Muri Road Subdivision

Geotechnical Completion Report - Stage 1

Pukerua Bay Limited Partnership



Reference: 773-WLGGE291776AE-2

12 December 2025

MURI ROAD SUBDIVISION

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PREPARED FOR

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QUALITY INFORMATION

Revision history

Revision	Description	Date	Author	Reviewer	Approver
v1	GCR	12/12/2025	S. Martin	C. Armstrong	C. Thompson

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1. INTRODUCTION

Pukerua Bay Limited Partnership has engaged Tetra Tech Coffey (NZ) Limited to carry out onsite observations and construction monitoring related to the site earthworks, and to provide a report summarising our findings for part of Stage 1 of the Muri Road subdivision through our contracts signed 27 March 2024 and 18 September 2025.

This Geotechnical Completion Report (GCR) relates to part of Stage 1 of the Muri Road Subdivision at 34 Muri Road, Pukerua Bay, Porirua. This GCR relates specifically to the earthworks that were undertaken at proposed Lots 1-10 on Lot 1 DP 608433 and Lot 1000 DP 608433. These lots are referred to throughout this GCR with the proposed lot numbers as shown on the Envelope as-built drawings included in Appendix A. The earthworks in this area were done in conjunction with the earthworks for the wider area of Stage 1 as consented under RC8763 SL0075/22. The earthworks for the remaining areas of Stage 1 will be covered in separate reports. The location and extents of the subdivision earthworks to which this GCR covers is shown on Envelope as-built plans attached in Appendix A.

2. PROJECT SETTING

Muri Road Subdivision is a residential subdivision in the eastern hills of Pukerua Bay, Porirua as shown in Figure 1 below. The layout of the subdivision is shown in the attached Envelope as-built plans (Appendix A). The site is moderately sloping and comprises predominantly sandy loess soil.



Figure 1: Location of Stage 1 Certification area for the Muri Road Subdivision

3. TETRA TECH COFFEY'S SCOPE OF WORKS

3.1 OVERVIEW

Tetra Tech Coffey's geotechnical scope of work for the construction of Stage 1 comprised the following:

- Review and approval of background documents, including our previous reporting on the site.
- Weekly (or as required) construction observations during the earthworks season to observe:
    - The base of excavations.
    - Subgrade prior to fill placement.
    - That placement and compaction of engineered fill were carried out in accordance with our recommendations and the relevant standards and code of practice.
- Review of nuclear densometer and moisture (NDM) field testing by BOSCO Ltd (the project contractor) to provide earthworks compaction control for the engineered fill.
- Provision of this geotechnical completion report, including a Schedule 2A Statement of Professional Opinion on Suitability of Land for Building Construction.

3.2 PREVIOUS REPORTS

As part of the preparation of this GCR, a review of the data, comments and recommendations of all previous work completed at this site has been undertaken. This includes the following reports:

- Tetra Tech Coffey Report: Muri Road Subdivision, Geotechnical Investigation and Assessment, Ref: 773-WLGGE291776-rev3 dated 13 October 2023
- Tetra Tech Coffey Earthworks Specification: Ref: 773-WLGGE291776AD dated 24 July 2024
- Tetra Tech Coffey Report: Muri Road Subdivision, Geotechnical Slope Stability Assessment Report, Ref: 773-WLGGE291776AD dated 21 February 2025
- Tetra Tech Coffey Memo: Muri Road Subdivision – Stage 1 Geotechnical Design Memo, Ref 773-WLGGE291776AD dated 3 April 2025
- Tetra Tech Coffey Memo: MSE Slope design update for Stage 1 Muri Road, Pukerua Bay, Ref: 773-WLGGE291776AD-AB dated 13 May 2025

4. CONSTRUCTION OBSERVATIONS

Earthworks for Stage 1 commenced in April 2025. During the earthworks, engineering observations and fill compaction testing were undertaken on both an unscheduled and as-requested basis to assess compliance with NZS 4431:2022, and the project specific recommendations.

4.1 EARTHWORKS FOR LOTS

Earthworks were undertaken by Bryce O'Sullivan Contracting (BOSCO) Ltd to form the access road and final site levels across parts of Stage 1 where moderate amounts of cut and engineered site-won fill was required. Lots 1 and 2 are entirely or predominantly in cut, lots 5 to 10 are comprised entirely or predominantly in engineered fill. Lots 3 and 4 are both cut and engineered fill.

4.2 CONSTRUCTION PROGRAMME

The earthworks for this stage were carried out during April to May 2025 (cut and fill). A chronology of the construction events related to this stage is summarised in Table 1 below.

Table 1: Summary of inspections for Stage 1 earthworks 2024/2025 season

Date	Activities
April 2025	Stripping and inspection of subgrade
April to May 2025	Cut to fill with NDM testing at 0.5m lift
November 2025	Lot specific testing of cut lots

5. QUALITY ASSURANCE AND CONTROLS

5.1 EARTHWORKS

Site derived silty sand fill was used for the engineered fill across the site. A particle size distribution (PSD) test was carried out on a representative sample during the investigation and determined this material was silty fine sand. Several compaction curves have been derived for the site-won loess material used during earthworks at the site. The values have been used as an indicative range of the appropriate Maximum Dry Density (MDD) and optimum water content values for the material and judgement has been used to assess the compaction of the materials against these criteria. Where materials varied (for example, mixed with site won rock and/or site won clay), existing proctors from the Porirua area of similar materials were used. The standard compaction test values used for the site are attached in Appendix B and summarised in Table 2 below.

Table 2: Standard compaction (NZS 4402:1986 Test 4.1.1) target criteria for engineered fill

Description	Source	Maximum Dry Density (t/m^3)	Optimum Water Content (%)
Sand	Site-won	1.70	17
Sand	Assumed proctor	1.80	9
Clay/ Sand mix	Assumed proctor	1.70	13
Silty Sand	Site-won	1.49	20
Clay traces of rock	Assumed proctor	1.85	13.5
Whitby Clay	Assumed proctor	1.80	15
Silt with some rock	Assumed proctor	1.55	14

During construction, independent NDM testing was carried out on a sample of the engineered fill lifts (by Construction Sciences Ltd) to ensure that the NDM testing that was carried out by BOSCO was in line with the MDD lab test results. NDM tests were carried out on the fill at every 0.5m lift or $500m^3$ of fill placed to confirm to compliance with the specification. This is in excess of the frequency recommended by NZS 4431:2022 (1 set of tests per $4,000m^3$ or every 1.5m lift of fill). We required the minimum dry density of the compacted fill to be 95% of the NZS 4402:1986 Test 4.1.1 Standard MDD as required in NZS 4431:2022 for material types F or I.

The results of the compaction tests are presented in Appendix B.

5.2 OBSERVATIONS

During the earthworks, engineering inspections by Tetra Tech Coffey were undertaken on a regular basis to assess compliance with NZS 4431:2022 and our project specific recommendations and specifications. Project specific inspections required for this stage of the development were required for:

- Stripping of topsoil.
- Inspection of final cut surface prior to filling.
- Inspection of all cut and fill batters following trimming.
- Earthworks observations

6. PROJECT EVALUATION

6.1 CERTIFICATION OF EARTH FILLS

In accordance with RC8763 SL0075-22 and on the basis of inspections by Tetra Tech Coffey and review of the compaction testing undertaken by BOSCO, we consider that all the engineered earth fill placed by BOSCO to the extends shown in the as built drawings has been placed and compacted in accordance with the specification and the Engineered Fill Construction for Lightweight Structures NZS 4431:2022. A Schedule 2A (NZS 4404) is provided in Appendix D.

The results of the compaction testing are presented in Appendix B. Visual inspections were also undertaken to observe how the material was behaving once placed. We consider that the fill has been placed to the required standard and specification. No subsoil drainage has been installed within this area of fill as no surface water or evidence of wet soils within this subgrade was observed during earthworks.

6.2 CERTIFICATION OF CUT AREA

Testing has been conducted in the cut areas which comprises natural ground. Five dynamic cone penetrometer (DCP) tests and one hand auger have been conducted in the cut area. The test locations are shown in Drawing C-1 in Appendix C.

Visual observation, and the hand auger boreholes, indicate that cut areas comprise sand and silty sand. Most of this area is assessed as having 300kPa ultimate bearing capacity, except lot 1, where 200kPa ultimate bearing capacity is available. Table 3 below outlines the subsurface conditions for each lot.

As is always the case, our testing has limited coverage and there may be isolated soft spots present within the cut areas. Any observed soft spots identified during foundation preparation on a lot should be excavated out and replaced with GAP65 hardfill or similar.

Table 3: Summary of ground conditions at each lot

Lot #	Subsurface Conditions	Comments
1	Cut ground. 200kPa geotechnical ultimate bearing capacity available from current ground level	An area at the base of the slope is not yet complete. Minor grading of this area is required. This will need to be inspected by Tetra Tech Coffey at completion of the works.
2	Cut ground. “Good ground” indicated from 0.1m depth based on NZS 3604:2011	The south-east of the lot is not yet complete. Minor grading of this area is required. This will need to be

		inspected by Tetra Tech Coffey at completion of the works.
3	Cut and filled ground. "Good ground" indicated from 0.1m depth based on NZS 3604:2011 Fill placed in accordance with NZS 4431:2022	The south-east of the lot is not yet complete. Minor grading of this area is required. This will need to be inspected by Tetra Tech Coffey at completion of the works.
4	Cut and filled ground. "Good ground" indicated current ground level based on NZS 3604:2011 Fill placed in accordance with NZS 4431:2022	-
5 to 9	Filled ground. Fill placed in accordance with NZS 4431:2022	-
10	Cut and fill. Current fill placed accordance with NZS 4431:2022	This lot is incomplete and will require construction of a MSE wall or RS slope.

6.3 STABILITY OF FILL BATTERS

In accordance with RC8763 SL0075-22 we confirm that fill batters shown in the as-built drawings were constructed in accordance with the PCC Code of Land Development and Subdivision Engineering (2010) and the Engineered Fill Construction for Lightweight Structures NZS 4431:2022 and in accordance with Tetra Tech Coffey (NZ) Ltd GSSAR report[1]. A 3m setback "specific engineering design" zone from the crest of any fill slope is recommended.

6.4 STABILITY OF CUT BATTERS

In accordance with RC8763 SL0075-22 we confirm that cut batters shown in the as-built drawings were constructed in accordance with the PCC Code of Land Development and Subdivision Engineering (2010) and the Engineered Fill Construction for Lightweight Structures NZS 4431:2022 and in accordance with Tetra Tech Coffey (NZ) Ltd GSSAR report[1]. A 3m setback "specific engineering design" zone from the crest of any cut slope is recommended.

6.5 INCOMPLETE WORK

Earthworks had not been completed for lots 1, 2, 3 and 10.

Areas of lots 1 to 3 have been used for water control and will require removal of the surface protection, minor scrape back of the natural surface (if required) to tidy up the surface and placement of fill (site won or GAP65) where required to achieve the design levels. We understand these areas are currently slightly high and have some bunds that will require removal. These areas are typically within 300mm of proposed finished level.

The completion of the works in Lot 10 will be certified at a later date when the earthworks and stabilisation of the slope is completed (at completion of the MSE wall or RS slope construction).

[1] Tetra Tech Coffey Report: Muri Road Subdivision, Geotechnical Slope Stability Assessment Report, Ref: 773-WLGGE291776AD dated 21 February 2025

6.6 STRENGTH REDUCTION FACTOR

As required by Section B1/VM2 of the New Zealand Building Code Handbook, a strength reduction factor of 0.5 or 0.8 should be applied to all recommended geotechnical ultimate soil capacities in conjunction with their use in factored design load cases for static and earthquake overload conditions, respectively.

6.7 FILL INDUCTED SETTLEMENT

Due to the confirmed good quality of fill as a result of our pre-fill inspections, engineering observations, the quality control testing and the elapsed time since the placement of the filling, we are of the opinion that induced differential settlements beneath or within the certified filling due to its imposed weights should be insignificant with respect to conventional building development. However, all buildings should be designed to tolerate differential settlements of up to 25mm vertical settlement over 6m horizonal distance (1 in 240), as required by the NZ Building Code Handbook, under the serviceability limit state load combination of NZS1170.0.

6.8 CONTRACTOR'S WORK

We have relied on the Contractor's work practices and assume that the works have been carried out in accordance with:

- The approved Contract drawings and design details,
- The approved Contract specifications,
- The conditions of Resource, Earthworks and Building Consents where applicable,
- The relevant Tetra Tech Coffey reports, recommendations and site instructions

And that all as-built information and other details provided to the Client and/or Tetra Tech Coffey are accurate and correct in all respects.

7. FUTURE LOT DEVELOPMENT RECOMMENDATIONS

7.1 VEGETATION COVER

The batter slopes have been hydroseeded to mitigate the potential for surface erosion of the soil.

During residential construction, any vegetation cleared beyond the immediate area of building platforms for temporary construction purposes should be reinstated as soon as possible.

7.2 STORMWATER CONTROLS

Loess soils are well known to be susceptible to erosion especially when surface water runoff is allowed to concentrate or pond. Given the risk it is required that appropriate stormwater disposal systems are designed and constructed to mitigate the potential for erosion by running water. These systems should serve to collect all runoff from the site including the building stormwater catchment and the hard-standing areas. They should connect directly into the public stormwater drainage network or should discharge to erosion resistant / protected areas well away from steep slopes.

Uncontrolled stormwater discharges onto the ground surface or into soakage pits can cause erosion, scour, tunnel gullies, and/or instability on sloping land, particularly in loess soils, and should not be permitted under any circumstances.

7.3 ROAD SUBGRADES

The testing of road subgrades was expressly excluded from Tetra Tech Coffey's work.

8. LIMITATIONS

The construction observation services have consisted of visual observation of the soils exposed and placed on the Lots, and testing of these soils in order to evaluate conformance with the geotechnical recommendations. The opinions and comments given in this report result from observations and testing o f a relatively small volume of soils, as such there may be special conditions pertaining to this site that have not been disclosed by the testing or observed by Tetra Tech Coffey.

The services were performed solely with respect to the observation of specific geotechnical elements of the site work as discussed in this report. Such services do not relieve any party from fulfilling its responsibilities and obligations. The services did not include establishing construction lines or grades, or the approval of steel, concrete, or construction materials other than fill.

This report has been prepared solely for the use of our client, Pukerua Bay Limited Partnership, their professional advisers and Porirua City Council in relation to the specific project described herein. No liability is accepted in respect of its use for any other purpose or by any other person or entity.

It is recommended that all other parties seek professional geotechnical advice to satisfy themselves as to its on-going suitability for their intended use.

Please also refer to the enclosed *Important Information about Your Tetra Tech Coffey Report*.

9. CLOSURE

If you have queries or require further clarification regarding aspects of this report, please contact the undersigned.

