REPORT

Tonkin+Taylor

River Valley Estate Stage 7D4, Lots 19 to 38

Level 1 Geotechnical Inspection and Testing Authority Report

Prepared for
Maribyrnong Riverside Developments Pty Ltd
Prepared by
Tonkin & Taylor Pty Ltd
Date
February 2025
Job Number
1000780.1000.R10 v1

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Document control

Title: River Valley Estate Stage 7D4, Lots 19 to 38 – Level 1 Geotechnical Inspection and Testing Authority Report					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
Feb 2025	1	Final	S. Stojcevski	D. Glover	T. Smith

Distribution:

Maribyrnong Riverside Developments Pty Ltd	1 PDF copy
Yourland Developments Pty Ltd	1 PDF copy
CJ Arms Pty Ltd	1 PDF copy
Tonkin & Taylor Pty Ltd (FILE)	1 copy

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1 Introduction

Tonkin and Taylor Pty Ltd (T+T) was engaged by Maribyrnong Riverside Developments Pty Ltd (MRD), to provide Level 1 Geotechnical Inspection and Testing Authority (GITA) services for the earthworks conducted within the Lots and the Parkland of Stage 7D of the River Valley Estate in Sunshine North.

Stage 7D of the River Valley Estate is further subdivided in five sections for the construction and reporting purposes, as follows:

- Stage 7D1, presented in our Report under Ref: 1000780.1000.R7, dated February 2024.
- Stage 7D2, to be presented in a future report.
- Stage 7D3, to be presented in a future report.
- **Stage 7D4, presented in this report.**
- Stage 7D4 Lot Certificates, to be presented in a future report.
- Stage 7D Parklands, encompassing the parklands in the western parts of Stage 7D to be presented in a future report.

The lots and the parklands within Stage 7D are shown in the Overall Concept Layout Plan attached in Appendix D, and further explained in Section 2.1 of this report.

This report covers 20 residential Lots of Stage 7D4, namely Lot 19 to Lot 38. It is noted that Lot 19, which is part of Stage 7D4, was constructed during the Stage 7D1 works and was included in the report 1000780.1000.R7. We have included the Lot 19 works in this report again for completeness.

As part of the Stage 7D4, Douglas Partners Pty Ltd (DP) designed a Reinforced Earth Retaining Wall (RERW) with a rock facade along the boundaries of the lots between Lots 20 to 38 of Stage 7D4 (upslope), and Lots 1 to 19 (downslope). Lot numbers 1 and 19 are part of Stage 7D4, and Lots 2 to 18 are part of Stage 7D1. No fill was placed under Level 1 GITA on Lot 1 of Stage 7D4.The RERW was constructed against the T+T Level 1 Fill constructed above the RERW on Lots 20 to 38. The construction of the retaining wall was conducted under full time supervision by DP and will be documented separately (report not available at the time of writing this report). The RERW Level 1 GITA Report will form part of the overall Stage 7D4 Lot certificates (to be issued at later stage). Personnel from Chadwick Geotechnics conducted several site visits during the construction of the RERW on Stage 7D4 as part of our quality control due diligence and records of these inspections will be summarised in the 7D4 Lot Certificates Report.

Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics), a wholly owned subsidiary of T+T, was utilised for the fieldwork and laboratory testing on this project.

Level 1 GITA services as defined in AS3798-2007 “Guidelines on Earthworks for Commercial and Residential Development,” requires full time inspection and field and laboratory testing of earthworks in accordance with AS1289 “Methods of Testing Soils for Engineering Purposes”.

2 Project Details

2.1 Location

The site is within an area of previous basalt quarrying activities. Stage 7D was situated on sloping ground upslope, to the west, of Stages 7A to 7C. The proposed use for the site is to establish level platforms through cut and fill for a residential subdivision.

Stage 7D4 comprised of twenty-one (21) lots, titled as Lot 1 and Lot 19 to Lot 38. Lots 1 and 19 are to the west of the RERW (below the wall). Lot 1 is in cut and no fill was placed within its perimeter. Lot

19 was filled as part of Stage 7D1. Lots 20 to 38 are located to the east of the RREW (upslope, above the wall).

Stage 7D4 is located to the East of Mineral Terrace as shown in the extract from the 'Draft Subdivision Layout Plan'[1] in *Figure 2.1,* also attached in Appendix E.

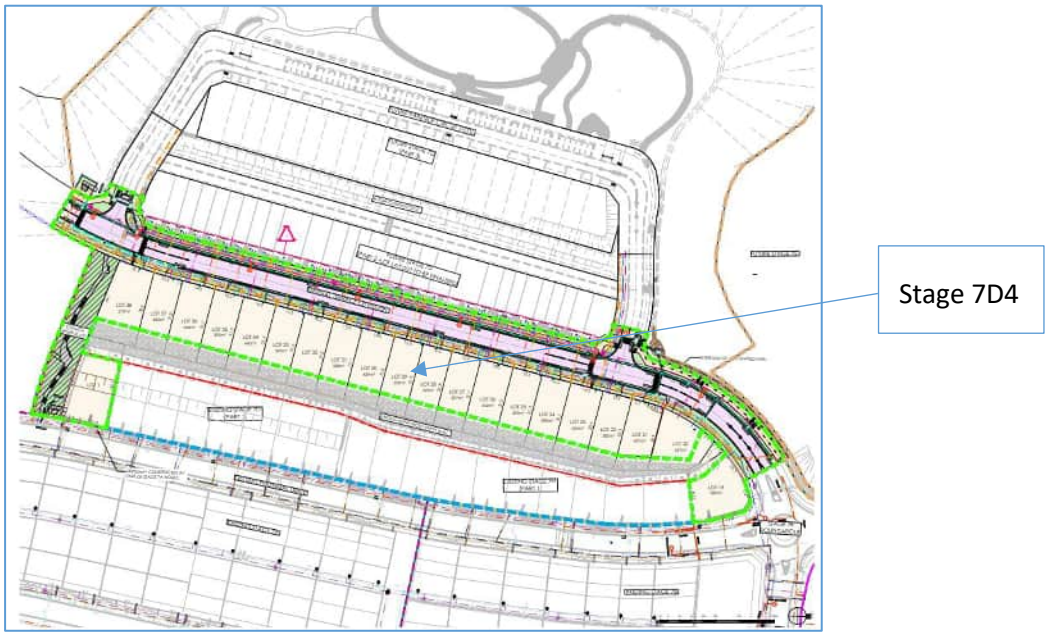


Figure 2.1: Stage 7D – extract from CJ Arms drawing 'Draft Subdivision Layout Plan'

An extract from NearMap shows the aerial view of Stage 7D4 at the time of writing this report, shown in *Figure 2.2*.

Figure 2.2: Extract from NearMap - Feb 2025

[1] 'Draft Subdivision Layout Plan' prepared by CJ Arms Pty Ltd, Project No.15006, Drawing Mo/ 1050, Rev 1, Date 18.09.2023

2.2 Specification

A specification for the bulk earthworks for Stage 7D was prepared by T+T in September 2020 (reference 1000780.1.S1.Final). The Specification was amended and updated during the construction seven (7) times and the latest version (V8) was issued in July 2022 (reference 1000780.1000.S1.V8) - referred to as "T+T Specification" herein.

The works were to be conducted in general accordance with the T+T Specification and AS 3798-2007 "Guidelines on earthworks for commercial and residential developments".

The following items were adopted as part of the project earthworks specification:

- All filling in excess of 200mm depth within the residential lots shall be undertaken to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Development".
- The fill soils to comply with the 'Suitable Material' in accordance with Section 4.4 of AS3798-2007.
- Material be sourced from on-site excavations and existing stockpiles. If an alternative source is considered, it must be approved by the Superintendent.
- Unsuitable soils are considered all organic soils, topsoil, silts, or soils containing organic matter, wood, plastics, metal or other deleterious materials, and are not acceptable.
- As per T+T Specification, Type 2 Engineered Fill materials be used, with a maximum particle size of 75mm diameter and no more than 20% of the material be retained on a 37.5mm sieve.
- Subgrade to be proof rolled prior to placement of an engineered fill.
- Subgrade to be surveyed prior to placement of any fill, as noted in Section 3.4 of AS3798.
- Fill to be compacted in near horizontal layers not exceeding 250mm compacted thickness.
- Compaction to achieve a ratio of at least 95% Standard MDD (maximum dry density).
- Moisture content of the fill material is to be within ±3% of the soil's Standard Optimum Moisture Content (SOMC).
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007.
- Finished fill surface to be surveyed prior to placement of topsoil.

We note that the uppermost layers of the RERW were filled as part of our Level 1 GITA works. The specified density ratio for the fill placed within the RERW area was to be compacted to 98% Standard MDD, as per the DP requirements for the wall construction.

2.3 Roles

The organisations and their roles are presented in Table 2.1.

Table 2.1: Roles on the project

Role	Organisation
Owner	Maribyrnong Riverside Developments Pty Ltd
Developer	Yourland Developments Pty Ltd
Bulk earthworks Geotechnical Engineer and Earthworks Specifications	Tonkin & Taylor Pty Ltd
Bulk earthworks Geotechnical Inspection and Testing Authority (GITA)	Chadwick Geotechnics Pty Ltd
Designer / Superintendent	CJ Arms Pty Ltd

Earthworks Contractor	Winslow Constructors Pty Ltd
RERW geotechnical designer	Douglas Partners Pty Ltd
RERW Level 1 GITA	Douglas Partners Pty Ltd

T+T undertook the field density testing for the bulk earthworks. The compaction control laboratory testing was conducted in the Ravenhall NATA accredited laboratory, as part of the Level 1 GITA process.

2.4 Dates on site

T+T staff were onsite for the duration of the bulk earthworks, on the days shown in Table 2.2 below.

Year / Month	Date	Remarks
2024 June	3, 12, 13, 14, 15, 17, 18, 19, 25, 26, 28	Subgrade assessments and filling.
2024 July	1, 2, 3, 31	Filling. No material available between 3 and 31 July.
2024 August	1, 2, 3, 5, 6, 7, 8, 9	Filling. No material available between 9 August and 18 September.
2024 September	18, 19, 22	Filling. Complete earthworks on 22 September.

2.5 Included Areas

This report is applicable to material placed as part of the bulk earthworks by Winslow on Lots 19 to 38 within Stage 7D4, as shown on the following documents:

- Site Plan drawing (1 page) prepared by CJ Arms titled 'Volume Comparison NS and BS Levels', Project No.15006, Drawing No.9902, Rev 0, dated 17.04.2024, attached in Appendix E. Extract of this drawing is shown in Figure 2.3.
- Site Plan drawings (2 pages) prepared by CJ Arms titled 'Fill Layout Plan', Project No.15006, Drawing No.9900 and 9901, Sheet 1 and 2, Rev 0, dated 18.09.2023, attached in Appendix E. Extract of these drawings are shown in Figures 2.4 and 2.5.
- Cross Sections drawings (2 pages) prepared by CJ Arms titled 'Cross Sections – Sheet 1 and Sheet 2', Project No.15006, Drawing Nos.9910 and 9920, Rev 0, dated 17.04.2024, attached in Appendix E. Extract of the typical cross sections (in this case Section D-D') is shown in Figure 2.6.

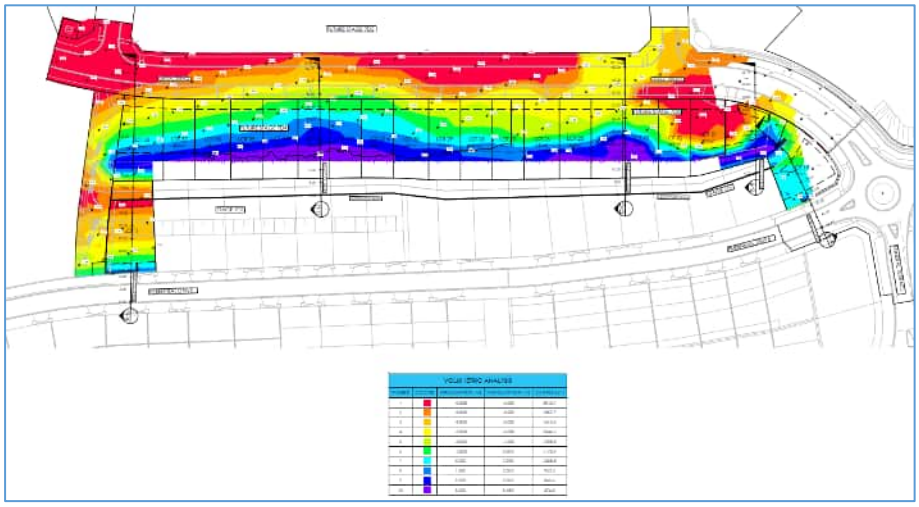


Figure 2.3: Extract from CJ Arms drawing titled 'Volume Comparison NS and BS Levels'

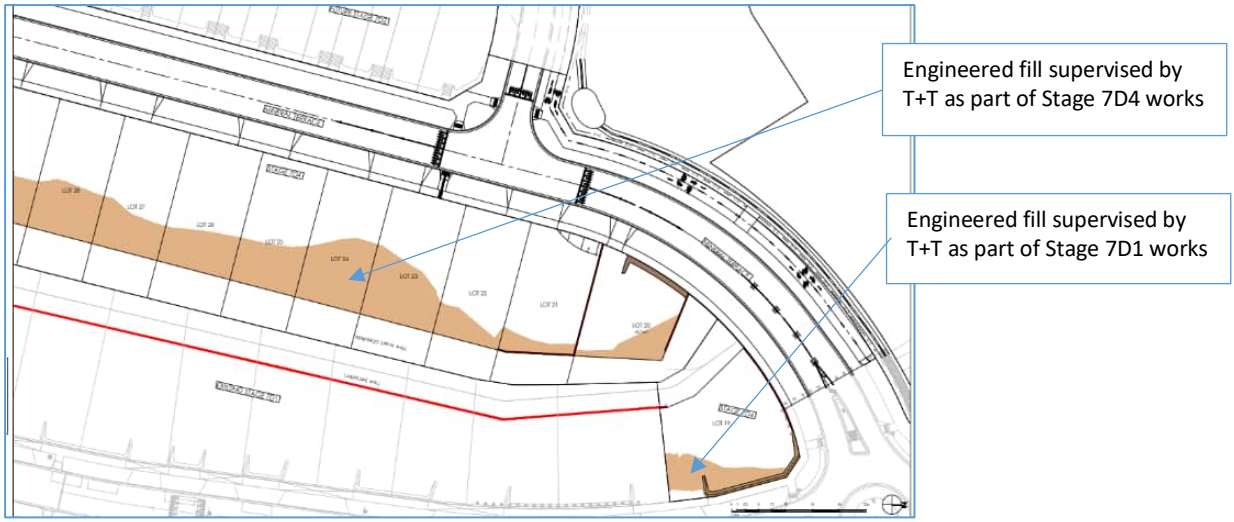


Figure 2.4: Extract from CJ Arms drawing titled 'Fill Layout Plan', Project No.15006, Drawing No.9900, Sheet 1

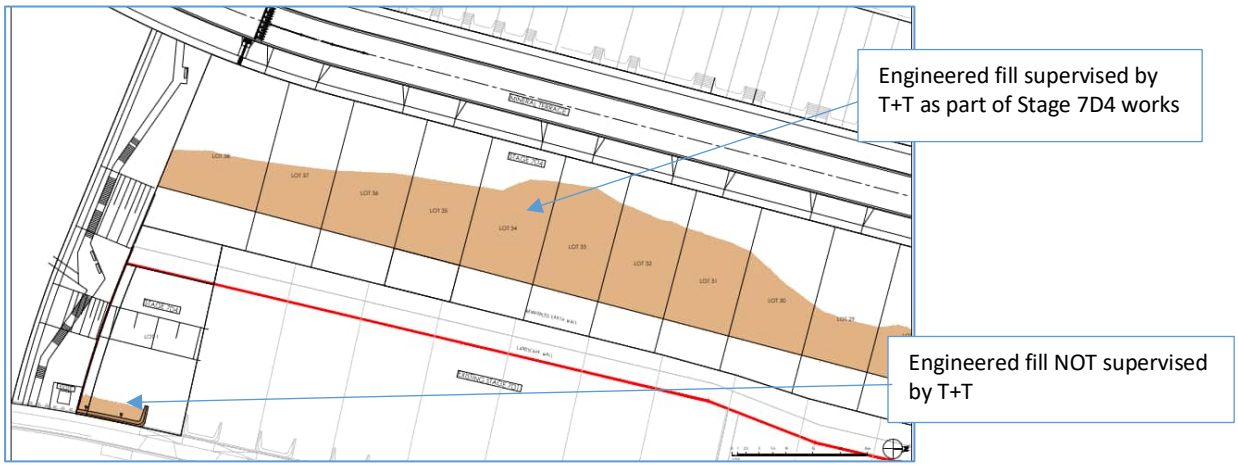


Figure 2.5: Extract from CJ Arms drawing titled 'Fill Layout Plan', Project No.15006, Drawing No.9920, Sheet 2

