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geotechnical • geo-environmental • groundwater

Dispersive Soil Management Plan
Providence West Residential Subdivision Development

via Ripley Road, Ripley

Prepared for

Stockland Development Pty Ltd

Project No. BG25-1039A

25 July 2025

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geotechnical • geo-environmental • groundwater

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SECTION 1 - INTRODUCTION

1.1 Project

It is understood that Stockland Development Pty Ltd (Stockland) is proposing to develop the Providence West Residential Subdivision site located off Ripley Road in Ripley Valley, by use of cut to fill earthworks. The proposed subdivision will include over two thousand new residential lots, covering an area of approximately 250 hectares. It is further understood that the preparation of a Dispersive Soil Management Plan (DSMP) is required for the subdivision site. The location and extent of the subdivision site are indicated in Figure 1.

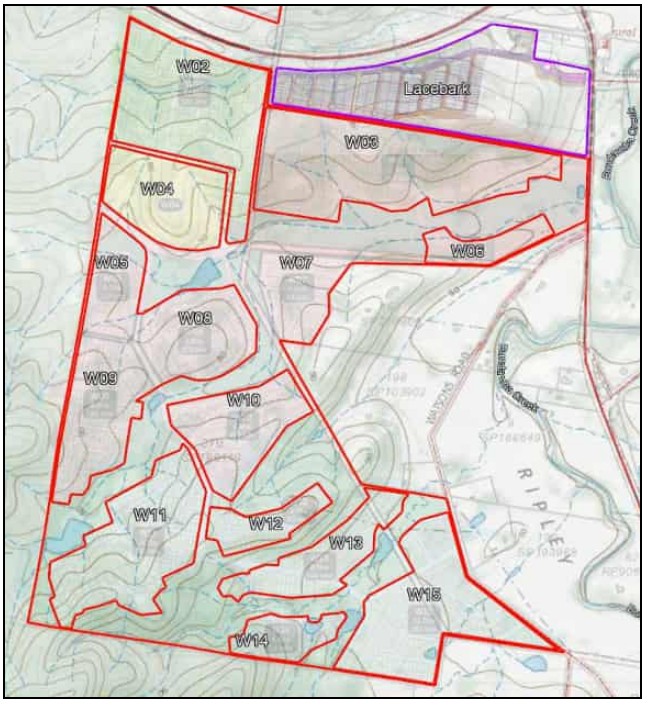


Figure 1: Approximate location and extent of proposed Providence West Residential Subdivision

1.2 Proposed Scope of Work

Based on prior knowledge of the Ripley Valley area, it was anticipated that the site ground conditions would comprise a surface layer of silty sand, underlain by very loose to medium dense clayey sands and/or stiff to hard silty/sandy clays that grade to weathered sandstone at variable depth.

For the scope of the proposed development and the anticipated ground conditions, it was proposed to geotechnically investigate the site by the excavation and sampling of fifty-four test pits at accessible locations across the site, followed by laboratory testing of soil (and possibly weathered rock) samples for assessment of dispersion potential. Using the results of the fieldwork and selected laboratory testing outcomes, it was proposed that a Dispersive Soil Management Plan (DSMP) be prepared for the site.

1.3 Commission

Based on the proposed nature of the development, the anticipated subsurface conditions and the scope of work, Butler Partners was commissioned by Stockland Development Pty Ltd (Stockland) to prepare the DSMP as proposed.

SECTION 2 - THE SITE

2.1 Site Description

The proposed residential subdivision covers approximately 250 hectares of land. The site is bounded by the Centenary Highway to the North, Ripley Road and Watsons Road to the east, and acreage properties to the south and west. Site ground surface levels vary across the site with highs between RL64m, RL80m and RL121m (nearby Test Pits 13, 15 and 40 respectively) that slope relatively uniformly downwards in all directions to lows between RL52m, RL58m and RL90m (in valleys nearby Test Pits 1, 20 and 38 respectively). At the time of the investigation the ground surface was generally grassed, with areas of dense moderate to mature tree growth, a pond towards the western area of the site, and a water storage facility (dam), at the locations indicated on Drawing No. 1.01 and Drawing No. 1.02. Three general views of the site captured at the time of the fieldwork are given in Photograph 1 to Photograph 3.



Photograph 1: General view of site looking south-west from near Test Pit 13



Photograph 2: General view of site looking south from near Test Pit 52



Photograph 3: General view of the site looking north from near Test Pit 27 and towards the existing dam

2.2 Geology

Reference to the Geological Survey of Queensland's 1:100,000 Ipswich geological sheet indicates that the site is located in an area mapped as Early Jurassic deposits (comprising Lithic or feldspathic, labile to sublabile sandstone, siltsone, shale and coal) bordering Quaternary Beds (comprising sand, silt, gravel and clay).

SECTION 3 - FIELDWORK METHODS

3.1 Test Pits

The investigation included the excavation of fifty-four test pits (Test Pits 1 to 54) with a track mounted Kobelco SK135 excavator, to depths varying between approximately 0.4m and 3.6m, using a combination of 1800mm wide mud bucket and 600mm wide toothed bucket, supplemented by the use of a single tyne ripper as required. Strata identification was from the inspection of spoil recovered in the bucket, together with the inspection (at shallow depth) of the test pit walls. Hand 'pocket' penetrometer readings were taken, where possible, in cohesive strata to assist with soil strength classification.

Following completion, the test pits were backfilled and track-rolled to surface compact the backfill.

3.2 Test Locations and Supervision

The test pit locations were set out in the field using a hand-held GPS and are shown approximately on Drawing No. 1.01 and 1.02, attached. Ground surface levels at the test locations were interpolated from QSpatial Lidar 1m contour data.

A geotechnical engineer set out the test locations, logged the subsurface profiles, determined the in-situ sampling and testing program and supervised the fieldwork.

SECTION 4 - SUBSURFACE CONDITIONS

4.1 Results

The subsurface conditions encountered at the test pit locations are given on Test Pit Report sheets included in Appendix A, using classification and descriptive terms defined in accompanying notes. Laboratory test result sheets are included in Appendix B.

4.2 Stratigraphy

For a description of the ground conditions encountered at the test pit locations, the Test Pit Report sheets should be consulted. However, in broad summary the ground conditions encountered at the test locations comprised layers of very loose to very dense silty/clayey sand and soft to hard sandy clays. The soils were underlain by extremely weathered to highly weathered sandstone rock that varied in strength between extremely low strength and very high strength to the depths investigated.

'Strength inversions' (i.e. weaker soils/rock underlying stronger soils/rock) were encountered in some of the test locations. For example, very stiff sandy clay underlying hard silty clay at 0.5m depth in Test Pit 36.

4.3 Groundwater

Free groundwater (possibly perched) was only observed in Test Pit 52 at 0.3m depth during excavation. It is considered that groundwater levels beneath the site would be expected to vary seasonally and with prevailing weather.

If construction is to be undertaken at a significant time following this investigation, consideration should be given to confirming groundwater levels prior to commencement of construction, to determine if changed groundwater conditions exist.

4.4 Laboratory Testing

Selected samples of soil recovered from the test pits were submitted to Butler Partners Pty Ltd's NATA registered Gold Coast geotechnical testing laboratory to determine particle size distribution, plasticity and dispersion potential and erosion and sediment control parameters. The results are summarised and discussed in the following sections.

It should be noted that sample descriptions provided in the laboratory results summary tables (and the laboratory test result sheets) are based on the inspection of each individual laboratory test sample only. No allowance has been made in sample descriptions for sampling, sub-sampling or test methodology in determination of the mass material properties. Estimates of mass material properties are provided on each individual Test Pit Report Sheet and as such, the laboratory test results should be read in conjunction with the relevant report sheets.

4.4.1 Particle Size Distribution

Four samples of soil recovered from the test pits were tested for measurement of particle size distribution using wash sieve grading techniques, and the reported results are summarised in Table 1.

Table 1: Summary of Particle Size Distribution Test Results

Test Pit	Depth (m)	Sample Description	Moisture Content (%)	Gravel Fraction[1] (%)	Sand Fraction[2] (%)	Silt and Clay Fraction[3] (%)
6	0.4 – 0.7	Silty Sand	6.0	4	79	17
13	0.9 – 1.3	Clayey Sand	13.1	5	54	41
28	0.2 – 0.5	Sandy Clay	19.9	7	33	60
48	1.7 – 2.1	Clayey Sand	11.3	1	54	45

[1] Particle size <60 mm, >2 mm; [2] Particle size (approximately) <2 mm, >0.075 mm; [3] Particle size (approximately) <0.075 mm

4.4.2 Plasticity

Three samples of soil recovered from the test pits were tested for measurement of plasticity using Atterberg limit and linear shrinkage test methods. The reported test results are summarised in Table 2 and indicate that the samples tested were of intermediate plasticity.

Table 2: Summary of Plasticity Test Results

Test Pit	Depth (m)	Sample Description	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plastic Index (%)	Linear Shrinkage (%)	Classification *
13	0.9 – 1.3	Clayey Sand	13.1	39	17	22	9.5	SC
28	0.2 – 0.5	Sandy Clay	19.9	47	16	31	12.0	CI
48	1.7 – 2.1	Clayey Sand	11.3	36	13	23	10.5	SC

* Australian Standard AS1726 – 1993 *Geotechnical site investigation*

4.4.3 Dispersion and Potential Erosion and Sediment Control Parameters

Thirteen selected samples of soil recovered from the test pits were tested using distilled water to determine Emerson Class Number, pH and electrical conductivity and a summary of the reported test results is presented in Table 3, and indicate that the soils tested were moderately to highly dispersive.

Table 3: Summary of Emerson Class, pH and Conductivity Test Results

Location	Depth (m)	Sample Description	Emerson Class No.	pH	Electrical Conductivity (µS/cm)
1	0.5 – 0.8	Clayey Sand	2	7.0	208.5
6	0.4 – 0.7	Silty Sand	2	5.5	338.9
12	0.2 – 0.6	Silty Sand	2	6.1	53.0
13	0.9 – 1.3	Clayey Sand	2	5.0	321.4
20	1.3 – 1.7	Clayey Sand	2	7.9	102.3
21	0.5 – 0.9	Clayey Sand	1	9.5	518.4
22	0.5 – 0.8	Clayey Sand	1	8.9	628.1
26	0.2 – 0.5	Sandy Clay	3	5.9	108.4
28	0.2 – 0.5	Sandy Clay	3	5.7	139.5
32	0.2 – 0.5	Silty Sand	3	5.7	55.5
34	0.2 – 0.5	Sandy Clay	3	5.2	91.4
48	1.7 – 2.1	Clayey Sand	2	8.1	482.0
52	0.6 – 1.0	Clayey Sand	2	5.5	78.7

SECTION 5 - DISPERSIVE SOIL MANAGEMENT

5.1 Ground Model

The results of the investigation indicate that the site is underlain (at the test pit locations) by moderately to highly dispersive very loose to very dense silty/clayey sand and soft to hard sandy clay. The soils were underlain in most test pit locations (except in Test Pits 1, 2, 17, 21, 31 and 48) by weathered sandstone rock that varied in strength between extremely low and very high.

5.2 Dispersive Soil Management Guidelines

This DSMP has been generally prepared with reference to Ipswich City Council's *Implementation Guideline No. 28 Dispersive Soil Management*, May 2016, a copy of which is included in Appendix C.

5.3 Discussion of Dispersive Soil Test Results

The results of the laboratory dispersion testing (refer Table 3) indicate that the thirteen samples of soils tested for Emerson Class Number (ECN) had an ECN of less than 4 and are considered to be dispersive materials. Materials with an ECN of 4 or greater are generally considered to be essentially non-dispersive (but may be erodible).

Agricultural lime could be added to all fill materials with an ECN of less than 4, until a minimum ECN of 4 is achieved, unless the dispersive materials are to be included into a fill where dispersive behaviour is physically prevented (e.g. fill internal to a large embankment). Mixing trials and confirmatory testing during earthworks will be required to assess what the required agricultural lime dosing rate is to prevent dispersion (i.e. to give an ECN of 4 or more).

5.4 Potential Treatment Options for Dispersive Soils

Design and construction methods must be adopted to ensure that dispersive fill materials are prevented from dispersing, for example:

- treating dispersive soils to reduce the dispersiveness; or
- placing dispersive materials in areas that cannot be affected by weathering/erosion (e.g. in the centre of fill embankments, etc.); or
- treating dispersive materials by mixing them with materials with a lower dispersability; or
- adopting suitable surface/erosion protection measures that do not allow dispersive materials to be exposed (e.g. appropriate lining of surface drains etc.); and/or
- ensuring that dispersive materials are properly and uniformly compacted (particularly, but not only, around any penetrations to water retaining structures).

The treatment option(s) chosen for dispersive fill will depend on the location that fill is to be placed in. For insitu materials, the only two protection options typically adopted would be as follows:

- adopting suitable surface/erosion protection measures that do not allow dispersive materials to be exposed (e.g. appropriate lining of drains etc.); and/or
- lime treat and recompact exposed surfaces to a depth of not less than 0.3m.

5.5 Quality Control Testing During Earthworks

In order to detect if zones of dispersive material exist during site earthworks (and whether lime treatment is required and at what dosing rate), it is recommended that an ECN test be undertaken at a minimum rate of 1 test per 1,000m^3 of cut to fill. Testing during earthworks will be required to confirm if materials are dispersive and what the required agricultural lime dosing rate is to prevent dispersion (i.e. to give an ECN of 4 or more).

5.6 Fill Compaction

To assist with the achievement of adequate control of fill placement, geotechnical testing as set out in Section 8 of AS3798 – 2007 *Guidelines on earthworks for commercial and residential developments* is suggested. Where fill is to be placed beneath pavement areas, 'Level 2' geotechnical supervision and testing could be adopted, and where fill is to be placed beneath buildings and/or movement sensitive areas, 'Level 1' supervision is suggested. No uncompacted (or inadequately compacted) fill should be placed on the site. It is suggested that reactive and dispersive fill be placed at a moisture content of not drier than Standard optimum moisture content (OMC).

Table 4: Subgrade and Fill Compaction

Location		Cohesive Soils Minimum Dry Density Ratio	Cohesionless Soils Density Index
Pavement Subgrade	- >500mm below subgrade level	98% (Standard compaction)	75%
	- top 500mm of subgrade	100% (Standard compaction)	80%
Structural Support - houses		98% (Standard compaction)	75%
General Fill (non-structural support)		95% (Standard compaction)	65%

All fill proposed to support settlement sensitive structures/features should be placed in layers not greater than 250mm (loose thickness) and be uniformly compacted to the relevant minimum dry density ratio nominated in Table 4. Fill batters should be formed by over-filling by a minimum horizontal distance of 1m, followed by cutting back to profile, to help achieve adequate compaction of batter faces.

