

GEOTECHNICAL COMPLETION REPORT

41556 | Belfast Subdivision – Residential
Stage 6 & 8 | Infinity Belfast Limited

Davis Ogilvie & Partners Ltd

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Quality assurance

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Reviewed and authorised by:	Elliot Duke Director Chartered Professional Engineer BE Nat Res (Hons), FEngNZ, CPEng Int PE(NZ)	Signature: 

Disclaimer

This engineering completion report has been prepared at the specific instruction of Infinity Belfast Ltd. It addresses geotechnical aspects of the development of the property at 14A & 39 Meadow View Drive, Belfast, Christchurch (Belfast Subdivision Stages 6 & 8).

Davis Ogilvie did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited investigation of the site and have not been taken into account in the report.

Davis Ogilvie's opinions are based upon information that existed at the time of the production of this document. Assessments made in this report are based on the conditions found onsite and published sources detailing the recommended investigation methodologies described. No warranty is included—either expressed or implied—that the actual conditions will conform to the assessments contained in this report.

Davis Ogilvie has provided an opinion based on observations, site investigations, and analysis methodologies current at the time of reporting. The report cannot be used by any third party without the written approval of Davis Ogilvie. The report cannot be used if there are changes in the referenced guidelines, analysis methodologies, laws, or regulations.

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Information included in this report was obtained / created from maps and / or data extracted from the New Zealand Geotechnical Database (NZGD).

Should anyone wish to discuss the content of this report with Davis Ogilvie & Partners Ltd, they are welcome to contact us on (03) 366 1653 or at Level 1, 24 Moorhouse Avenue, Addington, Christchurch.

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Appendix A - Fill Plan and Certificate, Fill MDD and NDM Results

1.0 Introduction

Stages 6 & 8 of the Belfast Subdivision consist of 82 residential lots ranging in size from 300 m² – 588 m² and the associated infrastructure, roading and services, as shown in Figure 1.

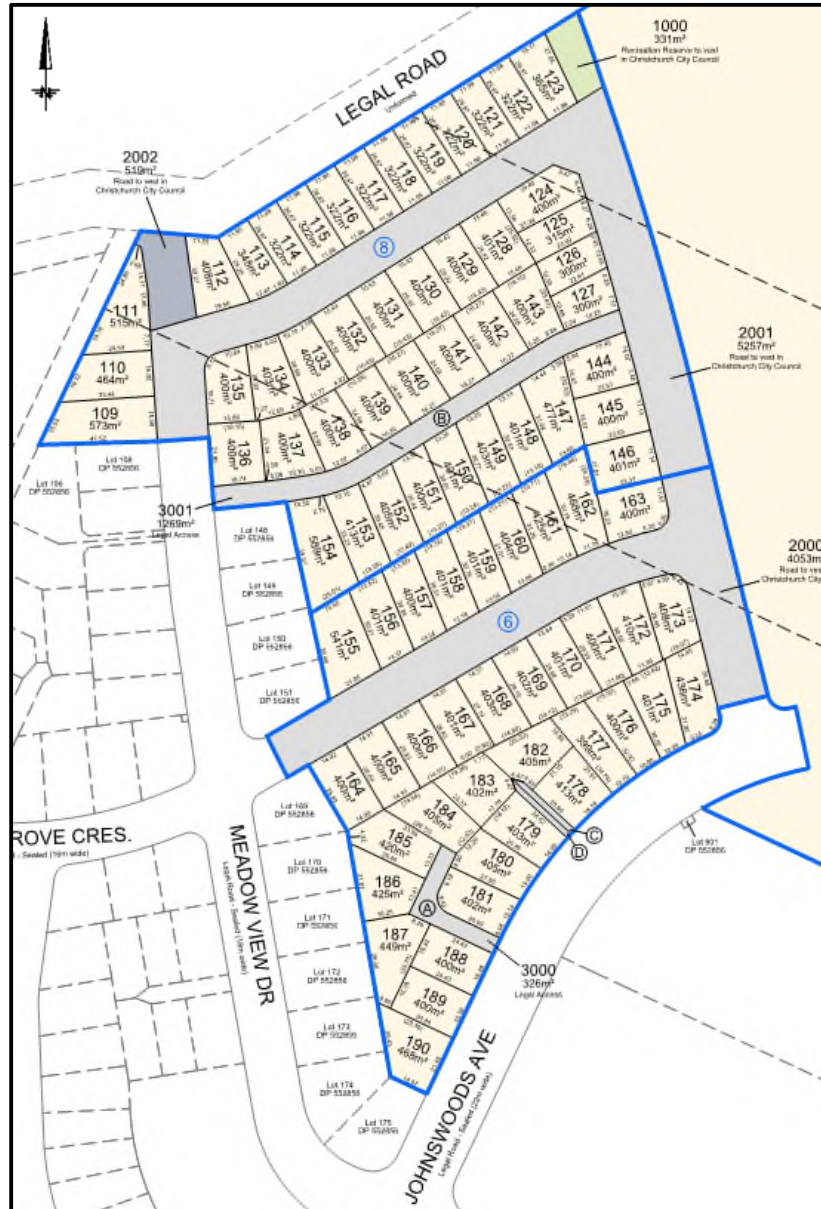


Figure 1: Belfast Subdivision – Residential Stages 6 & 8, from Davis Ogilvie Scheme Plan DWG 350 J. (Not to scale).

The purpose of this report is to provide details of the earthworks undertaken as part of the development, specified ground improvement areas and summarise the expected geological profile on the finished lots.

The geotechnical aspects of the subdivision consent (RMA/2024/1548) are as follows:

- **2.8.15 Earthworks:** All filling exceeding 300 mm above excavation level must be in accordance with NZS 4431:2022 Engineered Fill Construction For Lightweight Structures. At the completion of the work and Engineers Earth Fill Report, including a duly completed certificate in the format of Appendix D of NZS 4431, must be submitted to Council at rcmon@ccc.govt.nz for all lots, including utility reserves, within the subdivision that contain filled ground. This report must detail depths, materials, compaction tests results and include as-built plans showing the location and depth of fill and a finished level contour plan.
- **3.2 Geotechnical:** All infrastructural assets to be vested in the Council shall be designed and constructed in accordance with the Infrastructure Design Standard (IDS) 2022 and the Construction Standard Specifications (CSS). Asset structures shall include but not be limited to gravity and pressure pipelines, manholes, chambers, valves, hydrants, stormwater treatment devices, culverts or any other physical assets to be vested in Council including road pavements. In addition to the above, to be considered suitable in terms of section 106(1A) (a) and (b) of the Resource Management Act, all proposed infrastructure shall be designed to resist the effects associated with earthquake induced liquefiable soils and lateral spread from a seismic event as defined in condition 3.3.
- **3.3 Geotechnical:** All infrastructure shall be designed to resist the effects associated with earthquake induced liquefied soils. All liquefaction hazard mitigation shall be designed for a 1 in 25-year return period serviceability limit seismic design event and a 1 in 500 year return period ultimate limit state seismic design event as defined in NZS1170.5:2004. Beyond a SLS seismic event, it is recognised asset structures may become progressively less serviceable.
- **3.4 Geotechnical – Static Settlement Monitoring:** Static settlement monitoring shall be undertaken following the completions of all fill placement over 0.5 m depth, in the area of land south of Road 4 to Johnswood Avenue (Lots 164 – 190), prior to application for section 224 certification, in accordance with the Davis Ogilvie Geotechnical Report Belfast Stages 6 & 8 Project 41556 Revision 1 dated 29 May 2024. As part of the Geotechnical Completion Report required under condition 3.6, the consent holder shall submit to Council at rcmon@ccc.govt.nz the results of this monitoring, confirming that measured settlements have achieved 95% primary soil consolidation, or steps to remediate if the settlement has not achieved this value and future settlement cannot be accommodated by their recommended foundation options.
- **3.5 Geotechnical – Consent Notice:** That a consent notice in terms of Section 221 of the Resource Management Act be registered on the titles for all lots that are categorised in the Final Geotechnical Report as TC2 land: Any new structure requiring a Building Consent, in terms of Building Act provisions, shall have specific foundation design by a suitably experienced chartered engineer or by an appropriately qualified geotechnical engineer. The design shall take into consideration the potential to compressible soils and for liquefaction and associated effects (vertical settlement and lateral spread) appropriate for Technical Category 2 land and shall be investigated and designed in accordance with MBIE Guidelines 'Repairing and rebuilding houses affected by the Canterbury earthquakes' (3rd Edition 15 March 2017) or subsequent revisions and the Davis Ogilvie Geotechnical Completion Report held on Council electronic file 24/952219. Note: These requirements are contingent upon TC1 and TC2 land equivalence being achieved by the proposed earthworks and remediations works. Note: Condition 3.5 is an ongoing condition of Consent for which a consent notice pursuant to s221 of the Resource Management Act will be issued.

- **3.6 Geotechnical Completion Report:** Prior to the request for the section 224 certificate the Consent Holder shall supply a Final Geotechnical Report on the mitigation measures put in place during the construction phase to minimise both the liquefaction and lateral spread potential of the land during the SLS and a ULS seismic event in condition 3.3 and the static settlement potential due to compressible soils. The report shall recommend the Technical Category of the land in terms of the MBIE guidance document 'repairing and Rebuilding Houses Affected by the Canterbury Earthquakes and include a Statement of Professional Opinion on the Suitability of Land for Building construction, using the template in IDS Part 4 Appendix II.

The scope of this report does not include geotechnical investigation or foundation design for individual building sites. The recommendation for detailed geotechnical investigation of each lot at building consent stage should ensure that any site-specific geotechnical issues are identified and appropriately addressed.

2.0 Geotechnical background

ENGEO Limited was engaged on the Belfast Village development from its inception in 2012 until the land was purchased by Infinity Belfast Ltd in 2021. Between April 2012 and December 2013 ENGEO completed 159 CPTs, 10 machine boreholes and 8 flat dilatometer tests across the subdivision, of which 17 CPTs, one borehole (MB-04) and one DMT fall within Stages 6 and 8. The soil profile is strongly interbedded, with fine-grained soils in the upper 9.5 to 10.0 m, including a clay and silt layer carrying occasional thin organic and peat layers (typically 0.1 m to 0.3 m thick), overlying sandier soils and the Riccarton Gravel Formation at 15 to 20 m depth. Based on a detailed subdivision-specific liquefaction assessment, ENGEO concluded that an MBIE Technical Category 2 (TC2) classification applies across the whole subdivision, including Stages 6 and 8. This work was consolidated in the Geotechnical Assessment Summary and Update report (21 December 2017), which supported the subdivision consent granted by Christchurch City Council in 2021 and remains current.

Having identified the compressible upper fine-grained soils as the key geotechnical issue, ENGEO assessed static settlement through laboratory testing, settlement modelling, and a surcharge trial comprising two three-metre-high test pads constructed and monitored within stages 1B and 4. The trial allowed ENGEO to calibrate their settlement modelling against measured ground behaviour and confirmed that settlement of the compressible soils could be managed by pre-loading. On this basis ENGEO recommended that, where civil fill is placed, 95% of primary consolidation be achieved prior to residential construction, estimated to take three to six months, with settlement monitoring used to confirm completion.

Davis Ogilvie¹ reviewed the ENGEO reporting against the updated Stages 6 and 8 scheme plan and, because the scheme changes were minor, concluded that ENGEO's 2017 assessment and recommendations remained applicable, with TC2 and the associated foundation and services recommendations carried forward. Specific to Stages 6 and 8, Davis Ogilvie considers that surcharging will not be required where less than 0.5 m of engineered fill is placed. In the abandoned stormwater management area, where greater fill depths are required, Davis Ogilvie recommended settlement monitoring. The requirement to achieve 95% primary consolidation prior to construction was still recommended.

¹ Davis Ogilvie Geotechnical Report Belfast Stages 6 & 8 (Project 41556, Revision 1, dated 29 May 2024)

3.0 Earthworks

3.1 General

Earthworks across the subdivision were undertaken by Tru-Line Civil Ltd (Tru-Line) in general accordance *NZS 4431:2022 Engineered Fill for Lightweight Structures*. Laboratory testing of fill materials was carried out by IANZ-accredited Fulton Hogan Laboratories. Onsite Nuclear Densometer Testing (NDM) was carried out by SGNT and Collimate Ltd.

3.2 Summary of physical works

During earthworks, all lots were stripped of topsoil, with any soft / loose or other unsuitable material undercut or compacted under the direction of the Engineer. Engineered fill was placed in general accordance with *NZS 4431:2022 Engineered Fill for Lightweight Structures*.

3.3 Engineered fill materials

Engineered fill consisted of site sourced silt and imported river run gravel.

Prior to placement of fill, laboratory testing was performed on bulk samples by Fulton Hogan Laboratories. Compaction testing was completed to establish maximum dry density (MDD) and optimum moisture content (OMC) of the fill. Testing was carried out in accordance with NZS 4402:1986 Test 4.1.1:1986 and Test 4.1.3:1986. Results are summarised in Table 1. The laboratory compaction certificates are attached to this report in **Appendix A**.

Table 1: Fill material and NZ Compaction Test Results

Fill Material	Source	Lab Reference	OMC (%)	MDD (t/m ³)
SILT	Belfast Cut / Fill	MDD:CAN25S-24189	15	1.71
GRAVEL	Imported River run	MDD:CAN25S-24206	3.8	2.32

3.4 Equipment and fill placement

Fill consisted of silt cut from within the stage during the course of earthworks and imported AP100 river run gravel.

Generally, fill was placed by end tipped dump truck, road going truck and trailer units (imported gravel), spread by an excavator and compacted using a heavy vibratory roller.

Fill was placed in general accordance with the subdivision earthworks specification and NZS 4431:2022 to achieve the required design ground levels, under the observation of Davis Ogilvie.



Figure 2: Excerpt of Davis Ogilvie Fill Plan DWG FP1-A1 (Stage 6) (Appendix A). Not to scale.



Figure 3: Excerpt of Davis Ogilvie Fill Plan DWG FP2-A1 (Stage 8) (Appendix A). Not to scale.

3.5 Inspection and testing

During earthworks, geotechnical site inspections were undertaken by Davis Ogilvie with testing in accordance with the requirements of NZS 4431:2022.

Inspections were typically conducted for the following items or activities:

- Stripped surfaces and founding conditions prior to filling (i.e., 'subgrade inspections'). This included confirmation of removal of all vegetation, topsoil, and unsuitable material.
- Observation of fill placement during construction.
- Final inspection and testing of finished building platforms.

Silt fill compaction was assessed using a Nuclear Densometer (NDM) in direct transmission mode in accordance with NZS 4407:2015 Test 4.2. Imported gravel fill compaction was assessed in backscatter mode in accordance with NZS 4407:2015 Test 4.3. NDM reports are attached to the statement of suitability of earth fill (**Appendix A**).

A Statement of Suitability of Earth Fill for Residential Development is appended (**Appendix A**) which encloses the Stages 6 & 8 Fill Plan (FP1-A1) dated July 2026 (Figure 2) and (FP2-A1) dated July 2026 (Figure 3), and conformance testing results for filled residential lots. The as-built fill plan shows the maximum thickness of engineered fill placed in Stage 6 is 2.09 m and in Stage 8 is 2.21 m.

3.6 Static settlement monitoring

In line with the 2024 Davis Ogilvie Geotechnical recommendations, consent condition 3.4 required static settlement monitoring to be undertaken in areas where fill depth exceeded 0.5 m. The condition states monitoring is required to confirm 95% of primary consolidation has been achieved prior to residential construction.

Six settlement plates (SP1 to SP6) were installed within the deeper fill areas and monitored by precise levelling to a stable benchmark. Monitoring was undertaken over approximately 16 survey rounds between 15 December 2025 and 9 April 2026, at a survey tolerance of ± 2 mm. The settlement plate locations are shown in Figure 4.