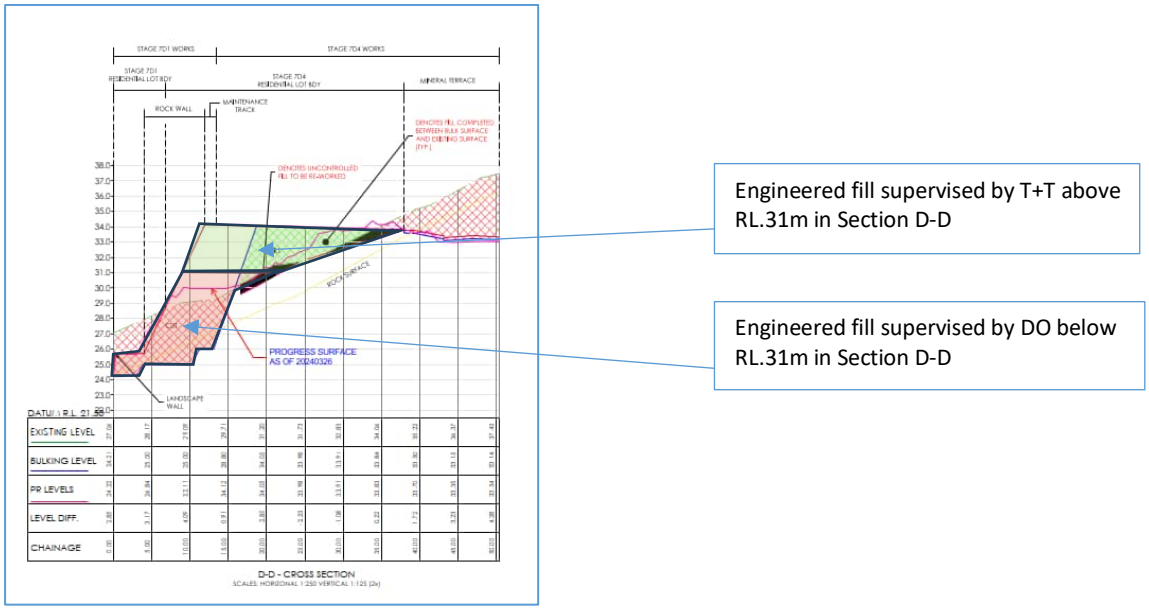


Figure 2.6: Extract from CJ Arms drawing titled 'Cross Sections", Project No.15006, Drawing No.9920, Rev 1

2.6 Excluded Areas

This report does not include fill outside the general boundary of the filled areas discussed in Section 2.5, and shown on Figures 2.4, 2.5 and 2.6 of this report.

Backfill of trenches for the underground services, fill on footpaths, driveways and roads, or placement of topsoil and landscaping were not part of the scope for the works supervised by T+T.

Any fill placed on Lot 1 is not included in this report.

The RERW fill to approximate RL of 31m, the façade, boulders and rocks placed on the eastern side of the engineered fill on Lots 20 to 38, are not included in this report.

3 Source of material

All material was imported to site. See Section 4.3.

4 Inspection and Testing

The inspection and testing of the bulk earthworks have been carried out in accordance with AS3798-2007 “Guidelines on earthworks for commercial and residential developments”, with a frequency of field density tests as per Table 8.1 (explained in Section 4.6 of this report). Compaction control laboratory testing was performed in a Chadwick Geotechnics NATA accredited laboratory in accordance with AS1289 “Methods of Testing Soils for Engineering Purposes”.

4.1 Earthworks

The bulk earthworks for the project comprised of the following phases:

- Stripping of topsoil and uncontrolled fill from the proposed fill areas.
- Benching of the slope prior to placement of the fill.
- Assessment, remediation, and proof rolling of subgrade; and,
- Placement and compaction of engineered fill.

4.2 Earthworks Plant

The contractor used the following machinery during the earthworks:

- Excavators (various models) – utilised for removing the uncontrolled fill and topsoil.
- Moxy trucks CAT 730C (and others) – utilised for moving the fill from the screened stockpiles to the fill pads, and for removal of the unsuitable soils.
- Pad Foot Roller CAT CP 76B – utilised for the compaction of the engineered fill.
- Compactor CAT 825K - utilised for pushing and compaction of the engineered fill.
- Water cart – used for moisture control of the engineered fill.

Photographs of the machinery used on site are shown in Photographs 4.1 to 4.4 below.

Photographs 4.1 to 4.4: Earthworks machinery used on site

Compactor on Stage 7D4	Moxy Truck on Stage 7D4
	
Pad Foot Roller on Stage 7D4	**Water Truck on Stage 7D4**
	

4.3 Fill Material

The material used during the construction of the fill comprised of sandy clay, and clayey sand, and silty clay, won from three different Winslow projects in the Eastern suburbs of Melbourne (Malvern and Cremorne). The materials were assessed and approved by the Superintendent prior to the import on site.

The imported materials were assessed by us to confirm they meet the specified criteria for Type 2 engineering fill as per T+T Specifications.

Samples of the fill were taken for geotechnical compliance testing during the works. The material compliance test results are summarised in Table 4.1. The laboratory test certificates are attached in Appendix D.

Table 4.1: Compliance tests from Type 2 material used on Stage 7D4

Sample No. / Date	Particle Size Distribution (% passing)						Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Emerson Class
	37.5mm	13.2mm	4.75mm	1.18mm	425µm	75µm				
MAT:S24MD-02294	100	99	95	91	84	65	48	14	34	2
MAT:S24MD-02354	100	100	99	97	93	29	25	11	14	5
MAT:S24MD-02923	100	100	100	99	93	17	28	21	7	2
MAT:S24MD-03186	98	96	91	86	83	53	56	13	33	/

The laboratory test results indicated materials used comprised clayey sand, sandy clay and silty clay varying from low to medium plasticity. The test results show that the fill fits the criteria for a Type 2 Engineering Fill material in accordance with the T+T Specification for this project.

Several photographs of the fill materials used during construction are shown in Photographs 4.5 and 4.6 below.

Photographs 4.5 and 4.6: Fill material

Clayey sand and sandy clay used for the earthworks in Stage 7D4 (imported)

The soil was considered as 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007.

The fill material was not tested by T+T for classification of 'Fill Material' as defined in EPA Publication 1828.2: Waste disposal categories – characteristics and thresholds (2021). It is understood that the Superintendent has arranged for the environmental assessment be conducted of the import materials prior to these being used on site.

Any observed organic or deleterious matter including any oversize cobbles or boulders were removed from the tested areas during the fill placement.

4.4 Subgrade Assessment / Proof Roll / Benching

The subgrade of Lots 19 to 38 within Stage 7D4 was assessed during the period Level 1 field personnel were on site. The subgrade of Lot 1 did not form part of the assessment in our scope as no fill was placed here. The subgrade of Lot 19 comprised clay in a boulder and cobble matrix which was proof rolled by a loaded moxy during the Stage 1 works in February 2024.

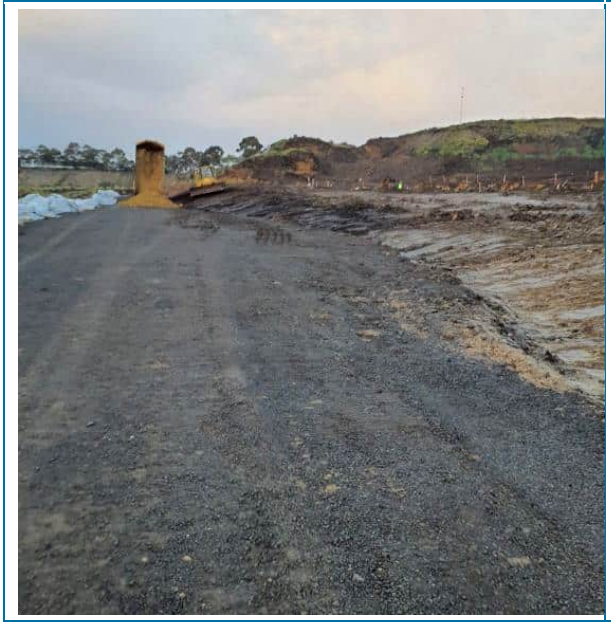
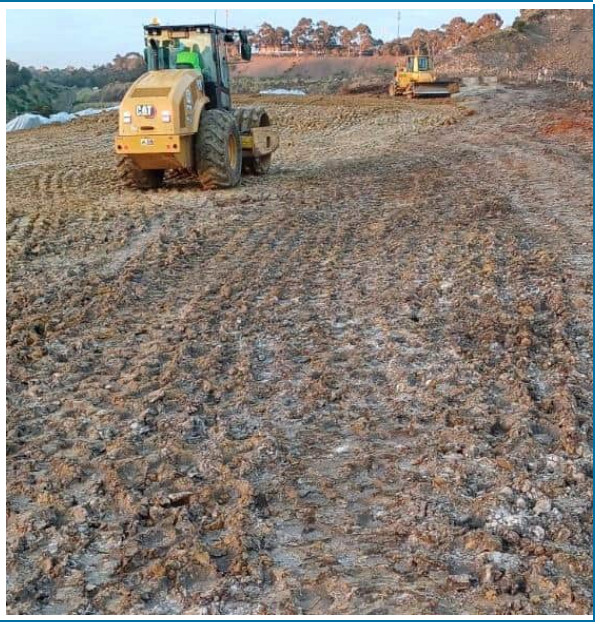
The area upslope (to the west) of the RERW, on Lots 20 to 38, to about 5m width, comprised compacted crushed rock that was used as part of the RERW construction supervised by DP. This area was generally horizontal and was proof rolled by a moxy in June 2024.

The area to the west of the RERW crushed rock backfill (upslope), comprised of a thin layer of uncontrolled fill in some areas, and natural clay with basalt boulders and cobbles within the clay matrix in other areas. The thin layer of the uncontrolled fill was stripped prior to the subgrade assessment. This area sloped downwards to the east and was not safe to be proof rolled by the moxy. Once the slope was benched to allow for the fill to be placed in horizontal layers, the area was progressively proof rolled by the compactor prior to the placement of the initial layer of fill.

The subgrade inspections were performed in accordance with the Level 1 guidelines presented in AS 3798–2007 Section 5.5, and in accordance with Section 8.5 of the T+T Specification. No soft spots or deflections were encountered during the inspections and proof rolling of the area. Proof rolling was conducted using a loaded moxy by conducting a minimum of 2 passes, or by compactor in the areas where the moxy was not able to enter safely.

Photographs of the subgrade areas are shown in Photographs 4.7 and 4.8.

Photographs 4.7 and 4.8: Subgrade proof rolls in Stage 7D4

Compacted crushed rock on east part of Lots 26 to 34 - looking south on the RERW subgrade.	Natural compacted subgrade prior to placement of fill - looking south on the western part of Lots 30 to 36.
	

4.5 Engineered fill construction

All fill material was brought by moxy trucks from the stockpiles imported to Stage 7D4. The fill was spread and compacted with a compactor and a pad foot roller. A water cart was present onsite during the works for moisture conditioning of the materials.

All fill material was placed in lift sequences comprising horizontal layers not exceeding 250mm to 300mm thickness after compaction. The Level 1 personnel verified that the surface of the stripped area, and that of additional lifts, was thoroughly scarified and moisture conditioned prior to placement of additional layers to prevent delamination at the layer interface. Once the placed fill was approved, the layer was compacted accordingly.

Level 1 personnel were on site on a fulltime basis during the placement, moisture conditioning, compaction and testing of the fill on the dates noted in Table 2 of this report.

Several photographs of the engineered fill construction are shown in Photographs 4.9 to 4.12 below.

Photographs 4.9 to 4.12: Photographs showing the fill construction on Stage 7D4

Compacting fill on Lot 19 (as part of Stage 7D1 works)	Placing fill on Stage 7D4
	
Moisture conditioning fill on Stage 7D4	**Compaction of fill on Stage 7D4**
	

4.6 Density/Moisture Testing

Field density and moisture content testing was undertaken progressively during construction on the compacted fill using a calibrated portable density and moisture gauge in accordance with AS 1289.5.8.1. The HILF rapid compaction test was used for peak converted wet density determinations

in accordance with AS 1289.5.7.1. Test locations were recorded using a handheld GPS unit. A site plan showing the field density test locations is provided in Appendix A.

Testing was undertaken under the frequencies listed below, subject to the area and volume worked on the day of testing:

- 1 test per layer per 1,000m² or 1 test per 200m³ distributed reasonably evenly or 1 test per residential lot - whichever requires the most tests in accordance with Type 2 Earthworks (small scale operations) as defined in Table 8.1 of the AS 3798-2007.
- 1 test per layer per 500m² or 1 test per 100m³ distributed reasonably evenly or 3 tests per visit - whichever requires the most tests in accordance with Type 3 Earthworks (concentrated scale operations) as defined in Table 8.1 of the AS 3798-2007.

A total of eighty-two (82) tests were performed during the filling process. Four (4) tests returned failing results, and these areas were reworked accordingly. Following the retesting of these areas, all tests returned passing density and moisture test results.

A summary table of HILF density tests is provided in Appendix B and the laboratory test reports are provided in Appendix C.

Two photographs below show examples of the density tests conducted during the fill construction.

Photograph 4.13 and 4.14: Field density testing

Field Density Test	Field Density Test
	

4.7 Fill Thickness Analyses

CJ Arms provided a copy of the site survey drawing in a heat map format, showing the fill thickness placed on the site. The drawing is presented in Appendix E under reference 'Volume Comparison NS and BS Levels', Project No.15006, Drawing No.9902, Rev 0, dated 17.04.2024.

CJ Arms also provided copies of Cross Sections (2 pages) titled 'Cross Sections – Sheet 1 and Sheet 2', Project No.15006, Drawing Nos.9910 and 9920, Rev 0, dated 17.04.2024, attached in Appendix E.

The data presented in the CJ Arms drawings has been analysed and compared against our Level 1 GITA daily records. A summary of the analysis is provided in Table 4.2.

Random points were selected for the analysis, and it is assumed the fill between the analysed survey points is of a similar thickness.

Table 4.2: Fill data analyses within Stage 7D4

Lot #	Area	Fill thickness shown on drawings (mm)	No. of layers placed under Level 1 GITA	Average layer thickness of ≤300mm	Meet Project Specifications
1	East	0	0	n/a	n/a
19	East	700	3	Yes	Yes
20	East	2400	8	Yes	Yes
24	Centre	2170	11	Yes	Yes
25	East	1750	9	Yes	Yes
32	East	3790	13	Yes	Yes
33	Centre	2080	10	Yes	Yes
38	East	1240	6	Yes	Yes

Notes:

1. The downslope (east) parts of the Lots had most of the fill placed.
2. No or minimal fill was placed in the upslope (west) parts of the Lots.
3. No fill was placed on Lot 1.
4. Fill thickness in the east parts of the Lots was analysed on the cohesive fill placed under Level 1 GITA by T+T, above the engineered fill (compacted crushed rock) supervised by DP.
5. Fill thickness in the centre of the Lots was analysed on the cohesive fill placed under Level 1 GITA by T+T, above the natural subgrade assessed by T+T.
6. Specified compacted fill thickness of 250mm was stated in the T+T Specification. The DP Specification for the RERW backfill allowed for a compacted fill thickness of 300mm. During the Stage 7D4 works, we supervised the uppermost layers of the RERW backfill. These fill layers extended from the RERW eastern edge into the residential Lots behind the wall (to the west). To simplify the testing, we adopted a 300mm compacted fill thickness for some of the layers placed on Stage 7D4, and tested them with a 275mm probe depth.