5.7 Erosion and Sediment Control

Based on the results of the erosion and sediment control testing given in Table 3, the soils at the site would be expected to erode and it is anticipated that cut and fill batters at the site will require ongoing maintenance, if not fully protected. All exposed fill should be protected from weathering, erosion and groundwater seepage/surface water run-off. It is suggested that consideration be given to the appropriate lining of stormwater collection drains, grading fill embankments away from crests etc. to minimise erosion.

The results of testing on selected samples given in Table 3 can be used, in conjunction with relevant classifications from the Test Pit Report sheets, as input to an erosion hazard assessment for the site (e.g. IECA, 2008[1]).

[1] IECA (2008), *Best Practice Erosion and Sediment Control, International Erosion Control Association* (Australasia), Picton NSW – Book 4

5.8 Surface Water Control

Civil design should ensure that exposed surfaces are protected from concentrated surface water run-off and that earthworks are designed to prevent surface water from flowing over cut or fill faces.

BUTLER PARTNERS PTY LTD

WILLIAM HULL
Cadet Geotechnical Engineer

RICARDO ZANNIN-PESCE
Associate

Reviewed by:
MIKE NEIGHBOUR
Principal

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
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LEGEND

- **TP01** Test Pit
- ROL2 and ROL3 Site Boundary
- Shadforth Civil's Storage Facility

Reference: NearMap Imagery dated 19/06/2025.

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PROJECT
Providence West Residential Subdivision

PROJECT ADDRESS
via Ripley Road, Ripley Valley

CLIENT
Stockland Development Pty Ltd

SCALE AT A3:

0 200 400m

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A	14/7/2025	INITIAL RELEASE	RZ

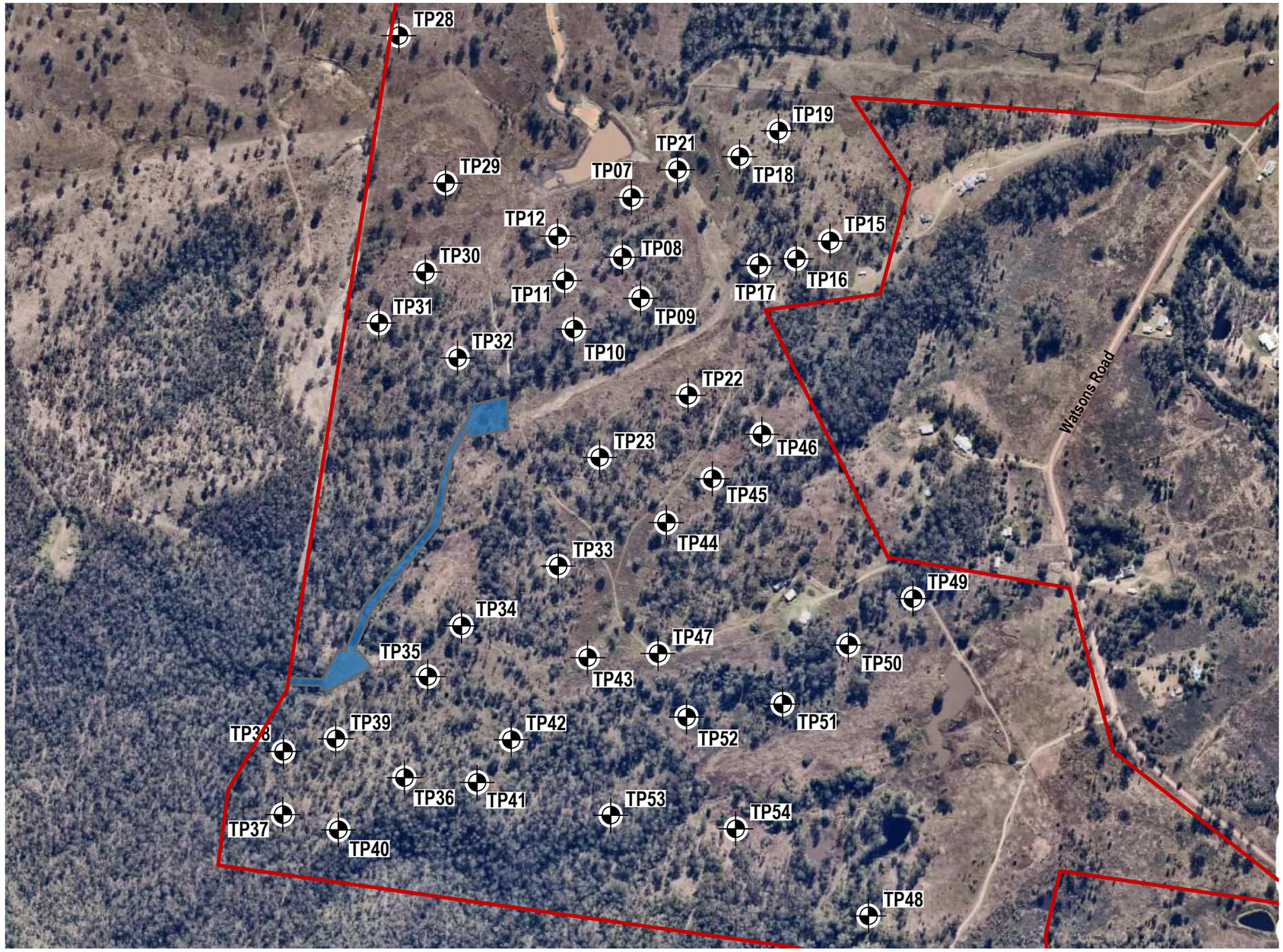
DRAWING
Test Pit Locations - ROL2 and ROL3

REPORT
GI

PROJECT No.
BG25-1039A

DRAWING No.
1.01

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LEGEND

- TP08 — Test Pit
- Site Boundary
- Existing Creek Channel

Reference: NearMap Imagery dated 19/06/2025.

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PROJECT
Providence West Residential Subdivision

PROJECT ADDRESS
via Ripley Road, Ripley Valley

CLIENT
Stockland Development Pty Ltd

SCALE AT A3:

0 200 400m

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A	14/7/2025	INITIAL RELEASE	RZ

DRAWING
Test Pit Locations - Balance of Site

REPORT
GI

PROJECT No.
BG25-1039A

DRAWING No.
1.02

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APPENDIX A

TEST PIT REPORT SHEETS WITH EXPLANATORY NOTES

TEST PIT REPORT

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TEST PIT 1

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL51.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		51.8				
0	***SANDY CLAY (CI)***				0.0	
	- firm, grey, fine grained sand			D		pp=90
	CLAYEY SAND (SC)				0.3	
	- very loose to loose, pale brown grey mottled orange, fine to medium grained				0.5	
	- medium dense			D		
		51.0			0.8	
1	- dense, interbedded with sandy clay bands					
	- very dense				1.5	
				D		
		50.0			1.8	
2						
					2.4	
				D		pp=300
					2.7	
		49.0				
	End of Test Pit at 2.8 m					
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 480094
Co-Ordinates N: 6936391

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 1
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL51.8m
Date:	30 June 2025	**Depth:** 0.0 – 2.8m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 2

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL60.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		60.2				
	SILTY SAND (SM)				0.0	
	- medium dense, brown, fine grained sand			D		
	- pale brown			D	0.3	
	- dense, red, fine to medium grained			D	0.5	
					0.8	
1		59.0				
				D	1.5	
	- red-orange				1.8	
2		58.0				
3	- grey-orange mottled red				3.0	
		57.0		D		
					3.3	
	End of Test Pit at 3.6 m					
4						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 480130
Co-Ordinates N: 6936584

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 2
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL60.2m
Date:	30 June 2025	**Depth:** 0.0 – 3.6m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 3

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL83.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		83.7				
	SILTY SAND (SM) - very loose to loose, brown, fine grained			D	0.0	
	- medium dense to dense, pale brown			D	0.2	
	- orange-grey			D	0.5	
	SANDSTONE (XW) - very low strength, orange mottled pale brown, fine to medium grained	83.0		D	0.65	
	End of Test Pit at 0.8 m (Refusal)				0.8	
1		82.0				
2		81.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Logged by: AH
Co-Ordinates E: 479845
Co-Ordinates N: 6936669
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 3
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL83.7m
Date:	30 June 2025	**Depth:** 0.0 – 0.65m



Photograph 1: Spoil



Photograph 2: Side Wall

TEST PIT REPORT

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TEST PIT 4

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL67.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		67.8				
0	***SILTY SAND (SM)***				0.0	
	- very loose to loose, brown, fine to medium grained			D		
	- medium dense, brown mottled orange			D	0.3	
					0.5	
				D		
	SANDSTONE (XW)	67.0		D	0.8	
	- low strength, orange mottled brown, fine to medium grained				0.9	
1	End of Test Pit at 0.9 m (Refusal)					
		66.0				
2						
		65.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479928
Co-Ordinates N: 6936544

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 4
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL67.8m
Date:	30 June 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Side Wall

TEST PIT REPORT

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TEST PIT 5

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL75.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		75.7				
0	***SILTY SAND (SM)*** - very loose to loose, brown, fine to medium grained			D	0.0	
	SANDY CLAY (CH) - hard, grey, fine to medium grained sand			D	0.15	pp>600
	- orange-grey			D	0.5	pp>600
	SANDSTONE (XW) - low to medium strength, orange mottled pale brown, fine to medium grained	75.0		D	0.8	
1	End of Test Pit at 0.9 m (Refusal)				0.9	
		74.0				
2						
		73.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479580
Co-Ordinates N: 6936555

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 5
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL75.7m
Date:	30 June 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Side Wall

TEST PIT REPORT

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TEST PIT 6

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL87.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		87.4				
0	***SILTY SAND (SM)***			D	0.0	
	- medium dense, brown, fine to medium grained sand				0.1	
	- grey, with clay			D		
	- dense, pale brown orange	87.0			0.4	
				D		
					0.7	
	SANDSTONE (XW)				0.8	
	- extremely low to low strength, orange-pale brown, fine to medium grained			D		
1					1.0	
	End of Test Pit at 1.3 m (Refusal)	86.0				
2		85.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479512
Co-Ordinates N: 6936769

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 6
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL87.4m
Date:	30 June 2025	**Depth:** 0.0 – 1.3m



Photograph 1: Spoil



Photograph 2: Side Wall

TEST PIT REPORT

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TEST PIT 7

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL70.1m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		70.1				
0	**SILTY SAND (SM)** - medium dense, brown, fine to medium grained sand			D	0.0	
	- very dense, with coobles/boulders				0.3	
	- pale brown grey			D		
					0.6	
	SANDSTONE (XW) - low strength, orange-pale brown, fine to medium grained			D	0.8 0.9	
1	End of Test Pit at 0.9 m (Refusal)	69.0				
2		68.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479322
Co-Ordinates N: 6936161

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 7
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL70.1m
Date:	30 June 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Side Wall

TEST PIT REPORT

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TEST PIT 8

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL81.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		81.8				
0	***SILTY SAND (SM)***				0.0	
	- medium dense, brown, fine to medium grained sand			D		
	- dense				0.3	
	- grey			D		
	- pale brown orange				0.6	
		81.0		D		
					0.9	
1	***SANDSTONE (XW)***			D	1.0	
	- low strength, orange mottled brown, fine to medium grained				1.1	
	End of Test Pit at 1.2 m (Refusal)					
		80.0				
2						
		79.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479313
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 8
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL81.8m
Date:	30 June 2025	**Depth:** 0.0 – 1.2m



Photograph 1: Spoil



Photograph 2: Side Wall

TEST PIT REPORT

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TEST PIT 9

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL81.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		81.3				
0	***SILTY SAND (SM)***				0.0	
	- loose to medium dense brown, fine to medium grained			D		
	- dense to very dense, pale grey				0.2	
		81.0		D		
	- pale brown orange				0.5	
				D		
					0.8	
1	**SANDSTONE (XW)**				1.0	
	- low strength, orange-pale brown, fine to medium grained			D	1.1	
	End of Test Pit at 1.1 m (Refusal)	80.0				
2		79.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479340
Co-Ordinates N: 6935979

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 9
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL81.3m
Date:	30 June 2025	**Depth:** 0.0 – 1.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 10

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL84.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		84.0				
0	***SILTY SAND (SM)***				0.0	
	- loose, brown, fine to medium grained			D		
					0.2	
	- medium dense, pale grey			D		
					0.5	pp>600
	SANDY CLAY (CH)					
	- hard, brown, pale brown orange			D		
					0.8	pp>600
	SANDSTONE (XW)					
	- extremely low strength, orange-brown, fine to medium grained					
1		83.0			1.0	
	- very high strength, orange-pale brown			D	1.1	
	End of Test Pit at 1.1 m					
	(Refusal)					
2		82.0				
3		81.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479218
Co-Ordinates N: 6935926

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 10
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL84.0m
Date:	30 June 2025	**Depth:** 0.0 – 1.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 11

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL83.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		83.8				
0	***SILTY SAND (SM)*** - medium dense, brown, fine to medium grained			D	0.0	
	- pale grey			D	0.2	
	- very dense, brown orange pale grey			D	0.5	
		83.0			0.8	
1	**SANDSTONE (XW)** - low to medium strength, orange-pale brown, fine to medium grained			D	1.0 / 1.1	
	End of Test Pit at 1.1 m (Refusal)					
		82.0				
2						
		81.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479205
Co-Ordinates N: 6936011

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 11
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL83.8m
Date:	30 June 2025	**Depth:** 0.0 – 1.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 12

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 30 June 2025
Ground Surface Level: RL72.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		72.5				
0	***SILTY SAND (SM)***				0.0	
	- very loose to loose, brown, fine to medium grained			D		
	- dense, pale grey				0.2	
				D		
		72.0				
	- dense to very dense, brown orange pale grey				0.6	
				D		
1					1.0	
	SANDSTONE (XW)			D	1.2	
	- low to very low strength, orange-brown, fine to medium grained				1.3	
	End of Test Pit at 1.3 m (Refusal)	71.0				
2						
		70.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479193
Co-Ordinates N: 6936092

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 12
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL72.5m
Date:	30 June 2025	**Depth:** 0.0 – 1.3m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 13

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL64.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		64.0				
	SILTY SAND (SM)				0.0	
	- very loose to loose, brown, fine to medium grained			D		
					0.2	
	- medium dense to dense, pale brown			D		
					0.6	
					0.9	
1	***SANDY CLAY (CI)***	63.0				
	- hard, red-brown mottled orange, fine to medium grained sand,interbedded with clayey sand bands			D		pp>600
					1.3	
						pp>600
						pp>600
2		62.0				
	SANDSTONE (XW)				2.4	
	- medium strength, orange-pale brown, fine to medium grained			D		
	End of Test Pit at 2.5 m				2.5	
	(Refusal)					
3		61.0				

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 480285
Co-Ordinates N: 6936667

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 13
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL64.0m
Date:	1 July 2025	**Depth:** 0.0 – 2.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 14