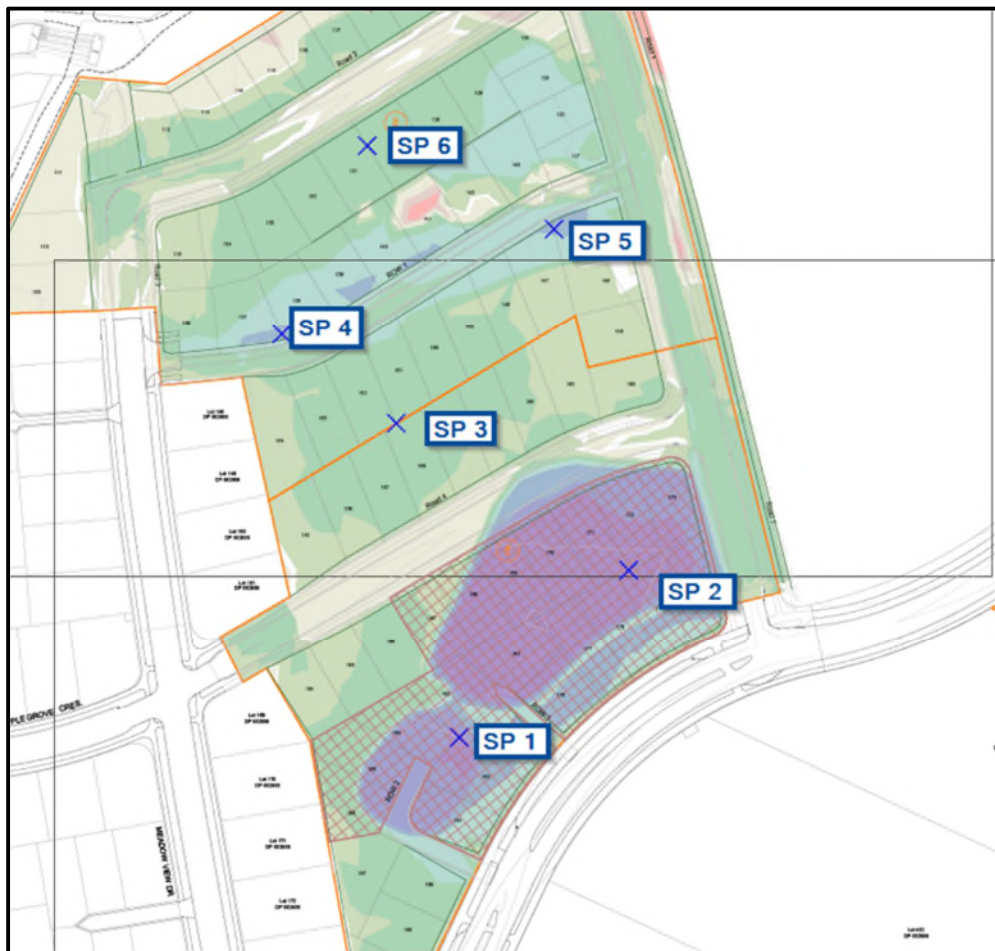


Figure 4: Settlement plate location plan.

The measured cumulative movement at each plate is presented in Figure 5. Over the monitoring period the settlement-time records progressively flattened, with movement between successive surveys reducing to within the ± 2 mm survey tolerance by mid-March 2026, indicating that primary consolidation under the placed fill is substantially complete. Settlement plate SP6 recorded net heave rather than settlement over the monitoring period and has been excluded from the settlement assessment. Settlement plate SP2 was re-established on 26 February 2026; the record for SP2 is reported from that date, which is conservative as it excludes movement recorded prior to re-establishment.

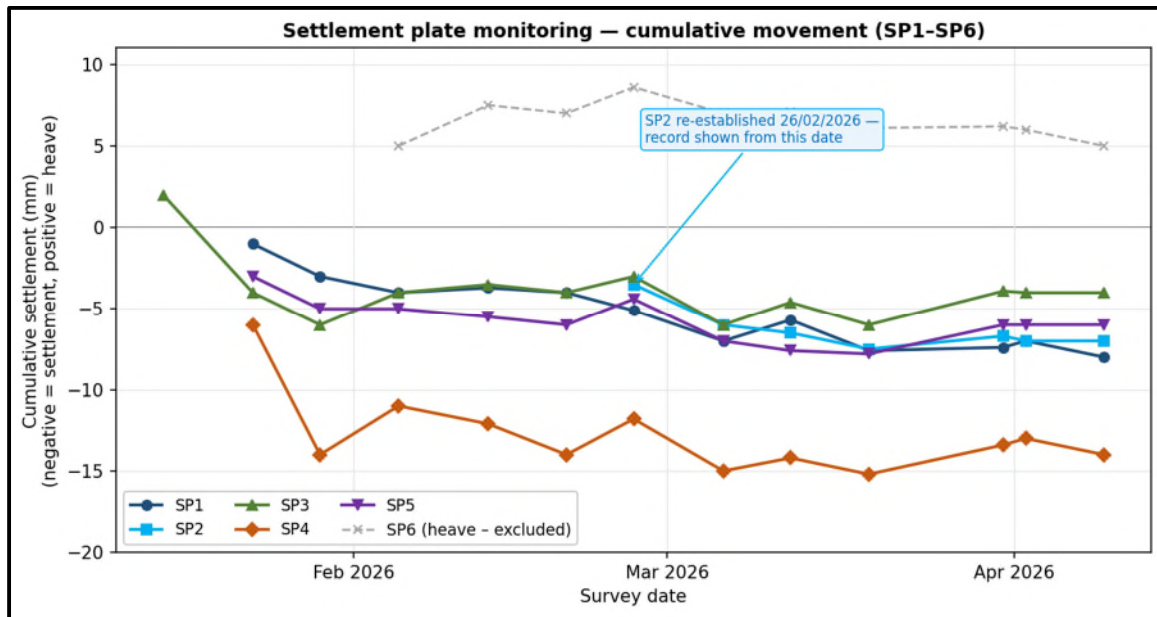


Figure 5: Cumulative settlement plate movement, 15 December 2025 to 9 April 2026.

Measured settlements at the close of monitoring have been compared against the total settlement estimated from the nearest cone penetration test (CPT) in each fill area, derived from the CPT data using CPeT-IT (constrained-modulus method). The comparison is summarised in Table 2.

Table 2: Settlement plate results – measured settlement compared with CPeT-IT estimated total settlement

Settlement plate	Nearest CPT	Estimated total settlement (mm)	Measured settlement (mm)	Difference (mm)	Proportion realised
SP1	CPT27	9	8	1	86%
SP2	CPT25A	25	7	18	29%
SP3	CPT16	10	4	6	40%
SP4	G-CPT17	17	14	3	83%
SP5	G-CPT33	10	6	4	60%

Note: SP6 is excluded (net heave). Estimated settlements are the total settlements estimated from the CPT data using CPeT-IT under the placed fill loading; remaining settlement is the estimated total less the measured settlement.

Condition 3.4 provides two routes to compliance: measured settlement achieving 95% of primary consolidation, or, where that is not achieved, demonstration that any remaining settlement can be accommodated by the recommended foundation options. While no individual plate demonstrates 95% of the estimated total settlement realised at the close of monitoring, the measured settlement rates have reduced to within survey tolerance and the magnitude of any remaining settlement is likely to be small. The maximum difference in the settlement estimated by the comparison is 17.5 mm at SP2, with all other plates 6 mm or less. These remaining settlements are within the tolerances of the TC2 foundation options recommended in the Davis Ogilvie Geotechnical Report (Revision 1, 29 May 2024) and can therefore be accommodated by those foundation options without further remediation being necessary.

On this basis, the remaining settlement across Lots 109 – 190 can be accommodated by the recommended foundation options, no remediation is required, and consent condition 3.4 is considered satisfied.

3.7 Liquefaction risk of finished lots

Lots 109–190 within Stages 6 & 8 meet the liquefaction performance criterion of TC2. TC2 lots do not meet the NZS 3604:2011 (Timber Framed Building Standard) definition of good ground as there is a minor to moderate risk of liquefaction induced land damage in future seismic events.

Each site shall have a geotechnical investigation undertaken in accordance with the MBIE Guidance: *‘Repairing and rebuilding houses affected by the Canterbury earthquakes, (2013) MBIE’ (Part A – Section 3.4.1 – Shallow subsurface investigation for TC1 and TC2).*

3.8 Topsoil thickness

Following stripping and / or filling, previously cut and stockpiled topsoil was re-spread over all lots. Topsoil is expected to be 300 mm to 400 mm thick beneath the lots; however, the thickness may vary away from test locations and should be confirmed on the sites at building consent stage. Topsoil is not suitable to remain under any part of the building footprint and shall be removed prior to foundation construction.

3.9 Peat and Organic Soils

ENGEO encountered relatively thin beds of organic material during their 2017 investigation which informed a settlement analysis during construction of Stage 4. Their settlement findings are discussed below in Section 3.9. ENGEO’s subsequent 2021 earthworks completion report² for Stages 1B and 4 provided the following summary of the organic material encountered:

“Organics have consistently been encountered withing a clayey silt layer typically below 2.0 m depth and above 5.0 m depth. This has included silt with minor to some organics, and a relatively thin peat layer (typically 0.1 m to 0.3 m thick). The presence of this layer (as encountered in our investigations) has been incorporated into our settlement monitoring and anticipated settlements. If significant organics, beyond that encountered in our investigations and assumed in assessment, are encountered in lot-specific testing, additional assessment will be required.”

² ENGEO (August 2021) Belfast Village Stages 1B and 4, Earthworks Completion Report, Johns Road Horticultural Ltd, 30 Johns Road, Belfast. Ref 9621.100.000_38

Davis Ogilvie subsequently encountered organic deposits in excess of what was noted by ENGEO during construction of stormwater services in the northwest Stage 8. Davis Ogilvie was separately engaged to provide site specific investigation and reporting for the adjacent lots (Lots 109 – 111 and Lot 135). It was determined that TC2 foundation options were suitable for lightweight structures and geogrid reinforcement of the underlying gravel rafts was recommended.

4.0 Civil infrastructure

All civil engineering design was undertaken in general accordance with Christchurch City Council Infrastructure Design Standard and Construction Standard Specifications, and engineering approvals provided by CCC under RMA/2024/1548.

The following section details the construction and testing undertaken and the level of conformance achieved.

4.1 Water

The high-pressure water main network inverts are at a minimum depth of 0.9 m. uPVC PN12 watermain (with PE80B submains) has been specified for consistency with the existing reticulation in the earlier stages of the subdivision, which was designed by Riley, and approved and constructed under the previous IDS prior to the material selection changes. Council has approved the continued use of uPVC for this stage on a like-for-like basis, and the design has been accepted for vesting under RMA/2024/1548 (11 July 2025). The typical PE pipe main trench design as detailed on DWG C403-S6 (Issue A2) Davis Ogilvie Engineering Design (Figure 6) was considered appropriate to provide the seismic resilience required. PE sub-mains, located in the berms, are at minimum depth of 500 mm.

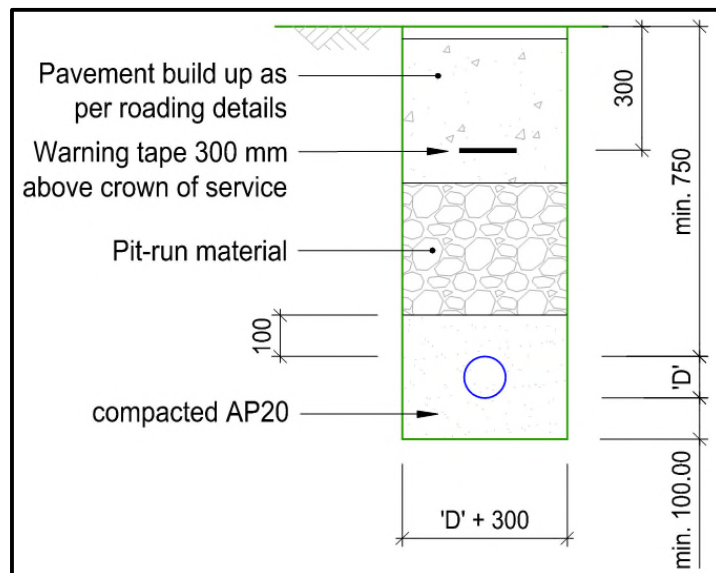


Figure 6: Typical Water Main Trench Detail.

4.2 Sewer and stormwater

All sewer and stormwater works have been designed and detailed in general accordance with CCC IDS requirements and constructed in accordance with the approved engineering plans. Gravity sewer was installed in the entirety of Stage 6 & 8. Sewer and stormwater manholes were conservatively designed to resist hydrostatic forces created by high groundwater and assessed for resisting additional buoyancy effects induced by liquefaction. Where soft and / or unsuitable material was encountered within the base of a trench or manhole, the material was removed and replaced with granular hard fill to provide additional support for the infrastructure.

Nuclear Densometer (ND) testing undertaken in accordance with NZS 4407:2015 Test 4.3 field methods and NZS 4402:1986 Test 4.1.1 laboratory methods was conducted on each 500 mm lift (where appropriate) within service trenches. All trench ND testing achieved target compaction minimum (92% for granular material).

5.0 Summary

The subdivided lots within Belfast Subdivision Stages 6 & 8 are considered geotechnically suitable for their intended purpose. Earthworks and Roading have been constructed as per CCC IDS and CSS and Davis Ogilvie recommendations, complying with the requirements of relevant consent conditions.

Liquefaction analysis conducted by Davis Ogilvie in 2017 concluded the liquefaction performance of Lots 109 – 190 to be generally equivalent to TC2 performance criteria. The following condition must be considered for development on each lot:

- TC2 Lots 109 – 190 do not meet the NZS 3604:2011 (Timber Framed Building Standard) definition of good ground as there is a minor to moderate risk of liquefaction induced land damage in future seismic events.
- Each site shall have a geotechnical investigation undertaken in accordance with the MBIE Guidance: *'Repairing and rebuilding houses affected by the Canterbury earthquakes, (2013) MBIE:41*

APPENDIX A

**Fill Plan and Certificate, Fill MDD and
NDM Results**

Statement of professional opinion on the suitability of land for building construction

Issued by:	Davis Ogilvie & Partners Ltd. (Geotechnical engineering firm or suitably qualified Geo-professional)
To:	Infinity Belfast Ltd. (Owner/Developer)
To be supplied to:	Christchurch City Council (Territorial authority)
In respect of:	Belfast Subdivision Stages 6 & 8: Lots 109 – 190 (Description of infrastructure/land development)
At:	Lots 407 & 408 DP 611643, 14A & 39 Meadow View Drive (Address)

I Elliot Duke (Geo-professional) on behalf of Davis Ogilvie & Partners Ltd. (Geotechnical engineering firm) hereby confirm:

1. I am a suitably qualified and experienced geotechnical engineer and was retained by the owner / developer as the Geo-professional on the above proposed development.
2. The extent of the inspections during construction, and the results of all tests carried out are as described in the geotechnical completion report, dated August 2026.
3. In my professional opinion, I consider that:
 - (a) The earth fills shown on the attached Plan No FP01 & FP02 – AB1 have been placed in compliance with the requirements of the Christchurch City Council and the Davis Ogilvie specification.
 - (b) Liquefaction analysis conducted by ENGEO concluded the liquefaction performance of all finished residential lots within Stages 6 & 8 to be TC2. The following conditions must be considered for development on each lot:
 - TC2 lots do not meet the NZS 3604:2011 (Timber Framed Building Standard) definition of good ground as there is a minor to moderate risk of liquefaction induced land damage in future seismic events.
 - Each site shall have a geotechnical investigation undertaken in accordance with the MBIE Guidance: 'Repairing and rebuilding houses affected by the Canterbury earthquakes, (2013) MBIE'.
4. This professional opinion is furnished to the territorial authority and the owner/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 the geotechnical report referred to in Clause 2 above and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.
6. Liability under this statement accrues to the geotechnical firm only and no liability shall accrue to the individual completing this statement.
7. The geotechnical engineering firm issuing this statement holds a current policy of professional indemnity insurance of no less than \$2,000,000.00 (Minimum amount of insurance shall be commensurate with the current amounts recommended by EngNZ, ACE New Zealand, TNZ, INGENIUM).