For and on behalf of Tetra Tech Coffey

Prepared by



Sarah Martin
Senior Engineering Geologist



Chris Armstrong

CPEng
Principal Geotechnical Engineer

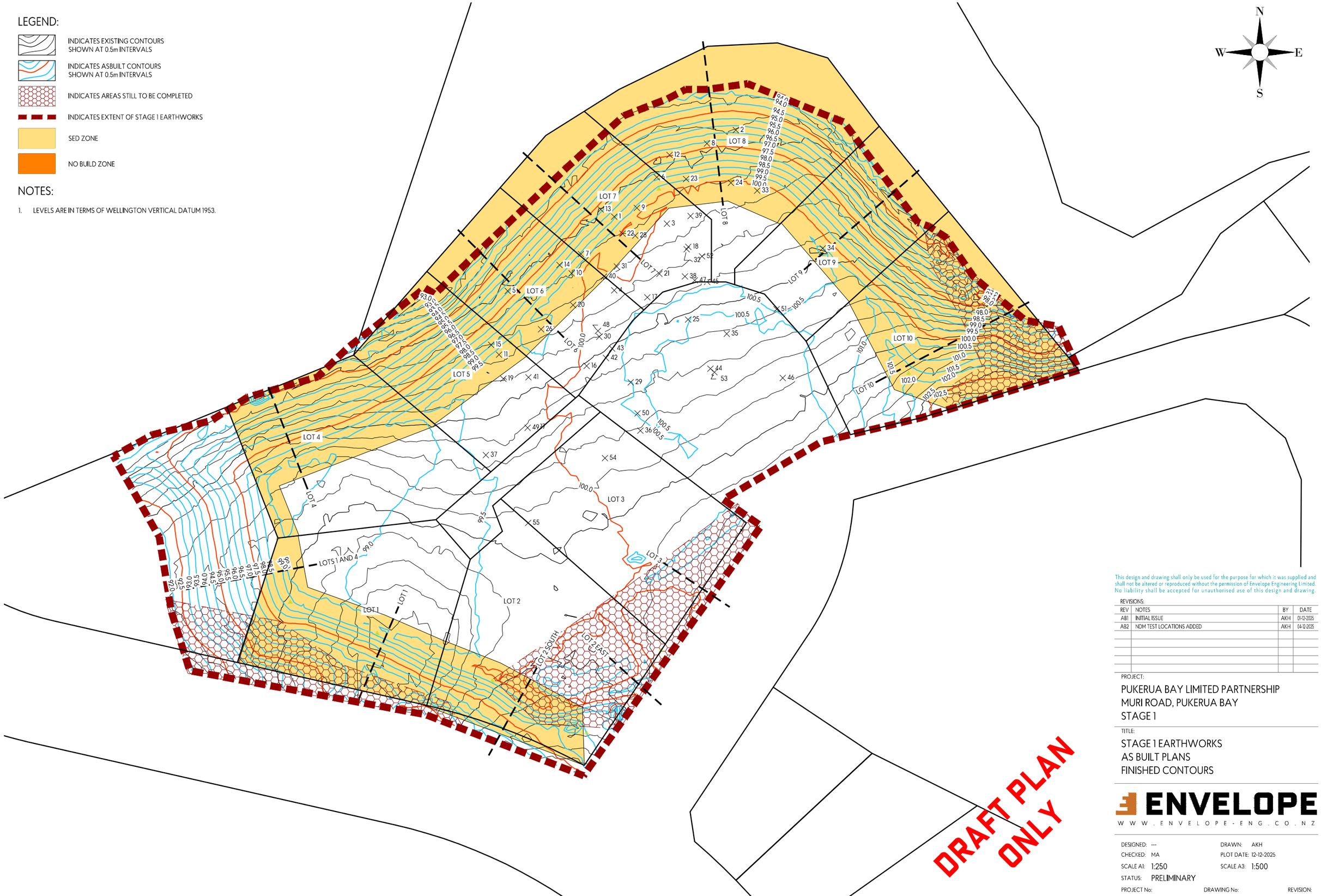
APPENDIX A – AS BUILT DRAWINGS

LEGEND:

- INDICATES EXISTING CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES ASBUILT CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES AREAS STILL TO BE COMPLETED
- INDICATES EXTENT OF STAGE 1 EARTHWORKS
- SED ZONE
- NO BUILD ZONE

NOTES:

1. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953.



DRAFT PLAN ONLY

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REVISIONS:

REV	NOTES	BY	DATE
AB1	INITIAL ISSUE	AKH	01-12-2025
AB2	NDM TEST LOCATIONS ADDED	AKH	04-12-2025

PROJECT:

PUKERUA BAY LIMITED PARTNERSHIP
MURI ROAD, PUKERUA BAY
STAGE 1

TITLE:

STAGE 1 EARTHWORKS
AS BUILT PLANS
FINISHED CONTOURS

ENVELOPE
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: ---
DRAWN: AKH
CHECKED: MA
PLOT DATE: 12-12-2025
SCALE A1: 1:250
SCALE A3: 1:500
STATUS: PRELIMINARY

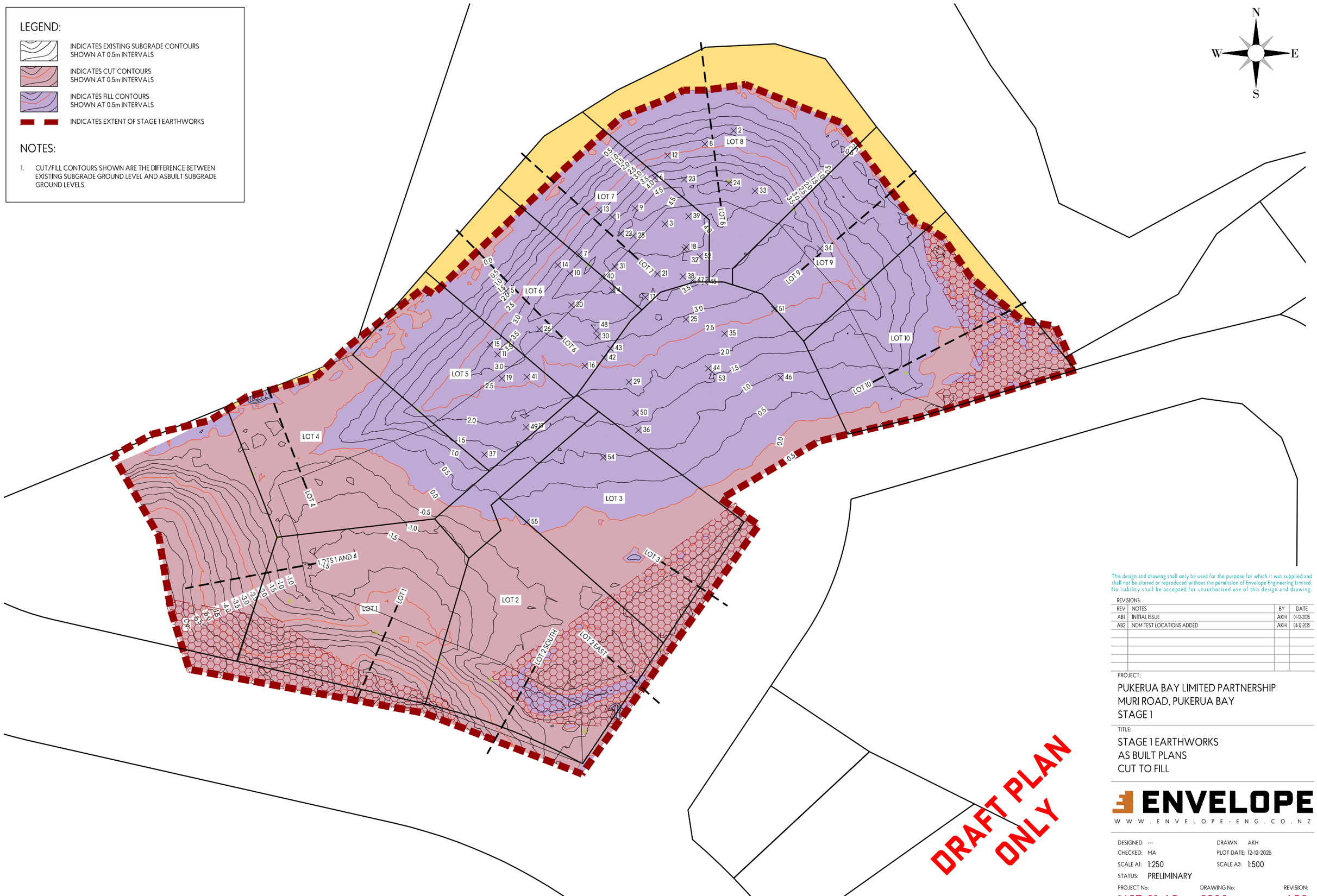
PROJECT No: 1697-01-AB
DRAWING No: 2000
REVISION: AB2

LEGEND:

- INDICATES EXISTING SUBGRADE CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES CUT CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES FILL CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES EXTENT OF STAGE 1 EARTHWORKS

NOTES:

1. CUT/FILL CONTOURS SHOWN ARE THE DIFFERENCE BETWEEN EXISTING SUBGRADE GROUND LEVEL AND ASBUILT SUBGRADE GROUND LEVELS.



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REVISIONS:

REV	NOTES	BY	DATE
AB1	INITIAL ISSUE	AKH	01-12-2025
AB2	NDM TEST LOCATIONS ADDED	AKH	04-12-2025

PROJECT:

PUKERUA BAY LIMITED PARTNERSHIP
MURI ROAD, PUKERUA BAY
STAGE 1

TITLE:

STAGE 1 EARTHWORKS
AS BUILT PLANS
CUT TO FILL

ENVELOPE
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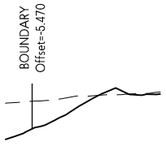
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DRAWN: AKH
CHECKED: MA
PLOT DATE: 12-12-2025
SCALE A1: 1:250
SCALE A3: 1:500
STATUS: PRELIMINARY

PROJECT No: 1697-01-AB
DRAWING No: 2200
REVISION: AB2

LEGEND:

EXISTING GROUND LEVEL

AS BUILT FINISHED GROUND LEVEL



DATUM R.L. 94.00

AS BUILT LEVELS	96.10	96.31	97.17	98.31	99.74	99.83	99.77	99.82
EXISTING LEVELS	99.07	99.11	99.25	99.55	99.72	99.80	99.95	99.97
CUT/FILL LEVEL	-2.96	-2.80	-2.08	-1.24	0.02	0.03	-0.18	-0.15
OFFSETS	-7.68	-7.04	-4.79	-2.44	0.00	2.35	4.65	5.00

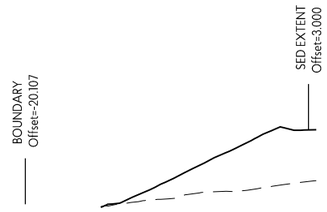
SECTIONS
LOT 2 SOUTH



DATUM R.L. 92.00

AS BUILT LEVELS	95.28	95.27	95.84	96.57	97.68	98.48	98.35	98.48
EXISTING LEVELS	94.69	95.13	96.09	97.01	98.00	98.57	99.02	99.15	99.21
CUT/FILL LEVEL	0.60	0.13	-0.25	-0.44	-0.32	-0.10	-0.68	-0.69	-0.73
OFFSETS	-10.77	-9.57	-7.15	-5.10	-2.23	0.00	2.05	4.25	5.00

SECTIONS
LOT 4



DATUM R.L. 90.00

AS BUILT LEVELS	93.76	94.13	95.38	96.58	97.78	98.86	100.01	100.04
EXISTING LEVELS	93.81	93.99	94.39	94.76	95.03	95.11	95.46	95.78	95.94
CUT/FILL LEVEL	-0.05	0.13	1.00	1.82	2.75	3.75	4.55	4.25	4.14
OFFSETS	-13.94	-12.32	-9.55	-7.11	-4.70	-2.33	0.00	2.36	3.62

SECTIONS
LOT 8



DATUM R.L. 94.00

AS BUILT LEVELS	98.14	98.44	98.96	99.62	100.06	100.39	100.85	101.05	101.72	101.48	101.29
EXISTING LEVELS	97.69	98.48	99.09	99.63	100.22	100.51	100.73	100.86	100.81	100.66	100.64
CUT/FILL LEVEL	0.44	-0.03	-0.13	-0.01	-0.16	-0.12	0.12	0.19	0.90	0.83	0.65
OFFSETS	-18.25	-12.73	-10.80	-8.84	-7.15	-5.52	-3.77	-2.08	0.00	2.78	5.00

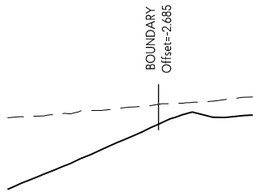
SECTIONS
LOT 10



DATUM R.L. 96.00

AS BUILT LEVELS	100.26	100.30	100.36	99.37	99.61	99.63
EXISTING LEVELS	100.36	100.35	100.22	100.25	100.16	100.17
CUT/FILL LEVEL	-0.10	-0.06	0.14	-0.87	-0.55	-0.54
OFFSETS	-2.10	-2.03	0.00	2.72	4.80	5.00

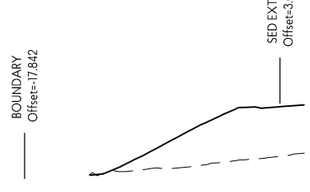
SECTIONS
LOT 2 EAST



DATUM R.L. 90.00

AS BUILT LEVELS	92.78	93.51	94.63	95.65	96.80	98.13	99.07	98.64	98.82	98.83
EXISTING LEVELS	98.61	98.73	98.96	99.21	99.42	99.72	99.86	100.09	100.30	100.31
CUT/FILL LEVEL	-5.83	-5.22	-4.33	-3.56	-2.62	-1.59	-0.79	-1.45	-1.49	-1.48
OFFSETS	-14.99	-13.26	-10.52	-8.12	-5.56	-2.59	0.00	2.69	4.76	5.00

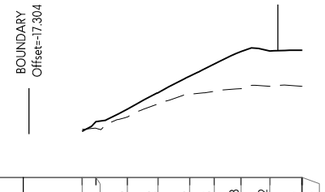
SECTIONS
LOTS 1 AND 4



DATUM R.L. 90.00

AS BUILT LEVELS	94.25	94.85	95.85	97.18	98.52	99.78	99.80	99.99
EXISTING LEVELS	94.29	94.56	94.70	94.82	95.11	95.51	95.75	96.06
CUT/FILL LEVEL	-0.05	0.28	1.14	2.37	3.41	4.27	4.05	3.94
OFFSETS	-12.57	-10.25	-8.21	-5.72	-3.08	0.00	2.51	5.00

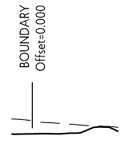
SECTIONS
LOT 7



DATUM R.L. 90.00

AS BUILT LEVELS	93.76	94.55	95.58	96.92	98.25	99.26	100.28	100.32	100.37	100.37
EXISTING LEVELS	93.93	94.01	94.95	96.01	96.80	97.04	97.24	97.44	97.45	97.45
CUT/FILL LEVEL	-0.17	0.54	0.63	0.91	1.45	2.22	3.04	2.88	2.92	2.93
OFFSETS	-12.96	-11.83	-9.28	-6.79	-4.20	-2.18	0.00	2.34	4.93	5.00

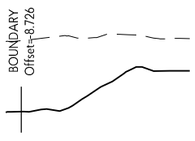
SECTIONS
LOT 9



DATUM R.L. 96.00

AS BUILT LEVELS	100.03	100.04	100.05	100.36	100.36	100.24
EXISTING LEVELS	101.27	101.10	100.91	100.73	100.60	100.57
CUT/FILL LEVEL	-1.24	-1.06	-0.86	-0.37	-0.24	-0.33
OFFSETS	-1.71	0.00	2.17	4.50	6.77	7.01

SECTIONS
LOT 3



DATUM R.L. 90.00

AS BUILT LEVELS	95.79	95.86	96.08	96.35	97.89	99.20	99.18	99.18
EXISTING LEVELS	101.58	101.64	101.88	101.95	102.01	102.13	101.85	101.82	101.82
CUT/FILL LEVEL	-5.78	-5.78	-5.81	-5.60	-4.12	-2.94	-2.68	-2.64	-2.64
OFFSETS	-10.00	-8.71	-6.65	-4.54	-2.21	0.00	2.07	4.68	5.00