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL55.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		55.7				
0	***SILTY SAND (SM)*** - very loose to loose, brown, fine to medium grained			D	0.0	
	SANDY CLAY (CH) - hard, brown mottled orange, fine to medium grained sand			D	0.2	pp>600
	- brown-red	55.0		D	0.5	
1	**SANDSTONE (XW)** - very low strength, orange mottled brown, fine to medium grained			D	0.9 1.05	
	End of Test Pit at 1.2 m (Refusal)				1.2	
		54.0				
2						
		53.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 480455
Co-Ordinates N: 6936677

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 14
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL55.7m
Date:	1 July 2025	**Depth:** 0.0 – 1.2m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 15

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL87.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		87.5				
	SILTY SAND (SM)			D	0.0	
	- loose, brown, fine to medium grained				0.15	
	- loose to medium dense, orange-pale brown-pale grey			D		
		87.0				
					0.3	
				D		
	- dense				0.9	
	SANDSTONE (XW)			D		
1	- very low to low strength, orange-brown, fine to medium grained				1.0	
	End of Test Pit at 1 m (Refusal)					
		86.0				
2						
		85.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479676
Co-Ordinates N: 6936082

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 15
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL87.5m
Date:	1 July 2025	**Depth:** 0.0 – 1.0m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 16

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL80.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		80.3				
0	***SILTY SAND (SM)***				0.0	
	- very loose to loose, brown, fine to medium grained			D		
		80.0			0.3	
	- loose to medium dense, pale brown			D		
					0.5	
	- brown-orange			D		
					0.9	
	SANDSTONE (XW)			D		
1	- very low strength, orange-pale brown, fine to medium grained				1.0	
	End of Test Pit at 1 m (Refusal)	79.0				
2		78.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479612
Co-Ordinates N: 6936049

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 16
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL80.3m
Date:	1 July 2025	**Depth:** 0.0 – 1.0m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 17

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL70.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		70.0				
0	***SILTY SAND (SM)*** - very loose to loose, brown, fine to medium grained			D	0.0	
	- dense			D	0.3	
	SANDY CLAY (CH) - very stiff, brown-orange, fine to meidum grained sand			D	0.6	
1		69.0			1.0	
	- hard					pp>600
	CLAYEY SAND (SC) - dense, brown-red pale grey, fine to medium grained sand				1.8	
2		68.0		D		
					2.4	
3	End of Test Pit at 2.9 m	67.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479544
Co-Ordinates N: 6936037

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 17
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL70.0m
Date:	1 July 2025	**Depth:** 0.0 – 2.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 18

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL68.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		68.4				
	SILTY SAND (SM) - very loose to loose, brown, fine to medium grained			D	0.0	
	- medium dense to dense, pale brown			D	0.2	
		68.0				
	- dense to very dense, brown-orange red			D	0.6	
1	**SANDSTONE (XW)** - very low to low strength, orange-pale brown, fine to medium grained			D	1.0 1.1	
	End of Test Pit at 1.1 m (Refusal)	67.0				
2		66.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479516
Co-Ordinates N: 6936232

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 18
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL68.4m
Date:	1 July 2025	**Depth:** 0.0 – 1.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 19

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL64.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		64.4				
0	***SILTY SAND (SM)***				0.0	
	- loose, brown, fine to medium grained			D		
	- dense to very dense				0.2	
	- brown-orange pale grey			D		
		64.0			0.5	
				D		
1					0.9	
		63.0			1.4	
	SANDSTONE (XW)			D		
	- extremely low to low strength, orange-brown, fine to medium grained				1.5	
	End of Test Pit at 1.5 m (Refusal)					
2		62.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479582
Co-Ordinates N: 6936278

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 19
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL64.4m
Date:	1 July 2025	**Depth:** 0.0 – 1.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 20

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL57.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		57.8				
0	***SILTY SAND (SM)*** - very loose, brown, fine to medium grained			D	0.0	
	SAND (SP) - loose, brown, fine grained			D	0.2	
	CLAYEY SAND (SC) - loose to medium dense, grey mottled orange-pale brown			D	0.5	
		57.0				
	- grey-brown mottled orange			D	0.9	
1						
	- brown-grey			D	1.3	
					1.7	
		56.0				
2						
	SANDSTONE (XW) - very low strength, orange-brown, fine to medium grained			D	2.4	
	End of Test Pit at 2.5 m (Refusal)				2.5	
		55.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479703
Co-Ordinates N: 6936407

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 20
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL57.8m
Date:	1 July 2025	**Depth:** 0.0 – 2.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 21

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL61.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		61.8				
0	***SILTY SAND (SM)***				0.0	
	- very loose, brown, fine to medium grained			D		
					0.25	
	- loose to medium dense, grey-orange			D		
					0.5	
				D		
		61.0				
					0.9	
1	- dense			D		
					1.3	
	- brown-orange-grey			D		
					1.7	
		60.0				
2						
					2.4	
				D		
		59.0			2.8	
3	End of Test Pit at 2.9 m					

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479404
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 21
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL61.8m
Date:	1 July 2025	**Depth:** 0.0 – 2.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 22

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL75.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		75.0				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine to medium grained			D	0.0	
	- medium dense, pale brown grey, fine grained			D	0.2	
	CLAYEY SAND (SC) - dense to very dense, brown-orange, fine to medium grained, with silt			D	0.5	
					0.8	
1		74.0				
	SANDSTONE (XW) - low to medium strength, orange-pale brown, fine to medium grained			D	1.9	
2		73.0			2.0	
	End of Test Pit at 2 m (Refusal)					
3		72.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479425
Co-Ordinates N: 6935809

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 22
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL75.0m
Date:	1 July 2025	**Depth:** 0.0 – 2.0m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 23

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 1 July 2025
Ground Surface Level: RL83.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		83.0				
0	***SILTY SAND (SM)***				0.0	
	- loose, brown, fine to medium grained			D	0.1	
	- loose to medium dense, pale grey, fine grained, trace clay			D		
	- dense to very dense					
	SANDSTONE (XW)				0.45	
	- medium strength, orange-pale brown, fine to medium grained			D	0.6	
	End of Test Pit at 0.6 m (Refusal)					
1		82.0				
2		81.0				
3		80.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479425
Co-Ordinates N: 6935809

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 23
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL83.0m
Date:	1 July 2025	**Depth:** 0.0 – 0.6m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

TEST PIT 24

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL91.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		91.3			0.0	
	SILTY SAND (SM) - loose to medium dense, brown, fine to medium grained			D	0.2	
	- dense to very dense, pale brown	91.0		D	0.6	
	- very dense, pale brown orange			D	1.0	
1		90.0			1.6	
	SANDSTONE (XW) - very low to low strength, orange-pale brown, fine to medium grained			D	1.8	
	End of Test Pit at 1.8 m (Refusal)					
2		89.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479277
Co-Ordinates N: 6936699

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 24
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL91.3m
Date:	2 July 2025	**Depth:** 0.0 – 1.8m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 25

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL82.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		82.8			0.0	
	SILTY SAND (SM) - loose, brown, fine to medium grained			D		
	- grey				0.25	
				D		
	SANDY CLAY (CH) - very stiff, brown-orange, fine grained				0.6	
		82.0		D		pp=370
1	***CLAYEY SAND (SC)*** - dense to very dense, brown orange, fine grained, with silt				1.0	
				D		
					1.4	
	SANDSTONE (XW) - medium strength, orange-pale brown, fine to medium grained			D	1.6	
	End of Test Pit at 1.7 m (Refusal)	81.0			1.7	
2						
		80.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479046
Co-Ordinates N: 6936742

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 25
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL82.8m
Date:	2 July 2025	**Depth:** 0.0 – 1.7m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 26

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL79.9m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		79.9				
0	***SILTY SAND (SM)*** - medium dense, brown, fine to medium grained			D	0.0	
	SANDY CLAY (CH) - stiff to very stiff, mottled red pale grey, fine grained sand			D	0.2	pp=340
	CLAYEY SAND (SC) - medium dense to dense, mottled orange pale brown, fine to medium grained			D	0.5	
		79.0			0.9	
1	- dense					
	SANDSTONE (XW) - extremely low to very low strength, orange-pale brown, fine to medium grained			D	1.4	
	End of Test Pit at 1.5 m (Refusal)				1.5	
		78.0				
2						
		77.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479170
Co-Ordinates N: 6936774

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TEST PIT PHOTOGRAPHS

client:	Stockland Development Pty Ltd	**Test Pit:** 26
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL79.9m
Date:	2 July 2025	**Depth:** 0.0 – 1.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 27

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL91.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		91.0				
	SILTY SAND (SM)				0.0	
	- loose to medium dense, brown, fine grained			D		
	- medium dense, mottled orange pale brown				0.2	
				D		
	- dense				0.5	
				D		
					0.9	
1		90.0				
	SANDSTONE (XW)				1.4	
	- very low to low strength, orange-brown, fine to medium grained			D	1.5	
	End of Test Pit at 1.5 m (Refusal)					
2		89.0				
3		88.0				

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478947
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 27
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL91.0m
Date:	2 July 2025	**Depth:** 0.0 – 1.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 28

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL76.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		76.7				
0	***SILTY SAND (SM)***				0.0	
	- medium dense, brown, fine grained			D		
	SANDY CLAY (CH)				0.2	
	- very stiff, red mottled orange brown, fine grained			D		pp=330
	- brown-orange				0.5	
		76.0		D		pp=400
	- hard				0.9	
1						pp>600
	SANDSTONE (XW)				1.3	
	- low strength, orange-pale brown, fine to medium grained			D	1.4	
	End of Test Pit at 1.4 m					
	(Refusal)					
		75.0				
2						
		74.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478913
Co-Ordinates N: 6936443

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 28
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL76.7m
Date:	2 July 2025	**Depth:** 0.0 – 1.4m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 29

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL69.1m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		69.1				
0	***SILTY SAND (SM)***				0.0	
	- medium dense, brown, fine grained			D		
	- brown-grey				0.2	
				D		
	SANDY CLAY (CH)				0.6	
	- hard, mottled orange, brown, fine grained sand			D		pp>600
1		68.0			1.0	
	SANDSTONE (XW)			D	1.4	
	- low strength, orange mottled brown, fine to medium grained				1.5	
	End of Test Pit at 1.5 m (Refusal)					
2		67.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478996
Co-Ordinates N: 6936178

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 29
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL69.1m
Date:	2 July 2025	**Depth:** 0.0 – 1.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 30

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL73.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		73.4				
0	***SILTY SAND (SM)***				0.0	
	- loose, brown, fine grained			D		
					0.2	
	SANDY CLAY (CH)					
	- hard, mottled red orange-brown, fine to medium grained sand	73.0		D		pp>600
					0.6	
	- very stiff, grey-orange			D		pp=340
1					1.0	
		72.0				
2						
		71.0				
	SANDSTONE (XW)				2.6	
	- extremely low strength, grey-orange, fine to medium grained			D		
3					3.0	
	End of Test Pit at 3.1 m					

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478961
Co-Ordinates N: 6936027

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 30
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL73.4m
Date:	2 July 2025	**Depth:** 0.0 – 3.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 31

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL84.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		84.4				
0	***SILTY SAND (SM)***				0.0	
	- loose, brown, fine grained			D		
					0.2	
	SANDY CLAY (CH)					
	- hard, brown, fine grained sand	84.0		D		pp>600
					0.6	
	- grey-brown pale orange			D		pp>600
1					1.0	
	- grey-orange-brown	83.0				
2		82.0			2.6	
				D		
3					3.0	
	End of Test Pit at 3.1 m					

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478879
Co-Ordinates N: 6935937

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 31
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL84.4m
Date:	2 July 2025	**Depth:** 0.0 – 3.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 32

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL85.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		85.0				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	- red-brown, fine to medium grained			D	0.2	pp>600
	CLAYEY SAND (SC) - dense to very dense, mottled grey red-orange			D	0.5	
	SANDSTONE (XW) - extremely low strength, orange-brown, fine to medium grained				0.8	
1	- very low to low strength, orange-pale brown	84.0		D	1.0	
	End of Test Pit at 1.2 m (Refusal)				1.2	
2		83.0				
3		82.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479016
Co-Ordinates N: 6935876

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 32
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL85.0m
Date:	2 July 2025	**Depth:** 0.0 – 1.2m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 33

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 2 July 2025
Ground Surface Level: RL94.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		94.2			0.0	
	SILTY SAND (SM) - medium dense, brown, fine grained			D		
		94.0			0.2	
	- dense, mottled orange brown			D		
	SANDSTONE (XW) - very low to low strength, orange-brown, fine to medium grained			D	0.4	
					0.5	
	End of Test Pit at 0.5 m (Refusal)					
1		93.0				
2		92.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479196
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 33
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL94.2m
Date:	2 July 2025	**Depth:** 0.0 – 0.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 34

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL93.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		93.0				
	SILTY SAND (SM) - very loose, brown, fine grained			D	0.0 0.2	
	SANDY CLAY (CH) - hard, brown-red, fine grained sand			D		pp>600
	SILTY SAND (SM) - dense, mottled orange-brown, fine grained (residual)			D	0.5 0.9	
1		92.0				
2	**SANDSTONE (XW)** - very low strength, orange-brown, fine to medium grained	91.0		D	2.0 2.1	
	End of Test Pit at 2.1 m (Refusal)					
3		90.0				

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479027
Co-Ordinates N: 6935403

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 34
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL93.0m
Date:	3 July 2025	**Depth:** 0.0 – 2.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 35

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL94.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		94.0				
	SILTY SAND (SM) - medium dense, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - hard, orange pale brown, fine grained			D	0.2	pp>600
	- very stiff to hard, pale brown orange-brown			D	0.5	pp=500 pp>600
	SANDSTONE (XW) - very low strength, orange-brown, fine to medium grained			D	0.8 0.9	
1	End of Test Pit at 0.9 m (Refusal)	93.0				
2		92.0				
3		91.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478966
Co-Ordinates N: 6935318

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TEST PIT PHOTOGRAPHS

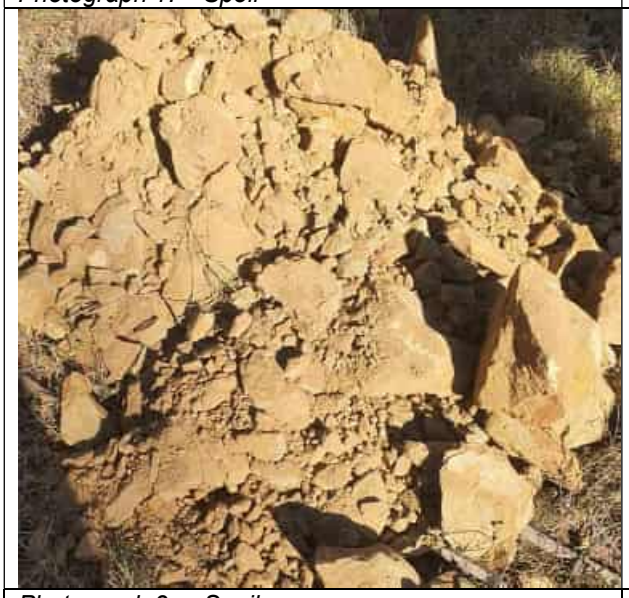
Client:	Stockland Development Pty Ltd	**Test Pit:** 35
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL94.0m
Date:	3 July 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 36