Elliot Duke



.....
(Signature of Engineer)

Date: 12 August 2026

Director | Chartered Professional Engineer | BE Nat Res (Hons), FEngNZ, CPEng Int PE(NZ), APEC Engineer



Rev.	Date	Reason	Approved
AB1	07/26	As-built	DB
AB2	08/26	Sediment Basin Added	DB

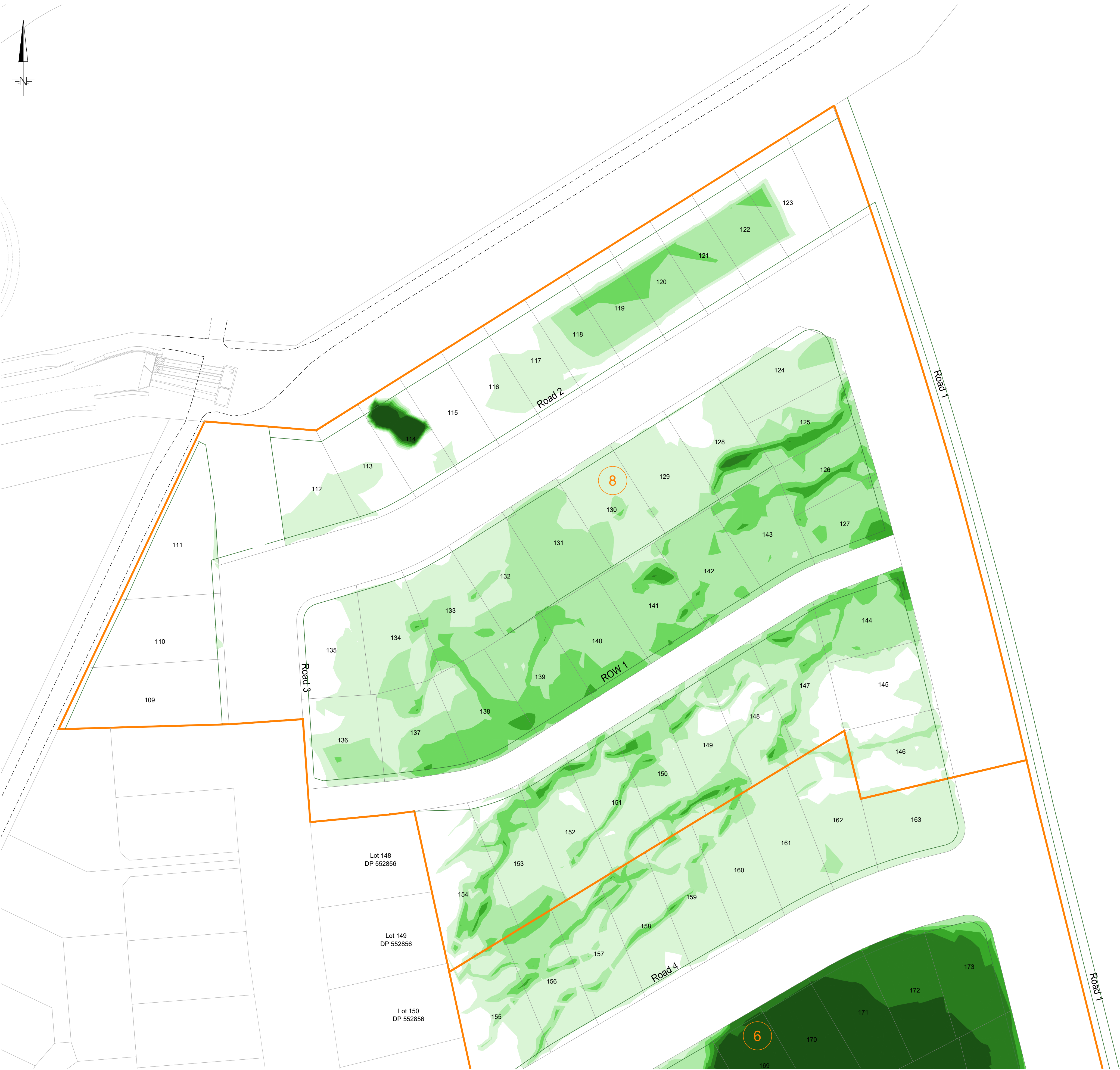
AS BUILT

Depth Table			
Number	Minimum Level	Maximum Level	Color
1	0.300	0.600	
2	0.600	0.900	
3	0.900	1.200	
4	1.200	1.500	
5	1.500	1.800	
6	1.800	2.212	

STAGE 6		STAGE 8	
CUT/FILL LEGEND		CUT/FILL LEGEND	
Lot No.	Max site fill	Lot No.	Max site fill
155	1.23m	109	0.00m
156	1.29m	110	0.32m
157	1.23m	111	0.44m
158	1.21m	112	0.62m
159	1.29m	113	0.66m
160	1.24m	114	2.21m
161	1.07m	115	0.72m
162	0.85m	116	0.53m
163	0.59m	117	0.58m
164	0.85m	118	0.94m
165	1.05m	119	0.95m
166	1.81m	120	0.96m
167	2.06m	121	0.92m
168	2.09m	122	0.93m
169	2.08m	123	0.97m
170	1.99m	124	0.76m
171	1.95m	125	1.51m
172	1.92m	126	1.49m
173	1.86m	127	1.47m
174	1.92m	128	1.76m
175	1.97m	129	1.15m
176	1.96m	130	1.11m
177	2.08m	131	0.89m
178	2.06m	132	0.99m
179	1.95m	133	1.15m
180	1.94m	134	1.23m
181	1.67m	135	0.51m
182	2.09m	136	0.95m
183	2.02m	137	1.22m
184	1.83m	138	1.27m
185	1.69m	139	1.25m
186	1.83m	140	1.23m
187	1.73m	141	1.52m
188	1.22m	142	1.28m
189	0.60m	143	1.24m
190	0.64m	144	1.51m
		145	0.72m
		146	0.86m
		147	1.28m
		148	1.35m
		149	1.41m
		150	1.39m
		151	1.43m
		152	1.42m
		153	1.21m
		154	1.45m

Denotes certified fill certificate - Comparison between contractor provided subgrade surface and and top of fill before topsoil placement

CAD ref: 41556.Fill Plan



Rev.	Date	Reason	Approved
AB1	08/26	As-built	DB
AB2	08/26	Sediment Basin Added	DB

AS BUILT

Depth Table			
Number	Minimum Level	Maximum Level	Color
1	0.300	0.600	
2	0.600	0.900	
3	0.900	1.200	
4	1.200	1.500	
5	1.500	1.800	
6	1.800	2.212	

STAGE 6		STAGE 8	
CUT/FILL LEGEND		CUT/FILL LEGEND	
Lot No.	Max site fill	Lot No.	Max site fill
155	1.23m	109	0.00m
156	1.29m	110	0.32m
157	1.23m	111	0.44m
158	1.21m	112	0.62m
159	1.29m	113	0.66m
160	1.24m	114	2.21m
161	1.07m	115	0.72m
162	0.85m	116	0.53m
163	0.59m	117	0.58m
164	0.85m	118	0.94m
165	1.05m	119	0.95m
166	1.81m	120	0.96m
167	2.06m	121	0.92m
168	2.09m	122	0.93m
169	2.08m	123	0.97m
170	1.99m	124	0.76m
171	1.95m	125	1.51m
172	1.92m	126	1.49m
173	1.86m	127	1.47m
174	1.92m	128	1.76m
175	1.97m	129	1.15m
176	1.96m	130	1.11m
177	2.08m	131	0.89m
178	2.06m	132	0.99m
179	1.95m	133	1.15m
180	1.94m	134	1.23m
181	1.67m	135	0.51m
182	2.09m	136	0.95m
183	2.02m	137	1.22m
184	1.83m	138	1.27m
185	1.69m	139	1.25m
186	1.83m	140	1.23m
187	1.73m	141	1.52m
188	1.22m	142	1.28m
189	0.60m	143	1.24m
190	0.64m	144	1.51m
		145	0.72m
		146	0.86m
		147	1.28m
		148	1.35m
		149	1.41m
		150	1.39m
		151	1.43m
		152	1.42m
		153	1.21m
		154	1.45m

Denotes certified fill certificate - Comparison between contractor provided subgrade surface and and top of fill before topsoil placement

CAD ref: 41556,Fill Plan

Statement of suitability of earth fill for residential development

Subdivision:	Belfast Stages 6 & 8
Owner / developer:	Infinity Belfast Limited
Location:	Lots 407 & 408 DP 611643, 14A & 39 Meadow View Drive, Belfast, Christchurch

The earth fills shown on the attached plans No. 41556.FP01 & FP02 – AB1 (07/2026) have been placed in compliance with the terms of NZS 4431:2022: Earthfill for Residential Development

I, Elliot Duke, am a Chartered Professional Engineer (Member ID 1003344) acting on behalf of Davis Ogilvie and Partners Ltd.

During the work, I and/or staff under my supervision made periodic visits to inspect the site and testing was carried out to check the quality of the fill. Fulton Hogan Laboratories provided MDD test results. SGNT and Collimate Ltd provided NDM testing. MDD and NDM results are attached to this certificate.

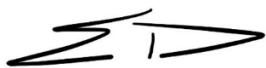
The attached Plans No. 41556.FP01 & FP02 – AB1 shows Lots 109 – 190 which are affected by filling and the extent of fill covered by this certificate.

The maximum fill depth was 2.09 m in Stage 6 and 2.21 m in Stage 8. The depth and type of fill material used on each lot, and the subgrade conditions encountered are detailed in the report entitled Geotechnical completion Report, Belfast Subdivision – Residential Stages 6 & 8 dated August 2026.

Liquefaction analysis was conducted by ENGEO in 2017 and reviewed by Davis Ogilvie for an amended scheme plan in 2024. It was concluded that the Liquefaction performance of Lots 109 – 190 to be generally equivalent to TC2 performance criteria. The following condition must be considered for development on each lot:

- TC2 Lots 109 – 190 do not meet the NZS 3604:2011 (Timber Framed Building Standard) definition of good ground as there is a minor to moderate risk of liquefaction induced land damage in future seismic events.
- Each site shall have a geotechnical investigation undertaken in accordance with the MBIE Guidance: *'Repairing and rebuilding houses affected by the Canterbury earthquakes, (2013) MBIE'*

Elliot Duke



(Signature of Engineer)

Date: 12 August 2026

Director | Chartered Professional Engineer | BE Nat Res (Hons), FEngNZ, CPEng Int PE(NZ)

On behalf of: Infinity Belfast Limited
(Name of Owner / Developer)

Job No(s): 41556	Date: 09/12/25 Time: 03:56 PM
Job Name / Address: Belfast West	
Inspection: GE - Geotech Subgrade Lots 167,168, 179-184, 187-190	
Inspection Type: Geotechnical	
People: Mark S	
Contractor / Client: Tru-Line, JR Civil	
Weather/Ground conditions: good / Dry	
Consent Information	
Building consent documents on site: Not relevant	
Have you checked consent conditions/building consent number for a PS4? Not relevant	
Erosion & Sediment Control	
Has an Earthworks consent been granted: Yes – RMA/2024/1548	
Has the Contractor submitted an ESC Plan: Yes	
Do the earthworks comply with the ESC Plan: Yes	

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	Yes
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, on-site with staff
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	Yes
If required, have you signed in?	No
Have you reviewed the site hazard board?	Yes
Photo of hazard board	
General comments	
Are you working on or near the road?	No
If Yes, what TMD are you working under?	Not required

Item 1



Fig 1.



Fig 3. site overview from south boundary showing earthworks placement over previously inspected lots 169-177



Fig 4. Basal filter cloth installation. Note some hollows were filled prior to cloth placement.



Fig 5. Tested area.



Fig 6. Tested area. Note lighter, more elevated material.



Fig 8. Previous settlement monitoring pad on elevated area comprising lots 187-190. DCP testing indicates this is engineered fill from previous works.



Fig 10.



Fig 12. Overview of lots 169-177



Fig 13. DCP testing



Fig 15. DCP testing



Fig 17.



Fig 18.



Fig 19.



Fig 20.

Comments/Observations:	Onsite to inspect earthworks subgrade of lots 167,168, 179-184, 187-190. All unsuitable removed. DCP results generally achieving 200kPa, with exception of wetter areas in former sediment basins. Evidence that the south west corner of the site is previously placed engineered fill. Very high blow counts, uniform topsoil thickness and a former settlement plate still present. Ok to proceed, ensure lots straddling former ponds get cut to depth to allow minimum 600mm gravel layer.
Action Required:	Ok to proceed.
Description of Variation:	

Final Comments: Ok to proceed.

Name: Mark Sellars
Email: mark@do.nz
Issued to: Truline, Infinity
Signature:

Job No(s): 41556	Date: 05/12/25 Time: 02:58 PM
Job Name / Address: Belfast West	
Inspection: GE - Earthworks Subgrade Inspection - Lots 169-177	
Inspection Type: Geotechnical	
People: Mark S, Kara B.	
Contractor / Client: Tru-Line / JR Civil	
Weather/Ground conditions: Good / Dry	
Consent Information	
Building consent documents on site: Not relevant	
Have you checked consent conditions/building consent number for a PS4? Not relevant	
Erosion & Sediment Control	
Has an Earthworks consent been granted: Yes – RMA/2024/1548	
Has the Contractor submitted an ESC Plan: Yes	
Do the earthworks comply with the ESC Plan: Yes	

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	Yes
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, on-site with staff
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	Not required
If required, have you signed in?	Yes
Have you reviewed the site hazard board?	Yes
Photo of hazard board	
General comments	
Are you working on or near the road?	No
If Yes, what TMD are you working under?	Not required

Item 1



Fig 1.



Fig 2.



Fig 3.



Fig 4.



Fig 5.



Fig 6.



Fig 7.



Fig 8.



Fig 9.



Fig 10.



Fig 11.



Fig 12.

Fig 13.



Comments/Observations:

Onsite to inspect subgrade of earthworks excavation. Lots 169 - 177 and part of Road 4. All topsoil and unsuitable material has been removed. Subgrade ranges from silty fine sand to silt. DCP testing indicates 200kPa is generally achieved. Some slightly lower blow counts associated with groundwater. A large section of the subgrade is within a former sediment basin. > 1 m of imported gravel will is to be placed in this area. Where lots straddle the edges of the deeper former pond, entirety of the lot is to be cut down to ensure a minimum 600mm of gravel is placed. Filter cloth to be placed on subgrade in this area.

Action Required:

Ok to proceed.

Description of Variation:

Final Comments: Ok to proceed.

Name: Mark Sellars
Email: mark@gmail.com
Issued to:
Signature:



Job No(s): 41556

Date: 07/01/26 Time: 08:06 AM

Job Name / Address: Belfast West

Inspection: GE - Site Safety & Inspection record 15

Inspection Type: Geotechnical

People: ZS, Tru line contractors

Contractor / Client: Tru line

Weather/Ground conditions: Sunny

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number for a PS4? Not relevant

Erosion & Sediment Control

Has an Earthworks consent been granted: Not relevant

Has the Contractor submitted an ESC Plan: Not relevant

Do the earthworks comply with the ESC Plan: Not relevant

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, have mobile
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	Not required
If required, have you signed in?	Yes
Have you reviewed the site hazard board?	Yes
Photo of hazard board	
General comments	
Are you working on or near the road?	No
If Yes, what TMD are you working under?	Not required

Item 1



Fig 1. Overview of Lots 152 and 153, facing SW. All Topsoil and unsuitable material have been removed to natural ground before inspection.



Fig 2. Overview of Lot 154 to 158 facing NE. Topsoil and unsuitable material have been striped before inspection.



Fig 3. Overview of Lots 154 to 152.



Fig 5. Overview of Lots 155 to 158, facing NE.



Fig 6. Overview of Lot 158 facing E.



Fig 7. Overview of Lot 158 to 152, facing W.

Comments/Observations:	Davis Ogilvie was onsite to complete a subgrade inspection for Lots 152 to 158 at Belfast Stage 6. The foundation excavation and with all topsoil and unsuitable materials (peat) had been excavated prior to arrival. Exposing a sandy silt subgrade. Lot 158 showed an isolated soft spot where DCP blows did not reach the minimum required geotechnical ultimate bearing capacity of 200 kPa, a hand auger undertaken confirmed, natural ground. No remediation required. DCP testing within the lots 152 to 158, achieved the minimum required geotechnical ultimate bearing capacity of 200 kPa. Lot 159 was not complete at the time of inspection.
Action Required:	Settlement monitoring plates to be put in place. For areas of filling over 500mm. A subgrade inspection required for Lot 159 when completed.
Description of Variation:	

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to proceed as per consented plans.

Name: Zak Stark
Email: zak@do.nz
Issued to:
Signature:

Project: Belfast Sub (41556)

Client:

Consent:

aus Göttingen

Job No(s): 41556	Date: 13/01/26 Time: 09:30 AM
Job Name / Address: Belfast West	
Inspection: GE - Site Safety & Inspection record 19 - Lots 144 to 146, 164 and ROW1	
Inspection Type: Geotechnical	
People: G, Tru line contractors, Zak	
Contractor / Client: Tru Line	
Weather/Ground conditions: Overcast	
Consent Information	
Building consent documents on site: Not relevant	
Have you checked consent conditions/building consent number for a PS4? Not relevant	
Erosion & Sediment Control	
Has an Earthworks consent been granted: Not relevant	
Has the Contractor submitted an ESC Plan: Not relevant	
Do the earthworks comply with the ESC Plan: Not relevant	

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	Yes
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, have mobile
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	No
If required, have you signed in?	Yes
Have you reviewed the site hazard board?	Yes
Photo of hazard board	
General comments	
Are you working on or near the road?	
If Yes, what TMD are you working under?	

Page 2 of 4



Fig 4. Overview of ROW1, facing SW. topsoil and unsuitable materials was stripped prior to arrival.



Fig 5. Overview of ROW1, facing NE.



Fig 6. Overview of partially stripped Lot 164.