SECTIONS
LOT 1



DATUM R.L. 90.00

AS BUILT LEVELS	93.28	93.54	94.65	96.08	97.27	98.64	99.63	99.51	99.73	99.74
EXISTING LEVELS	93.45	93.84	94.50	95.02	95.15	95.58	95.86	96.17	96.69	96.71
CUT/FILL LEVEL	-0.17	-0.30	0.15	1.06	2.12	3.06	3.76	3.34	3.04	3.02
OFFSETS	-13.13	-12.23	-10.03	-7.39	-5.18	-2.58	0.00	2.17	4.85	5.00

SECTIONS
LOT 6

DRAFT PLAN
ONLY

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REVISIONS:

REV	NOTES	BY	DATE
AB1	INITIAL ISSUE	AKH	01-12-2025
AB2	NDM TEST LOCATIONS ADDED	AKH	04-12-2025

PROJECT:

PUKERUA BAY LIMITED PARTNERSHIP
MURI ROAD, PUKERUA BAY
STAGE 1

TITLE:

STAGE 1 EARTHWORKS
AS BUILT PLANS
BATTER SECTIONS

ENVELOPE
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: ---
DRAWN: AKH
CHECKED: MA
PLOT DATE: 12-12-2025
SCALE A1: 1:250
SCALE A3: 1:500
STATUS: PRELIMINARY

PROJECT No: 1697-01-AB
DRAWING No: 2400
REVISION: AB2

APPENDIX B: NDM TEST RESULTS

Compaction Test Data

Job Number J514
Client Pukerua Holdings Limited
Location 34 Muri Road, Pukerua Bay - Stage 1
Contractor Bryce O'Sullivan Contracting Limited

*Note: select **X** a in Column A where you want to insert test*
*Note: select **X** a in Column A where you want to delete test*

Test #	Field Test Date	Individual Compaction (%)	Wet Density (kg/cu.m)	Dry Density (kg/cu.m)	Air voids (%)	Water Content (%)	Average Air voids (%)	Average Water Content (%)	Average Compaction (%)	Variation to OMC (%)	Northing	Easting	Level (m RL)	Maximum Dry Density (t/cu.m)	Optimum Moisture Content (%)	Notes
1a	10/04/2025	100.0	1734.5	1550		11.9		11.9	100.0	-2.1	829117.131	409682.288	94.986	1.55	14.0	Base + 0.5m - New proctor & retest required
1b	10/04/2025	100.0	1734.5	1550		11.9		11.9	100.0	-2.1	829117.131	409682.288	94.986	1.55	14.0	Base + 0.5m - New proctor & retest required
2a	10/04/2025	97.7	1703.3	1514		12.5		12.5	97.7	-1.5	829130.077	409700.483	93.914	1.55	14.0	Base + 0.5m - New proctor & retest required
2b	10/04/2025	97.7	1703.3	1514		12.5		12.5	97.7	-1.5	829130.077	409700.483	93.914	1.55	14.0	Base + 0.5m - New proctor & retest required
3a	10/04/2025	98.2	1730.5	1522		13.7		13.7	98.2	-0.3	829116.077	409690.166	95.007	1.55	14.0	Base + 0.5m - New proctor & retest required
3b	10/04/2025	98.2	1730.5	1522		13.7		13.7	98.2	-0.3	829116.077	409690.166	95.007	1.55	14.0	Base + 0.5m - New proctor & retest required
4a	10/04/2025	96.3	1700.9	1492		14		14.0	96.3	0.0	829106.108	409682.284	95.552	1.55	14.0	Base + 0.5m - New proctor & retest required
4b	10/04/2025	96.3	1700.9	1492		14		14.0	96.3	0.0	829106.108	409682.284	95.552	1.55	14.0	Base + 0.5m - New proctor & retest required
5a	10/04/2025	98.3	1802.0	1465		23		23.0	98.3	3.0	829106.027	409666.333	95.216	1.49	20.0	Base + 0.5m
5b	10/04/2025	98.3	1802.0	1465		23		23.0	98.3	3.0	829106.027	409666.333	95.216	1.49	20.0	Base + 0.5m
6a	11/04/2025 - AM	98.3	1863.2	1671		11.5		11.7	98.6	-1.3	829123.019	409688.656	94.441	1.70	13.0	Retest of test 2
6b	11/04/2025 - AM	98.8	1878.8	1679		11.9		11.7	98.6	-1.3	829123.019	409688.656	94.441	1.70	13.0	Retest of test 2
7a	11/04/2025 - AM	96.1	1864.9	1633		14.2		13.9	96.4	0.9	829111.539	409677.301	94.85	1.70	13.0	Retest of test 4
7b	11/04/2025 - AM	96.7	1865.9	1644		13.5		13.9	96.4	0.9	829111.539	409677.301	94.85	1.70	13.0	Retest of test 4
8a	11/04/2025 - AM	98.2	1883.8	1670		12.8		12.5	98.5	-0.5	829128.066	409696.16	94.679	1.70	13.0	Base + 1.0m - CS independent test too
8b	11/04/2025 - AM	98.8	1882.2	1679		12.1		12.5	98.5	-0.5	829128.066	409696.16	94.679	1.70	13.0	Base + 1.0m - CS independent test too
9a	11/04/2025 - AM	94.9	1779.1	1613		10.3		10.5	94.5	-2.5	829118.44	409685.677	95.295	1.70	13.0	Base + 1.0m - CS independent test too
9b	11/04/2025 - AM	94.0	1767.4	1598		10.6		10.5	94.5	-2.5	829118.44	409685.677	95.295	1.70	13.0	Base + 1.0m - CS independent test too
10a	11/04/2025 - AM	101.2	1953.3	1721		13.5		13.9	100.7	0.9	829108.661	409675.905	95.742	1.70	13.0	Base + 1.0m - CS independent test too
10b	11/04/2025 - AM	100.2	1947.7	1704		14.3		13.9	100.7	0.9	829108.661	409675.905	95.742	1.70	13.0	Base + 1.0m - CS independent test too
11a	11/04/2025 - AM	96.5	1834.6	1641		11.8		12.2	97.1	-0.8	829096.489	409665.048	95.949	1.70	13.0	Base + 1.0m - CS independent test too
11b	11/04/2025 - AM	97.6	1869.2	1660		12.6		12.2	97.1	-0.8	829096.489	409665.048	95.949	1.70	13.0	Base + 1.0m - CS independent test too
12a	11/04/2025 - PM	95.8	1792.4	1628		10.1		10.2	95.6	-2.8	829126.36	409690.565	95.416	1.70	13.0	Base + 1.5m
12b	11/04/2025 - PM	95.4	1788.0	1621		10.3		10.2	95.6	-2.8	829126.36	409690.565	95.416	1.70	13.0	Base + 1.5m
13a	11/04/2025 - PM	101.5	1762.9	1574		12		11.9	102.2	-2.1	829118.213	409680.267	95.792	1.55	14.0	Base + 1.5m
13b	11/04/2025 - PM	102.8	1779.4	1593		11.7		11.9	102.2	-2.1	829118.213	409680.267	95.792	1.55	14.0	Base + 1.5m
14a	11/04/2025 - PM	103.9	1751.2	1611		8.7		9.8	103.3	-4.2	829109.913	409674.092	96.089	1.55	14.0	Base + 1.5m
14b	11/04/2025 - PM	102.6	1764.4	1591		10.9		9.8	103.3	-4.2	829109.913	409674.092	96.089	1.55	14.0	Base + 1.5m
15a	11/04/2025 - PM	97.1	1834.3	1651		11.1		10.9	96.9	-2.1	829097.968	409663.856	96.23	1.70	13.0	Base + 1.5m
15b	11/04/2025 - PM	96.6	1816.1	1642		10.6		10.9	96.9	-2.1	829097.968	409663.856	96.23	1.70	13.0	Base + 1.5m
16a	11/04/2025 - PM	98.7	1877.2	1776		5.7		5.2	98.7	-3.8	829094.812	409678.155	96.897	1.80	9.0	Base + 1.5m
16b	11/04/2025 - PM	98.7	1859.5	1776		4.7		5.2	98.7	-3.8	829094.812	409678.155	96.897	1.80	9.0	Base + 1.5m
17a	11/04/2025 - PM	95.5	1846.2	1719		7.4		7.7	95.1	-1.3	829105.068	409687.243	96.38	1.80	9.0	Base + 1.5m
17b	11/04/2025 - PM	94.7	1841.4	1705		8		7.7	95.1	-1.3	829105.068	409687.243	96.38	1.80	9.0	Base + 1.5m
18a	11/04/2025 - PM	97.2	1866.2	1653		12.9		12.6	97.4	-0.4	829112.615	409693.364	95.858	1.70	13.0	Base + 1.5m
18b	11/04/2025 - PM	97.6	1862.5	1660		12.2		12.6	97.4	-0.4	829112.615	409693.364	95.858	1.70	13.0	Base + 1.5m
19a	14/04/2025	99.2	1945.6	1686		15.4		15.7	99.0	2.7	829092.898	409665.689	97.396	1.70	13.0	Base + 2.0m
19b	14/04/2025	98.8	1946.0	1679		15.9		15.7	99.0	2.7	829092.898	409665.689	97.396	1.70	13.0	Base + 2.0m
20a	14/04/2025	100.4	1895.4	1706		11.1		11.5	100.5	-1.5	829103.907	409676.13	96.883	1.70	13.0	Base + 2.0m
20b	14/04/2025	100.6	1914.6	1711		11.9		11.5	100.5	-1.5	829103.907	409676.13	96.883	1.70	13.0	Base + 2.0m
21a	14/04/2025	96.9	1930.3	1647		17.2		16.3	97.7	3.3	829108.59	409689.055	96.729	1.70	13.0	Base + 2.0m
21b	14/04/2025	98.4	1930.6	1673		15.4		16.3	97.7	3.3	829108.59	409689.055	96.729	1.70	13.0	Base + 2.0m
22a	14/04/2025	97.3	1870.7	1654		13.1		13.4	97.4	0.4	829114.585	409683.537	96.446	1.70	13.0	Base + 2.0m
22b	14/04/2025	97.4	1881.2	1656		13.6		13.4	97.4	0.4	829114.585	409683.537	96.446	1.70	13.0	Base + 2.0m
23a	14/04/2025	97.1	1853.0	1650		12.3		12.6	96.5	-0.4	829122.764	409693.036	95.904	1.70	13.0	Base + 2.0m
23b	14/04/2025	95.9	1838.6	1630		12.8		12.6	96.5	-0.4	829122.764	409693.036	95.904	1.70	13.0	Base + 2.0m
24a	14/04/2025	96.8	1817.2	1646		10.4		11.5	95.9	-1.5	829122.186	409699.75	95.823	1.70	13.0	Base + 2.0m
24b	14/04/2025	94.9	1815.8	1614		12.5		11.5	95.9	-1.5	829122.186	409699.75	95.823	1.70	13.0	Base + 2.0m
25a	15/04/2025	101.5	1972.8	1726	11.3	14.3	11.0	15.2	100.1	2.2	829101.7	409693.3	97.8	1.70	13.0	Base + 2.5m
25b	15/04/2025	98.6	1945.8	1676	10.7	16.1	11.0	15.2	100.1	2.2	829101.7	409693.3	97.8	1.70	13.0	Base + 2.5m
26a	15/04/2025	101.2	1974.0	1721	10.9	14.7	10.4	14.7	101.8	1.7	829100.3	409671.3	97.5	1.70	13.0	Base + 2.5m
26b	15/04/2025	102.3	1994.6	1739	9.9	14.7	10.4	14.7	101.8	1.7	829100.3	409671.3	97.5	1.70	13.0	Base + 2.5m
27a	15/04/2025	95.4	1862.5	1621	15.7	14.9	15.8	15.1	95.0	2.1	829085.7	409670.3	98.4	1.70	13.0	Base + 2.5m
27b	15/04/2025	94.6	1853.6	1609	15.8	15.2	15.8	15.1	95.0	2.1	829085.7	409670.3	98.4	1.70	13.0	Base + 2.5m
28a	15/04/2025	101.9	1988.3	1732	10.1	14.8	9.7	15.1	101.7	2.1	829114.3	409685.4	96.8	1.70	13.0	Base + 2.5m
28b	15/04/2025	101.5	1991.8	1726	9.3	15.4	9.7	15.1	101.7	2.1	829114.3	409685.4	96.8	1.70	13.0	Base + 2.5m
29a	16/04/2025	99.9	2102.3	1849	6.0	13.7	5.5	14.3	99.3	0.8	829092.4	409684.8	97.9	1.85	13.5	Base + 3.0m
29b	16/04/2025	98.7	2098.1	1826	4.9	14.9	5.5	14.3	99.3	0.8	829092.4	409684.8	97.9	1.85	13.5	Base + 3.0m
30a	16/04/2025	95.9	1986.1	1727	10.0	15	10.6	14.8	95.7	-0.2	829099.2	409680.0	97.9	1.80	15.0	Base + 3.0m
30b	16/04/2025	95.4	1968.8	1718	11.1	14.6	10.6	14.8	95.7	-0.2	829099.2	409680.0	97.9	1.80	15.0	Base + 3.0m
31a	16/04/2025	98.8	2047.6	1779	7.0	15.1	7.0	15.0	99.2	0.0	829109.7	409682.7	97.6	1.80	15.0	Base + 3.0m
31b	16/04/2025	99.6	2057.2	1792	6.9	14.8	7.0	15.0	99.2	0.0	829109.7	409682.7	97.6	1.80	15.0	Base + 3.0m
32a	16/04/2025	99.9	1955.5	1699	11.3	15.1	11.2	15.6	99.1	-1.4	829112.3	409693.1	97.5	1.70	17.0	Base + 3.0m
32b	16/04/2025	98.3	1940.0	1671	11.1	16.1	11.2	15.6	99.1	-1.4	829112.3	409693.1	97.5	1.70	17.0	Base + 3.0m
33a	16/04/2025	101.5	2007.9	1827	14.1	9.9	14.2	9.9	101.6	0.9	829121.0	409703.7	97.2	1.80	9.0	Base + 3.0m
33b	16/04/2025	101.6	2007.1	1828	14.2	9.8	14.2	9.9	101.6	0.9	829121.0	409703.7	97.2	1.80	9.0	Base + 3.0m
34a	16/04/2025	95.3	1859.1	1715	21.0	8.4	20.8	9.0	94.6	0.0	829112.4	409713.5	97.5	1.80	9.0	Base + 3.0m
34b	16/04/2025	93.8	1850.0	1688	20.6	9.6	20.8	9.0	94.6	0.0	829112.4	409713.5	97.5	1.80	9.0	Base + 3.0m
35a	17/04/2025	96.4	1904.5	1639	12.6	16.2	13.2	15.3	97.5	-1.7	829099.6	409699.1	98.2	1.70	17.0	Base + 3.5m
35b	17/04/2025	98.6	1917.3	1676	13.7	14.4	13.2	15.3	97.5	-1.7	829099.6	409699.1	98.2	1.70	17.0	Base + 3.5m
36a	17/04/2025	100.1	1935.3	1802	19.7	7.4	20.3	6.7	101.0	-2.3	829085.1	409686.2	98.5	1.80	9.0	Base + 3.5m
36b	17/04/2025	101.9	1944.0	1834	20.9	6.0	20.3	6.7	101.0	-2.3	829085.1	409686.2	98.5	1.80	9.0	Base + 3.5m
37a	17/04/2025	98.9	1978.7	1781	14.1	11.1	14.0	11.0	99.4	2.0	829081.5	409663.1	98.5	1.80	9.0	Base + 3.5m
37b	17/04/2025	99.8	1991.8	1796	13.8	10.9	14.0	11.0	99.4	2.0	829081.5	409663.1	98.5	1.80	9.0	Base + 3.5m
38a	23/04/2025	99.4	1982.2	1789	14.2	10.8	14.1	11.3	98.7	2.3	829108.192	409692.87	99.165	1.80	9.0	Base + 4.0m
38b	23/04/2025	97.9	1969.3	1763	14.0	11.7	14.1	11.3	98.7	2.3	829108.192	409692.87	99.165	1.80	9.0	Base + 4.0m
39a	23/04/2025	98.6	1922.4	1676	13.2	14.7	13.1	15.1	98.0	-1.9	829117.223	409693.71	99.265	1.70	17.0	Base + 4.0m
39b	23/04/2025	97.4	1911.5	1655	12.9	15.5	13.1	15.1	98.0	-1.9	829117.223	409693.71	99.265	1.70	17.0	Base + 4.0m
40a	23/04/2025	98.8	1927.0	1680	12.9	14.7	12.6	15.1	98.5	-1.9	829108.174	409680.757	99.391	1.70	17.0	Base + 4.0m
40b	23/04/2025	98.2	1927.2	1670	12.3	15.4	12.6	15.1	98.5	-1.9	829108.174	409680.757	99.391	1.70	17.0	Base + 4.0m