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL125.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		125.3				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - hard, brown mottled red, fine grained sand	125.0		D	0.2	pp>600
	- very stiff, brown-orange			D	0.5	pp=520
1	- hard, brown-grey				0.9	pp>600
	SANDSTONE (XW) - low strength, orange-brown, fine to medium grained	124.0		D	1.3	
	End of Test Pit at 1.7 m (Refusal)				1.7	
2		123.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Logged by: AH
Co-Ordinates E: 478925
Co-Ordinates N: 6935140
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 36
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL125.3m
Date:	3 July 2025	**Depth:** 0.0 – 1.7m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 37

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL110.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		110.2				
	SILTY SAND (SM) - loose to medium dense, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - stiff to very stiff, mottled grey-red brown	110.0		D	0.2	
	SANDSTONE (XW) - extremely low strength, orange brown, fine to medium grained			D	0.4	
	- low to medium strength, orange-brown, fine to medium grained			D	0.7	
					0.9	
1	End of Test Pit at 0.9 m (Refusal)	109.0				
2		108.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478713
Co-Ordinates N: 6935076

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 37
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL110.2m
Date:	3 July 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 38

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL94.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		94.5				
0	***SILTY SAND (SM)*** - loose, brown, fine grained			D	0.0	
					0.15	
	SANDSTONE (XW) - very low strength, orange mottled pale brown, fine to medium grained			D		
		94.0			0.5	
	- grey mottled orange-brown			D		
					0.9	
1						
					1.2	
	SANDSTONE (HW) - medium strength, orange-brown, fine grained			D	1.3	
	End of Test Pit at 1.3 m (Refusal)	93.0				
2						
		92.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478712
Co-Ordinates N: 6935186

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 38
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL94.5m
Date:	3 July 2025	**Depth:** 0.0 – 1.3m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 39

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL102.8m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		102.8				
0	***SILTY SAND (SM)*** - loose, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - soft to firm, mottled orange red-brown, fine grained sand			D	0.2	
	- stiff to very stiff (residual)			D	0.5	
		102.0			0.9	
1	***SANDSTONE (XW)*** - extremely low to low strength, orange mottled brown, fine grained			D	1.1	
	End of Test Pit at 1.3 m (Refusal)				1.3	
		101.0				
2						
		100.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478805
Co-Ordinates N: 6935203

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 39
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL102.8m
Date:	3 July 2025	**Depth:** 0.0 – 1.3m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 40

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL120.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		120.4				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - hard, red-brown, fine grained sand			D	0.15	
		120.0				
	SANDSTONE (XW) - extremely low to very low strength, pale brown red-brown, fine grained			D	0.45	
	SANDSTONE (HW) - low to medium strength, orange-brown, fine grained			D	0.7 0.8	
	End of Test Pit at 0.8 m (Refusal)					
1		119.0				
2		118.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 478804
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 40
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL120.4m
Date:	3 July 2025	**Depth:** 0.0 – 0.8m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 41

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL117.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		117.0				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	- medium dense, orange-brown			D	0.3	
	SANDSTONE (XW) - very low strength, pale brown-brown, fine grained			D	0.5	
	SANDSTONE (HW) - very low strength, orange-brown, fine grained			D	0.7	
1	End of Test Pit at 0.9 m (Refusal)	116.0			0.9	
2		115.0				
3		114.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479053
Co-Ordinates N: 6935135

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 41
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 117.0m
Date:	3 July 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 42

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL114.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		114.3				
0	***SILTY SAND (SM)***				0.0	
	- loose to medium dense, brown, fine grained			D	0.2	
	- dense, pale brown	114.0		D		
	SANDSTONE (XW)				0.5	
	- extremely low to very low strength, orange-red brown, fine to medium grained			D	0.7	
	End of Test Pit at 0.7 m			D		
	(Refusal)				0.9	
1		113.0				
2		112.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479115
Co-Ordinates N: 6935205

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 42
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 114.3m
Date:	3 July 2025	**Depth:** 0.0 – 0.7m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 43

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL113.3m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		113.3				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	- pale grey	113.0		D	0.2	
	SANDSTONE (XW) - extremely low to very low strength, pale grey brown orange, fine grained			D	0.4	
	SANDSTONE (HW) - medium strength, orange-brown, fine grained			D	0.7	
					0.9	
1	End of Test Pit at 0.9 m (Refusal)	112.0				
2		111.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479248
Co-Ordinates N: 6935530

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 43
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 113.3m
Date:	3 July 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 44

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL100.5m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		100.5				
0	***SILTY SAND (SM)*** - medium dense, brown, fine grained			D	0.0	
	- dense, pale grey brown			D	0.2	
	SANDY CLAY (CH) - hard, mottled orange red-brown, fine grained sand	100.0		D	0.5	pp>600
	SANDSTONE (XW) - extremely low strength, mottled orange red-brown, fine to medium grained				0.7	
1	**SANDSTONE (HW)** - very low to low strength, orange-brown, fine grained			D	1.0 1.1	
	End of Test Pit at 1.1 m (Refusal)	99.0				
2		98.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479388
Co-Ordinates N: 6935588

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 44
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 100.5m
Date:	3 July 2025	**Depth:** 0.0 – 1.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 45

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL92.9m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		92.9				
0	***SILTY SAND (SM)*** - loose, brown, fine grained			D	0.0	
					0.3	
	SANDSTONE (XW) - extremely low to very low strength, brown-red, fine to medium grained			D		
	- pale brown-orange			D	0.5	
	SANDSTONE (HW) - very low to low strength, orange-brown, fine grained			D	0.6	
					0.7	
	End of Test Pit at 0.7 m (Refusal)					
1		92.0				
		91.0				
2						
		90.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479468
Co-Ordinates N: 6935667

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 45
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 92.9m
Date:	3 July 2025	**Depth:** 0.0 – 0.7m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 46

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL89.6m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		89.6				
0	***SILTY SAND (SM)*** - medium dense, brown, fine grained			D	0.0	
	SANDY CLAY (CH) - hard, brown-red, fine grained sand (residual)			D	0.2	
	- pale brown mottled orange	89.0		D	0.5	
	SANDSTONE (XW) - low strength, orange mottled brown, fine grained			D	0.7 0.8	
1	End of Test Pit at 0.8 m (Refusal)	88.0				
2		87.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479553
Co-Ordinates N: 6935744

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 46
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 89.6m
Date:	3 July 2025	**Depth:** 0.0 – 0.8m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 47

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 3 July 2025
Ground Surface Level: RL107.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		107.7				
0	**SILTY SAND (SM)** - medium dense, brown, fine grained			D	0.0	
	SANDSTONE (XW) - extremely low strength, pale brown mottled orange, fine to medium grained, trace boulder			D	0.2	
	SANDSTONE (HW) - very low strength, orange mottled brown, fine to medium grained			D	0.4	
	End of Test Pit at 0.5 m (Refusal)				0.5	
		107.0				
1						
		106.0				
2						
		105.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: AH
Co-Ordinates E: 479371
Co-Ordinates N: 6935359

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 47
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 107.7m
Date:	3 July 2025	**Depth:** 0.0 – 0.5m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 48

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL72.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		72.0				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine grained			D	0.0	
	- medium dense, grey-light brown, fine grained			D	0.2	
	SANDY CLAY (CI-CH) - very stiff, orange mottled brown, fine to medium grained sand			D	0.6	pp=520
1		71.0			1.0	
	CLAYEY SAND (SC) - dense to very dense, orange mottled dark grey-brown, fine to medium grained			D	1.7	
2		70.0			2.1	
	- orange mottled dark grey			D	2.6	
3		69.0			3.1	
	End of Test Pit at 3.1 m					

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479470
Co-Ordinates N: 6935896

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 48
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 72.0
Date:	4 July 2025	**Depth:** 0.0 – 3.1m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 49

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL72.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		72.0				
0	***SILTY SAND (SM)*** - very loose to loose, dark brown-black, fine grained			D	0.0	
	SANDY CLAY (CH) - very stiff to hard, brown mottled orange-grey, fine to medium grained sand			D	0.3	pp=520 pp>600
	SANDSTONE (XW) - very low strength, grey-pale yellow, fine grained			D	0.8	
1		71.0				
	SANDSTONE (HW) - very low strength, grey-yellow, fine grained			D	1.1	
	End of Test Pit at 1.3 m (Refusal)				1.3	
2		70.0				
3		69.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479823
Co-Ordinates N: 6935452

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 49
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 72.0
Date:	4 July 2025	**Depth:** 0.0 – 1.3m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

TEST PIT REPORT

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TEST PIT 50

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL78.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		78.7				
0	***SILTY SAND (SM)*** - loose to medium dense, brown, fine to medium grained			D	0.0	
	CLAYEY SAND (SC) - dense to very dense, grey mottled orange, fine grained sand			D	0.3	
	SANDSTONE (MW) - low to medium strength, light blue-grey, fine grained	78.0		D	0.7	
1	End of Test Pit at 0.9 m (Refusal)				0.9	
		77.0				
2						
		76.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479703
Co-Ordinates N: 6935366

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 50
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 78.7m
Date:	4 July 2025	**Depth:** 0.0 – 0.9m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 51

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL78.9m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		78.9				
0	***SILTY SAND (SM)***			D	0.0	
	- loose, brown, fine grained				0.1	
	- medium dense to dense, pale brown-grey, trace boulder			D		
	CLAYEY SAND (SC)				0.5	
	- dense to very dense, orange-red, fine grained sand			D		
	SANDSTONE (MW)				0.8	
	- medium strength, pale blue-grey, fine to medium grained	78.0		D		
1	End of Test Pit at 1 m				1.0	
	(Refusal)					
		77.0				
2						
		76.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479589
Co-Ordinates N: 6935265

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 51
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 78.9m
Date:	4 July 2025	**Depth:** 0.0 – 1.0m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 52

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL84.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
0		84.0			0.0	
	SILTY SAND (SM) - very loose to loose, dark brown, fine grained			D	0.3	
	CLAYEY SAND (SC) - very loose to loose, grey-orange, fine to medium gained			D	0.6	
	- medium dense to dense, red mottled grey-orange, fine to medium grained (residual)			D		
1		83.0			1.0	
	SANDSTONE (MW) - medium to high strength, pale blue-grey, fine grained			D	1.2	
	End of Test Pit at 1.2 m (Refusal)					
2		82.0				
3		81.0				

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479422
Co-Ordinates N: 6935240

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 52
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 84.0m
Date:	4 July 2025	**Depth:** 0.0 – 1.2m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 53

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL85.7m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		85.7				
0	***SILTY SAND (SM)*** - loose, dark brown, fine grained			D	0.0	
	SANDSTONE (XW) - low strength, red-orange mottled grey, fine to medium grained			D	0.3	
	SANDSTONE (HW) - low strength, orange-brown, fine to medium grained			D	0.5	
		85.0			0.7	
	End of Test Pit at 0.7 m (Refusal)					
1		84.0				
2		83.0				
3						

D Disturbed Sample
B Bulk Sample
V Vane Shear Strength (Uncorrected)kPa
E Environmental Sample
U Undisturbed Tube (50mm diameter)
A Asbestos
pp Pocket Penetrometer Test (kPa)
Is(50) Point Load Test Result (MPa)

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479286
Co-Ordinates N: 6935075

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 53
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 85.7m
Date:	4 July 2025	**Depth:** 0.0 – 0.7m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Spoil



Photograph 4: Side Wall

TEST PIT REPORT

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TEST PIT 54

Client: Stockland Development Pty Ltd
Project: Providence West Residential Subdivision Development
Location: via Ripley Road, Ripley Valley
Project No: BG25-1039A

Page No: 1 of 1
Date: 4 July 2025
Ground Surface Level: RL73.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Depth (m)	Test Results
		73.4				
0	***SILTY SAND (SM)*** - loose, dark brown, fine grained			D	0.0	
	CLAYEY SAND (SC) - dense, orange mottled dark brown, fine to medium grained	73.0		D	0.2	
	SANDSTONE (XW) - extremely low to very low strength, orange mottled brown-grey, fine grained			D	0.6	
	SANDSTONE (HW) - very low strength, orange-brown, fine grained			D	0.8	
1	End of Test Pit at 1 m (Refusal)				1.0	
		72.0				
2						
		71.0				
3						

D	**Disturbed Sample**	**E**	**Environmental Sample**	**pp**	**Pocket Penetrometer Test (kPa)**
B	**Bulk Sample**	**U**	**Undisturbed Tube (50mm diameter)**	**Is(50)**	**Point Load Test Result (MPa)**
V	**Vane Shear Strength (Uncorrected)kPa**	**A**	**Asbestos**		

Excavator: 14t Kobelco
Bucket Size: 1800mm
Groundwater: No free groundwater encountered during excavation
Remarks: *Approximate ground surface level interpolated from QSpatial LiDAR 1m contour data

Logged by: WH
Co-Ordinates E: 479286
Co-Ordinates N:

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TEST PIT PHOTOGRAPHS

Client:	Stockland Development Pty Ltd	**Test Pit:** 54
Project:	Providence West Residential Subdivision Development	
Location:	via Ripley Road, Ripley Valley	
Project No.:	BG25-1039A	**Ground Surface Level:** RL 73.4m
Date:	4 July 2025	**Depth:** 0.0 – 1.0m



Photograph 1: Spoil



Photograph 2: Spoil



Photograph 3: Side Wall

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Notes on Description and Classification of Soil

The methods of description and classification of soils used in this report are generally based on Australian Standard AS1726-1993 Geotechnical Site Investigations.

Soil description is based on an assessment of disturbed samples, as recovered from bores and excavations, or from undisturbed materials as seen in excavations and exposures or in undisturbed samples. Descriptions given on report sheets are an interpretation of the conditions encountered at the time of investigation.

In the case of cone or piezocone penetrometer tests, actual soil samples are not recovered and soil description is inferred based on published correlations, past experience and comparison with bore and/or test pit data (if available).

Soil classification is based on the particle size distribution of the soil and the plasticity of the portion of the material finer than 0.425mm. The description of particle size distribution and plasticity is based on the results of visual field estimation, laboratory testing or both. When assessed in the field, the properties of the soil are estimated; precise description will always require laboratory testing to define soil properties.

Where soil can be clearly identified as FILL this will be noted as the main soil type followed by a description of the composition of the fill (e.g. FILL yellow-brown, fine to coarse grained gravelly clay fill with concrete rubble). If the soil is assessed as possibly being fill this will be noted as an additional observation.

Soils are generally described using the following sequence of terms. In certain instances, not all of the terms will be included in the soil description.