Comments/Observations:	Talked with G about the unsuitable material (mix of topsoil and old fill) in Lots 135 to approx. 140, asked to strip the unsuitables down to natural. Topsoil and unsuitable materials were stripped before arrival of Lots 144 to 146 and ROW1. Lot 164 was partially stripped. DCP returned results achieving a minimum ultimate bearing capacity of 200kPa for Lots 144 to 146, 164 and ROW1.
Action Required:	Detailed photos of the fully stripped subgrade of Lot 164 Subgrade to be inspected for Lot 135 to approx 140 once unsuitables have been stripped.
Description of Variation:	

Until a price has been received and approved by the Engineer this is not an approval to carry out works.

Final Comments: Ok to proceed as per consented plans,

Name: Zak Stark
Email: zak@do.nz
Issued to:
Signature:

CALCULATION SKETCH SHEET

do DAVIS OGILVIE

DESCRIPTION:

DATE: 11 / 26 ENGINEER / SURVEYOR:

PROJECT: Beltust Stage 6 & 8.

SHEET No: 1 JOB No: 41556

REVISION:

Site note

Talked with Cc about unsuitable m. lot 135 to approx 140
- have to strip to natural. as it is a mix of topsoil and fill.

- TS and unsuitable material has been stripped before arrival

- DCP before Result achieving min 200kpa for lots 146 to 149, Road ()
- also achieved Rg.

	Lot 146			148		149		Road							
DCP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
100	2	3	2	2	4	2	2	2	7	2	2	3	4	4	4
200	2	5	2	3	5	2	2	5	10	4	10	4	8	6	4
300	2	4	2	3	3	2	2	4	9	4	10	6	8	6	6
400	2	4	2	3	2	2	2	4	6	4	8	8	15	4	9
500	2	4	2	3	3	2	2	4	5	3	7	2	9	5	4
600	2	2	2	2	4	2	2	4	5	3	6	2	7	5	3
700	1	2	2	2	3	2	2	4	4	1	3	2	7	3	3
800	2	2	2	2	3	2	2	3	3	2	4	2	2	3	3
900	3	3	2	2	2	2	2	2	2	2	3	3	2	2	2
	Road			Lot 149											
	16	17	18												
100	6	2	3												
200	3	3	4												
300	3	3	5												
400	3	3	8												
500	3	3	10												
600	3	3	8												
700	3	3	12												
800	2	2	10												
900	3	3	9												

16 Passed Road subgrade test in house Rd.



Job No(s): 41556

Date: 10/04/26 Time: 12:43 PM

Job Name / Address: Belfast West

Inspection: GE - Site Safety & Inspection record 37

Inspection Type: Geotechnical

People: PS,SS

Contractor / Client: TruLine

Weather/Ground conditions: Fine

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number for a PS4? Not relevant

Erosion & Sediment Control

Has an Earthworks consent been granted:

Has the Contractor submitted an ESC Plan:

Do the earthworks comply with the ESC Plan:

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	Yes
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, on-site with staff
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	Not required
If required, have you signed in?	Not required
Have you reviewed the site hazard board?	No
Photo of hazard board	None
General comments	
Are you working on or near the road?	No
If Yes, what TMD are you working under?	Not required

Item 1



Fig 1. Looking from NE corner of site westwards across Lots 123-117. Stockpile in Background is on Lot 117. In February 2026 this was a stormwater retention pond. It has now been backfilled with gravelly silt/fine sand.



Fig 2. TP01 - contact between fill and in situ silt at 0.75 m.



Fig 3. TP02 - fill/silt contact at 0.8 m.



Fig 4. TP03 - fill/silt contact at 0.9 m



Fig 5. TP04 - fill/silt contact 0.6 m.



Fig 6. Photo from top of stockpile showing test pit locations from TP01 in background to TP04 in foreground.

Comments/Observations:	Onsite to confirm that the stormwater retention pond in the north east corner of stage 8 was free of topsoil before it was filled. Four test pits were dug in the location of the pond, through the fill to the underlying silt/silty fine sand. Fill is gravelly silt/silty fine sand. The insitu material is distinguished by its lack of gravel, iron oxide mottling, and it cuts smoothly. Clean contacts between fill and in situ material were observed in all four test pits. No topsoil or otherwise unsuitable material was observed in any of the test pits.
Action Required:	OK to proceed.
Description of Variation:	

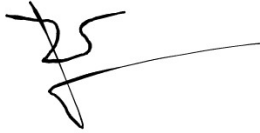
Final Comments:

Name: Peter Smale

Email: peters@do.nz

Issued to:

Signature:

A handwritten signature in black ink, appearing to be 'PS' followed by a long horizontal stroke.

Job No(s): 41556

Date: 02/06/26 Time: 05:11 PM

Job Name / Address: Belfast West

Inspection: GE - Test Pit Inspection Lot 109/110

Inspection Type: Geotechnical

People: Mark S

Contractor / Client: KB

Weather/Ground conditions: Good / Dry

Consent Information

Building consent documents on site: Not relevant

Have you checked consent conditions/building consent number for a PS4? Not relevant

Erosion & Sediment Control

Has an Earthworks consent been granted: Yes – RMA/2024/1548

Has the Contractor submitted an ESC Plan: Yes

Do the earthworks comply with the ESC Plan: Yes

Site Safety & Inspection record 'TAKE 5'

Have you completed the Job Hazard Checklist?	Yes
Does the office know where you are?	Yes
Are you able to get help if needed?	Yes, on-site with staff
Are there any particular Hazardous Works notifiable to WorkSafe?	No
If yes, has WorkSafe been notified?	No
Do you need to be inducted to the site?	Not required
If required, have you signed in?	No
Have you reviewed the site hazard board?	No
Photo of hazard board	None
General comments	Wasnt sure where site office had moved to. Was accompanied by site supervisor most of the time.
Are you working on or near the road?	No
If Yes, what TMD are you working under?	Not required

Item 1



Fig 1.



Fig 2.

Comments/Observations:	Carried out hand auger on front third of lot 109 at Belfast to confirm earthworks contractors didn't bury topsoil. Confirmed no buried unsuitable, near the surface, however organic material with some peat was encountered around 2.m depth.
Action Required:	Ordered an excavator to further investigate.
Description of Variation:	

Item 2



Fig 1.



Fig 2.



Fig 3.

Comments/Observations:	Test pit to 2.4m to better observe organic material detected in Hand Auger
Action Required:	
Description of Variation:	

Item 3



Fig 1.



Fig 2.



Fig 3.



Fig 4.



Fig 5.



Fig 6.



Fig 7.



Fig 8.



Fig 9.

Comments/Observations:	Peat consists generally as an amorphous organic silt with completely decomposed leaf matter, with some thin beds of spongy, root like material.
Action Required:	
Description of Variation:	

Final Comments:

Name:

Email:

Issued to:

Signature:

A handwritten signature in black ink, appearing to be 'JH' or similar, located below the 'Signature:' label.

Report No: MDD:CAN25S-24189

Issue No: 1

Maximum Dry Density Report

Client:TruLine Civil Ltd
PO Box 522Greymouth 7840
NZ**Project:**

QA Testing - Tru-Line Drainage Ltd

The results in this report
relate only to the items /
samples that were testedThe tests reported herein (unless otherwise indicated) have been
performed in accordance with the laboratory's scope of accreditation.
Samples are tested as received, in natural condition, unless stated
otherwise in the comments. This report may only be reproduced in full.Approved Signatory: Liam Brennan
(Laboratory Operations Manager)
IANZ Accreditation No:200
Date of Issue: 5/12/2025

Sample Details

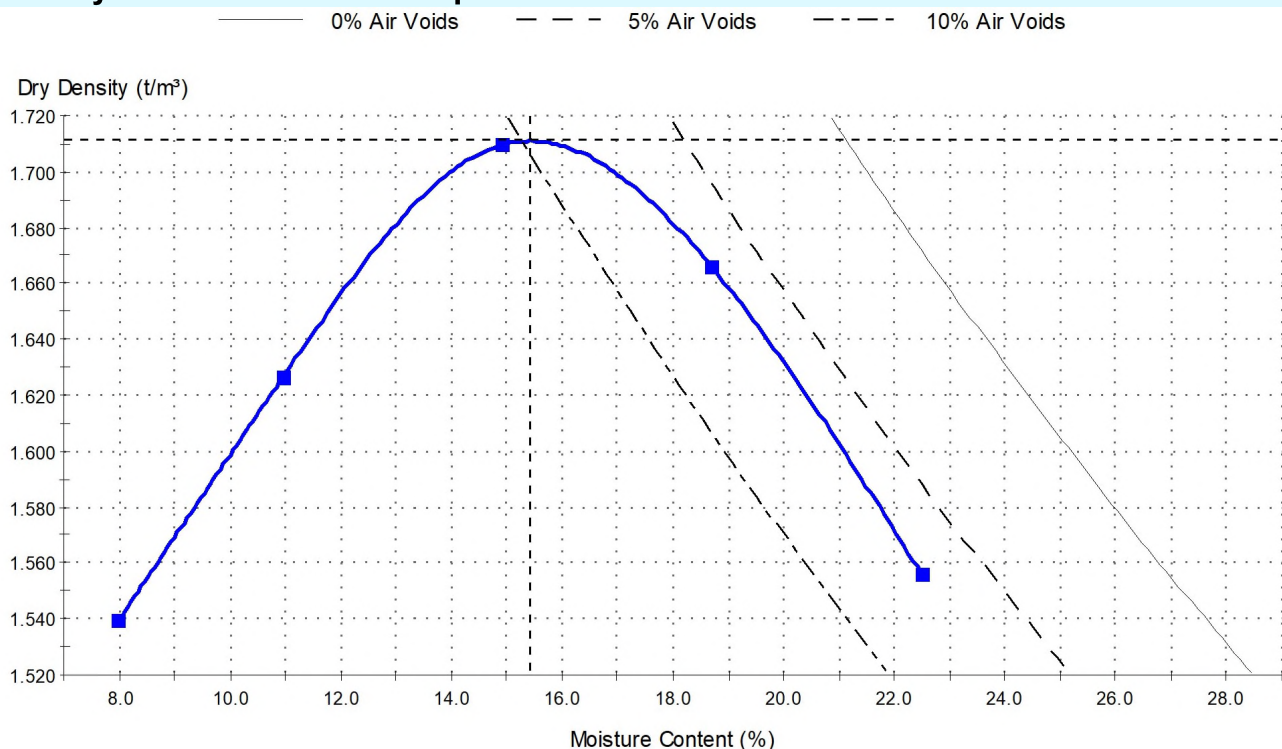
Sample ID: CAN25S-24189**Material:** Silt**Site/Sampled From:** Dickys Road, Coutts Island**Specification:** Standard Compaction Test**Sampling Method:** Not Advised - Not Accredited**Tested By:** John Edattukaran**Client Sample ID:** QA Testing**Sample Source:** Miscellaneous Material Source**Date Sampled:** 01/12/2025**Sampled By:** Not Advised**Date Tested:** 03/12/2025**Sampling Endorsed?:** No

Test Results

NZS 4402:1986 Test 4.1.1 - 1986

Maximum Dry Density (t/m³): 1.71**Solid Density (t/m³):** 2.680 assumed**Oversize Material (%):** 0**Optimum Moisture Content (%):** 15**Oversize Sieve (mm):** 9.5**Sample History:** Natural

Dry Density - Moisture Relationship



Comments

Report No: MAT:CAN25S-24188

Issue No: 1

Material Test Report

Client:TruLine Civil Ltd
PO Box 522Greymouth 7840
NZ**Project:**

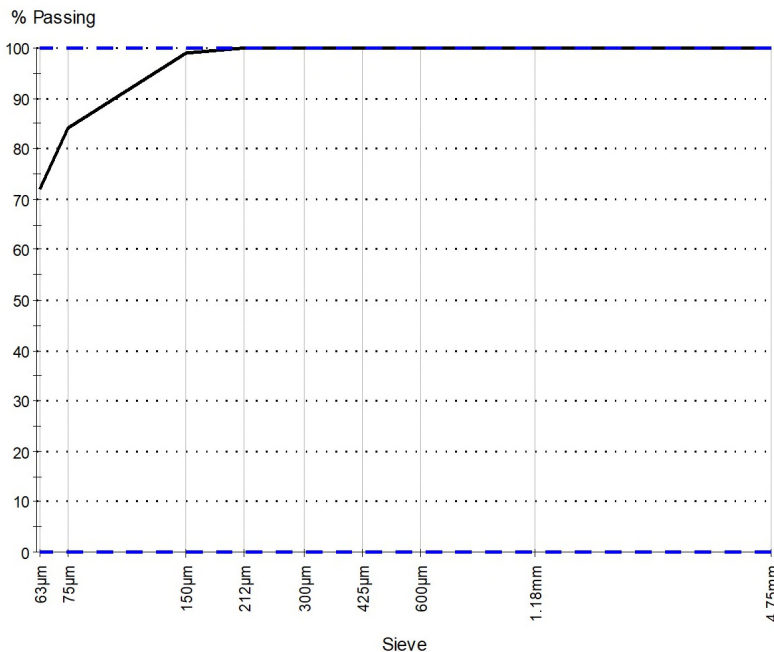
QA Testing - Tru-Line Drainage Ltd

The results in this report
relate only to the items /
samples that were testedThe tests reported herein (unless otherwise indicated) have been
performed in accordance with the laboratory's scope of accreditation.
Samples are tested as received, in natural condition, unless stated
otherwise in the comments. This report may only be reproduced in full.Approved Signatory: Liam Brennan
(Laboratory Operations Manager)
IANZ Accreditation No:200
Date of Issue: 5/12/2025**Sample Details**

Sample ID: CAN25S-24188
Client Sample ID: QA Testing
Material: Silt
Sample Source: Miscellaneous Material Source
Site/Sampled From: Dickys Road, Coutts Island
Date Sampled: 01/12/2025
Specification: No Specification
Sampled By: Not Advised
Sampling Method: Not Advised - Not Accredited
Technician: Amanda Ryan
Sampling Endorsed?: No

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	NZS 4402:1986 Test 2.1	11.6	
Date Tested		3/12/2025	
Sample History		NZS 4402:1986 Test 2.8.1	Natural State

Particle Size Distribution**Method:** NZS 4402:1986 Test 2.8.1**Drying By:** Oven**Date Tested:** 3/12/2025**Note:** ^a Obtained by difference.

Sieve Size	% Passing	Limits
4.75mm	100	0 – 100
1.18mm	100	0 – 100
600µm	100	0 – 100
425µm	100	0 – 100
300µm	100	0 – 100
212µm	100	0 – 100
150µm	99	0 – 100
75µm	84	0 – 100
63µm	72 ^a	0 – 100

Comments

N/A

Report No: MDD:CAN25S-24206

Issue No: 1

Maximum Dry Density Report

Client:TruLine Civil Ltd
PO Box 522Greymouth 7840
NZ**Project:**

QA Testing - Tru-Line Drainage Ltd

The results in this report
relate only to the items /
samples that were testedThe tests reported herein (unless otherwise indicated) have been
performed in accordance with the laboratory's scope of accreditation.
Samples are tested as received, in natural condition, unless stated
otherwise in the comments. This report may only be reproduced in full.Approved Signatory: Liam Brennan
(Laboratory Operations Manager)
IANZ Accreditation No:200
Date of Issue: 5/12/2025

Sample Details

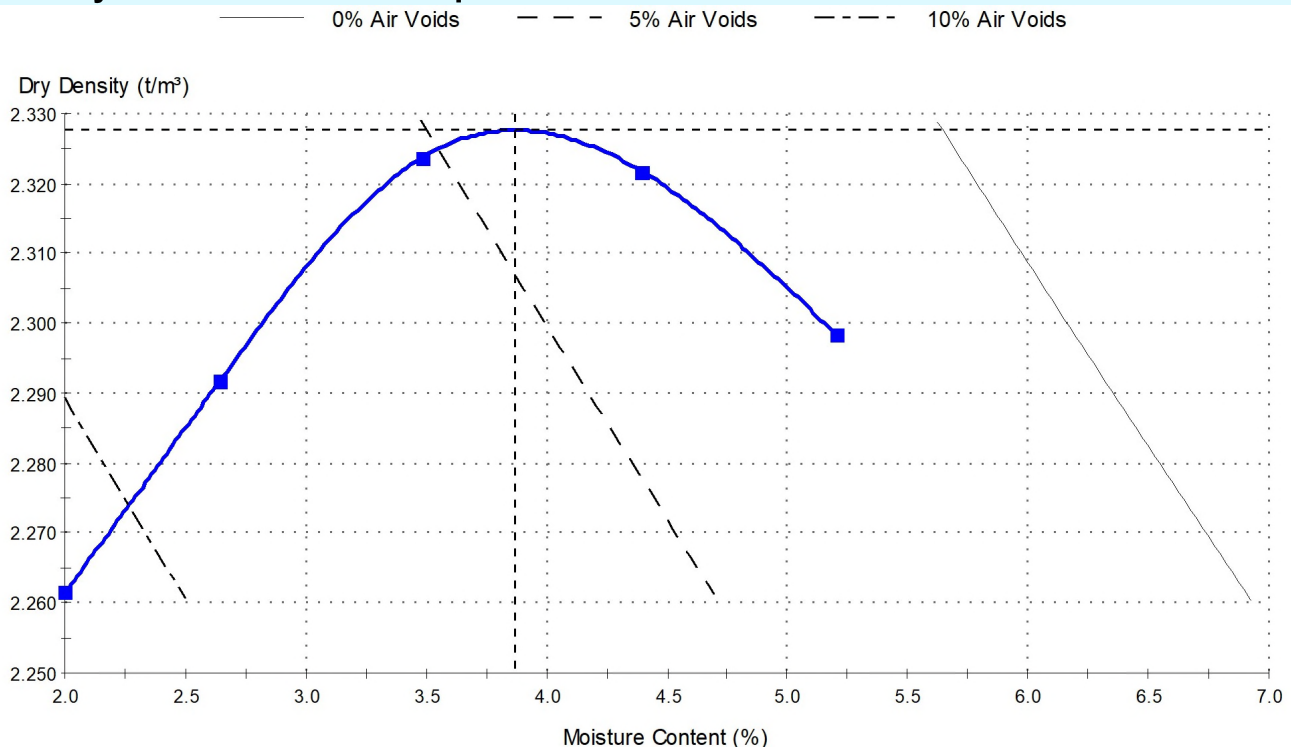
Sample ID: CAN25S-24206**Material:** River Run**Site/Sampled From:** Dickys Road, Coutts Island**Specification:** No Specification**Sampling Method:** Not Advised - Not Accredited**Tested By:** John Edattukaran**Client Sample ID:** QA Testing**Sample Source:** Miscellaneous Material Source**Date Sampled:** 01/12/2025**Sampled By:** Not Advised**Date Tested:** 04/12/2025**Sampling Endorsed?:** No

Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 2.32**Solid Density (t/m³):** 2.68 assumed**Material Removed (%):** 14**Optimum Moisture Content (%):** 3.8**Fraction Tested Passes (mm):** 37.5**Sample History:** Natural

Dry Density - Moisture Relationship



Comments

Compaction for test points @ 4.4% & 5.3% ceased prior to 3 minutes due to oversaturation causing ejection of fines from sample.

