

Site Classification and Fill Assessment

Precinct 1A, DA Stage 8 and 9 of The Loxford,
Gillieston Heights NSW

Prepared for: Loxford Project Management Pty Ltd
EP4751.002 9 October 2026

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EP RISK

Site Classification and Fill Assessment

Precinct 1A, DA Stage 8 and 9 of The Loxford, Gillieston Heights NSW

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9 October 2026

Our Ref: EP4751.002

LIMITATIONS

This Site Classification and Fill Assessment was conducted on the behalf of Loxford Project Management Pty Ltd for the purpose/s stated in **Section 1**.

EP Risk has prepared this document in good faith, but is unable to provide certification outside of areas over which EP Risk had some control or were reasonably able to check. The report also relies upon information provided by third parties. EP Risk has undertaken all practical steps to confirm the reliability of the information provided by third parties and do not accept any liability for false or misleading information provided by these parties.

It is not possible in a Site Classification and Fill Assessment to present all data, which could be of interest to all readers of this report. Readers are referred to any referenced investigation reports for further data.

Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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Table of Contents

1 Introduction 1
2 Site Location and Description 2
3 Earthworks 3
3.1 Material Quality 3
3.2 Methodology 3
3.3 Results of Compaction Testing 4
3.3.1 Lot Regrade 4
3.3.2 Pavements 4
4 Investigation 5
4.1 Investigation Methodology 5
4.2 Published Data 5
4.2.1 Regional Geology 5
4.2.2 Soil Landscape 6
4.2.3 Mine Subsidence 6
4.3 Subsurface Conditions 7
4.4 Laboratory Test Results 7
5 Comments and Recommendations 8
5.1 Preliminary Site Classification 8
5.2 Footings 10
5.2.1 High Level Footings 10
5.2.2 Piered Footings 10
6 Conclusion 11
7 References 12

List of Tables in Body of Report

Table 1. Shrink-Swell Index Test Results 7
Table 2. General Definition of Site Classes 8
Table 3. Recommended Preliminary Site Classifications 9

List of Figures in Body of Report

Figure 1. Indicative Site Location 1
Figure 2. Geological Map Excerpt (Pmtb – Branxton Formation) 6

List of Appendices

Appendix A Residential Development Plans Extract – Stage 8 and 9
Appendix B Site Regrade Plan
Appendix C Coffey Level 1 Summary Report
Appendix D Engineering Logs
Appendix E Borehole Locations
Appendix F Laboratory Test Results
Appendix G Foundation Maintenance and Footing Performance

1 Introduction

This report presents the results of geotechnical inspection and testing undertaken by EP Risk Management Pty Ltd (EP Risk) during the development of Precinct 1A, Stage 8 and 9 of The Loxford, Gillieston Heights NSW (the Site). The work was undertaken at the request of Mr James Lowe on behalf of Loxford Project Management Pty Ltd.

The report details the findings of the geotechnical investigation, including a description of surface and subsurface conditions encountered at the Site, and a statement regarding filling and Site Classification in accordance with Standards Australia AS 2870-2011, *Residential slabs and footings* (AS 2870-2011) for Lots 801 to 820 (Stage 8) and 901 to 911 (Stage 9) for Stage 8 and9 of The Loxford in their existing condition at the time of fieldwork and in absence of abnormal moisture condition following regrade.

To assist the preparation of this investigation report, a combined set of civil drawings for Precinct 1 (DA Stages 8 and 9) Lots 54 and 55, DP975994 Subdivision Works Certificate by Highview Partners (NSW) Pty Ltd Reference 1001(1A8) – CE – 001 Rev 0 dated 10/06/2026 was provided and an extract of plans are attached as **Appendix A – Residential Development Plans Extract – The Loxford Stage 8 and 9.**

An excerpt from NearMap showing the indicative location for Stage 8 and 9 of The Loxford is shown in Figure 1.



Figure 1. Indicative Site Location

2 Site Location and Description

The Site identified as Lots 54, 55, DP975994 – The Loxford, Precinct 1 Stage 8 and 9, Gillieston Heights, NSW is an irregular shaped allotment bound by existing residential development to the south, a playground to the east and future residential stages of The Loxford to the north and west.

Based on plans provided by the client reference 1001(1A8) – CE – 005 Rev 0 dated 10/06/2026, the proposed development comprises creation of thirty-one (31) new residential allotments 801 to 820 and 901 to 911 with associated pavement and inground services construction.

The Site slopes to the south and southwest with elevation ranging from approximately Reduced Level (R.L) 40.0m above the Australian Height Datum (AHD) in the northeast corner of the site to approximately R.L 30.0m AHD in the southwest corner of the site. Site drainage is via surface flows following surface gradients to the inter allotment drains and road drainage network. Surface water flows predominately from north, northeast to south, southwest to a detention basin located to the southwest in a future stage.

At the time of fieldwork, bulk earthwork had been completed and civil construction for Stage 8 and 9, The Loxford was still in progress with pavement construction nearing completion with topsoil being applied to some lots.

There was significant regrade on Site comprising of cut and fill, with the cut material won from Stage 8 and 9 and Stages 1 to 4 of The Loxford used as filling along the northern and eastern portions of the site. Cutting was undertaken predominately in the eastern (up to 1.4m) and northern sections of the site (up to 1.0m). The extent of regrade is shown in **Appendix B – Site Regrade Plan**.

3 Earthworks

Development of Stage 8 and 9 The Loxford was undertaken between 3 July and 28 August 2026, and was carried out by KCE Pty Ltd (KCE) which included development of the following:

- Thirty-one (31) residential lots 801 to 820 and 901 to 911.
- Associated pavement and inground infrastructure.

The earthworks within the development of Stage 8 and 9, The Loxford included regrade, with a combination of cutting and filling. The extent of the regrade is shown in **Appendix B – Site Regrade Plan**. All materials used as filling was Site won material comprising predominately cohesive soils identified as Sandy/Silty/Gravelly CLAY and Clayey/Gravelly SAND.

Compaction testing was undertaken during lot filling in accordance with Section 8 of AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments*. The results for lot and general filling testing undertaken during development are included in Coffey Level 1 supervision and testing summary report included as **Appendix C – Coffey Level 1 Summary Report**.

3.1 Material Quality

Materials encountered onsite generally comprised of cohesive Sandy/Silty/Gravelly CLAY and Clayey/Gravelly SAND. Onsite materials other than topsoil were deemed suitable for used as general fill, with some colluvial material requiring blending. Any anthropogenic materials encountered were removed during stripping operations. Earthworks were undertaken utilising onsite materials from regrade and placed on lots as controlled fill. The description of materials encountered in the investigation borehole are shown in **Appendix D – Engineering Logs**.

Fill material was won from regrade activities across the development. Any unsuitable material was excavated and replaced with suitable site won materials, with moisture reconditioning and blending as required.

3.2 Methodology

Regrade/filling operations were undertaken by excavating the natural in-situ soils following stripping of topsoil so that the soil was free of significant organic matter and suitable for placing and use as controlled fill. Natural surfaces were inspected, and proof rolled using a roller or wheeled construction equipment that was available at the time of inspection. Unsuitable materials were removed and replaced with select site won material.

The material won from excavations and stockpiles was placed in approximate 300mm layers and compacted to a minimum of 95% standard relative density (SRD) within lots and 100% SRD in road alignment using both padfoot and smooth drum rollers.

Compacted fill layers were then tested for compaction in accordance with the guidelines indicated in AS3798-2007. Table 5.1 Item 1 of AS3798-2007 adopted as the appropriate compaction criteria for the work with a minimum relative compaction of 95% SRD required as appropriate for residential lots, 98% SRD where filling depth was greater than 1m and 100% SRD in road alignments.

Fill was tested in accordance with Table 8.1 *Frequency of Field Density Tests for Type 1 Large Scale*. Placement and compaction of fill was undertaken by KCE with EP Risk and Coffey Testing (Coffey) site personnel providing onsite inspection and testing services during earthworks activities and satisfy the requirements of Level 1 Inspection and Testing as per Section 8.2 of AS3798-2007 with test results satisfying the compaction criteria for controlled fill as defined in AS2870-2011.

3.3 Results of Compaction Testing

3.3.1 Lot Regrade

Results of compaction testing of regrade areas undertaken by Coffey indicate that the filling operations have satisfied the compaction criteria for "controlled fill" as defined in Clause 1.8.13 of AS 2870-2011. All testing has either met with or exceeded the specification adopted of minimum relative compaction of 95% SRD required as appropriate for residential lots, 98% SRD where filling depth was greater than 1m and 100% SRD in road alignments with compaction at moisture contents required to gain compaction at the time of placement with any failures being re-worked and retested.

Geotechnical services provided during regrade comply with AS 3798-2007, with testing undertaken to the minimum frequency as indicated in Table 8.1 for Type 1 – Large Scale Operations.

Fifty-two (52) compaction test were undertaken during regrade filling operations in Stage 8and 9, The Loxford. Compaction results are shown on National Association of Testing Authorities (NATA) accredited test certificates, attached in **Appendix C – Coffey Level 1 Summary Report**.

3.3.2 Pavements

Pavement and inground service trenches backfill were tested in accordance with Maitland City Council – Manual of Engineering Standards with conformance test results supplied to Council by KCE as part of their QA Package which include compaction results for subgrade, select subgrade where required, subbase and basecourse testing.

As part of the inspection and testing services provided during development of Stage 8 and 9 The Loxford, all subgrade was inspected by a Council representative and/or by EP Risk following boxing or filling to confirm subgrade conditions and parameters used in pavement design. The road subgrade was proof rolled, with moisture conditioning, reworked and pavements thickened where necessary.

No subgrade replacement or select materials were used in the construction of pavement in Stage 8 and 9 of the Loxford.

4 Investigation

4.1 Investigation Methodology

Field investigation was undertaken on 24 August 2026 and comprised a total of twenty-eight (28) boreholes, (being common boundaries and retained lots) using a ute mounted and tracked drilling rig fitted with a 100mm spiral auger to the target depth of 1.8m. Ten (10) bores were terminated at the target depth with all the other boreholes terminated prior to 1.8m depth on bedrock. Dynamic Cone Penetrometer (DCP) tests were conducted adjacent to and within test bores to aid in the assessment of subsurface strength conditions. Undisturbed samples of selected materials from the bores were collected for subsequent laboratory testing.

All fieldwork, including logging of subsurface profiles and collection of samples was carried out by Coffey on behalf of EP Risk. Subsurface conditions are summarised in **Section 4.3** of this report, with detailed logs of the boreholes provided in **Appendix D – Engineering Logs** of this report. The boreholes were located by reference to the lot boundaries as shown in **Appendix E – Borehole Locations**.

Laboratory testing on selected samples recovered during fieldwork comprised the determination of the shrink swell index (Iss) carried out on undisturbed samples of soils encountered at the Site to measure soil volume change over an extreme soil moisture content range. Results of laboratory testing are detailed in the report sheets provided as **Appendix F – Laboratory Test Results** and summarised in **Section 4.4**.

4.2 Published Data

4.2.1 Regional Geology

Based on geological data sourced from NSW Government website (www.minview.geoscience.nsw.gov.au), the Site is underlain by:

- Lopingian Aged (272.95 – 268.8 Ma) – Branxton Formation (Pmtb) of Maitland Group known to contain conglomerate, sandstone and siltstone.
- Permian Aged (298.9—251.9 Ma) – Great Coal Measures Formation of Permian Group known to contain sandstone, siltstone, pellet claystone, coal, chert, sporadic conglomerate.

An excerpt of the geological map is shown in Figure 2.



Figure 2. Geological Map Excerpt (Pmtb – Branxton Formation)

4.2.2 Soil Landscape

Based on the information provided by the NSW Office of Environment and Heritage, Soil Landscapes of Central and Eastern NSW, on site soil landscape has been identified as:

Bolwarra Heights (9232bh) – This soil landscape covers —rolling low hills on Permian sediments in the centre-west of the sheet in the East Maitland Hills region. Slopes are 5–20%, elevation to 100 m, local relief to 80 m. Cleared tall open-forest. The limitations for this soil landscape are moderate foundation hazard, water erosion hazard, high run-on (localised), seasonal waterlogging (localised), localised steep slopes with mass movement hazard.

4.2.3 Mine Subsidence

Reference to the Mine Subsidence District Data Source, the Site is partially located (western side) within Maitland West Mine Subsidence District.

Currently, the site is under Guideline 2 and 7. Development that complies with this Guideline must be assessed under Subsidence Advisory to consider suitability of the development given the risk of subsidence damage.

Development that complies with this Guideline will generally accommodate the following subsidence-induced ground movements:

Maximum Horizontal Ground Strain	2mm/m tensile or compressive
Maximum Tilt	4mm/m
Minimum Radius of Curvature	10km (hogging or sagging)

Guidelines 2 allows for up to two residential buildings that conform with the following description:

Single or two storey brick veneer residential developments erected on reinforced concrete footings/slab to comply with AS 2870-2011. These improvements are limited to a maximum length of 24 metres and maximum footprint size of 400m².

- The buildings are to be designed and constructed in accordance with the current editions of AS1684, AS 2870, AS3600, AS3700, AS4773, the National Construction Code, and applicable Australian Standards. **Site classification "P" for Mine Subsidence Site is to be ignored for these structures**.
- Masonry is to be articulated, in accordance with the current editions of Australian Standards AS3700 and AS4773.
- Both slab on ground and lightweight bearers and joists are permitted.

4.3 Subsurface Conditions

The subsurface conditions encountered in the boreholes across the Site are detailed in engineering log sheets attached as **Appendix D – Engineering Logs**. The subsurface profile generally comprised FILL (Sandy/Gravelly CLAY and Clayey Gravelly SAND) overlying RESIDUAL SOIL (Silty/Sandy/Gravelly CLAY and Clayey SAND) overlying BEDROCK (Sandstone).

At the time of fieldwork, the natural clays were assessed to generally be at or slightly dry of SOMC and based on DCP blow counts, generally ranged from stiff to very stiff and hard in consistency. The granular soils were assessed being dry and dry to moist and medium dense to dense and very dense in consistency.

A general summary of the subsurface conditions encountered across the Site is presented below:

- FILL – Sandy/Gravelly CLAY, Clayey/Gravelly SAND.
- RESIDUAL SOIL – Silty/Sandy/Gravelly CLAY, Clayey/Gravelly SAND.
- BEDROCK – SANDSTONE.

No groundwater or seepage was encountered in the boreholes at the time of fieldwork. It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions.

4.4 Laboratory Test Results

The results of the laboratory tests undertaken on samples of the natural and fill clay soils are detailed on the laboratory test report sheets attached in **Appendix F – Laboratory Test Results** and are summarised below in **Table 1**.

Table 1. Shrink-Swell Index Test Results

Test ID	Soil Type	Depth (m BGL)	Shrinkage		Swell			Shrink – Swell Index (Iss%)
			Shrinkage Field Moisture Content (%)	Dried Shrinkage (%)	Field Moisture Content (%)	Inundated Moisture Content (%)	Swell Strain (%)	
Lot 804	Sandy Gravelly CLAY	0.4-0.7	16.0	3.8	18.0	23.5	3.0	**2.9**
Lot 809	Sandy Gravelly CLAY	0.7-1.0	14.2	3.4	13.5	17.4	0.2	**2.0**
Lot 813	Sandy CLAY	1.0-1.3	11.8	1.9	11.0	17.5	0.7	**1.3**
Lot 817	Gravelly Sandy CLAY	0.5-0.8	9.2	1.9	9.2	14.4	-0.3	**1.1**
Lot 904	Sandy Gravelly CLAY	0.3-0.6	11.1	0.4	8.2	20.2	2.1	**0.8**

5 Comments and Recommendations

5.1 Preliminary Site Classification

Australian Standard AS 2870-2011 establishes performance requirements and specific designs for common foundation conditions as well as providing guidance on the design of footing systems using engineering principles. Site classes as defined on Table 2.1 and 2.3 of AS 2870 are presented in **Table 2**.

Table 2. General Definition of Site Classes

Site Class	Foundation	Characteristic
A	Most sand and rock sites with little or no ground movement from moisture changes	-
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes	0 – 20 mm
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes	20 – 40 mm
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes	40 – 60 mm
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes	60 – 75 mm
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes	> 75 mm
A to P	Filled sites (refer to clause 2.4.6 of AS 2870)	-
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.	

Reactive sites are sites consisting of clay soils that swell on wetting and shrink on drying, resulting in ground movements that can damage lightly loaded structures. The amount of ground movement is related to the physical properties of the clay and environmental factors such as climate, vegetation, and watering. A higher probability of damage can occur on reactive sites where abnormal moisture conditions occur, as defined in AS 2870, due to factors such as:

- Presence of trees on the building site or adjacent site, removal of trees prior to or after construction, and the growth of trees too close to a footing. The proximity of mature trees and their effect on foundations should be considered when determining building areas within each allotment (refer to AS 2870).
- Failure to provide adequate site drainage or lack of maintenance of site drainage, failure to repair plumbing leaks and excessive or irregular watering of gardens.
- Unusual moisture conditions caused by removal of structures, ground covers (such as pavements), drains, dams, swimming pools, tanks etc.

Regarding the performance of footings systems, AS 2870 states “footing systems designed and constructed in accordance with this Standard on a normal site (see Clause 1.3.2) that is:

a) not subject to abnormal moisture conditions; and

b) maintained, such that the original site classification remains valid and abnormal moisture conditions do not develop, are expected to usually experience no damage, a low incidence of damage category 1 and an occasional incidence of damage category 2.”

Damage categories are defined in Appendix C of AS 2870, which is reproduced in CSIRO Information Sheet BTF 18, Foundation Maintenance and Footing Performance: A Homeowner's Guide attached as **Appendix G – Foundation Maintenance and Footing Performance**.

The laboratory Shrink Swell test result summarised in **Table 1** indicate that the tested natural clay soils are low to highly reactive, with I_{ss} value in the range of 0.8% to 2.9%.

The classification of sites with uncontrolled fill of depths greater than 0.4m (deep fill) comprising of material other than sand or within the mine subsidence districts would be Class P. An alternative classification may however be given to sites with controlled fill where consideration is made to the potential for movement of the fill and underlying soil based on the moisture conditions at the time of construction and the long-term equilibrium moisture conditions.

Based on the subsurface profiles encountered during the Site inspection and in accordance with the AS 2870-2011; the Site in its existing condition and in the absence of abnormal moisture conditions would likely be classified as detailed in **Table 3**.

Table 3. Recommended Preliminary Site Classifications

Lot Number	Recommended Site Classification
801, 802, 803, 816, 817, 818, 819, 820, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911	**Class M,** moderately reactive
804, 805, 809, 810, 811, 812	**Class H1**, highly reactive
806, 807, 808 813, 814, 815	**Class H2**, highly reactive
Where found uniformly on rock	**Class S** or **Class A**

The above classification assume that all foundations are founded below any topsoil, uncontrolled fill or slopewash within natural soil profile or on engineered fill. Characteristic surface movements in the range of 20mm to 65mm have been calculated for the lots in their existing condition at the time of investigation and take into consideration the depth of filling and potential for differential movement. Recommended site classifications based on characteristic site movement is **Class M**, moderately reactive, **Class H1**and **Class H2,** highly reactive unless founded uniformly on weathered rock or sand, then **Class S**, Slightly Reactive of **Class A**, would be appropriate.

The site was devoid of vegetation at the time of investigation. Clause 1.3.3 of AS2870-2011 nominates that the presence of trees could result in abnormal moisture conditions at the site should landscaping plantings such as trees be located within the building areas. In such situations, AS2870-2011 nominates adoption of a **Class P** classification.

It should be noted that the Site Classifications provided above are based on test bores and laboratory testing of multiple layers over the depth of total suction change in the soil profile. It is not expected for soil conditions to vary significantly, excluding depth to rock and fill which may vary due to regrade undertaken. The above site classifications and footings recommendations are for the site conditions present at the time of fieldwork and consequently the site classifications may need to be reviewed with consideration of any site works that may be undertaken after the investigation and this report. Site works may include:

Site works may include:

- Changes to the existing soil profile by cutting and filling.
- Landscaping, including trees removed or planted in the general building area; and
- Drainage and watering systems.

Designs and design methods presented in AS 2870-2011 are based on the performance requirement that significant damage can be avoided if site conditions are properly maintained. Performance requirements and foundation maintenance are outlined in Appendix B of AS 2870. The above site classification assumes that the performance requirements as set out in Appendix B of AS 2870 are acceptable and that site foundation maintenance is undertaken to avoid extremes of wetting and drying.

Details on appropriate site and foundation maintenance practices are presented in Appendix B of AS 2870-2011 and in CSIRO Information Sheet BTF 18, Foundation Maintenance and Footing Performance: A Homeowner's Guide. Adherence to the detailing requirement outlined in Section 5 of AS 2870-2011 is essential, Section 5.6. Additional requirements for Classes M, H1, H2 and E sites, including architectural restrictions, plumbing and drainage requirements.

5.2 Footings

All foundations should be designed and constructed in accordance with 2870-2011, Residential Slabs and Footings with reference to site classifications as presented in **Section 5.1**.

All footings should be founded below any topsoil, slopewash, deleterious soils or uncontrolled fill. All footings for the same structure should be founded on strata of similar stiffness and reactivity to minimise the risk of differential movement and should be confirmed by specific investigation for proposed structures.

Potential for differential movement should be considered and articulation incorporated in the design due to variation in depth to rock and filling across the Site.

5.2.1 High Level Footings

High-level footing alternatives could be expected to comprise slabs on ground with edge beams or pad footings for the support of concentrated loads. Such footings designed in accordance with engineering principles and founded in stiff or better soils (below topsoil, slopewash, uncontrolled fill or other deleterious material may be proportioned on an allowable bearing capacity of 100 kPa.

Where controlled lot filling has been carried out, high-level footing types should be founded below any topsoil onto the stiff or better engineered fill that is placed and compacted in accordance with AS3798-2007.

The founding conditions should be assessed by an experienced geotechnical consultant or experienced engineer to confirm suitable conditions.

5.2.2 Piered Footings

Piered footings are considered as an alternative to deep edge beams or high-level footings and provide an alternate founding solution. It is suggested that bored pier footings, founded in stiff or better natural clay could be proportioned on an end bearing pressure of 100 kPa. Piers founded in weathered sandstone can be apportioned for an allowable bearing capacity of 500kPa.

All footings should be founded below any topsoil, slopewash, deleterious soils or uncontrolled fill. All footings for the same structure should be founded on strata of similar stiffness and reactivity to minimise the risk of differential movements. Inspection of high level or pier footings excavations should be undertaken to confirm the founding conditions, and the base should be cleared of fall-in prior to the formation of the footings.

6 Conclusion

The earthworks undertaken for Stage 8 and 9 The Loxford, Gillieston Heights NSW have been undertaken in accordance with guidelines out lines in AS3798-2007. The fill was tested in accordance with Table 8.1 *Frequency of Field Density Tests for type 1 – Large Scale Operations* Australian Standard AS3798-2007. Placement and compaction of fill was observed by EP Risk and Coffey site personnel who provided onsite inspection and testing services during earthworks activities. Results of compaction testing of regraded areas undertaken by Coffey indicate that the filling operations have satisfied the compaction criteria for controlled fill as defined in AS2870-2011.

Geotechnical investigation was carried out for the purpose of site classification of lots within the development in accordance with AS2870-2011. The subsurface profile encountered in the test bores generally comprised FILL (Sandy/Gravelly CLAY, Clayey/Gravelly SAND) overlying RESIDUAL SOIL (Silty/Sandy/Gravelly CLAY, Clayey/Gravelly SAND) overlying BEDROCK (Sandstone). The depth to rock and depth to filling varies considerably across the site due to regrade activities undertaken with cut predominantly in the east and north part of the area investigated and fill predominantly in the south and west.

As specified in AS 2870-2011 Clause 2.5.3, the classification of sites with uncontrolled fill of depths greater than 0.4m (deep fill) comprising of material other than sand or within the mine subsidence districts would be Class P. An alternative classification may however be given to sites with controlled fill where consideration is made to the potential for movement of the fill and underlying soil based on the moisture conditions at the time of construction and the long-term equilibrium moisture conditions.

Recommended Preliminary Site Classifications for to be used for footing and slab design for lots in the development are shown in Table 3, **Class M**, moderately reactive, **Class H1**and **Class H2,** highly reactive, for a Hs (design soil suction change) of 1.8m in accordance with AS2870-2011 and in the absence of abnormal moisture conditions, which is the recommended classification to be adopted, unless footings are founded uniformly on weathered rock where a classification of **Class S**, or **Class A** would be appropriate. The Site Classifications assume that all foundations are founded below any topsoil/slopewash and on the controlled fill or the natural soil profile. Characteristic surface movement in the range of 20mm to 65mm have been calculated for the lots in their existing condition taking into consideration the extent and age of regrade undertaken. The Site Classification also takes into consideration the potential for differential movement because of the depth of fill across the Site due to regrade activities undertaken.

High-level footing alternatives could be expected to comprise slabs on ground with edge beams or pad footings for the support of concentrated loads. Such footings designed in accordance with engineering principles and uniformly founded in stiff or better natural soils or controlled fill (below topsoil, slopewash, uncontrolled fill or other deleterious material) may be proportioned on an allowable bearing capacity of 100 kPa. Piered footings are considered as an alternative to deep edge beams or high-level footings and offer a viable alternative. It is suggested that piered footings, founded in stiff clay or better and medium dense to dense sand could be proportioned on an end bearing pressure of 100 kPa and when founded in weathered sandstone for an end bearing of 500kPa.

Footings for residential type light weight structures do not necessarily need to be founded in the natural soils where fill is undertaken in accordance with AS3798-2007 and satisfies the criteria of controlled fill as per AS2870 2011.

Site Classifications to those presented in this report could be determined by other consultants and recommended site classification by EP Risk are based on detailed knowledge of site conditions and regrade activities undertaken during construction.

7 References

- eSPADE, Online website of NSW Office of Environment and heritage (www.environment.nsw.gov.au)
- Maitland City Council – Manual of Engineering Standards, 2026.
- Minview, (MinView | Regional NSW | Mining, Exploration and Geoscience)
- NearMap, (MapBrowser | Nearmap).
- Standards Australia AS1726-2017. *Geotechnical Site Investigation.* Standards Australia, 2017.
- Standards Australia AS2870-2011. *Residential Slabs and Footings.* Standards Australia, 2011.
- Standards Australia AS3798-2007**.** Guidelines on Earthworks for Commercial and Residential Structures, 2007.
- Subsidence Advisory NSW – Surface Development Guidelines

Appendix A

RESIDENTIAL DEVELOPMENT PLANS EXTRACT – STAGE 8 AND 9

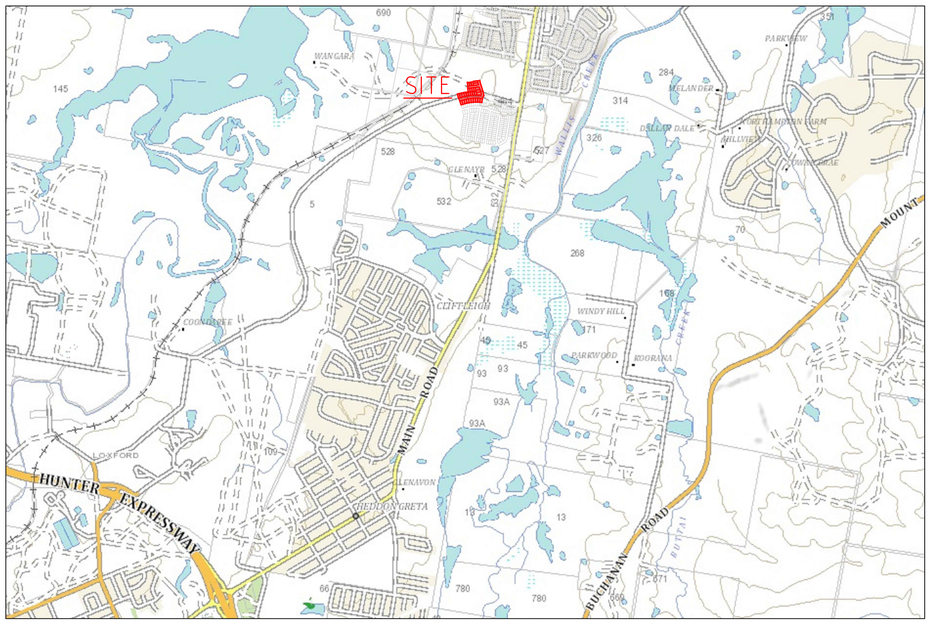
Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:14:58AM

The Loxford

PROPOSED SUBDIVISION
"REGROWTH KURRI KURRI"
PRECINCT 1 (DA STAGES 8 & 9)
LOTS 54 & 55 DP975994
SUBDIVISION WORKS CERTIFICATE

MAITLAND CITY COUNCIL DEVELOPMENT APPLICATION DA/2022/193:2

maitland city council
Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction



LOCALITY PLAN
NOT TO SCALE

SCHEDULE OF DRAWINGS

DWG No.	DRAWING TITLE
1001(1A8)-CE-001	COVER SHEET, LOCALITY SKETCH AND DRAWING INDEX
1001(1A8)-CE-002	CIVIL NOTES
1001(1A8)-CE-005	OVERALL SITE PLAN
1001(1A8)-CE-101	DETAIL PLAN
1001(1A8)-CE-121	PAVEMENT PLAN
1001(1A8)-CE-201	TYPICAL ROAD CROSS SECTIONS AND DETAILS
1001(1A8)-CE-211	ROAD LONGITUDINAL SECTION: MC01
1001(1A8)-CE-212	ROAD LONGITUDINAL SECTION: MC03
1001(1A8)-CE-213	ROAD LONGITUDINAL SECTION: MC07
1001(1A8)-CE-221	ROAD CROSS SECTION: MC01 - SHEET 01
1001(1A8)-CE-222	ROAD CROSS SECTION: MC01 - SHEET 02
1001(1A8)-CE-223	ROAD CROSS SECTION: MC01 - SHEET 03
1001(1A8)-CE-224	ROAD CROSS SECTION: MC01 - SHEET 04
1001(1A8)-CE-225	ROAD CROSS SECTION: MC01 - SHEET 05
1001(1A8)-CE-226	ROAD CROSS SECTION: MC01 - SHEET 06
1001(1A8)-CE-227	ROAD CROSS SECTION: MC01 - SHEET 07
1001(1A8)-CE-228	ROAD CROSS SECTION: MC03 - SHEET 01
1001(1A8)-CE-229	ROAD CROSS SECTION: MC03 - SHEET 02
1001(1A8)-CE-230	ROAD CROSS SECTION: MC03 - SHEET 03
1001(1A8)-CE-231	ROAD CROSS SECTION: MC03 - SHEET 04
1001(1A8)-CE-232	ROAD CROSS SECTION: MC03 - SHEET 05
1001(1A8)-CE-233	ROAD CROSS SECTION: MC07 - SHEET 01
1001(1A8)-CE-234	ROAD CROSS SECTION: MC07 - SHEET 02
1001(1A8)-CE-251	INTERSECTION PLAN: KERB RETURNS MK11 & MK12
1001(1A8)-CE-253	INTERSECTION PLAN: KERB RETURNS MK19 & MK20
1001(1A8)-CE-254	INTERSECTION PLAN: KERB RETURNS MK21 & MK22
1001(1A8)-CE-301	STORMWATER CATCHMENT PLAN
1001(1A8)-CE-305	MINOR FLOOD WIDTHS PLAN
1001(1A8)-CE-306	MAJOR FLOOD WIDTHS PLAN
1001(1A8)-CE-311	STORMWATER CALCULATION CHARTS - 10% AEP
1001(1A8)-CE-312	STORMWATER CALCULATION CHARTS - 1% AEP
1001(1A8)-CE-315	STORMWATER PIT SCHEDULE
1001(1A8)-CE-321	STORMWATER LONGITUDINAL SECTIONS: SHEET 01
1001(1A8)-CE-322	STORMWATER LONGITUDINAL SECTIONS: SHEET 02
1001(1A8)-CE-323	STORMWATER LONGITUDINAL SECTIONS: SHEET 03
1001(1A8)-CE-324	STORMWATER LONGITUDINAL SECTIONS: SHEET 04
1001(1A8)-CE-325	STORMWATER LONGITUDINAL SECTIONS: SHEET 05
1001(1A8)-CE-331	TYPICAL STORMWATER DETAILS
1001(1A8)-CE-341	TEMPORARY SWALE SW02 PLAN
1001(1A8)-CE-342	TEMPORARY SWALE SW02 SECTIONS
1001(1A8)-CE-401	RETAINING WALL PLAN: SHEET 01