Compaction Test Data

Job Number J514
Client Pukerua Holdings Limited
Location 34 Muri Road, Pukerua Bay - Stage 1
Contractor Bryce O'Sullivan Contracting Limited

*Note: select **X** a in Column A where you want to insert test*
*Note: select **X** a in Column A where you want to delete test*

Test #	Field Test Date	Individual Compaction (%)	Wet Density (kg/cu.m)	Dry Density (kg/cu.m)	Air voids (%)	Water Content (%)	Average Air voids (%)	Average Water Content (%)	Average Compaction (%)	Variation to OMC (%)	Northing	Easting	Level (m RL)	Maximum Dry Density (t/cu.m)	Optimum Moisture Content (%)	Notes
41a	23/04/2025	99.9	1946.5	1799	18.5	8.2	18.5	7.9	100.6	-1.1	829093.108	409669.452	99.502	1.80	9.0	Base + 4.0m
41b	23/04/2025	101.2	1960.5	1822	18.5	7.6	18.5	7.9	100.6	-1.1	829093.108	409669.452	99.502	1.80	9.0	Base + 4.0m
42a	23/04/2025	101.1	2036.6	1820	10.7	11.9	11.5	11.2	101.8	2.2	829095.998	409681.054	99.289	1.80	9.0	Base + 4.0m
42b	23/04/2025	102.4	2036.5	1843	12.3	10.5	11.5	11.2	101.8	2.2	829095.998	409681.054	99.289	1.80	9.0	Base + 4.0m
43a	24/04/2025	98.5	2035.4	1773	8.0	14.8	8.2	14.8	98.3	-0.2	829097.406	409681.981	99.763	1.80	15.0	Base + 4.5m
43b	24/04/2025	98.1	2027.4	1766	8.4	14.8	8.2	14.8	98.3	-0.2	829097.406	409681.981	99.763	1.80	15.0	Base + 4.5m
44a	24/04/2025	90.6	1975.1	1631	5.1	21.1	5.1	20.4	91.8	5.4	829094.402	409696.683	99.155	1.80	15.0	Base + 4.5m
44b	24/04/2025	93.0	2002.1	1674	5.0	19.6	5.1	20.4	91.8	5.4	829094.402	409696.683	99.155	1.80	15.0	Base + 4.5m
45a	24/04/2025	101.2	2025.0	1821	12.0	11.2	11.3	11.6	101.3	2.6	829107.372	409696.193	99.039	1.80	9.0	Base + 4.5m
45b	24/04/2025	101.4	2043.3	1826	10.5	11.9	11.3	11.6	101.3	2.6	829107.372	409696.193	99.039	1.80	9.0	Base + 4.5m
46a	29/04/2025	92.1	1774.1	1658	26.8	7	27.0	6.9	92.2	-2.1	829093.0	409707.5	99.4	1.80	9.0	base + 4.5m retest
46b	29/04/2025	92.2	1771.8	1659	27.2	6.8	27.0	6.9	92.2	-2.1	829093.0	409707.5	99.4	1.80	9.0	base + 4.5m retest
47a	29/04/2025	94.0	1807.1	1692	25.7	6.8	25.7	6.8	94.0	-2.2	829107.6	409694.3	99.8	1.80	9.0	base + 5.0m
47b	29/04/2025	93.9	1806.0	1691	25.7	6.8	25.7	6.8	94.0	-2.2	829107.6	409694.3	99.8	1.80	9.0	base + 5.0m
48a	29/04/2025	103.8	1989.4	1868	18.5	6.5	18.7	6.7	103.1	-2.3	829100.1	409679.9	99.8	1.80	9.0	base + 5.0m
48b	29/04/2025	102.4	1970.2	1843	18.9	6.9	18.7	6.7	103.1	-2.3	829100.1	409679.9	99.8	1.80	9.0	base + 5.0m
49a	29/04/2025	102.7	2091.9	1848	7.0	13.2	7.0	13.8	101.6	-1.2	829085.6	409669.3	99.5	1.80	15.0	base + 5.0m
49b	29/04/2025	100.5	2067.7	1809	7.0	14.3	7.0	13.8	101.6	-1.2	829085.6	409669.3	99.5	1.80	15.0	base + 5.0m
50a	29/04/2025	90.7	1782.1	1632	24.3	9.2	25.1	8.5	91.2	-0.5	829087.7	409685.8	100.0	1.80	9.0	base + 5.0m
50b	29/04/2025	91.7	1779.8	1651	25.8	7.8	25.1	8.5	91.2	-0.5	829087.7	409685.8	100.0	1.80	9.0	base + 5.0m
51a	3/06/2025	101.6	1891.0	1514	6.1	24.9	6.0	24.1	103.2	4.1	829103.3	409706.6	99.9	1.49	20.0	base + 5.0m retest
51b	3/06/2025	104.8	1923.2	1561	5.8	23.2	6.0	24.1	103.2	4.1	829103.3	409706.6	99.9	1.49	20.0	base + 5.0m retest
52a	3/06/2025	97.9	1913.5	1762	19.4	8.6	19.7	8.2	98.5	-0.8	829111.2	409695.4	99.8	1.80	9.0	base + 5.0m retest
52b	3/06/2025	99.1	1920.3	1783	20.0	7.7	19.7	8.2	98.5	-0.8	829111.2	409695.4	99.8	1.80	9.0	base + 5.0m retest
53a	3/06/2025	96.3	1973.3	1734	11.7	13.8	11.7	13.6	96.8	-1.4	829093.9	409697.3	99.7	1.80	15.0	base + 5.0m retest
53b	3/06/2025	97.2	1983.4	1749	11.6	13.4	11.7	13.6	96.8	-1.4	829093.9	409697.3	99.7	1.80	15.0	base + 5.0m retest
54a	3/06/2025	95.2	2022.5	1714	5.4	18	6.4	17.4	95.4	2.4	829081.0	409680.9	99.6	1.80	15.0	base + 5.0m retest
54b	3/06/2025	95.6	2009.0	1720	7.3	16.8	6.4	17.4	95.4	2.4	829081.0	409680.9	99.6	1.80	15.0	base + 5.0m retest
55a	3/06/2025	101.6	2147.7	1879	3.4	14.3	3.3	14.3	101.6	0.8	829071.3	409669.4	99.2	1.85	13.5	base + 5.0m retest
55b	3/06/2025	101.6	2148.8	1880	3.2	14.3	3.3	14.3	101.6	0.8	829071.3	409669.4	99.2	1.85	13.5	base + 5.0m retest
56a	9/07/2025	93.2	2188.4	2004	7.2	9.2	7.0	9.1	93.7	3.1	829020.6	409662.3	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
56b	9/07/2025	94.2	2206.3	2026	6.8	8.9	7.0	9.1	93.7	3.1	829020.6	409662.3	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
57a	9/07/2025	88.1	2067.4	1895	12.5	9.1	12.5	9.2	88.1	3.2	829024.2	409666.1	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
57b	9/07/2025	88.0	2066.1	1892	12.5	9.2	12.5	9.2	88.1	3.2	829024.2	409666.1	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
58a	9/07/2025	90.6	2111.6	1948	11.2	8.4	11.0	8.3	91.0	2.3	829020.9	409665.4	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
58b	9/07/2025	91.4	2127.2	1966	10.8	8.2	11.0	8.3	91.0	2.3	829020.9	409665.4	92.6	2.15	6.0	MSE Wall undercut bridging layer - AP65 only
59a	9/07/2025-A	96.6	2241.1	2077	6.5	7.9	7.2	7.7	96.5	1.7	829021.9	409663.4	92.7	2.15	6.0	MSE Wall undercut bridging layer - Facemetal & AP65
59b	9/07/2025-A	96.3	2224.3	2071	7.9	7.4	7.2	7.7	96.5	1.7	829021.9	409663.4	92.7	2.15	6.0	MSE Wall undercut bridging layer - Facemetal & AP65
60a	9/07/2025-A	99.1	2285.5	2130	5.3	7.3	5.5	7.7	98.1	1.7	829019.7	409665.0	92.7	2.15	6.0	MSE Wall undercut bridging layer - Facemetal & AP65
60b	9/07/2025-A	97.0	2255.0	2086	5.6	8.1	5.5	7.7	98.1	1.7	829019.7	409665.0	92.7	2.15	6.0	MSE Wall undercut bridging layer - Facemetal & AP65
61a	9/07/2025-B	96.2	2231.4	2068	6.9	7.9	6.7	7.9	96.5	1.9	829020.9	409661.7	93.3	2.15	6.0	MSE wall - Geogrid layer 1
61b	9/07/2025-B	96.7	2242.2	2078	6.4	7.9	6.7	7.9	96.5	1.9	829020.9	409661.7	93.3	2.15	6.0	MSE wall - Geogrid layer 1
62a	9/07/2025-B	95.0	2198.3	2043	8.6	7.6	8.4	8.1	94.4	2.1	829018.9	409665.0	93.3	2.15	6.0	MSE wall - Geogrid layer 1
62b	9/07/2025-B	93.8	2188.4	2017	8.1	8.5	8.4	8.1	94.4	2.1	829018.9	409665.0	93.3	2.15	6.0	MSE wall - Geogrid layer 1
63a	9/07/2025-C	94.8	2209.2	2038	7.3	8.4	7.4	8.0	95.7	2.0	829018.2	409666.6	93.9	2.15	6.0	MSE wall - Geogrid layer 2
63b	9/07/2025-C	96.6	2232.8	2077	7.4	7.5	7.4	8.0	95.7	2.0	829018.2	409666.6	93.9	2.15	6.0	MSE wall - Geogrid layer 2
64a	9/07/2025-C	95.1	2210.6	2045	7.5	8.1	7.2	8.0	95.8	2.0	829021.6	409662.1	93.9	2.15	6.0	MSE wall - Geogrid layer 2
64b	9/07/2025-C	96.5	2236.9	2075	6.9	7.8	7.2	8.0	95.8	2.0	829021.6	409662.1	93.9	2.15	6.0	MSE wall - Geogrid layer 2
65a	10/07/2025-A	98.6	2269.4	2119	6.2	7.1	6.5	6.6	99.5	0.6	829022.8	409665.3	94.4	2.15	6.0	MSE wall - Geogrid layer 3
65b	10/07/2025-A	100.4	2289.6	2158	6.7	6.1	6.5	6.6	99.5	0.6	829022.8	409665.3	94.4	2.15	6.0	MSE wall - Geogrid layer 3
66a	10/07/2025-A	102.0	2320.2	2193	3.7	5.8	3.4	6.3	102.6	0.3	829018.6	409667.3	94.4	2.15	6.0	MSE wall - Geogrid layer 3
66b	10/07/2025-A	103.1	2365.5	2217	3.0	6.7	3.4	6.3	102.6	0.3	829018.6	409667.3	94.4	2.15	6.0	MSE wall - Geogrid layer 3
67a	10/07/2025-B	95.3	2189.3	2048	9.8	6.9	10.4	6.6	95.6	0.6	829019.0	409668.4	95.0	2.15	6.0	MSE wall - Geogrid layer 4
67b	10/07/2025-B	95.8	2186.7	2059	10.9	6.2	10.4	6.6	95.6	0.6	829019.0	409668.4	95.0	2.15	6.0	MSE wall - Geogrid layer 4
68a	10/07/2025-B	96.4	2208.8	2072	9.4	6.6	9.1	6.9	96.2	0.9	829022.1	409663.4	95.0	2.15	6.0	MSE wall - Geogrid layer 4
68b	10/07/2025-B	95.9	2208.4	2062	8.8	7.1	9.1	6.9	96.2	0.9	829022.1	409663.4	95.0	2.15	6.0	MSE wall - Geogrid layer 4
69a	15/07/2025	100.6	2328.5	2162	3.0	7.7	2.9	7.6	101.0	1.6	829023.2	409662.3	95.6	2.15	6.0	MSE wall - Geogrid layer 5
69b	15/07/2025	101.4	2342.4	2181	2.8	7.4	2.9	7.6	101.0	1.6	829023.2	409662.3	95.6	2.15	6.0	MSE wall - Geogrid layer 5
70a	15/07/2025	97.7	2289.0	2100	3.2	9	3.7	8.9	97.5	2.9	829020.7	409666.7	95.6	2.15	6.0	MSE wall - Geogrid layer 5
70b	15/07/2025	97.3	2272.9	2091	4.1	8.7	3.7	8.9	97.5	2.9	829020.7	409666.7	95.6	2.15	6.0	MSE wall - Geogrid layer 5
71a	15/07/2025	98.7	2286.4	2121	4.8	7.8	4.9	8.0	98.3	2.0	829017.6	409670.2	95.6	2.15	6.0	MSE wall - Geogrid layer 5
71b	15/07/2025	97.8	2272.3	2102	4.9	8.1	4.9	8.0	98.3	2.0	829017.6	409670.2	95.6	2.15	6.0	MSE wall - Geogrid layer 5
72a	17/07/2025-A	97.8	1969.0	1663	7.7	18.4	7.8	17.9	98.6	0.9	829027.3	409672.8	94.9	1.70	17.0	MSE gully - Undercut lift 1
72b	17/07/2025-A	99.4	1984.1	1690	7.9	17.4	7.8	17.9	98.6	0.9	829027.3	409672.8	94.9	1.70	17.0	MSE gully - Undercut lift 1
73a	17/07/2025-A	100.5	2090.6	1860	7.9	12.4	8.0	13.0	99.4	-0.5	829029.5	409681.3	95.6	1.85	13.5	MSE gully - Undercut lift 1
73b	17/07/2025-A	98.2	2061.2	1816	8.0	13.5	8.0	13.0	99.4	-0.5	829029.5	409681.3	95.6	1.85	13.5	MSE gully - Undercut lift 1
74a	17/07/2025-A	97.7	2044.8	1808	9.2	13.1	9.3	13.2	97.5	-0.3	829030.2	409688.7	96.8	1.85	13.5	MSE gully - Undercut lift 1
74b	17/07/2025-A	97.3	2039.4	1800	9.3	13.3	9.3	13.2	97.5	-0.3	829030.2	409688.7	96.8	1.85	13.5	MSE gully - Undercut lift 1
75a	17/07/2025-B	96.5	2006.3	1785	11.7	12.4	11.7	12.5	96.3	-1.0	829027.5	409673.0	95.3	1.85	13.5	MSE gully - Undercut lift 2
75b	17/07/2025-B	96.1	2000.3	1778	11.7	12.5	11.7	12.5	96.3	-1.0	829027.5	409673.0	95.3	1.85	13.5	MSE gully - Undercut lift 2
76a	17/07/2025-B	97.9	2078.4	1812	6.1	14.7	6.7	14.2	98.3	0.7	829030.6	409681.7	95.9	1.85	13.5	MSE gully - Undercut lift 2
76b	17/07/2025-B	98.7	2074.3	1826	7.3	13.6	6.7	14.2	98.3	0.7	829030.6	409681.7	95.9	1.85	13.5	MSE gully - Undercut lift 2
77a	18/07/2025-A	98.7	2288.6	2123	4.7	7.8	4.7	8.0	98.6	2.0	829021.6	409671.0	96.2	2.15	6.0	MSE wall - Geogrid layer 6
77b	18/07/2025-A	98.5	2288.5	2117	4.7	8.1	4.7	8.0	98.6	2.0	829021.6	409671.0	96.2	2.15	6.0	MSE wall - Geogrid layer 6
78a	18/07/2025-A	99.2	2296.2	2132	4.5	7.7	4.5	8.0	98.7	2.0	829016.4	409673.2	96.2	2.15	6.0	MSE wall - Geogrid layer 6
78b	18/07/2025-A	98.1	2281.9	2109	4.4	8.2	4.5	8.0	98.7	2.0	829016.4	409673.2	96.2	2.15	6.0	MSE wall - Geogrid layer 6
79a	18/07/2025-B	93.9	1962.8	1737	12.9	13	14.3	12.6	93.3	-0.9	829023.9	409673.3	96.0	1.85	13.5	MSE gully - Undercut lift 3
79b	18/07/2025-B	92.6	1922.0	1713	15.6	12.2	14.3	12.6	93.3	-0.9	829023.9	409673.3	96.0	1.85	13.5	MSE gully - Undercut lift 3
80a	18/07/2025-B	97.6	2019.8	1805	11.4	11.9	13.2	11.5	96.6	-2.0	829027.2	409682.2	96.9	1.85	13.5	MSE gully - Undercut lift 3
80b	18/07/2025-B	95.6	1963.6	1769	14.9	11	13.2	11.5	96.6	-2.0	829027.2	409682.2	96.9	1.85	13.5	MSE gully - Undercut lift 3