Report No: MAT:CAN25S-24207

Issue No: 1

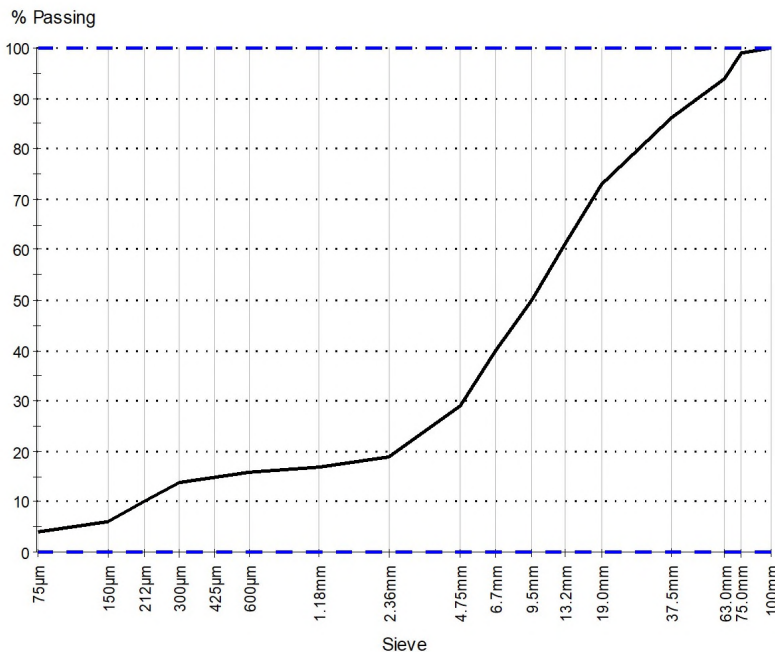
Material Test Report

Client:TruLine Civil Ltd
PO Box 522Greymouth 7840
NZ**Project:** QA Testing - Tru-Line Drainage LtdThe results in this report
relate only to the items /
samples that were testedThe tests reported herein (unless otherwise indicated) have been
performed in accordance with the laboratory's scope of accreditation.
Samples are tested as received, in natural condition, unless stated
otherwise in the comments. This report may only be reproduced in full.Approved Signatory: Liam Brennan
(Laboratory Operations Manager)
IANZ Accreditation No:200
Date of Issue: 5/12/2025**Sample Details**

Sample ID: CAN25S-24207
Client Sample ID: QA Testing
Material: River Run
Sample Source: Miscellaneous Material Source
Site/Sampled From: Dickys Road, Coutts Island
Date Sampled: 01/12/2025
Specification: No Specification
Sampled By: Not Advised
Sampling Method: Not Advised - Not Accredited
Technician: Amanda Ryan
Sampling Endorsed?: No

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	NZS 4402:1986 Test 2.1	5.0	
Date Tested		3/12/2025	
Sample History		Natural State	

Particle Size Distribution**Method:** NZS 4402:1986 Test 2.8.1**Drying By:** Oven**Date Tested:** 3/12/2025**Note:** ^a Obtained by difference.

Sieve Size	% Passing	Limits
100mm	100	0 – 100
75.0mm	99	0 – 100
63.0mm	94	0 – 100
37.5mm	86	0 – 100
19.0mm	73	0 – 100
13.2mm	61	0 – 100
9.5mm	50	0 – 100
6.7mm	40	0 – 100
4.75mm	29	0 – 100
2.36mm	19	0 – 100
1.18mm	17	0 – 100
600µm	16	0 – 100
425µm	15	0 – 100
300µm	14	0 – 100
212µm	10	0 – 100
150µm	6	0 – 100
75µm	4 ^a	0 – 100

Comments

N/A



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
(This document may not be altered or reproduced except in full. This report relates only to the positions tested.)

Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 17/12/25

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319
Report No: CHRIW09550

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details		Compaction Target Details	
Site Tested: Pound Back fill First Layer		Material Sample ID: External	
Date: 8/12/2025	Time: 9.00	Max. Dry Density: $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$	
Material: River Run		Min. Dry Density (t/m ³)	2.20
Field methods: NZS 4407:2015 Test 4.3		Solid density:	Assumed
Moisture Content Determined by Ndm			

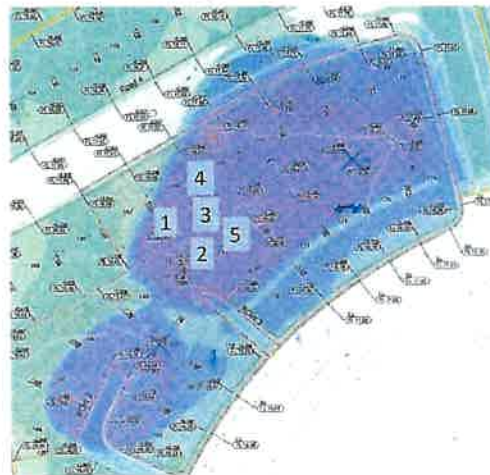
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.7	2.34	2.24	96
2	5.0	2.33	2.22	95
3	4.8	2.36	2.25	97
4	4.9	2.32	2.21	96
5	4.6	2.35	2.24	97

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 6/1/20

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09568

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Pond Fill 2nd Layer

Date: 9/12/2025

Time: 15.30

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External

Max Dry Density: $2.32 \text{ (t/m}^3\text{)} @ 3.8\%$

Min. Dry Density (t/m^3) : 2.20

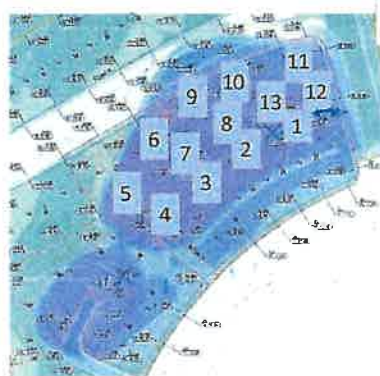
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	4.6	2.36	2.25	97
2	4.4	2.34	2.25	97
3	4.3	2.38	2.29	98
4	4.2	2.36	2.27	98
5	4.5	2.36	2.26	97
6	4.8	2.34	2.24	96
7	4.6	2.36	2.26	97
8	4.7	2.34	2.24	96
9	4.6	2.32	2.22	96
10	4.9	2.33	2.23	96
11	4.6	2.36	2.25	97
12	4.3	2.33	2.24	96
13	4.7	2.34	2.24	96

Ndm test Locations
not to scale



LEGEND
- NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,
Christchurch 8014

Phone 021898295

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Approved Signatory: Stephen Gardiner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 17/12/25

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09550

Project Name: Belfast Subdivision Stages 6 & 8

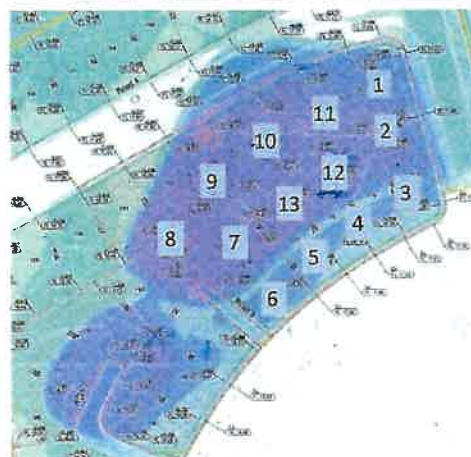
Testing Details	Compaction Target Details
Site Tested: Pound Backfill Third Layer	Material Sample ID: External
Date: 10/12/2025	Max. Dry Density: 2.32 (t/m ³) @ 3.8%
Time: 10.00	Min. Dry Density (t/m ³): 2.20
Material: River Run	Solid density: Assumed
Field methods: NZS 4407:2015 Test 4.3	

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.3	2.34	2.24	96
2	4.2	2.33	2.24	96
3	4.5	2.34	2.24	97
4	4.6	2.34	2.24	96
5	4.1	2.35	2.26	97
6	4.4	2.37	2.27	98
7	4.3	2.34	2.24	96
8	4.0	2.34	2.25	97
9	4.6	2.35	2.24	97
10	4.7	2.35	2.24	97
11	4.6	2.37	2.26	97
12	4.8	2.37	2.26	97
13	4.8	2.37	2.26	97

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.



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SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 6/1/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09582

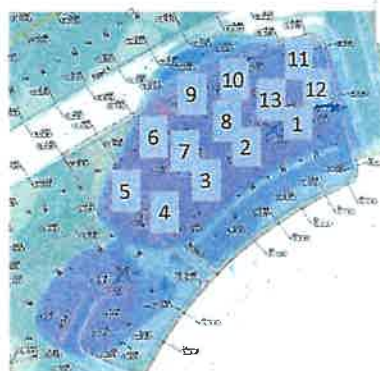
Project Name: Belfast Subdivision Stages 6 & 8

Testing Details		Compaction Target Details	
Site Tested: Pond Fill 4th Layer		Material Sample ID: External	
Date: 11/12/2025	Time: 13.00	Max. Dry Density: $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$	
Material: River Run		Min. Dry Density (t/m ³): 2.20	
Field methods: NZS 4407:2015 Test 4.3		Solid density: Assumed	
Moisture Content Determined by Ndm			

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	5.0	2.38	2.27	98
2	4.9	2.39	2.28	98
3	4.2	2.36	2.27	98
4	5.2	2.36	2.25	97
5	4.6	2.38	2.28	98
6	4.3	2.40	2.30	99
7	4.8	2.36	2.25	97
8	4.2	2.35	2.25	97
9	4.6	2.34	2.24	97
10	4.4	2.36	2.27	98
11	4.4	2.36	2.26	98
12	4.6	2.35	2.24	97
13	4.3	2.36	2.23	97

Ndm test Locations
not to scale



LEGEND

 - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09596

Project Name: Belfast Subdivision Stages 6 & 8

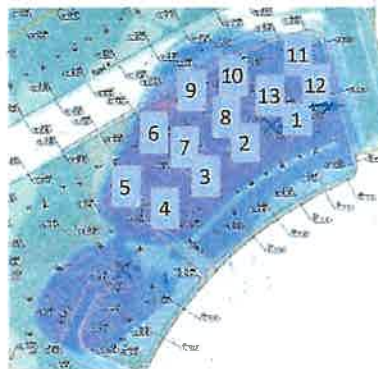
Testing Details		Compaction Target Details	
Site Tested:	Pond Fill 6th Layer	Material Sample ID:	External
Date:	15/12/2025	Max Dry Density:	2.32 (t/m ³) @ 3.8%
Material:	River Run	Min. Dry Density (t/m ³)	2.20
Field methods:	NZS 4407:2015 Test 4.3	Solid density:	Assumed
Moisture Content Determined by Ndm			

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	3.8	2.39	2.30	99
2	4.0	2.37	2.28	98
3	3.6	2.36	2.28	98
4	3.9	2.34	2.26	97
5	3.8	2.36	2.27	98
6	4.4	2.35	2.25	97
7	4.0	2.34	2.25	97
8	4.1	2.33	2.24	97
9	4.6	2.33	2.23	96
10	4.2	2.34	2.24	97
11	3.8	2.35	2.26	97
12	3.8	2.33	2.24	97
13	4.8	2.33	2.22	96

 Ndm test Locations
 not to scale

LEGEND

 - NDM Test Locations


Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory
SGNT Limited1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295

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Approved Signatory: Stephen Gardner
(Senior Technician)
IAVZ Accredited Laboratory Number 1270
Date signed 3/2/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09638

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 144 & 147 First Layer channel
Date: 12/01/2026 Time: 9.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.6	2.33	2.23	96
2	4.5	2.36	2.26	97
3	4.8	2.36	2.25	97

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 3/2/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09642

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details		Compaction Target Details	
Site Tested:	Fill Lot 144 to 147 Second Layer	Material Sample ID:	External
Date:	12/01/2026	Time:	16.00
Material:	River Run	Max. Dry Density:	2.32 (t/m ³) @ 3.8%
Field methods:	NZS 4407:2015 Test 4.3	Min. Dry Density (t/m ³):	2.20
Moisture Content Determined by Ndm		Solid density:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.6	2.36	2.26	97
2	4.0	2.35	2.24	97
3	4.7	2.38	2.28	98
4	4.4	2.36	2.26	98

Ndm test Locations
not to scale



LEGEND

X - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,
Christchurch 8014

Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed 3/12/26

Nuclear Density Report

Principal: Daniel Powell

Client : Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09648

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details	Compaction Target Details
Site Tested: Fill Lot 144 to 147 Third Layer	Material Sample ID: External
Date: 13/01/2026 Time: 9.30	Max.Dry Density : 2.32 (t/m ³) @ 3.8%
Material: River Run	Min. Dry Density (t/m ³) 2.20
Field methods : NZS 4407:2015 Test 4.3	Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.3	2.37	2.28	98
2	4.2	2.36	2.26	97
3	4.6	2.37	2.26	98
4	4.8	2.40	2.29	99
5	4.6	2.39	2.30	99

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method : Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,

Christchurch 8014

Phone 021898295

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Stephen Gardner
Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed 3/12/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW096341

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details		Compaction Target Details	
Site Tested:	Fill Lot 152 to 154 1st Layer Channel	Material Sample ID:	External
Date:	8/01/2026	Time:	9.00
Material:	River Run	Max. Dry Density :	2.32 (t/m ³) @ 3.8%
Field methods :	NZS 4407:2015 Test 4.3	Min. Dry Density (t/m ³)	2.20
Moisture Content Determined by Ndm		Solid density:	Assumed

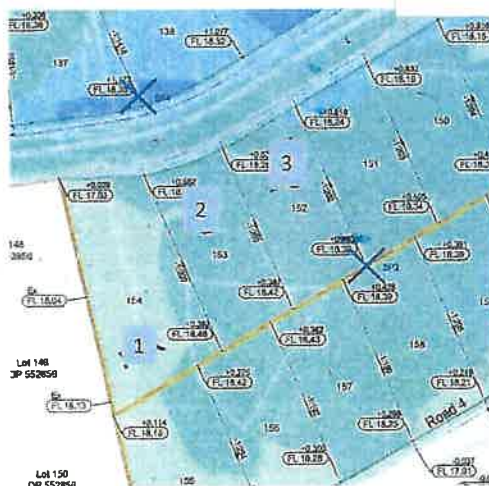
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.6	2.40	2.29	99
2	4.3	2.39	2.29	99
3	4.4	2.37	2.27	98

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method : Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09636