MAIN SOIL TYPE (CLASSIFICATION GROUP SYMBOL)
- strength/density, colour, structure/grain size, secondary and minor components, additional observations

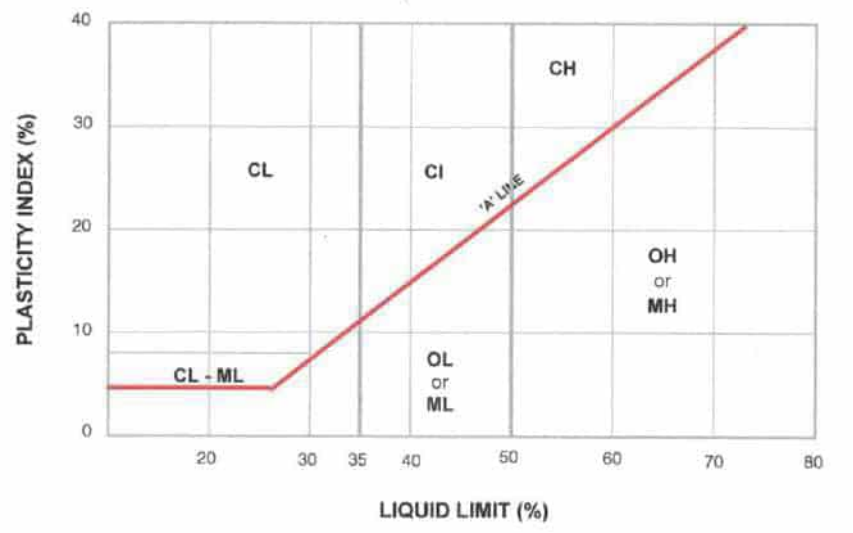
Information on the definition of descriptive and classification terms follows.

SOIL TYPE and CLASSIFICATION GROUP SYMBOLS

	Major Divisions	Particle Size	Classification Group Symbol	Typical Names
COARSE GRAINED SOILS (more than half of material is larger than 0.075mm)	BOULDERS	>200mm		
	COBBLES	63 200mm		
	GRAVELS (more than half of coarse fraction is larger than 2.36mm)	Coarse: 20 63mm Medium: 6 20mm Fine: 2.36 6mm	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels.
			GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (more than half of coarse fraction is smaller than 2.36mm)	Coarse: 0.6 2.36mm Medium: 0.2 0.6mm Fine: 0.075 0.2mm	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands and gravelly sands; little or no fines, uniform sands.
			SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (more than half of material is smaller than 0.075mm)	SILTS & CLAYS (liquid limit <50%)		ML	Inorganic silts and very fine sands, silty/clayey fine sands or clayey silts with low plasticity.
			CL and CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS & CLAYS (liquid limit >50%)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils.
			CH	Inorganic clays of high plasticity.
			OH	Organic clays of medium to high plasticity, organic silts.
	HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils.

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PLASTICITY CHART FOR CLASSIFICATION OF FINE GRAINED SOILS



(Reference: Australian Standard AS1726-1993 Geotechnical site investigations)

DESCRIPTIVE TERMS FOR MATERIAL PROPORTIONS

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier	% Coarse	Modifier
<5	b D	<15	Omit, or use trace.
5 12	" e D d	15 30	" e D d
>12	e D	>30	e D cable.

STRENGTH TERMS – COHESIVE SOILS

Strength Term	Undrained Shear Strength	Field Guide to Strength
Very soft	<12kPa	Exudes between the fingers when squeezed in hand.
Soft	12 25kPa	Can be moulded by light finger pressure.
Firm	25 50kPa	Can be moulded by strong finger pressure.
Stiff	50 100kPa	Cannot be moulded by fingers, can be indented by thumb.
Very stiff	100 200kPa	Can be indented by thumb nail.
Hard	>200kPa	Can be indented with difficulty by thumb nail.

DENSITY TERMS – NON COHESIVE SOILS

Density Term	Density Index	SPT "N"	CPT Cone Resistance
Very loose	<15%	0 5	0 2MPa
Loose	15 35%	5 10	2 5MPa
Medium dense	35 65%	10 30	5 15MPa
Dense	65 85%	30 50	15 25MPa
Very dense	>85%	>50	>25MPa

COLOUR

The colour of a D O.g. black, grey, red, brown etc.) b b d " urs (e.g. grey-brown).

EXAMPLE

e.g. CLAYEY SAND (SC) medium dense, grey-brown, fine to medium grained with silt.

Indicates a medium dense, grey-brown, fine to medium grained clayey sand with silt.

Notes on Description and Classification of Rock

The methods of description and classification of rock used in this report are generally based on Australian Standard AS1726-1993 *Geotechnical site investigations*.

Rock description is based on an assessment of disturbed samples, as recovered from bores and excavations, or from undisturbed materials as seen in excavations and exposures, or in core samples. Descriptions given on report sheets are an interpretation of the conditions encountered at the time of investigation.

Notes outlining the method and terminology adopted for the description of rock defects are given below, however, detailed information on defects can generally only be determined where rock core is taken, or excavations or exposures allow detailed observation and measurement.

Rocks are generally described using the following sequence of terms. In certain instances not all of the terms will be included in the rock description.

ROCK TYPE (WEATHERING SYMBOL), strength, colour, grain size, defect frequency

Information on the definition of descriptive and classification terms follows.

ROCK TYPE

In general, simple rock names are used rather than precise geological classifications.

ROCK MATERIALS WEATHERING CLASSIFICATION

Term	Weathering Symbol	Definition
Residual soil	RS	Soil developed from extremely weathered rock; the mass structure and substance fabrics are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered	XW	Rock is weathered to such an extent that it has 'soil' properties, i.e. it either disintegrates or can be remoulded in water.
Distinctly weathered *	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
- Highly weathered	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength may be increased or decreased compared to the fresh rock, usually as a result of iron leaching or deposition. The colour and strength of the original fresh rock substance is no longer recognisable.
- Moderately weathered	MW	Rock substance affected by weathering to the extent that staining extends throughout the whole of the rock substance and the original colour of the fresh rock may be no longer recognisable.
Slightly weathered	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh	FR	Rock shows no sign of decomposition or staining.

** Subdivision of this weathering grade into highly and moderately may be used where applicable.*

STRENGTH OF ROCK MATERIAL

Term	Symbol	Point Load Index I_s (50)	Field Guide To Strength
Extremely low	EL	<0.03MPa	Easily remoulded by hand to a material with soil properties.
Very low	VL	0.03 – 0.1MPa	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low	L	0.1 – 0.3MPa	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium	M	0.3 – 1.0MPa	Readily scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High	H	1.0 – 3.0MPa	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very high	VH	3.0 – 10.0MPa	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely high	EH	>10MPa	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Notes:
1. *These terms refer to the strength of the rock material and not to the strength of the rock mass which may be considerably weaker due to the effect of rock defects.*
2. *The field guide visual assessment for rock strength may be used for preliminary assessment or when point load testing is not available.*
3. *Anisotropy of rock may affect the field assessment of strength.*

COLOUR

The colour of a rock will generally be described in a 'moist' condition using simple colour terms (e.g. black, grey, red, brown, etc) modified as necessary by 'pale', 'dark', 'light' or 'mottled'. Borderline colours will be described as a combination of colours (e.g. grey-brown).

GRAIN SIZE

Descriptive Term	Particle Size Range
Coarse grained	0.6 – 2.0mm
Medium grained	0.2 – 0.6mm
Fine grained	0.06 – 0.2mm

DEFECT FREQUENCY

Where appropriate, a defect frequency may be recorded as part of the rock description and will be expressed as the number of natural (or interpreted natural) defects present in an equivalent one metre length of core; by use of the following defect frequency descriptive terms; or both. The descriptive terms refer to the spacing of all types of natural defects along which the rock is discontinuous and include, bedding plane partings, joints and other rock defects, but excludes known artificial fractures such as drilling breaks.

Defect Frequency	Description
Fragmented	Rock core is comprised primarily of fragments of length less than 20mm, and mostly of width less than the core diameter.
Highly Fractured	Core lengths are generally less than 20mm to 40mm with occasional fragments.
Fractured	Core lengths are mainly 30mm to 100mm with occasional shorter and longer sections.
Fractured to Slightly Fractured	Core lengths are mainly 100mm to 300mm with occasional shorter to longer sections.
Slightly Fractured	Core lengths are generally 300mm to 1,000mm with occasional longer sections and occasional sections of 100mm to 300mm.
Unbroken	The core does not contain any fractures.

EXAMPLE

e.g. SANDSTONE (XW) – low strength, pale brown, fine to coarse grained, slightly fractured.

ROCK DEFECT LOGGING

Defects are discontinuities in the rock mass and include joints, sheared zones, cleavages and bedding partings. The ability to observe and log defects will depend on the investigation methodology. Defects logged in core are described using the abbreviations noted in the following tables.

The *depth* noted in the description is measured in metres from the ground surface, the *defect angle* is measured in degrees from horizontal, and the defect *thickness* is measured normal to the plane of the defect and is in millimetres (unless otherwise noted).

Defects are generally described using the following sequence of terms:

Depth, Defect Type, Defect Angle (dip), Surface Roughness, Infill, Thickness

DEFECT TYPE

B	– Bedding
J	– Joint
S	– Shear Zone
C	– Crushed Zone

SURFACE ROUGHNESS

i	- rough or irregular, stepped
ii	- smooth, stepped
iii	- slickensided, stepped
iv	- rough or irregular, undulating
v	- smooth, undulating
vi	- slickensided, undulating
vii	- rough or irregular, planar
viii	- smooth planar
ix	- slickensided, planar

INFILL

Infill refers to secondary minerals or other materials formed on the surface of the defect and some common descriptions are given in the following table together with their abbreviations.

Ls	- limonite staining
Fe	- iron staining
Cl	- clay
Mn	- manganese staining
Qtz	- quartz
Ca	- calcite
Clean	- no visible infill

EXAMPLE

3.59m, J, 90, vii, Ls, 1mm

indicates a joint at 3.59m depth that is at 90° to horizontal (i.e. vertical), is rough or irregular and planar, limonite stained and 1mm thick.

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2/23 Traders Way
Currumbin Queensland 4223
Telephone 61 (07) 5535 2539

Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_1-7**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	30/06/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 1	**Test Pit 2**	**Test Pit 3**	**Test Pit 4**	**Test Pit 6**	**Test Pit 7**
0.0-0.1	*4*	*5*	*1*	*1*	*7*	*7*
0.1-0.2	*1*	*10*	*4*	*3*	*8*	*15*
0.2-0.3	*1*	*9*	*7*	*7*	*7*	*>25*
0.3-0.4	*1*	*7*	*9*	*4*	*9*	*End*
0.4-0.5	*3*	*8*	*11*	*4*	*11*	
0.5-0.6	*4*	*9*	*8*	*>25*	*20*	
0.6-0.7	*4*	*8*	*>25*	*End*	*>25*	
0.7-0.8	*4*	*11*	*End*		*End*	
0.8-0.9	*6*	*11*				
0.9-1.0	*8*	*16*				
1.0-1.1	*9*	*15*				
1.1-1.2	*10*	*13*				
1.2-1.3	*12*	*15*				
1.3-1.4	*12*	*15*				
1.4-1.5	*13*	*12*				
1.5-1.6	*15*	*15*				
1.6-1.7	*16*	*12*				
1.7-1.8	*16*	*12*				
1.8-1.9	*16*	*13*				
1.9-2.0	*End*	*End*				
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Currumbin Queensland 4223
Telephone 61 (07) 5535 2539

Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_8-13**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	30/06/2025 to 1/07/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 8	**Test Pit 9**	**Test Pit 10**	**Test Pit 11**	**Test Pit 12**	**Test Pit 13**
0.0-0.1	*3*	*3*	*2*	*6*	*0*	*0*
0.1-0.2	*5*	*8*	*2*	*6*	*3*	*5*
0.2-0.3	*12*	*9*	*5*	*7*	*12*	*10*
0.3-0.4	*>25*	*>25*	*8*	*5*	*14*	*8*
0.4-0.5	*End*	*End*	*6*	*>25*	*8*	*8*
0.5-0.6			*5*	*End*	*8*	*9*
0.6-0.7			*6*		*10*	*11*
0.7-0.8			*7*		*>25*	*>25*
0.8-0.9			*8*		*End*	*End*
0.9-1.0			*>25*			
1.0-1.1			*End*			
1.1-1.2						
1.2-1.3						
1.3-1.4						
1.4-1.5						
1.5-1.6						
1.6-1.7						
1.7-1.8						
1.8-1.9						
1.9-2.0						
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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2/23 Traders Way
Currumbin Queensland 4223
Telephone 61 (07) 5535 2539

Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_15-20**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	7/01/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 15	**Test Pit 16**	**Test Pit 17**	**Test Pit 18**	**Test Pit 19**	**Test Pit 20**
0.0-0.1	*1*	*0*	*1*	*1*	*1*	*0*
0.1-0.2	*4*	*2*	*3*	*4*	*10*	*2*
0.2-0.3	*5*	*5*	*9*	*7*	*19*	*2*
0.3-0.4	*5*	*3*	*14*	*8*	*16*	*2*
0.4-0.5	*4*	*2*	*19*	*>25*	*8*	*4*
0.5-0.6	*2*	*2*	*14*	*End*	*>25*	*3*
0.6-0.7	*2*	*3*	*5*		*End*	*2*
0.7-0.8	*2*	*5*	*8*			*3*
0.8-0.9	*>25*	*8*	*9*			*1*
0.9-1.0	*End*	*>25*	*10*			*3*
1.0-1.1		*End*	*9*			*2*
1.1-1.2			*10*			*3*
1.2-1.3			*17*			*1*
1.3-1.4			*18*			*2*
1.4-1.5			*19*			*2*
1.5-1.6			*>25*			*4*
1.6-1.7			*End*			*4*
1.7-1.8						*5*
1.8-1.9						*4*
1.9-2.0						*End*
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_21-26**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	1-2/7/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 21	**Test Pit 22**	**Test Pit 23**	**Test Pit 24**	**Test Pit 25**	**Test Pit 26**
0.0-0.1	*0*	*3*	*2*	*2*	*2*	*4*
0.1-0.2	*1*	*6*	*1*	*5*	*3*	*3*
0.2-0.3	*3*	*7*	*7*	*11*	*3*	*2*
0.3-0.4	*2*	*10*	*10*	*9*	*2*	*2*
0.4-0.5	*4*	*15*	*>25*	*>25*	*2*	*3*
0.5-0.6	*4*	*17*	*End*	*End*	*3*	*4*
0.6-0.7	*4*	*15*			*13*	*10*
0.7-0.8	*4*	*13*			*>25*	*10*
0.8-0.9	*4*	*10*			*End*	*13*
0.9-1.0	*8*	*11*				*11*
1.0-1.1	*9*	*10*				*18*
1.1-1.2	*10*	*10*				*>25*
1.2-1.3	*14*	*>25*				*End*
1.3-1.4	*15*	*End*				
1.4-1.5	*15*					
1.5-1.6	*>25*					
1.6-1.7	*End*					
1.7-1.8						
1.8-1.9						
1.9-2.0						
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_27-34**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	2-3/7/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 27	**Test Pit 28**	**Test Pit 29**	**Test Pit 32**	**Test Pit 33**	**Test Pit 34**
0.0-0.1	*2*	*5*	*4*	*3*	*4*	*0*
0.1-0.2	*4*	*9*	*8*	*4*	*5*	*4*
0.2-0.3	*7*	*7*	*6*	*5*	*12*	*8*
0.3-0.4	*5*	*3*	*7*	*18*	*9*	*10*
0.4-0.5	*17*	*5*	*7*	*>25*	*>25*	*5*
0.5-0.6	*16*	*5*	*7*	*End*	*End*	*12*
0.6-0.7	*>25*	*14*	*6*			*>25*
0.7-0.8	*End*	*6*	*6*			*End*
0.8-0.9		*15*	*8*			
0.9-1.0		*7*	*18*			
1.0-1.1		*12*	*>25*			
1.1-1.2		*6*	*End*			
1.2-1.3		*7*				
1.3-1.4		*18*				
1.4-1.5		*>25*				
1.5-1.6		*End*				
1.6-1.7						
1.7-1.8						
1.8-1.9						
1.9-2.0						
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_35-42**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	7/03/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 35	**Test Pit 37**	**Test Pit 39**	**Test Pit 40**	**Test Pit 41**	**Test Pit 42**
0.0-0.1	*5*	*3*	*2*	*3*	*2*	*2*
0.1-0.2	*5*	*5*	*1*	*3*	*3*	*3*
0.2-0.3	*6*	*9*	*2*	*5*	*7*	*13*
0.3-0.4	*6*	*12*	*1*	*11*	*7*	*>25*
0.4-0.5	*7*	*16*	*5*	*20*	*12*	*End*
0.5-0.6	*7*	*15*	*11*	*>25*	*12*	
0.6-0.7	*7*	*13*	*19*	*End*	*11*	
0.7-0.8	*7*	*12*	*>25*		*>25*	
0.8-0.9	*7*	*13*	*End*		*End*	
0.9-1.0	*6*	*17*				
1.0-1.1	*7*	*End*				
1.1-1.2	*15*					
1.2-1.3	*>25*					
1.3-1.4	*End*					
1.4-1.5						
1.5-1.6						
1.6-1.7						
1.7-1.8						
1.8-1.9						
1.9-2.0						
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_43-48**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	3/07/2025 to 4/07/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 43	**Test Pit 44**	**Test Pit 45**	**Test Pit 46**	**Test Pit 47**	**Test Pit 48**
0.0-0.1	*2*	*5*	*1*	*4*	*4*	*3*
0.1-0.2	*3*	*7*	*2*	*7*	*5*	*5*
0.2-0.3	*>25*	*3*	*5*	*7*	*>25*	*5*
0.3-0.4	*End*	*3*	*18*	*11*	*End*	*6*
0.4-0.5		*10*	*>25*	*>25*		*7*
0.5-0.6		*>25*	*End*	*End*		*7*
0.6-0.7		*End*				*6*
0.7-0.8						*6*
0.8-0.9						*5*
0.9-1.0						*7*
1.0-1.1						*8*
1.1-1.2						*8*
1.2-1.3						*11*
1.3-1.4						*12*
1.4-1.5						*12*
1.5-1.6						*16*
1.6-1.7						*16*
1.7-1.8						*12*
1.8-1.9						*12*
1.9-2.0						*>25*
2.0-2.1						*End*
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

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Dynamic Cone Penetrometer

Test Method: AS1289.6.3.2

Client:	Stockland Development Pty Ltd	**Report No.:**	**BG25-1039A_DCP_49-54**
Project:	Providence West Residential Subdivision Development	Tested by:	WH
Location:	Via Ripley Road	Date:	7/04/2025
	Ripley Valley	Checked by:	RZP
Project No.:	BG25-1039A	Date:	23/07/2025

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PENETRATION RESISTANCE - BLOWS / 100mm

Depth (m):	Test No.					
	Test Pit 49	**Test Pit 50**	**Test Pit 51**	**Test Pit 52**	**Test Pit 53**	**Test Pit 54**
0.0-0.1	*1*	*3*	*4*	*1*	*2*	*3*
0.1-0.2	*2*	*6*	*6*	*2*	*2*	*10*
0.2-0.3	*3*	*14*	*7*	*1*	*4*	*14*
0.3-0.4	*4*	*18*	*8*	*2*	*11*	*15*
0.4-0.5	*5*	*>25*	*>25*	*3*	*14*	*>25*
0.5-0.6	*7*	*End*	*End*	*3*	*9*	*End*
0.6-0.7	*8*			*4*	*6*	
0.7-0.8	*10*			*5*	*>25*	
0.8-0.9	*12*			*12*	*End*	
0.9-1.0	*15*			*16*		
1.0-1.1	*>25*			*>25*		
1.1-1.2	*End*			*End*		
1.2-1.3						
1.3-1.4						
1.4-1.5						
1.5-1.6						
1.6-1.7						
1.7-1.8						
1.8-1.9						
1.9-2.0						
2.0-2.1						
2.1-2.2						
2.2-2.3						
2.3-2.4						
2.4-2.5						
2.5-2.6						
2.6-2.7						
2.7-2.8						
2.8-2.9						
2.9-3.0						
3.0-3.1						
3.1-3.2						
3.2-3.3						
3.3-3.4						
3.4-3.5						
3.5-3.6						

Comments:

APPENDIX B

LABORATORY TEST RESULTS SHEETS

Material Test Report

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572A
Date Sampled: 30/06/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 1, Depth: 0.5 - 0.8m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Clayey Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.5 - 0.8m		
Material Description	ClayeySand		
Moisture Condition	Air-dried		
pH	7.0		
Electrical Conductivity (µS/cm)	208.5		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	15.8		

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Approved Signatory: Ricky Irwin
Laboratory Manager
NATA Accredited Laboratory Number: 19529

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Material Test Report

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572B
Date Sampled: 30/06/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 6, Depth: 0.4 - 0.7m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Silty Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.4 - 0.7m		
Material Description	Silty Sand		
Moisture Condition	Air-dried		
pH	5.5		
Electrical Conductivity (µS/cm)	338.9		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	6.0		

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Material Test Report

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572C
Date Sampled: 30/06/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 12, Depth: 0.2 - 0.6m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Silty Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.2 - 0.6m		
Material Description	Silty Sand		
Moisture Condition	Air-dried		
pH	6.1		
Electrical Conductivity (µS/cm)	53.0		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	7.3		

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Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572D
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 13, Depth: 0.9 - 1.3m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Sandy Clay		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (°C)	20		
Distilled Water pH	6.3		
Depth	0.9 - 1.3m		
Material Description	Sandy Clay		
Moisture Condition	Air-dried		
pH	5.0		
Electrical Conductivity (µS/cm)	321.4		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	13.1		

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Material Test Report

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572E
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 20, Depth: 1.3 - 1.7m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Clayey Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	1.3 - 1.7m		
Material Description	ClayeySand		
Moisture Condition	Air-dried		
pH	7.9		
Electrical Conductivity (µS/cm)	102.3		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	11.8		

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Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572F
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 21, Depth: 0.5 - 0.9m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**1**		
Soil Description	Silty Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.5 - 0.9m		
Material Description	Silty Sand		
Moisture Condition	Air-dried		
pH	9.5		
Electrical Conductivity (µS/cm)	518.4		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	15.4		

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Approved Signatory: Ricky Irwin
Laboratory Manager
NATA Accredited Laboratory Number: 19529

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572G
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 22, Depth: 0.5 - 0.8m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**1**		
Soil Description	Clayey Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.5 - 0.8m		
Material Description	ClayeySand		
Moisture Condition	Air-dried		
pH	8.9		
Electrical Conductivity (µS/cm)	628.1		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	9.2		

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NATA Accredited Laboratory Number: 19529

Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572H
Date Sampled: 02/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 26, Depth: 0.2 - 0.5m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Sandy Clay		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.2 - 0.5m		
Material Description	Sandy Clay		
Moisture Condition	Air-dried		
pH	5.9		
Electrical Conductivity (µS/cm)	108.4		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	16.8		

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Report Number: **BG25-1039A-2A**
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Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572I
Date Sampled: 02/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 28, Depth: 0.2 - 0.5m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Sandy Clay		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.2 - 0.5m		
Material Description	Sandy Clay		
Moisture Condition	Air-dried		
pH	5.7		
Electrical Conductivity (µS/cm)	139.5		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	19.9		

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Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572J
Date Sampled: 04/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 32, Depth: 0.2 - 0.5m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Silty Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.2 - 0.5m		
Material Description	Silty Sand		
Moisture Condition	Air-dried		
pH	5.7		
Electrical Conductivity (µS/cm)	55.5		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	8.6		

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Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Change project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572K
Date Sampled: 03/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 34, Depth: 0.2 - 0.5m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**3**		
Soil Description	Sandy Clay		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (°C)	20		
Distilled Water pH	6.3		
Depth	0.2 - 0.5m		
Material Description	Sandy Clay		
Moisture Condition	Air-dried		
pH	5.2		
Electrical Conductivity (µS/cm)	91.4		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	15.8		

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Report Number: **BG25-1039A-2A**
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Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572N
Date Sampled: 04/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 48, Depth: 1.7 - 2.1m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Clayey Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	1.7 - 2.1m		
Material Description	ClayeySand		
Moisture Condition	Air-dried		
pH	8.1		
Electrical Conductivity (µS/cm)	482.0		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	11.3		

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Report Number: **BG25-1039A-2A**
Issue Number: 2 - *This version supersedes all previous issues*
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Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572O
Date Sampled: 04/07/2025
Dates Tested: 17/07/2025 - 25/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 52, Depth: 0.6 - 1.0m**

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	**2**		
Soil Description	Clayey Sand		
Nature of Water	Distilled		

pH Value of Soil (AS 1289 4.3.1)		Min	Max
Soil-suspension Temperature (^{o}C)	20		
Distilled Water pH	6.3		
Depth	0.6 - 1.0m		
Material Description	ClayeySand		
Moisture Condition	Air-dried		
pH	5.5		
Electrical Conductivity (µS/cm)	78.7		
For Conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm			
Electrical Conductivity not covered by accreditation.			

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	11.7		

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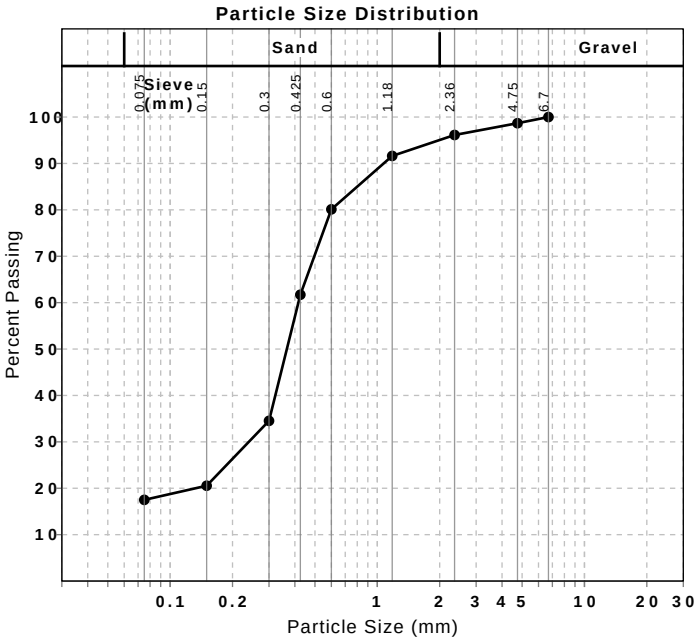
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Report Number: **BG25-1039A-2B**
Issue Number: 1
Date Issued: 28/07/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572B
Date Sampled: 30/06/2025
Dates Tested: 17/07/2025 - 21/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 6, Depth: 0.4 - 0.7m**

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
6.7 mm	**100**			0		
4.75 mm	**99**			1		
2.36 mm	**96**			3		
1.18 mm	**92**			5		
0.6 mm	**80**			12		
0.425 mm	**62**			18		
0.3 mm	**35**			27		
0.15 mm	**21**			14		
0.075 mm	**17**			3		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	6.0		



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Report Number: **BG25-1039A-2B**
Issue Number: 1
Date Issued: 28/07/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572D
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 21/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 13, Depth: 0.9 - 1.3m**

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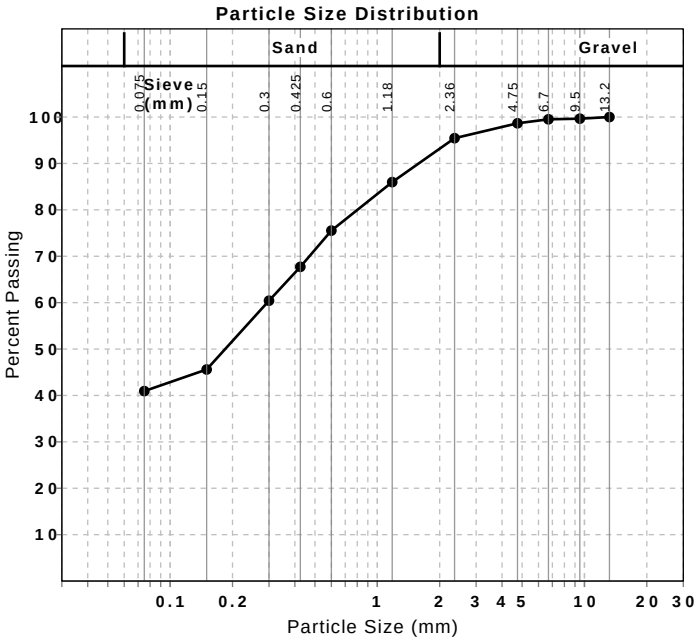
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Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			1		
2.36 mm	**95**			3		
1.18 mm	**86**			9		
0.6 mm	**76**			10		
0.425 mm	**68**			8		
0.3 mm	**60**			7		
0.15 mm	**46**			15		
0.075 mm	**41**			5		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	13.1		



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Report Number: **BG25-1039A-2B**
Issue Number: 1
Date Issued: 28/07/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572I
Date Sampled: 02/07/2025
Dates Tested: 17/07/2025 - 21/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 28, Depth: 0.2 - 0.5m**