SCHEDULE OF DRAWINGS

DWG No.	DRAWING TITLE
1001(1A8)-CE-402	RETAINING WALL PLAN: SHEET 02
1001(1A8)-CE-403	RETAINING WALL PLAN: SHEET 03
1001(1A8)-CE-404	RETAINING WALL PLAN: SHEET 04
1001(1A8)-CE-421	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 01
1001(1A8)-CE-422	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 02
1001(1A8)-CE-423	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 03
1001(1A8)-CE-424	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 04
1001(1A8)-CE-425	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 05
1001(1A8)-CE-426	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 06
1001(1A8)-CE-427	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 07
1001(1A8)-CE-428	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 08
1001(1A8)-CE-429	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 09
1001(1A8)-CE-430	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 10
1001(1A8)-CE-431	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 11
1001(1A8)-CE-432	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 12
1001(1A8)-CE-433	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 13
1001(1A8)-CE-434	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 14
1001(1A8)-CE-435	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 15
1001(1A8)-CE-436	RETAINING WALL LONGITUDINAL SECTIONS: SHEET 16
1001(1A8)-CE-451	RETAINING WALL DETAILS: SHEET 01
1001(1A8)-CE-452	RETAINING WALL DETAILS: SHEET 02
1001(1A8)-CE-453	RETAINING WALL DETAILS: SHEET 03
1001(1A8)-CE-454	RETAINING WALL DETAILS: SHEET 04
1001(1A8)-CE-455	RETAINING WALL DETAILS: SHEET 05
1001(1A8)-CE-456	RETAINING WALL DETAILS: SHEET 06
1001(1A8)-CE-501	SITE REGRADE PLAN
1001(1A8)-CE-551	PAD LEVEL PLAN
1001(1A8)-CE-601	DRIVEWAY PLAN - SHEET 01
1001(1A8)-CE-602	DRIVEWAY PLAN - SHEET 02
1001(1A8)-CE-603	DRIVEWAY PLAN - SHEET 03
1001(1A8)-CE-701	LINEMARKING AND SIGNAGE PLAN
1001(1A8)-CE-801	SOIL AND WATER MANAGEMENT PLAN
1001(1A8)-CE-802	SOIL AND WATER MANAGEMENT NOTES AND DETAILS

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
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C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
COVER SHEET, LOCALITY SKETCH AND DRAWING INDEX

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	001	0

100 mm ON A1 SIZE ORIGINAL
0 50

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-001.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:15:05AM

GENERAL NOTES

1. ALL WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH MAITLAND CITY COUNCIL'S (MCC) MANUAL OF ENGINEERING STANDARDS AND DIRECTIONS FROM COUNCIL'S ENGINEERING INSPECTING OFFICER.
2. THE DRAWING DIMENSIONS SHALL NOT BE OBTAINED BY SCALING OR FROM DIGITAL FILES.
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND WRITTEN INSTRUCTIONS. ANY DISCREPANCY OR VARIATION SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.
4. NO ADDITIONAL OR P.C. WORKS SHALL BE UNDERTAKEN WITHOUT THE SUPERINTENDENTS APPROVAL. CONFIRM COUNCIL INSTRUCTIONS WITH SUPERINTENDENT.
5. THE CONTRACTOR MUST ENSURE SUPERINTENDENT AND/OR COUNCIL APPROVAL OF MATERIALS, PRIOR TO DELIVERY TO SITE.
6. DIVERSION OF WATER AND THE PROTECTION OF WORKS IS THE CONTRACTORS RESPONSIBILITY.
7. THE CONTRACTOR HAS SOLE RESPONSIBILITY TO EXERCISE CARE AND TAKE PRECAUTIONS TO ENSURE CONSTRUCTION ACTIVITIES DO NOT AFFECT ADJACENT PROPERTIES, ACCESS OR STRUCTURES. MAINTAIN EMBANKMENTS AND STRUCTURES IN STABLE CONDITION DURING CONSTRUCTION ENSURING NO PART IS OVERSTRESSED. TEMPORARY STRUCTURES, FORMWORK, TEMPORARY BRACING, SHORING AND THE LIKE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FULL QA DOCUMENTATION OF THE PROJECT. A COMPLETE ITP PLANS SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO WORKS COMMENCING ON SITE.
9. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE REPAIRED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY.
10. UNDERTAKE WORKS TO PRINCIPLES OF AS 9001. SUBMIT WORK METHOD STATEMENT TO SUPERINTENDENT.

    HOLD POINTS SHALL APPLY TO:
    - APPROVAL OF WORK METHOD STATEMENT
    - LOCATION OF INGROUND SERVICES
    - CERTIFICATION OF SUBGRADE
    - CONDUITS PRIOR TO BACKFILL
    - GEOTECHNICAL CERTIFICATION.
    - APPROVAL OF TRAFFIC CONTROL PLAN
    - SETOUT OF EACH AREA OF WORKS
    - STORMWATER PIPEWORK PRIOR TO BACKFILL
    - WORK AS EXECUTED SURVEY
11. ALL WORKS ARE TO BE SETOUT BY A REGISTERED SURVEYOR. SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE APPROVED PLANS. IF THERE IS A DISCREPANCY, THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.
12. SERVICE CONDUITS SHALL BE PLACED AS DIRECTED BY AUSGRID, NBN, JEMENA.
13. PROPOSED SERVICES CROSSING EXISTING ROADS SHALL BE THRUST BORED UNDER THE ROAD SO AS NOT TO DAMAGE EXISTING SURFACES.
14. SCOUR PROTECTION, SUB SOIL DRAINAGE AND UNSUITABLE SUB-GRADE REPLACEMENT SHALL BE AT THE DIRECTION OF THE SUPERINTENDENT.
15. ALL TREES WITHIN THE ALLOTMENTS AND RESERVES (OTHER THAN ROAD RESERVES) SHALL BE RETAINED, UNLESS OTHERWISE NOMINATED BY THE APPROVED LANDSCAPE PLANS. REMOVAL OF TREES FOR THE ESTABLISHMENT OF FIRE-BREAKS SHALL BE CARRIED OUT IN CONSULTATION WITH THE FIRE CONTROL OFFICER AND/OR COUNCIL'S ENVIRONMENT OFFICER.
16. ALL NEW WORKS ARE TO MAKE SMOOTH JUNCTIONS WITH ALL EXISTING CONDITIONS. AC JOINTS TO BE SAW CUT AT CONNECTION TO EXISTING PAVEMENT. THE CONTRACTOR IS TO MAKE ALL DUE ALLOWANCES FOR WORKS DURING CONSTRUCTION.

MAITLAND CITY COUNCIL

1. ALL MATERIALS AND PRODUCTS FOR INSTALLATION AND CONSTRUCTION SHALL COMPLY WITH AUSTRALIAN STANDARDS. MONITORING TESTING ("STRING LINE" AND "ROLL") WHERE SPECIFIED BY COUNCIL'S MANUAL OF ENGINEERING STANDARDS, TO BE PERFORMED BY COUNCIL, SHALL BE ARRANGED 24 HOURS IN ADVANCE. WHERE A COUNCIL OFFICER IS NOT AVAILABLE, A GEOTECHNICAL ENGINEER MAY PERFORM SUCH TESTS.
2. TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH TfNSW DOCUMENT "TRAFFIC CONTROL AT WORKSITES".
3. TOPSOIL 150mm THICK TO BE APPLIED TO ALL FOOTPATHS AND FILLED AREAS. WHERE TURF IS NOT REQUESTED, ALL EXPOSED TOPSOIL TO BE SEEDED IMMEDIATELY UPON COMPLETION OF THE SOIL SPREADING OPERATION.
4. ALL FILL WITHIN LOTS INCLUDING BATTERS SHALL BE PLACED IN ACCORDANCE WITH AS3798 TO LEVEL 1 INSPECTION AND TESTING.
5. PROVISION SHOULD BE MADE FOR SUITABLE PROTECTION OF THE EXISTING ROAD PAVEMENTS, KERB AND GUTTER AND FOOTPATH FORMATION. VEHICULAR ACCESS TO ALL SERVICES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION WORKS, SHALL BE MAINTAINED AT ALL TIMES.
6. KERB STORMWATER OUTLETS AND KERB ADAPTER TO BE PROVIDED FOR EACH STREET DRAINING LOT IN ACCORDANCE WITH MCC STANDARD DRAWING SD036.
7. PROVIDE 100mm SUBSOIL PIPE AT BASE OF SERVICE TRENCH, DRAIN TO KERB INLET PITS IN ACCORDANCE WITH MCC STANDARD DRAWING SD035. ADDITIONAL DRAINS SHALL BE PROVIDED WHERE CONSIDERED NECESSARY, BY COUNCIL OR A GEOTECHNICAL ENGINEER.
8. FOOTPATHS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD012.
9. PRAM RAMPS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD019.
10. STREET SIGNS TO BE LOCATED AND INSTALLED IN ACCORDANCE WITH MCC STANDARD DRAWING SD029.
11. ALL SILT CONTROL MEASURES TO BE PLACED PRIOR TO COMMENCEMENT OF EARTHWORKS. SUCH MEASURES TO BE SUBJECT TO FURTHER ADDITIONS OR ALTERATIONS, WHERE CONSIDERED NECESSARY, AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL, DURING THE PROGRESSION OF WORKS. ALL FINAL EROSION PREVENTION MEASURES INCLUDING ESTABLISHMENT OF GRASS TO BE COMPLETED PRIOR TO THE FINAL INSPECTION.

EARTHWORKS AND PAVEMENT NOTES

1. TURF TO BE TO COUNCIL'S SPECIFICATION. GRASS/TURF TO BE MAINTAINED BY CONTRACTOR AT ALL TIMES INCLUDING PERIODS OF INSUFFICIENT RAIN AND REPLACED AS REQUIRED.
2. A SINGLE CONTINUOUS STRIP OF GRASS TURF SHALL BE PLACED BEHIND THE BACK OF ALL KERBS, PERIMETER OF ALL INLET PITS, EACH SIDE OF FOOTPAVING, FRONT OF LOT BOUNDARIES, DRAIN OUTLETS, TOP OF EXCAVATED BATTERS AND DIAGONALLY TO STEEP GRADES EXCEEDING 10% AND AS DIRECTED IMMEDIATELY AFTER THE COMPLETION OF FOOTPATH GRADING AND CONSTRUCTION OF PITS RESPECTIVELY. TURFING/LANDSCAPE GRASS SHALL ALSO BE PLACED TO THE FULL WIDTH OF SWALE DRAINS UPON COMPLETION.
3. REMOVE TOPSOIL, SLOPEWASH & DELETERIOUS MATERIAL. GEOTECHNICAL ENGINEER TO CONFIRM SPOIL & UNSUITABLE.
4. EXCAVATED MATERIAL SHALL BE SELECTED TO PLACE BETTER QUALITY AT FILL SUBGRADES. REPLACEMENT OF CUT SUB-GRADES MAY BE INSTRUCTED BY THE SUPERINTENDENT AS EARTHWORKS OPERATION.
5. IN-SITU DENSITY TESTS ARE TO BE CARRIED OUT ON ALL SIGNIFICANT FILLS, ROAD SUB-GRADES AND PAVEMENT COURSES AS DIRECTED BY THE SUPERINTENDENT. BENKELMAN BEAM TEST PAVEMENT BASECOURSE. ALL TESTS ARE TO BE CARRIED OUT BY A REGISTERED N.A.T.A. GEOTECHNICAL LABORATORY.
6. EARTHWORKS, PREPARATIONS, SUB-GRADE CBR AND PAVEMENT THICKNESSES TO BE CONFIRMED BY GEOTECHNICAL ENGINEER. SUBMIT GEOTECHNICAL ENGINEER'S CERTIFICATE OF WORKS ON COMPLETION.
7. REFER GEOTECHNICAL REPORT BY: QUALTEST LABORATORY (NSW) PTY LTD
   REF No: NEW23P-0017A-AA
   DATED: 12 MAY 2025
8. WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS ONE IN FOUR (1V:4H) BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE GEOTECHNICAL ENGINEER TO STANDARD PRACTICE.
9. ALL BATTERS ARE TO BE SCARIFIED TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.
10. NO MATERIALS TO BE STOCKPILED ON FUTURE ALLOTMENTS WITHOUT APPROVAL IN WRITING FROM THE SUPERINTENDENT.
11. REMOVE EXCESS SPOIL AND DEMOLISHED MATERIAL FROM SITE TO LOCATION AND DETAIL DETERMINED BY THE CONTRACTOR. AT CONTRACTORS COST.
12. SUB-GRADE DEFLECTION SHALL BE CONFIRMED BY THE SUPERINTENDENT BY PROOF ROLL WITH A 10 TONNE OR HEAVIER DEAD WEIGHT ROLLER. SUB-GRADE REPLACEMENT MAY BE INSTRUCTED. RIP ROCK SUB-GRADE TO 300mm.

PAVEMENT MARKING AND SIGNAGE NOTES

1. THE WORK SHALL INCLUDE ALL PAVEMENT MARKING TO ROADS, HARDSTANDS, PATHS, CARPARKS AND THE TRAFFICABLE AREAS.
2. PAVEMENT MARKING AND PAINT SHALL BE IN ACCORDANCE WITH AS 1742.2 AND THE RELEVANT LOCAL AND STATE AUTHORITY GUIDELINES AND SPECIFICATIONS.
3. PAVEMENT MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.
4. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm TO 0.40mm.
5. EXISTING PAVEMENT MARKING IN CONFLICT WITH NEW WORKS SHALL BE REMOVED IN ACCORDANCE WITH AS 1742.2. REDUNDANT PAVEMENT PARKING MUST BE REMOVED BY GRINDING, BLASTING OR RESURFACING. PAINTING OVER WITH BLACK BITUMINOUS PAINT IS NOT ACCEPTABLE.
6. RAISED PAVEMENT MARKERS ARE TO BE INSTALLED IN ACCORDANCE WITH AS 1742.2 AND AS DIRECTED BY SUPERINTENDENT.
7. SIGNAGE SHALL BE IN ACCORDANCE WITH AS 1742.1, AS 1742.2, AS 2890.1 AND THE RELEVANT LOCAL AND STATE AUTHORITY GUIDELINES AND SPECIFICATIONS.
8. EXISTING SIGNAGE IN CONFLICT WITH NEW WORKS SHALL BE REMOVED OR RELOCATED AS DIRECTED BY THE SUPERINTENDENT.
9. PAVEMENT MARKING NOTATION IS AS FOLLOWS;

TWO-LANE,TWO-WAY ROAD	S1	TURN LINE	T1
MULTI-LANE UNDIVIDED ROAD	S6	OUTLINE MARKING	ES
DOUBLE ONE-WAY	BS	GIVE WAY LINE (LHS OF ROAD)	TB
DOUBLE TWO-WAY	BB	GIVE WAY LINE (RHS OF ROAD)	TB1
STANDARD BROKEN	L1	STOP LINE	TF
STANDARD CONTINUOUS	L3	PEDESTRIAN CROSSWALK LINE	PCW
EDGE LINE	E1	PEDESTRIAN CROSSING (ZEBRA)	PX
CONTINUITY LINE	C1		

STORMWATER NOTES

1. ALL RCP PIPES SHALL BE CLASS "3" WITH RUBBER RING JOINTS (U.N.O.). ALL PVC-U PIPES SHALL BE CLASS "SN8" WITH RUBBER RING JOINTS OR SOLVENT WELDED (U.N.O.).
2. RCP PIPEWORK INSTALLATION TO AS 3725 AND MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
3. PVC-U PIPEWORK INSTALLATION TO AS 2566 AND MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
4. RCP PIPE BEDDING SHALL BE (U.N.O.) TYPE HS2, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
5. PVC-U PIPE BEDDING SHALL BE IN ACCORDANCE WITH AS 2566 AND MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
6. PULL STORMWATER PIPES TO A MAXIMUM ALLOWABLE DEFLECTION (IN ACCORDANCE WITH MANUFACTURERS SPEC.) TO ENSURE CONTINUATION BENEATH KERB WHERE APPLICABLE.
7. MINIMUM GRADE TO STORMWATER LINES TO BE 1% (U.N.O.).
8. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
9. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
10. WHERE SUBSOIL DRAINAGE LINES PASS UNDER VEHICULAR PAVEMENTS, UNSLOTTED PVC-U SEWER GRADE PIPE SHALL BE USED.
11. PROVIDE 3.0m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FILTER SOCK, AT UPSTREAM END OF EACH PIT.
12. ENSURE ADEQUATE TRENCH FOUNDATION AND BEDDING COMPACTION SPECIFICALLY ADJACENT TO DRAINAGE STRUCTURES AND PROTECTION TO PIPES FROM CONSTRUCTION TRAFFIC. CRACKED STORMWATER PIPES WILL NOT BE ACCEPTED.
13. ALL INLET PIT GRATINGS AND PRECAST INLETS SHALL BE CONSTRUCTED TO COUNCIL'S STANDARD DRAWINGS.
14. ALL PITS DEEPER THAN 0.9m BUT LESS THAN 1.2m TO BE MINIMUM INTERNAL WIDTH 600 x 900 UNO. ALL PITS DEEPER THAN 1.2m TO BE MINIMUM INTERNAL WIDTH 900SQ UNO AND ARE TO BE CONSTRUCTED WITH STEP IRONS IN ACCORDANCE WITH AS 1657 AND DETAILS.
15. IT IS THE CONTRACTORS RESPONSIBILITY TO USE THE APPROPRIATE CONSTRUCTION METHODOLOGY TO COMPACT AROUND/OVER STORMWATER PIPES AND ENSURE NO CRACKING OF THE STORMWATER PIPES OCCURS. CONTRACTOR TO ENSURE IF SELECT PAVEMENT IS REQUIRED FOR ROADS THAT IT IS INSTALLED AND COMPACTED PRIOR TO TRENCHING FOR STORMWATER PIPES.
16. STORMWATER KERB INLET PITS TO BE IN ACCORDANCE WITH MCC STANDARD DRAWING SD039.
    REFER SHEET 331 FOR DESIGN SURFACE LEVEL SETOUT.
17. STORMWATER INTERALLOTMENT PITS TO BE IN ACCORDANCE WITH MCC STANDARD DRAWING SD043.
    SURFACE LEVELTO BE FINISHED TO 100mm BELOW SURROUNDING GROUND LEVEL.

EXISTING SERVICES AND FEATURES

1. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA AS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALL EXISTING UNDERGROUND SERVICES MUST BE LOCATED, EXPOSED AND PROTECTED PRIOR TO EARTHWORKS COMMENCING.
2. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS ARE NOT AFFECTED BY THE WORKS AND ARE NOT DISRUPTED.
3. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
4. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF SUPERINTENDENT FOR TIME OF INTERRUPTION.

SAFETY IN DESIGN

1. THE DESIGN SAFETY ASSESSMENT HAS BEEN CARRIED OUT WITH REFERENCE TO CURRENT WHS REGULATIONS FOR DESIGN TO BE SAFE SO FAR AS REASONABLY PRACTICABLE. HAZARD AND RISK IDENTIFICATION IS BASED ON INFORMATION AVAILABLE TO THE DESIGNER AT THE TIME OF THE DESIGN.
2. ASSESSMENT IS LIMITED TO THE SCOPE OF HIGHVIEW PARTNERS COMMISSION DOCUMENTED IN THIS DRAWING SET.
3. IDENTIFIED HAZARDS ARE THOSE WHICH ARE AFFECTED BY THE DESIGN, AND ARE WITHIN THE CONTROL OF THE DESIGNER.
4. HAZARDS AND RISK RELATING TO CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION MUST BE CONSIDERED BY THE OWNER, CONTRACTOR, USER AND MAINTAINER. ALL SUCH ENTITIES ARE ASSUMED TO BE QUALIFIED, COMPETENT AND EXPERIENCED.
5. SEEK ADVICE WHERE ACTIVITIES ARE OUTSIDE THE FIELD OF EXPERIENCE OF THE OPERATOR/CONTRACTOR/MAINTAINER, INCLUDING BUT NOT LIMITED TO QUALIFIED GEOTECHNICAL ENGINEERS.
6. NO ATYPICAL HAZARDS HAVE BEEN IDENTIFIED IN THE DESIGN PROCESS.

maitland city council
Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

REFER DELFS LASCELLES PROJECT
20353, SHEET 1, REV (TBC)
FOR SURVEY SETOUT INFORMATION

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
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D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: CIVIL NOTES

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	002	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-002.dwg

100 mm ON A1 SIZE ORIGINAL
50
0

maitland city council
Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:15:14 AM

SHEET 101

FUTURE SUBDIVISION
APPROVED SUBDIVISION SW/2025/28
APPROVED SUBDIVISION SW/2023/24

MC01 PREMIER BOULEVARD
MC02
MC03 ACKER ROAD
MC05
MC07 ENFIELD STREET
MC08
MC09
MC10
MC11
MC13
MC14
MC15
AUBURN STREET
CESSNOCK ROAD

ROAD NAMES	
MC01	PREMIER BOULEVARD
MC03	ACKER ROAD
MC07	ENFIELD STREET

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SCALES ON A1 SIZE DRAWING
A1 1:1000 — 0 25 50m — A3 1:2000

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
OVERALL SITE PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	005	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-005.dwg

100 mm ON A1 SIZE ORIGINAL
50
0

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:15:26AM

PROPOSED 6m WIDE ALL WEATHER PRIVATE ACCESS TRACK. REFER SHEET 601 FOR DETAILS

CONSTRUCT 2m WIDE BENCH AT TOE OF RETAINING WALL

BATTER TO NATURAL AT 1V:5H

PROVIDE (D4-5) SIGNBOARD AND GUIDEPOSTS AT 1.5m CENTRES TO RESTRICT UNAUTHORISED ACCESS

FUTURE SUBDIVISION

CONSTRUCT TEMPORARY PIT, PIPE, HEADWALL AND SCOUR PROTECTION. REFER SHEET 324 FOR DETAILS

PROVIDE (D4-5) SIGNBOARD AND GUIDEPOSTS AT 1.5m CENTRES TO RESTRICT UNAUTHORISED ACCESS

CONSTRUCT TEMPORARY HEADWALL AND SCOUR PROTECTION. REFER SHEET 322 FOR DETAILS

CONSTRUCT TEMPORARY TURNING HEAD (R12 MIN) AT 5% MAX LONGITUDINAL GRADE. PROVIDE 2 COAT SEAL

TEMPORARY DRAINAGE SWALE SW02. REFER SHEET 341 FOR DETAILS

CONSTRUCT TEMPORARY HEADWALL AND SCOUR PROTECTION. REFER SHEET 324 FOR DETAILS

PARTIALLY CONSTRUCT PIT AND COVER WITH TRAFFICABLE STEEL PLATE

CONSTRUCT TEMPORARY TURNING HEAD (R12 MIN) AT 5% MAX LONGITUDINAL GRADE. PROVIDE 2 COAT SEAL

CONSTRUCT TEMPORARY HEADWALL AND SCOUR PROTECTION. REFER SHEET 321 FOR DETAILS

PROVIDE (D4-5) SIGNBOARD AND GUIDEPOSTS AT 1.5m CENTRES TO RESTRICT UNAUTHORISED ACCESS

CONSTRUCT 2m WIDE BENCH AT TOE OF RETAINING WALL

BATTER TO NATURAL AT 1V:5H

PROVIDE (D4-5) SIGNBOARD AND GUIDEPOSTS AT 1.5m CENTRES TO RESTRICT UNAUTHORISED ACCESS

REFER INTERSECITON DETAIL SHEET 253

SWALE SW01. FULLY TURFED LINED

STAGE 2 OF LOCAL PARK TO BE CONSTRUCTED CONCURRENTLY. REFER SEPARATE CC DRAWINGS 1001(1A9)-CE BY HIGHVIEW PARTNERS

DISABLED CARPARK, REFER SHEET 254 FOR DETAILS

PULL PIPES

ONE-WAY CROSS FALL

REFER INTERSECITON DETAIL SHEET 251

SAWCUT AND REMOVE EXISTING KERB AND MAKE SMOOTH CONNECTION

APPROVED SUBDIVISION SW/2025/28

APPROVED SUBDIVISION SW/2023/24

AUBURN STREET

MC01 MC03 MC05 MC07

901 902 903 904 905 906 907 908 909 910 911 812 813 814 815 816 817 818 819 820 801 802 803 804 805 806 807 808 809 810 511 512 513 514 515 516 517 518 161 160 101

1.5m FOOTPATH RT KERB SA KERB 2.5m SHARED PATH SB KERB

LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- AB VERTICAL RETAINING WALL
- POST AND SLEEPER RETAINING WALL
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE

(A) EASEMENT TO DRAIN WATER 1.5m WIDE
(B) EASEMENT TO DRAIN WATER 2.5m WIDE
(C) EASEMENT TO DRAIN WATER 2.0m WIDE

CONTOUR INTERVAL 0.5m

NOTES:
1. FOR TYPICAL ROAD SECTIONS, REFER SHEET 201.
2. PULL STORMWATER PIPES. REFER SHEET 002 FOR DETAILS.

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SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
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100 mm ON A1 SIZE ORIGINAL

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:500, 0, 12.5, 25.0m, A3 1:1000

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

Highview Partners (NSW) Pty Ltd
1 Dickson Road Loxford, NSW 2326
ABN 65 675 146 862

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

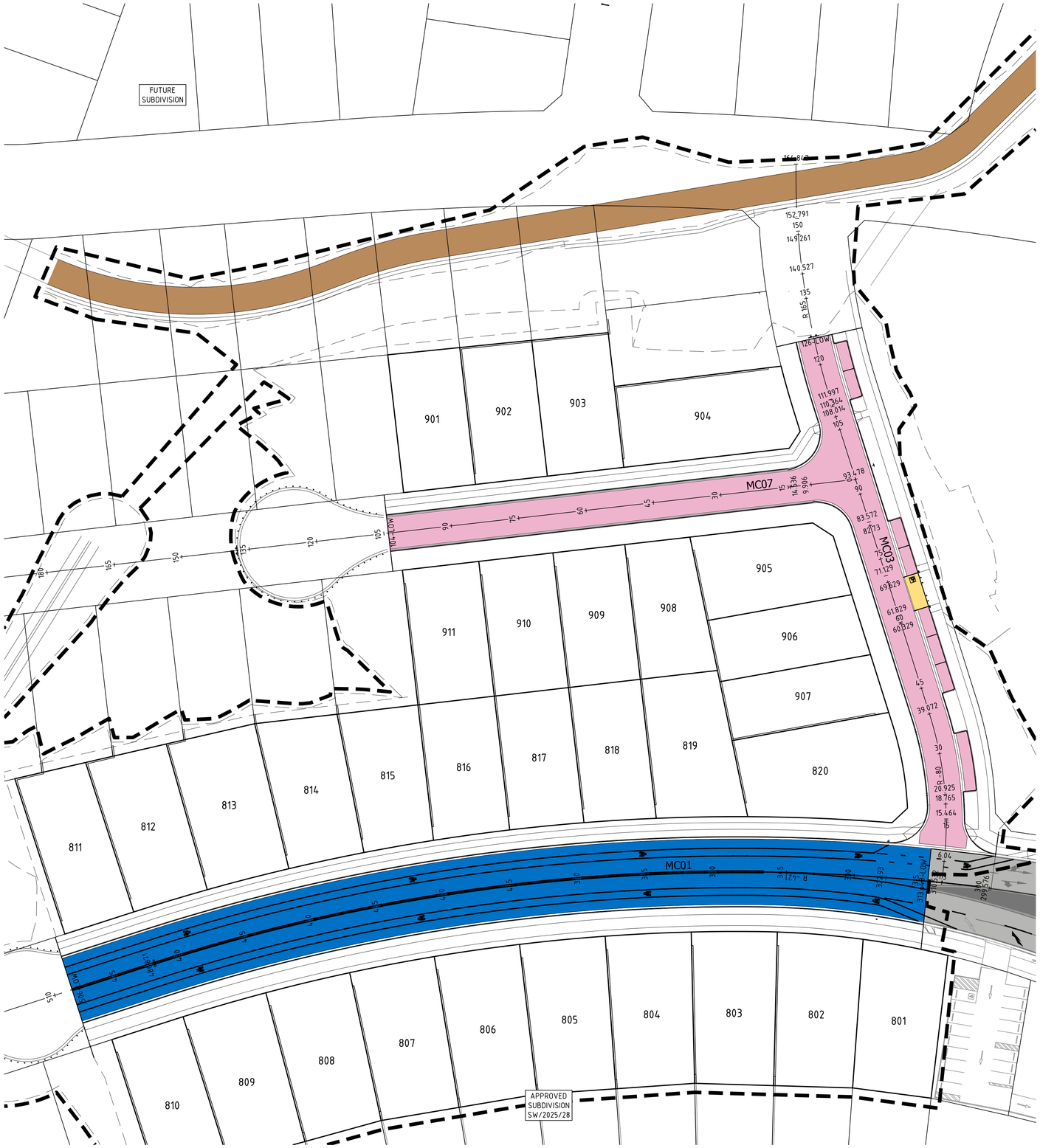
DRAWING TITLE: DETAIL PLAN

ISSUE STATUS: CONSTRUCTION ISSUE

PROJECT	CODE	DRG NO.	REV
1001(1A8)	CE	101	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-101.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:15:34 AM



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Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction

LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- EXISTING PAVEMENT
- PAVEMENT TYPE 1
- PAVEMENT TYPE 2

PAVEMENT DESIGN

ROAD	ROAD CLASSIFICATION	DESIGN TRAFFIC LOADING ESA's	DESIGN SUBGRADE CBR (%) 10 DAY	PAVEMENT TYPE	WEARING COURSE (mm)	PRIMER SEAL (mm)	BASE COURSE (mm)	SUBBASE (mm)	TOTAL THICKNESS (mm)
MC01	SUB ARTERIAL	$1x\ 10^7$	5	TYPE 1	50 AC14	10	160	300	510
MC03, MC07	LOCAL - SECONDARY	$2x\ 10^5$	8	TYPE 2	30 AC10	10	120	150	300
MC03	DISABLED PARKING	RIGID PAVEMENT, REFER SHEET 254 FOR DETAILS							
ACCESS RD	TEMPORARY ACCESS ROAD	150mm THICK, DGB20							

PAVEMENT MATERIAL SPECIFICATION AND COMPACTION REQUIREMENTS

PAVEMENT COURSE	MATERIAL SPECIFICATION	COMPACTION REQUIREMENTS
WEARING COURSE (AC)	MAITLAND CITY COUNCIL SPEC.	MAITLAND CITY COUNCIL SPEC.
BASE COURSE	CBR ≥80%, PI ≤6%	98% MODIFIED (AS1289 5.2.1)
SUBBASE	CBR ≥30%, PI ≤12%	95% MODIFIED (AS1289 5.2.1)
SELECT FILL / STABILISED SUBGRADE	SELECT FILL, CBR ≥15%, PI ≤15% MAX PARTICLE SIZE 75mm OR SUBBASE MATERIAL (2% CEMENT STABILISED WHERE REQUIRED) OR STABILISED SUBGRADE - LIME STABILISED WITH EITHER 3% QUICKLIME OR 4% HYDRATED LIME TO ACHIEVE CBR ≥10%	95% MODIFIED (AS1289 5.2.1)
SUBGRADE (TOP 300mm)	MINIMUM CBR = DESIGN CBR	100% STANDARD (AS1289 5.1.1)
SUBGRADE / FILL BELOW	MINIMUM CBR = DESIGN CBR	95% STANDARD (AS1289 5.1.1)

NOTES:

1. REFER GEOTECHNICAL REPORT BY QUALTEST LABORATORY (NSW) PTY LTD, REF No: NEW23P-0017B-AC.
2. THE NEED FOR A SELECT FILL WORKING PLATFORM IS NOT ANTICIPATED BASED ON GEOTECHNICAL TEST RESULTS. SHOULD SUBGRADE IMPROVEMENT BE REQUIRED AFTER PROOF ROLL, THE GEOTECHNICAL ENGINEER IS TO NOMINATE THE DEPTH AND EXTENT REQUIRED.