5 Conclusion

On the basis of our inspections and after considering all test results relating to the project, it is our opinion, so far as it is able to be determined, that:

- The materials used by the earthworks contractor met the geotechnical property requirements of the specification.
- The sourced fill was considered to be clean and suitable for use at the site.
- The fill material placed was tested at a suitable frequency in accordance with AS 3798-2007- Table 8.1 and the results indicate the compacted clay achieved the density requirement of the Specification.
- Given the consistent construction practices followed by the earthworks contractor and as witnessed by T+T, combined with the satisfactory verification of test results achieved, it is inferred that areas of the site between test locations were performed to the same standard as those areas that have been tested.
- Based on observations made by T+T Level 1 personal and the results of field and laboratory tests, we consider that the engineered fill within Stage 7D4 (Lots 19 to 38), as noted in Section 2.5) and indicated to the levels indicated in the survey drawing in Appendix E, constructed by Winslow, as far as we have been able to reasonably determine, have been placed in general accordance with the intent of the specification.
- It is our opinion that the earthworks undertaken have been performed in accordance with the requirements of Section 8.2 – Level 1 Inspection and Testing - AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

6 Applicability

This report has been prepared for the exclusive use of our client Maribyrnong Riverside Developments Pty Ltd, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

This report is based on the nature of the project and the prevailing conditions between 3 June and 22 September 2024. No responsibility or liability will be accepted in respect of the use of this report where there has been a change in the nature of the project or the conditions on site that may alter or affect the conclusions of this report.

Tonkin & Taylor Pty Ltd
Environmental and Engineering Consultants

Report prepared by:

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Sotir Stojcevski
Earthworks Engineering Team Leader

Reviewed Tonkin & Taylor Pty Ltd by:

.....

David Glover (PE0015860)
Principal Geotechnical Engineer

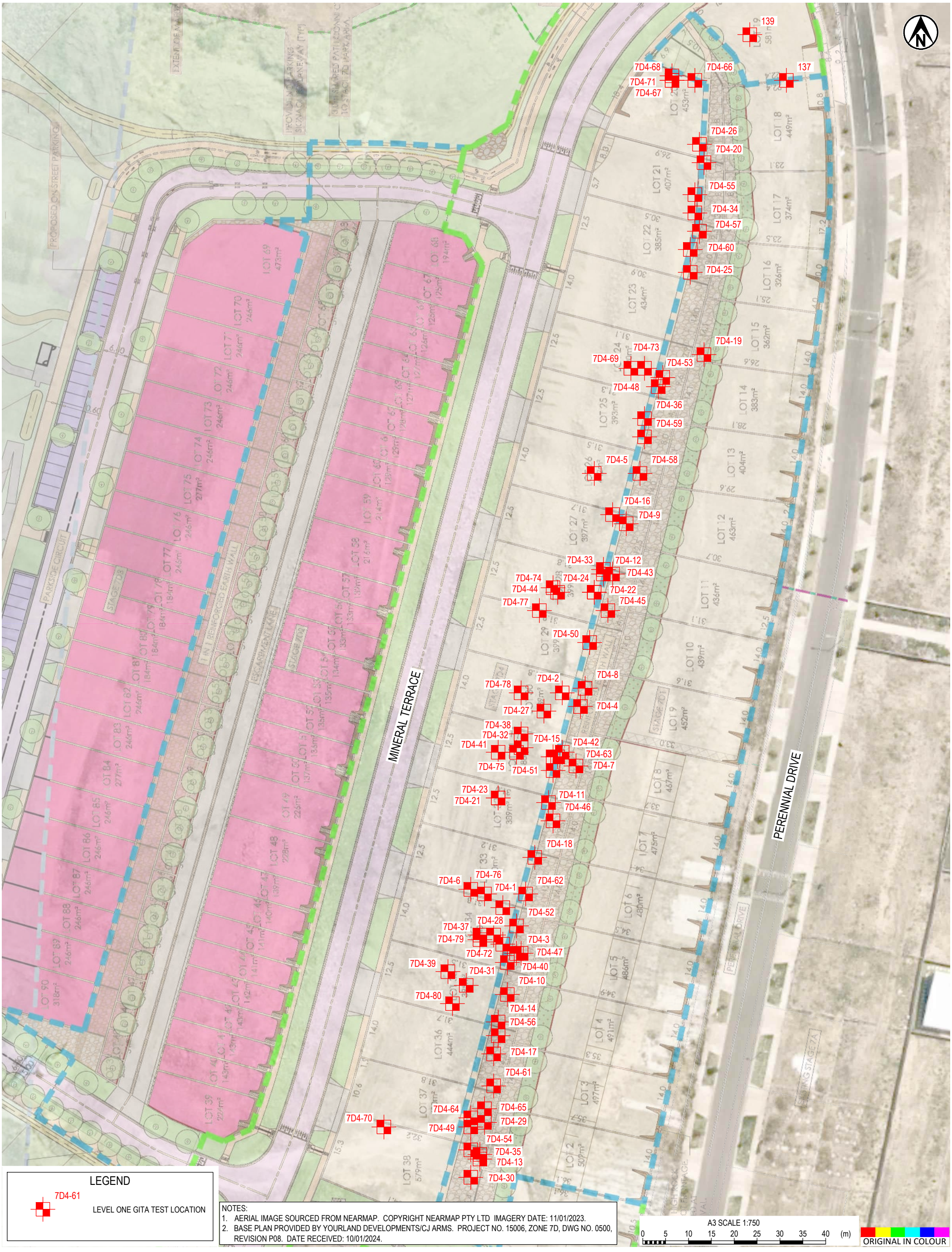
Authorised for Tonkin & Taylor Pty Ltd by:

.....

Trevor Smith
Project Director

SOST
https://tonkintaylor-my.sharepoint.com/personal/sstojcevski_chadwickgeotechnics_com_au/documents/documents/river valley 7d4/1000780.1000.r8.v1 (new report).docx

Appendix A Site Plan – Test Locations



LEGEND

7D4-61 LEVEL ONE GITA TEST LOCATION

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 11/01/2023.
2. BASE PLAN PROVIDED BY YOURLAND DEVELOPMENTS/CJ ARMS. PROJECT NO. 15006, ZONE 7D, DWG NO. 0500, REVISION P08. DATE RECEIVED: 10/01/2024.

A3 SCALE 1:750
0 5 10 15 20 25 30 35 40 (m)

ORIGINAL IN COLOUR

Tonkin+Taylor

Exceptional thinking together www.tonkintaylor.com.au

PROJECT No.	1000780.1000.R10v1	
DESIGNED	SOST	Feb.25
DRAWN	KMJA	Feb.25
CHECKED		
APPROVED		DATE

CLIENT **YOURLAND/CJ ARMS**

PROJECT **RIVER VALLEY ESTATE - STAGE 7D4**

TITLE LEVEL ONE GITA TESTING
FIELD DENSITY TEST LOCATION PLAN

UNDER REVISION 1

SCALE (A3) 1:750 FIG No. 1000780.1000.R10v1-F01 REV 1

Appendix B Testing Summary

CHADWICK GEOTECHNICS

Hilf Summary Table

1000780.1000.R10.v1 - RIVER VALLEY ESTATE, STAGE 7D4

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Test No.	Retest of	Date	Lot # / Area	Location [E]	Location [N]	Layer (Elevation)	Specification	HILF test	Moisture Variation	Pass / Fail	Remarks
HDR_W24MD00124	S24MD-00486	137		10/02/2024	Lots 19	310339	5819117	L2 FSL - 250mm	95% Comp, within 3% of OMC	98.5	0.5 wet	Pass	
HDR_W24MD00124	S24MD-00488	139		10/02/2024	Lots 19	310331	5819127	L3 FSL	95% Comp, within 3% of OMC	100.5	OMC	Pass	
HDR:W24MD00675	S24MD-02262	7D4-1		12/06/2024	Lot 34	310277	5818936	Layer 1 (RL 31.82)	95% Comp, within 3% of OMC	102	0.5 dry	Pass	
HDR:W24MD00675	S24MD-02263	7D4-2		12/06/2024	Lot 31	310290	5818983	Layer 1 (RL 31.00)	95% Comp, within 3% of OMC	98.5	0.5 dry	Pass	
HDR:W24MD00682	S24MD-02285	7D4-3		13/06/2024	Lot 34/35	310280	5818926	L2 (RL 32.0)	95% Comp, within 3% of OMC	103.5	0.5 wet	Pass	
HDR:W24MD00682	S24MD-02286	7D4-4		13/06/2024	Lot 30	310294	5818980	L2 (RL 31.2)	95% Comp, within 3% of OMC	99.5	OMC	Pass	
HDR:W24MD00682	S24MD-02287	7D4-5		13/06/2024	Lot 26	310297	5819031	L2 (RL 31.0)	95% Comp, within 3% of OMC	100.5	OMC	Pass	
HDR:W24MD00683	S24MD-02288	7D4-6		14/06/2024	Lot 34	310270	5818940	L3 (RL 32.2)	95% Comp, within 3% of OMC	100	0.5 wet	Pass	
HDR:W24MD00684	S24MD-02289	7D4-7		15/06/2024	Lot 31	310293	5818967	L3 (RL 31.6)	95% Comp, within 3% of OMC	101	1.5 wet	Pass	
HDR:W24MD00684	S24MD-02290	7D4-8		15/06/2024	Lot 30	310295	5818984	L3 (RL 31.4)	95% Comp, within 3% of OMC	99.5	1 wet	Pass	
HDR:W24MD00688	S24MD-02299	7D4-9		17/06/2024	Lot 27	310304	5819020	L3 (RL 31.25)	95% Comp, within 3% of OMC	100	0.5 wet	Pass	
HDR:W24MD00690	S24MD-02304	7D4-10		18/06/2024	Lot 36	310278	5818917	L4 (RL 32.4)	95% Comp, within 3% of OMC	99	OMC	Pass	
HDR:W24MD00690	S24MD-02305	7D4-11		18/06/2024	Lot 32	310287	5818959	L4 (RL 32.4)	95% Comp, within 3% of OMC	100	OMC	Pass	
HDR:W24MD00690	S24MD-02306	7D4-12		18/06/2024	Lot 28	310299	5819009	L4 (RL 31.4)	95% Comp, within 3% of OMC	98	0.5 wet	Pass	
HDR:W24MD00690	S24MD-02307	7D4-13		18/06/2024	Lot 38	310272	5818881	L4 (RL 33.0)	95% Comp, within 3% of OMC	101	OMC	Pass	
HDR:W24MD00700	S24MD-02338	7D4-14		19/06/2024	Lot 35	310276	5818911	L5 (RL 32.6)	95% Comp, within 3% of OMC	100.5	0.5 dry	Pass	
HDR:W24MD00700	S24MD-02339	7D4-15		19/06/2024	Lot 31	310288	5818969	L5 (RL 32.0)	95% Comp, within 3% of OMC	102	0.5 dry	Pass	
HDR:W24MD00700	S24MD-02340	7D4-16		19/06/2024	Lot 26/27	310301	5819022	L5 (RL 31.6)	95% Comp, within 3% of OMC	103	0.5 dry	Pass	
HDR:W24MD00700	S24MD-02341	7D4-17		19/06/2024	Lot 36	310275	5818904	L6 (RL 32.8)	95% Comp, within 3% of OMC	101.5	0.5 dry	Pass	
HDR:W24MD00700	S24MD-02342	7D4-18		19/06/2024	Lot 33	310284	5818947	L6 (RL 32.8)	95% Comp, within 3% of OMC	102.5	0.5 dry	Pass	
HDR:W24MD00717	S24MD-02417	7D4-19		25/06/2024	Lot 24	310321	5819057	L1 (RL 29.4)	95% Comp, within 3% of OMC	100	0.5 dry	Pass	
HDR:W24MD00717	S24MD-02418	7D4-20		25/06/2024	Lot 20/21	310321	5819099	L1 (RL 29.0)	95% Comp, within 3% of OMC	99	1.5 dry	Pass	
HDR:W24MD00725	S24MD-02443	7D4-21		26/06/2024	Lot 32	310276	5818960	L6 (RL 32.800)	98% Comp, within 3% of OMC	97.5	2.5 dry	Fail	See Retest 23
HDR:W24MD00725	S24MD-02444	7D4-22		26/06/2024	Lot 28	310297	5819005	L6 (RL 31.800)	98% Comp, within 3% of OMC	97	2.dry	Fail	See Retest 24
HDR:W24MD00745	S24MD-02498	7D4-23	(Test 7D4-21) S24MD-02443	28/06/2024	Lot 32	310276	5818960	L6 (RL 32.8)	95% Comp, within 3% of OMC	98.5	0.5 dry	Pass	
HDR:W24MD00745	S24MD-02499	7D4-24	(Test 7D4-22) S24MD-02444	28/06/2024	Lot 23	310297	5819005	L6 (RL 31.8)	95% Comp, within 3% of OMC	100.5	2 dry	Pass	
HDR:W24MD00745	S24MD-02500	7D4-25		28/06/2024	Lot 22	310318	5819075	L2 (RL 29.6)	95% Comp, within 3% of OMC	98	0.5 dry	Pass	
HDR:W24MD00745	S24MD-02501	7D4-26		28/06/2024	Lot 20	310320	5819103	L2 (RL 29.2)	95% Comp, within 3% of OMC	98.5	0.5 dry	Pass	
HDR:W24MD00745	S24MD-02502	7D4-27		28/06/2024	Lot 30	310286	5818979	L7 (RL 32.2)	95% Comp, within 3% of OMC	102	OMC	Pass	
HDR:W24MD00745	S24MD-02503	7D4-28		28/06/2024	Lot 34	310275	5818930	L7 (RL 33.0)	95% Comp, within 3% of OMC	98	0.5 dry	Pass	
HDR:W24MD00745	S24MD-02504	7D4-29		28/06/2024	Lot 37	310273	5818889	L2 (RL 33.2)	95% Comp, within 3% of OMC	99	OMC	Pass	
HDR:W24MD00749	S24MD-02519	7D4-30		1/07/2024	Lot 38	310270	5818877	L2 (RL 33.200)	95% Comp, within 3% of OMC	100	OMC	Pass	
HDR:W24MD00753	S24MD-02533	7D4-31		2/07/2024	Lot 35	310269	5818919	L8 (RL 33.2)	95% Comp, within 3% of OMC	98	0.5 dry	Pass	
HDR:W24MD00753	S24MD-02534	7D4-32		2/07/2024	Lot 31	310280	5818970	L8 (RL 32.4)	95% Comp, within 3% of OMC	99	0.5 wet	Pass	