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 151 to 154 & 163 2nd Layer
Date: 9/01/2026 Time: 9.00
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

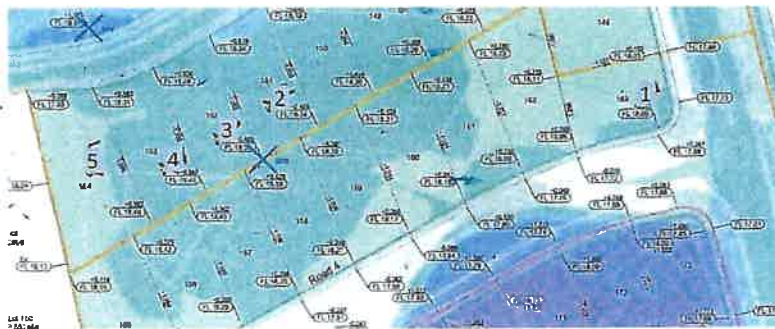
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.2	2.36	2.26	97
2	4.6	2.36	2.26	97
3	4.3	2.37	2.27	98
4	4.5	2.38	2.28	98
5	4.1	2.39	2.30	99

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319
 Report No: CHRIW09637

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details	Compaction Target Details
Site Tested: Fill Lot 151 to 154 & 163 3rd Layer	Material Sample ID: External
Date: 9/01/2026 Time: 16.00	Max. Dry Density: 2.32 (t/m ³) @ 3.8%
Material: River Run	Min. Dry Density (t/m ³): 2.20
Field methods: NZS 4407:2015 Test 4.3	Solid density: Assumed
Moisture Content Determined by Ndm	

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.4	2.39	2.28	98
2	4.1	2.37	2.28	98
3	4.4	2.37	2.27	98
4	4.3	2.37	2.27	98
5	4.5	2.36	2.26	97
6	4.6	2.37	2.26	97

Ndm test Locations
 not to scale

LEGEND
 - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09632

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 156 & 158 1st Layer Channel
Date: 7/01/2026 Time: 9.00
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

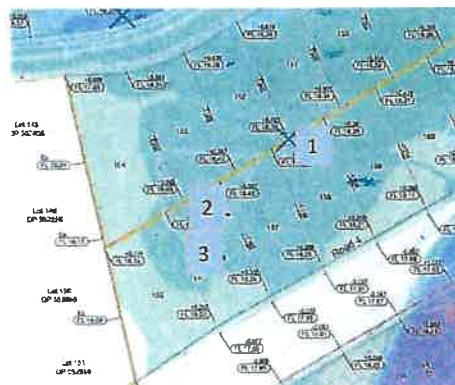
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.4	2.32	2.22	96
2	4.3	2.36	2.26	98
3	4.2	2.35	2.26	97

Ndm test Locations
not to scale

LEGEND

 - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,
Christchurch 8014

Phone 021898295

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
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ACCREDITED
IANZ
TESTING LABORATORYApproved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed: 3/12/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09634

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 155 to 163 2nd Layer

Date: 7/01/2026

Time: 15.00

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 2.32 (t/m³) @ 3.8%Min. Dry Density (t/m³): 2.20

Solid density: Assumed

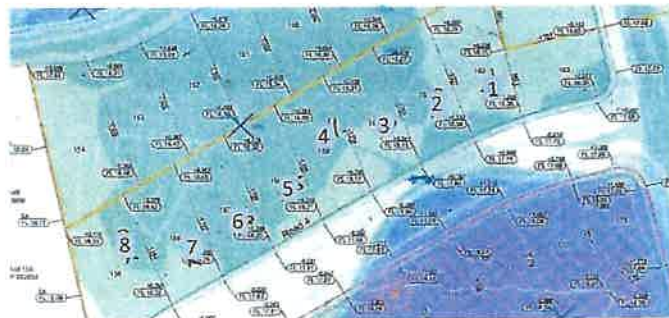
Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.6	2.38	2.28	98
2	4.4	2.37	2.27	98
3	4.3	2.39	2.30	99
4	4.2	2.37	2.25	98
5	4.5	2.37	2.26	98
6	4.4	2.36	2.26	97
7	4.6	2.36	2.26	97
8	4.6	2.37	2.27	98

Ndm test Locations
not to scale

LEGEND

 - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 31/2/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09635

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 150 to 162 3rd Layer
Date: 8/01/2026 Time: 15.00
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

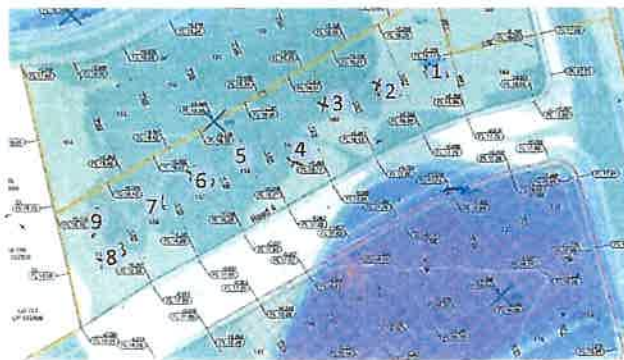
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.3	2.37	2.27	98
2	4.5	2.36	2.26	97
3	4.8	2.38	2.27	98
4	4.6	2.40	2.29	99
5	4.2	2.36	2.27	98
6	4.1	2.37	2.27	98
7	4.4	2.37	2.27	98
8	4.4	2.36	2.25	97
9	4.5	2.36	2.25	97

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRW09617

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 165 & 166 First Layer
 Date: 16/12/2025 Time: 9.00
 Material: Silt
 Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

Material Sample ID: External
 Max. Dry Density: $1.71 \text{ (t/m}^3\text{)} @ 15.0\%$
 Min. Dry Density (t/m^3): 1.63
 Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Test Depth (mm)	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	200	14.2	1.89	1.67	97
2	200	12.8	1.87	1.66	97
3	200	14.3	1.90	1.66	97
4	200	14.5	1.91	1.67	98

Ndm test Locations
 not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

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SGNT Limited1/19 Repton Street, Merivale,
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Phone 021898295

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Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1278

Date signed: 20/1/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09622

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 165 & 166 Second Layer

Date: 17/12/2025

Time: 12.00

Material: Silt

Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

Material Sample ID: External

Max. Dry Density: $1.71 \text{ (t/m}^3\text{) @ 15.0\%}$ Min. Dry Density (t/m^3): 1.63

Solid density: Assumed

Moisture Content Determined by Ndm

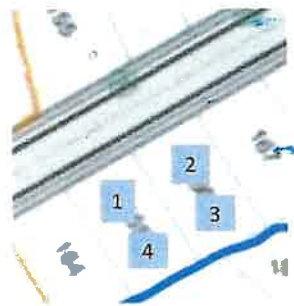
Test Results

Site No	Test Depth (mm)	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	200	12.6	1.92	1.71	100
2	200	12.8	1.90	1.69	99
3	200	13.2	1.89	1.67	98
4	200	13.8	1.88	1.65	96

Ndm test Locations
not to scale

LEGEND

- NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 20/1/25

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09571

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 187 First Layer

Date: 10/12/2025

Time: 8.30

Material: Silt

Field methods: NZS 4407:2015 Test 4.2

Moisture Content Determined by Ndm

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 1.71 (t/m³) @ 15.0%

Min. Dry Density (t/m³) 1.63

Solid density: Assumed

Test Results

Site No	Test Depth (mm)	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	13.5	1.90	1.68	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



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SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270

Date signed 20/1/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319
Report No: CHRIW09576

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details	Compaction Target Details
Site Tested: Fill Lot 187 & 188 Second Layer	Material Sample ID: External
Date: 10/12/2025 Time: 16.00	Max. Dry Density: $1.71 \text{ (t/m}^3\text{)} @ 15.0\%$
Material: Silt	Min. Dry Density (t/m ³) 1.63
Field methods: NZS 4407:2015 Test 4.2	Solid density: Assumed
Moisture Content Determined by Ndm	

Test Results

Site No	Test Depth (mm)	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	13.2	1.90	1.68	98
2	200	13.8	1.88	1.66	96
3	200	13.7	1.91	1.68	98
4	200	14.0	1.90	1.67	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09576

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 187 to 190 Third Layer
Date: 11/12/2025 Time: 11.20
Material: Silt
Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 1.71 (t/m³) @ 15.0%
Min. Dry Density (t/m³): 1.63
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Test Depth (mm)	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	12.6	1.90	1.68	98
2	200	12.8	1.88	1.67	97
3	200	14.0	1.87	1.64	96
4	200	13.1	1.90	1.68	98
5	200	12.0	1.91	1.71	100
6	200	13.5	1.90	1.67	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

 Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09631

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

 Site Tested: Fill Road 1st Layer
 Date: 5/01/2026
 Material: River Run
 Field methods: NZS 4407:2015 Test 4.3

Time: 9.30

Compaction Target Details

 Material Sample ID: External
 Max. Dry Density: $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$
 Min. Dry Density (t/m^3): 2.20
 Solid density: Assumed

Moisture Content Determined by Ndm

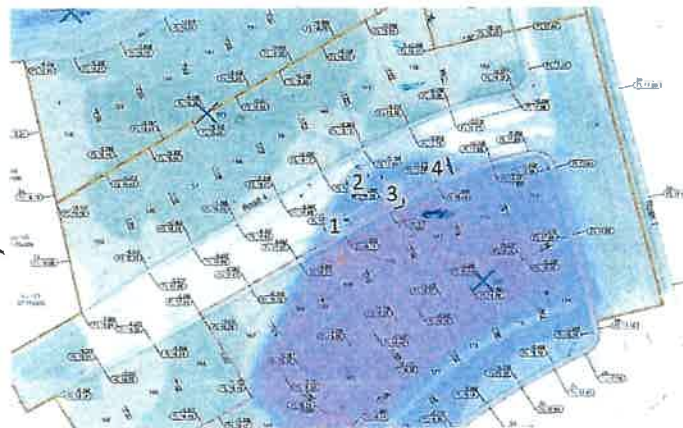
Test Results

Site No	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	4.3	2.32	2.23	96
2	4.4	2.34	2.25	97
3	4.3	2.35	2.25	97
4	4.2	2.36	2.26	98

 Ndm test Locations
 not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319
Report No: CHRIW096321

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details	Compaction Target Details
Site Tested: Fill Road 2nd Layer	Material Sample ID: External
Date: 6/01/2026	Max Dry Density: 2.32 (t/m ³) @ 3.8%
Time: 9.30	Min. Dry Density (t/m ³): 2.20
Material: River Run	Solid density: Assumed
Field methods: NZS 4407:2015 Test 4.3	
Moisture Content Determined by Ndm	

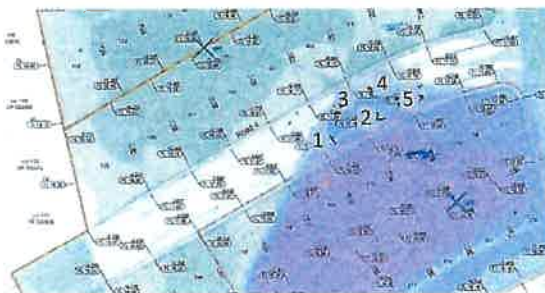
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.8	2.37	2.26	97
2	4.3	2.36	2.26	98
3	4.6	2.36	2.27	97
4	4.4	2.36	2.26	97
5	4.8	2.33	2.28	96

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09633

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Road 3rd Layer
Date: 6/01/2026
Material: River Run
Field methods: NZS 4407:2015 Test 4.3
Moisture Content Determined by Ndm

Time: 10.00

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

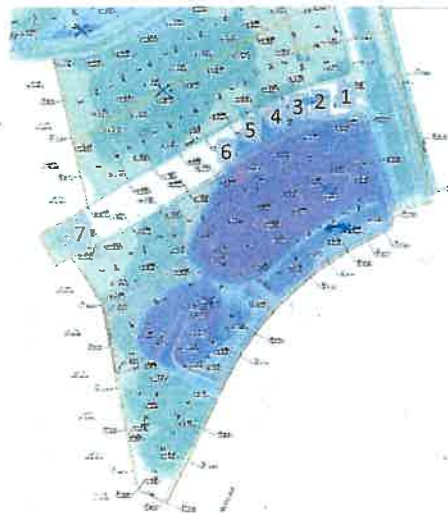
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	3.6	2.33	2.25	97
2	3.8	2.36	2.28	98
3	4.2	2.36	2.26	97
4	4.1	2.36	2.26	98
5	4.2	2.34	2.25	97
6	4.0	2.32	2.23	96
7	4.1	2.39	2.30	99

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,
Christchurch 8014

Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed 20/1/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09629

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 180, 181 & 184 to 186 Fourth Layer
Date: 19/12/2025 Time: 9.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.3	2.37	2.27	98
2	4.6	2.36	2.26	98
3	4.2	2.36	2.27	98
4	4.4	2.37	2.27	98
5	4.1	2.36	2.27	98
6	4.0	2.36	2.26	98
7	4.4	2.36	2.26	98
8	4.5	2.36	2.26	98
9	4.3	2.38	2.28	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



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1/19 Repton Street, Merivale,
Christchurch 8014
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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 20/1/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09623

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 180, 181 & 184 to 186 Second Layer
Date: 17/12/2025 Time: 11.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$
Min. Dry Density (t/m^3): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	4.3	2.34	2.24	96
2	4.7	2.38	2.28	98
3	4.4	2.36	2.26	98
4	4.1	2.38	2.28	98
5	4.2	2.40	2.30	99
6	4.8	2.40	2.29	99
7	4.4	2.37	2.27	98
8	4.6	2.39	2.28	98
9	4.1	2.36	2.27	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: *Stéphane Gardiner*
(Senior Technician)
IANZ Accredited Laboratory Number 1270
Date signed: 20/1/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09627

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 180, 181 & 184 to 186 Third Layer
Date: 18/12/2025 Time: 9.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$
Min. Dry Density (t/m^3): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m^3)	Dry Density (t/m^3)	Relative Compaction (%)
1	4.6	2.33	2.23	96
2	4.2	2.37	2.27	98
3	4.4	2.40	2.29	99
4	4.1	2.38	2.28	98
5	4.2	2.40	2.30	99
6	4.3	2.40	2.30	99
7	4.4	2.37	2.27	98
8	4.6	2.39	2.28	98
9	4.3	2.38	2.28	98

Ndm test Locations
not to scale



LEGEND

x - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09618

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Lot 180, 181 & 184 to 186 First Layer
Date: 16/12/2025 Time: 15.20
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	5.0	2.33	2.22	96
2	4.9	2.32	2.21	96
3	4.4	2.37	2.27	98
4	4.6	2.36	2.26	97
5	4.4	2.36	2.26	98

Ndm test Locations
not to scale



LEGEND

X - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

 Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09731

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

 Site Tested: Fill Channel First Layer Lot 125 & lot 128
 Date: 28/01/2026 Time: 15.00
 Material: Silt
 Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

 Material Sample ID: External
 Max. Dry Density: 1.71 (t/m³) @ 15.0%
 Min. Dry Density (t/m³): 1.62
 Solid density: Assumed

Moisture Content Determined by Ndm

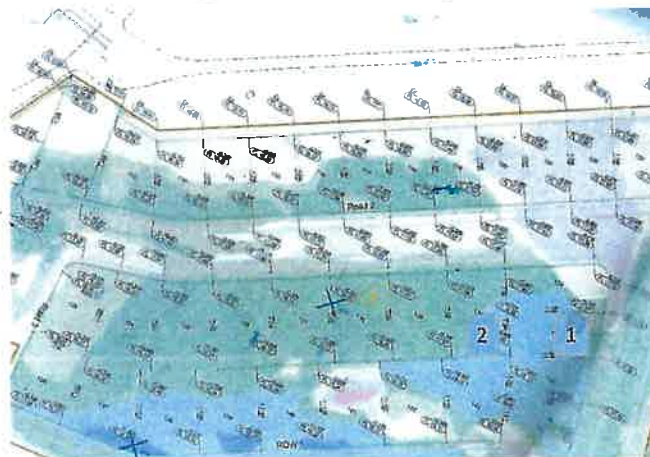
Test Results

Site No	Depth (mm)	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	1	14.6	1.87	1.64	96
2	200	1	15.1	1.88	1.63	95

 Ndm test Locations
 not to scale

LEGEND

x - NDM Test Locations



Comments

 MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,

Christchurch 8014

Phone 021898295

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Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed 27/2/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09734

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Second Layer Lot 124, 125 & Lot 128

Date: 28/01/2026

Time: 17.00

Material: Silt

Field methods: NZS 4407:2015 Test 4.2

Moisture Content Determined by Ndm

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 1.71 (t/m³) @ 15.0%Min. Dry Density (t/m³): 1.62