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100 mm ON A1 SIZE ORIGINAL

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:500 / A3 1:1000 (0, 12.5, 25.0m)

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

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ABN 65 675 146 862

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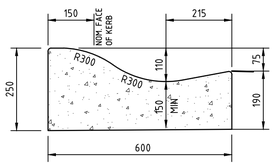
PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: PAVEMENT PLAN

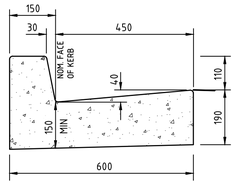
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	121	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-121.dwg

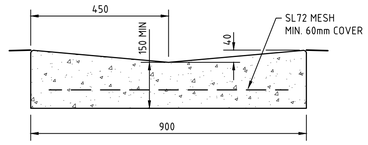
Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:15:42 AM



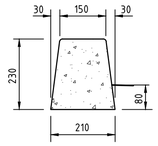
ROLL KERB & GUTTER
(RT KERB)
SOURCE: MCC STD DRG SD004



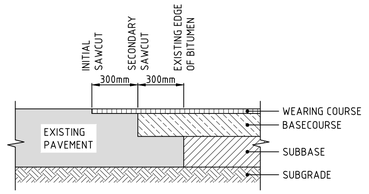
STANDARD KERB & GUTTER
(SA KERB)
SOURCE: MCC STD DRG SD004



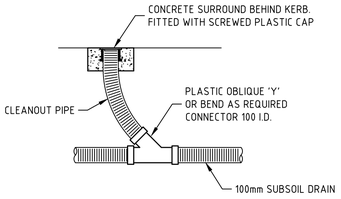
DISH GUTTER
(MODIFIED SB)
SOURCE: MCC STD DRG SD004



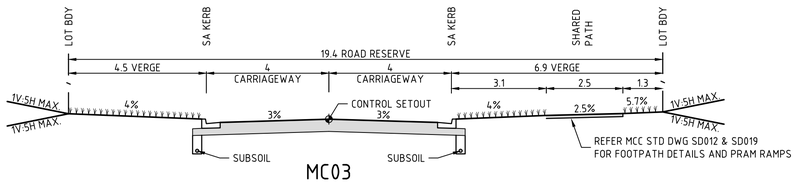
KERB ONLY OR BARRIER KERB
(SM KERB)
SOURCE: MCC STD DRG SD004



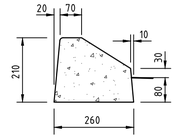
PAVEMENT SAWCUT DETAIL
NOT TO SCALE



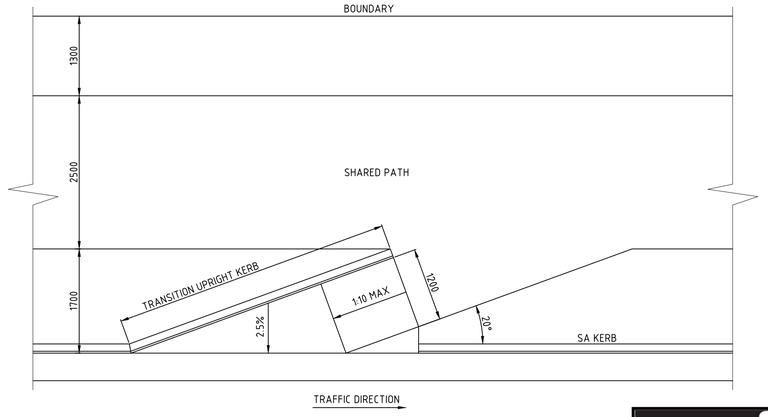
INSTALL AT 60m. MAX. INTERVALS
FLUSHING POINT
NOT TO SCALE
SOURCE: MCC STD DRG SD035



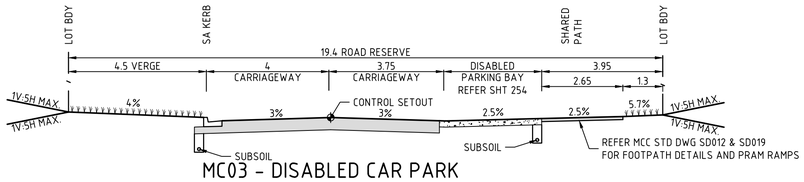
MC03
TYPICAL CROSS SECTION ROAD
SCALE 1:100



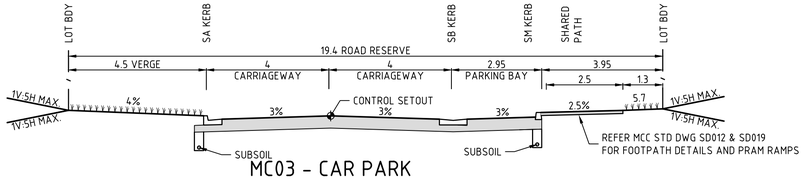
MOUNTABLE KERB
(SF KERB)
SOURCE: MCC STD DRG SD004



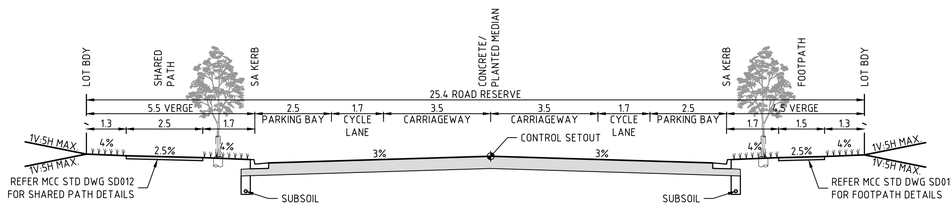
CYCLE OFF RAMP DETAIL
NOT TO SCALE



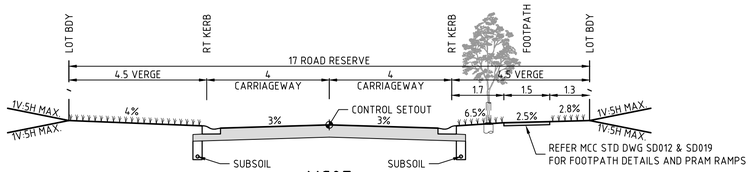
MC03 - DISABLED CAR PARK
TYPICAL CROSS SECTION ROAD
SCALE 1:100



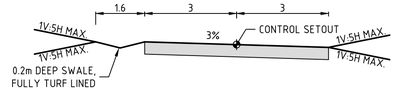
MC03 - CAR PARK
TYPICAL CROSS SECTION ROAD
SCALE 1:100



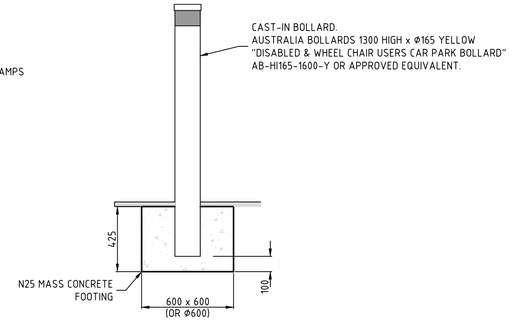
MC01
TYPICAL CROSS SECTION ROAD
SCALE 1:100



MC07
TYPICAL CROSS SECTION ROAD
SCALE 1:100



ALL WEATHER PRIVATE ACCESS TRACK
TYPICAL CROSS SECTION ROAD:
SCALE 1:100



TYPICAL SHARED SPACE IN GROUND BOLLARD
SCALE 1:20

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:100 — 0 2.5 5.0m — A3 1:200

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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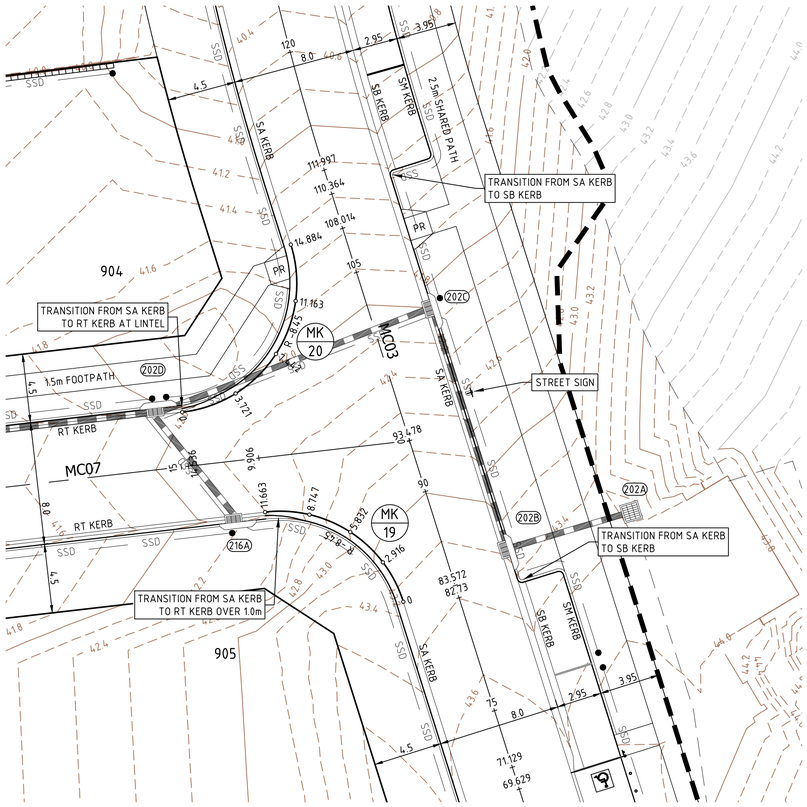
PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: TYPICAL ROAD CROSS SECTIONS AND DETAILS

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	201	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-201.dwg

100 mm ON A1 SIZE ORIGINAL
50
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Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:18:34 AM



KERB RETURNS MK19 & MK20

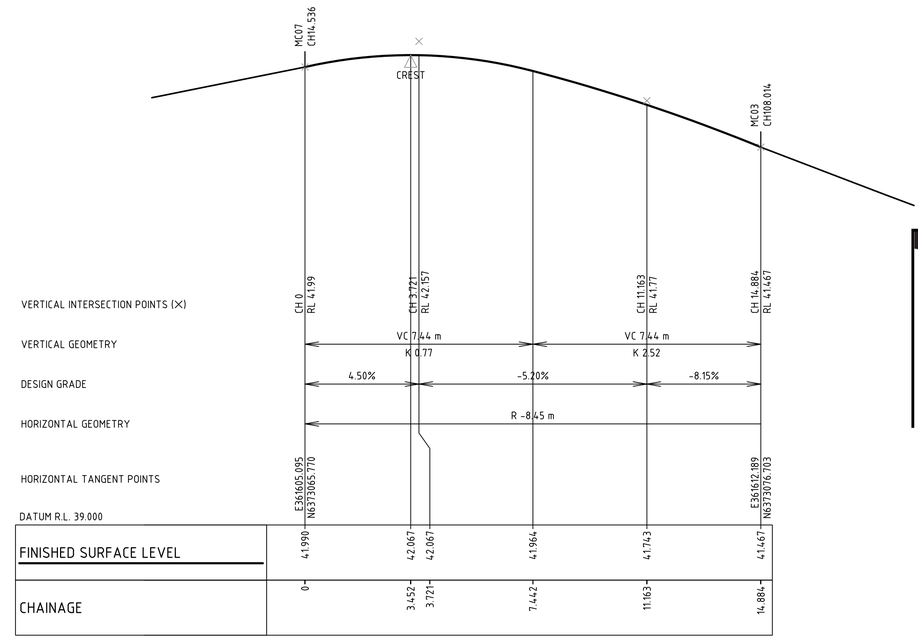
SCALE 1:200

LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- SUBSOIL DRAINAGE AND FLUSH POINT

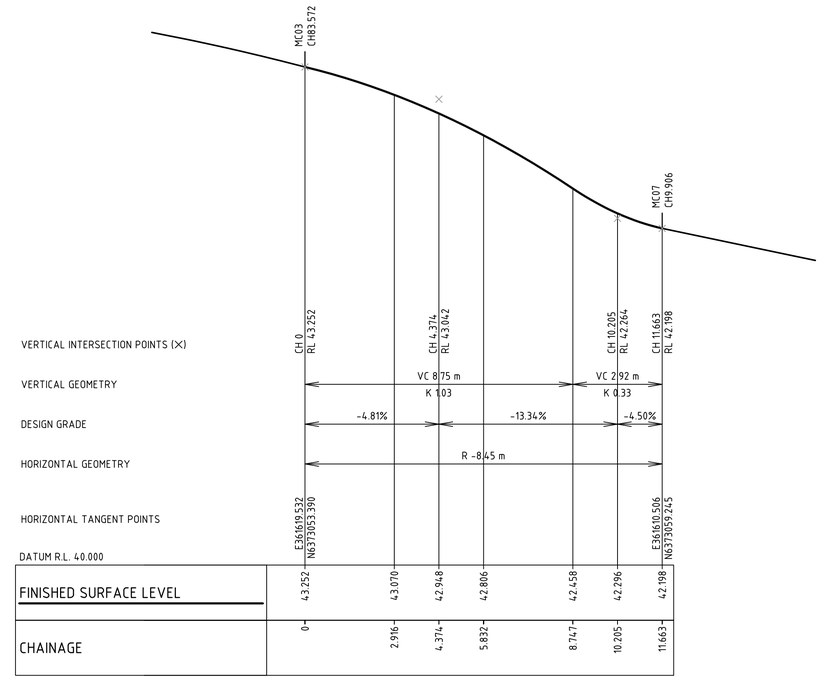
CONTOUR INTERVAL 0.2m

KERB RETURN SETOUT IS LIP OF KERB



MK20 - LONGITUDINAL SECTION

HORIZONTAL SCALE 1:100, VERTICAL SCALE 1:20



MK19 - LONGITUDINAL SECTION

HORIZONTAL SCALE 1:100, VERTICAL SCALE 1:20

NOTES:

1. SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE APPROVED PLANS AND ELECTRONIC DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY, THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.
2. FOR TYPICAL ROAD SECTIONS, REFER SHEET 201.
3. FOOTPATHS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD012.
4. PRAM RAMPS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD019.
5. STREET SIGNS TO BE LOCATED AND INSTALLED IN ACCORDANCE WITH MCC STANDARD DRAWING SD029.

maitland city council

Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
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D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING

HORIZ A1 1:100 (0, 2.5, 5.0m) A3 1:200

VERT A1 1:20 (0, 0.5, 1.0m) A3 1:40

A1 1:200 (0, 5.0, 10.0m) A3 1:400

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING

_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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ABN 65 675 146 862

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

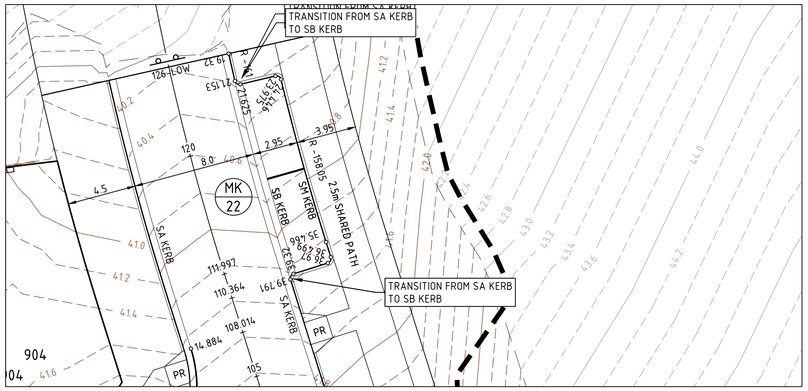
DRAWING TITLE: INTERSECTION PLAN: KERB RETURNS MK19 & MK20

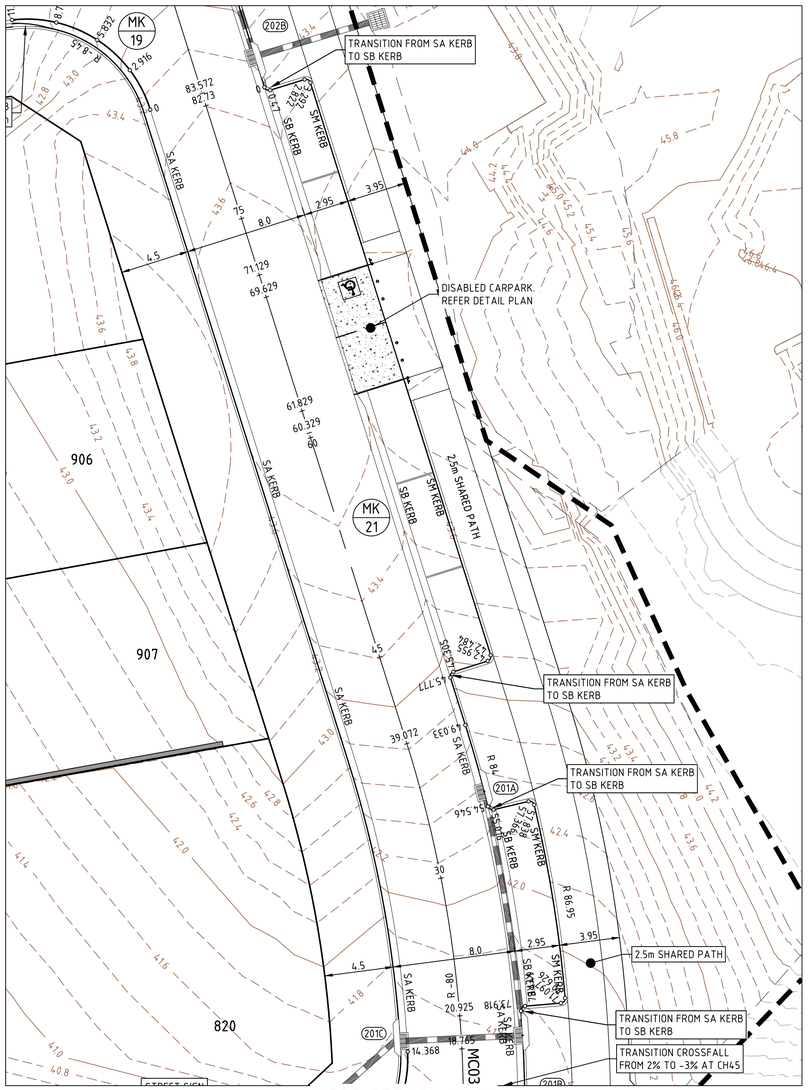
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	253	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-253.dwg

100 mm ON A1 SIZE ORIGINAL

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:18:57AM





KERB RETURN MK21

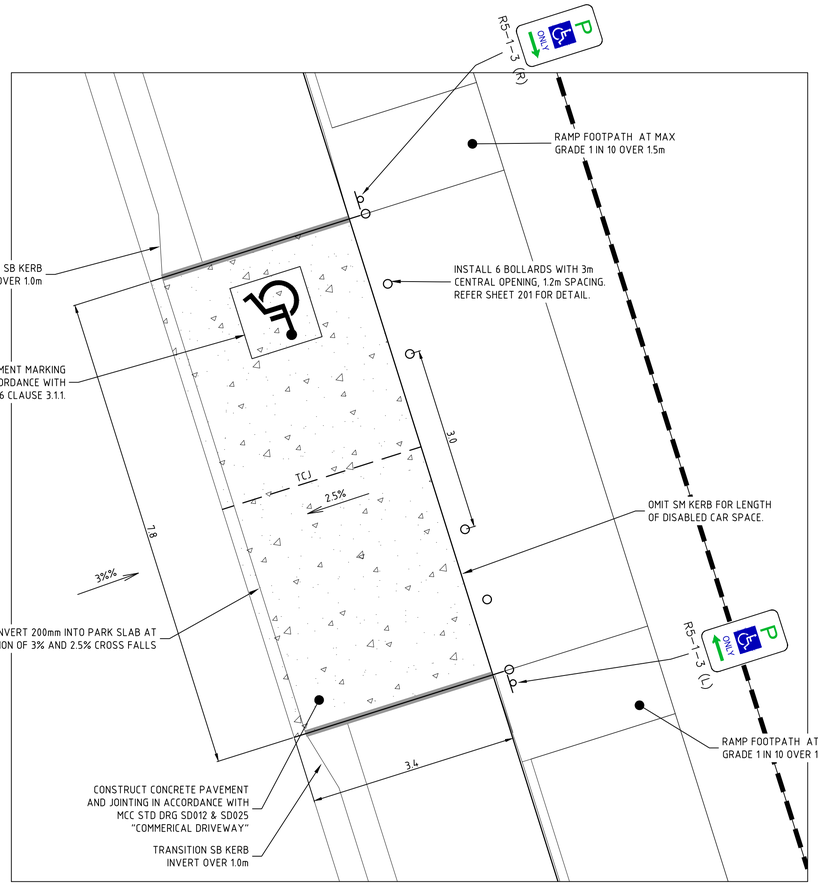
SCALE 1:200

LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- SSD — SUBSOIL DRAINAGE AND FLUSH POINT

CONTOUR INTERVAL 0.2m

KERB RETURN SETOUT IS LIP OF KERB



DETAIL PLAN

SCALE 1:50

NOTES:

1. SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE APPROVED PLANS AND ELECTRONIC DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY, THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.
2. FOR TYPICAL ROAD SECTIONS, REFER SHEET 201.
3. FOOTPATHS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD012.
4. PRAM RAMPS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC STANDARD DRAWING SD019.
5. STREET SIGNS TO BE LOCATED AND INSTALLED IN ACCORDANCE WITH MCC STANDARD DRAWING SD029.

MK21 HORIZONTAL SETOUT

PT	CHAINAGE	EASTING	NORTHING	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	361626.986	6373054.855	72°44'02.10"	ARC	-0.300	0.470
CT	0.470	361627.361	6373054.659	72°44'02.10"	LINE		2.352
TC	2.822	361629.608	6373055.357	72°44'02.10"	ARC	0.300	0.470
CT	3.292	361629.983	6373055.160	162°30'58.14"	LINE		39.192
TC	42.484	361641.757	6373017.779	162°30'58.14"	ARC	0.300	0.471
CT	42.955	361641.561	6373017.403	252°30'56.36"	LINE		2.350
TC	45.305	361639.320	6373016.697	252°30'56.36"	ARC	-0.300	0.471
CT	45.777	361639.124	6373016.321	162°30'58.14"	LINE		3.257
DIS	49.033	361640.102	6373013.215	162°30'24.43"	ARC	84.000	5.512
CC	54.546	361641.586	6373007.907	166°16'00.54"	ARC	-0.300	0.470
CT	55.016	361641.947	6373007.686	76°28'25.97"	LINE		2.350
TC	57.366	361644.232	6373008.236	76°28'25.97"	ARC	0.300	0.472
CC	57.838	361644.594	6373008.013	166°40'09.03"	ARC	86.950	12.788
CC	70.626	361646.619	6372995.398	175°05'44.75"	ARC	0.300	0.471
CT	71.097	361646.345	6372995.074	265°06'10.26"	LINE		2.352
TC	73.449	361644.002	6372994.873	265°06'10.26"	ARC	-0.300	0.469
E	73.918	361643.729	6372994.551	175°30'12.13"			

MK22 HORIZONTAL SETOUT

PT	CHAINAGE	EASTING	NORTHING	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	361612.161	6373109.911	172°25'22.41"	ARC	-161.000	0.000
CC	0.000	361612.161	6373109.911	172°25'22.43"	ARC	-0.300	0.472
CT	0.472	361612.498	6373109.653	82°18'57.36"	LINE		2.350
DIS	2.822	361614.827	6373109.968	82°18'47.80"	ARC	0.300	0.471
CC	3.292	361615.165	6373109.711	172°12'26.59"	ARC	-158.050	12.166
CC	15.459	361617.276	6373097.732	167°47'48.71"	ARC	0.300	0.471
CT	15.930	361617.047	6373097.376	257°41'17.94"	LINE		2.350
TC	18.280	361614.751	6373096.875	257°41'17.94"	ARC	-0.300	0.472
CC	18.751	361614.522	6373096.517	167°34'52.87"	ARC	-161.000	2.402
CC	21.153	361615.056	6373094.176	166°43'35.92"	ARC	-0.300	0.472
CT	21.625	361615.418	6373093.953	76°37'10.86"	LINE		2.350
DIS	23.975	361617.704	6373094.496	76°37'01.83"	ARC	0.300	0.471
CC	24.446	361618.065	6373094.275	166°30'40.08"	ARC	-158.050	11.020
CT	35.466	361621.007	6373083.657	162°30'58.14"	LINE		1.033
TC	36.499	361621.317	6373082.671	162°30'58.14"	ARC	0.300	0.471
CT	36.970	361621.121	6373082.295	252°30'58.14"	LINE		2.350
TC	39.320	361618.880	6373081.589	252°30'58.14"	ARC	-0.300	0.471
E	39.791	361618.684	6373081.213	162°31'05.46"			

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Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING
A1 1:200 — 0 5.0 10.0m — A3 1:400
A1 1:50 — 0 1.25 2.5 m — A3 1:100

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

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1 Dickson Road Loxford, NSW 2326
ABN 65 675 146 862

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: INTERSECTION PLAN: KERB RETURNS MK21 & MK22

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	254	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-254.dwg

100 mm ON A1 SIZE ORIGINAL

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:19:18AM

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SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction

LEGEND:

- LIMIT OF
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- DESIGN SURFACE CONTOUR
- STORMWATER PIT NUMBER
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- FUTURE STORMWATER DRAINAGE
- XXXha STORMWATER CATCHMENT NUMBER & AREA

CONTOUR INTERVAL 1.0m

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100 mm ON A1 SIZE ORIGINAL

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:750 (0, 15.0, 30.0, 37.5m) A3 1:1500

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: STORMWATER CATCHMENT PLAN

ISSUE STATUS: CONSTRUCTION ISSUE

PROJECT	CODE	DRG NO.	REV
1001(1A8)	CE	301	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-301.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:19:30AM

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT

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SCALES ON A1 SIZE DRAWING

A1 1:750 — 0 15.0 30.0 37.5m — A3 1:1500

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
MINOR FLOOD WIDTHS PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	305	0

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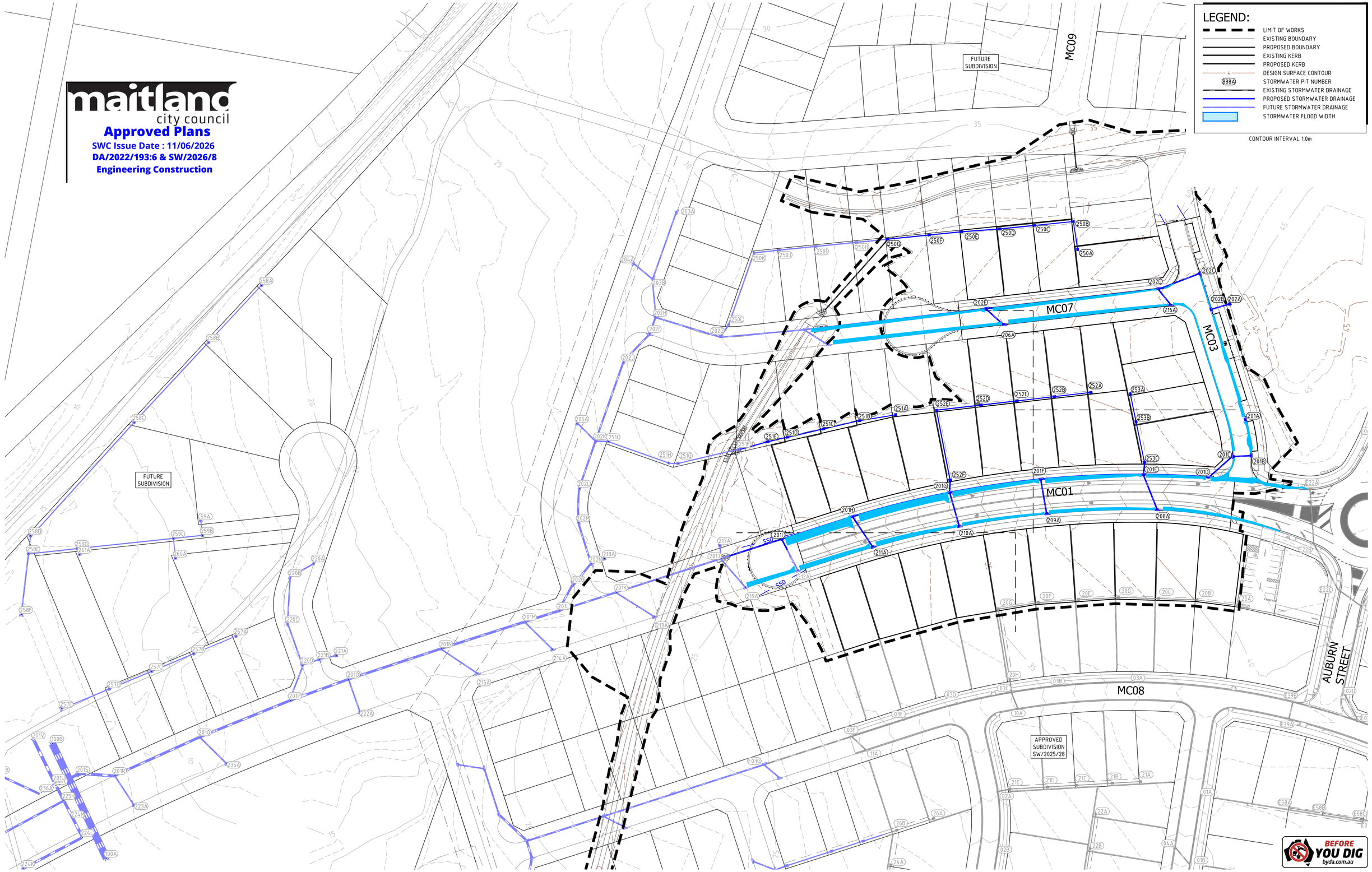
100 mm ON A1 SIZE ORIGINAL

0 50

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:19:42 AM

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT

McCLOYGROUP

SCALES ON A1 SIZE DRAWING

A1 1:750 — 0 15.0 30.0 37.5m — A3 1:1500

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
MAJOR FLOOD WIDTHS PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	306	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-306.dwg