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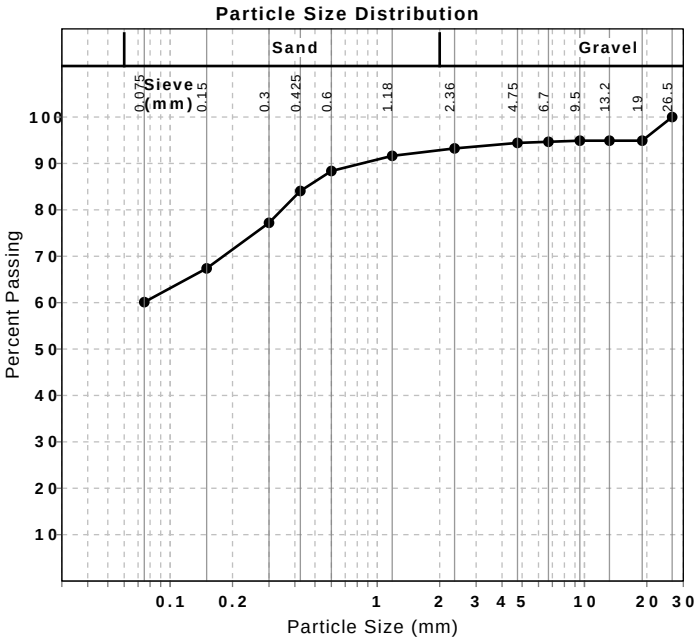
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Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
26.5 mm	**100**			0		
19 mm	**95**			5		
13.2 mm	**95**			0		
9.5 mm	**95**			0		
6.7 mm	**95**			0		
4.75 mm	**94**			0		
2.36 mm	**93**			1		
1.18 mm	**92**			2		
0.6 mm	**88**			3		
0.425 mm	**84**			4		
0.3 mm	**77**			7		
0.15 mm	**67**			10		
0.075 mm	**60**			7		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	19.9		



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Report Number: **BG25-1039A-2B**
Issue Number: 1
Date Issued: 28/07/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572N
Date Sampled: 04/07/2025
Dates Tested: 17/07/2025 - 21/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 48, Depth: 1.7 - 2.1m**

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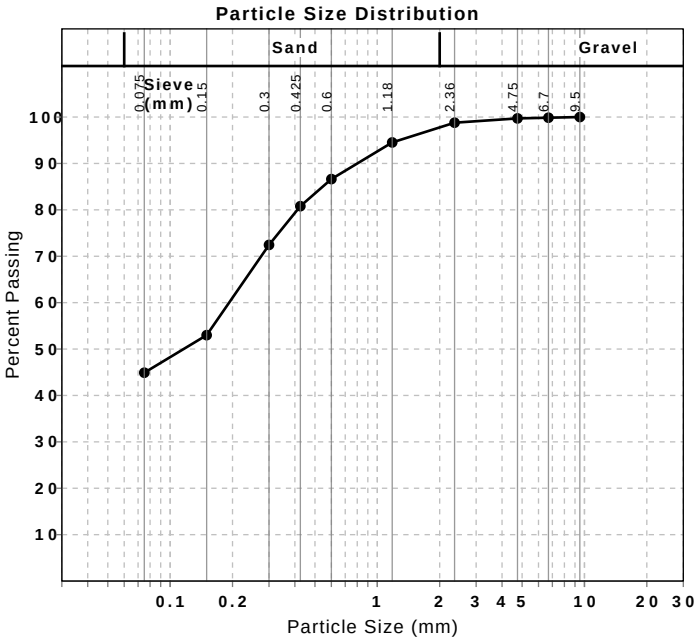
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Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**100**			0		
2.36 mm	**99**			1		
1.18 mm	**95**			4		
0.6 mm	**87**			8		
0.425 mm	**81**			6		
0.3 mm	**72**			8		
0.15 mm	**53**			19		
0.075 mm	**45**			8		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	11.3		



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Material Test Report

Report Number: **BG25-1039A-2C**
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Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572D
Date Sampled: 01/07/2025
Dates Tested: 17/07/2025 - 24/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 13, Depth: 0.9 - 1.3m**

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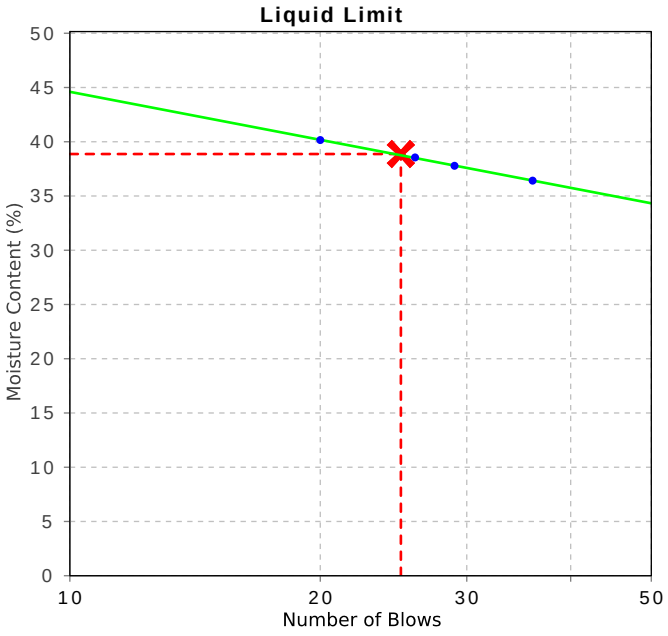
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Laboratory Manager
NATA Accredited Laboratory Number: 19529

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	39		
Plastic Limit (%)	17		
Plasticity Index (%)	**22**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**9.5**		
Cracking Crumbling Curling	Curling		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	13.1		



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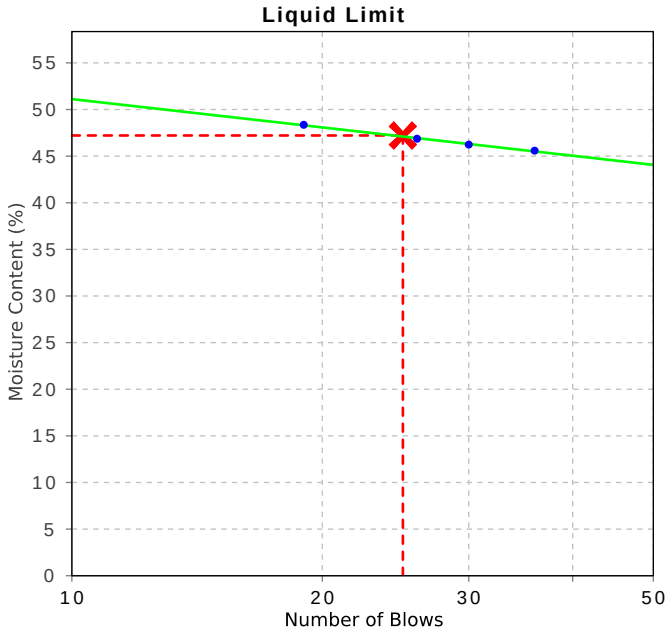
Report Number: **BG25-1039A-2C**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Changed project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572I
Date Sampled: 02/07/2025
Dates Tested: 17/07/2025 - 24/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 28, Depth: 0.2 - 0.5m**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	47		
Plastic Limit (%)	16		
Plasticity Index (%)	**31**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**12.0**		
Cracking Crumbling Curling	Curling		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	19.9		



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Results relate only to the items tested/sampled.

Material Test Report

Butler Partners
geotechnical • geo-environmental • groundwater

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Accredited for compliance with ISO/IEC 17025 - Testing

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Ricky Irwin
Laboratory Manager
NATA Accredited Laboratory Number: 19529

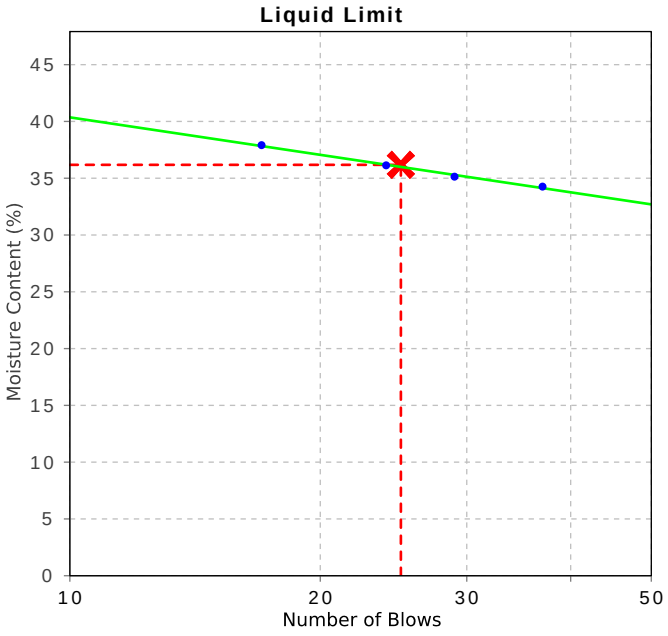
Report Number: **BG25-1039A-2C**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Changed project name*
Date Issued: 01/08/2025
Client: Stockland Development Pty Ltd

Contact: Matt Goodwin
Project Number: BG25-1039A
Project Name: Providence West Residential Subdivision Development
Project Location: via Ripley Road, Ripley Valley
Work Request: 3572
Sample Number: G25-3572N
Date Sampled: 04/07/2025
Dates Tested: 17/07/2025 - 24/07/2025
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **Test Pit 48, Depth: 1.7 - 2.1m**

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	36		
Plastic Limit (%)	13		
Plasticity Index (%)	**23**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**10.5**		
Cracking Crumbling Curling	Curling		

Moisture Content (AS 1289 2.1.1)		Min	Max
Moisture Content (%)	11.3		



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APPENDIX C

IPSWICH CITY COUNCIL'S IMPLEMENTATION GUIDELINE NO. 28

IMPLEMENTATION GUIDELINE NO. 28

Ipswich Planning Scheme

Dispersive Soil Management

Date of Council Resolution

These guidelines were adopted by Council on 19 February 2013 and took effect from 25 February 2013 in accordance with section 2.3(2) of the Planning Scheme. The guidelines were amended by Council on 26 April 2016 and took effect on 6 May 2016.

Purpose of the Guidelines

This guideline sets out matters that need to be considered in managing development in areas containing dispersive soils. These soils are highly erodible and vulnerable to sheet, tunnel and gully erosion. These guidelines complement the stormwater management requirements of Implementation Guideline No. 24 - Stormwater Management and general legislative obligations requiring the prevention of erosion and the transportation of sediment.

Council's Implementation Guidelines are intended to apply a standard approach to the interpretation and implementation of the relevant aspects of the Planning Scheme. They offer a degree of certainty to applicants, Council and the community. Where an applicant is proposing a solution that is different from the guidelines the onus is on the applicant to demonstrate the facts and circumstances to support the solution. This guideline does not preclude alternative innovative solutions proposed by the developer or applicant.

Guidelines

1 Background

Dispersive soils exist throughout Ipswich. They include large areas dominated by Sodosols that are known to be particularly vulnerable to dispersion and erosion (refer to Map 1 – Soils of Ipswich Map). Other clay-rich soils such as Chromosols, Dermosols, Vertosols and some Hydrosols and Kandosols are also vulnerable to dispersive erosion.

Dispersion occurs when sodic soils (normally subsoils) are exposed to non-saline water including rainwater, resulting in the swelling of clay platelets and the collapse of clay aggregates. Dispersion is often seen as 'muddy' or 'milky' water in dams and surface water and dispersion can lead to tunnel erosion. Tunnel erosion can cause significant damage to physical infrastructure and buildings where undermining may occur and the surface may slump or collapse into voids and cavities that has been formed by soil dispersion.

In almost all cases, tunnel erosion results from the surface disturbance of soil allowing rainwater or stormwater to come into contact with dispersible subsoils.

Changes to hydrology, including concentrating flow in culverts, runoff from hardstand areas, ponding of rainfall and land contouring increases the risk of tunnel erosion.

Typical activities that increase the risk of exposing dispersive subsoils to rainfall and stormwater include:

- the removal of topsoil;
- soil excavation and ground profiling;
- trenching and supply of services;
- road and culvert construction; and
- the construction of dams and detention basins.



Figure 1.1 - Tunnel erosion and slumping along a drainage line

Development in areas containing dispersive soils has the potential to increase the incidence of infrastructure damage and environmental harm (eg adversely affect water quality) resulting from tunnel and surface erosion. The repair of tunnel erosion is also often expensive, difficult and prone to re-failure.

The management of dispersive soils therefore requires a focus on prevention rather than intervention, and a shift in standard construction techniques and development practices (refer to Section 5 below).



Figure 1.2 - Large scale tunnel and gully erosion in highly dispersive soils, Centenary Highway



Figure 1.3 - Erosion and dispersion along service trench



Figure 1.4 - Batter erosion to dispersive subsoils

2 Identification of Dispersive Soils

Map 1 – Soils of Ipswich Map identifies the spatial distribution of the major dominant soil types in Ipswich based on the Australian Soil Classification Orders. The mapping has been produced to assist in broad scale soil identification focusing on the classification of dominant soil types only.

Those areas mapped as containing Sodosols are likely to contain dispersive soils or subsoils and development in these areas that meet or exceed the thresholds in Table 3.1 requires the development of a management plan unless it is demonstrated that dispersive soils / sub-soils are not present.

Field testing is able to be conducted to identify dispersive soils by observing the behaviour of air dried aggregates in distilled water or rainwater. The following steps should be followed, or the Emerson crumb test used as an initial test to identify soil susceptible to dispersion.

Step 1 *Collect soil aggregates (2 or 3 pea sized soil aggregates / 1-2cm in diameter) from each layer in the soil profile representative of the soil layers.*

Step 2 *If moist, dry the aggregates in the sun for a few hours until air-dried (Note: aggregates may not disperse when they should if they have not been sufficiently dried).*

Step 3 *Gently place the selected aggregates in a shallow glass or jar of distilled water or rain water.*

Step 4 *Leave the soil aggregates on a stable surface without shaking or disturbing them for 2 hours.*

Step 5 *Record the results to determine the level of dispersion observed (refer to Figure 2.1 below).*

Where evidence of dispersion is recorded, additional management techniques and the preparation of a management plan may be required (refer to Section 3 below).

Further testing using approved Australian Standard techniques may also be required, particularly where results of the field testing is inconclusive, or where large areas are likely to be disturbed by development, including for the construction of infrastructure.

3 Thresholds and Dispersive Soil Management

Development within areas containing dispersive soils (refer to Section 2 above) that meet or exceed the thresholds contained in Table 3.1 are required to provide a Dispersive Soil Management Plan (DSMP) as part of a comprehensive Erosion and Sediment Control Plan.

The DSMP is to be submitted to Council in a format that satisfies the requirements of Section 4 below. The DSMP must compliment and integrate with stormwater management undertaken in accordance with Implementation Guideline No. 24 - Stormwater Management.

The DSMP should also address areas of difficult topography, with soil disturbance in areas of greater than 20% slope avoided.

All other development undertaken in areas containing dispersive soils, including works such as landscaping and the installation of pools that would not normally require land use approval should ensure that adequate measures are taken to manage erosion and sediment control.

Ground disturbance and earthworks, particularly to sub-soils should be minimised and regard given to the management of dispersive soils as outlined in Section 5 below.