Compaction Test Data

Job Number J514
Client Pukerua Holdings Limited
Location 34 Muri Road, Pukerua Bay - Stage 1
Contractor Bryce O'Sullivan Contracting Limited

*Note: select **X** a in Column A where you want to insert test*

*Note: select **X** a in Column A where you want to delete test*

Test #	Field Test Date	*Individual Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Variation to OMC (%)*	*Northing*	*Easting*	*Level (m RL)*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*	*Notes*
81a	21/07/2025-A	101.5	2356.6	2182	1.5	8	3.0	6.9	102.7	0.9	829019.290	409672.980	97.620	2.15	6.0	MSE wall - Finished Subgrade Level
81b	21/07/2025-A	103.9	2360.3	2233	4.4	5.7	3.0	6.9	102.7	0.9	829019.290	409672.980	97.620	2.15	6.0	MSE wall - Finished Subgrade Level
82a	21/07/2025-A	101.7	2309.5	2187	6.6	5.6	5.7	5.5	103.2	-0.5	829023.800	409664.720	96.510	2.15	6.0	MSE wall - Finished Subgrade Level
82b	21/07/2025-A	104.7	2369.3	2250	4.7	5.3	5.7	5.5	103.2	-0.5	829023.800	409664.720	96.510	2.15	6.0	MSE wall - Finished Subgrade Level
83a	21/07/2025-B	97.9	2001.2	1811	13.8	10.5	13.5	10.7	97.8	-2.8	829024.020	409678.260	97.690	1.85	13.5	MSE gully - Undercut lift 4
83b	21/07/2025-B	97.7	2005.1	1808	13.1	10.9	13.5	10.7	97.8	-2.8	829024.020	409678.260	97.690	1.85	13.5	MSE gully - Undercut lift 4
84a	21/07/2025-B	96.3	2026.1	1782	9.4	13.7	9.3	14.2	95.5	0.7	829028.970	409670.790	96.860	1.85	13.5	MSE gully - Undercut lift 4
84b	21/07/2025-B	94.6	2008.4	1751	9.2	14.7	9.3	14.2	95.5	0.7	829028.970	409670.790	96.860	1.85	13.5	MSE gully - Undercut lift 4

Construction Sciences
a kiwa company

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MOISTURE DENSITY RELATIONSHIP REPORT

Client:	Bryce O'Sullivan Contracting Limited	Report Number:	1232/R/25-212-1
Client Address:	94 Eskdale Road, Papakowhai, Porirua	Project Number:	1232/P/105
Project:	BOSCO - General Projects	Lot Number:	
Location:	Greater Wellington	Internal Test Request:	1232/T/25-110
Supplied To:	Bryce O'Sullivan Contracting Limited	Client Reference/s:	34 Muri Rd MDD
Area Description:		Report Date / Page:	16/04/2025 Page 1 of 1

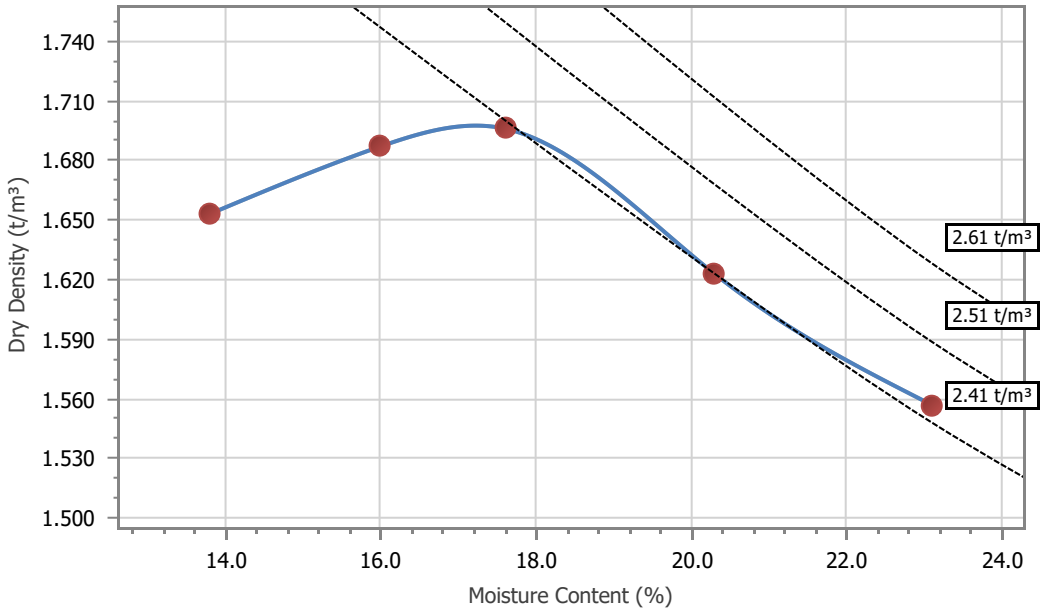
Test Procedures	NZS4402.4.1.1, NZS4402.2.1, NZS4402.1.6	Location	
Sample Number	1232/S/25-756		
Sampling Method	NZS4407.2 Cl2.4.6		
Date Sampled	14/04/2025		
Sampled By	Benjamin Gunn	Prep Material > 53mm (%)	-
Date Tested	14/04/2025	Compactive Effort	Standard
Material Source	Insitu	Fraction Tested (mm)	< 19.0mm
Material Type	Insitu	Percent Oversize (%)	0.0
Liquid Limit Method	n/a	Total Curing Time (hrs)	n/a
Material Description	ClayeySAND		

Moisture / Density Relationship Data

Moisture Content (%)	Dry Density (t/m³)
13.8	1.653
16.0	1.687
17.6	1.696
20.3	1.623
23.1	1.557

MOISTURE DENSITY RELATIONSHIP PLOT

(Zero Air Void Line Density Values Assumed)



Maximum Dry Density (t/m³):	1.70	Optimum Moisture Content (%):	17.0

Remarks

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Accreditation Number: 1232

Approved Signatory: Karl Rutherford
Form ID: W4Rep Rev 3

Geocivil Laboratory
Northland - Wellington - Christchurch - Otago
P: 09 438 4417
E: info@geocivil.co.nz

DETERMINATION OF DRY DENSITY/ WATER CONTENT RELATIONSHIP

NEW ZEALAND STANDARD COMPACTION

NZS 4402:1986 Test 4.1.1

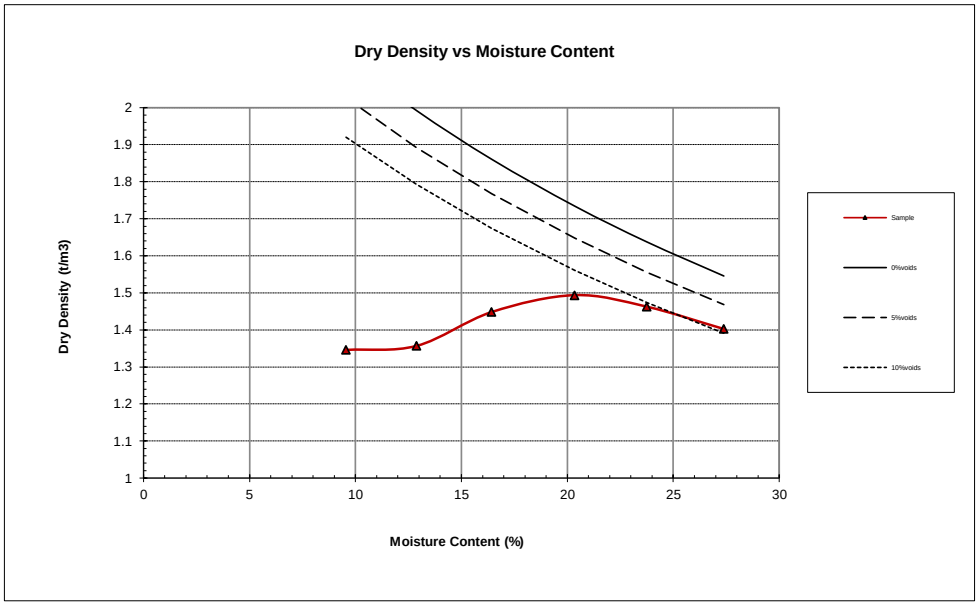
Lab Job No:	8408-032	**Sample No.:**	**WLG8408-032-S001**
Client:	Tetra Tech Coffey	**Tested By:**	B.H
Project:	Muri Road, Pukerua Bay	**Date:**	3/09/2024
Location:	Muri Road, Pukerua Bay	**Checked By:**	M.M
		Date:	20/09/2024
Date Received:	2/09/2024	**Page:**	2 of 8
Report No:	WLG8408-032-R001		
REF:	-		

Sample Description: Silty SAND, rootlets, dark brown, moist

Compaction used: New Zealand Standard Compaction Test performed on:
Fraction Passing 19mm test sieve

History: Tested as received

% Retained on 19mm / 37.5mm sieve: 0



Test Results			
Water Content (%)	**Dry Density (t/m^3)**	**Shear Vane (kPa)**	
		Peak	**Residual**
9.6	1.346	UTP	-
12.9	1.357	148	21
16.4	1.448	192	-
20.3	1.494	192	-
23.8	1.463	82	27
27.4	1.403	27	8

Solid Density (t/m^3) =	**2.68**	**Assumed**
Optimum Water Content (%) =	**20**	
Max Dry Density (t/m^3) =	**1.49**	
Natural Water Content (%) =	**20**	

Construction Sciences
a kiwa company

Construction Sciences NZ Limited
ABN: 093 485 645

Address:
Unit 3, 9 Mohuia Crescent Elsdon
Porirua NZ 5022

Laboratory: Wellington Laboratory
Phone: 64 27 364 3488
Fax:
Email: wellington@constructionsciences.net

RELATIVE COMPACTION REPORT

Client:	Bryce O'Sullivan Contracting Limited	Report Number:	1232/R/25-205-1
Client Address:	94 Eskdale Road, Papakowhai, Porirua	Project Number:	1232/P/105
Project:	Material Testing - BOSCO	Lot Number:	
Location:	Greater Wellington	Internal Test Request:	1232/T/25-107
Component:	Fill	Client Reference/s:	34 Muri Road
Area Description:		Report Date / Page:	14/04/2025 Page 1 of 3

Test Procedures:	NZS4407.4.2, NZS4402.2.1

Sample Number	1232/S/25-732	1232/S/25-733	1232/S/25-734	1232/S/25-735
ID / Client ID	-	-	-	-
Lot Number	-	-	-	-
Date Tested	11/04/2025	11/04/2025	11/04/2025	11/04/2025
Material Source	Insitu	Insitu	Insitu	Insitu
Material Type	Insitu	Insitu	Insitu	Insitu
Sampling Method				
Depths: Test / Nom / Actual (mm)	300 / - / -	300 / - / -	300 / - / -	300 / - / -
Easting m	409676.212	409688.077	409695.179	409686.336
Northing m	829112.427	829124.343	829128.502	829119.158
Elevation[RL] m	95.157	94.429	94.712	95.260
Layer				
Compactive Effort	-	-	-	-
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Oversize Wet (%)	0	0	0	0
Oversize Dry (%)	0	0	0	0
Field Moisture Content (%)	11.9	13.2	12.9	10.9
Optimum Moisture Content (%)	20.0	20.0	20.0	20.0
Moisture Ratio Required (%)	-	-	-	-
Moisture Ratio (%)	59.5	66.0	64.5	54.5
Field Dry Density (t/m³)	1.66	1.63	1.67	1.64
Maximum Dry Density (t/m³)	1.49	1.49	1.49	1.49
Adjusted MDD (t/m³)	1.49	1.49	1.49	1.49
Relative Compaction Req. (%)	-	-	-	-
Relative Compaction (%)	**111**	**109**	**112**	**110**
Adjusted Relative Comp (%)	**111**	**109**	**112**	**110**

(Moisture Ratio / Adjusted MDD / Adjusted Relative Compaction not covered by endorsement)

Remarks

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

ACCREDITED IANZ TESTING LABORATORY

Accreditation Number: 1232



Approved Signatory: Karl Rutherford
Form ID: W27NZMRSumRep Rev 1

Construction Sciences
a kiwa company

Construction Sciences NZ Limited
ABN: 093 485 645

Address:
Unit 3, 9 Mohuia Crescent Elsdon
Porirua NZ 5022

Laboratory: **Wellington Laboratory**
Phone: 64 27 364 3488
Fax:
Email: wellington@constructionsciences.net

RELATIVE COMPACTION REPORT

Client:	Bryce O'Sullivan Contracting Limited	Report Number:	1232/R/25-205-1
Client Address:	94 Eskdale Road, Papakowhai, Porirua	Project Number:	1232/P/105
Project:	Material Testing - BOSCO	Lot Number:	
Location:	Greater Wellington	Internal Test Request:	1232/T/25-107
Component:	Fill	Client Reference/s:	34 Muri Road
Area Description:		Report Date / Page:	14/04/2025 Page 2 of 3