100 mm ON A1 SIZE ORIGINAL

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:21:42 AM

JOINS SHEET 404

JOINS SHEET 402

817 818 819 820 805 804 803 802 801 160

RW 66 RW 67 RW 68 RW 69 RW 55 RW 56 RW 57 RW 58

FUTURE SUBDIVISION

MAKE GOOD CONNECTION TO EXISTING SUBSOIL

SAWCUT AND REMOVE EXISTING KERB AND CONSTRUCT CYCLE RAMP

SAWCUT AND REMOVE EXISTING KERB AND CONSTRUCT CYCLE RAMP

MAKE GOOD CONNECTION TO EXISTING SUBSOIL

MAKE GOOD CONNECTION TO EXISTING SUBSOIL

MAKE GOOD CONNECTION TO EXISTING SUBSOIL

MAKE GOOD CONNECTION TO EXISTING SUBSOIL

APPROVED SUBDIVISION SW/2025/28

APPROVED SUBDIVISION SW/2023/24

MC01 MC03

LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- AB VERTICAL RETAINING WALL
- POST AND SLEEPER RETAINING WALL
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- FP SSD — SUBSOIL DRAINAGE AND FLUSH POINT. OUTLET TO STORMWATER NETWORK AS SHOWN. U.N.O.
- SUBSOIL OUTLET TO KERB ADAPTER

CONTOUR INTERVAL 0.2m

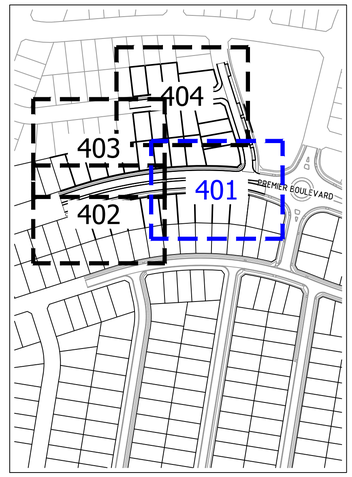
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SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

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KEY PLAN

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT

McCLOYGROUP

SCALES ON A1 SIZE DRAWING

A1 1:200 — 0 5.0 10.0m — A3 1:400

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING

_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

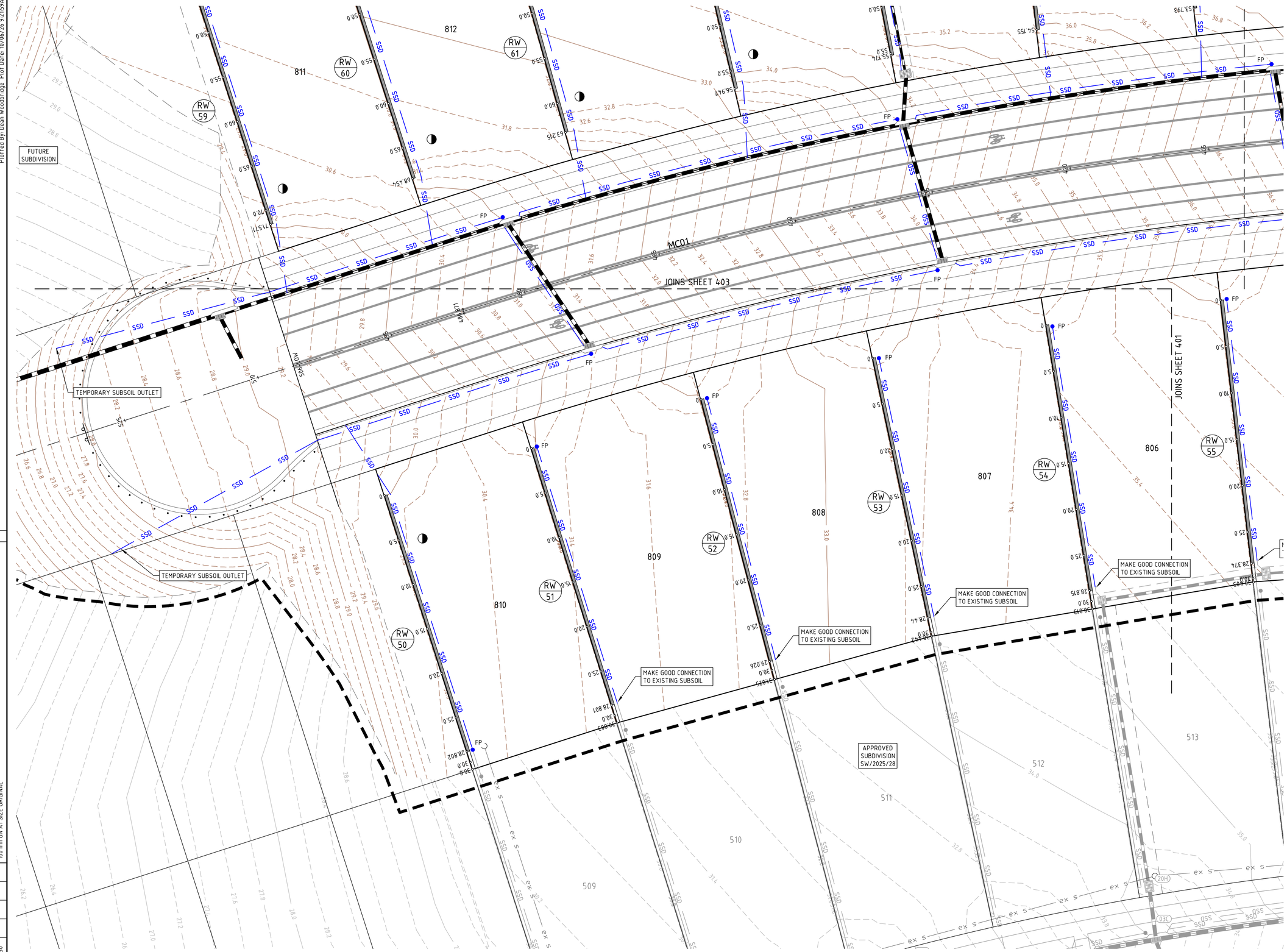
DRAWING TITLE: RETAINING WALL PLAN: SHEET 01

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	401	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-401.dwg

100 mm ON A1 SIZE ORIGINAL

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:21:59 AM



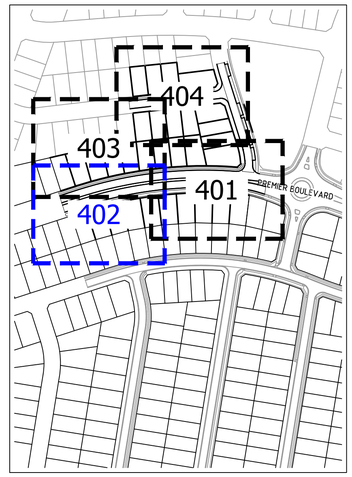
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SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

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KEY PLAN

NOT TO SCALE

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT

McCLOYGROUP

SCALES ON A1 SIZE DRAWING

A1 1:200 — 0 — 5.0 — 10.0m — A3 1:400

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
RETAINING WALL PLAN: SHEET 02

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	402	0

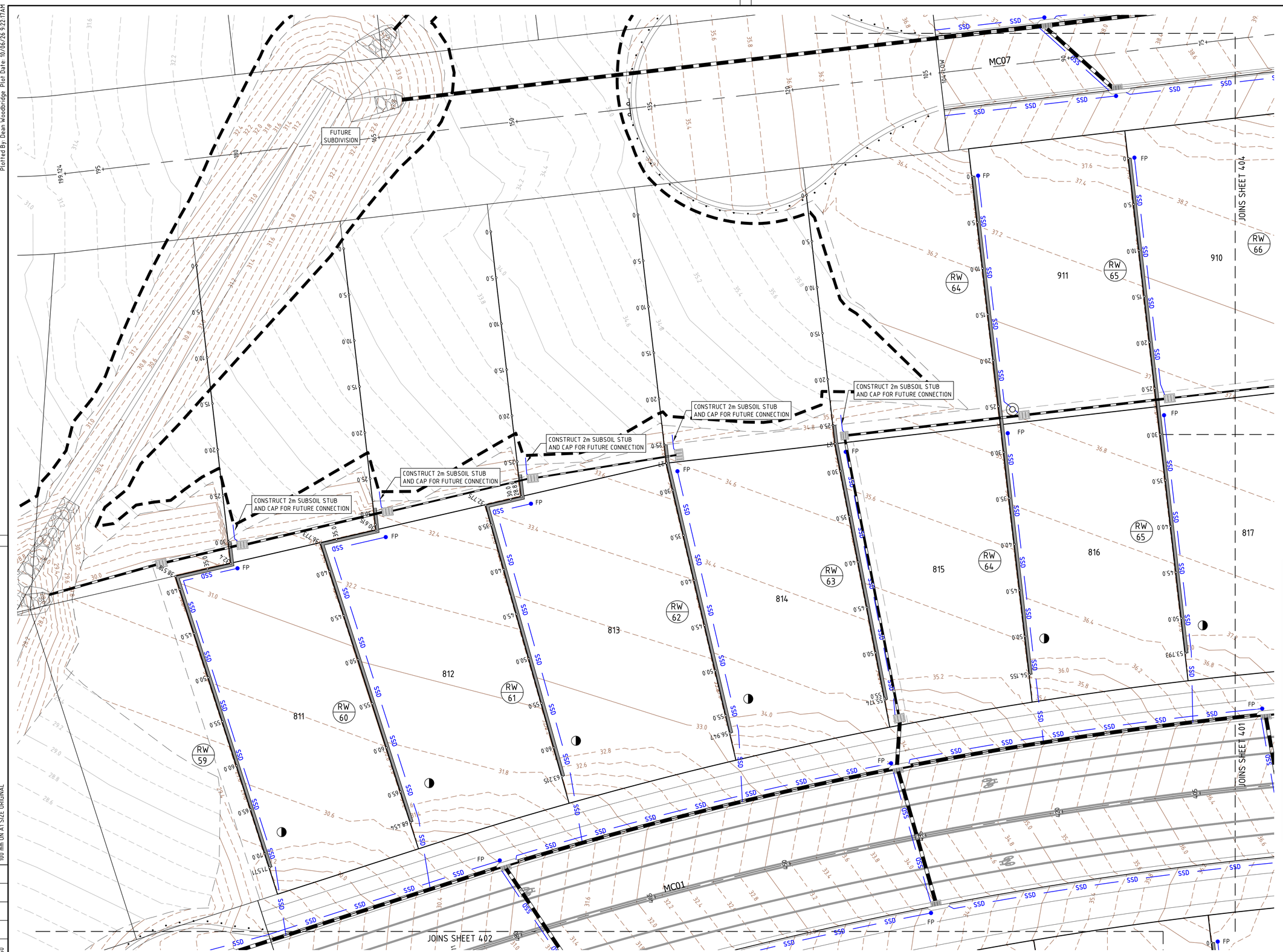
CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-402.dwg

100 mm ON A1 SIZE ORIGINAL

50

0

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:22:17 AM



LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- AB VERTICAL RETAINING WALL
- POST AND SLEEPER RETAINING WALL
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- SUBSOIL DRAINAGE AND FLUSH POINT. OUTLET TO STORMWATER NETWORK AS SHOWN. U.N.O.
- SUBSOIL OUTLET TO KERB ADAPTER

CONTOUR INTERVAL 0.2m

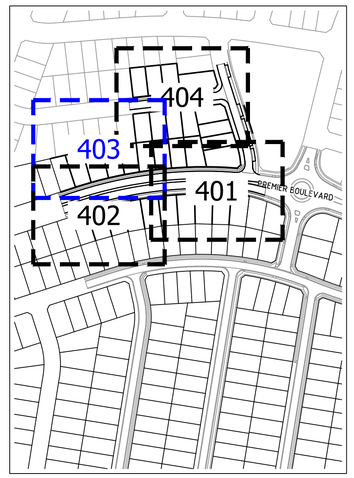
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Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction



KEY PLAN

NOT TO SCALE

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:200, 0, 5.0, 10.0m, A3 1:400

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: RETAINING WALL PLAN: SHEET 03

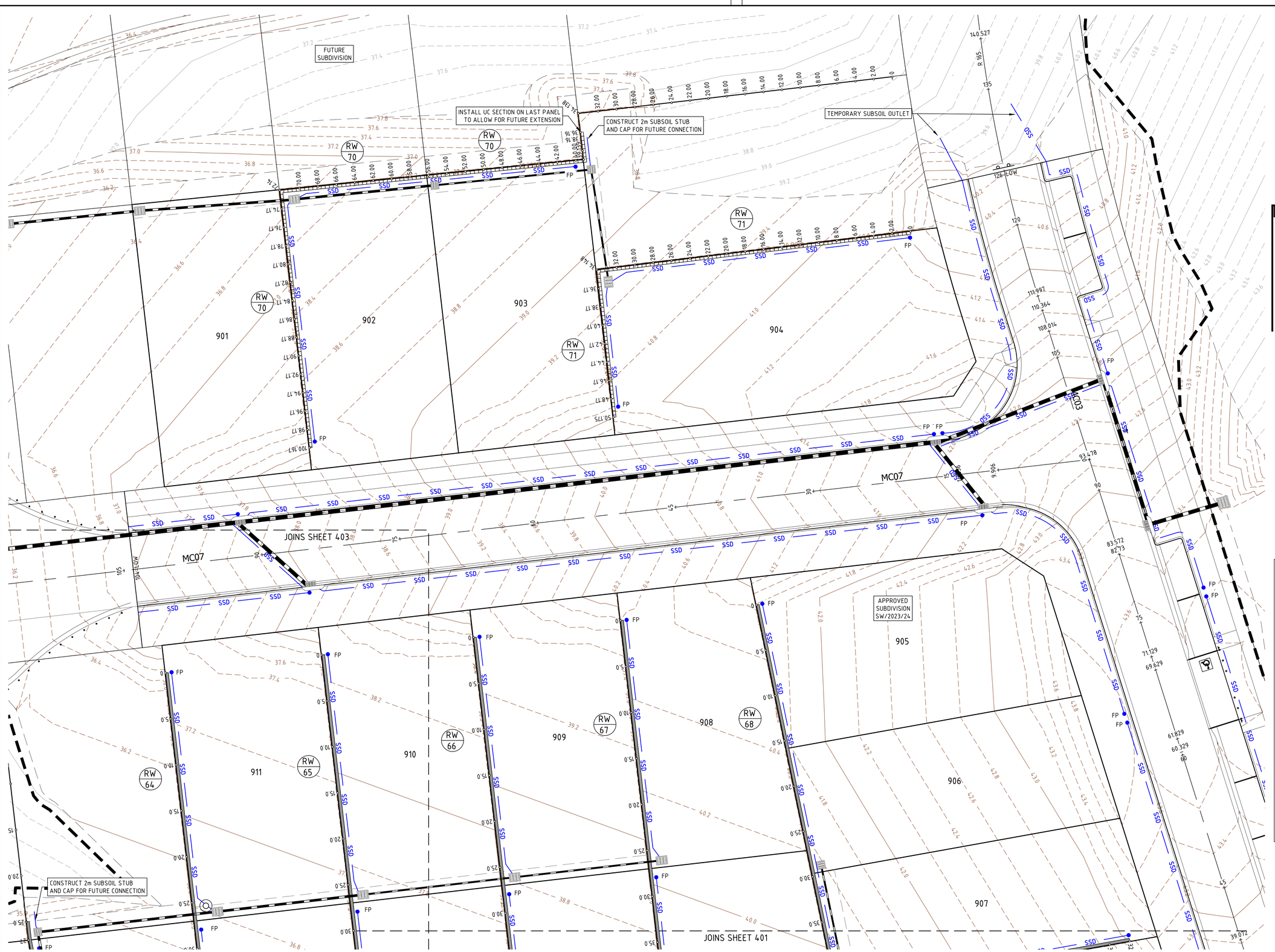
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	403	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-403.dwg

100 mm ON A1 SIZE ORIGINAL

0 50

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:22:34 AM



LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- AB VERTICAL RETAINING WALL
- POST AND SLEEPER RETAINING WALL
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- FP SSD — SUBSOIL DRAINAGE AND FLUSH POINT. OUTLET TO STORMWATER NETWORK AS SHOWN. U.N.O.
- SUBSOIL OUTLET TO KERB ADAPTER

CONTOUR INTERVAL 0.2m

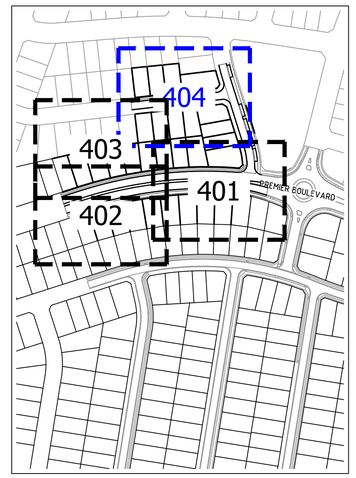
maitland city council

Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

Engineering Construction



KEY PLAN

NOT TO SCALE

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100 mm ON A1 SIZE ORIGINAL

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:200 — 0 5.0 10.0m — A3 1:400

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

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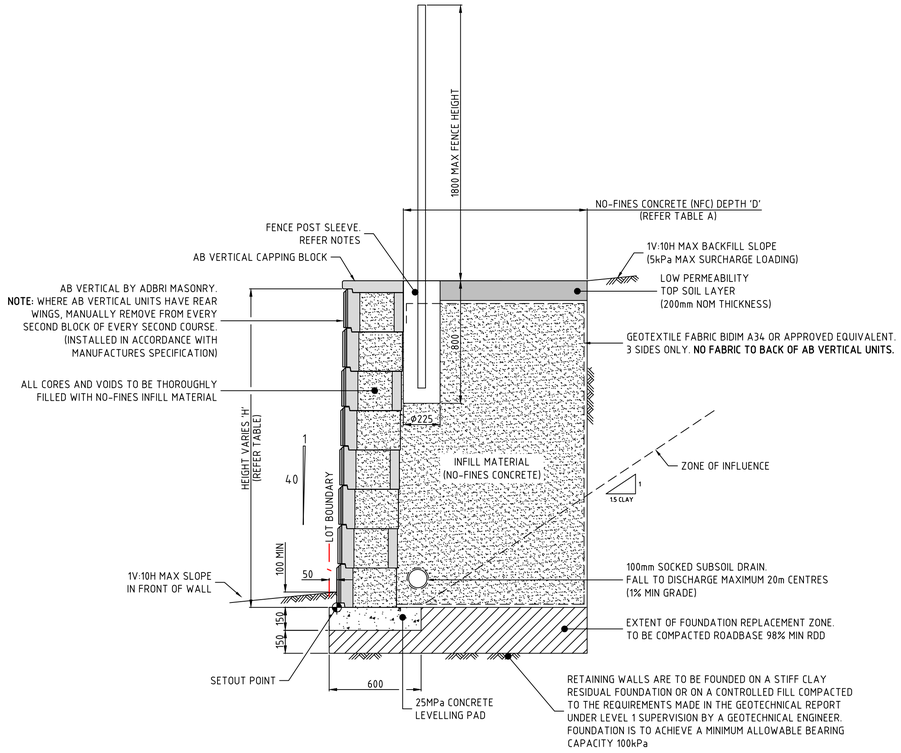
PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: RETAINING WALL PLAN: SHEET 04

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	404	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-404.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:05AM



AB VERTICAL RETAINING WALL TYPICAL DETAIL

NOT TO SCALE

RETAINING WALL NOTES:

1. BLOCK COLOUR TO BE CONFIRMED BY SUPERINTENDENT IN WRITING PRIOR TO PROCUREMENT OF BLOCKS.
2. PLACE NO-FINES CONCRETE IN SINGLE BLOCK LIFTS OF 200mm. ENSURE NO-FINES IS MANIPULATED INTO THE 'V' SHAPED VOIDS BETWEEN THE UNITS TO ENSURE ADEQUATE BOND BETWEEN BLOCK AND CONCRETE MASS.
3. CONSTRUCTION OF WALL TO BE IN ACCORDANCE WITH ADBRI "SEGMENTAL RETAINING WALL SYSTEMS" TECHNICAL SPECIFICATION.
4. RETAINING WALL CONTRACTOR TO INSTALL SLEEVE TO SUIT EXCLUSION FENCE. FENCE TO BE INSTALLED IN ACCORDANCE WITH ADBRI "SEGMENTAL RETAINING WALL SYSTEMS" TECHNICAL SPECIFICATION.
5. REFER ADBRI "SEGMENTAL RETAINING WALL SYSTEMS" TECHNICAL SPECIFICATION FOR CURVED AND CORNER DETAILS.

NO-FINES CONCRETE NOTES:

1. NO-FINES CONCRETE SHALL CONSIST OF CEMENT, WATER AND COARSE AGGREGATE. CEMENT SHALL COMPLY WITH THE DEFINITIONS FOR CEMENT AS PER AS3972:1997-'PORTLAND AND BLENDED CEMENTS'. THE QUALITY OF CEMENT IS SPECIFIED AS 210kg/cu.m WITH A TOTAL WATER/CEMENT RATIO BETWEEN 0.45 AND 0.55.
2. THE PARTICLE SIZE DISTRIBUTION OF THE AGGREGATE SHALL COMPLY WITH THE LIMITATIONS FOR THE NORMAL SINGLE SIZED 20mm AGGREGATE SPECIFIED IN AS2758.1.
3. 15MPa NO-FINES CONCRETE WITH A 6:1 RATIO (AGGREGATE/CEMENT).
4. THE VOID RATIO OF THE MIX IS EXPECTED TO BE BETWEEN 20-30% AND MUST BE FREE DRAINING.
5. THE COMPRESSIVE STRENGTH FOR DESIGN PURPOSES, SHOULD GENERALLY EXCEED 15MPa.
6. THIS PRODUCT HAS NO SLUMP AND EXERTS SIMILAR PRESSURE ON THE SOIL AND FORMWORK WHEN COMPARED TO LOOSELY PLACED AGGREGATE.
7. ENSURE THAT THE BLOCKS ARE THOROUGHLY WETTED PRIOR TO POURING AND THE CORES OF THE AB VERTICAL UNITS FILLED WITH NO-FINES CONCRETE.

RETAINING WALL LOADING NOTES:

1. THE RETAINING WALLS HAVE NOT BEEN DESIGNED FOR SURCHARGE LOADING OF PROPOSED BUILDINGS, POOLS OR OTHER SIGNIFICANT STRUCTURES. IT IS THE RESPONSIBILITY OF THE DESIGNER/BUILDER OF ANY PROPOSED BUILDINGS OR OTHER STRUCTURES THAT ARE BUILT BEHIND THE RETAINING WALL, TO ENSURE THAT THE FOOTING LOADS ARE BEYOND THE ZONE OF INFLUENCE OF ANY RETAINING WALLS.

TABLE A: REQUIRED DEPTH OF NO-FINES CONCRETE

'H' HEIGHT (mm)	'D' NFC MIN DEPTH (mm)
≤600	300
≤800	350
≤1000	450
≤1200	600
≤1400	700
≤1800	800

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Approved Plans

SWC Issue Date : 11/06/2026

DA/2022/193:6 & SW/2026/8

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:20 | 0 0.5 1.0m | A3 1:40

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: RETAINING WALL DETAILS: SHEET 01

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	451	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-451.dwg

100 mm ON A1 SIZE ORIGINAL
0 50

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:16AM

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SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

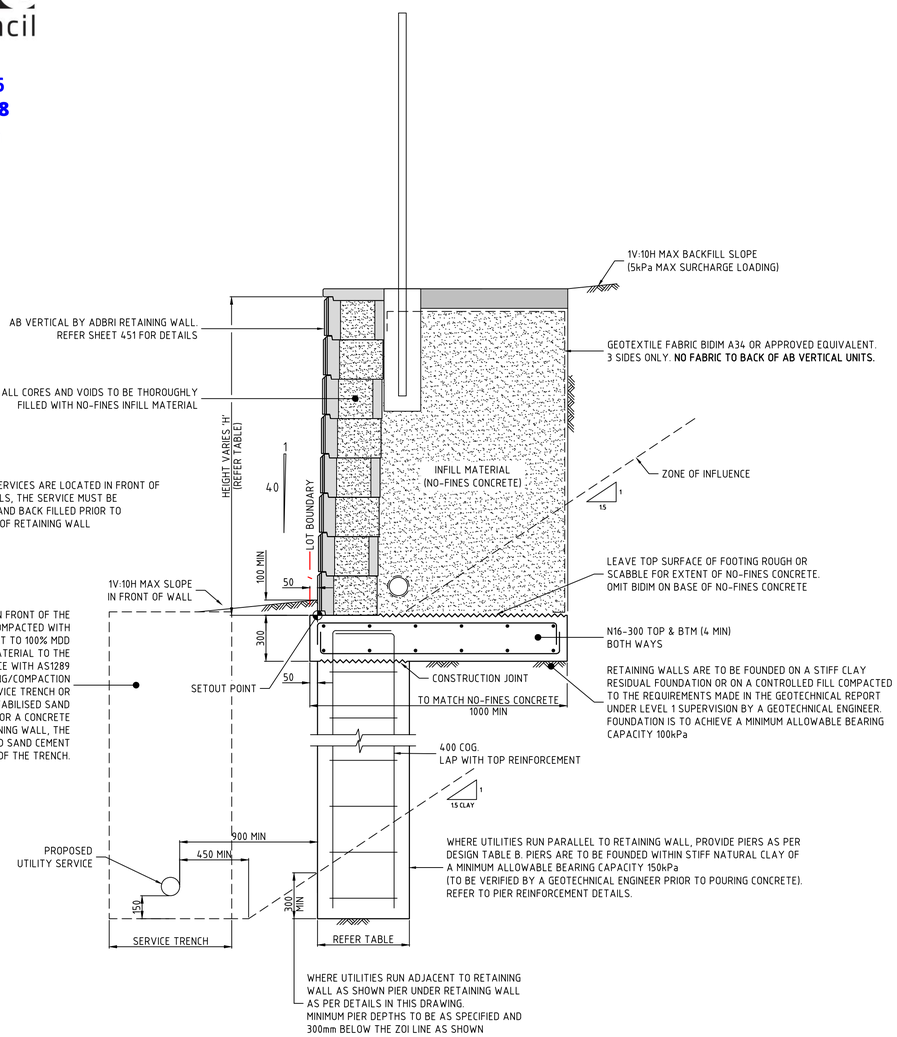


TABLE B: PIERING REQUIREMENTS WHERE SERVICES ARE PARALLEL TO WALL

WALL HEIGHT (mm)	PIER DIA. (mm)	PIER SPACING C/C (m)	MIN. PIER DEPTH. PIERS ARE ALSO REQUIRED TO BE FOUNDED BELOW THE ZOI OF ALL SERVICES (IF WORSE CASE) (m)
UP TO 600	NO PIERS OR REINFORCED CONCRETE FOOTING REQUIRED		
800-1400	450	2	2
1400-1800	600	2	2

ZONE OF INFLUENCE TYPICAL DETAIL
WHERE SERVICES ARE PARALLEL TO RETAINING WALL - IN FRONT OF WALL

NOT TO SCALE

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOY GROUP

SCALES ON A1 SIZE DRAWING: A1 1:20 | 0 0.5 1.0m | A3 1:40

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: RETAINING WALL DETAILS: SHEET 02

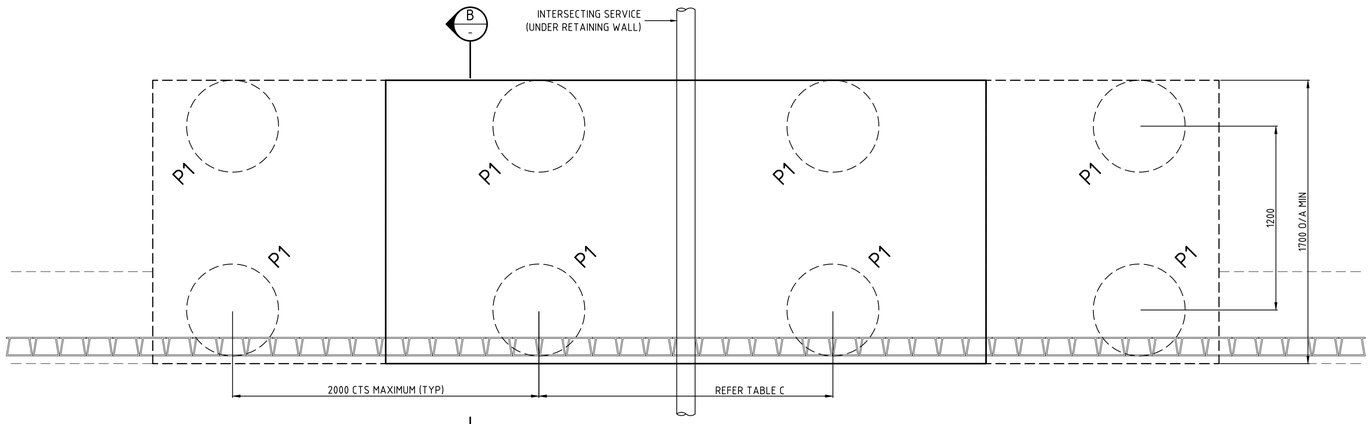
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	452	0

100 mm ON A1 SIZE ORIGINAL
50
0

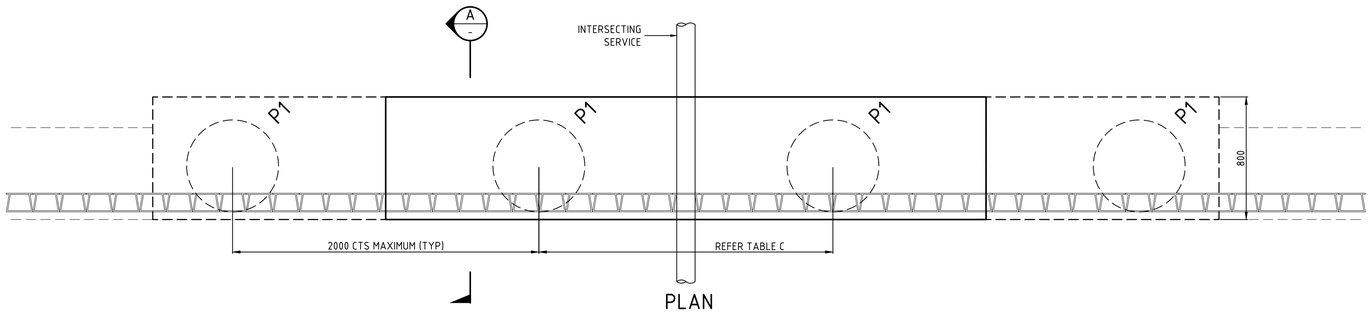
CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-452.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:24 AM