CHADWICK GEOTECHNICS

Hilf Summary Table

1000780.1000.R10.v1 - RIVER VALLEY ESTATE, STAGE 7D4

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Test No.	Retest of	Date	Lot # / Area	Location [E]	Location [N]	Layer (Elevation)	Specification	HILF test	Moisture Variation	Pass / Fail	Remarks
HDR:W24MD00753	S24MD-02535	7D4-33		2/07/2024	Lot 27	310299	5819010	L8 (RL 32.0)	95% Comp, within 3% of OMC	98.5	0.5 wet	Pass	
HDR:W24MD00765	S24MD-02577	7D4-34		3/07/2024	Lot 21	310319	5819088	L3 (RL 29.8)	95% Comp, within 3% of OMC	101	2 dry	Pass	
HDR:W24MD00765	S24MD-02578	7D4-35		3/07/2024	Lot 37/38	310272	5818882	L3 (RL 33.4)	95% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00766	S24MD-02579	7D4-36		3/07/2024	Lot 25	310308	5819043	L3 (RL 29.85)	95% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00766	S24MD-02580	7D4-37		3/07/2024	Lot 34	310272	5818930	L9 (RL 33.40)	95% Comp, within 3% of OMC	101.5	1.5 dry	Pass	
HDR:W24MD00766	S24MD-02581	7D4-38		3/07/2024	Lot 30	310281	5818974	L9 (RL 32.6)	95% Comp, within 3% of OMC	97	OMC	Pass	
HDR:W24MD00863	S24MD-02915	7D4-39		31/07/2024	35	310265	5818922	L10 (RL 32.500 FSL -700mm)	95% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00863	S24MD-02916	7D4-41		31/07/2024	31	310276	5818970	L10 (RL 32.900 FSL -570mm)	95% Comp, within 3% of OMC	100	OMC	Pass	
HDR:W24MD00863	S24MD-02917	7D4-44		31/07/2024	28	310289	5819005	L10 (RL 32.170 FSL -700mm)	95% Comp, within 3% of OMC	98.5	0.5 wet	Pass	
HDR:W24MD00864	S24MD-02918	7D4-40		31/07/2024	35	310278	5818924	L4 (RL 32.610 FSL -900mm)	95% Comp, within 3% of OMC	96	OMC	Pass	
HDR:W24MD00864	S24MD-02919	7D4-42		31/07/2024	30	310290	5818970	L10 (RL 32.790 FSL -850mm)	95% Comp, within 3% of OMC	99.5	OMC	Pass	
HDR:W24MD00864	S24MD-02920	7D4-43		31/07/2024	27	310301	5819009	L10 (RL 32.150 FSL -750mm)	95% Comp, within 3% of OMC	98	OMC	Pass	
HDR:W24MD00883	S24MD-02967	7D4-45		1/08/2024	28	310300	5819001	L11 (RL 32.360 FSL -600mm)	98% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00883	S24MD-02968	7D4-46		1/08/2024	32	310288	5818955	L11 (RL 33.110 FSL -600mm)	98% Comp, within 3% of OMC	101	OMC	Pass	
HDR:W24MD00883	S24MD-02969	7D4-47		1/08/2024	35	310281	5818926	L11 (RL 32.630 FSL -600mm)	98% Comp, within 3% of OMC	99	OMC	Pass	
HDR:W24MD00883	S24MD-02970	7D4-48		1/08/2024	24	310311	5819050	L5 (RL 30.720 FSL -1300mm)	98% Comp, within 3% of OMC	100	OMC	Pass	
HDR:W24MD00888	S24MD-02977	7D4-49		2/08/2024	37	310270	5818888	L6 (RL 33.830 FSL)	98% Comp, within 3% of OMC	99	1.5 wet	Pass	
HDR:W24MD00888	S24MD-02978	7D4-50		2/08/2024	29	310296	5818994	L11 (RL 33.760 FSL -450mm)	98% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00888	S24MD-02979	7D4-51		2/08/2024	31	310288	5818966	L11 (RL 33.300 FSL -450mm)	98% Comp, within 3% of OMC	98	OMC	Pass	
HDR:W24MD00888	S24MD-02980	7D4-52		2/08/2024	34	310280	5818932	L11 (RL 33.830 FSL -450mm)	98% Comp, within 3% of OMC	97.5	OMC	Fail	See Retest #72
HDR:W24MD00888	S24MD-02981	7D4-53		2/08/2024	24	310312	5819052	L11 (RL 30.970 FSL -1000mm)	98% Comp, within 3% of OMC	97	0.5 wet	Fail	See Retest #73
HDR:W24MD00899	S24MD-03011	7D4-54		3/08/2024	38	310270	5818883	L7 (RL 34.330 FSL -1000mm)	98% Comp, within 3% of OMC	99.5	0.5 dry	Pass	
HDR:W24MD00899	S24MD-03012	7D4-55		3/08/2024	21	310319	5819092	L7 (RL 34.500 FSL -700mm)	98% Comp, within 3% of OMC	102	OMC	Pass	
HDR:W24MD00899	S24MD-03013	7D4-56		3/08/2024	36	310276	5818908	L7 (RL 34.180 FSL -700mm)	98% Comp, within 3% of OMC	105.5	2.5 dry	Pass	
HDR:W24MD00900	S24MD-03014	7D4-57		5/08/2024	21	310320	5819084	L8 (RL 30.720 FSL -400mm)	98% Comp, within 3% of OMC	99	0.5 dry	Pass	
HDR:W24MD00900	S24MD-03015	7D4-58		5/08/2024	26	310307	5819031	L8 (RL 31.940 FSL -400mm)	98% Comp, within 3% of OMC	100.5	0.5 wet	Pass	
HDR:W24MD00906	S24MD-03032	7D4-59		6/08/2024	25	310308	5819039	L9 (RL 32.120 FSL -50mm)	98% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00906	S24MD-03033	7D4-60		6/08/2024	22	310318	5819080	L9 (RL 31.200 FSL -100mm)	98% Comp, within 3% of OMC	100	OMC	Pass	
HDR:W24MD00906	S24MD-03034	7D4-61		6/08/2024	36	310275	5818897	L8 (RL 34.590 FSL -350mm)	98% Comp, within 3% of OMC	99	0.5 wet	Pass	
HDR:W24MD00920	S24MD-03065	7D4-62		7/08/2024	34	310282	5818939	L13 (RL 34.104 FSL -80mm)	98% Comp, within 3% of OMC	100	1 dry	Pass	
HDR:W24MD00920	S24MD-03066	7D4-63		7/08/2024	31	310289	5818969	L13 (RL 33.550 FSL -80mm)	98% Comp, within 3% of OMC	100	0.5 dry	Pass	
HDR:W24MD00922	S24MD-03068	7D4-64		8/08/2024	38	310270	5818890	L10 (RL 34.890 FSL -150mm)	98% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24MD00922	S24MD-03069	7D4-65		8/08/2024	37	310273	5818892	L11 (RL 34.960 FSL -50mm)	98% Comp, within 3% of OMC	98	OMC	Pass	
HDR:W24MD00923	S24MD-03070	7D4-66		8/08/2024	20	310319	5819117	L5 (RL 29.100 FSL -400mm)	98% Comp, within 3% of OMC	99.5	OMC	Pass	

CHADWICK GEOTECHNICS

Hilf Summary Table

1000780.1000.R10.v1 - RIVER VALLEY ESTATE, STAGE 7D4

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Test No.	Retest of	Date	Lot # / Area	Location [E]	Location [N]	Layer (Elevation)	Specification	HILF test	Moisture Variation	Pass / Fail	Remarks
HDR:W24DS01282	S24DS-05305	7D4-67		9/08/2024	20	310314	5819117	L6 (RL 29.6 FSL -450mm)	95% Comp, within 3% of OMC	99	OMC	Pass	
HDR:W24DS01282	S24DS-05317	7D4-68		9/08/2024	20	310314	5819118	L7 (RL 29.6 FSL -200mm)	95% Comp, within 3% of OMC	97.5	0.5 Wet	Pass	
HDR:W24DS01282	S24DS-05318	7D4-69		9/08/2024	24	310305	5819054	L6 (RL 31.67 FSL -150mm)	95% Comp, within 3% of OMC	96.5	0.5 Wet	Pass	
HDR:W24DS01282	S24DS-05319	7D4-70		9/08/2024	38	310251	5818888	L6 (RL 34.53 FSL -600mm)	95% Comp, within 3% of OMC	98	OMC	Pass	
HDR:W24DS01282	S24DS-05320	7D4-71		9/08/2024	20	310314	5819117	L8 (RL29.39 FSL -50mm)	95% Comp, within 3% of OMC	96.5	0.5 Dry	Pass	
HDR:W24MD00935	S24MD-03107	7D4-72	(Test 52) S24MD-02908	13/08/2024	34	310277	5818928	L11 (RL 33.840 FSL -455mm)	98% Comp, within 3% of OMC	101	OMC	Pass	
HDR:W24MD00935	S24MD-03108	7D4-73	(Test 53) S24MD-02981	13/08/2024	24	310308	5819054	L11 (RL 30.980 FSL -990mm)	98% Comp, within 3% of OMC	98.5	OMC	Pass	
HDR:W24DS01624	S24DS-06808	7D4-74		18/09/2024	29	310288	5819006	(RL 32.380) FSL -300mm	95% Comp, within 3% of OMC	105	0 dry	Pass	
HDR:W24DS01624	S24DS-06809	7D4-75		18/09/2024	31	310281	5818971	(RL 32.950) FSL -300mm	95% Comp, within 3% of OMC	101	0.5 wet	Pass	
HDR:W24DS01624	S24DS-06810	7D4-76		18/09/2024	33	310273	5818939	(RL 33.588) FSL -300mm	95% Comp, within 3% of OMC	104	2.5 dry	Pass	
HDR:W24DS01635	S24DS-06827	7D4-77		19/09/2024	28	310285	5819001	FSL -100mm	95% Comp, within 3% of OMC	102.5	2 wet	Pass	
HDR:W24DS01635	S24DS-06828	7D4-78		19/09/2024	30	310281	5818983	FSL -100mm	95% Comp, within 3% of OMC	104.5	1.5 wet	Pass	
HDR:W24DS01651	S24DS-06883	7D4-79		20/09/2024	34	310272	5818929	(RL 34.100) FSL	95% Comp, within 3% of OMC	102.5	2.5 Wet	Pass	
HDR:W24DS01651	S24DS-06884	7D4-80		20/09/2024	35	310266	5818915	(RL 34.400) FSL	95% Comp, within 3% of OMC	103	2.5 Wet	Pass	
End													

Appendix C Density/Moisture Laboratory Certificates

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00935
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 16/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-03107	S24MD-03108				
Field Sample ID	1	2				
Client Sample ID	7D4-72	7D4-73				
Date Tested	13/08/2024	13/08/2024				
Time Tested	14:30	14:40				
E:	310277	310308				
N:	5818928	5819054				
Layer:	L11 (RL 33.840 FSL -455mm)	L11 (RL 30.980 FSL -990mm)				
Lot:	34	24				
Retest of:	(Test 52) S24MD-02908	(Test 53) S24MD-02981				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	11.9	12.6				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.18	2.12				
Field Dry Density (t/m³)	1.95	1.89				
Peak Converted Wet Density (t/m³)	2.16	2.15				
Optimum Moisture Content (%)	12.0	12.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	98.5	101.5				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**101.0**	**98.5**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00923
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 12/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2

Sample Data

Sample ID	S24MD-03070					
Field Sample ID	1					
Client Sample ID	66					
Date Tested	8/08/2024					
Time Tested	14:00					
E:	310319					
N:	5819117					
Layer:	L5 (RL 29.100 FSL -400mm)					
Lot:	20					
Field and Laboratory Data						
Depth of Test (mm)	275					
Depth of Layer (mm)	300					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	12.6					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.14					
Field Dry Density (t/m³)	1.90					
Peak Converted Wet Density (t/m³)	2.14					
Optimum Moisture Content (%)	12.5					
Compactive Effort	Standard					
Moisture Ratio (%)	100.0					
Moisture Variation (%)	0.0					
Hilf Density Ratio (%)	**99.5**					

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00922
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 12/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2

Sample Data

Sample ID	S24MD-03068	S24MD-03069				
Field Sample ID	1	2				
Client Sample ID	64	65				
Date Tested	8/08/2024	8/08/2024				
Time Tested	09:26	12:10				
E:	310270	310273				
N:	5818890	5818892				
Layer:	L10 (RL 34.890 FSL -150mm)	L11 (RL 34.960 FSL -50mm)				
Lot:	38	37				
Field and Laboratory Data						
Depth of Test (mm)	125	125				
Depth of Layer (mm)	150	150				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	12.8	12.7				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.10	2.10				
Field Dry Density (t/m³)	1.86	1.86				
Peak Converted Wet Density (t/m³)	2.13	2.14				
Optimum Moisture Content (%)	13.0	13.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	99.5	99.5				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**98.5**	**98.0**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00920
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 12/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2

Sample Data

Sample ID	S24MD-03065	S24MD-03066				
Field Sample ID	1	2				
Client Sample ID	62	63				
Date Tested	7/08/2024	7/08/2024				
Time Tested	14:30	14:40				
E:	310282	310289				
N:	5818939	5818969				
Layer:	L13 (RL 34.104 FSL -80mm)	L13 (RL 33.550 FSL -80mm)				
Lot:	34	31				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	12.3	12.3				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.14	2.16				
Field Dry Density (t/m³)	1.91	1.92				
Peak Converted Wet Density (t/m³)	2.14	2.15				
Optimum Moisture Content (%)	13.0	12.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	93.5	97.0				
Moisture Variation (%)	1.0 dry	0.5 dry				
Hilf Density Ratio (%)	**100.0**	**100.0**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00906
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 8/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2

Sample Data

Sample ID	S24MD-03032	S24MD-03033	S24MD-03034			
Field Sample ID	1	2	3			
Client Sample ID	59	60	61			
Date Tested	6/08/2024	6/08/2024	6/08/2024			
Time Tested	14:40	14:50	15:30			
E:	310308	310318	310275			
N:	5819039	5819080	5818897			
Layer:	L9 (RL 32.120 FSL -50mm)	L9 (RL 31.200 FSL -100mm)	L8 (RL 34.590 FSL -350mm)			
Lot:	25	22	36			
Field and Laboratory Data						
Depth of Test (mm)	275	275	275			
Depth of Layer (mm)	300	300	300			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	13.0	12.5	13.7			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.12	2.16	2.14			
Field Dry Density (t/m³)	1.88	1.92	1.88			
Peak Converted Wet Density (t/m³)	2.15	2.16	2.16			
Optimum Moisture Content (%)	13.0	12.5	13.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	99.5	99.0	102.0			
Moisture Variation (%)	0.0	0.0	0.5 wet			
Hilf Density Ratio (%)	**98.5**	**100.0**	**99.0**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00900
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 7/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2

Sample Data

Sample ID	S24MD-03014	S24MD-03015				
Field Sample ID	1	2				
Client Sample ID	57	58				
Date Tested	5/08/2024	5/08/2024				
Time Tested	13:20	13:45				
E:	310320	310307				
N:	5819084	5819031				
Layer:	L8 (RL 30.720 FSL -400mm)	L8 (RL 31.940 FSL -400mm)				
Lot:	21	26				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	12.0	12.4				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.14	2.19				
Field Dry Density (t/m³)	1.91	1.95				
Peak Converted Wet Density (t/m³)	2.17	2.17				
Optimum Moisture Content (%)	12.5	12.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	98.0	104.5				
Moisture Variation (%)	0.5 dry	0.5 wet				
Hilf Density Ratio (%)	**99.0**	**100.5**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00899
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 7/08/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Type 2

Sample Data

Sample ID	S24MD-03011	S24MD-03012	S24MD-03013			
Field Sample ID	1	2	3			
Client Sample ID	54	55	56			
Date Tested	3/08/2024	3/08/2024	3/08/2024			
Time Tested	09:00	11:30	13:20			
E:	310270	310319	310276			
N:	5818883	5819092	5818908			
Layer:	L7 (RL 34.330 FSL -1000mm)	L7 (RL 34.500 FSL -700mm)	L7 (RL 34.180 FSL -700mm)			
Lot:	38	21	36			
Field and Laboratory Data						
Depth of Test (mm)	275	275	275			
Depth of Layer (mm)	300	300	300			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	2	7			
Field Moisture Content (%)	13.9	12.4	15.4			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.12	2.20	2.14			
Field Dry Density (t/m³)	1.86	1.95	1.85			
Peak Converted Wet Density (t/m³)	2.13	2.15	2.03			
Optimum Moisture Content (%)	14.0	12.5	18.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	97.5	100.0	85.5			
Moisture Variation (%)	0.5 dry	0.0	2.5 dry			
Hilf Density Ratio (%)	**99.5**	**102.0**	**105.5**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00888
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 6/08/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Gravelly Clay