Test Procedures:	NZS4407.4.2, NZS4402.2.1

Sample Number		1232/S/25-736	1232/S/25-737		
ID / Client ID		-	-		
Lot Number		-	-		
Date Tested		11/04/2025	11/04/2025		
Material Source		Insitu	Insitu		
Material Type		Insitu	Insitu		
Sampling Method					
Depths: Test / Nom / Actual (mm)		300 / - / -	300 / - / -		
Easting	m	409674.977	409665.461		
Northing	m	829109.869	829097181		
Elevation[RL]	m	95.734	95.905		
Layer					
Compactive Effort		-	-		
Test Fraction (mm)		< 19.0 mm	< 19.0 mm		
Oversize Wet (%)		0	0		
Oversize Dry (%)		0	0		
Field Moisture Content (%)		13.3	12.0		
Optimum Moisture Content (%)		20.0	20.0		
Moisture Ratio Required (%)		-	-		
Moisture Ratio (%)		66.5	60.0		
Field Dry Density (t/m³)		1.71	1.68		
Maximum Dry Density (t/m³)		1.49	1.49		
Adjusted MDD (t/m³)		1.49	1.49		
Relative Compaction Req. (%)		-	-		
Relative Compaction (%)		**115**	**112**		
Adjusted Relative Comp (%)		**115**	**112**		

(Moisture Ratio / Adjusted MDD / Adjusted Relative Compaction not covered by endorsement)

Remarks

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

ACCREDITED IANZ TESTING LABORATORY

Accreditation Number: 1232



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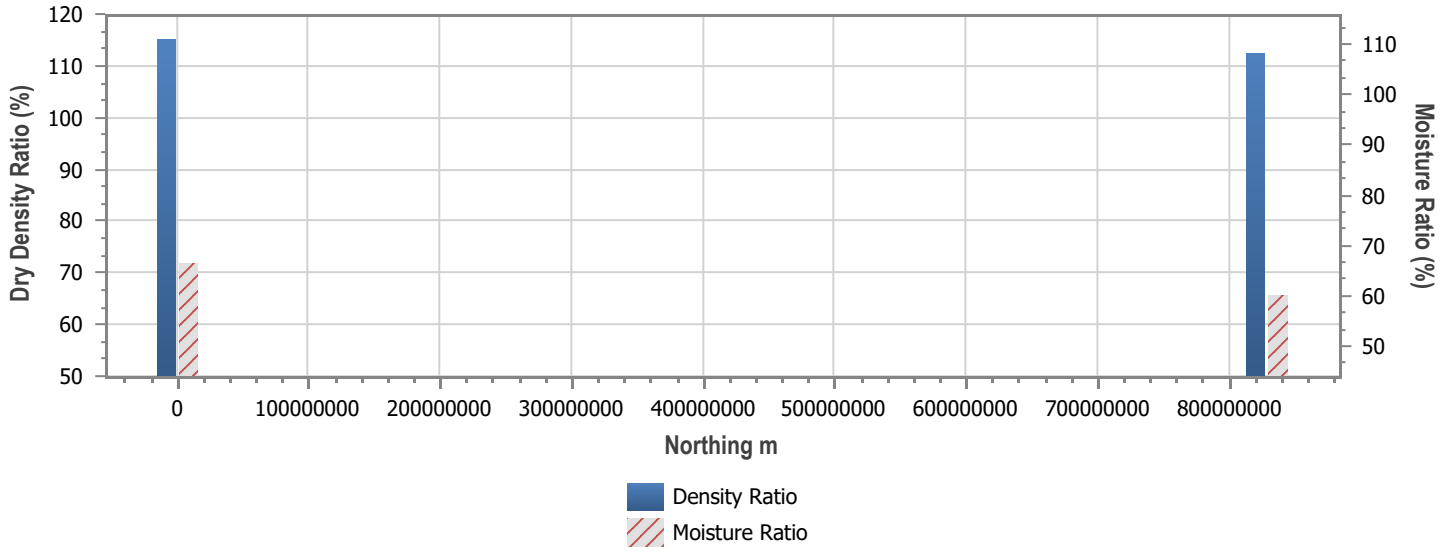
Laboratory: Wellington Laboratory
Phone: 64 27 364 3488
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Email: wellington@constructionsciences.net

RELATIVE COMPACTION REPORT

Client:	Bryce O'Sullivan Contracting Limited	Report Number:	1232/R/25-205-1
Client Address:	94 Eskdale Road, Papakowhai, Porirua	Project Number:	1232/P/105
Project:	Material Testing - BOSCO	Lot Number:	
Location:	Greater Wellington	Internal Test Request:	1232/T/25-107
Component:	Fill	Client Reference/s:	34 Muri Road
Area Description:		Report Date / Page:	14/04/2025 Page 3 of 3

Test Procedures:	NZS4407.4.2, NZS4402.2.1
Statistical Analysis Test Method:	Lot Average (Lot average calculations are not covered by endorsement)

LOT TEST RESULT SUMMARY



Tests in Lot = 6	Lot Minimum	Lot Maximum	Lot Mean	Standard Deviation
Moisture Ratio (%)	54.5	67	62	4.67
Dry Density Ratio (%)	109	115	112.0	2.08

Lot Number: -

Degree of Compaction (Min) 109

Degree of Compaction (Mean 112

Remarks

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Accreditation Number: 1232

Approved Signatory: Karl Rutherford

Form ID: W27NZMRSumRep Rev 1

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**10/04/2025**
Report Date	**15/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Fill base + 0.5m Report revision 2 - With coordinates and RL

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.55 t/m^3	1.70 t/m^3	1.80 t/m^3	t/m^3		t/m^3
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
1a	**100.0**	1734	1550	0.0	11.9		**11.9**	**100.0**	**-2.1%**	829117.1	409682.3	95.0	*1.55*	*14.0*
1b	**100.0**	1734	1550	0.0	11.9		**11.9**	**100.0**	**-2.1%**	829117.1	409682.3	95.0	*1.55*	*14.0*
2a	**97.7**	1703	1514	0.0	12.5		**12.5**	**97.7**	**-1.5%**	829130.1	409700.5	93.9	*1.55*	*14.0*
2b	**97.7**	1703	1514	0.0	12.5		**12.5**	**97.7**	**-1.5%**	829130.1	409700.5	93.9	*1.55*	*14.0*
3a	**98.2**	1731	1522	0.0	13.7		**13.7**	**98.2**	**-0.3%**	829116.1	409690.2	95.0	*1.55*	*14.0*
3b	**98.2**	1731	1522	0.0	13.7		**13.7**	**98.2**	**-0.3%**	829116.1	409690.2	95.0	*1.55*	*14.0*
4a	**96.3**	1701	1492	0.0	14.0		**14.0**	**96.3**	**0%**	829106.1	409682.3	95.6	*1.55*	*14.0*
4b	**96.3**	1701	1492	0.0	14.0		**14.0**	**96.3**	**0%**	829106.1	409682.3	95.6	*1.55*	*14.0*
5a	**98.3**	1802	1465	0.0	23.0		**23.0**	**98.3**	**3%**	829106.0	409666.3	95.2	*1.49*	*20.0*
5b	**98.3**	1802	1465	0.0	23.0		**23.0**	**98.3**	**3%**	829106.0	409666.3	95.2	*1.49*	*20.0*
Min	**Min 90%**					**96.3**								
AV.	**Min 95%**					**98.1**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**11/04/2025 - AM**
Report Date	**15/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 6-7: Fill base + 0.5m retest **[Construction Sciences independent test sample 1232/S/25-732 to 733 respectively]** Test 8-11: Fill base + 1.0m **[Construction Sciences independent test sample 1232/S/25-734 to 737 respectively]** Report revision 2 - With Construction Science's NDM references & Bosco's surveyed coordinates and RL.

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.55 t/m³	1.70 t/m³	1.80 t/m³	t/m³		t/m³
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
6a	**98.3**	1863	1671	0.0	11.5		**11.7**	**98.6**	**-1.3%**	829123.0	409688.7	94.4	*1.70*	*13.0*
6b	**98.8**	1879	1679	0.0	11.9		**11.7**	**98.6**	**-1.3%**	829123.0	409688.7	94.4	*1.70*	*13.0*
7a	**96.1**	1865	1633	0.0	14.2		**13.9**	**96.4**	**0.9%**	829111.5	409677.3	94.9	*1.70*	*13.0*
7b	**96.7**	1866	1644	0.0	13.5		**13.9**	**96.4**	**0.9%**	829111.5	409677.3	94.9	*1.70*	*13.0*
8a	**98.2**	1884	1670	0.0	12.8		**12.5**	**98.5**	**-0.5%**	829128.1	409696.2	94.7	*1.70*	*13.0*
8b	**98.8**	1882	1679	0.0	12.1		**12.5**	**98.5**	**-0.5%**	829128.1	409696.2	94.7	*1.70*	*13.0*
9a	**94.9**	1779	1613	0.0	10.3		**10.5**	**94.5**	**-2.5%**	829118.4	409685.7	95.3	*1.70*	*13.0*
9b	**94.0**	1767	1598	0.0	10.6		**10.5**	**94.5**	**-2.5%**	829118.4	409685.7	95.3	*1.70*	*13.0*
10a	**101.2**	1953	1721	0.0	13.5		**13.9**	**100.7**	**0.9%**	829108.7	409675.9	95.7	*1.70*	*13.0*
10b	**100.2**	1948	1704	0.0	14.3		**13.9**	**100.7**	**0.9%**	829108.7	409675.9	95.7	*1.70*	*13.0*
11a	**96.5**	1835	1641	0.0	11.8		**12.2**	**97.1**	**-0.8%**	829096.5	409665.0	95.9	*1.70*	*13.0*
11b	**97.6**	1869	1660	0.0	12.6		**12.2**	**97.1**	**-0.8%**	829096.5	409665.0	95.9	*1.70*	*13.0*
Min	**Min 90%**					**94.5**								
AV.	**Min 95%**					**97.6**								

Remarks

At each test location, Test (b) is conducted at a minimum 90º rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jayden Mason**
Field test Date	**11/04/2025 - PM**
Report Date	**15/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 12-15: Fill base + 1.5m, higher clay content towards batter face Test 16-18: Fill base + 1.5m, higher sand content Report revision 2 - With coordinates and RL.

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.55 t/m^3	1.70 t/m^3	1.80 t/m^3	t/m^3		t/m^3
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
12a	**95.8**	1792	1628	0.0	10.1		**10.2**	**95.6**	**-2.8%**	829126.4	409690.6	95.4	*1.70*	*13.0*
12b	**95.4**	1788	1621	0.0	10.3		**10.2**	**95.6**	**-2.8%**	829126.4	409690.6	95.4	*1.70*	*13.0*
13a	**101.5**	1763	1574	0.0	12.0		**11.9**	**102.2**	**-2.1%**	829118.2	409680.3	95.8	*1.55*	*14.0*
13b	**102.8**	1779	1593	0.0	11.7		**11.9**	**102.2**	**-2.1%**	829118.2	409680.3	95.8	*1.55*	*14.0*
14a	**103.9**	1751	1611	0.0	8.7		**9.8**	**103.3**	**-4.2%**	829109.9	409674.1	96.1	*1.55*	*14.0*
14b	**102.6**	1764	1591	0.0	10.9		**9.8**	**103.3**	**-4.2%**	829109.9	409674.1	96.1	*1.55*	*14.0*
15a	**97.1**	1834	1651	0.0	11.1		**10.9**	**96.9**	**-2.1%**	829098.0	409663.9	96.2	*1.70*	*13.0*
15b	**96.6**	1816	1642	0.0	10.6		**10.9**	**96.9**	**-2.1%**	829098.0	409663.9	96.2	*1.70*	*13.0*
16a	**98.7**	1877	1776	0.0	5.7		**5.2**	**98.7**	**-3.8%**	829094.8	409678.2	96.9	*1.80*	*9.0*
16b	**98.7**	1859	1776	0.0	4.7		**5.2**	**98.7**	**-3.8%**	829094.8	409678.2	96.9	*1.80*	*9.0*
17a	**95.5**	1846	1719	0.0	7.4		**7.7**	**95.1**	**-1.3%**	829105.1	409687.2	96.4	*1.80*	*9.0*
17b	**94.7**	1841	1705	0.0	8.0		**7.7**	**95.1**	**-1.3%**	829105.1	409687.2	96.4	*1.80*	*9.0*
18a	**97.2**	1866	1653	0.0	12.9		**12.6**	**97.4**	**-0.4%**	829112.6	409693.4	95.9	*1.70*	*13.0*
18b	**97.6**	1863	1660	0.0	12.2		**12.6**	**97.4**	**-0.4%**	829112.6	409693.4	95.9	*1.70*	*13.0*
Min	**Min 90%**					**95.1**								
AV.	**Min 95%**					**98.5**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jayden Mason**
Field test Date	**11/04/2025 - PM**
Report Date	**14/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 12-15: Fill base + 1.5m, higher clay content towards batter face Test 16-18: Fill base + 1.5m, higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.55 t/m³	1.70 t/m³	1.80 t/m³	t/m³		t/m³
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	5.0 %	5.0 %	5.0 %	5.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Easting*	*Northing*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
12a	**95.8**	1792	1628	0.0	10.1		**10.2**	**95.6**	**-2.8%**	0.0	0.0	0.0	*1.70*	*13.0*
12b	**95.4**	1788	1621	0.0	10.3		**10.2**	**95.6**	**-2.8%**	0.0	0.0	0.0	*1.70*	*13.0*
13a	**101.5**	1763	1574	0.0	12.0		**11.9**	**102.2**	**-2.1%**	0.0	0.0	0.0	*1.55*	*14.0*
13b	**102.8**	1779	1593	0.0	11.7		**11.9**	**102.2**	**-2.1%**	0.0	0.0	0.0	*1.55*	*14.0*
14a	**103.9**	1751	1611	0.0	8.7		**9.8**	**103.3**	**-4.2%**	0.0	0.0	0.0	*1.55*	*14.0*
14b	**102.6**	1764	1591	0.0	10.9		**9.8**	**103.3**	**-4.2%**	0.0	0.0	0.0	*1.55*	*14.0*
15a	**97.1**	1834	1651	0.0	11.1		**10.9**	**96.9**	**-2.1%**	0.0	0.0	0.0	*1.70*	*13.0*
15b	**96.6**	1816	1642	0.0	10.6		**10.9**	**96.9**	**-2.1%**	0.0	0.0	0.0	*1.70*	*13.0*
16a	**98.7**	1877	1776	0.0	5.7		**5.2**	**98.7**	**-3.8%**	0.0	0.0	0.0	*1.80*	*9.0*
16b	**98.7**	1859	1776	0.0	4.7		**5.2**	**98.7**	**-3.8%**	0.0	0.0	0.0	*1.80*	*9.0*
17a	**95.5**	1846	1719	0.0	7.4		**7.7**	**95.1**	**-1.3%**	0.0	0.0	0.0	*1.80*	*9.0*
17b	**94.7**	1841	1705	0.0	8.0		**7.7**	**95.1**	**-1.3%**	0.0	0.0	0.0	*1.80*	*9.0*
18a	**97.2**	1866	1653	0.0	12.9		**12.6**	**97.4**	**-0.4%**	0.0	0.0	0.0	*1.70*	*13.0*
18b	**97.6**	1863	1660	0.0	12.2		**12.6**	**97.4**	**-0.4%**	0.0	0.0	0.0	*1.70*	*13.0*
Min	**Min 90%**					**95.1**								
AV.	**Min 95%**					**98.5**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**14/04/2025**
Report Date	**15/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 19-24: Fill base + 2.0m, higher clay content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.55 t/m^3	1.70 t/m^3	1.80 t/m^3	t/m^3		t/m^3
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
19a	**99.2**	1946	1686	0.0	15.4		**15.7**	**99.0**	**2.7%**	829092.9	409665.7	97.4	*1.70*	*13.0*
19b	**98.8**	1946	1679	0.0	15.9		**15.7**	**99.0**	**2.7%**	829092.9	409665.7	97.4	*1.70*	*13.0*
20a	**100.4**	1895	1706	0.0	11.1		**11.5**	**100.5**	**-1.5%**	829103.9	409676.1	96.9	*1.70*	*13.0*
20b	**100.6**	1915	1711	0.0	11.9		**11.5**	**100.5**	**-1.5%**	829103.9	409676.1	96.9	*1.70*	*13.0*
21a	**96.9**	1930	1647	0.0	17.2		**16.3**	**97.7**	**3.3%**	829108.6	409689.1	96.7	*1.70*	*13.0*
21b	**98.4**	1931	1673	0.0	15.4		**16.3**	**97.7**	**3.3%**	829108.6	409689.1	96.7	*1.70*	*13.0*
22a	**97.3**	1871	1654	0.0	13.1		**13.4**	**97.4**	**0.4%**	829114.6	409683.5	96.4	*1.70*	*13.0*
22b	**97.4**	1881	1656	0.0	13.6		**13.4**	**97.4**	**0.4%**	829114.6	409683.5	96.4	*1.70*	*13.0*
23a	**97.1**	1853	1650	0.0	12.3		**12.6**	**96.5**	**-0.4%**	829122.8	409693.0	95.9	*1.70*	*13.0*
23b	**95.9**	1839	1630	0.0	12.8		**12.6**	**96.5**	**-0.4%**	829122.8	409693.0	95.9	*1.70*	*13.0*
24a	**96.8**	1817	1646	0.0	10.4		**11.5**	**95.9**	**-1.5%**	829122.2	409699.8	95.8	*1.70*	*13.0*
24b	**94.9**	1816	1614	0.0	12.5		**11.5**	**95.9**	**-1.5%**	829122.2	409699.8	95.8	*1.70*	*13.0*
Min	**Min 90%**					**95.9**								
AV.	**Min 95%**					**97.8**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**15/04/2025**
Report Date	**15/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaeger Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 25 - 28: Fill base + 2.5m, Higher clay content Tests are limited to South-Western end of fill