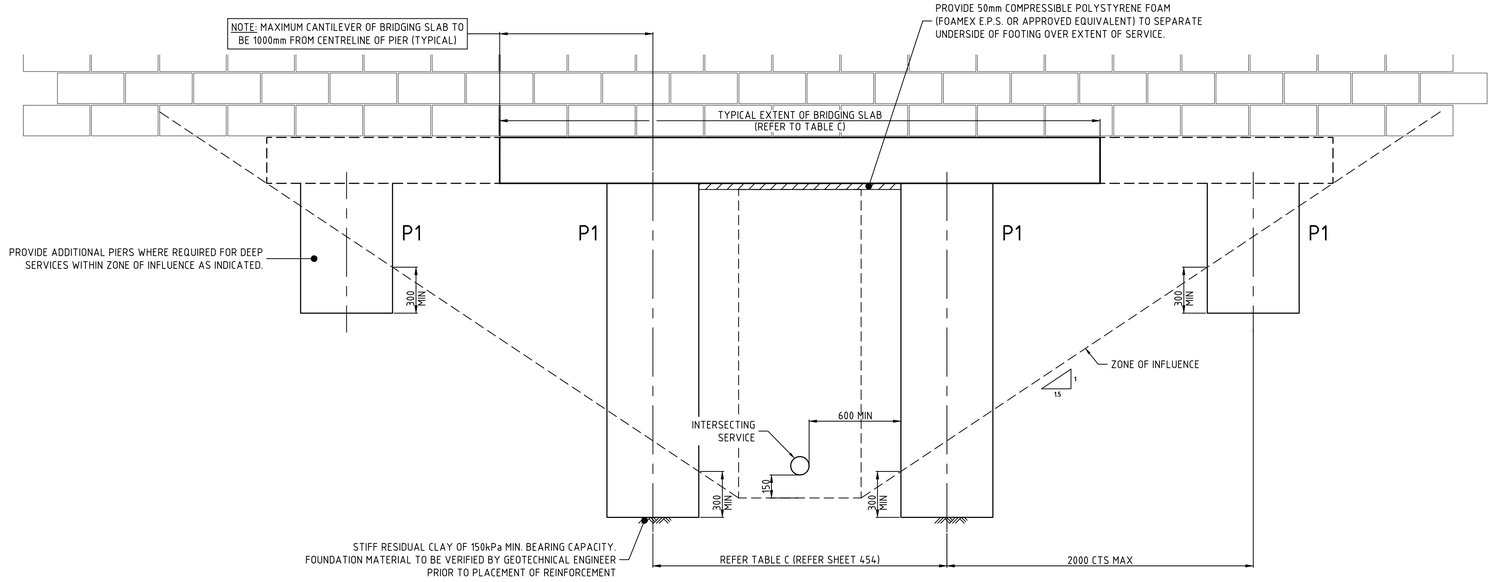
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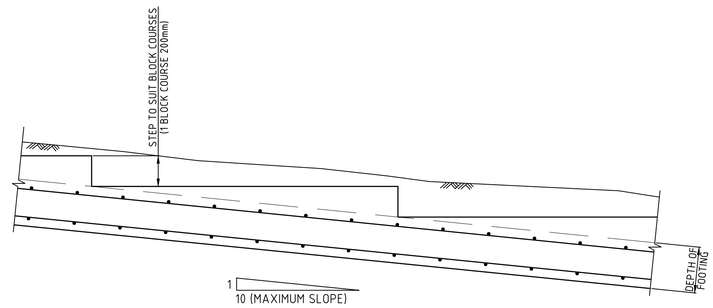
PLAN
WALLS 1.2m TO 1.8m HIGH
NOT TO SCALE



PLAN
WALLS UP TO 1.2m HIGH
NOT TO SCALE



ZONE OF INFLUENCE TYPICAL DETAIL
WHERE SERVICES CROSS RETAINING WALL
NOT TO SCALE



SLOPED FOOTING DETAIL
NOT TO SCALE

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT
McCLOYGROUP

SCALES ON A1 SIZE DRAWING
A1 1:20 — 0 — 0.5 — 1.0m — A3 1:4.0

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
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DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

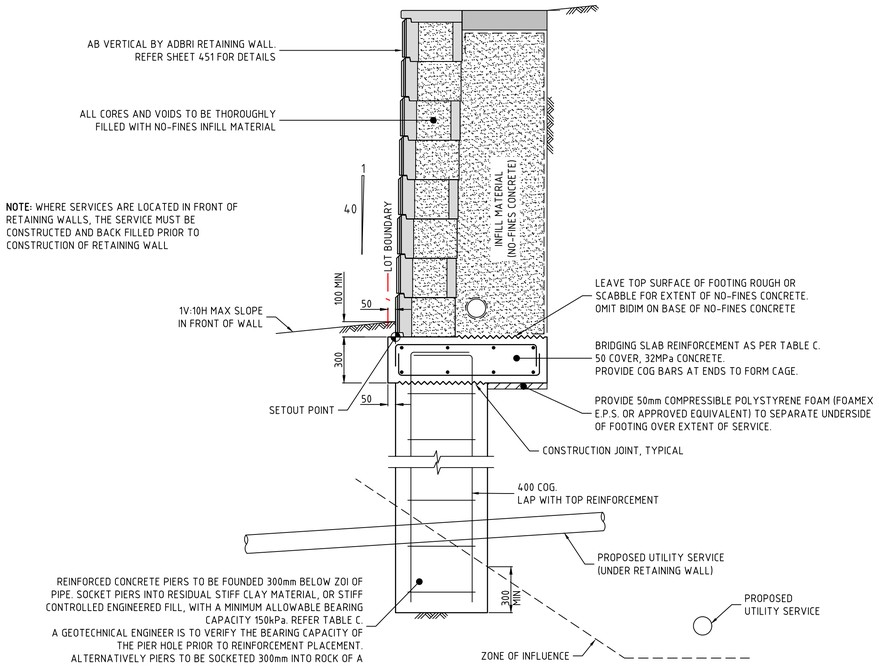
DRAWING TITLE
RETAINING WALL DETAILS: SHEET 03

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	453	0

100 mm ON A1 SIZE ORIGINAL
0 50

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-453.dwg

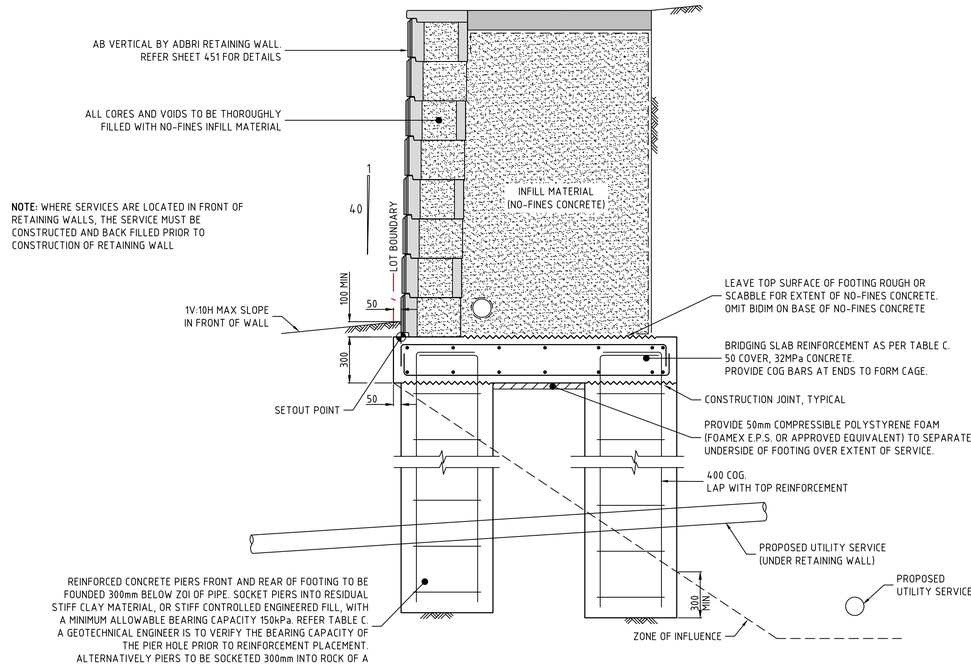
Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:32AM



SECTION A
SCALE = 1:20

WALLS UP TO 1.2m HIGH

NOT TO SCALE



SECTION B
SCALE = 1:20

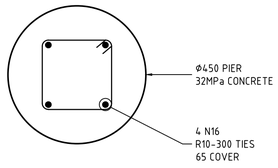
WALLS 1.2m TO 1.8m HIGH

NOT TO SCALE

NOTES:
1. ALL PIERS TO BE FOUNDED IN MATERIAL OF MINIMUM ALLOWABLE BEARING CAPACITY 150kPa. ALTERNATIVELY PIERS ARE FOUNDED TO ROCK (600kPa MINIMUM ALLOWABLE BEARING) SOCKET 300mm INTO ROCK.
2. WHERE SERVICES ARE LOCATED BEHIND A RETAINING WALL AND ARE WITHIN THE ZONE OF INFLUENCE (ZOI) OF THE RETAINING WALL ON THE BRIDGING SLAB FOOTING WITH PIERS AS DETAILED ON SECTIONS ON THIS SHEET. THE PIERS ARE TO EXTEND FOR THE LENGTHS SHOWN IN THE DESIGN TABLE C AND 300mm BELOW THE ZOI FOR SECTION A, THE PIERS ARE TO BE STAGGERED (FRONT TO REAR) AT 2m MAXIMUM CTS (BOTH FRONT AND REAR PIERS). FOR SECTION B, PIERS ARE TO BE UNDER THE RETAINING WALL AT 2m MAXIMUM CTS. THIS PIERED ARRANGEMENT IS TO BE CARRIED OUT FOR THE ENTIRE EXTENT OF SERVICE WHERE WITHIN THE ZOI OF THE RETAINING WALL AS INDICATED.

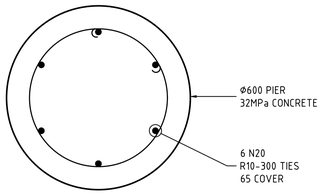
TABLE C: PIERING / BRIDGING SLAB REQUIREMENTS WHERE SERVICES UNDER RETAINING WALL

WALL HEIGHT (mm)	PIER DIA. (mm)	No. OF PIERS MINIMUM (P1)	PIER DEPTH (m) MINIMUM	PIER SPACING C/C (m) MAXIMUM, PIERS EITHER SIDE OF SERVICE	BRIDGING SLAB REINFORCEMENT REQUIREMENTS	PIER REINFORCEMENT REQUIREMENTS
UP TO 600	BRIDGING SLAB NOT REQUIRED					
600-1200	600	2 (FRONT ONLY)	2	2	N16-300 LONGITUDINAL BARS (TOP & BTM) - 4 BARS MIN N16-300 TRANSVERSE BARS (TOP & BTM) - 1m MIN. FOOTING WIDTH	6-N20, R10-300 TIES
	600	2 (FRONT ONLY)	2.5	3	N16-200 LONGITUDINAL BARS (TOP & BTM) - 6 BARS MIN N16-300 TRANSVERSE BARS (TOP & BTM) - 1m MIN. FOOTING WIDTH	8-N20, R10-300 TIES
1200-1800	450	4 (2 BOTH SIDES)	2.5	2	N16-300 LONGITUDINAL BARS (TOP & BTM) N16-300 TRANSVERSE BARS (TOP & BTM)	4-N16, R10-300 TIES
	600	4 (2 BOTH SIDES)	2.5	3	N16-200 LONGITUDINAL BARS (TOP & BTM) N16-300 TRANSVERSE BARS (TOP & BTM)	6-N20, R10-300 TIES



ø450 PIER

NOT TO SCALE



ø600 PIER

NOT TO SCALE

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A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
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C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:20 | 0 0.5 1.0m | A3 1:40

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: RETAINING WALL DETAILS: SHEET 04

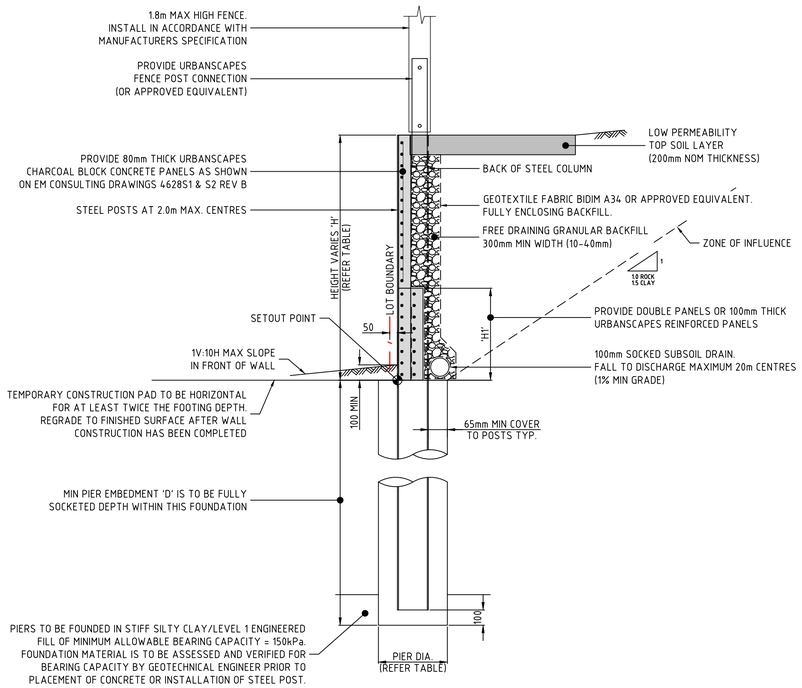
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	454	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-454.dwg

100 mm ON A1 SIZE ORIGINAL
50
0

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:40AM

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DA/2022/193:6 & SW/2026/8
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POST AND SLEEPER RETAINING WALL TYPICAL DETAIL

NOT TO SCALE

NOTE:
ALL STEELWORK POSTS TO
BE HOT DIPPED GALVANISED

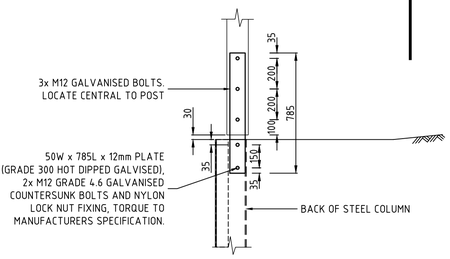
LEVEL BACKFILL, 5kPa SURCHARGE LOADING				
'H' HEIGHT (mm)	GALV. POST SIZE	PIER DIA. (mm)	'D' PIER DEPTH (mm)	'H1' HEIGHT (mm)
600	100UC 15	450	1200	-
800	100UC 15	450	1400	-
1000	100UC 15	450	1600	-
1200	100UC 15	450	1900	-
1400	150UC 23 (#200UB 25)	450	2100	200
1600	150UC 23 (#200UB 25)	450	2400	400
1800	150UC 23 (#200UB 25)	450	2600	600
2000	150UC 23 (#200UB 25)	450	2900	800
2200	150UC 23 (#200UB 25)	600	3100	1000

NOTES:
1. REFER DETAILS FOR CORNER AND END PANEL ARRANGEMENT.
2. # ALTERNATE POST SIZE WHEN USING DOUBLE PANELS.
3. PIER DIA. IS FOR INTERMEDIATE POSTS ONLY. FOR CORNERS AND INTERSECTIONS REFER TO THE TRANSITION TABLE ON THIS SHEET.

RETAINING WALL NOTES:
1. THE CONTRACTOR IS TO ENSURE THAT THE BASES OF THE PIERS ARE CLEANED OUT, DEWATERED AND FOUNDED ON SOUND BEARING MATERIAL
2. WHERE SLEEPER PANELS ARE REQUIRED TO BE CUT, TREAT THE ENDS OF THE SLEEPER PANEL IN ACCORDANCE WITH THE SLEEPER PANEL MANUFACTURERS SPECIFICATION.

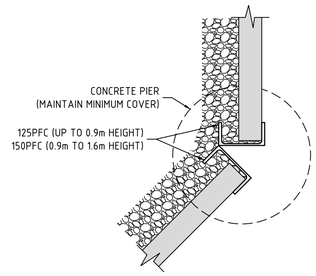
RETAINING WALL LOADING NOTES:
1. THE RETAINING WALLS HAVE BEEN DESIGNED FOR SURCHARGE LOADING OF 5kPa UNLESS NOTED OTHERWISE.
2. THE RETAINING WALLS HAVE NOT BEEN DESIGNED FOR CONSTRUCTION LOADS WITHIN THE WALL ZONE OF INFLUENCE SHOWN ON POST AND SLEEPER RETAINING WALL TYPICAL DETAIL.
3. THE RETAINING WALLS HAVE NOT BEEN DESIGNED TO SUPPORT ADJACENT STRUCTURES INCLUDING HOUSES.

WHERE WALLS ARE TO HAVE A TEXTURED FINISH, THE CONTRACTOR IS TO ENSURE WITH THE MANUFACTURER THAT PANELS FIT WITHIN THE NOMINATED POST SIZE.



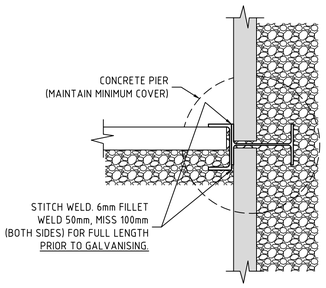
FENCE POST CONNECTION DETAIL

MAX. 1800 HIGH FENCE
(POSTS AT 2000 CTRS)
N2 WIND CLASSIFICATION
NOT TO SCALE



ANGLED WALL TYPICAL DETAIL

NOT TO SCALE

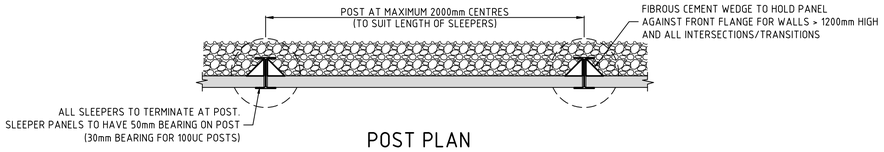


T INTERSECTION TYPICAL DETAIL

NOT TO SCALE

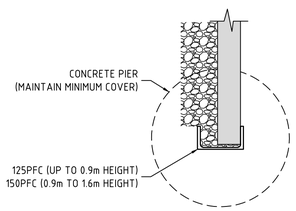
WALL CORNER AND 'T' INTERSECTION & TRANSITION TABLE			
MAX. OVERALL RETAINED HEIGHT OF CORNER / 'T' INTERSECTION	MAIN SELECTED POST SIZE	ADJOINING PFC	PIER DIAMETER
1200	AS PER DESIGN TABLES	100PFC	450
1600	AS PER DESIGN TABLES	150PFC	600
2000	AS PER DESIGN TABLES	200PFC	600
2400	AS PER DESIGN TABLES	200PFC	600

NOTE:
POST AND SLEEPER WALL MANUFACTURER/FABRICATOR IS TO ASSESS ALL WALL CORNER JUNCTION AND WALL INTERSECTION LOCATIONS AND DETAIL ACCORDINGLY TO ALLOW FOR SHOP FABRICATION. POST AND SLEEPER WALL MANUFACTURERS/FABRICATOR IS TO ENSURE THAT THE MINIMUM POST SIZE AND LENGTH IS SPECIFIED, DETAILED AND FABRICATED AT WALL CORNER/INTERSECTION LOCATIONS. POST AND SLEEPER WALL MANUFACTURERS/FABRICATOR IS TO CONFIRM THAT THE OVERALL RETAINED HEIGHT AT WALL INTERSECTIONS HAS BEEN CONSIDERED (IN ALL DIRECTIONS) AND DETAIL/FABRICATE ACCORDINGLY IN ACCORDANCE WITH THE DESIGN REQUIREMENTS ON THE HIGHVIEW PARTNERS DOCUMENTATION.



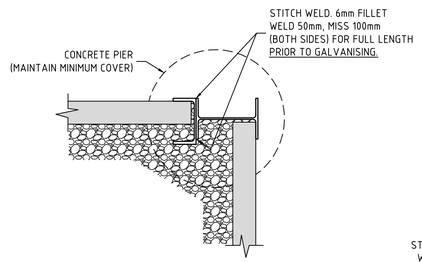
POST PLAN

NOT TO SCALE



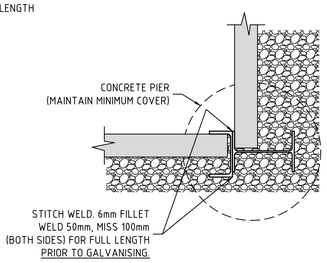
END POST TYPICAL DETAIL

NOT TO SCALE



EXTERNAL CORNER POST TYPICAL DETAIL

NOT TO SCALE



INTERNAL CORNER POST TYPICAL DETAIL

NOT TO SCALE

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING
A1 1:20 | 0 0.5 1.0m | A3 1:40

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

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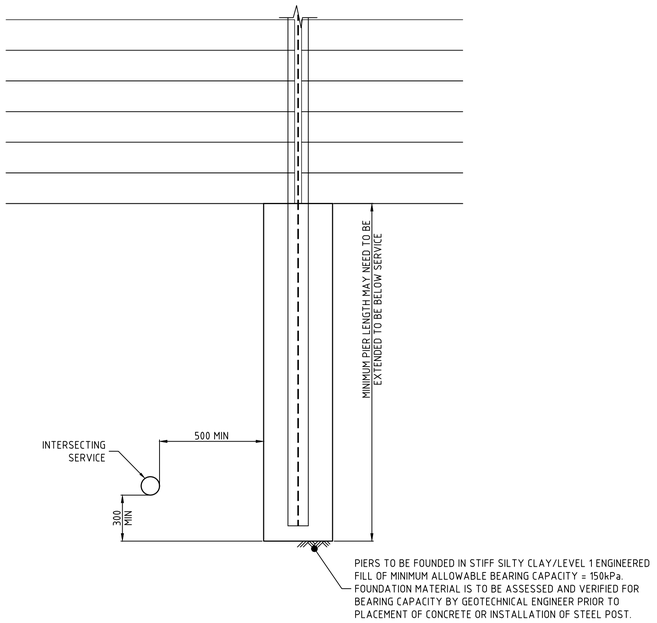
PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: RETAINING WALL DETAILS: SHEET 05

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	455	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-455.dwg

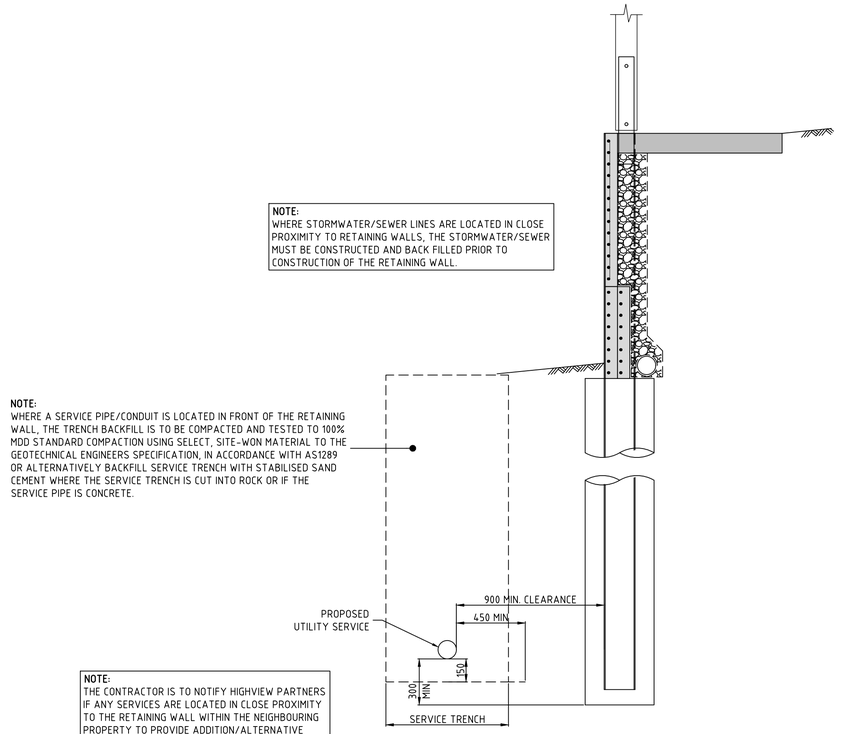
100 mm ON A1 SIZE ORIGINAL
50
0

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:25:48AM



ZONE OF INFLUENCE TYPICAL DETAIL
WHERE SERVICES CROSS RETAINING WALL

NOT TO SCALE



ZONE OF INFLUENCE TYPICAL DETAIL
WHERE SERVICES ARE PARALLEL TO RETAINING WALL - IN FRONT OF WALL

NOT TO SCALE

maitland city council

Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
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0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:20 | 0 0.5 1.0m | A3 1:40

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: RETAINING WALL DETAILS: SHEET 06

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	456	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-456.dwg

100 mm ON A1 SIZE ORIGINAL
50
0

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:26:12 AM



LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- PROPOSED RETAINING WALL
- RL10.01 PAD LEVEL (PRIOR TO TOPSOIL)

CONTOUR INTERVAL 0.5m

NOTES:

1. LEVELS SHOWN WITHIN RESIDENTIAL LOTS ARE BULK EARTHWORKS LEVELS. ALL OTHER LEVELS ARE FINISHED SURFACE LEVELS.

maitland city council

Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

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0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:500, 0, 12.5, 25.0m, A3 1:1000

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

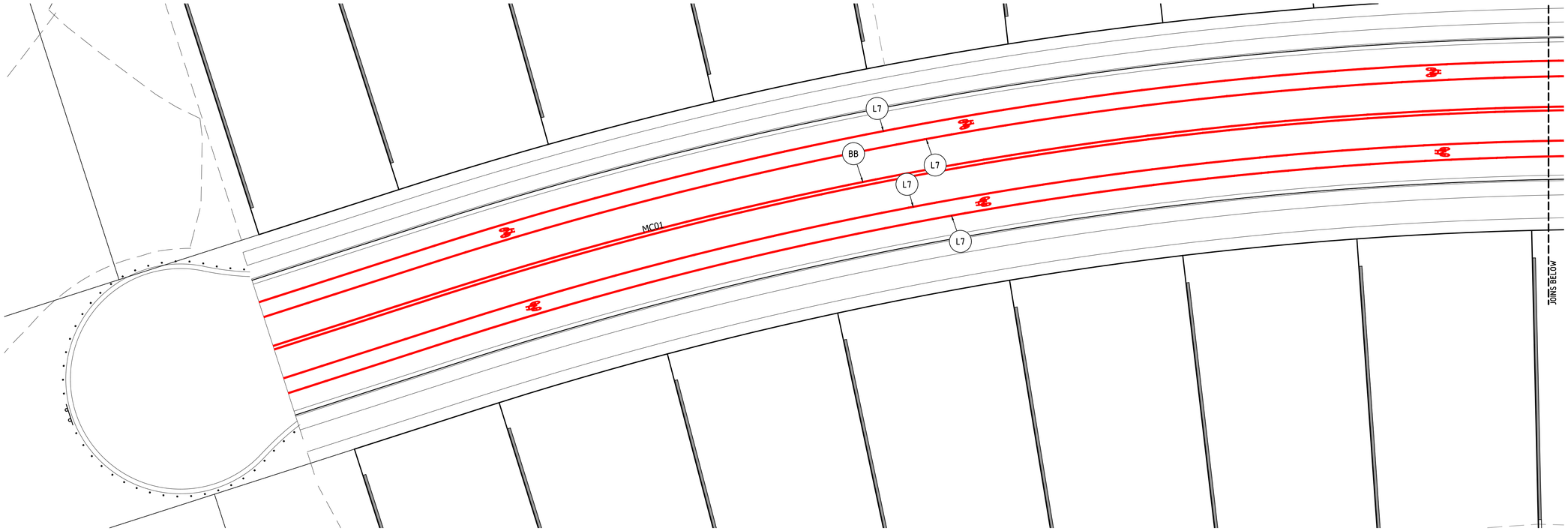
DRAWING TITLE: PAD LEVEL PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	551	0

100 mm ON A1 SIZE ORIGINAL

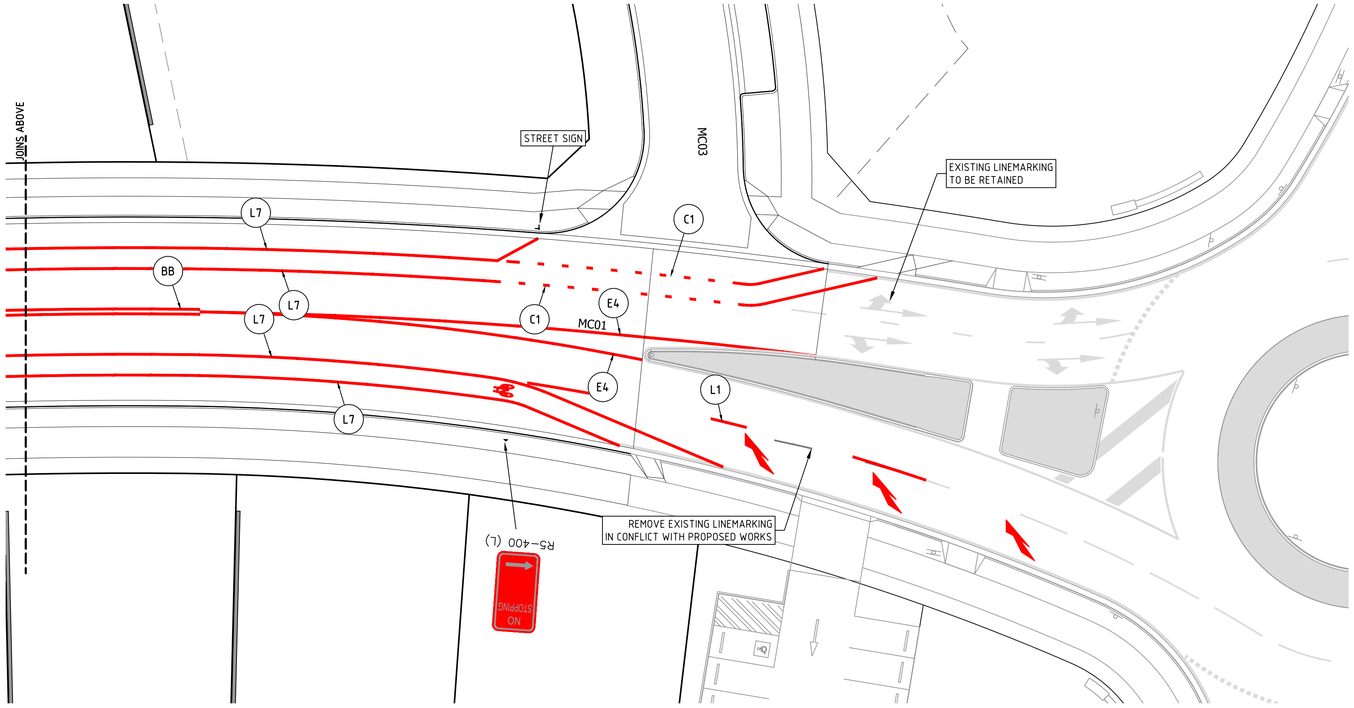
CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-551.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:26:49 AM



LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- PROPOSED LINEMARKING



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100 mm ON A1 SIZE ORIGINAL

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
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CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:500 — 0 — 12.5 — 25.0m — A3 1:1000

CO-ORDINATE SYSTEM: GDA2020 MGA Z56

HEIGHT DATUM: AHD

SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

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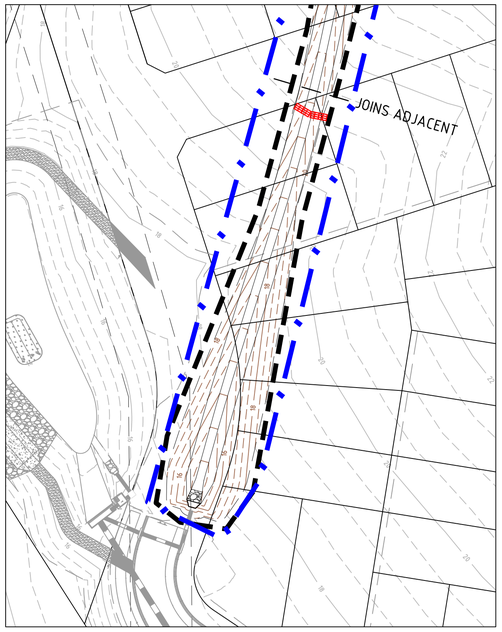
PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE: LINEMARKING AND SIGNAGE PLAN