Sample Data

Sample ID	S24MD-02977	S24MD-02978	S24MD-02979	S24MD-02980	S24MD-02981	
Field Sample ID	1	2	3	4	5	
Client Sample ID	49	50	51	52	53	
Date Tested	2/08/2024	2/08/2024	2/08/2024	2/08/2024	2/08/2024	
Time Tested	09:30	12:30	12:15	12:05	12:40	
E:	310270	310296	310288	310280	310312	
N:	5818888	5818994	5818966	5818932	5819052	
Layer:	L6 (RL 33.830 FSL)	L11 (RL 33.760 FSL -450mm)	L11 (RL 33.300 FSL -450mm)	L11 (RL 33.830 FSL -450mm)	L11 (RL 30.970 FSL -1000mm)	
Lot:	37	29	31	34	24	
Field and Laboratory Data						
Depth of Test (mm)	275	275	275	275	275	
Depth of Layer (mm)	300	300	300	300	300	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	1	0	0	
Field Moisture Content (%)	13.1	12.1	11.5	11.8	12.4	
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Density (t/m³)	2.13	2.15	2.15	2.11	2.13	
Field Dry Density (t/m³)	1.89	1.92	1.92	1.88	1.89	
Peak Converted Wet Density (t/m³)	2.15	2.19	2.19	2.16	2.20	
Optimum Moisture Content (%)	11.5	12.0	11.5	11.5	12.0	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Ratio (%)	112.5	99.0	100.5	101.5	104.0	
Moisture Variation (%)	1.5 wet	0.0	0.0	0.0	0.5 wet	
Hilf Density Ratio (%)	**99.0**	**98.5**	**98.0**	**97.5**	**97.0**	

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00883
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 6/08/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Gravelly Clay

Sample Data

Sample ID	S24MD-02967	S24MD-02968	S24MD-02969	S24MD-02970		
Field Sample ID	1	2	3	4		
Client Sample ID	45	46	47	48		
Date Tested	1/08/2024	1/08/2024	1/08/2024	1/08/2024		
Time Tested	14:00	14:05	14:13	14:30		
E:	310300	310288	310281	310311		
N:	5819001	5818955	5818926	5819050		
Layer:	L11 (RL 32.360 FSL -600mm)	L11 (RL 33.110 FSL -600mm)	L11 (RL 32.630 FSL -600mm)	L5 (RL 30.720 FSL -1300mm)		
Lot:	28	32	35	24		
Field and Laboratory Data						
Depth of Test (mm)	275	275	275	275		
Depth of Layer (mm)	300	300	300	300		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Moisture Content (%)	11.5	12.5	12.6	12.8		
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Density (t/m³)	2.16	2.20	2.15	2.15		
Field Dry Density (t/m³)	1.94	1.96	1.91	1.91		
Peak Converted Wet Density (t/m³)	2.19	2.18	2.17	2.15		
Optimum Moisture Content (%)	11.5	12.5	13.0	13.0		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	98.5	98.5	98.5	99.0		
Moisture Variation (%)	0.0	0.0	0.0	0.0		
Hilf Density Ratio (%)	**98.5**	**101.0**	**99.0**	**100.0**		

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00864
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 6/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Gravelly Clay

Sample Data

Sample ID	S24MD-02918	S24MD-02919	S24MD-02920			
Field Sample ID	1	2	3			
Client Sample ID	40	42	43			
Date Tested	31/07/2024	31/07/2024	31/07/2024			
Time Tested	12:40	13:15	13:45			
E:	310278	310290	310301			
N:	5818924	5818970	5819009			
LAyer:	L4 (RL 32.610 FSL -900mm)	L10 (RL 32.790 FSL -850mm)	L10 (RL 32.150 FSL -750mm)			
Lot:	35	30	27			
Field and Laboratory Data						
Depth of Test (mm)	200	200	200			
Depth of Layer (mm)	225	225	225			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	12.5	14.9	13.1			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.08	2.09	2.07			
Field Dry Density (t/m³)	1.85	1.81	1.83			
Peak Converted Wet Density (t/m³)	2.16	2.10	2.12			
Optimum Moisture Content (%)	12.5	15.0	13.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	98.5	101.0	99.0			
Moisture Variation (%)	0.0	0.0	0.0			
Hilf Density Ratio (%)	**96.0**	**99.5**	**98.0**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00863
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 6/08/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Gravelly Clay

Sample Data

Sample ID	S24MD-02915	S24MD-02916	S24MD-02917			
Field Sample ID	1	2	3			
Client Sample ID	39	41	44			
Date Tested	31/07/2024	31/07/2024	31/07/2024			
Time Tested	12:30	13:10	13:50			
E:	310265	310276	310289			
N:	5818922	5818970	5819005			
Layer:	L10 (RL 32.500 FSL -700mm)	L10 (RL 32.900 FSL -570mm)	L10 (RL 32.170 FSL -700mm)			
Lot:	35	31	28			
Field and Laboratory Data						
Depth of Test (mm)	200	200	200			
Depth of Layer (mm)	225	225	225			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	13.9	15.8	15.3			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.08	2.09	2.07			
Field Dry Density (t/m³)	1.82	1.80	1.80			
Peak Converted Wet Density (t/m³)	2.11	2.08	2.10			
Optimum Moisture Content (%)	14.0	15.5	15.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	100.0	101.0	103.0			
Moisture Variation (%)	0.0	0.0	0.5 wet			
Hilf Density Ratio (%)	**98.5**	**100.0**	**98.5**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00766
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 5/07/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02579	S24MD-02580	S24MD-02581			
Field Sample ID	1	2	3			
Client Sample ID	7D4-35	7D4-37	7D4-38			
Date Tested	3/07/2024	3/07/2024	3/07/2024			
Time Tested	14:50	15:10	15:20			
E:	310308	310272	310281			
N:	5819043	5818930	5818974			
Layer:	L3 (RL 29.85)	L9 (RL 33.40)	L9 (RL 32.6)			
Lot:	Lot 25	Lot 34	Lot 30			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	14.3	12.8	15.6			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.10	2.11	2.05			
Field Dry Density (t/m³)	1.84	1.87	1.77			
Peak Converted Wet Density (t/m³)	2.13	2.08	2.11			
Optimum Moisture Content (%)	14.5	14.5	15.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	99.5	88.5	100.0			
Moisture Variation (%)	0.0	1.5 dry	0.0			
Hilf Density Ratio (%)	**98.5**	**101.5**	**97.0**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00765
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 5/07/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02577	S24MD-02578				
Field Sample ID	1	2				
Client Sample ID	7D4-34	7D4-36				
Date Tested	3/07/2024	3/07/2024				
Time Tested	14:20	14:40				
E:	310319	310272				
N:	5819088	5818882				
Layer:	L3 (RL 29.8)	L3 (RL 33.4)				
Lot:	Lot 21	Lot 37/38				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	11.6	16.3				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.11	2.06				
Field Dry Density (t/m³)	1.89	1.77				
Peak Converted Wet Density (t/m³)	2.09	2.09				
Optimum Moisture Content (%)	13.5	16.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	84.5	99.5				
Moisture Variation (%)	2.0 dry	0.0				
Hilf Density Ratio (%)	**101.0**	**98.5**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00753
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 4/07/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02533	S24MD-02534	S24MD-02535			
Field Sample ID	1	2	3			
Client Sample ID	7D4-31	7D4-32	7D4-33			
Date Tested	2/07/2024	2/07/2024	2/07/2024			
Time Tested	15:30	15:41	16:00			
E:	310269	310280	310299			
N:	5818919	5818970	5819010			
Layer:	L8 (RL 33.2)	L8 (RL 32.4)	L8 (RL 32.0)			
Lot:	Lot 35	Lot 31	Lot 27			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	11.9	15.7	14.4			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.09	2.12	2.08			
Field Dry Density (t/m³)	1.87	1.83	1.82			
Peak Converted Wet Density (t/m³)	2.14	2.14	2.12			
Optimum Moisture Content (%)	12.5	15.0	14.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	96.0	104.0	102.5			
Moisture Variation (%)	0.5 dry	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**98.0**	**99.0**	**98.5**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00749
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 2/07/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02519					
Field Sample ID	1					
Client Sample ID	7D4-30					
Date Tested	1/07/2024					
Time Tested	09:30					
E:	310270					
N:	5818877					
Layer:	L2 (RL 33.200)					
Lot:	Lot 38					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	13.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.14					
Field Dry Density (t/m³)	1.88					
Peak Converted Wet Density (t/m³)	2.15					
Optimum Moisture Content (%)	14.0					
Compactive Effort	Standard					
Moisture Ratio (%)	99.5					
Moisture Variation (%)	0.0					
Hilf Density Ratio (%)	**100.0**					

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00745
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 2/07/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Clay

Sample Data

Sample ID	S24MD-02498	S24MD-02499	S24MD-02500	S24MD-02501	S24MD-02502	S24MD-02503
Field Sample ID	1	2	3	4	5	6
Client Sample ID	7D4-23	7D4-24	7D4-25	7D4-26	7D4-27	7D4-28
Date Tested	28/06/2024	28/06/2024	28/06/2024	28/06/2024	28/06/2024	28/06/2024
Time Tested	08:48	09:05	09:33	10:54	13:53	14:02
E:	310276	310297	310318	310320	310286	310275
N:	5818960	5819005	5819075	5819103	5818979	5818930
Layer:	L6 (RL 32.8)	L6 (RL 31.8)	L2 (RL 29.6)	L2 (RL 29.2)	L7 (RL 32.2)	L7 (RL 33.0)
Lot:	Lot 32	Lot 23	Lot 22	Lot 20	Lot 30	Lot 34
Retest of:	(Test 7D4-21) S24MD-02443	(Test 7D4-22) S24MD-02444				
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Moisture Content (%)	13.0	10.2	11.9	9.7	12.7	12.6
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.10	2.09	2.10	2.14	2.14	2.12
Field Dry Density (t/m³)	1.86	1.90	1.88	1.95	1.90	1.88
Peak Converted Wet Density (t/m³)	2.13	2.08	2.15	2.17	2.10	2.15
Optimum Moisture Content (%)	13.5	12.0	12.5	10.5	13.0	13.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	97.5	83.0	96.5	94.5	98.5	98.0
Moisture Variation (%)	0.5 dry	2.0 dry	0.5 dry	0.5 dry	0.0	0.5 dry
Hilf Density Ratio (%)	**98.5**	**100.5**	**98.0**	**98.5**	**102.0**	**98.0**

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00745
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 2/07/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02504					
Field Sample ID	7					
Client Sample ID	7D4-29					
Date Tested	28/06/2024					
Time Tested	14:20					
E:	310273					
N:	5818889					
Layer:	L2 (RL 33.2)					
Lot:	Lot 37					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	14.0					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.13					
Field Dry Density (t/m³)	1.87					
Peak Converted Wet Density (t/m³)	2.15					
Optimum Moisture Content (%)	14.0					
Compactive Effort	Standard					
Moisture Ratio (%)	99.0					
Moisture Variation (%)	0.0					
Hilf Density Ratio (%)	**99.0**					

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00725
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 28/06/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02443	S24MD-02444				
Field Sample ID	1	2				
Client Sample ID	7D4-21	7D4-22				
Date Tested	26/06/2024	26/06/2024				
Time Tested	12:45	13:10				
E:	310276	310297				
N:	5818960	5819005				
Layer:	L6 (RL 32.800)	L6 (RL 31.800)				
Lot:	Lot 32	Lot 28				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	11.8	12.8				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.02	2.05				
Field Dry Density (t/m³)	1.81	1.82				
Peak Converted Wet Density (t/m³)	2.07	2.11				
Optimum Moisture Content (%)	14.0	15.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	83.0	86.0				
Moisture Variation (%)	2.5 dry	2.0 dry				
Hilf Density Ratio (%)	**97.5**	**97.0**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00717
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 1/07/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Clay

Sample Data

Sample ID	S24MD-02417	S24MD-02418				
Field Sample ID	1	2				
Client Sample ID	7D4-19	7D4-20				
Date Tested	25/06/2024	25/06/2024				
Time Tested	15:00	15:20				
E:	310321	310321				
N:	5819057	5819099				
Layer:	L1 (RL 29.4)	L1 (RL 29.0)				
Lot:	Lot 24	Lot 20/21				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	12.5	11.0				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.15	2.08				
Field Dry Density (t/m³)	1.92	1.88				
Peak Converted Wet Density (t/m³)	2.15	2.11				
Optimum Moisture Content (%)	13.0	12.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	97.5	89.0				
Moisture Variation (%)	0.5 dry	1.5 dry				
Hilf Density Ratio (%)	**100.0**	**99.0**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00700
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: P. Doherty (Laboratory Technician)
Date of Issue: 24/06/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Type 2/Clay

Sample Data

Sample ID	S24MD-02338	S24MD-02339	S24MD-02340	S24MD-02341	S24MD-02342	
Field Sample ID	1	2	3	4	5	
Client Sample ID	7D4-14	7D4-15	7D4-16	7D4-17	7D4-18	
Date Tested	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	
Time Tested	10:50	11:07	11:18	14:45	15:00	
E:	310276	310288	310301	310275	310284	
N:	5818911	5818969	5819022	5818904	5818947	
Layer:	L5 (RL 32.6)	L5 (RL 32.0)	L5 (RL 31.6)	L6 (RL 32.8)	L6 (RL 32.8)	
Lot:	Lot 35	Lot 31	Lot 26/27	Lot 36	Lot 33	
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	
Depth of Layer (mm)	200	200	200	200	200	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	2	0	0	
Field Moisture Content (%)	18.5	18.8	19.8	20.5	20.5	
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Density (t/m³)	2.09	2.09	2.12	2.05	2.07	
Field Dry Density (t/m³)	1.76	1.76	1.77	1.71	1.72	
Peak Converted Wet Density (t/m³)	2.08	2.06	2.06	2.02	2.01	
Optimum Moisture Content (%)	19.0	19.5	20.5	21.0	21.0	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Ratio (%)	98.5	97.5	97.5	97.5	98.0	
Moisture Variation (%)	0.5 dry	0.5 dry	0.5 dry	0.5 dry	0.5 dry	
Hilf Density Ratio (%)	**100.5**	**102.0**	**103.0**	**101.5**	**102.5**	

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00690
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 21/06/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Clay

Sample Data

Sample ID	S24MD-02304	S24MD-02305	S24MD-02306	S24MD-02307		
Field Sample ID	1	2	3	4		
Client Sample ID	7D4-10	7D4-11	7D4-12	7D4-13		
Date Tested	18/06/2024	18/06/2024	18/06/2024	18/06/2024		
Time Tested	14:05	14:16	14:24	14:43		
E:	310278	310287	310299	310272		
N:	5818917	5818959	5819009	5818881		
Layer:	L4 (RL 32.4)	L4 (RL 32.4)	L4 (RL 31.4)	L4 (RL 33.0)		
Lot:	Lot 36	Lot 32	Lot 28	Lot 38		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Moisture Content (%)	18.2	20.0	19.3	19.6		
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Density (t/m³)	2.09	2.07	2.03	2.09		
Field Dry Density (t/m³)	1.77	1.72	1.70	1.74		
Peak Converted Wet Density (t/m³)	2.11	2.07	2.08	2.07		
Optimum Moisture Content (%)	18.0	20.0	19.0	20.0		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	100.0	100.5	102.0	99.0		
Moisture Variation (%)	0.0	0.0	0.5 wet	0.0		
Hilf Density Ratio (%)	**99.0**	**100.0**	**98.0**	**101.0**		

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00688
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 18/06/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Gravelly Clay

Sample Data

Sample ID	S24MD-02299					
Field Sample ID	1					
Client Sample ID	7D4-9					
Date Tested	17/06/2024					
Time Tested	15:30					
E:	301304					
N:	5819020					
Layer:	L3 (RL 31.25)					
Lot:	Lot 27					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	3					
Field Moisture Content (%)	23.0					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.10					
Field Dry Density (t/m³)	1.71					
Peak Converted Wet Density (t/m³)	2.10					
Optimum Moisture Content (%)	22.5					
Compactive Effort	Standard					
Moisture Ratio (%)	101.5					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**100.0**					

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00684
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 18/06/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Site Derived
Material: Clay