Solid density: Assumed

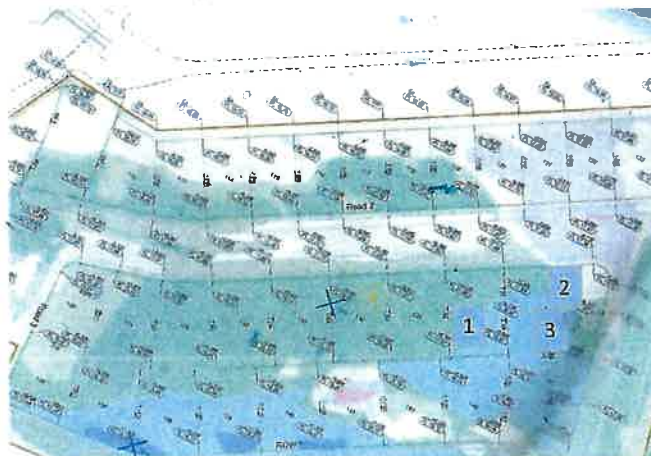
Test Results

Site No	Depth (mm)	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	2	15.2	1.89	1.64	96
2	200	2	14.4	1.89	1.65	97
3	200	2	14.9	1.89	1.65	96

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory
SGNT Limited1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295

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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 27/2/20

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09752

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill First Layer Reserve

Date: 29/01/2026

Time: 9.30

Material: Silt

Field methods: NZS 4407:2015 Test 4.2

Moisture Content Determined by Ndm

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 1.71 (t/m³) @ 15.0%Min. Dry Density (t/m³) 1.62

Solid density: Assumed

Test Results

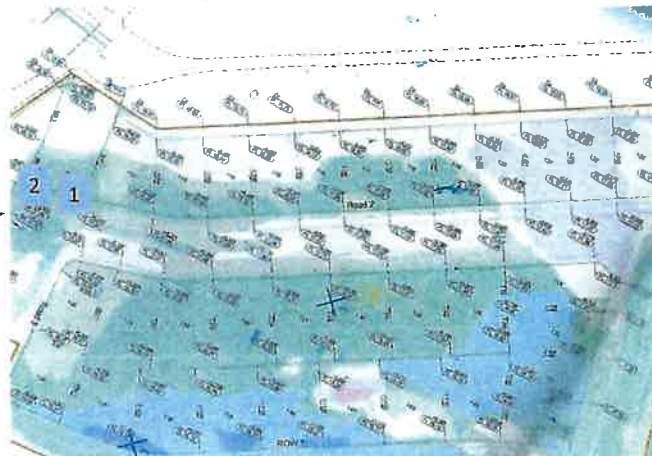
Site No	Depth (mm)	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	1	15.1	1.88	1.63	95
2	200	1	14.8	1.87	1.63	95

Ndm test Locations
not to scale

LEGEND



- NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



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SGNT Limited
1/19 Repton Street, Merivale,
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Phone 021898295



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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 27/12/20

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09761

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Final Layer Reserve, Lot 110, 111, 124, 125 & 128
Date: 29/01/2026 Time: 15.00
Material: Silt
Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 1.71 (t/m³) @ 15.0%
Min. Dry Density (t/m³): 1.62
Solid density: Assumed

Moisture Content Determined by Ndm

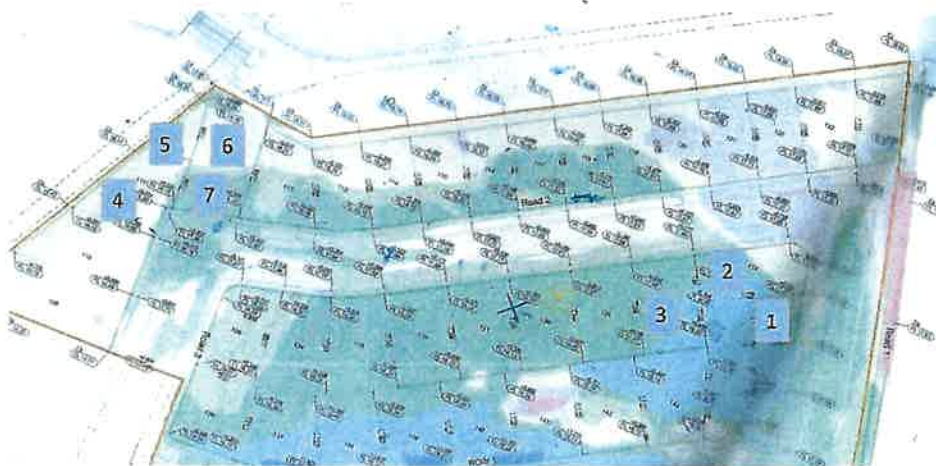
Test Results

Site No	Depth (mm)	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	2	14.7	1.92	1.67	98
2	200	2	15.3	1.93	1.67	98
3	200	2	14.7	1.92	1.67	98
4	200	2	15.6	1.88	1.63	95
5	200	2	15.9	1.91	1.64	96
6	200	2	15.4	1.91	1.65	97
7	200	2	15.9	1.90	1.64	95

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09726

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

 Site Tested: Fill First Layer Lot 112 to Lot 114
 Date: 27/01/2026 Time: 10.00
 Material: Silt
 Field methods: NZS 4407:2015 Test 4.2

Compaction Target Details

 Material Sample ID: External
 Max. Dry Density: 1.71 (t/m³) @ 15.0%
 Min. Dry Density (t/m³): 1.62
 Solid density: Assumed

Moisture Content Determined by Ndm

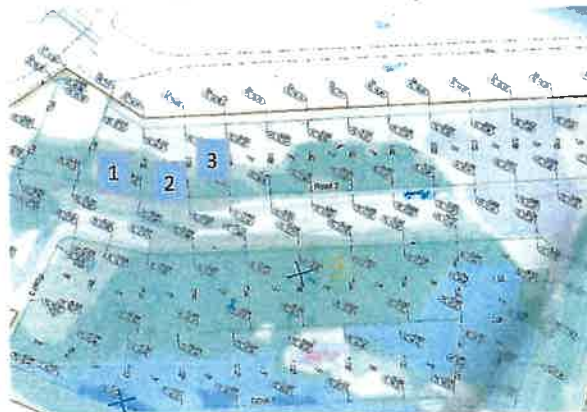
Test Results

Site No	Depth (mm)	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	200	1	14.6	1.88	1.64	96
2	200	3	15.6	1.92	1.67	98
3	200	5	15.2	1.90	1.65	96

 Ndm test Locations
 not to scale

LEGEND

X - NDM Test Locations



Comments

 MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



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SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 20/2/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319
Report No: CHR/W09648

Project Name: Belfast Subdivision Stages 6 & 8

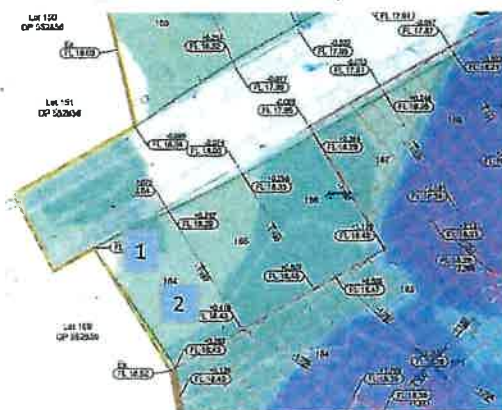
Testing Details			Compaction Target Details	
Site Tested:	Fill Lot 164 First Layer		Material Sample ID:	External
Date:	14/01/2026	Time: 10.00	Max.Dry Density :	2.32 (t/m³) @ 3.8%
Material :	River Run		Min. Dry Density (t/m³)	2.20
Field methods :	NZS 4407:2015 Test 4.3		Solid density:	Assumed
Moisture Content Determined by Ndm				

Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	4.4	2.34	2.24	96
2	1	3.4	2.34	2.26	97

Ndm test Locations
not to scale

LEGEND
X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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(This document may not be altered or reproduced except in full. This report relates only to the positions tested.)

Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed: 27/12/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09714

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Channel First Layer Lot 126
Date: 26/01/2026 Time: 10.00
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

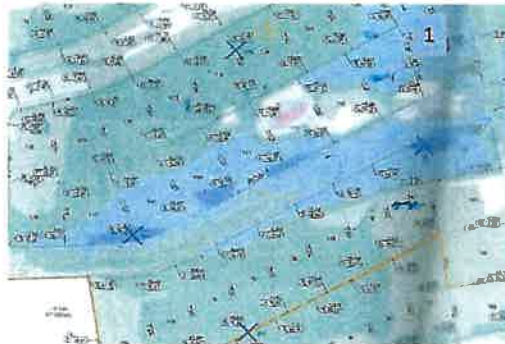
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	4.0	2.30	2.21	95

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number 1270
Date signed: 27/12/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09719

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Second Layer Lot 126 & Lot 127
Date: 26/01/2026 Time: 13.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

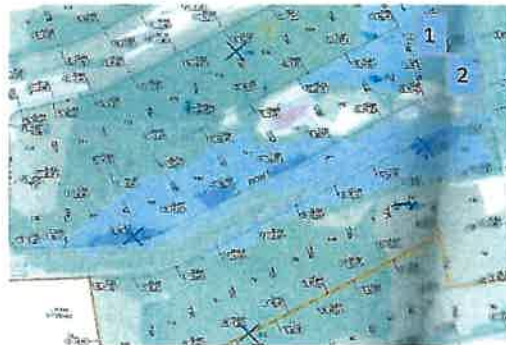
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	2	4.0	2.30	2.21	95
2	2	3.2	2.28	2.21	95

Ndm test Locations
not to scale

LEGEND

x - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory
SGNT Limited1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295

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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 27/2/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09730

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Final Layer Lot 126 & Lot 127
Date: 28/01/2026 Time: 15.00
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

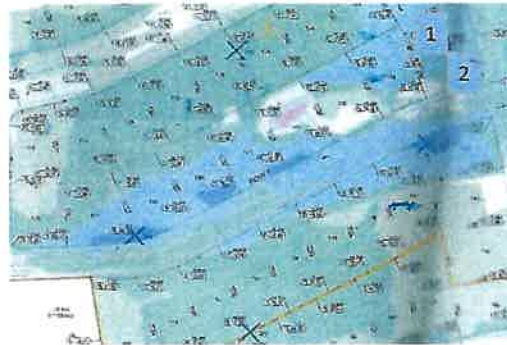
Moisture Content Determined by Ndm

Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	3	4.7	2.38	2.27	98
2	3	3.5	2.33	2.25	97

Ndm test Locations
not to scale

LEGEND

 - NDM Test Locations

Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt ltd Representative.



Christchurch Laboratory

SGNT Limited

1/19 Repton Street, Merivale,

Christchurch 8014

Phone 021898295

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Stephen Gardner
Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed 27/2/20

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRW09668

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Channel First Layer Lot 137 to Lot 140

Date: 19/01/2026

Time: 10.00

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Moisture Content Determined by Ndm

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 2.32 (t/m³) @ 3.8%

Min. Dry Density (t/m³): 2.20

Solid density: Assumed

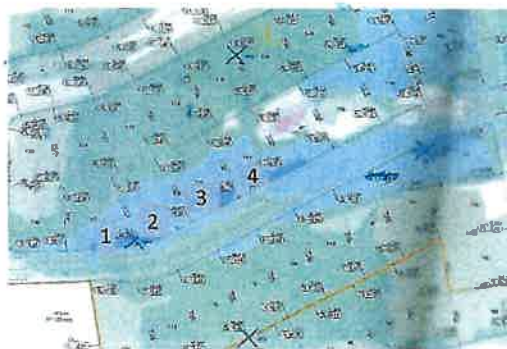
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	4.6	2.34	2.23	96
2	1	4.7	2.31	2.21	95
3	1	3.8	2.31	2.22	96
4	1	3.7	2.29	2.21	95

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: *Stephen Gardner*
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed 27/12/26

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHR1W09678

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fili Channel Lot 141 & 143 First Layer
Date: 20/01/2026 Time: 8.30
Material: River Run
Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External
Max. Dry Density: 2.32 (t/m³) @ 3.8%
Min. Dry Density (t/m³): 2.20
Solid density: Assumed

Moisture Content Determined by Ndm

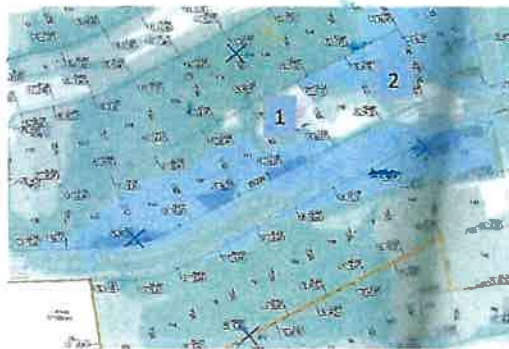
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	3.7	2.30	2.22	96
2	1	4.6	2.32	2.22	96

Ndm test Locations
not to scale

LEGEND

 - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

SGNT

GEOTECHNICAL TESTING

Christchurch Laboratory
SGNT Limited1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295

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Approved Signatory: Stephen Gardner
(Senior Technician)

IANZ Accredited Laboratory Number: 1270

Date signed: 27/2/26

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09682

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Second Layer Lot 127 & Lot 130 to Lot 143

Date: 20/01/2026

Time: 15.30

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 2.32 (t/m³) @ 3.8%Min. Dry Density (t/m³): 2.20

Solid density: Assumed

Moisture Content Determined by Ndm

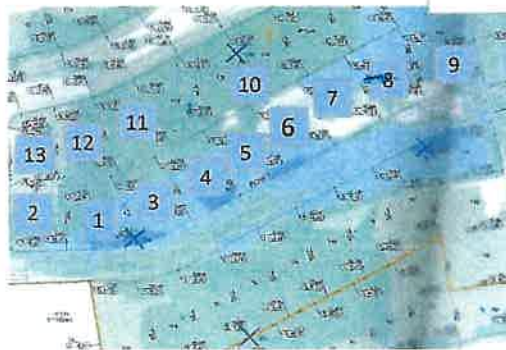
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	2	4.3	2.36	2.26	98
2	2	4.0	2.33	2.24	96
3	2	4.2	2.32	2.23	96
4	2	3.7	2.30	2.22	96
5	2	4.7	2.33	2.23	96
6	2	4.6	2.32	2.21	95
7	2	3.5	2.35	2.27	98
8	2	3.9	2.30	2.21	95
9	2	3.5	2.34	2.26	97
10	2	4.1	2.35	2.26	97
11	2	4.0	2.35	2.26	97
12	2	4.5	2.34	2.24	96
13	2	3.9	2.34	2.26	97

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

 Principal: Daniel Powell
 Client: Tru-Line civil Ltd

 Project No: SGNT05319
 Report No: CHRIW09694

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

 Site Tested: Fill Final Layer Lot 129 to Lot 143
 Date: 21/01/2026 Time: 11.30
 Material: River Run
 Field methods: NZS 4407:2015 Test 4.3

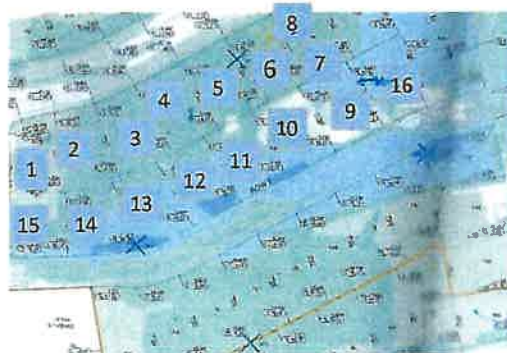
Compaction Target Details

 Material Sample ID: External
 Max Dry Density: 2.32 (t/m³) @ 3.8%
 Min. Dry Density (t/m³): 2.20
 Solid density: Assumed

Moisture Content Determined by Ndm

Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	3	4.0	2.37	2.23	96
2	3	4.4	2.34	2.24	96
3	3	3.6	2.34	2.25	97
4	3	3.5	2.29	2.21	95
5	3	3.8	2.30	2.22	96
6	3	4.8	2.37	2.26	98
7	3	4.6	2.35	2.25	97
8	3	4.5	2.37	2.26	98
9	3	4.6	2.33	2.23	96
10	3	3.5	2.30	2.23	96
11	3	3.7	2.33	2.24	97
12	3	3.9	2.35	2.27	98
13	3	3.3	2.32	2.25	97
14	3	3.4	2.34	2.27	98
15	3	3.4	2.32	2.24	97
16	3	4.0	2.29	2.20	95