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Prodominently Clay assumed proctor - Awaiting further test results	Clay / Sand mix assumed proctor - Awaiting further test results	Prodominently Sand assumed proctor - Awaiting further test results			
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.55 t/m^3	1.70 t/m^3	1.80 t/m^3	t/m^3		t/m^3
Optimum moisture content:	20.0 %	14.0 %	13.0 %	9.0 %	%		%
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	%		%

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
25a	**101.5**	1973	1726	11.3	14.3	**11.0**	**15.2**	**100.1**	**2.2%**	829101.7	409693.3	97.8	*1.70*	*13.0*
25b	**98.6**	1946	1676	10.7	16.1	**11.0**	**15.2**	**100.1**	**2.2%**	829101.7	409693.3	97.8	*1.70*	*13.0*
26a	**101.2**	1974	1721	10.9	14.7	**10.4**	**14.7**	**101.8**	**1.7%**	829100.3	409671.3	97.5	*1.70*	*13.0*
26b	**102.3**	1995	1739	9.9	14.7	**10.4**	**14.7**	**101.8**	**1.7%**	829100.3	409671.3	97.5	*1.70*	*13.0*
27a	**95.4**	1863	1621	15.7	14.9	**15.8**	**15.1**	**95.0**	**2.1%**	829085.7	409670.3	98.4	*1.70*	*13.0*
27b	**94.6**	1854	1609	15.8	15.2	**15.8**	**15.1**	**95.0**	**2.1%**	829085.7	409670.3	98.4	*1.70*	*13.0*
28a	**101.9**	1988	1732	10.1	14.8	**9.7**	**15.1**	**101.7**	**2.1%**	829114.3	409685.4	96.8	*1.70*	*13.0*
28b	**101.5**	1992	1726	9.3	15.4	**9.7**	**15.1**	**101.7**	**2.1%**	829114.3	409685.4	96.8	*1.70*	*13.0*
Min	**Min 90%**					**95.0**								
AV.	**Min 95%**					**99.7**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
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CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**16/04/2025**
Report Date	**16/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 29 - 32: Fill base + 3.0m, Higher clay content Test 33 - 34: Fill base + 3.0m, Higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.70 t/m³	1.80 t/m³	1.85 t/m³	1.70 t/m³	1.80 t/m³
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
29a	**99.9**	2102	1849	6.0	13.7	**5.5**	**14.3**	**99.3**	**0.8%**	829092.4	409684.8	97.9	*1.85*	*13.5*
29b	**98.7**	2098	1826	4.9	14.9	**5.5**	**14.3**	**99.3**	**0.8%**	829092.4	409684.8	97.9	*1.85*	*13.5*
30a	**95.9**	1986	1727	10.0	15.0	**10.6**	**14.8**	**95.7**	**-0.2%**	829099.2	409680.0	97.9	*1.80*	*15.0*
30b	**95.4**	1969	1718	11.1	14.6	**10.6**	**14.8**	**95.7**	**-0.2%**	829099.2	409680.0	97.9	*1.80*	*15.0*
31a	**98.8**	2048	1779	7.0	15.1	**7.0**	**15.0**	**99.2**	**0%**	829109.7	409682.7	97.6	*1.80*	*15.0*
31b	**99.6**	2057	1792	6.9	14.8	**7.0**	**15.0**	**99.2**	**0%**	829109.7	409682.7	97.6	*1.80*	*15.0*
32a	**99.9**	1956	1699	11.3	15.1	**11.2**	**15.6**	**99.1**	**-1.4%**	829112.3	409693.1	97.5	*1.70*	*17.0*
32b	**98.3**	1940	1671	11.1	16.1	**11.2**	**15.6**	**99.1**	**-1.4%**	829112.3	409693.1	97.5	*1.70*	*17.0*
33a	**101.5**	2008	1827	14.1	9.9	**14.2**	**9.9**	**101.6**	**0.9%**	829121.0	409703.7	97.2	*1.80*	*9.0*
33b	**101.6**	2007	1828	14.2	9.8	**14.2**	**9.9**	**101.6**	**0.9%**	829121.0	409703.7	97.2	*1.80*	*9.0*
34a	**95.3**	1859	1715	21.0	8.4	**20.8**	**9.0**	**94.6**	**0%**	829112.4	409713.5	97.5	*1.80*	*9.0*
34b	**93.8**	1850	1688	20.6	9.6	**20.8**	**9.0**	**94.6**	**0%**	829112.4	409713.5	97.5	*1.80*	*9.0*
Min	**Min 90%**					**94.6**								
AV.	**Min 95%**					**98.3**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

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CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**17/04/2025**
Report Date	**22/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 35: Fill base + 3.5m, Higher clay content Test 36 - 37: Fill base + 3.5m, Higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.70 t/m³	1.80 t/m³	1.85 t/m³	1.70 t/m³	1.80 t/m³
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
35a	**96.4**	1905	1639	12.6	16.2	**13.2**	**15.3**	**97.5**	**-1.7%**	829099.6	409699.1	98.2	*1.70*	*17.0*
35b	**98.6**	1917	1676	13.7	14.4	**13.2**	**15.3**	**97.5**	**-1.7%**	829099.6	409699.1	98.2	*1.70*	*17.0*
36a	**100.1**	1935	1802	19.7	7.4	**20.3**	**6.7**	**101.0**	**-2.3%**	829085.1	409686.2	98.5	*1.80*	*9.0*
36b	**101.9**	1944	1834	20.9	6.0	**20.3**	**6.7**	**101.0**	**-2.3%**	829085.1	409686.2	98.5	*1.80*	*9.0*
37a	**98.9**	1979	1781	14.1	11.1	**14.0**	**11.0**	**99.4**	**2%**	829081.5	409663.1	98.5	*1.80*	*9.0*
37b	**99.8**	1992	1796	13.8	10.9	**14.0**	**11.0**	**99.4**	**2%**	829081.5	409663.1	98.5	*1.80*	*9.0*
Min	**Min 90%**					**97.5**								
AV.	**Min 95%**					**99.3**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jayden Mason**
Field test Date	**23/04/2025**
Report Date	**23/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 39-40: Fill base + 4.0m, Higher clay content Test 38,41-42: Fill base + 4.0m, Higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.70 t/m^3	1.80 t/m^3	1.85 t/m^3	1.70 t/m^3	1.80 t/m^3
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
38a	**99.4**	1982	1789	14.2	10.8	**14.1**	**11.3**	**98.7**	**2.3%**	409692.9	829108.2	99.2	*1.80*	*9.0*
38b	**97.9**	1969	1763	14.0	11.7	**14.1**	**11.3**	**98.7**	**2.3%**	409692.9	829108.2	99.2	*1.80*	*9.0*
39a	**98.6**	1922	1676	13.2	14.7	**13.1**	**15.1**	**98.0**	**-1.9%**	409693.7	829117.2	99.3	*1.70*	*17.0*
39b	**97.4**	1912	1655	12.9	15.5	**13.1**	**15.1**	**98.0**	**-1.9%**	409693.7	829117.2	99.3	*1.70*	*17.0*
40a	**98.8**	1927	1680	12.9	14.7	**12.6**	**15.1**	**98.5**	**-1.9%**	409680.8	829108.2	99.4	*1.70*	*17.0*
40b	**98.2**	1927	1670	12.3	15.4	**12.6**	**15.1**	**98.5**	**-1.9%**	409680.8	829108.2	99.4	*1.70*	*17.0*
41a	**99.9**	1947	1799	18.5	8.2	**18.5**	**7.9**	**100.6**	**-1.1%**	409669.5	829093.1	99.5	*1.80*	*9.0*
41b	**101.2**	1960	1822	18.5	7.6	**18.5**	**7.9**	**100.6**	**-1.1%**	409669.5	829093.1	99.5	*1.80*	*9.0*
42a	**101.1**	2037	1820	10.7	11.9	**11.5**	**11.2**	**101.8**	**2.2%**	409681.1	829096.0	99.3	*1.80*	*9.0*
42b	**102.4**	2037	1843	12.3	10.5	**11.5**	**11.2**	**101.8**	**2.2%**	409681.1	829096.0	99.3	*1.80*	*9.0*
Min	**Min 90%**					**98.0**								
AV.	**Min 95%**					**99.5**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jayden Mason**
Field test Date	**24/04/2025**
Report Date	**24/04/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 43: Fill base + 4.5m, Higher clay content **Test 44: Fill base + 4.5m, Higher clay content - Failed test (Over moisture)** Test 45: Fill base + 4.5m, Higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m^3	1.70 t/m^3	1.80 t/m^3	1.85 t/m^3	1.70 t/m^3	1.80 t/m^3
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
43a	**98.5**	2035	1773	8.0	14.8	**8.2**	**14.8**	**98.3**	**-0.2%**	829097.4	409682.0	99.8	*1.80*	*15.0*
43b	**98.1**	2027	1766	8.4	14.8	**8.2**	**14.8**	**98.3**	**-0.2%**	829097.4	409682.0	99.8	*1.80*	*15.0*
44a	**90.6**	1975	1631	5.1	21.1	**5.1**	**20.4**	**91.8**	**5.4%**	829094.4	409696.7	99.2	*1.80*	*15.0*
44b	**93.0**	2002	1674	5.0	19.6	**5.1**	**20.4**	**91.8**	**5.4%**	829094.4	409696.7	99.2	*1.80*	*15.0*
45a	**101.2**	2025	1821	12.0	11.2	**11.3**	**11.6**	**101.3**	**2.6%**	829107.4	409696.2	99.0	*1.80*	*9.0*
45b	**101.4**	2043	1826	10.5	11.9	**11.3**	**11.6**	**101.3**	**2.6%**	829107.4	409696.2	99.0	*1.80*	*9.0*
Min	**Min 90%**					**91.8**								
AV.	**Min 95%**					**97.1**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
This earthworks operation is under the control of , and our involvement is limited to (generally) Compaction Testing and the requisite "target" tests.

CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ~~***All tests MEET the MOISTURE CONTENT range limits from OMC***~~

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**29/04/2025**
Report Date	**16/06/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	**Test 46-48: Fill base + 5.0m, Higher sand content - Failed test (Under moisture)** Test 49: Fill base + 5.0m, Higher clay content Test 50: Fill base + 5.0m, Higher sand content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.70 t/m³	1.80 t/m³	1.85 t/m³	1.70 t/m³	1.80 t/m³
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
46a	**92.1**	1774	1658	26.8	7.0	**27.0**	**6.9**	**92.2**	**-2.1%**	829093.0	409707.5	99.4	*1.80*	*9.0*
46b	**92.2**	1772	1659	27.2	6.8	**27.0**	**6.9**	**92.2**	**-2.1%**	829093.0	409707.5	99.4	*1.80*	*9.0*
47a	**94.0**	1807	1692	25.7	6.8	**25.7**	**6.8**	**94.0**	**-2.2%**	829107.6	409694.3	99.8	*1.80*	*9.0*
47b	**93.9**	1806	1691	25.7	6.8	**25.7**	**6.8**	**94.0**	**-2.2%**	829107.6	409694.3	99.8	*1.80*	*9.0*
48a	**103.8**	1989	1868	18.5	6.5	**18.7**	**6.7**	**103.1**	**-2.3%**	829100.1	409679.9	99.8	*1.80*	*9.0*
48b	**102.4**	1970	1843	18.9	6.9	**18.7**	**6.7**	**103.1**	**-2.3%**	829100.1	409679.9	99.8	*1.80*	*9.0*
49a	**102.7**	2092	1848	7.0	13.2	**7.0**	**13.8**	**101.6**	**-1.2%**	829085.6	409669.3	99.5	*1.80*	*15.0*
49b	**100.5**	2068	1809	7.0	14.3	**7.0**	**13.8**	**101.6**	**-1.2%**	829085.6	409669.3	99.5	*1.80*	*15.0*
50a	**90.7**	1782	1632	24.3	9.2	**25.1**	**8.5**	**91.2**	**-0.5%**	829087.7	409685.8	100.0	*1.80*	*9.0*
50b	**91.7**	1780	1651	25.8	7.8	**25.1**	**8.5**	**91.2**	**-0.5%**	829087.7	409685.8	100.0	*1.80*	*9.0*
Min	**Min 90%**					**91.2**								
AV.	**Min 95%**					**96.4**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
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CONCLUSION:

The COMPACTION achieved on the upper 300mm of each level tested within this fill layer, as tested during this Site Visit, is ACCEPTABLE in terms of the adopted acceptance criteria .
The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ~~***All tests MEET the MOISTURE CONTENT range limits from OMC***~~

NZS 4407 - Field Water Content & Dry Density Using a Nuclear Gauge

BOSCO
BRYCE O'SULLIVAN CONTRACTING LTD

Job Number	**J514**
Client	**Pukerua Holdings Limited**
Location	**34 Muri Road, Pukerua Bay - Stage 1**
Tested By	**Jamie Lyons**
Field test Date	**3/06/2025**
Report Date	**16/06/2025**
Contractor	**Bryce O'Sullivan Contracting Limited**
Foreman	**Jaegar Ross**