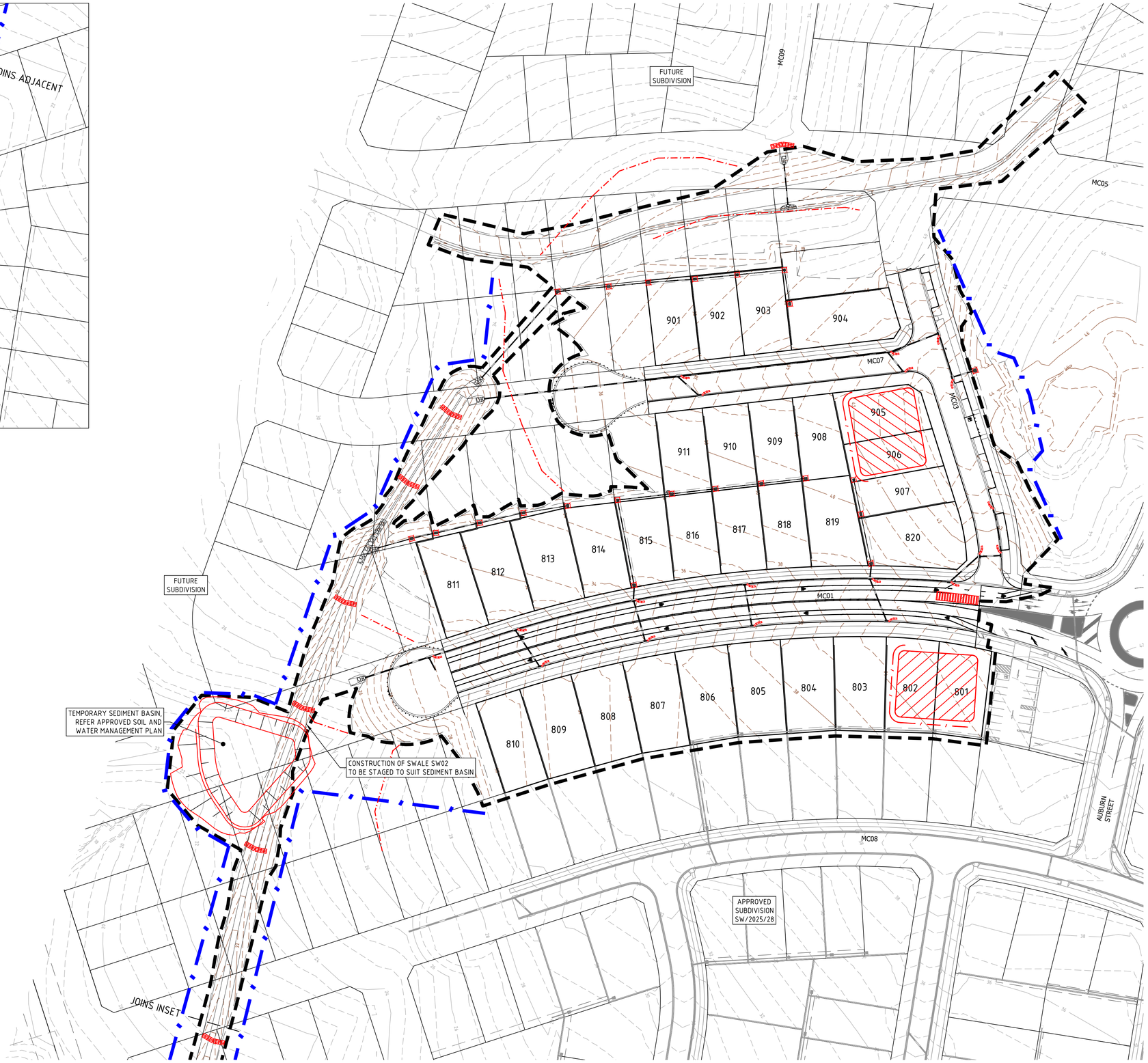
ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	701	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-701.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:27:23AM



INSET
SCALE 1:500



LEGEND:

- LIMIT OF WORKS
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- EXISTING KERB
- PROPOSED KERB
- DESIGN SURFACE CONTOUR
- EXISTING STORMWATER DRAINAGE
- PROPOSED STORMWATER DRAINAGE
- STABILISED SITE ACCESS
- STRAW BALE FILTER
- MESH AND GRAVEL INLET FILTER
- GEOTEXTILE INLET FILTER
- GEOTEXTILE WRAPPED GRATE
- GRAVEL FILLED FILTER BAG
- SEDIMENT FENCE
- MULCH MOUND
- NO-GO FENCE
- STOCKPILE LOCATION

CONTOUR INTERVAL 0.5m

maitland city council

Approved Plans
SWC Issue Date : 11/06/2026
DA/2022/193:6 & SW/2026/8
Engineering Construction

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0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT
McCLOYGROUP

SCALES ON A1 SIZE DRAWING
A1 1:500 — 0 — 12.5 — 25.0m — A3 1:1000

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
SOIL AND WATER MANAGEMENT PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	801	0

100 mm ON A1 SIZE ORIGINAL

0 50

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-801.dwg

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:27:30AM

EROSION & SEDIMENT CONTROL NOTES:

GENERAL

1. SEDIMENT, INCLUDES, BUT IS NOT LIMITED TO, CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT, AND CERAMIC WASTE.
2. ANY MATERIAL DEPOSITED ON/IN ANY CONSERVATION AREA/LOT/ EASEMENT FROM WORKS ASSOCIATED WITH THE DEVELOPMENT SHALL BE REMOVED IMMEDIATELY BY MEASURES INVOLVING MINIMAL GROUND AND/OR VEGETATION DISTURBANCE AND NO MACHINERY, OR FOLLOWING DIRECTIONS BY COUNCIL AND/OR WITHIN A TIMEFRAME ADVISED BY COUNCIL.

THE EROSION AND SEDIMENT CONTROL PLAN/SOIL AND WATER MANAGEMENT PLAN (ESCP/SWMP)

3. THE ESCP AND ITS ASSOCIATED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTANTLY MONITORED, REVIEWED, AND MODIFIED AS REQUIRED TO CORRECT DEFICIENCIES. COUNCIL HAS THE RIGHT TO REQUEST CHANGES IF, IN IT'S OPINION, THE MEASURES THAT ARE PROPOSED OR HAVE BEEN INSTALLED ARE INADEQUATE TO PREVENT POLLUTION.
4. PRIOR TO ANY ACTIVITIES ONSITE, THE RESPONSIBLE PERSON(S) IS TO BE NOMINATED. THE RESPONSIBLE PERSON(S) SHALL BE RESPONSIBLE FOR THE EROSION AND SEDIMENT CONTROL (ESC) MEASURES ONSITE. THE NAME, ADDRESS AND 24 HOUR CONTACT DETAILS OF THE PERSON(S) SHALL BE PROVIDED TO COUNCIL IN WRITING. COUNCIL SHALL BE ADVISED WITHIN 48 HOURS OF ANY CHANGES TO THE RESPONSIBLE PERSON(S), OR THEIR CONTACT DETAILS, IN WRITING.
5. AT LEAST 14 DAYS BEFORE THE NATURAL SURFACE IS DISTURBED IN ANY NEW STAGE, THE CONTRACTOR SHALL SUBMIT TO THE CERTIFIER, A PLAN SHOWING ESC MEASURES FOR THAT STAGE. THE DEGREE OF DESIGN DETAIL SHALL VARY BASED ON THE EXTENT OF THE AREA TO BE DISTURBED.
6. AT ANY TIME DURING ONSITE WORKS, THE CONTRACTOR SHALL BE ABLE TO DEMONSTRATE THAT ADEQUATE CAPACITY EXISTS FOR SEDIMENT CAPTURE AND TREATMENT IN ONSITE EROSION AND SEDIMENT CONTROL MEASURES FOR THE AREA DISTURBED AND THE SEDIMENT TYPE EXPOSED.
7. NO SITE WORKS SHALL COMMENCE PRIOR TO THE APPROVAL OF THE DETAILED ENGINEERING DESIGN. ITS IMPLEMENTATION SHALL BE SUPERVISED BY PERSONNEL WITH APPROPRIATE QUALIFICATIONS AND/OR EXPERIENCE IN ESC ON CONSTRUCTION SITES.
8. THE APPROVED ESCP SHALL BE AVAILABLE ON-SITE FOR INSPECTION BY COUNCIL OFFICERS WHILE WORK ACTIVITIES ARE OCCURRING.
9. THE APPROVED ESCP SHALL BE KEPT UP TO DATE AND SHOW A TIMELINE OF INSTALLATION, MAINTENANCE AND REMOVAL EROSION AND SEDIMENT CONTROLS.
10. ALL ESC MEASURES SHALL BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ONSITE, IN ACCORDANCE WITH THE BLUE BOOK (MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION. LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARD FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
11. ADEQUATE SITE DATA, INCLUDING SOIL DATA FROM A NATA APPROVED LABORATORY, SHALL BE OBTAINED TO ALLOW THE PREPARATION OF AN APPROPRIATE ESCP, AND ALLOW THE SELECTION, DESIGN AND SPECIFICATION OF REQUIRED ESC MEASURES.
12. THE ESCP SHALL CLEARLY STATE THAT NO LAND-DISTURBING ACTIVITIES ON THE SITE SHALL OCCUR UNTIL ALL PERIMETER ESC MEASURES, SEDIMENT BASINS, AND ASSOCIATED TEMPORARY DRAINAGE CONTROLS, HAVE BEEN CONSTRUCTED AND ARE FULLY OPERATIONAL, IN ACCORDANCE WITH CURRENT BEST PRACTICE ESC. THIS IS UNLESS SUCH CLEARING IS REQUIRED FOR THE PURPOSE OF INSTALLING SUCH MEASURES, IN WHICH CASE ONLY THE MINIMUM CLEARING REQUIRED TO INSTALL SUCH MEASURES SHALL OCCUR.
13. ADDITIONAL ESC MEASURES SHALL BE IMPLEMENTED, AND A REVISED ESCP IS TO BE SUBMITTED FOR APPROVAL TO THE CERTIFIER (WITHIN FIVE (5) BUSINESS DAYS OF ANY SUCH AMENDMENTS) IN THE EVENT THAT:
    (i) THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE; OR
    (ii) THE IMPLEMENTED WORKS FAIL TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES SPECIFIED IN THESE CONDITIONS; OR
    (iii) SITE CONDITIONS SIGNIFICANTLY CHANGE; OR
    (iv) SITE INSPECTIONS INDICATE THAT THE IMPLEMENTED WORKS ARE FAILING TO ACHIEVE THE 'OBJECTIVE' OF THE ESCP.
14. A COPY OF ANY AMENDED ESCP SHALL BE FORWARDED TO AN APPROPRIATE COUNCIL OFFICER, WITHIN FIVE (5) BUSINESS DAYS OF ANY SUCH AMENDMENTS.

SITE ESTABLISHMENT

15. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES SHALL BE LOCATED SUCH THAT ANY EFFLUENT, INCLUDING WASH-DOWN WATER, CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE.
16. ALL REASONABLE AND PRACTICABLE MEASURES SHALL BE TAKEN TO ENSURE STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT SYSTEMS, DRAINS TO AN APPROPRIATE SEDIMENT CONTROL DEVICE.
17. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED ESCP (AS AMENDED FROM TIME TO TIME) UNLESS CIRCUMSTANCES ARISE WHERE:
    (i) COMPLIANCE WITH THE ESCP WOULD INCREASE THE POTENTIAL FOR ENVIRONMENTAL HARM AS ASSESSED BY AN AUTHORITY RECOGNISED BY COUNCIL; OR
    (ii) CIRCUMSTANCES CHANGE DURING CONSTRUCTION AND THOSE CIRCUMSTANCES COULD NOT HAVE BEEN FORESEEN; OR
    (iii) COUNCIL OR ITS REPRESENTATIVE DETERMINES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF A LAND-DISTURBING ACTIVITY. IN EITHER CASE, THE PERSON(S) RESPONSIBLE MAY BE REQUIRED TO TAKE ADDITIONAL, OR ALTERNATIVE PROTECTIVE ACTION, AND/OR UNDERTAKE REASONABLE RESTORATION WORKS WITHIN THE TIMEFRAME SPECIFIED BY THE COUNCIL.
18. THE APPLICANT SHALL ENSURE AN ADEQUATE SUPPLY OF ESC, AND APPROPRIATE POLLUTION CLEAN-UP MATERIALS ARE AVAILABLE ON-SITE AT ALL TIMES.
19. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, AND SEDIMENT BASIN EMBANKMENTS SHALL BE MACHINE-COMPACTED, SEEDED AND MULCHED WITHIN TEN (10) DAYS OF FORMATION FOR THE PURPOSE OF ESTABLISHING A VEGETATIVE COVER, OR LINED APPROPRIATELY
20. SEDIMENT DEPOSITED OFF SITE AS A RESULT OF ON-SITE ACTIVITIES SHALL BE COLLECTED AND THE AREA CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE.
21. CONCRETE WASTE AND CHEMICAL PRODUCTS, INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, SHALL BE PREVENTED FROM ENTERING ANY INTERNAL OR EXTERNAL WATER BODY, OR ANY EXTERNAL DRAINAGE SYSTEM, EXCLUDING THOSE ON-SITE WATER BODIES SPECIFICALLY DESIGNED TO CONTAIN AND/OR TREAT SUCH MATERIAL. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE.
22. BRICK, TILE OR MASONRY CUTTING SHALL BE CARRIED OUT ON A PERVIOUS SURFACE (E.G. GRASS OR OPEN SOIL), OR IN SUCH A MANNER THAT ANY RESULTING SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN OR WATER. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE.
23. NEWLY SEALED HARD-STAND AREAS (E.G. ROADS, DRIVEWAYS AND CAR PARKS) SHALL BE SWEPT THOROUGHLY AS SOON AS PRACTICABLE AFTER SEALING/SURFACING TO MINIMISE THE RISK OF COMPONENTS OF THE SURFACING COMPOUND ENTERING STORMWATER DRAINS.
24. STOCKPILES OF ERODIBLE MATERIAL SHALL BE PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC OR ORGANIC) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS.
25. STOCKPILES, TEMPORARY OR PERMANENT, SHALL NOT BE LOCATED IN AREAS IDENTIFIED AS NO-GO ZONES (INCLUDING, BUT NOT LIMITED TO, RESTRICTED ACCESS AREAS, BUFFER ZONES, OR AREAS OF NON-DISTURBANCE) ON THE ESCP;

SITE CLEARING AND MULCHING

26. BULK TREE CLEARING AND GRUBBING OF THE SITE SHALL BE IMMEDIATELY FOLLOWED BY SPECIFIED TEMPORARY EROSION CONTROL MEASURES (E.G. TEMPORARY GRASSING OR MULCHING) PRIOR TO COMMENCEMENT OF EACH STAGE OF CONSTRUCTION WORKS;
27. TREES AND VEGETATION CLEARED FROM THE SITE SHALL BE MULCHED ONSITE WITHIN 7 DAYS OF CLEARING;

MANAGEMENT OF DUST

28. APPROPRIATE MEASURES SHALL BE UNDERTAKEN TO CONTROL ANY DUST ORIGINATING DUE TO THE MULCHING OF VEGETATION ONSITE;
29. PRIORITY SHALL BE GIVEN TO THE PREVENTION, OR AT LEAST THE MINIMISATION, OF SOIL EROSION, RATHER THAN THE TRAPPING OF DISPLACED SEDIMENT. SUCH A CLAUSE SHALL NOT REDUCE THE RESPONSIBILITY TO APPLY AND MAINTAIN, AT ALL TIMES, ALL NECESSARY SEDIMENT CONTROL MEASURES.
30. MEASURES USED TO CONTROL WIND EROSION SHALL BE APPROPRIATE FOR THE LOCATION AND PREVENT SOIL EROSION AT ALL TIMES, INCLUDING WORKING HOURS, OUT OF HOURS, WEEKENDS, PUBLIC HOLIDAYS, AND DURING ANY OTHER SHUTDOWN PERIODS.
31. THE APPLICATION OF LIQUID OR CHEMICAL-BASED DUST SUPPRESSION MEASURES SHALL ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES (E.G. RUNOFF OF EXCESS WATER) DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.

SEDIMENT BASINS/TRAPS – INSTALLATION, MAINTENANCE AND REMOVAL

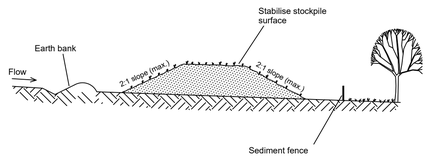
32. SEDIMENT BASINS SHALL BE CONSTRUCTED AND FULLY OPERATIONAL PRIOR TO ANY OTHER SOIL DISTURBANCE IN THEIR CATCHMENT.
33. PRIOR TO THE CONTROLLED DISCHARGE (E.G. DE-WATERING ACTIVITIES FROM EXCAVATIONS AND SEDIMENT BASINS) OF ANY WATER FROM THE SITE DURING CONSTRUCTION, THE FOLLOWING WATER QUALITY OBJECTIVES SHALL BE ACHIEVED:
    a) TOTAL SUSPENDED SOLIDS (TSS) TO A MAXIMUM 50mg/l;
    b) WATER pH BETWEEN 6.5 AND 8.5 UNLESS OTHERWISE REQUIRED BY THE COUNCIL;
    c) TURBIDITY (MEASURED IN NTUs MAXIMUM OF 60 NTU); AND
    d) EC LEVELS NO GREATER THAN BACKGROUND LEVELS.
30. PRIOR TO THE ISSUING OF A CONSTRUCTION CERTIFICATE, THE SITE MANAGER SHALL OBTAIN THE RELEVANT APPROVALS FROM THE RELEVANT ORGANISATIONS TO DISCHARGE TREATED WATER FROM ANY EXISTING BASINS. ORGANISATIONS, MAY INCLUDE BUT NOT BE LIMITED TO, HUNTER WATER, AND COUNCIL.
31. PRIOR TO ANY FORECAST WEATHER EVENT LIKELY TO RESULT IN SEDIMENT LADEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE PRIOR TO THE WEATHER EVENT.
32. ANY SEDIMENT LADEN WATER CAPTURED ONSITE SHALL BE TREATED TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES SPECIFIED IN THESE CONDITIONS, PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER SHALL BE KEPT ONSITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED ON IT.
33. NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER ONSITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT SHALL HAVE A DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO ANY APPROVAL.
34. THE CHEMICAL/AGENT USED IN TYPE D AND TYPE F BASINS TO TREAT TURBID WATER CAPTURED IN THE BASIN SHALL BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES, SPECIFIED IN THESE CONDITIONS, WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN, AFTER A RAINFALL EVENT.
35. ALL MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ONSITE, EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
36. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER SHALL BE PLACED SUCH THAT WATER ENTERING THE BASIN/SEDIMENT TRAP MIXES WITH THE CHEMICAL/AGENTS AND IS CARRIED INTO THE BASIN/TRAP.
37. ANY BASIN SHALL BE DEWATERED AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES, SPECIFIED IN THESE CONDITIONS.
38. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER SHALL BE SECURELY STORED ON-SITE TO PROVIDE FOR AT LEAST THREE COMPLETE TREATMENTS OF ALL BASINS REQUIRING CHEMICALLY TREATMENT ONSITE.
39. THE APPLICANT SHALL ENSURE THAT ON EACH OCCASION A TYPE F OR TYPE D BASIN WAS NOT DE-WATERED PRIOR TO BEING SURCHARGED BY A FOLLOWING RAINFALL EVENT, A REPORT IS PRESENTED TO AN APPROPRIATE COUNCIL OFFICER WITHIN 5 DAYS IDENTIFYING THE CIRCUMSTANCES AND PROPOSED AMENDMENTS, IF ANY, TO THE BASIN'S OPERATING PROCEDURES.
40. AS-CONSTRUCTED PLANS SHALL BE PREPARED FOR ALL CONSTRUCTED SEDIMENT BASINS AND ASSOCIATED EMERGENCY SPILLWAYS. SUCH PLANS SHALL APPROPRIATELY VERIFY THE BASIN'S DIMENSIONS, LEVELS AND VOLUMES COMPLY WITH THE APPROVED DESIGN DRAWINGS. THESE PLANS MAY BE REQUESTED BY THE CERTIFIER, OR COUNCIL.
41. WHERE MORE THAN ONE STAGE IS TO BE DEVELOPED AT ONE TIME, OR BEFORE THE PRECEDING STAGE IS COMPLETE, THE SEDIMENT BASIN(S) FOR THESE STAGES SHALL HAVE SUFFICIENT CAPACITY TO CATER FOR ALL AREA DIRECTED TO THE BASIN(S).
42. ALL SEDIMENT BASINS SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES UNTIL THE BASIN'S DESIGN CATCHMENT ACHIEVES 70% GROUND COVERAGE, OR SURFACE STABILISATION ACCEPTABLE TO COUNCIL.
43. SETTLED SEDIMENT SHALL BE REMOVED AS SOON AS REASONABLE AND PRACTICABLE FROM ANY SEDIMENT BASIN IF:
    a) IT IS ANTICIPATED THAT THE NEXT STORM EVENT IS LIKELY TO CAUSE SEDIMENT TO SETTLE ABOVE THE BASIN'S SEDIMENT STORAGE ZONE; OR
    b) THE ELEVATION OF SETTLED SEDIMENT IS ABOVE THE TOP OF THE BASIN'S SEDIMENT STORAGE ZONE; OR
    c) THE ELEVATION OF SETTLED SEDIMENT IS ABOVE THE BASINS SEDIMENT MARKER LINE.
44. SCOUR PROTECTION MEASURES PLACED ON SEDIMENT BASIN EMERGENCY SPILLWAYS SHALL APPROPRIATELY PROTECT THE SPILLWAY CHUTE AND ITS SIDE BATTERS FROM SCOUR, AND SHALL EXTEND A MINIMUM OF 3 METRES BEYOND THE DOWNSTREAM TOE OF THE BASIN'S EMBANKMENT.
45. SUITABLE ALL-WEATHER MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.
46. ALL SEDIMENT CONTROL DEVICES (OTHER THAN SEDIMENT BASINS) SHALL BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER RUNOFF-PRODUCING RAINFALL, OR IF THE SEDIMENT RETENTION CAPACITY OF THE DEVICE FALLS BELOW 75% OF THE DESIGN RETENTION CAPACITY.
47. ALL MATERIALS REMOVED FROM ESC DEVICES DURING MAINTENANCE, OR DECOMMISSIONING, WHETHER SOLID OR LIQUID, SHALL BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ANY ONGOING EROSION OR POLLUTION HAZARD.
48. SEDIMENT BASIN WATER QUALITY SAMPLES SHALL BE TAKEN AT A DEPTH NO LESS THAN 200 MILLIMETRES BELOW THE WATER SURFACE WITHIN THE BASIN.

REVEGETATION/STABILISATION

49. ALL CUT AND FILL EARTH BATTERS LESS THAN 3 METRES IN ELEVATION SHALL BE TOPSOILED, AND GRASS SEEDED/HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF GRADING IN CONSULTATION WITH COUNCIL.
50. THE COUNCIL SEED MIX SHALL BE USED UNLESS STATED ON THE ESCP/SWMP.
51. THE pH LEVEL OF TOPSOIL SHALL BE APPROPRIATE TO ENABLE ESTABLISHMENT AND GROWTH OF SPECIFIED VEGETATION PRIOR TO INITIATING THE ESTABLISHMENT OF VEGETATION.
52. NON REWETTABLE BINDER TO BE USED IN ALL HYDROMULCH/HYDROSEED/POLYMER MIXES ON SLOPES OR WORKS ADJACENT TO A WATER COURSE.
53. SOIL AMELIORANTS SHALL BE ADDED TO THE SOIL IN ACCORDANCE WITH AN APPROVED LANDSCAPE PLAN, VEGETATION MANAGEMENT PLAN, AND/OR SOIL ANALYSIS.
54. SURFACE SOIL DENSITY, COMPACTION AND SURFACE ROUGHNESS SHALL BE ADJUSTED PRIOR TO SEEDING/PLANTING IN ACCORDANCE WITH AN APPROVED LANDSCAPE PLAN, VEGETATION MANAGEMENT PLAN, AND/OR SOIL ANALYSIS.
55. PROCEDURES FOR INITIATING A SITE SHUTDOWN, WHETHER PROGRAMMED OR UN-PROGRAMMED, SHALL INCORPORATE REVEGETATION OF ALL SOIL DISTURBANCES UNLESS OTHERWISE APPROVED BY COUNCIL. THE STABILISATION WORKS SHALL NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.

INSPECTION AND MAINTENANCE

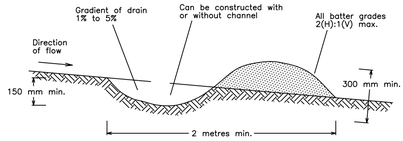
56. THE APPLICANT SHALL ENSURE THAT APPROPRIATE PROCEDURES AND SUITABLY QUALIFIED PERSONNEL ARE ENGAGED TO PLAN AND CONDUCT SITE INSPECTIONS AND WATER QUALITY MONITORING THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PHASE.
57. ALL ESC MEASURES SHALL BE INSPECTED:
    a) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE); AND
    b) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE); AND
    c) WITHIN 24HRS OF EXPECTED RAINFALL; AND
    d) WITHIN 18HRS OF A RAINFALL EVENT THAT CAUSES RUNOFF ON THE SITE.
58. WRITTEN RECORDS SHALL BE KEPT ONSITE OF ESC MONITORING AND MAINTENANCE ACTIVITIES CONDUCTED DURING THE CONSTRUCTION AND MAINTENANCE PERIODS, AND BE AVAILABLE TO COUNCIL OFFICERS ON REQUEST.
59. ALL SITE MONITORING DATA INCLUDING RAINFALL RECORDS, DATES OF WATER QUALITY TESTING, TESTING RESULTS AND RECORDS OF CONTROLLED WATER RELEASES FROM THE SITE, SHALL BE KEPT IN AN ON-SITE REGISTER. THE REGISTER IS TO BE MAINTAINED UP TO DATE FOR THE DURATION OF THE APPROVED WORKS AND BE AVAILABLE ON-SITE FOR INSPECTION BY COUNCIL OFFICERS ON REQUEST.
60. ALL ENVIRONMENTAL INCIDENTS SHALL BE RECORDED IN A FIELD LOG THAT SHALL REMAIN ACCESSIBLE TO ALL RELEVANT REGULATORY AUTHORITIES ON REQUEST.



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES SD 4-1



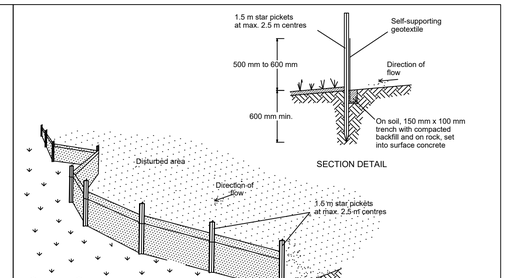
NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

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Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

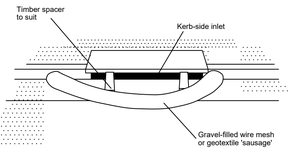
EARTH BANK (LOW FLOW) SD 5-5

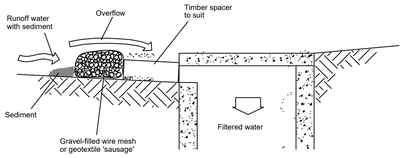


Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-8



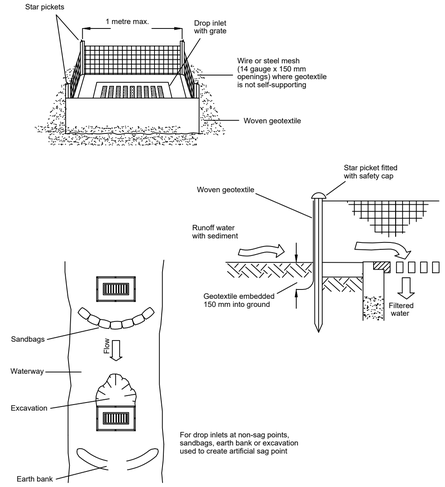


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.
7. Timber spacers must be square in section.

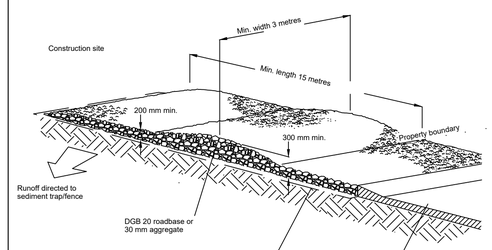
MESH AND GRAVEL INLET FILTER SD 6-11



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER SD 6-12



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS SD 6-14

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT: McCLOY GROUP

SCALES ON A1 SIZE DRAWING

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: _HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

Highview Partners (NSW) Pty Ltd
1 Dickson Road Loxford, NSW 2326
ABN 65 675 146 862

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: SOIL AND WATER MANAGEMENT NOTES AND DETAILS

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	802	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-802.dwg

100 mm ON A1 SIZE ORIGINAL | 50 | 0

Appendix B
SITE REGRADE PLAN

Plotted By: Dean Woodbridge Plot Date: 10/06/26 9:26:01AM



INSET
SCALE 1:500

CUT (−) / FILL (+) DEPTHS Lower_value		Upper_value		Colour
−3	to	−1.8	m	
−1.8	to	−1.6	m	
−1.6	to	−1.4	m	
−1.4	to	−1.2	m	
−1.2	to	−1	m	
−1	to	−0.8	m	
−0.8	to	−0.6	m	
−0.6	to	−0.4	m	
−0.4	to	−0.2	m	
−0.2	to	−0.02	m	
0.02	to	0.2	m	
0.2	to	0.4	m	
0.4	to	0.6	m	
0.6	to	0.8	m	
0.8	to	1	m	
1	to	1.2	m	
1.2	to	1.4	m	
1.4	to	1.6	m	
1.6	to	1.8	m	
1.8	to	3	m	

NOTES:
1. REGRADE AREA TO BE STRIPPED TO STOCKPILE FOR REUSE.
2. FILL REGRADE AREAS WITH SITE WON FILL (INCLUDING STOCKPILE) IN ACCORDANCE WITH GEOTECHNICAL REPORT. EARTHWORKS TO BE UNDERTAKEN UNDER LEVEL 1 SUPERVISION IN ACCORDANCE WITH AS3798-2007. NO FILL IS TO BE PLACED WITHOUT PRIOR APPROVAL FROM GEOTECHNICAL ENGINEER.
3. PLACE A MINIMUM 150mm, MAXIMUM 300mm THICK TOPSOIL TO REGRADE AREAS.
4. ALL DISTURBED AREA, EXCLUDING FUTURE ROAD CORRIDORS, TO BE SEEDED WITH NATIVE SEED MIX.

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REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK

CLIENT
McCLOYGROUP

SCALES ON A1 SIZE DRAWING
A1 1:500 — 0 12.5 25.0m — A3 1:1000

CO-ORDINATE SYSTEM
GDA2020 MGA Z56

HEIGHT DATUM
AHD

SURVEYED BY
.