 Ndm test Locations
 not to scale


LEGEND

x - NDM Test Locations

Comments

 MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

SGNT

CERTIFICATION TESTING

Christchurch Laboratory
SGNT Limited

1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 20/2/20

Nuclear Density Report

Principal: Daniel Powell

Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09649

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Channel First Layer

Date: 14/01/2026

Time: 10.10

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 2.32 (t/m³) @ 3.8%

Min. Dry Density (t/m³): 2.20

Solid density: Assumed

Moisture Content Determined by Ndm

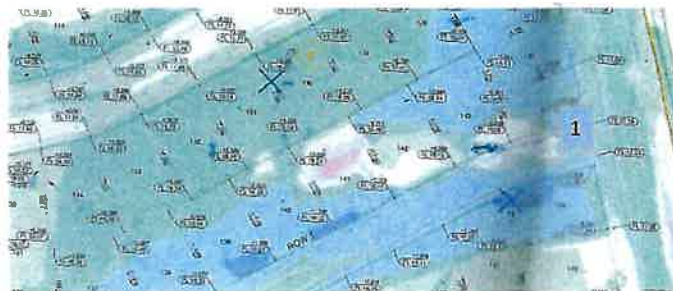
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	4.4	2.34	2.24	96

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



Christchurch Laboratory
SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 20/2/20

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09652

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Road Second Layer

Date: 14/01/2026

Time: 16.20

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Moisture Content Determined by Ndm

Compaction Target Details

Material Sample ID: External

Max. Dry Density: 2.32 (t/m³) @ 3.8%

Min. Dry Density (t/m³): 2.20

Solid density: Assumed

Test Results

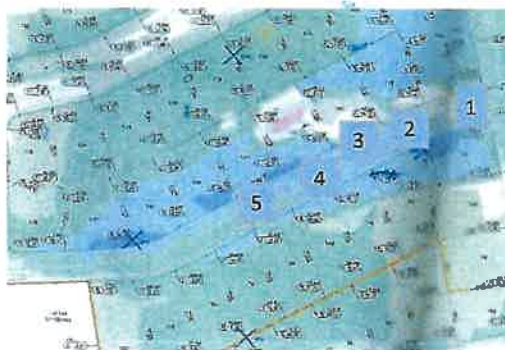
Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	2	3.2	2.33	2.26	97
2	2	3.1	2.29	2.22	96
3	2	4.6	2.31	2.21	95
4	2	3.4	2.32	2.25	97
5	2	3.9	2.32	2.23	96

Ndm test Locations
not to scale

LEGEND



- NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

 Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09672

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

Site Tested: Fill Road Final Layer

Date: 19/01/2026

Time: 16.00

Material: River Run

Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID: External

 Max. Dry Density: 2.32 (t/m³) @ 3.8%

 Min. Dry Density (t/m³): 2.20

Solid density: Assumed

Moisture Content Determined by Ndm

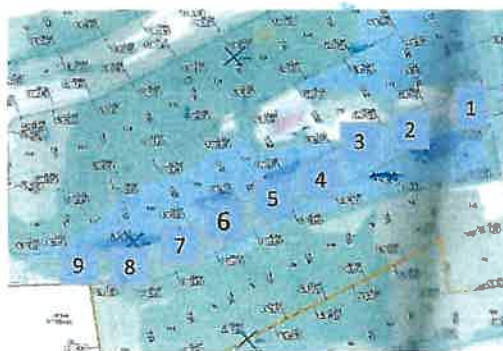
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	3	4.3	2.33	2.24	96
2	3	4.6	2.35	2.24	97
3	3	4.1	2.30	2.21	95
4	3	4.4	2.31	2.22	95
5	3	3.2	2.33	2.25	97
6	3	3.7	2.35	2.27	98
7	3	3.9	2.32	2.23	96
8	3	4.8	2.35	2.24	96
9	3	4.4	2.31	2.22	95

 Ndm test Locations
 not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

Nuclear Density Report

Principal: Daniel Powell
Client: Tru-Line civil Ltd

Project No: SGNT05319
Report No: CHRIW09642

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details	Compaction Target Details
Site Tested: Fill Lot 148 to 150 1st Layer Channel	Material Sample ID: External
Date: 12/01/2026 Time: 9.30	Max. Dry Density: 2.32 (t/m ³) @ 3.8%
Material: River Run	Min. Dry Density (t/m ³): 2.20
Field methods: NZS 4407:2015 Test 4.3	Solid density: Assumed
Moisture Content Determined by Ndm	

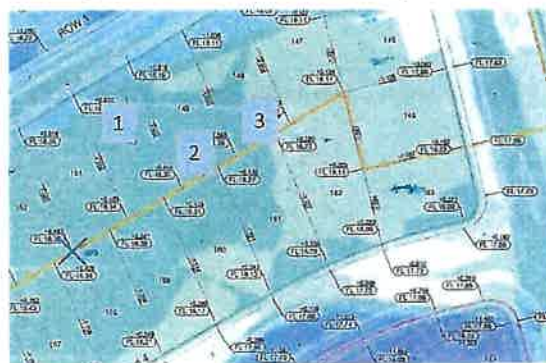
Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.6	2.32	2.22	96
2	4.3	2.34	2.25	97
3	4.4	2.33	2.23	96

Ndm test Locations
not to scale

LEGEND

 - NDM Test Locations



Comments

MDD Method: Test was conducted externally and is not accredited by this laboratory.
Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.



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SGNT Limited
1/19 Repton Street, Merivale,
Christchurch 8014
Phone 021898295



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Stephen Gardner
Approved Signatory: Stephen Gardner
(Senior Technician)
IANZ Accredited Laboratory Number: 1270
Date signed: 3/12/26

Nuclear Density Report

Principal: Daniel Powell
Client : Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09639

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details		Compaction Target Details	
Site Tested: Fill Lot 148 to 150 2nd Layer		Material Sample ID: External	
Date: 12/01/2026	Time: 10.30	Max.Dry Density : $2.32 \text{ (t/m}^3\text{) @ 3.8\%}$	
Material : River Run		Min. Dry Density (t/m ³)	2.20
Field methods : NZS 4407:2015 Test 4.3		Solid density:	Assumed
Moisture Content Determined by Ndm			

Test Results

Site No	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	4.4	2.39	2.29	99
2	4.3	2.40	2.30	99
3	4.4	2.37	2.27	98

Ndm test Locations
not to scale

LEGEND

X - NDM Test Locations



Comments

MDD Method : Test was conducted externally and is not accredited by this laboratory.

Ndm test Locations are randomly chosen by the Sgnt ltd Representative.

Nuclear Density Report

 Principal: Daniel Powell
 Client: Tru-Line civil Ltd

Project No: SGNT05319

Report No: CHRIW09642

Project Name: Belfast Subdivision Stages 6 & 8

Testing Details

 Site Tested: Fill Lot 148 to 150 Third Layer
 Date: 13/01/2026 Time: 9.30
 Material: River Run
 Field methods: NZS 4407:2015 Test 4.3

Compaction Target Details

 Material Sample ID: External
 Max. Dry Density: 2.32 (t/m³) @ 3.8%
 Min. Dry Density (t/m³): 2.20
 Solid density: Assumed

Moisture Content Determined by Ndm

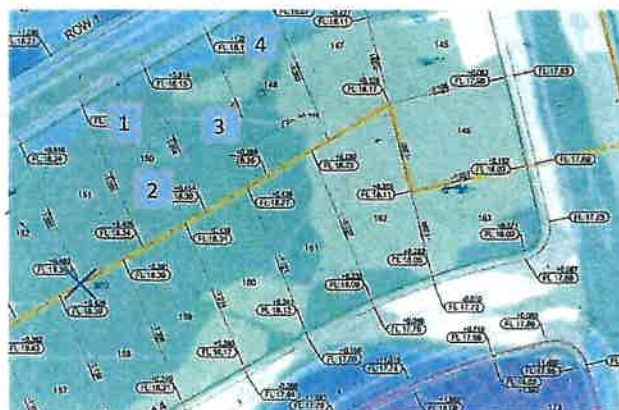
Test Results

Site No	Layer No.	Moisture (%)	Wet Density (t/m ³)	Dry Density (t/m ³)	Relative Compaction (%)
1	1	4.0	2.35	2.26	97
2	3	4.4	2.32	2.22	96
3	5	4.7	2.37	2.27	98
4	7	3.4	2.31	2.24	96

 Ndm test Locations
 not to scale

LEGEND

X - NDM Test Locations



Comments

 MDD Method: Test was conducted externally and is not accredited by this laboratory.
 Ndm test Locations are randomly chosen by the Sgnt Ltd Representative.

ND Test unique ID: 022-129-02-001A				 All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. The results in this report relate only to the locations were tested. This report may not be altered or reproduced except by the laboratory.  Approved Signatory : Pradeep Arachchige IANZ Accreditation : 1477 Date of Issue : 28/08/26			
Nuclear Density Test Report							
Client JR Civil, 779 Marshmans Road, Sefton, 7477 Project Belfast Stage 08							
ND Testing Details				Compaction Target Details			
Site Tested : SubGrade Fill on Lot Area Date Tested : 13/04/2026 Time Tested : 02.30 P.M Material type : Silt Test type : ND Testing - Backscatter Mode Field method : NZS 4407:2015 Test 4.3 Material supplier : : Dickys Road, Coutts Island Moisture content determined by NDM				Material Sample Unique ID : CAN25S-24189 MDD Test conducted by : Fulton Hogan Max. Dry Density (t/m³) : 1.71 Optimum Moisture Content (%) : 15.0 Min. Dry Density (t/m³) : Not provided Solid Density Type : Assumed Solid Density Value (t/m³) : 2.68 Data Transcription : Pasindu U.K.D.A Checked by : Pradeep T.A.			
Test Results							
Test No.	Test Layer	Test depth from top of layer (m)	Dry Density (nearest 0.01 t/m³)	Moisture (nearest 0.1%)	Wet Density (nearest 0.01 t/m³)	Relative Compaction (%)	Location and Comments
#02	First Layer	0.00	1.66	10.6	1.84	97	
#04	First Layer	0.00	1.67	10.6	1.85	98	
#06	First Layer	0.00	1.63	11.1	1.81	95	
#08	First Layer	0.00	1.62	10.8	1.80	95	
#06	First Layer	0.00	1.63	11.1	1.81	95	
#10	First Layer	0.00	1.62	11.1	1.80	95	
#14	First Layer	0.00	1.62	10.9	1.80	95	
Comments:							
Comment : Product layer and site information have been provided by the client. Test locations as directed by the laboratory. MDD Test has been conducted externally and is not accredited by this laboratory. Revision : ND Test report 022-129-02-001 will be superseded due to an incorrect layer information included. This will be replaced by 022-129-02-001A .							
Tested By: M.A Tharusha				Signature: 			

Site Tested: SubGrade Fill on Lot Area

ND Test unique ID : 022-129-02-001A

Diagram



Note: Site plan is not to the scale & test sites are approximate only.

ND Test unique ID: 022-129-02-001B				 All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. The results in this report relate only to the locations were tested. This report may not be altered or reproduced except as shown.  Approved Signatory : Pradeep Arachchige IANZ Accreditation : 1477 Date of Issue : 28/08/26			
Nuclear Density Test Report							
Client JR Civil, 779 Marshmans Road, Sefton, 7477 Project Belfast Stage 08							
ND Testing Details				Compaction Target Details			
Site Tested : SubGrade Fill on Lot Area Date Tested : 13/04/2026 Time Tested : 02.30 P.M Material type : Silt Test type : ND Testing - Backscatter Mode Field method : NZS 4407:2015 Test 4.3 Material supplier : : Dickys Road, Coutts Island Moisture content determined by NDM				Material Sample Unique ID : CAN25S-24189 MDD Test conducted by : Fulton Hogan Max. Dry Density (t/m³) : 1.71 Optimum Moisture Content (%) : 15.0 Min. Dry Density (t/m³) : Not provided Solid Density Type : Assumed Solid Density Value (t/m³) : 2.68 Data Transcription : Pasindu U.K.D.A Checked by : Pradeep T.A.			
Test Results							
Test No.	Test Layer	Test depth from top of layer (m)	Dry Density (nearest 0.01 t/m³)	Moisture (nearest 0.1%)	Wet Density (nearest 0.01 t/m³)	Relative Compaction (%)	Location and Comments
#01	Second Layer	0.00	1.68	10.5	1.85	98	
#03	Second Layer	0.00	1.65	10.4	1.82	96	
#05	Second Layer	0.00	1.62	11.0	1.80	95	
#07	Second Layer	0.00	1.64	10.9	1.82	96	
#09	Second Layer	0.00	1.65	11.0	1.83	96	
#11	Second Layer	0.00	1.63	10.8	1.81	96	
#13	Second Layer	0.00	1.64	11.0	1.82	96	
Comments:							
Comment : Product layer and site information have been provided by the client. Test locations as directed by the laboratory. MDD Test has been conducted externally and is not accredited by this laboratory.							
Tested By: M.A Tharusha				Signature: 			

Site Tested: SubGrade Fill on Lot Area

ND Test unique ID : 022-129-02-001B

Diagram



Note: Site plan is not to the scale & test sites are approximate only.

[illegible]

Site Tested: SubGrade Fill on Lot Area

ND Test unique ID : 022-129-02-002A

Diagram



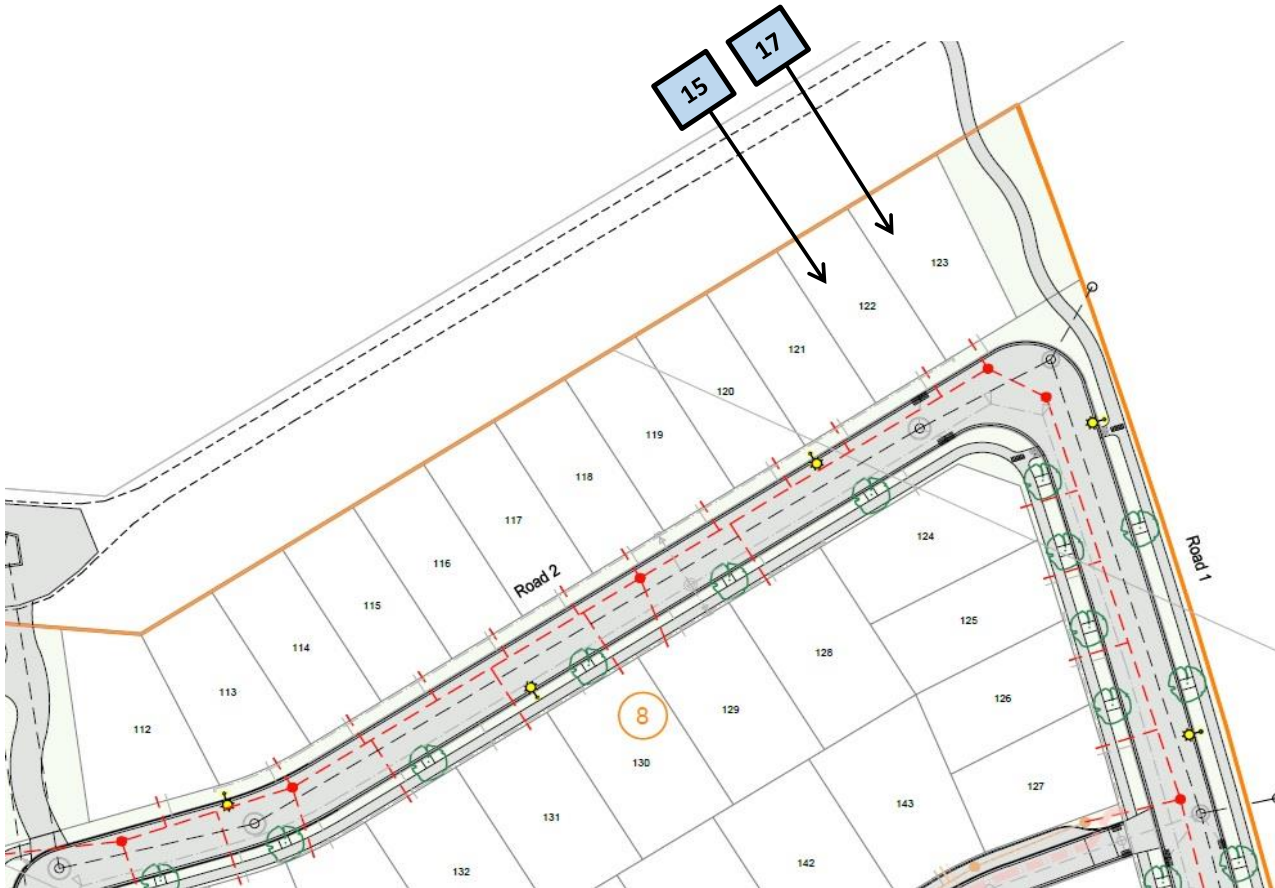
Note: Site plan is not to the scale & test sites are approximate only.

[illegible]

Site Tested: SubGrade Fill on Lot Area

ND Test unique ID : 022-129-02-002B

Diagram



Note: Site plan is not to the scale & test sites are approximate only.

