	11589	**Date Instructed:**	08-Mar-2019
No. of Samples:	7		
Turnaround (Wkdays):	7	**Results Due:**	18-Mar-2019
Date Approved:	15-Mar-2019		

Approved By:

Details: Robert Monk, Technical Manager

Chemtest
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Results - Soil

Project: P19012 Longview

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			19-08568	19-08568	19-08568	19-08568	19-08568	19-08568	19-08568
Quotation No.:		**Chemtest Sample ID.:**			790289	790290	790291	790292	790293	790294	790295
			Sample Location:		TP04	TP02	TP02	TP03	TP09	TP09	TP09
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	1.5	1.5	1.0	2.0	2.9
			Date Sampled:		05-Mar-2019	05-Mar-2019	05-Mar-2019	05-Mar-2019	05-Mar-2019	05-Mar-2019	05-Mar-2019
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Moisture	N	2030	%	0.020	9.6	21	11	11	11	11	8.8
pH	U	2010		N/A	7.0	6.5	6.4	6.6	7.0	7.1	7.5
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010	< 0.010	0.013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Sulphate (Acid Soluble)	U	2430	%	0.010	< 0.010	0.022	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Test Methods

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2010	pH Value of Soils	pH	pH Meter
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