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

Highview Partners (NSW) Pty Ltd
1 Dickson Road Loxford, NSW 2326
ABN 65 675 146 862

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PROJECT
THE LOXFORD - PRECINCT 1A, STAGES 8 & 9

DRAWING TITLE
SITE REGRADE PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	501	0

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-501.dwg

100 mm ON A1 SIZE ORIGINAL
0 50

Appendix C
COFFEY LEVEL 1 SUMMARY REPORT

LEVEL 1 OBSERVATION AND TESTING SUMMARY

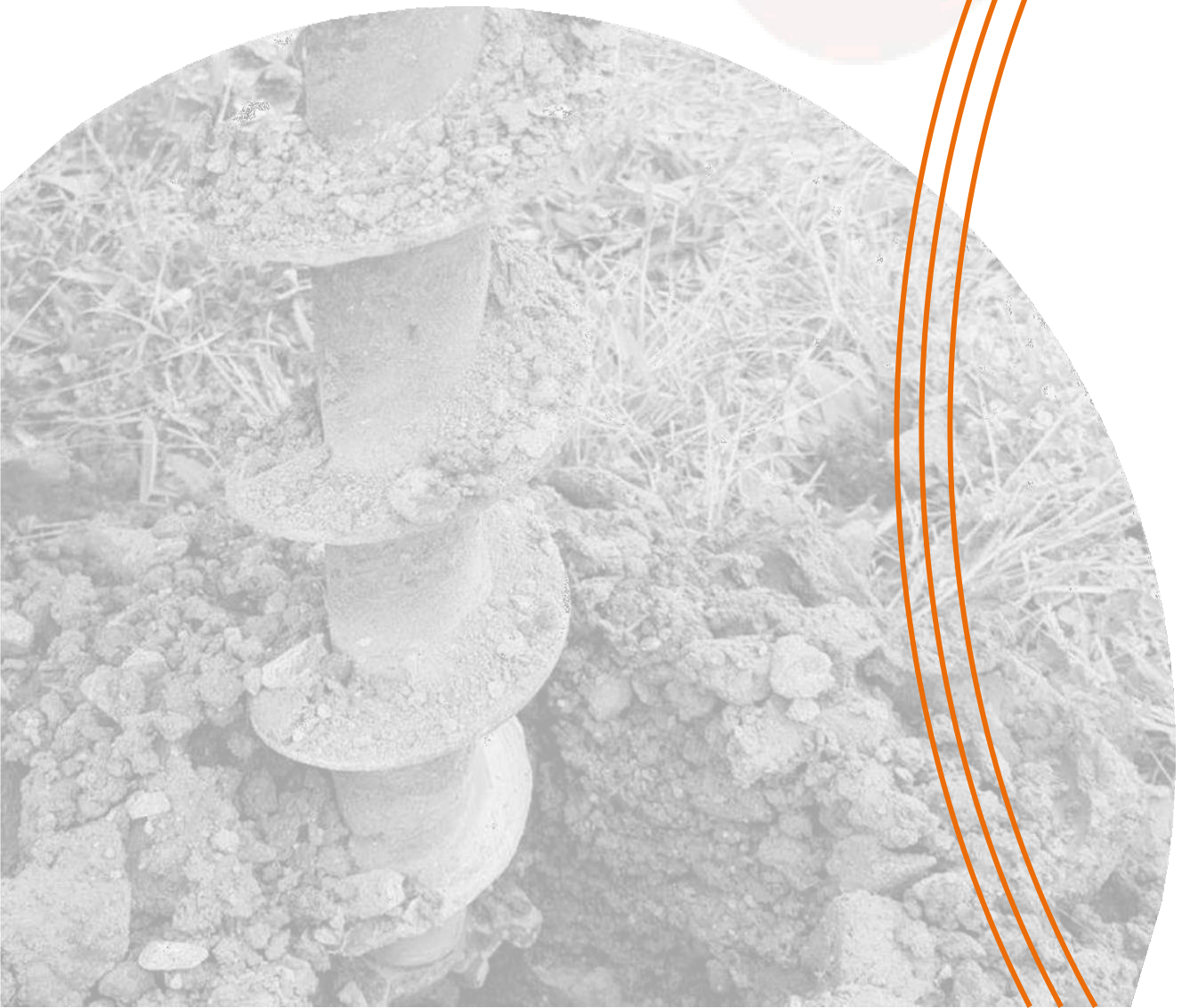
coffey TESTING

EP Risk Management

EP4803 – Loxford Stage 8 & 9, Gilliston Heights

NEWC26555

7 October 2026



NEWC26555 – Level 1 Observation and Testing Summary

Prepared for
EP Risk Management

Prepared by
Coffey Testing Pty Ltd
16 Callistemon Close
Warabrook, NSW 2541 Australia
t: +61 2 4016 2300
ABN: 92 114 364 046

07 October 2026

OurRef: NEWC26555

As requested, Coffey Testing has compiled a summary of the testing performed at the proposed project Loxford Stage 8 & 9, Gilliston Heights NSW. If you have any questions regarding this matter, please contact the undersigned.

For and on behalf of Coffey Testing



Jackson Antilla

Laboratory Manager – Newcastle

Quality information

Revision history

Revision	Description	Date	Originator	Reviewer	Approver
V1	Level 1 Testing Summary	07/10/2026	Jackson Antilla	Cameron Bik	Jackson Antilla

Distribution

Report Status	No. of copies	Format	Distributed to	Date
V1	1	PDF	Ovi Pruteanu – EP Risk	07/10/2026

Table of contents

1. Introduction 1
2. Foundation Observation 1
3. Field Density Testing / Site Methodologies 2
4. Service Trench Backfill 3
5. Geotechnical Statement 3

Appendices

Appendix A – Field Density Reports - Level 1

1. Introduction

Coffey Testing Pty Ltd (Coffey) was engaged by EP Risk Management as the GITA (Geotechnical Inspection and Testing Authority) for EP4803 – Loxford Stage 8 & 9, Gilliston Heights in NSW, with construction being undertaken by KCE. Coffey Testing to provide Level 1 inspection and testing services in accordance with *AS 3798-2007 – Guidelines on Earthworks for Commercial and Residential Developments*. Coffey acted as the Level 1 testing authority for the project, responsible for verifying that earthworks were carried out in compliance with the approved specifications and relevant standards.

The scope of works included the inspection of foundation preparation, verification of controlled fill materials, and the assessment of placement and compaction processes through both field and laboratory testing. All works were undertaken to confirm that site preparation, material quality, and compaction levels were consistent with the design and performance requirements of the development.

This Level 1 Supervision Report summarises the inspection and testing activities undertaken, outlines the methods employed, and presents the results and observations necessary to confirm compliance with the requirements of *AS 3798-2007*.

Level 1 supervision, as defined in *AS 3798-2007*, requires a geotechnical testing authority to provide full-time inspection and testing of the placement and compaction of controlled fill. This includes:

- Regular inspection of the site preparation prior to fill placement.
- Confirmation of the suitability and quality of imported fill materials.
- Observation of fill placement methods to ensure compliance with specifications.
- In-situ field density testing at a frequency appropriate to the project scale and risk.
- Monitoring of layer thickness, moisture content, and compaction effort.
- Review of test results and rectification of any non-conforming areas prior to subsequent works.

This report summarises the inspection and testing activities undertaken, outlines the methods employed, and presents the results and observations necessary to confirm that the earthworks comply with the requirements of *AS 3798-2007*.

2. Foundation Observation

Coffey personnel undertook inspections at various stages of the project to assess the stripped foundation surfaces presented for review. At the time of each inspection, the exposed areas were free of topsoil, vegetation, and other deleterious materials. Where large rock was encountered that could not be broken down by the roller, it was identified, extracted, and removed from site to ensure compliance with the project specifications.

The exposed foundation materials varied across the site but were generally described as a medium to high plasticity CLAY with some rock throughout, Colour ranging from Dark Brown/Red to lighter Brown.

3. Field Density Testing / Site Methodologies

During construction, between 03 July 2026 and 28 August 2026, Coffey was routinely present on-site during the placement of fill material. Acting as the Geotechnical Testing Authority, Coffey undertook compaction testing under Level 1 supervision in accordance with *AS 3798-2007 – Guidelines on Earthworks for Commercial and Residential Developments*.

Areas that were not specifically tested were supervised to ensure that controlled filling techniques were applied, including placement in 300 mm thick compacted layers. The earthworks methodologies employed were considered suitable for the materials encountered on-site to achieve the specified compaction standards.

As outlined in the site scope and *AS 3798-2007*, the minimum relative compaction requirement for filling to support structural loads is 98% Standard compaction, as determined in accordance with AS 1289.5.7.1. Testing results indicated that fill was placed with relative compactions exceeding the required density percentage.

The sampling frequency for all density testing was in accordance with Table 8.1 of *AS 3798-2007*. All density tests were performed at random locations and met or exceeded 98% Standard relative compaction, either on initial testing or following reworking. Detailed field density test results are provided in **Appendix A.**

4. Service Trench Backfill

Throughout the project and beyond the Level 1 filling, Coffey personnel are performing service trench backfill testing at different stages, conducting level 2 testing. These test results will be sent throughout the course of the project before completion.

5. Geotechnical Statement

Coffey was the testing authority associated with this project. Coffey staff attended the site to conduct density testing for compliance with Level 1 observation and testing when requested. Tests conducted, and observations made during site visits indicate that the fill has been constructed in accordance with AS3798 – 2007 '*guidelines on earthworks for commercial and residential developments.*

It should be noted that observations and testing was carried out at times across the project in discrete locations. Coffey Testing can only comment on conditions at the time of site visits and Level 1 surveillance. Density testing has been carried out in discrete locations, and whilst should be. represented of the place layer, no amount of testing can guarantee the whole surface area or be liable for filling if not requested by the contractor to be present on site.

It should be noted that subsurface conditions can vary from the testing locations observed during the field work and used as the basis of the recommendations contained in this report. If subsurface conditions encountered differ from those given in this report, then further advice should be sought. without delay.

For and on behalf of Coffey Testing

Jackson Antilla



Newcastle Laboratory Manager

Appendix A – Field Density Reports – Level 1

Material Test Report

Report Number: **NEWC26555-2**
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11467
Date Sampled: 03/08/2026
Dates Tested: 03/08/2026 - 18/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Location: Loxford Stage 8-9
Lot Number: Lot 816/ 815
Material: General Fill
Material Source: Site Won

coffey TESTING
Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: andrew.weinberg@coffeytesting.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11467A	NEWC11467B	
Test Number	171	172	
Date Tested	03/08/2026	03/08/2026	
Time Tested	**	**	
Test Request #/Location	N/A Lot 816	N/A Lot 815	
Layer / Reduced Level	General Fill	General Fill	
Thickness of Layer (mm)	300	300	
Soil Description	Gravelly CLAY	Gravelly CLAY	
Test Depth (mm)	300	300	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	13	10	
Field Wet Density (FWD) (t/m^3)	2.02	2.12	
Field Moisture Content (%)	10.8	9.3	
Field Dry Density (FDD) (t/m^3)	1.82	1.94	
Peak Converted Wet Density (t/m^3)	**	**	
Adjusted Peak Converted Wet Density (t/m^3)	2.04	2.05	
Moisture Variation (Wv) (%)	**	**	
Adjusted Moisture Variation (%)	2.0	2.0	
Hilf Density Ratio (%)	**98.5**	**103.0**	
Compaction Method	**Standard**	**Standard**	
Remarks	**	**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Results relate only to the items tested/sampled.

Sample Locations Plan

x - approximate test location



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Level 1 Daily Summary Report

Report Number:	**NEWC26555-3**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11303
Date Sampled:	27/07/2026 9:30
Dates Tested:	27/07/2026 - 27/07/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Estate - Stage 8 and 9
Material:	General Fill
Material Source:	Site Won

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Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: andrew.weinberg@coffeytesting.com

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes / No / N/A
Have you made notes of any significant conversations had with the client or contractors ?	Yes / No / N/A
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?		Bulldozer	2	Size ?		Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
9:30	arrived on site, discussed with site supervisor today's scope of work and safety procedures
9:45	excavator is distributing Site Won material and placing into moxys, Moxy's are then running up material and placing into lots for dozers, Dozers are then distributing and compacting material across said lots, padfoot roller is then further compacting distributed material
9:58	material inspection was conducted; material looks to be mostly free from organics, tree roots and oversize. myself and a on-site laborer are inspecting and removing any oversize or organics as seen from dumped material by moxys.
10:11	First round of testing complete, compaction and moisture numbers appear to be in adequate ranges
10:51	same process is repeated
11:48	water cart is being utilized to give site won material some added levels of moisture
1:00	work has ceased for lunch
1:20	while work has ceased. another material inspection has been completed; material looks to be clean and free from organics with little to none oversize.
3:00	second round of testing completed, moisture and compaction scores appear to be in adequate ranges
4:00	left site

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Material Test Report

Report Number: NEWC26555-3
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11303
Date Sampled: 27/07/2026 9:30
Dates Tested: 27/07/2026 - 28/07/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Estate - Stage 8 and 9
Material: General Fill
Material Source: Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	NEWC11303A	NEWC11303B	NEWC11303C	NEWC11303D
Test Number	4	5	6	7
Date Tested	27/07/2026	27/07/2026	27/07/2026	27/07/2026
Time Tested	10:08	11:28	14:58	14:41
Test Request #/Location	Lot 804	Lot 808	Lot 806	Lot 804
Easting	361489.94	361471.28	361588.857	361557.883
Northing	6372980.02	6372976.59	6372975.994	6372973.282
Elevation (m)	31.50	30.52	38.659	35.945
Layer / Reduced Level	Fill	Fill	Fill	Fill
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY
Test Depth (mm)	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	1	0	0	0
Field Wet Density (FWD) (t/m^3)	2.10	2.12	2.13	2.15
Field Moisture Content (%)	16.5	21.0	10.4	17.6
Field Dry Density (FDD) (t/m^3)	1.81	1.75	1.93	1.83
Peak Converted Wet Density (t/m^3)	**	2.01	**	1.98
Adjusted Peak Converted Wet Density (t/m^3)	1.97	**	2.02	**
Moisture Variation (Wv) (%)	**	2.5	**	0.0
Adjusted Moisture Variation (%)	0.5	**	2.5	**
Hilf Density Ratio (%)	**106.5**	**105.5**	**105.5**	**108.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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water catt

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material

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-4**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11368
Date Sampled:	29/07/2026 10:00
Dates Tested:	29/07/2026 - 29/07/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Estate - Stage 8 and 9
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes / No / N/A
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor	1	Size ?		Grader				Highway Truck	
Roller- Padfoot		Weight ?		Bulldozer	2	Size ?		Moxy	2
Roller- Smoothdrum		Weight ?		Excavator	1	Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
10:00	arrived on site, discussed with site supervisor today's scope of work and safety procedures
10:15	excavator is distributing Site Won material and placing into moxys, Moxy's are then running up material and placing into lots for dozers, Dozers are then distributing and compacting material across said lots, padfoot roller is then further compacting distributed material
10:22	material inspection was conducted; material looks to be mostly free from organics, tree roots and oversize. myself and a on-site laborer are inspecting and removing any oversize or organics as seen from dumped material by moxys.
12:30	First round of testing complete, compaction and moisture numbers appear to be in adequate ranges
1:00	work has ceased for lunch
1:30	work has recommenced, same site won material distribution method is ongoing
3:00	left site for the day

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Material Test Report

Report Number: **NEWC26555-4**
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11368
Date Sampled: 29/07/2026 10:00
Dates Tested: 29/07/2026 - 03/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Estate - Stage 8 and 9
Material: General Fill
Material Source: Site Won

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Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11368A		
Test Number	8		
Date Tested	29/07/2026		
Time Tested	12:02		
Test Request #/Location	Lot 804		
Easting	361534.301		
Northing	6372991.210		
Elevation (m)	35.214		
Layer / Reduced Level	Fill		
Thickness of Layer (mm)	300		
Soil Description	Gravelly CLAY		
Test Depth (mm)	300		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	5		
Field Wet Density (FWD) (t/m^3)	2.09		
Field Moisture Content (%)	18.8		
Field Dry Density (FDD) (t/m^3)	1.76		
Peak Converted Wet Density (t/m^3)	**		
Adjusted Peak Converted Wet Density (t/m^3)	2.00		
Moisture Variation (Wv) (%)	**		
Adjusted Moisture Variation (%)	2.0		
Hilf Density Ratio (%)	**104.5**		
Compaction Method	**Standard**		
Remarks	**		

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Scope of work

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Moxy

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Dozer

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-5**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11264
Date Sampled:	24/07/2026 8:00
Dates Tested:	24/07/2026 - 24/07/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Estate - Stage 8 and 9
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes / No / N/A
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor	0	Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?		Bulldozer	2	Size ?		Moxy	2
Roller- Smoothdrum		Weight ?		Excavator	1	Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
8:10	arrived on site, discussed with site supervisor today's scope of work and safety procedures
8:45	excavator is distributing Site Won material and placing into moxys, Moxy's are then running up material and placing into lots for dozers, Dozers are then distributing and compacting material across said lots, padfoot roller is then further compacting distributed material
9:30	material inspection was conducted; material looks to be mostly free from organics, tree roots and oversize. myself and a on-site laborer are inspecting and removing any oversize or organics as seen from dumped material by moxys.
11:00	First round of testing complete, compaction and moisture numbers appear to be in adequate ranges
12:00	same process is repeated
12:30	material appears to be on the dry side, spot check was completed with moisture ranges falling outside of parameters, water cart was requested and completed to give material some added moisture
13:00	work has ceased for lunch
14:00	second round of testing completed, compaction and moisture scores appear to be in adequate ranges
15:30	left site for the day

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Material Test Report

Report Number: **NEWC26555-5**
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11264
Date Sampled: 24/07/2026 8:00
Dates Tested: 24/07/2026 - 29/07/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Estate - Stage 8 and 9
Material: General Fill
Material Source: Site Won

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Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11264A	NEWC11264B	NEWC11264C
Test Number	1	2	3
Date Tested	24/07/2026	24/07/2026	24/07/2026
Time Tested	**	**	**
Test Request #/Location	N/A Lot 812	N/A Lot 805	N/A Lot 804
Easting	361585.849	361486.427	361482.237
Northing	6372945.539	6372941.985	6372978.829
Elevation (m)	38.887	31.644	31.169
Layer / Reduced Level	General Fill	General Fill	General Fill
Thickness of Layer (mm)	300	300	300
Soil Description	Gravelly CLAY	Gravelly CLAY	Gravelly Clay
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	1	2	1
Field Wet Density (FWD) (t/m^3)	2.07	2.08	2.03
Field Moisture Content (%)	15.1	16.0	14.5
Field Dry Density (FDD) (t/m^3)	1.80	1.80	1.77
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.08	2.02	2.02
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	0.5	1.5	2.0
Hilf Density Ratio (%)	**99.5**	**103.5**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Scope of work

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Padfoot

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Excavator and moxy

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Material

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-6**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11401
Date Sampled:	30/07/2026 8:30
Dates Tested:	30/07/2026 - 30/07/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Estate - Stage 8 and 9
Material:	General Fill
Material Source:	Site won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	N/A
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes / No / N/A
Have you noted construction methods and machinery used for the day?	Yes / No / N/A
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor	0	Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?		Bulldozer	2	Size ?		Moxy	2
Roller- Smoothdrum		Weight ?		Excavator	1	Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
8:30	arrived on site, discussed with site supervisor today's scope of work and safety procedures
8:40	excavator is distributing Site Won material and placing into moxys, Moxy's are then running up material and placing into lots for dozers, Dozers are then distributing and compacting material across said lots, padfoot roller is then further compacting distributed material
8:50	material inspection was conducted; material looks to be mostly free from organics, tree roots and oversize. myself and a on-site laborer are inspecting and removing any oversize or organics as seen from dumped material by moxys.
9:30	First round of testing complete, compaction and moisture numbers appear to be in adequate ranges
11:17	material appears to be on the dry side, spot check was completed with moisture ranges falling outside of parameters, water cart was requested and completed to give material some added moisture
13:00	work has ceased for lunch
15:00	second and third round of testing completed, compaction and moisture scores appear to be in adequate ranges
15:30	left site

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Material Test Report

Report Number: **NEWC26555-6**
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11401
Date Sampled: 30/07/2026 8:30
Dates Tested: 30/07/2026 - 11/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Estate - Stage 8 and 9
Material: General Fill
Material Source: Site won

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Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	NEWC11401A	NEWC11401B	NEWC11401C	NEWC11401D
Test Number	9	10	11	12
Date Tested	30/07/2026	30/07/2026	30/07/2026	30/07/2026
Time Tested	9:24	13:52	14:10	14:49
Test Request #/Location	Lot 807	Lot 809	Lot 810	Lot 808
Easting	361490.81	361469.890	361476.674	361540.54
Northing	6372982	6372938.408	6372932.760	6372994.80
Elevation (m)	32.14	30.334	31.334	35.77
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY
Test Depth (mm)	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	3	7	2
Field Wet Density (FWD) (t/m^3)	1.99	2.01	2.13	1.92
Field Moisture Content (%)	13.9	14.3	13.2	15.2
Field Dry Density (FDD) (t/m^3)	1.75	1.76	1.88	1.67
Peak Converted Wet Density (t/m^3)	1.92	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	**	2.02	2.05	1.92
Moisture Variation (Wv) (%)	3.0	**	**	**
Adjusted Moisture Variation (%)	**	2.5	2.0	2.5
Hilf Density Ratio (%)	**104.0**	**99.5**	**103.5**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Scope of work

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Excavator

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Material Test Report

Report Number:	**NEWC26555-7**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11468
Date Sampled:	03/08/2026
Dates Tested:	03/08/2026 - 18/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Estate - Stage 8 - 9
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11468A		
Test Number	13		
Date Tested	03/08/2026		
Time Tested	13:22		
Test Request #/Location	N/A Lot 807		
Easting	361493.20		
Northing	6372977		
Elevation (m)	32.48		
Layer / Reduced Level	General Fill		
Thickness of Layer (mm)	300		
Soil Description	Sandy CLAY		
Test Depth (mm)	300		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	2		
Field Wet Density (FWD) (t/m^3)	1.99		
Field Moisture Content (%)	15.9		
Field Dry Density (FDD) (t/m^3)	1.71		
Peak Converted Wet Density (t/m^3)	**		
Adjusted Peak Converted Wet Density (t/m^3)	2.03		
Moisture Variation (Wv) (%)	**		
Adjusted Moisture Variation (%)	2.0		
Hilf Density Ratio (%)	**98.0**		
Compaction Method	**Standard**		
Remarks	**		

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Level 1 Daily Summary Report

Report Number:	**NEWC26555-8**
Issue Number:	1
Date Issued:	20/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11486
Date Sampled:	04/08/2026
Dates Tested:	04/08/2026 - 04/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection:	AS 1289.1.4.1
Location:	Loxford Stages 8 & 9 - Gillieston Heights
Lot Number:	Lot
Material:	Gravely CLAY
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	N/A
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes / No / N/A
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes / No / N/A
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes / No / N/A
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes / No / N/A
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?		Bulldozer	1	Size ?		Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
8:15	Arrived on site, Moxy's dropping fill in Lot 812, being spread by dozer.
9:00	Padfoot compacting aforementioned lots.
10:00	Material beying layed and spread in lot 811, padfoot compacting fill in lot 813
10:30	Spreading fill continues in lot 811 as compaction of loose fill begins.
11:15	Placing/ spreading material in 813.
11:25	Water cart adds moisture to lot 811.
12:30	Began placing and spreading in Lot 813, as well as continued placing in 811.

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Material Test Report

Report Number: **NEWC26555-8**
Issue Number: 1
Date Issued: 20/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11486
Date Sampled: 04/08/2026
Dates Tested: 04/08/2026 - 14/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection: AS 1289.1.4.1
Test Area Bounds: Start: End: Left: Right:
Location: Loxford Stages 8 & 9 - Gillieston Heights
Lot Number: Lot
Material: Gravely CLAY
Material Source: Site Won

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AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11486A	NEWC11486B	NEWC11486C
Test Number	14	15	16
Date Tested	04/08/2026	04/08/2026	04/08/2026
Time Tested	09:35	13:08	13:12
Test Request #/Location	N/A Lot 812	N/A Lot 811	N/A Lot 811
Easting	361474.99	361481.36	361472.72
Northing	6372993.80	6372983.15	6372991.52
Layer / Reduced Level	General Fill	General Fill	General Fill
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	6	10	9
Field Wet Density (FWD) (t/m^3)	2.08	2.07	2.07
Field Moisture Content (%)	15.1	22.0	15.0
Field Dry Density (FDD) (t/m^3)	1.80	1.70	1.80
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.15	2.15	2.18
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	0.0	0.0	0.0
Hilf Density Ratio (%)	**96.5**	**96.0**	**95.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Material Test Report

Report Number: **NEWC26555-9**
Issue Number: 1
Date Issued: 21/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11544
Date Sampled: 06/08/2026
Dates Tested: 06/08/2026 - 18/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Stages 8 & 9 - Gillieston Heights
Material: General Fill
Material Source: Site Won

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Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	NEWC11544A	NEWC11544B	NEWC11544C	NEWC11544D
Test Number	17	18	19	20
Date Tested	06/08/2026	06/08/2026	06/08/2026	06/08/2026
Time Tested	09:38	09:47	13:06	14:52
Test Request #/Location	N/A Loxford Stages 8&9 - Lot 812	N/A Loxford Stages 8&9 - Lot 811	N/A Loxford Stages 8&9 - Lot 813	N/A Loxford Stages 8&9 - Lot 814
Easting	361472.83	361460.73	361495.08	361511.40
Northing	6373000.82	6372997.90	6373002.47	6373008.69
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	13	19	13	12
Field Wet Density (FWD) (t/m^3)	2.17	2.20	2.12	2.13
Field Moisture Content (%)	12.1	11.0	11.4	12.6
Field Dry Density (FDD) (t/m^3)	1.93	1.98	1.90	1.89
Peak Converted Wet Density (t/m^3)	**	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.11	2.16	2.09	2.08
Moisture Variation (Wv) (%)	**	**	**	**
Adjusted Moisture Variation (%)	0.5	0.5	2.0	2.0
Hilf Density Ratio (%)	**102.5**	**102.0**	**101.0**	**102.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-10**
Issue Number:	1
Date Issued:	21/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11569
Date Sampled:	07/08/2026
Dates Tested:	07/08/2026 - 07/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford Stages 8 & 9 - Gillieston Heights
Material:	General Fill
Material Source:	Site Won

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Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	N/A
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	2	Size ?		Moxy	1
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
08:00	Arrived on site, tested lot 814, dozer spreading material in 815, other dozer spreading material in 911 and 910, Padfoot compacting fill in lot 909.
08:59	Lot 907 compacted and tested, Padfoot moves to lot 813 as dozer trims edges of 814.
10:00	Dozer moving fill in Lot 910 and 909, Padfoot compacting in Lot 911.
10:30	Padfoot compacting fill in 815, dozer moving fill in 910, another dozer trimming 911.
10:44	1 dozer moving fill on moxy track between lots 909 and 908, other dozer still moving in lot 910.
11:30	Padfoot rolling 820, 907 and 906, Dozer ripping up existing material in 904.

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Material Test Report

Report Number: **NEWC26555-10**
Issue Number: 1
Date Issued: 21/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11569
Date Sampled: 07/08/2026
Dates Tested: 07/08/2026 - 18/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford Stages 8 & 9 - Gillieston Heights
Material: General Fill
Material Source: Site Won

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AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11569A	NEWC11569B	NEWC11569C
Test Number	21	22	23
Date Tested	07/08/2026	07/08/2026	07/08/2026
Time Tested	08:04	08:51	12:07
Test Request #/Location	N/A Loxford Stages 8&9 - Lot 814	N/A Loxford Stages 8&9 - Lot 907	N/A Loxford Stages 8&9 - Lot 817
Easting	361530.50	361598.84	361545.76
Northing	6373009.92	6373016.70	6373014.18
Layer / Reduced Level	General FILL	General FILL	General FILL
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	7	9	6
Field Wet Density (FWD) (t/m^3)	2.10	2.03	2.11
Field Moisture Content (%)	11.4	10.1	10.0
Field Dry Density (FDD) (t/m^3)	1.89	1.85	1.92
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.13	2.10	2.09
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	1.5	2.0	2.0
Hilf Density Ratio (%)	**99.0**	**96.5**	**101.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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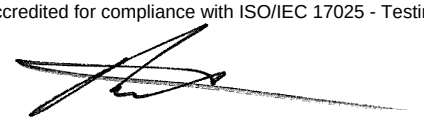
Level 1 Daily Summary Report

Report Number:	**NEWC26555-11**
Issue Number:	1
Date Issued:	24/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	11611
Date Sampled:	10/08/2026
Dates Tested:	10/08/2026 - 10/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Remarks:	No GPS Available for Test 3 & 4
Specification:	Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection:	Selected by Client
Location:	Lofxord Stages 8 & 9 - Gillieston Heights
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	N/A
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Windy

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	2	Size ?		Moxy	
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart									
Other									

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Remarks	
Time	Remarks
07:30	Dozer ripping material in lot 901, other dozer ripping up lot 820/ 907, Lot 904 compacted and tested. Padfoot compacts edge of lot 818 on 817.
08:00	Padfoot rolling 817 and 910 as Dozer continues tearing up 907 and 820.
09:00	Padfoot crushing oversize and fill in Lot 819, dozers continuing the same jobs.
10:00	Padfoot crushing oversize and fill in Lot 819, dozers continuing the same jobs.
11:00	Dozer ripping in lot 820, other dozer ripping in Lot 901, Water cart adds moisture to MC07.
12:00	Dozer ripping Lots 901, 902 and 903. Padfoot compacting in Lot 820 and 907.
13:00	Dozer continues ripping up Lots 901, 902 and 903, another Dozer moves fill from top of site.
14:00	Padfoot begins compacting 902 and 903.
15:00	Dozer moving fill on MC07, Padfoot compacting 901.

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Material Test Report

Report Number: **NEWC26555-11**
Issue Number: 1
Date Issued: 24/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 11611
Date Sampled: 10/08/2026
Dates Tested: 10/08/2026 - 20/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: No GPS Available for Test 3 & 4
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection: Selected by Client
Location: Lofxord Stages 8 & 9 - Gillieston Heights
Material: General Fill
Material Source: Site Won

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16 Callistemon Close Warabrook NSW 2304
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Email: andrew.weinberg@coffeytesting.com

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	NEWC11611A	NEWC11611B	NEWC11611C	NEWC11611D
Test Number	24	25	26	27
Date Tested	10/08/2026	10/08/2026	10/08/2026	10/08/2026
Time Tested	07:20	10:43	14:39	14:47
Test Request #/Location	N/A Loxford Stages 8 & 9 - Lot 904	N/A Loxford Stages 8 & 9 - Lot 906	N/A Loxford Stages 8 & 9 - Lot 903	N/A Loxford Stages 8 & 9 - Lot 902
Easting	361595.85	361610.21	**	**
Northing	6373085.58	637.3037.80	**	**
Layer / Reduced Level	Lot Fill	Lot Fill	Lot Fill	Lot Fill
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	8	0	7	9
Field Wet Density (FWD) (t/m^3)	2.03	2.02	2.07	2.10
Field Moisture Content (%)	15.2	21.0	13.7	13.6
Field Dry Density (FDD) (t/m^3)	1.76	1.67	1.82	1.85
Peak Converted Wet Density (t/m^3)	**	1.95	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.04	**	2.07	2.04
Moisture Variation (Wv) (%)	**	2.0	**	**
Adjusted Moisture Variation (%)	1.5	**	2.0	1.5
Hilf Density Ratio (%)	**100.0**	**104.0**	**100.0**	**103.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Level 1 Daily Summary Report

Report Number:	**NEWC26555-14**
Issue Number:	1
Date Issued:	26/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803 - Docket - 019314
Work Request:	11694
Date Sampled:	13/08/2026
Dates Tested:	13/08/2026 - 13/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection:	Selected by Client
Location:	Loxford Stages 8 & 9, Gillieston Heights
Lot Number:	311
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	1	Size ?	D8T	Moxy	2
Roller- Smoothdrum		Weight ?		Excavator	1	Size ?		Scraper	
Water Cart	2								
Other									

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Remarks	
Time	Remarks
7:00	Arrived on site, Dozer and Padfoot working on Lot 311.
8:00	Fill being placed, moved, watered and compacted in Lot 312 and 311.
9:00	Same process continues.
10:00	Same process continues.
11:00	Nothing noteworthy has happened, machinery moves to topsoil in another lot.
12:00	Dozer broken down, removed and swapped out.
13:00	Works return to normal, same process.
14:00	Recent layer tested, works continue the same.
15:00	Same works continue.