Sample Data

Sample ID	S24MD-02289	S24MD-02290				
Field Sample ID	1	2				
Client Sample ID	7D4-7	7D4-8				
Date Tested	15/06/2024	15/06/2024				
Time Tested	12:20	12:40				
Location	310293	310295				
	5818967	5818984				
	L3 (RL 31.6)	L3 (RL 31.4)				
	Lot 31	Lot 30/RWA				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	20.8	20.5				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.08	2.04				
Field Dry Density (t/m³)	1.72	1.70				
Peak Converted Wet Density (t/m³)	2.06	2.05				
Optimum Moisture Content (%)	19.0	19.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	108.5	105.0				
Moisture Variation (%)	1.5 wet	1.0 wet				
Hilf Density Ratio (%)	**101.0**	**99.5**				

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00683
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 18/06/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Clay

Sample Data

Sample ID	S24MD-02288					
Field Sample ID	1					
Client Sample ID	7D4-6					
Date Tested	14/06/2024					
Time Tested	15:00					
E:	310270					
N:	5818940					
Layer:	L3 (RL 32.2)					
Lot:	Lot 34					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	19.3					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.08					
Field Dry Density (t/m³)	1.74					
Peak Converted Wet Density (t/m³)	2.08					
Optimum Moisture Content (%)	19.0					
Compactive Effort	Standard					
Moisture Ratio (%)	102.0					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**100.0**					

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00682
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 17/06/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Silty Clay

Sample Data

Sample ID	S24MD-02285	S24MD-02286	S24MD-02287			
Field Sample ID	1	2	3			
Client Sample ID	7D4-3	7D4-4	7D4-5			
Date Tested	13/06/2024	13/06/2024	13/06/2024			
Time Tested	15:10	15:25	15:35			
E:	310280	310294	310297			
N:	5818926	5818980	5819031			
Layer:	L2 (RL 32.0)	L2 (RL 31.2)	L2 (RL 31.0)			
Lot:	Lot 34/35	Lot 30/RWA	Lot 26			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	18.5	19.0	20.5			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.19	2.08	2.06			
Field Dry Density (t/m³)	1.85	1.75	1.71			
Peak Converted Wet Density (t/m³)	2.12	2.09	2.05			
Optimum Moisture Content (%)	18.0	19.0	20.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	103.5	99.5	100.5			
Moisture Variation (%)	0.5 wet	0.0	0.0			
Hilf Density Ratio (%)	**103.5**	**99.5**	**100.5**			

Comments

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: HDR:W24MD00675
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 14/06/2024

Sample Details

Location:	Stage 7D
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 98% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Imported
Material:	Gravelly Clay

Sample Data

Sample ID	S24MD-02262	S24MD-02263				
Field Sample ID	1	2				
Client Sample ID	7D4-1	7D4-2				
Date Tested	12/06/2024	12/06/2024				
Time Tested	02:15	02:30				
E:	310277	310290				
N:	5818936	5818983				
Layer:	Layer 1 (RL 31.82)	Layer 1 (RL 31.00)				
Lot:	Lot 34	Lot 31				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	1				
Field Moisture Content (%)	19.4	19.3				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.10	2.02				
Field Dry Density (t/m³)	1.76	1.69				
Peak Converted Wet Density (t/m³)	2.06	2.06				
Optimum Moisture Content (%)	19.5	19.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	98.5	98.5				
Moisture Variation (%)	0.5 dry	0.5 dry				
Hilf Density Ratio (%)	**102.0**	**98.5**				

Comments

CHADWICK GEOTECHNICS

Dandenong South
ACN 143 009 330
25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
Fax: +61 3 9706 9431

Report No: HDR:W24DS01635
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley - Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: Krushik Patel (Senior Geotechnician)
Date of Issue: 27/09/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay trace of Gravel

Sample Data

Sample ID	S24DS-06827	S24DS-06828	
Field Sample ID	1	2	
Client Sample ID	7D4-77	7D4-78	
Date Tested	19/09/2024	19/09/2024	
Time Tested	14:31	14:43	
E:	310285	310281	
N:	5819001	5818983	
Layer:	FSL -100m	FSL -100m	
Lot:	28	30	
Field and Laboratory Data			
Depth of Test (mm)	275	275	
Depth of Layer (mm)	300	300	
AS Sieve Size (mm)	19.0	19.0	
Oversize Wet (%)	0	0	
Field Moisture Content (%)	20.5	21.2	
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Density (t/m³)	2.11	2.13	
Field Dry Density (t/m³)	1.75	1.75	
Peak Converted Wet Density (t/m³)	2.05	2.04	
Optimum Moisture Content (%)	18.5	19.5	
Compactive Effort	Standard	Standard	
Moisture Ratio (%)	110.5	108.5	
Moisture Variation (%)	2.0 wet	1.5 wet	
Hilf Density Ratio (%)	**102.5**	**104.5**	

Comments

Dandenong South
ACN 143 009 330
25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
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Report No: HDR:W24DS01624
Issue No: 1

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley - Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: Krushik Patel (Senior Geotechnician)
Date of Issue: 27/09/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Sandy Clay trace of Gravel

Sample Data

Sample ID	S24DS-06808	S24DS-06809	S24DS-06810
Field Sample ID	1	2	3
Client Sample ID	7D4-74	7D4-75	7D4-76
Date Tested	18/09/2024	18/09/2024	18/09/2024
Time Tested	12:59	13:10	13:17
E:	0310288	0310281	0310273
N:	5819006	5818971	5818939
Layer:	(RL 32.380)	(RL 32.950)	(RL 33.588)
Lot:	29	31	33
Field and Laboratory Data			
Depth of Test (mm)	275	275	275
Depth of Layer (mm)	300	300	300
AS Sieve Size (mm)	19.0	19.0	19.0
Oversize Wet (%)	0	0	0
Field Moisture Content (%)	14.5	15.0	10.3
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.23	2.16	2.16
Field Dry Density (t/m³)	1.95	1.88	1.96
Peak Converted Wet Density (t/m³)	2.12	2.13	2.08
Optimum Moisture Content (%)	14.5	14.5	13.0
Compactive Effort	Standard	Standard	Standard
Moisture Ratio (%)	99.0	103.5	81.0
Moisture Variation (%)	0.0	0.5 wet	2.5 dry
Hilf Density Ratio (%)	**105.0**	**101.0**	**104.0**

Comments

Dandenong South
ACN 143 009 330
25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
Fax: +61 3 9706 9431

Report No: HDR:W24DS01282
Issue No: 2
This report replaces all previous issues of report no 'HDR:W24DS01282'.

HILF Density Ratio Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley - Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: Krushik Patel (Senior Geotechnician)
Date of Issue: 13/08/2024

Sample Details

Location: Stage 7D
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported
Material: Type 2

Sample Data

Sample ID	S24DS-05305	S24DS-05317	S24DS-05318	S24DS-05319	S24DS-05320
Field Sample ID	1	3	4	5	6
Client Sample ID	7D4 -67	7D4 -68	7D4 -69	7D4 -70	7D4 -71
Date Tested	9/08/2024	9/08/2024	9/08/2024	9/08/2024	9/08/2024
Time Tested	08:35	10:40	10:55	14:30	12:30
E:	3103214	310314	3103205	310251	310314
N:	5819117	5819118	5819054	5818888	5819117
Layer:	L6 (RL 29.600 FSL -450mm))	L7 (RL 29.600 FSL -200mm)	L6 (RL 31.670 FSL -150mm)	L6 (RL 34.530 FSL -600mm)	L8 (RL 29.390 FSL -50mm)
Lot:	20	20	24	38	20
Soil Description	Gravelly Clay	Gravelly Clay	Gravelly Clay	Gravelly Clay	Gravelly Clay
Field and Laboratory Data					
Depth of Test (mm)	225	225	225	225	75
Depth of Layer (mm)	250	250	250	250	100
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0
Field Moisture Content (%)	11.6	12.3	12.4	11.8	11.1
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.15	2.11	2.08	2.10	2.08
Field Dry Density (t/m³)	1.93	1.88	1.85	1.88	1.87
Peak Converted Wet Density (t/m³)	2.18	2.17	2.16	2.14	2.16
Optimum Moisture Content (%)	11.5	11.5	12.0	11.5	11.5
Compactive Effort	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	101.0	106.0	103.5	101.0	97.0
Moisture Variation (%)	0.0	0.5 wet	0.5 wet	0.0	0.5 dry
Hilf Density Ratio (%)	**99.0**	**97.5**	**96.5**	**98.0**	**96.5**

Comments

Client Sample ID has been corrected. KP

Appendix D Compliance Testing Laboratory Certificates

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: MAT:S24MD-02294/1
Issue No: 1

Material Test Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 1/07/2024

Sample Details

Location	Stage 7D
Sample Location	E 310119, N 5818958, West Corner Stockpile
Field Sample ID	1
Date Sampled	15/06/2024
Time Sampled	11:15
Source	Imported
Material	Gravelly Clay
Specification	AS Grading
Sampling Method	AS1141.3.1 Clause 8.4.3 (Stockpile side)
Sample ID	S24MD-02294

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	12.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		Yes	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	48	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	34	
Date Tested		27/06/2024	
Emerson Class Number	AS 1289.3.8.1	2	
Soil Description			
Type of Water		Distilled	
Date Tested		20/06/2024	

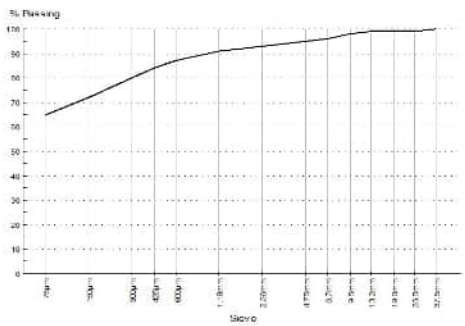
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 25/06/2024

Note: Sample Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	99	
13.2mm	99	
9.5mm	98	
6.7mm	96	
4.75mm	95	
2.36mm	93	
1.18mm	91	
600µm	87	
425µm	84	
300µm	80	
150µm	72	
75µm	65	

Chart



Comments

N/A

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: MAT:S24MD-02354/1
Issue No: 1

Material Test Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: P. Doherty (Laboratory Technician)
Date of Issue: 10/07/2024

Sample Details

Location	Stage 7D
Sample Location	E 310115, N 5818948, Marviron Stockpile
Field Sample ID	1
Date Sampled	19/06/2024
Time Sampled	10:15
Source	Imported
Material	Sandy Clay
Specification	AS Grading
Sampling Method	AS1141.3.1 Clause 8.4.3 (Stockpile side)
Sample ID	S24MD-02354

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	4.5	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	25	
Plastic Limit (%)	AS 1289.3.2.1	11	
Plasticity Index (%)	AS 1289.3.3.1	14	
Date Tested		5/07/2024	
Emerson Class Number	AS 1289.3.8.1	5	
Soil Description		Sandy Clay	
Type of Water		Distilled	
Date Tested		8/07/2024	

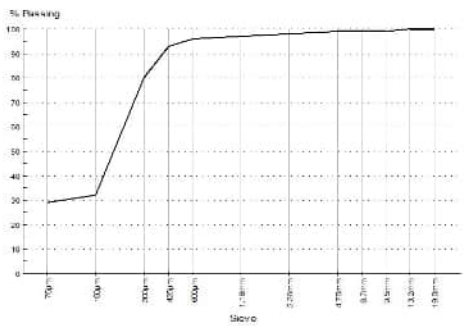
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 2/07/2024

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	99	
6.7mm	99	
4.75mm	99	
2.36mm	98	
1.18mm	97	
600µm	96	
425µm	93	
300µm	80	
150µm	32	
75µm	29	

Chart



Comments

N/A

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: MAT:S24MD-02923/1
Issue No: 1

Material Test Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: B. Taseski (Ravenhall Laboratory Manager)
Date of Issue: 13/08/2024

Sample Details

Location	Stage 7D
Sample Location	E 350297, N 5819009, Marviron Stockpile, Type 2 Material
Field Sample ID	1
Date Sampled	31/07/2024
Time Sampled	11:10
Source	Imported
Material	SAND, trace gravel, red, low plasticity
Specification	AS Grading
Sampling Method	AS1141.3.1 Clause 10.1 (Layer)
Sample ID	S24MD-02923

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	2.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	28	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	7	
Date Tested		12/08/2024	
Emerson Class Number	AS 1289.3.8.1	2	
Soil Description			
Type of Water		Distilled	
Date Tested		9/08/2024	

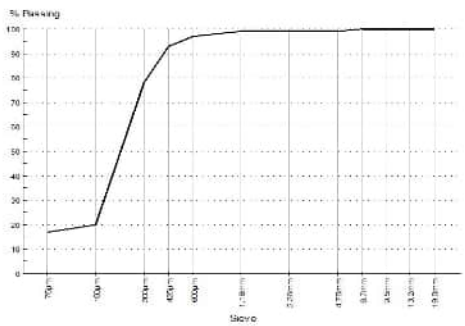
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 9/08/2024

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	100	
6.7mm	100	
4.75mm	99	
2.36mm	99	
1.18mm	99	
600µm	97	
425µm	93	
300µm	78	
150µm	20	
75µm	17	

Chart



Comments

N/A

Western Region Laboratory
ACN 143 009 330
Factory 1/7 Katherine Drive
Ravenhall VIC 3023

Report No: MAT:S24MD-03186/1
Issue No: 1

Material Test Report

Client: Tonkin & Taylor (Aus) Pty Limited
Address: Level 3, 99 Coventry Street
SOUTH MELBOURNE VIC 3006
Project: River Valley Stage 7D
Project No.: 1003809.7000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 23249
Approved Signatory: P. Doherty (Laboratory Technician)
Date of Issue: 27/08/2024

Sample Details

Location	114-130 Cremorne Street, Cremorne, Vic
Sample Location	E:323105, N:5811281, Stockpile
Field Sample ID	1
Date Sampled	22/08/2024
Time Sampled	10:47
Source	Onsite
Material	Silty Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.2
Sample ID	S24MD-03186

Other Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	46	
Plastic Limit (%)	AS 1289.3.2.1	13	
Plasticity Index (%)	AS 1289.3.3.1	33	
Date Tested		23/08/2024	

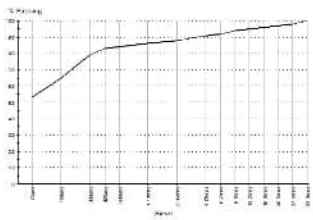
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 26/08/2024

Note: Sample Washed

Sieve Size	% Passing	Limits
53.0mm	100	
37.5mm	98	
26.5mm	97	
19.0mm	96	
13.2mm	95	
9.5mm	94	
6.7mm	92	
4.75mm	91	
2.36mm	88	
1.18mm	86	
600µm	84	
425µm	83	
300µm	79	
150µm	65	
75µm	53	