Tests Required	Engineered Fill - In-situ Density & Moisture content for determination of acceptability of compaction achieved.
Test Location	Fill 1
Location Description	Test 51: Fill base + 5.0m, High clay content Test 52: Fill base + 5.0m, Higher sand content Test 53-54: Fill base + 5.0m, Higher clay content Test 55: Fill base + 5.0m, Clay - Rotten rock content

Proctor Target & Other Information	Geo Civil sample WLG8404-032-S001 - Site won materials	Construction Sciences sample 1232/R/25-212-1 - Site won materials	Whitby clay known proctor	Whitby clay known proctor - traces of rotten rock	Clay / Sand mix assumed proctor	Prodominently Sand assumed proctor
Max. Dry Density (NZS Comp.)	1.49 t/m³	1.70 t/m³	1.80 t/m³	1.85 t/m³	1.70 t/m³	1.80 t/m³
Optimum moisture content:	20.0 %	17.0 %	15.0 %	13.5 %	13.0 %	9.0 %
Maximum air void content:	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %

Test	*Indiv. Compaction (%)*	*Wet Density (kg/cu.m)*	*Dry Density (kg/cu.m)*	*Air voids (%)*	*Water Content (%)*	*Average Air Voids (%)*	*Average Water Content (%)*	*Average Compaction (%)*	*Moisture Result*	*Northing*	*Easting*	*Level*	*Maximum Dry Density (t/cu.m)*	*Optimum Moisture Content (%)*
51a	**101.6**	1891	1514	6.1	24.9	**6.0**	**24.1**	**103.2**	**4.1%**	829103.3	409706.6	99.9	*1.49*	*20.0*
51b	**104.8**	1923	1561	5.8	23.2	**6.0**	**24.1**	**103.2**	**4.1%**	829103.3	409706.6	99.9	*1.49*	*20.0*
52a	**97.9**	1914	1762	19.4	8.6	**19.7**	**8.2**	**98.5**	**-0.8%**	829111.2	409695.4	99.8	*1.80*	*9.0*
52b	**99.1**	1920	1783	20.0	7.7	**19.7**	**8.2**	**98.5**	**-0.8%**	829111.2	409695.4	99.8	*1.80*	*9.0*
53a	**96.3**	1973	1734	11.7	13.8	**11.7**	**13.6**	**96.8**	**-1.4%**	829093.9	409697.3	99.7	*1.80*	*15.0*
53b	**97.2**	1983	1749	11.6	13.4	**11.7**	**13.6**	**96.8**	**-1.4%**	829093.9	409697.3	99.7	*1.80*	*15.0*
54a	**95.2**	2023	1714	5.4	18.0	**6.4**	**17.4**	**95.4**	**2.4%**	829081.0	409680.9	99.6	*1.80*	*15.0*
54b	**95.6**	2009	1720	7.3	16.8	**6.4**	**17.4**	**95.4**	**2.4%**	829081.0	409680.9	99.6	*1.80*	*15.0*
55a	**101.6**	2148	1879	3.4	14.3	**3.3**	**14.3**	**101.6**	**0.8%**	829071.3	409669.4	99.2	*1.85*	*13.5*
55b	**101.6**	2149	1880	3.2	14.3	**3.3**	**14.3**	**101.6**	**0.8%**	829071.3	409669.4	99.2	*1.85*	*13.5*
Min	**Min 90%**					**95.4**								
AV.	**Min 95%**					**99.1**								

Remarks

At each test location, Test (b) is conducted at a minimum 90° rotation to the previous test

For test locations / areas, see above in Test Result Tables ("Coordinates") and Site Photo(s) and/or Site Plan for identification.
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CONCLUSION:

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The results achieved at:

- ***All test locations MEET the % COMPACTION requirement, and***
- ***All tests MEET the MOISTURE CONTENT range limits from OMC***

APPENDIX C: LOT SPECIFIC TESTING

TETRA TECH COFFEY

Project No: ***773-WLGGE291776AE***

Sheet ***1 of 1***

Dynamic Cone Penetrometer Test Results

Client: ***Pukerua Bay Limited Partnership***

Tested by: ***S. Martin***

Principal: ***-***

Project: ***Muri Road Construction Monitoring***

Cone acceptable dimensions **Yes / ~~No~~**

Location: ***Stage 1 Muri Road, Pukerua Bay***

Measure drop height is 510mm ± 5mm **Yes / ~~No~~**

DCP # Used: ***1***

Test Procedure: **NZS 4402 Test 6.5.2:1998**

Test Date: **Wednesday, 19 November 2025**

Depth below surface (mm)	*Test Numbers*								*Reading Recorded in Blows per 100mm*
	1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	Test Locations/ Remarks
0-100	1	2	2	2	5				
100 -200	5	5	3	2	4				
200 - 300	6	7	2	2	5				
300 - 400	11	10	2	2	7				
400 - 500	11	9	3	3	6				
500 - 600	7	8	4	2	7				
600 - 700	5	15	4	3	6				
700 - 800	6	15	6	2	5				
800 - 900	10	15=50mm	15	4	7				
900 - 1000	15=50mm		15=50mm	3	5				
1000 - 1100				3	6				
1100 - 1200				5	5				
1200 - 1300				5	5				
1300 - 1400				4	6				
1400 - 1500				7	4				
1500 - 1600				10	5				
1600 - 1700				15	6				
1700 - 1800				15=75mm	5				
1800 - 1900					6				
1900 - 2000					9				
2000 - 2100					15=75mm				
2100 - 2200									
2200 - 2300									
2300 - 2400									General Information:
2400 - 2500									
2500 - 2600									
2600 - 2700									
2700 - 2800									
2800 - 2900									
2900 - 3000									
3000 - 3100									
3100 - 3200									
3200 - 3300									
3300 - 3400									
3400 - 3500									
3500 - 3600									
3600 - 3700									
3700 - 3800									
3800 - 3900									
3900 - 4000									
4000 - 4100									
4100 - 4200									
4200 - 4300									
4300 - 4400									
4400 - 4500									
4500 - 4600									
4600 - 4700									
4700 - 4800									
4800 - 4900									

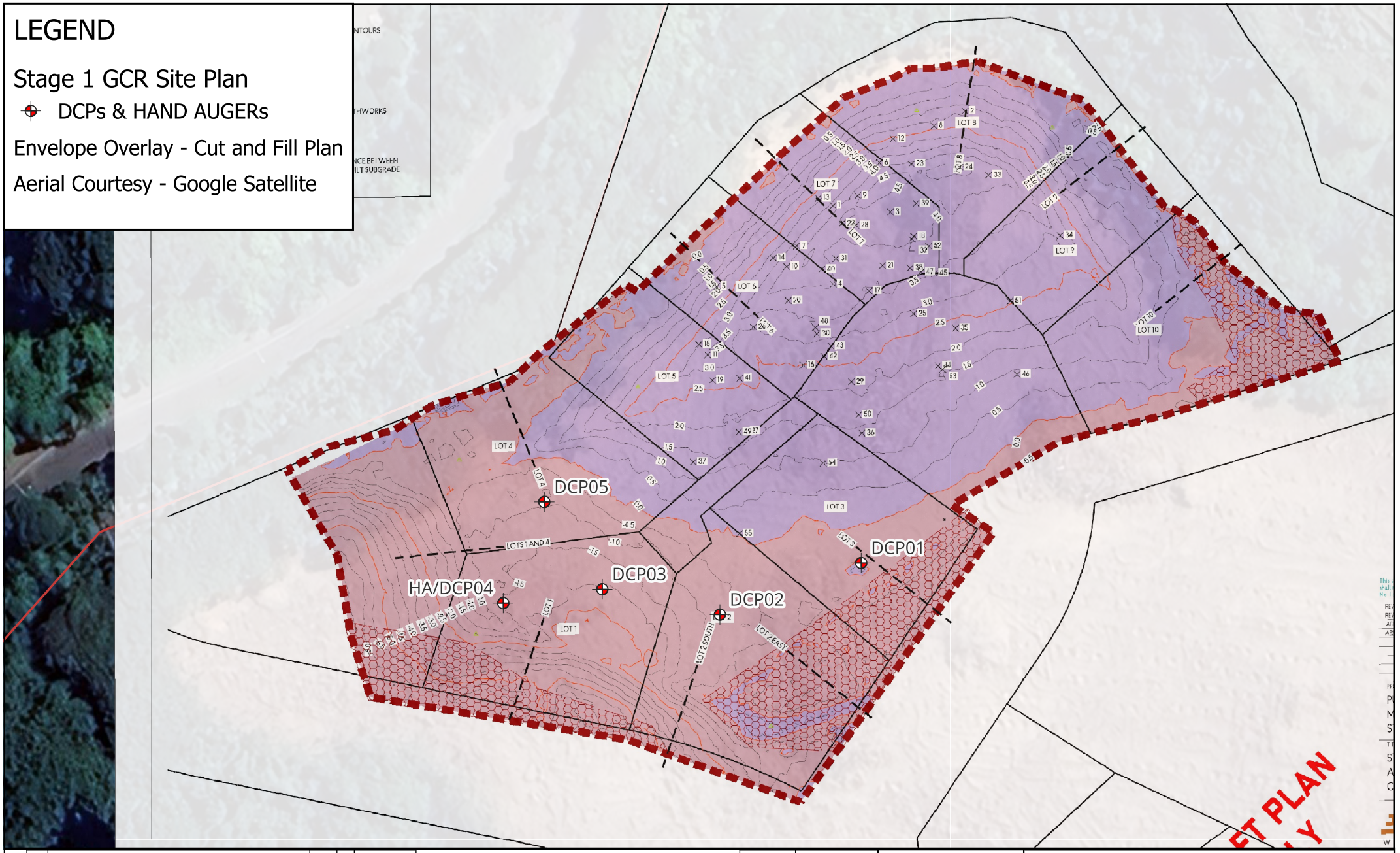
LEGEND

Stage 1 GCR Site Plan

DCPs & HAND AUGERs

Envelope Overlay - Cut and Fill Plan

Aerial Courtesy - Google Satellite



0	Final	JPS	SM	10/12/2025

0 10 20 m

drawn	JPS
approved	SM
date	10/12/2025
scale	AS SHOWN
orignial size	A4

TETRA TECH COFFEY

client: Pukerua Bay Limited Partnership

project: Muri Road Construction Monitoring

title: Stage 1 Geotechnical Completion Report - Cut Lot Testing Plan

project no: WLGGE291776AE figure no: C-1 rev: 0

TETRA TECH COFFEY

Engineering Log - Hand Auger

Borehole ID.	***HA-4***
sheet:	1 of 1
project no.	***773-WLGGE291776AE***
client:	***Pukerua Bay Limited Partnership***
date started:	***19 Nov 2025***
principal:	***-***
date completed:	***19 Nov 2025***
project:	***Muri Road Construction Monitoring***
logged by:	***SM***
location:	***Stage 1 - Muri Road, Pukerua Bay***
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90° | DCP id.:

drill model: Hand Auger | drilling fluid: | hole diameter : 50 mm

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	vane shear (kPa) ⊕ remoulded ⊙ peak (50 100 150 200)	DCP (blows/ 100 mm) (2 4 6 8 10 12)	structure and additional observations
HA, N		Not Encountered			0.0		GW	**FILL: Sandy GRAVEL**: fine to coarse grained, sub-angular to angular, grey, sand is fine to coarse (AP40).	M				**FILL**
							SP	**SAND**: fine grained, orange-brown.		L			**LOESS**
					0.5		SM	**SILTY SAND**: fine grained, orange-brown mottled pale grey.					
					1.0		SP	**Sandy SILT**: low plasticity, orange-brown mottled pale grey, sand is fine. 1.1 m: trace clay		VSt			
							SP	**SAND**: fine grained, orange-brown.		D to VD			@1.4m feels hard at the base and the auger feels like it's grinding
					1.5			Hand Auger HA-4 terminated at 1.5 m Refusal base of hole feels hard					15 blows=75mm; DCP Refusal
					2.0								
					2.5								

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: NON CORED + DCP MURI RD LOT TESTING.GPJ <<DrawingFile>> 10/12/2025 16:04

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore
- HA hand auger

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration
1 2 3 — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- S saturated
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

APPENDIX D: STATEMENT OF SUITABILITY

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SCHEDULE 2A

STATEMENT OF PROFESSIONAL OPINION ON SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

Development ...Muri Rd Subdivision - Part of Stage 1.....

Developer Pukerua Bay Limited Partnership

Location 34 Muri Road, Pukerua Bay, Porirua

I ...Chris Armstrong..... of ...Tetra Tech Coffey (NZ) Limited.....
(Full name) *(Name and address of firm)*

Hereby confirm that:

1. I am a geo-professional as defined in clause 1.2.2 of NZS 4404:2010 and was retained by the developer as the geo-professional on the above development.
2. The extent of my preliminary investigations are described in my Report(s) number 773-WLGGE291776-rev3; 773-WLGGE291776AD, dated 31/10/2023; 21/2/2025, and the conclusions and recommendations of that/those document(s) have been re-evaluated in the preparation of this report. The extent of my inspections during construction, and the results of all tests and/or re-evaluations carried out are as described in my geotechnical completion report dated 12/12/2025.
3. In my professional opinion, not to be construed as a guarantee, I consider that (delete as appropriate):
   (a) The earth fills shown on the attached Plan No. 1697-01-AB-2200-AB2 have been placed in compliance with the requirements of the Porirua City Council Council and my specification.
   (b) The completed works take into account land slope and foundation stability considerations, subject to the appended foundation recommendations and earthworks restrictions, (which should be read in conjunction with the appended final site contour plan).
   (c) Subject to 3(a) and 3(b) of this Schedule, the original ground not affected by filling is suitable for the erection of buildings designed according to NZS 3604 provided that:
      (i) Specific Engineering Design (SED) is required within 3m from the crest of the batter slope and the batter
      (ii) Foundations for Lot 1 should be designed assuming 200kPa ultimate bearing capacity
   (d) Subject to 3(a) and 3(b) of this Schedule, the filled ground is suitable for the erection of buildings designed according to NZS 3604 provided that:
      (i) SED is required within 3m from the crest of the batter slope and the batter
      (ii) Final inspection of incomplete areas to be done by Tetra Tech Coffey prior to construction
      Lot 10 requires construction and certification of an MSE wall or similar structure.
   (e) The original ground not affected by filling and the filled ground are not subject to erosion, subsidence, or slippage in accordance with the provisions of section 106 of the Resource Management Act 1991 provided that:
      (i) Final inspection of incomplete areas to be done by Tetra Tech Coffey prior to construction
      (ii) Construction and certification of a MSE wall or similar at Lot 10
      Surface water is controlled via appropriate stormwater disposal systems and vegetation is maintained on batter slopes

NOTE – These subclauses may be deleted or added to as appropriate, to include such considerations as expansive soils where excluded from NZS 3604, and site seismic characteristics as covered in clause 3.1.3 of NZS 1170.5.

4. This professional opinion is furnished to the TA and the developer for their purposes alone on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any building.

5. This certificate shall be read in conjunction with my geotechnical report referred to in clause 2 above and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.

Signed ..... Date 12/12/2025

Chris Armstrong,
Principal Geotechnical Engineer
CPEng

(Name, title, and professional qualifications)

Copyright waived

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