Figure 2.1 Aggregate dispersion results

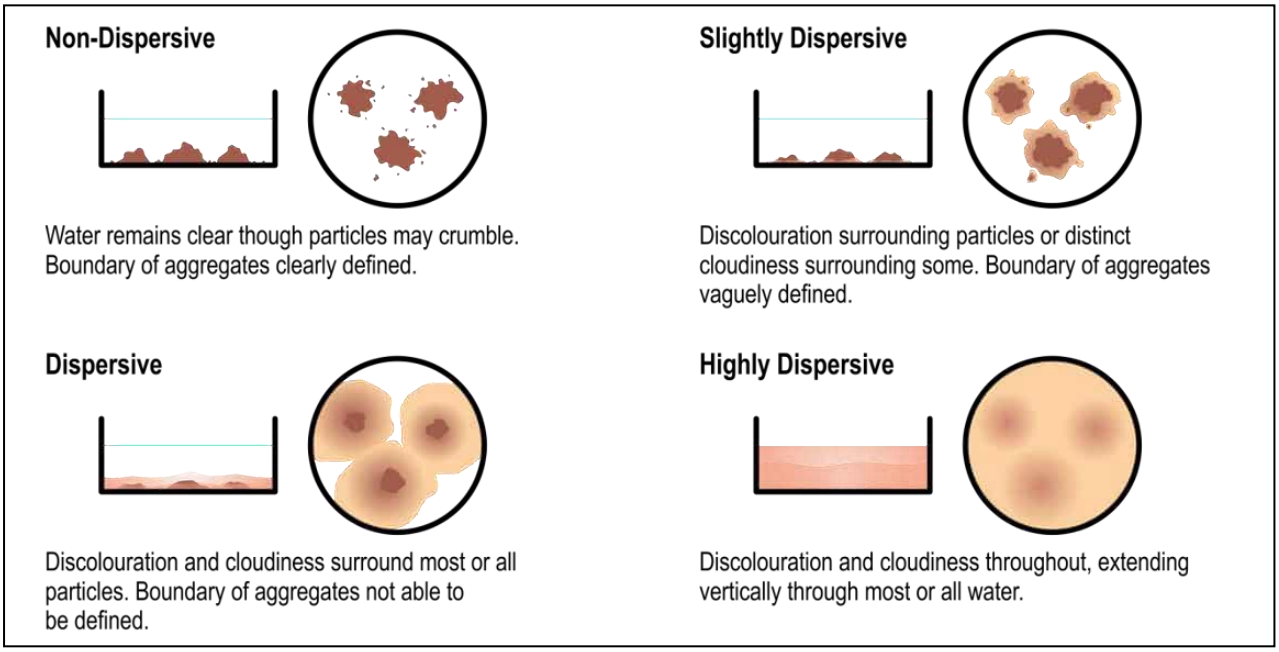


Table 3.1 Thresholds for Dispersive Soil Management Plan

Development Type	Threshold
Material change of use within an area containing dispersive soils	(a) Includes newly constructed road exceeding 30m in total length. (b) 6 or more additional dwellings (attached or unattached). (c) Disturbing greater than 2500m^2 of ground.
Reconfiguration of a lot within an area containing dispersive soils	(a) Includes newly constructed road exceeding 30m in total length. (b) Would result in 6 or more residential allotments or that provides for 6 or more dwellings. (c) Disturbing greater than 2500m^2 of ground.
Operational works within an area containing dispersive soils	(a) Disturbing greater than 2500m^2 of ground.

4 Dispersive Soil Management Plans

This section outlines Council's expectations in relation to the reporting and presentation requirements for the preparation of a Dispersive Soil Management Plan (DSMP).

DSMP's are generally required to be submitted with the initial Material Change of Use and Reconfiguration of Lot application prior to Operational Works.

4.1 Reporting Template

Table 4.1 provides a recommended reporting template for a DSMP submitted to Council. This template is not prescriptive, but provides an indication of the type of information that Council will typically require for most developments. It should be noted however, that conformity with the template does not guarantee that all relevant issues have been addressed.

Table 4.1 Recommended Reporting Template for DSMP's

Section	Contents
Cover Page	
Document Information Page	This page should outline information relevant to the authorship of the DSMP (ideally provided in tabular form), including document title (reference number, date and version tracking), document ownership (including names of personnel that have issued and checked the DSMP), RPEQ certification or suitably qualified and experienced professional (eg soil scientist) plus registration number, name of client and site address.
Summary	Concise summary of study methodology and findings.
Responses to Information Request	Details of how (if any) previous information request(s) from Council have been addressed.

Table 4.1 continued over page.

Table 4.1 Recommended Reporting Template for DSMP's continued

Section	Contents
Table of Contents	
1. Introduction	General description of proposed development/works, existing site, scope of DSMP and names of the project team members.
2. Site Constraints	General description of site limitations that commonly affect on-site erosion and sediment control measures, grouped into five main categories: Soil; Topography; Water; Vegetation; and Ecology. Included should be a detailed site plan showing: (i) location of site / property boundaries; (ii) accurate location of boreholes (including reduced level) and proposed earthworks; (iii) site contours and drainage paths (existing and final); (iv) soils and associated risk mapping; (v) difficult topography and associated hazard mapping; and (vi) map scale suiting site area/features (maximum 1:2000).
3. Soil Data	Document soil sampling, testing and interpretation of test results, notably in terms of dispersion and erosion potential.
4. Erosion Risk Mapping	Aim to identify: zones of various erosion risk; areas where soil disturbance should be avoided; and well-defined links between assessed risks and the required construction practices and erosion and sediment control design standards.
5. Recommendations	Recommendations based on the assessment undertaken and requirements of Ipswich City Council (Planning Scheme Policy 3) and should include: (i) any specific soil characteristics (eg fine grained and dispersive soils); (ii) suggestion of alternative construction practices and top soil management to reduce present and future erosion (particularly tunnel) impacts; and (iii) areas where disturbance of very high risk/dispersive soils is to be avoided.
6. Conclusions of the erosion assessment	Summary of site constraints, erosion hazards and recommended outcomes.
7. Appendices	Include bore logs and copies of all laboratory test results.

5 Management of Dispersive Soils

The prevention and management of erosion may be achieved using a combination of the following:

- identification and avoidance of dispersive soils;
- soil re-compaction;
- chemical amelioration;
- use of sand blocks and barriers (refer to Figure 5.2); and
- use of non-dispersive topsoil and revegetation.

The following checklist may be used to reduce the risk of soil dispersion:

✓ Apply gypsum to potentially dispersive soils.

Note: The application of chemical treatments including gypsum should avoid harmful changes to pH levels, particularly when in close proximity to waterways (eg 20m from top of bank). The mechanical application of chemical amelioration should also be avoided in areas intended for tree/vegetation retention.

✓ Minimise the amount of time land is exposed (eg by staging development).

✓ Discharge stormwater and runoff into relatively erosion resistant areas (eg garden beds mixed with gypsum, existing well vegetated areas with ample topsoil and stony elevated areas) away from dispersive soils.

Note: Stormwater discharge should not adversely impact on riparian and waterway corridors.

✓ Use rainwater tanks to capture runoff from roofs and buildings and pipe overflow to relatively erosion resistant areas.



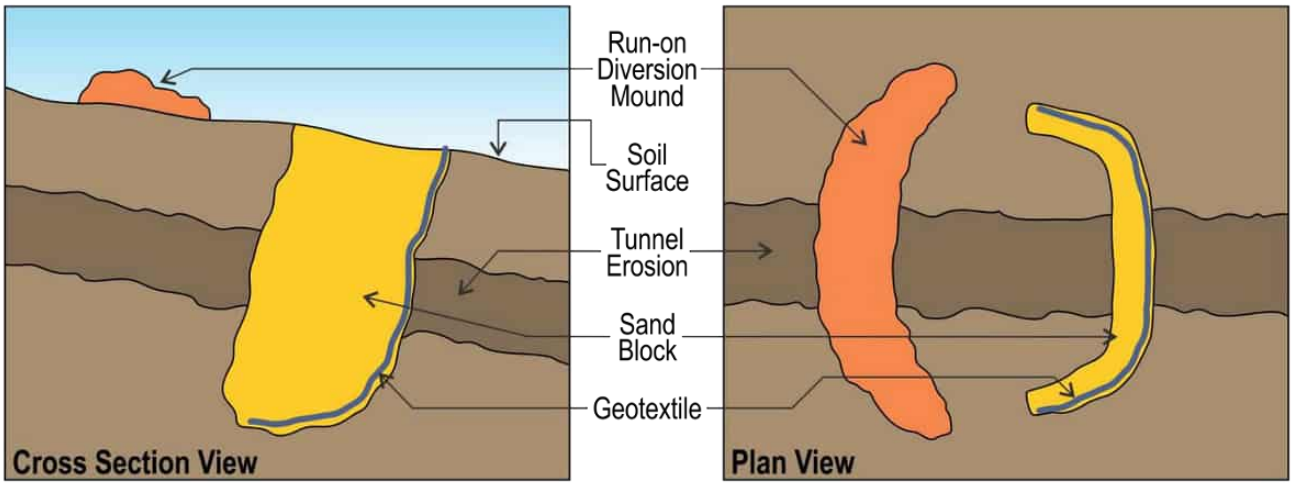
Figure 5.1 - Revegetation of major servicing trench

✓ Cover exposed dispersive soils with topsoil (at least 150mm deep) and use geotextile barriers.

✓ Re-vegetate exposed areas, particularly areas of steep slopes.

✓ Captured runoff should be dissipated and spread over as wide an area as possible.

Figure 5.2 Modified Sand Block Design



The depth of the sand block is determined by the depth of dispersive soils or tunnel erosion.
The span length of the structure is determined by the width of the tunnelling.



Figure 5.3 - Chemical treatment, use of geotextiles and landscaping to stabilise detention basin

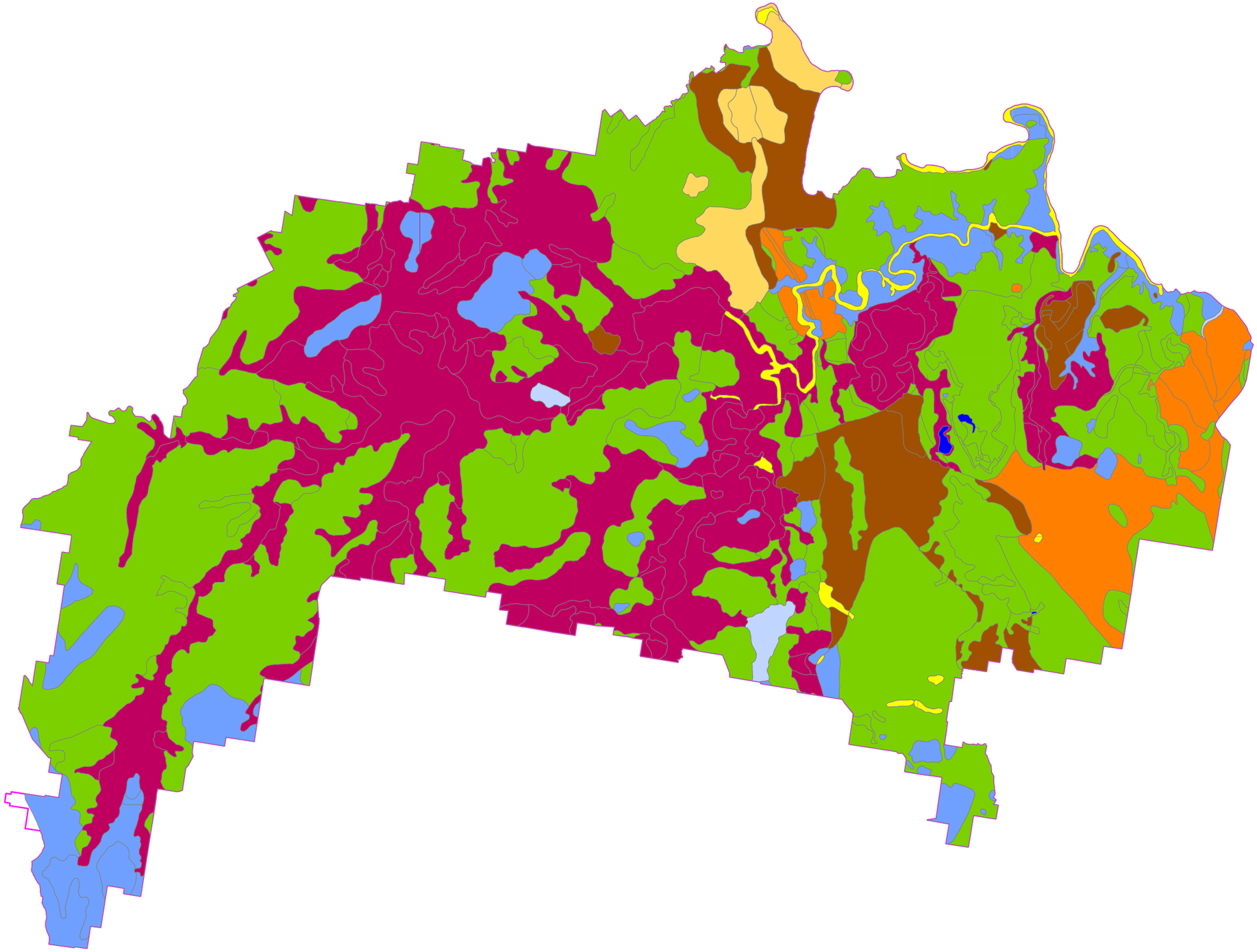
The following actions should be avoided to reduce the risk of soil dispersion:

- Expose dispersive subsoils to rain.
- Allow water to pond on dispersive soils.
- Stockpile or spread dispersive soils.
- Concentrate stormwater in drainage lines containing dispersive soils.
- Use table drains, trenches or cut and fill construction techniques in areas containing dispersive soils (unless appropriate measures are implemented in accordance with an approved DSMP).
- Extract topsoil or re-profile land in areas with dispersive subsoils (unless an appropriate management plan is prepared and utilised).
- Clear vegetation or profile soil in areas of difficult topography, particularly where greater than 20% slope (unless appropriate measures are implemented in accordance with an approved DSMP).

Services such as electricity, telecommunications and water are usually provided via trenches in urban areas. Where trenching is undertaken in dispersive soils, the use of chemical amelioration, sand blocks and compaction methods is likely to be required to reduce the risk of dispersion occurring.

Advice should be sought from a suitably qualified and experienced professional (eg RPEQ engineer or soil scientist) where a management plan is required to be submitted to Council.

MAP 1: Soils of Ipswich Map



Legend

N

City of Ipswich

IPSWICH CITY COUNCIL
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Data Compiled by: Strategic Planning Branch, Planning & Development Department
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- Dermosols
- Hydrosols
- Kandosols
- Kurosols
- Leptic Rudosols
- Sodosols/Chromosols
- Stratic Rudosols
- Tenosols
- Vertosols
- Water