Chart



Comments

N/A

Appendix E Provided Drawings

A1 File Reference

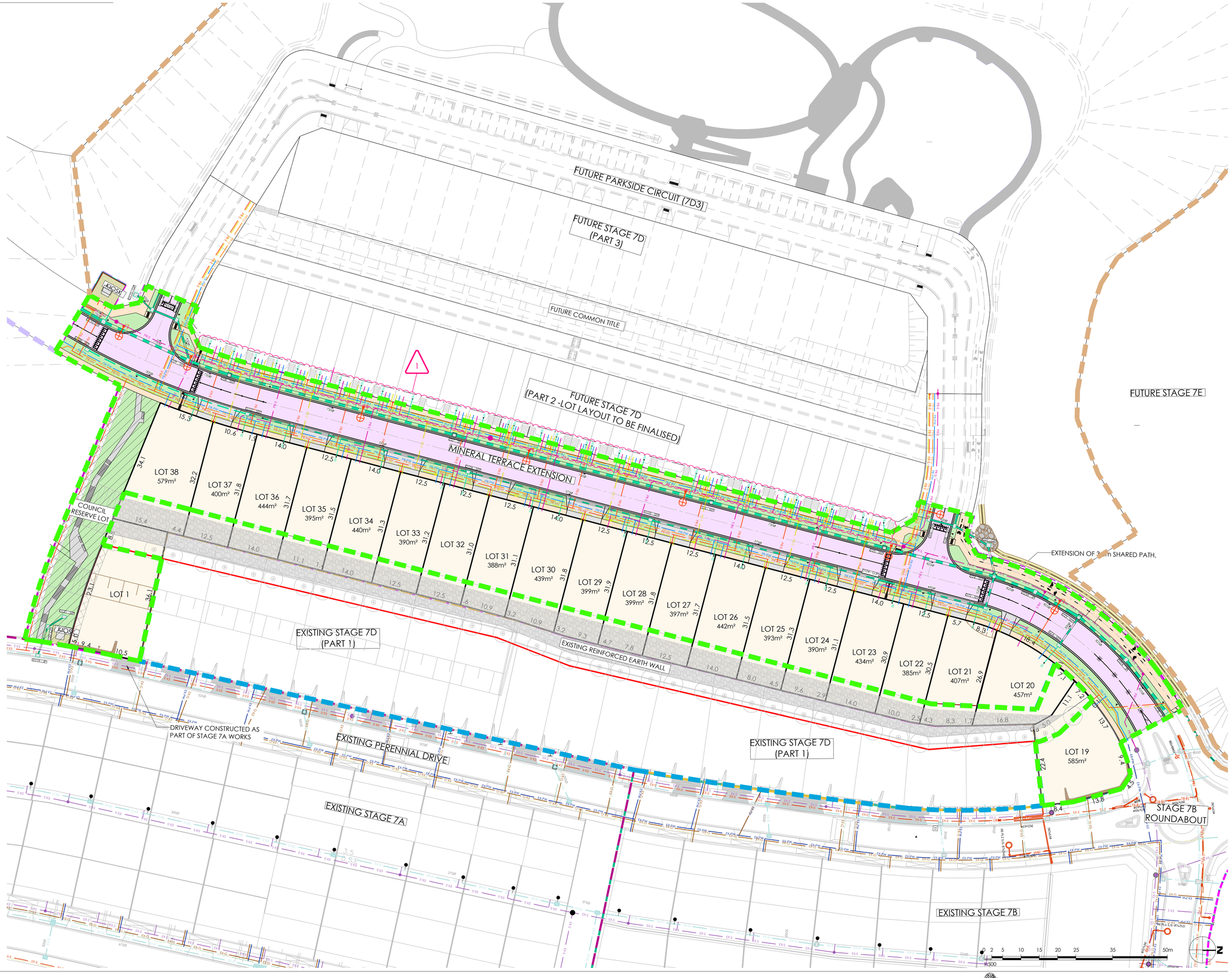
STAGE 7D4 - DEVELOPMENT YIELD LAND BUDGET

DESCRIPTION	AREA (Ha)	% OF TOTAL AREA
7D4 - TOTAL AREA	1.66	
ROAD INFRASTRUCTURE		
LOCAL ROAD (ACCESS STREET)	0.65	39.3%
SUBTOTAL	0.65	39.3%
RESIDENTIAL		
CONVENTIONAL RESIDENTIAL	0.92	55.5%
COUNCIL RESERVE LOT	0.09	5.3%
SUBTOTAL	1.01	60.7%

LEGEND:

- PROPOSED RESIDENTIAL (CONVENTIONAL)
- PROPOSED CARRIAGEWAY
- PROPOSED ROAD RESERVE LANDSCAPING
- PROPOSED FOOTPATH/SHARED PATH
- PROPOSED VEHICLE CROSSING
- PROPOSED COUNCIL RESERVE LOT
- PROPOSED RETAINING WALL
- STAGE 7D1 BOUNDARY
- STAGE 7D4 BOUNDARY

STAGE 7D4 NUMBER OF LOTS
21 CONVENTIONAL DENSITY LOTS
1 COUNCIL RESERVE LOT



Revision	Date	Reason	Drawn	Checked
1	21.12.23	SERVICES AMENDED	NH	TS
0	18.09.23	ISSUED FOR CONSTRUCTION	RP	TS

Note for Contractors
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FOR CONSTRUCTION

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CJ ARMS

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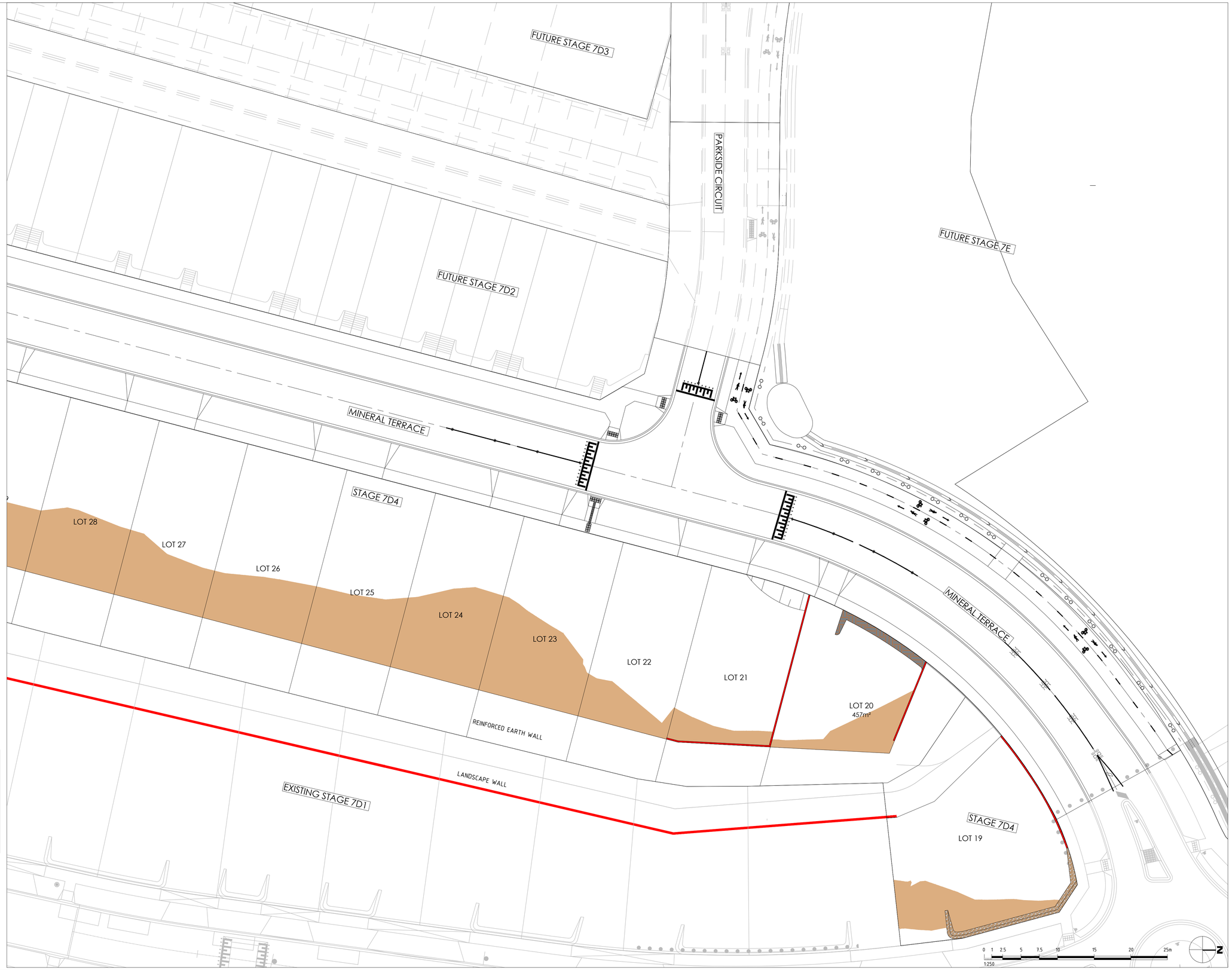
CIVIL SITEWORKS
MELBOURNE
T : (03) 9285 2800 | E : info@cjarms.com | W : www.cjarms.com

Project: RIVER VALLEY - STAGE 7D4
Drawing Title: DRAFT SUBDIVISION LAYOUT PLAN
Client: YOURLAND
Purpose of Issue: FOR CONSTRUCTION

Drawn By	Checked By	Drawn Scale	Date of First Issue
RP	TS	1:500 @ A1	18.09.23

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	XX	DR	C	1050	1

A1 File Reference 15006-CJA-7D4-00-DR-C-9900 - FILL LAYOUT PLAN.dwg



DRAWING NOTES:

- THIS PLAN DETAILS AREAS IN WHICH 300mm OR GREATER OF FILL WILL BE PLACED ON TOP OF THE NATURAL SURFACE OF THE LAND WITHIN THE SUBDIVISION AS A RESULT OF THE PROPOSED WORKS.
- THIS PLAN DOES NOT DETAIL ANY OTHER FILL MATERIAL THAT MAY HAVE BEEN PLACED WITHIN THE SUBDIVISION PRIOR TO THE CIVIL WORKS BEING UNDERTAKEN.
- IRRESPECTIVE OF THE DEPTH OF FILL DETAILED ON THIS PLAN, FOUNDATIONS MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH BUILDING REGULATIONS AND WILL TAKE INTO ACCOUNT THE SOIL CLASSIFICATION AND SOIL REPORT PREPARED FOR EACH INDIVIDUAL LOT.
- THE EXTENT AND DEPTH OF FILL SHOWN ON THIS PLAN WILL BE CONFIRMED ON-SITE BY A GEOTECHNICAL INVESTIGATION BY A REGISTERED AND EXPERIENCED GEOTECHNCIAL ENGINEER

LEGEND

- FILL (+300mm)
- RETAINING WALL (CONCRETE SLEEPER)
- RETAINING WALL (ROCKWORK)

Revision	Date	Reason	Drawn	Checked
0	18.09.23	ISSUED FOR CONSTRUCTION	RP	TS

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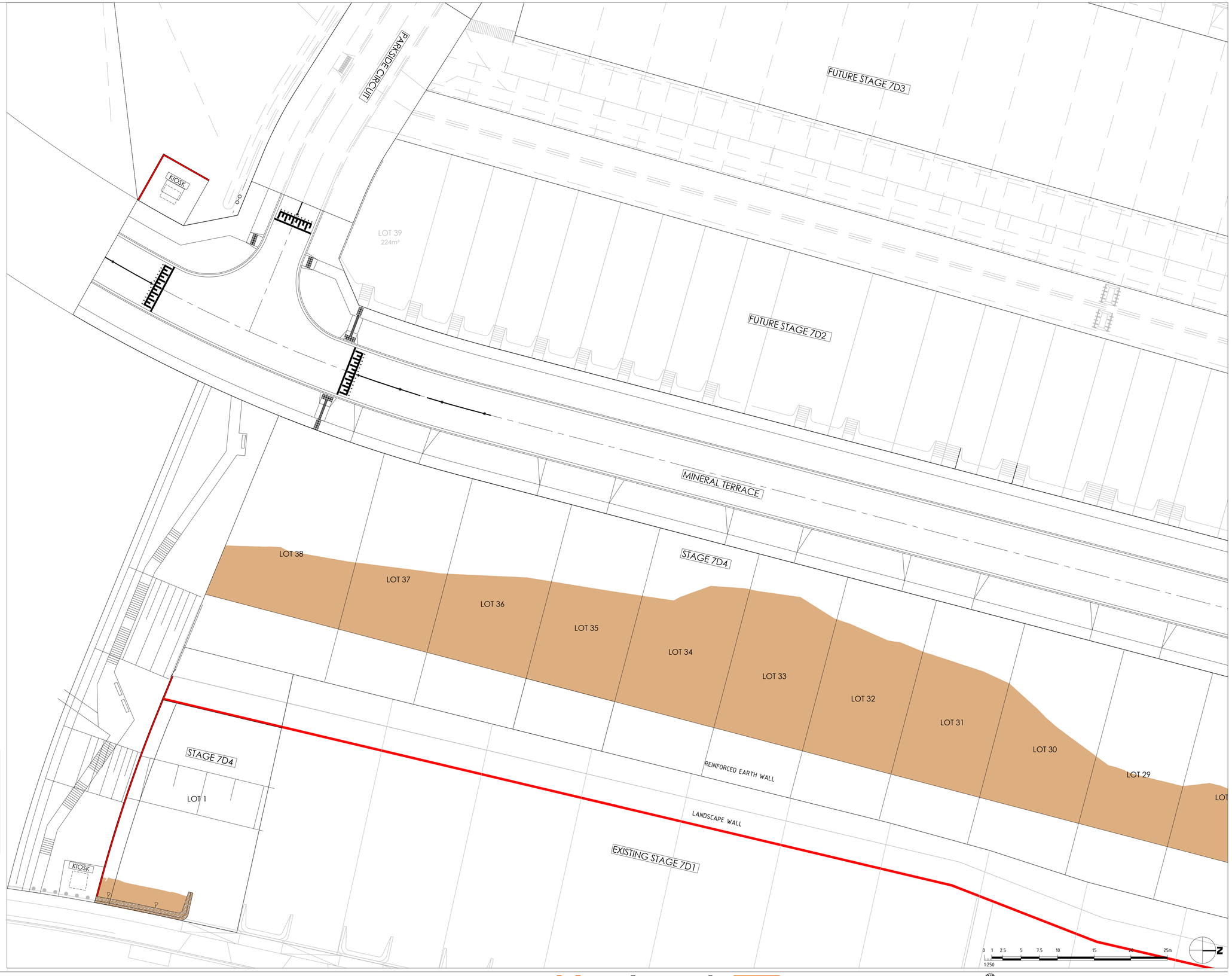
Project: RIVER VALLEY - STAGE 7D4
Client: YOURLAND
Purpose of Issue: FOR CONSTRUCTION
Drawing Title: FILL LAYOUT PLAN (SHEET 1 OF 2)

Drawn By	Checked By	Drawn Scale	Date of First Issue
RP	VR	1:250 @ A1	18.09.23

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	XX	DR	C	9900	0

A1 File Reference 15006-CJA-7D4-00-DR-C-9900 - FILL LAYOUT PLAN.dwg



DRAWING NOTES:

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LEGEND

- FILL (+300mm)
- RETAINING WALL (CONCRETE SLEEPER)
- RETAINING WALL (ROCKWORK)

Revision	Date	Reason	Drawn	Checked
0	18.09.23	ISSUED FOR CONSTRUCTION	RP	VR

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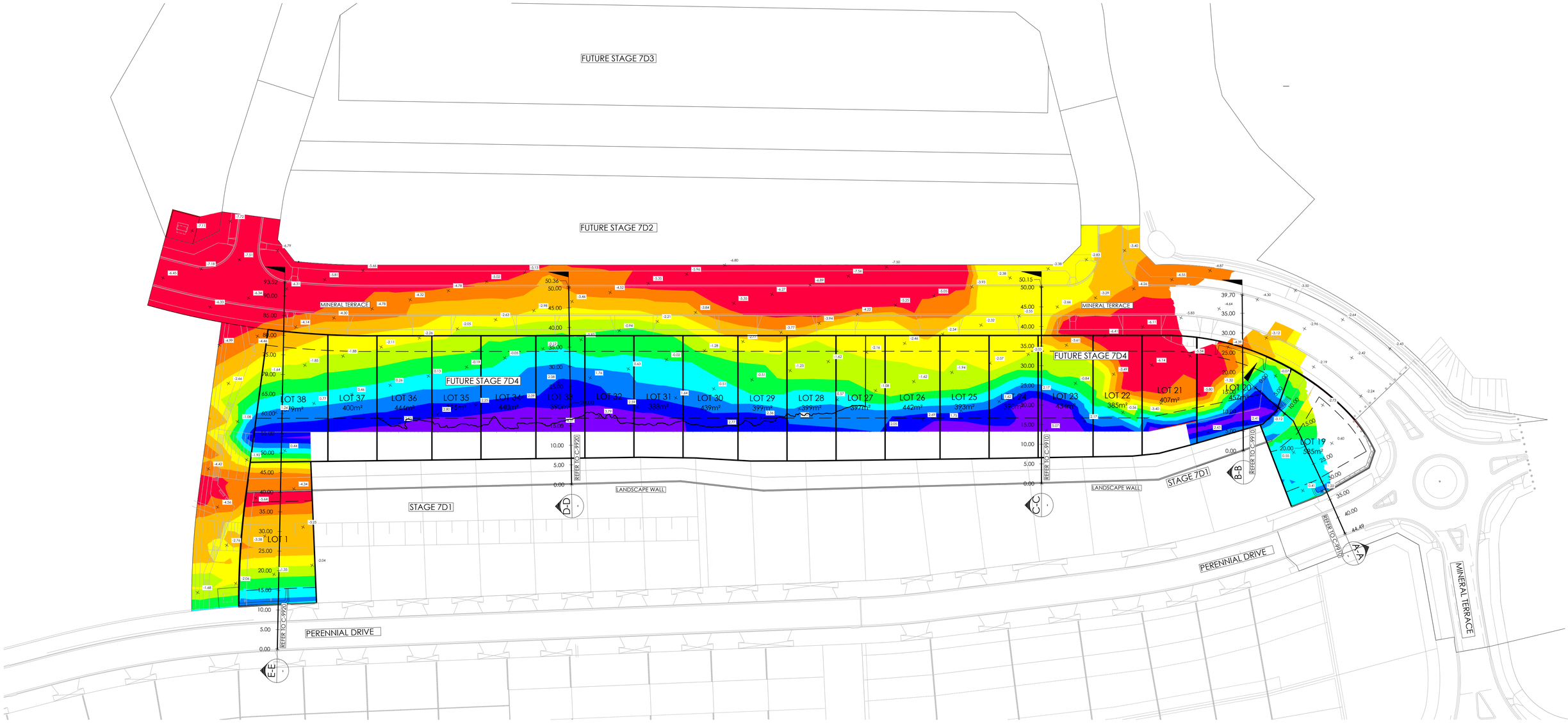
Project: RIVER VALLEY - STAGE 7D4
Drawing Title: FILL LAYOUT PLAN (SHEET 2 OF 2)
Client: YOURLAND
Purpose of Issue: FOR CONSTRUCTION

Drawn By	Checked By	Drawn Scale	Date of First Issue
RP	VR	1:250 @ A1	18.09.23

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	XX	DR	C	9901	0

A1 File Reference



VOLUMETRIC ANALYSIS				
NUMBER	COLOUR	MIN ELEVATION (m)	MAX ELEVATION (m)	2D AREA (m²)
1		-8.558	-5.000	3010.7
2		-5.000	-4.000	1567.7
3		-4.000	-3.000	1613.8
4		-3.000	-2.000	2346.0
5		-2.000	-1.000	1398.8
6		-1.000	0.000	1173.9
7		0.000	1.000	1268.8
8		1.000	2.000	953.3
9		2.000	3.000	862.6
10		3.000	5.480	576.0

0 2 5 10 15 20 25 35 50m
1:500

Revision	Date	Reason	Drawn	Checked
0	17.04.2024	ISSUED FOR CONSTRUCTION	TS	VR

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Project
RIVER VALLEY - STAGE 7D4

Drawing Title
VOLUME COMPARISON - NS AND BS LEVELS

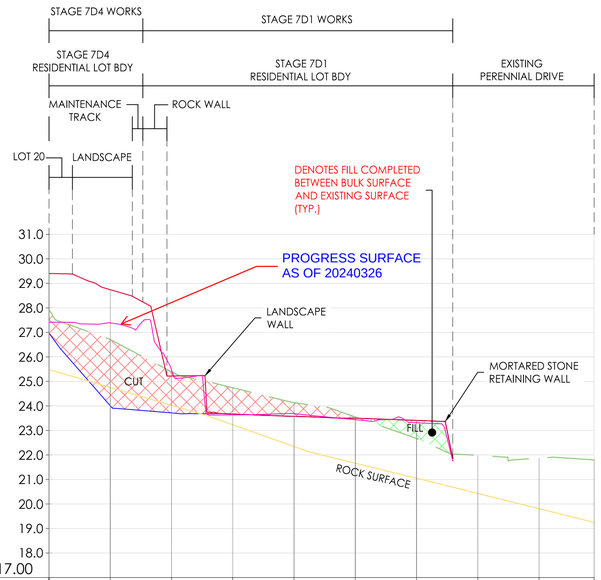
Client
YOURLAND

Purpose of Issue
ISSUED FOR CONSTRUCTION

Drawn By	Checked By	Drawn Scale	Date of First Issue
TS	VR	1:250 @ A1	17.04.2024

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	00	DR	C	9902	0

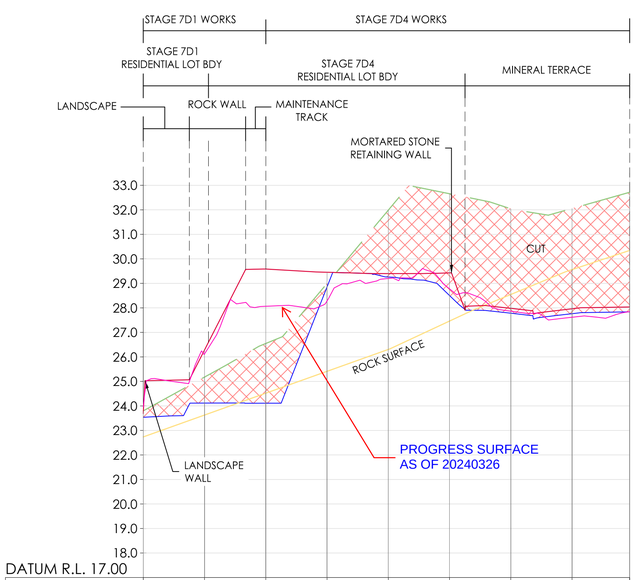
A1 File Reference



DATUM R.L. 17.00

EXISTING LEVEL	27.93	26.71	25.39	24.74	24.13	23.55	22.67	21.98	21.87	21.80
BULKING LEVEL	26.97	24.00	23.71	23.67	23.57	23.50	23.41			
PR LEVELS	29.40	28.74	25.22	23.67	23.57	23.50	23.41			
LEVEL DIFF.	0.96	2.70	1.68	1.07	0.56	0.05	-0.74			
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	44.49

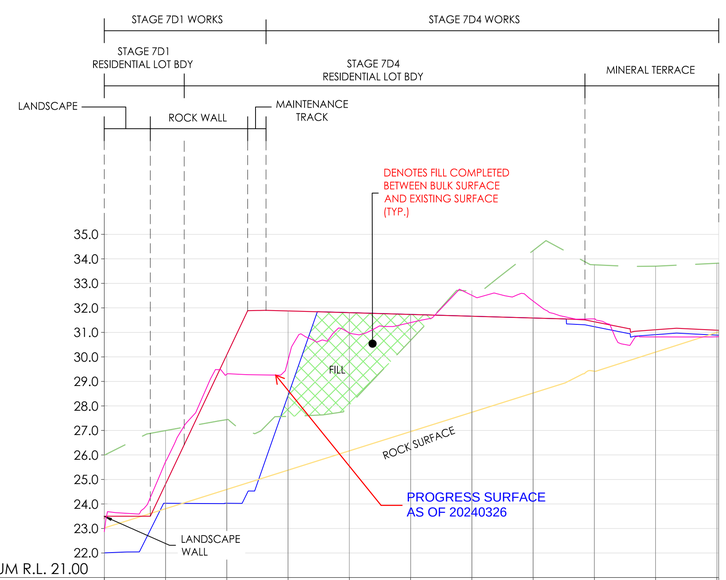
A-A - CROSS SECTION
SCALES: HORIZONAL 1:250 VERTICAL 1:125 (2x)



DATUM R.L. 17.00

EXISTING LEVEL	23.80	25.18	26.55	29.00	31.98	32.66	32.04	32.06	32.72	
BULKING LEVEL	23.54	24.12	24.11	28.85	29.26	28.50	27.78	27.76	27.84	
PR LEVELS	23.69	26.28	29.59	29.45	29.40	29.43	27.98	27.96	28.04	
LEVEL DIFF.	0.26	1.06	2.44	0.14	2.73	4.15	4.26	4.29	4.88	
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	39.70	

B-B - CROSS SECTION
SCALES: HORIZONAL 1:250 VERTICAL 1:125 (2x)



DATUM R.L. 21.00

EXISTING LEVEL	25.99	26.99	27.44	27.58	28.02	30.67	32.71	34.34	33.76	33.70	33.82
BULKING LEVEL	22.00	24.03	24.03	28.43	31.81	31.73	31.66	31.59	31.23	30.91	30.89
PR LEVELS	23.39	24.81	30.09	31.87	31.80	31.73	31.66	31.59	31.43	31.11	31.09
LEVEL DIFF.	3.98	2.97	3.41	-0.85	-3.79	-1.06	1.05	2.75	2.53	2.79	2.93
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00

C-C - CROSS SECTION
SCALES: HORIZONAL 1:250 VERTICAL 1:125 (2x)

Revision	Date	Reason	Drawn	Checked
0	17.04.2024	ISSUED FOR CONSTRUCTION	NH	TS

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Project
RIVER VALLEY - STAGE 7D4

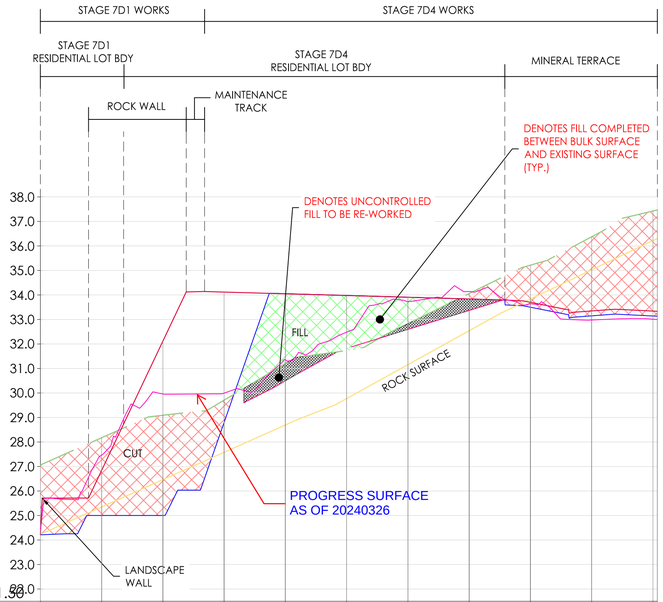
Drawing Title
CROSS SECTIONS - SHEET 1

Client
YOURLAND

Purpose of Issue
ISSUED FOR CONSTRUCTION

Drawn By	Checked By	Drawn Scale	Date of First Issue
NH	VR	1:250 @ A1	17.04.2024

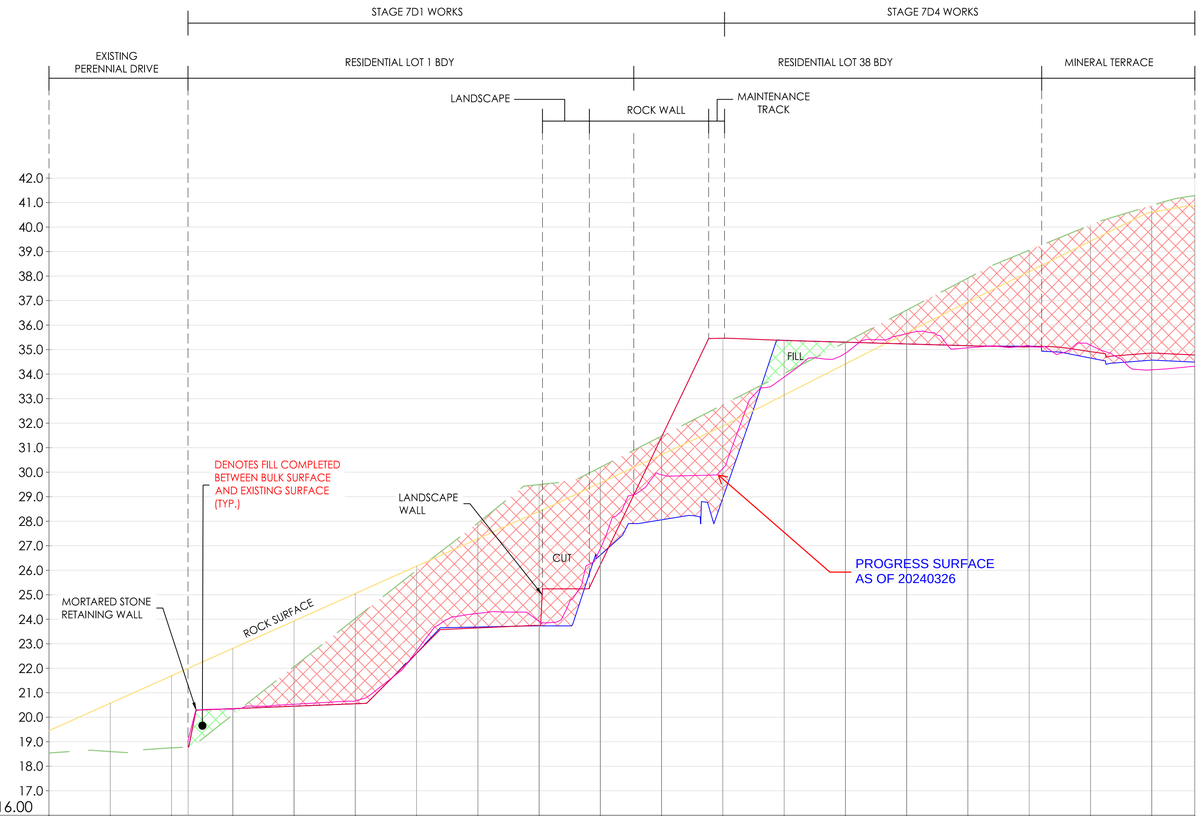
Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	00	DR	C	9910	0



DATUM R.L. 21.00

EXISTING LEVEL	27.06	28.17	29.09	29.71	31.20	31.73	32.83	34.06	35.22	36.37	37.43	
BULKING LEVEL	24.21	25.00	25.00	28.80	34.05	33.98	33.91	33.84	33.50	33.15	33.14	
PR LEVELS	24.22	26.84	32.11	34.12	34.05	33.98	33.91	33.83	33.70	33.35	33.34	
LEVEL DIFF.	2.85	3.17	4.09	0.91	-2.85	-2.25	-1.08	0.22	1.72	3.23	4.28	
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	

D-D - CROSS SECTION
SCALES: HORIZONAL 1:250 VERTICAL 1:125 (2x)



DATUM R.L. 16.00

EXISTING LEVEL	18.54	18.60	18.75	20.10	22.06	24.03	26.00	27.92	29.49	30.20	31.47	32.75	34.02	35.30	36.61	37.92	39.06	40.08	40.88	41.29		
BULKING LEVEL				20.35	20.45	20.55	22.61	23.68	23.73	26.62	28.06	28.95	35.38	35.30	35.23	35.16	35.14	34.66	34.57	34.49		
PR LEVELS				20.35	20.45	20.55	22.61	23.64	23.74	26.22	31.44	35.46	35.38	35.30	35.23	35.16	35.12	34.92	34.86	34.78		
LEVEL DIFF.				-0.25	1.61	3.48	3.39	4.24	5.76	3.58	3.42	3.80	-1.36	0.00	1.38	2.76	3.92	5.43	6.31	6.80		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	93.52		

E-E - CROSS SECTION
SCALES: HORIZONAL 1:250 VERTICAL 1:125 (2x)

Revision	Date	Reason	Drawn	Checked
0	17.04.2024	ISSUED FOR CONSTRUCTION	NH	TS

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2. Do not scale from this drawing. Only figured dimensions are to be taken from this drawing.
3. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on the drawing prior to fabrication or setting out.

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Project
RIVER VALLEY - STAGE 7D4

Drawing Title
CROSS SECTIONS - SHEET 2

Client
YOURLAND

Purpose of Issue
ISSUED FOR CONSTRUCTION

Drawn By	Checked By	Drawn Scale	Date of First Issue
NH	VR	1:250 @ A1	17.04.2024

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15006	CJA	7D4	00	DR	C	9920	0

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