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Material Test Report

Report Number: **NEWC26555-14**
Issue Number: 1
Date Issued: 26/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803 - Docket - 019314
Work Request: 11694
Date Sampled: 13/08/2026
Dates Tested: 13/08/2026 - 25/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection: Selected by Client
Location: Loxford Stages 8 & 9, Gillieston Heights
Lot Number: 311
Material: General Fill
Material Source: Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11694A	NEWC11694B	NEWC11694C
Test Number	33	34	35
Date Tested	13/08/2026	13/08/2026	13/08/2026
Time Tested	07:36	13:42	13:46
Test Request #/Location	N/A Loxford Stages 8 & 9 - Lot 311	N/A Loxford Stages 8 & 9 - Lot 311	N/A Loxford Stages 8 & 9 - Lot 311
Easting	361316.72	361341.56	361327.28
Northing	6372885.24	6372906.32	6372894.23
Layer / Reduced Level	General Fill - 0.8m to FL	General Fill - 0.5m to FL	General Fill - 0.4m to FL
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	6	19	2
Field Wet Density (FWD) (t/m^3)	1.96	2.15	2.02
Field Moisture Content (%)	12.6	10.7	14.5
Field Dry Density (FDD) (t/m^3)	1.75	1.94	1.76
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.06	2.16	2.04
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	1.5	1.5	1.0
Hilf Density Ratio (%)	**95.5**	**99.5**	**98.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-15**
Issue Number:	1
Date Issued:	26/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803 - Docket - 019318
Work Request:	11805
Date Sampled:	18/08/2026
Dates Tested:	18/08/2026 - 18/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection:	Selected by Client
Location:	Loxford Stages 8 & 9 - Gillieston Heights
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	2	Size ?	D8T	Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	2								
Other									

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Remarks	
Time	Remarks
7:30	Arrived on site, Dozers ripping up Lot 312.
8:00	Dozers continue ripping up lot.
9:00	Fill being placed in Lot 311.
10:00	Fill has been spread by dozer, upon coming off of smoko, Padfoot will begin compacting said fill. Moxy's placing fill in lot 305.
11:00	Dozer spreading fill in Lot 305.
12:00	Fill being placed in 310 and compacted in 305.
13:00	305 and 310 compacted and tested.
14:00	Machinery trouble causes break in progress.
15:00	Rain makes lot fill difficult.
16:00	Lot 311 tested, dozer pushes fill from stockpile into 305.

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Material Test Report

Report Number: **NEWC26555-15**
Issue Number: 1
Date Issued: 26/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803 - Docket - 019318
Work Request: 11805
Date Sampled: 18/08/2026
Dates Tested: 18/08/2026 - 26/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection: Selected by Client
Location: Loxford Stages 8 & 9 - Gillieston Heights
Material: General Fill
Material Source: Site Won

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Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11805A	NEWC11805B	NEWC11805C
Test Number	41	42	43
Date Tested	18/08/2026	18/08/2026	18/08/2026
Time Tested	**	**	**
Test Request #/Location	N/A Loxford Stages 8 & 9 - Lot 305	N/A Loxford Stages 8 & 9 - Lot 310	N/A Loxford Stages 8 & 9 - Lot 311
Easting	361418.77	361339.90	361314.16
Northing	6372920.92	6372883.84	6372897.36
Layer / Reduced Level	General Fill - 0.91 to FL	General Fill - 0.78 to FL	General Fill - 0.2 to FL
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	1	4
Field Wet Density (FWD) (t/m^3)	1.97	1.97	2.01
Field Moisture Content (%)	11.9	15.2	13.8
Field Dry Density (FDD) (t/m^3)	1.76	1.71	1.77
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	1.98	2.01	1.99
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	1.5	2.0	1.5
Hilf Density Ratio (%)	**99.5**	**98.0**	**101.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-16**
Issue Number:	1
Date Issued:	26/08/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803 - Docket - 019313
Work Request:	11666
Date Sampled:	12/08/2026
Dates Tested:	12/08/2026 - 12/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 98% Standard Compaction
Location:	Loxford Stages 8 & 9, Gillieston Heights -
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	N/A
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	1	Size ?	D8T	Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	2								
Other									

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Remarks	
Time	Remarks
09:00	Arrived on site, Moxy's carting fill into MC08, and lots 310, 311 and 312, water carts add water to maintain optimum moisture then fill is placed by dozer. test taken in MC08 for first layer.
10:00	Moxy's dumping in MC08, Lot 311 and 310, moved by dozer, hit by the water cart then compacted with the padfoot.
11:00	Lot 311 tested, Moxy's continue dropping fill in 311, 310 and MC08, water cart continues spraying said fill before being pushed into layer height by dozer and compacted via padfoot.
12:00	Same process repeats in 311, 310, and 309.
13:00	Same process repeats over same lots.
14:00	Same process repeats.
15:00	Same process repeats, most recent layer tested.

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Material Test Report

Report Number: **NEWC26555-16**
Issue Number: 1
Date Issued: 26/08/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803 - Docket - 019313
Work Request: 11666
Date Sampled: 12/08/2026
Dates Tested: 12/08/2026 - 24/08/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Location: Loxford Stages 8 & 9, Gillieston Heights -
Material: General Fill
Material Source: Site Won

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Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	NEWC11666A	NEWC11666B	NEWC11666C	NEWC11666D	NEWC11666E
Test Number	28	29	30	31	32
Date Tested	12/08/2026	12/08/2026	12/08/2026	12/08/2026	12/08/2026
Time Tested	09:24	09:58	10:41	12:26	14:46
Test Request #/Location	N/A Loxford Stages 8 & 9 - MC08	N/A Loxford Stages 8 & 9 - MC01	N/A Loxford Stages 8 & 9 - Lot 311	N/A Loxford Stages 8 & 9 - Lot 311	N/A Loxford Stages 8 & 9 - Lot 311
Easting	361293.99	361388.25	361312.75	361328.47	361327.27
Northing	6372868.31	6372927.25	6372885.39	6372897.28	6372898.03
Layer / Reduced Level	General Fill - 3.1 off FL	General Fill - 1.3 off FL	General Fill - 2.4 off FL	General Fill - 1.5 off FL	General Fill - 1.4 off FL
Thickness of Layer (mm)	300	300	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	7	5	14	3	5
Field Wet Density (FWD) (t/m^3)	2.02	2.05	2.14	2.00	2.03
Field Moisture Content (%)	10.8	9.5	12.2	12.5	13.7
Field Dry Density (FDD) (t/m^3)	1.82	1.87	1.91	1.78	1.78
Peak Converted Wet Density (t/m^3)	**	**	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.06	2.07	2.09	2.03	2.06
Moisture Variation (Wv) (%)	**	**	**	**	**
Adjusted Moisture Variation (%)	2.5	2.5	2.0	2.5	2.5
Hilf Density Ratio (%)	**98.0**	**98.5**	**102.5**	**99.0**	**98.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-17A**
Issue Number:	1
Date Issued:	18/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803 - Docket - 019315
Work Request:	11747
Date Sampled:	14/08/2026
Dates Tested:	14/08/2026 - 14/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection:	Selected by Client
Location:	Loxford Stages 8 & 9 - Gillieston Heights
Lot Number:	311
Material:	General Fill
Material Source:	Site Won

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	N/A
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?		Bulldozer	1	Size ?	B8T	Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	2								
Other									

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Remarks	
Time	Remarks
8:30	Arrived on site, fill has began being placed, watered, spread and compacted in Lot 311.
9:30	Lot 309 tested, process continues, crew takes smoko.
11:00	No change in process.
12:00	Stormwater line tested in MC01, process continues.
13:00	Crew on lunch, testing in Lot 309 and 308.
14:00	No change in process or machinery.

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Material Test Report

Report Number: **NEWC26555-17A**
Issue Number: 1
Date Issued: 18/09/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803 - Docket - 019315
Work Request: 11747
Date Sampled: 14/08/2026
Dates Tested: 14/08/2026 - 01/09/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection: Selected by Client
Location: Loxford Stages 8 & 9 - Gillieston Heights
Lot Number: 311
Material: General Fill
Material Source: Site Won

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Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC11747A	NEWC11747B	NEWC11747C
Test Number	36	37	38
Date Tested	14/08/2026	14/08/2026	14/08/2026
Time Tested	09:36	12:57	13:03
Test Request #/Location	N/A Loxford Stages 8 & 9 - Lot 309	N/A Loxford Stages 8 & 9 - Lot 308	N/A Loxford Stages 8 & 9 - Lot 310
Easting	361349.46	361365.22	361348.84
Northing	6372903.85	6372907.86	6372895.88
Layer / Reduced Level	GEF - 0.56m off of FL	GEF - 0.56m off of FL	GEF - 0.56m off of FL
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	4	3	1
Field Wet Density (FWD) (t/m^3)	2.07	2.02	2.03
Field Moisture Content (%)	14.0	15.6	19.7
Field Dry Density (FDD) (t/m^3)	1.82	1.74	1.69
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.09	2.07	2.06
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	2.0	0.0	0.5
Hilf Density Ratio (%)	**99.0**	**97.0**	**98.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-18**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803 - DOCKET-040402
Work Request:	12149
Date Sampled:	02/09/2026
Dates Tested:	02/09/2026 - 02/09/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection:	Selected by Client
Location:	Loxford Stages 8 & 9 - Gillieston Heights
Lot Number:	204 - 211
Material:	Gravelly CLAY
Material Source:	Site Won

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Email: Newcastle Laboratory

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	12T	Bulldozer	1	Size ?	B8T	Moxy	2
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart	1								
Other									

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Remarks	
Time	Remarks
13:00	Dozer cutting and filling in lot 207, water cart adding moisture to lot 208, Padfoot rolling edges of lots 210 and 211. Lot 206 tested.
14:00	Padfoot rolling Lot 206, Dozer spreading fill in Lot 204. Lot 205 tested.
15:00	Padfoot rolling Lot 204, Dozer trimming 205 and moving fill in both lots. 204 Tested.
16:00	Padfoot rolling lot 203, dozer then moves on to shape 203. Lot 203 Tested.

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Material Test Report

Report Number: **NEWC26555-18**
Issue Number: 1
Date Issued: 09/09/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803 - DOCKET-040402
Work Request: 12149
Date Sampled: 02/09/2026
Dates Tested: 02/09/2026 - 09/09/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Site Selection: Selected by Client
Location: Loxford Stages 8 & 9 - Gillieston Heights
Lot Number: 204 - 211
Material: Gravelly CLAY
Material Source: Site Won

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16 Callistemon Close Warabrook NSW 2304
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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	NEWC12149A	NEWC12149B	NEWC12149C	NEWC12149D
Test Number	178	179	180	181
Date Tested	02/09/2026	02/09/2026	02/09/2026	02/09/2026
Time Tested	10:49	11:48	13:45	13:58
Test Request #/Location	N/A Loxford Stages 8 & 9 - Lot 206	N/A Loxford Stages 8 & 9 - Lot 205	N/A Loxford Stages 8 & 9 - Lot 204	N/A Loxford Stages 8 & 9 - Lot 203
Easting	361415.49	361392.42	361370.93	361347.48
Northing	6372869.10	6372880.39	6372891.15	6372875.49
Layer / Reduced Level	GEF - DS	GEF - DS	GEF - DS	GEF - DS
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY	Gravelly CLAY
Test Depth (mm)	300	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	6	3	2	2
Field Wet Density (FWD) (t/m^3)	1.98	1.96	1.96	1.96
Field Moisture Content (%)	11.8	13.7	12.0	12.9
Field Dry Density (FDD) (t/m^3)	1.77	1.73	1.75	1.74
Peak Converted Wet Density (t/m^3)	**	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	1.98	1.96	1.96	1.98
Moisture Variation (Wv) (%)	**	**	**	**
Adjusted Moisture Variation (%)	1.0	1.5	1.5	1.5
Hilf Density Ratio (%)	**100.0**	**100.0**	**100.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Level 1 Daily Summary Report

Report Number:	**NEWC26555-20**
Issue Number:	1
Date Issued:	15/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	12032
Date Sampled:	27/08/2026
Dates Tested:	27/08/2026 - 27/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 95% Standard Compaction
Location:	Loxford- gilliston Heights
Material:	General Fill
Material Source:	Site Won

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Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
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Email: Newcastle Laboratory

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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	300
Weather observations	Overcast

Potential Contaminations / Environmental Indications							
Odorous Material	Yes / No	Stained Material	Yes / No	Deleterious Material	Yes / No	Potential Petroleum Contamination	Yes / No
Hazardous Building Materials	Yes / No	General Waste Material	Yes / No				
Remarks							

Machinery / Plant									
Compactor		Size ?		Grader				Highway Truck	
Roller- Padfoot	1	Weight ?	10 tonne	Bulldozer	1	Size ?	15 tonne	Moxy	
Roller- Smoothdrum		Weight ?		Excavator		Size ?		Scraper	
Water Cart									
Other									

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Remarks	
Time	Remarks
07:00	Tester arrived on site and spoke to site supervisor about duties for the day
9:00	No oversize was detected in fill; A test was taken.
11:00	Operations continue to run smoothly, dozer pushed material across area of fill for padfoot to compact. Moisture levels remain good no organics or oversize was detected, A test was taken
12:30	Dozer began ripping next area of fill. Moisture levels remain good.
13:30	Operations continue to run smoothly.
14:30	Spoke to site supervisor and concluded duties for the day

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Material Test Report

Report Number: **NEWC26555-20**
Issue Number: 1
Date Issued: 15/09/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 12032
Date Sampled: 27/08/2026
Dates Tested: 27/08/2026 - 08/09/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 95% Standard Compaction
Location: Loxford- gilliston Heights
Material: General Fill
Material Source: Site Won

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16 Callistemon Close Warabrook NSW 2304
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Approved Signatory: Andrew Weinberg
Laboratory Supervisor
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	NEWC12032A	NEWC12032B	
Test Number	173	174	
Date Tested	27/08/2026	27/08/2026	
Time Tested	09:30	11:00	
Test Request #/Location	Lot 813	Lot 812	
Elevation (m)	28.78	27.23	
Layer / Reduced Level	General fill	General fill	
Thickness of Layer (mm)	300	300	
Soil Description	Sandy CLAY	Sandy CLAY	
Test Depth (mm)	300	300	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	2	3	
Field Wet Density (FWD) (t/m^3)	2.02	2.01	
Field Moisture Content (%)	14.2	5.7	
Field Dry Density (FDD) (t/m^3)	1.77	1.90	
Peak Converted Wet Density (t/m^3)	**	**	
Adjusted Peak Converted Wet Density (t/m^3)	2.01	2.00	
Moisture Variation (Wv) (%)	**	**	
Adjusted Moisture Variation (%)	3.0	3.0	
Hilf Density Ratio (%)	**100.5**	**100.5**	
Compaction Method	**Standard**	**Standard**	
Remarks	**	**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

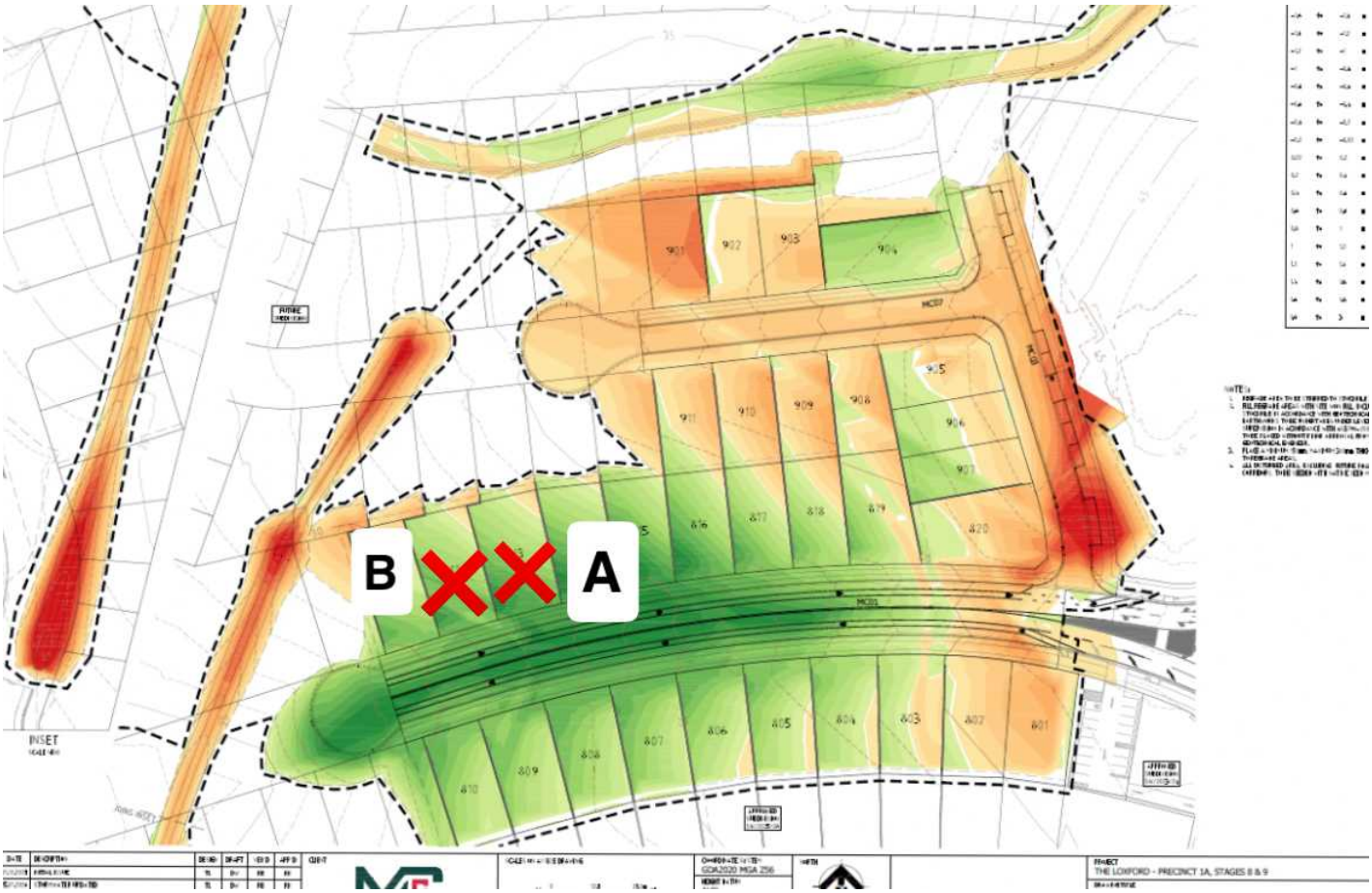
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Level 1 Daily Summary Report

Report Number:	**NEWC26555-21**
Issue Number:	1
Date Issued:	07/10/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	James Young
Project Number:	NEWC26555
Project Name:	EP4803 - Loxford Stage 8 & 9
Project Location:	Gilliston Heights
Client Reference:	EP4803
Work Request:	12051
Date Sampled:	28/08/2026
Dates Tested:	28/08/2026 - 28/08/2026
Sampling Method:	AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method:	AS 1289.1.1 - Sampling and Preparation of Soils
Specification:	Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection:	Selected by Client
Location:	Loxford Stages 8 & 9 - Lotfill, Gillieston Heights
Material:	Gravely CLAY
Material Source:	Site Won

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Email: jackson.antilla@coffeytesting.com

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Approved Signatory: Jackson Antilla
Laboratory Manager
Laboratory Accreditation Number: 431

AS1289.5.7.1

Daily Checks (AS 3798)	
Have you undertaken a safety check?	Yes
Have you discussed daily works program with Clients site foreman?	Yes
Has a stripped survey been done for the area?	Yes
Does the fill area look as it was when you were last here?	Yes
Has unsuitable material been removed?	Yes
Does the material meet specifications and is it fit for purpose?	Yes
Have you noted the source of the material?	Yes
Is the material at a suitable moisture content for placement?	Yes
Have you marked on the plan where the material is being placed today?	Yes
Have you done required testing for the day?	Yes
Have you got accurate and useful locations for tests taken?	Yes
Have you noted on a plan of the job the approximate locations of tests taken?	Yes
Have you filled out the summary sheet including hours onsite and lots worked on?	Yes
Have you filled out Daily Monitoring Sheet with actions taken for the day?	Yes
Have you noted construction methods and machinery used for the day?	Yes
Have you made notes of any significant conversations had with the client or contractors ?	Yes
Estimated quantity of fill?	
Estimated thickness of layer placed?	
Weather observations	Fine

Potential Contaminations / Environmental Indications							
Odorous Material	No	Stained Material	No	Deleterious Material	No	Potential Petroleum Contamination	No
Hazardous Building Materials	No	General Waste Material	No				
Remarks							

Machinery / Plant									
Compactor	0	Size ?		Grader				Highway Truck	0
Roller- Padfoot	1	Weight ?	12T	Bulldozer	2	Size ?	B8T	Moxy	1
Roller- Smoothdrum	0	Weight ?		Excavator		Size ?		Scraper	0
Water Cart	2								
Other									

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Remarks	
Time	Remarks
7:30	Arrived on site, dozer pushing fill into lots 511, 512, 513 and 514 from previous stockpile. Moxy dropping fill to edge of stockpile in lot 808.
8:30	Dozer continues pushing fill from stockpile into Lots 512 and 513, dozer then begins ripping up 808 and 809.
9:30	Dozer continues same job, crew also goes on smoko.
10:30	Dozer is now pushing fill into lot 511.
11:00	Dozer starts cleaning up lot 806
12:00	Dozer trimming lots 509 and 510, padfoot compacting 512 and water cart ran out of water.
1:00	Padfoot moved down to lot 511, dozer trimming edges of lots.
2:00	Dozer prepares lots for testing.

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Material Test Report

Report Number: **NEWC26555-21**
Issue Number: 1
Date Issued: 07/10/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: James Young
Project Number: NEWC26555
Project Name: EP4803 - Loxford Stage 8 & 9
Project Location: Gilliston Heights
Client Reference: EP4803
Work Request: 12051
Date Sampled: 28/08/2026
Dates Tested: 28/08/2026 - 10/09/2026
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: Minimum HILF Density Ratio of 98% Standard Compaction
Site Selection: Selected by Client
Location: Loxford Stages 8 & 9 - Lotfill, Gillieston Heights
Material: Gravely CLAY
Material Source: Site Won

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16 Callistemon Close Warabrook NSW 2304
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Email: jackson.antilla@coffeytesting.com

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Approved Signatory: Jackson Antilla
Laboratory Manager
Laboratory Accreditation Number: 431

AS1289.5.7.1

Compaction Control (AS 1289 5.7.1 & 5.8.1 & 2.1.1)			
Sample Number	NEWC12051A	NEWC12051B	NEWC12051C
Test Number	175	176	177
Date Tested	28/08/2026	28/08/2026	28/08/2026
Time Tested	2:20	14:32	3:02
Test Request #/Location	N/A Loxford stage 9 - Lot 809	N/A Loxford stage 9 - Lot 808	N/A Loxford stage 9 - Lot 807
Layer / Reduced Level	General Fill	General Fill	General Fill
Thickness of Layer (mm)	300	300	300
Soil Description	Gravely CLAY	Gravely CLAY	Gravely CLAY
Test Depth (mm)	300	300	300
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	4	3	4
Field Wet Density (FWD) (t/m^3)	2.15	2.06	2.02
Field Moisture Content (%)	14.7	13.0	14.7
Field Dry Density (FDD) (t/m^3)	1.87	1.82	1.76
Peak Converted Wet Density (t/m^3)	**	**	**
Adjusted Peak Converted Wet Density (t/m^3)	2.04	2.03	2.06
Moisture Variation (Wv) (%)	**	**	**
Adjusted Moisture Variation (%)	2.0	1.0	1.0
Hilf Density Ratio (%)	**105.5**	**101.5**	**98.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

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Sample Locations Plan

x - approximate test location



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Appendix D
ENGINEERING LOGS

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Engineering Log - Dynamic Penetrometer

Borehole No. **801 / 802**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**SANDSTONE;** exposed, recovered as gravelly SAND, fine to coarse, pale brown - yellow, fine to coarse sub-angular gravel	D		>>
					0.5			Practical refusal, Borehole 801 / 802 terminated at 0.2m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

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Engineering Log - Dynamic Penetrometer

Borehole No. **803**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.0			**FILL;** Sandy CLAY, medium to high plasticity, pale brown - dark brown, fine to coarse sand	PL		
					0.5		CL	**Sandy CLAY;** medium plasticity, pale brown - orange, fine to coarse sand	<PL	VSt - Fb	>>
					1.0			Practical refusal on SANDSTONE. Borehole 803 terminated at 0.7m			
					1.5						
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

Form GEO 5.4 Issue 3 Rev.2

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **804**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.0			**FILL;** Sandy Gravelly CLAY, low to medium plasticity, black - pale grey, fine to coarse sand, fine to coarse sub-angular gravel, white sandstone gravel throughout fill	<PL		
			S/S U50		0.5						
					1.0		CL	**Sandy CLAY;** low to medium plasticity, white, fine to coarse sand	<PL	Fb	
					1.5			Practical refusal. Borehole 804 terminated at 1.1m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **805**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy CLAY, medium plasticity, dark brown - black, fine to coarse sand, trace fine to coarse sub-angular gravel (white)	PL		
					1.0						
					1.5			Practical refusal, recovered as white gravelly SAND. Borehole 805 terminated at 1.2m			>>
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **806**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy Gravelly CLAY, medium plasticity, dark brown, fine to coarse sand, fine to coarse gravel	<PL		2, 2, 2, 5>>
					1.0			- becoming medium to high plasticity, pale brown			
					1.5			Practical refusal. Borehole 806 terminated at 1.5m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

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Engineering Log - Dynamic Penetrometer

Borehole No. **807**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy CLAY, medium plasticity, brown - dark brown, fine to coarse sand	PL - <PL		
					1.0		CL	**CLAY;** medium plasticity, brown - orange - mottled, with fine to coarse sand - 400+ pp	PL	H	>>
					1.5			Practical refusal. Borehole 807 terminated at 1.7m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

Form GEO 5.4 Issue 3 Rev.2

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Engineering Log - Dynamic Penetrometer

Borehole No. **808**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy Gravelly CLAY, medium to high plasticity, brown - dark brown, fine to coarse sand, fine to coarse gravel	PL		>>
					1.0		CL	**Sandy CLAY;** medium plasticity, white, fine to coarse sand	<PL	Fb	
					1.5			- white - pale red			
					2.0			Borehole 808 terminated at 1.8m			

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **809**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.0			**FILL;** Sandy Gravelly CLAY, medium plasticity, black - brown, fine to coarse sand, fine to coarse gravel	PL		
			S/S U50		0.5						
					1.0						
					1.5		CL	**Silty Sandy CLAY;** medium plasticity, white - pale red, fine silt, fine to coarse sand	<PL	Fb	
					1.8			Borehole 809 terminated at 1.8m			
					2.0						

>>

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Form GEO 5.4 Issue 3 Rev.2

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **810**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.0			**FILL;** Clayey Gravelly SAND, fine to coarse, black - brown, low plasticity clay, fine to coarse gravel			
					0.5			**FILL;** Sandy CLAY, medium plasticity, orange - brown, fine to coarse sand	PL		
					1.0		CL	**Sandy CLAY;** medium plasticity, pale brown - yellow - white, fine to coarse sand	<PL	Fb	
					1.5			Borehole 810 terminated at 1.8m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

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Engineering Log - Dynamic Penetrometer

Borehole No. **811**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy Gravelly CLAY, low to medium plasticity, white - pale brown, fine to coarse sand, fine to coarse gravel	PL - <PL		
					1.0		CL - CH	**CLAY;** medium to high plasticity, brown, with fine to coarse sand - 400+ pp	PL	VSt - H	>>
					1.5		CL	**Sandy CLAY;** low plasticity, pale grey, fine to coarse sand	<{L	Fb	
					2.0			Borehole 811 terminated at 1.8m			

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

Form GEO 5.4 Issue 3 Rev.2

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **812**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N					SP	**Gravelly SAND;** fine to coarse, pale brown - yellow, fine to coarse gravel	M - D		>> >>
					0.5			Practical refusal. Borehole 812 terminated at 0.3m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **813**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy CLAY, medium plasticity, white - pale brown, fine to coarse sand	PL		
					1.0		CL - CH	**Sandy CLAY;** medium to high plasticity, pale brown - brown, fine to coarse sand	PL	VSt - H	
			S/S U50					- 400 pp			>>
					1.5						
								Borehole 813 terminated at 1.8m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

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Form GEO 5.4 Issue 3 Rev.2

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **814**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Sandy Gravelly CLAY, high plasticity, pale brown, fine to coarse sand, fine to coarse gravel	PL		>>
					1.0		CL	**CLAY;** medium plasticity, pale brown - dark brown (streaking), with fine to coarse sand	PL	H	
					1.5			- 350 pp			
								- 400 pp			
					2.0			Borehole 814 terminated at 1.8m			

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

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coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **815**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Sandy CLAY, medium plasticity, pale brown - white - brown, fine to coarse sand	<PL		
					0.5			**FILL;** Clayey SAND, fine to coarse, pale yellow, low plasticity clay	M		
					1.0			**FILL;** Sandy CLAY, medium plasticity, brown - pale brown, fine to coarse sand	<PL		
							CL	**Sandy Gravelly CLAY;** medium plasticity, brown - white, fine to coarse sand, fine to coarse gravel, some extra-weathered SANDSTONE	<PL	Fb	>>
					1.5						
								Borehole 815 terminated at 1.8m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **816**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.0			**FILL;** Clayey Gravelly SAND, fine to coarse, brown, low plasticity clay, fine to coarse gravel	M		
					0.5			**FILL;** Sandy CLAY, medium to high plasticity, brown, fine to coarse sand	PL		
					1.0		CL	**Sandy CLAY;** low plasticity, dark brown - brown, fine to coarse sand	<PL	Fb	
					1.5			Borehole 816 terminated at 1.8m			
					2.0						

>>

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Form GEO 5.4 Issue 3 Rev.2

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **817**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5			**FILL;** Gravelly Sandy CLAY, medium plasticity, pale brown - white, fine to coarse gravel, fine to coarse sand	<PL		
			S/S U50		1.0						>>
					1.5			Practical refusal. Borehole 817 terminated at 1.2m			
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

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coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **818**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Gravelly Sandy CLAY, medium plasticity, brown, fine to coarse sub-angular gravel, fine to coarse sand	<PL - PL		>>
					0.5			**FILL;** Clayey SAND, fine to coarse, pale brown, low plasticity clay	M - D		
							CL	**Sandy CLAY;** low to medium plasticity, pale brown, fine to coarse sand	<PL	Fb	
					1.0						
					1.5						
								Borehole 818 terminated at 1.8m			
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

Form GEO 5.4 Issue 3 Rev.2

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **819**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Clayey Gravelly SAND, fine to coarse, brown, low plasticity clay, fine to coarse gravel	D		
					0.5			**FILL;** Sandy CLAY, medium plasticity, brown - pale brown, fine to coarse sand	<PL		
							CL	**Sandy CLAY;** medium plasticity, pale brown - white, fine to coarse sand, trace fine to coarse sub-angular gravel	<PL	Fb - H	
					1.0						
					1.5						
								Borehole 819 terminated at 1.8m			
					2.0						

>>

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **820**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information						material substance					
penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 2 4 6 8 10 12 14
	N	N					SP	**Gravelly SAND;** fine to coarse, brown, fine to coarse sub-angular gravel	D	VD	
					0.5			Practical refusal on SANDSTONE. Borehole 820 terminated at 0.2m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **901**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information						material substance					
penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						Practical refusal on SANDSTONE.			>>
								Borehole 901 terminated at 0.1m			
					0.5						
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **902 / 903**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N			0.5		CL	**CLAY;** medium plasticity, brown with streaking, some fine to coarse sand	PL - <PL	H - Fb	>>
					1.0			Practical refusal on SANDSTONE. Borehole 902 / 903 terminated at 0.6m			
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **904**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Sandy Gravelly CLAY, medium plasticity, brown, fine to coarse sand, fine to coarse sub-angular gravel	<PL		>>
			S/S U50		0.5						
					1.0			Practical refusal on SANDSTONE. Borehole 904 terminated at 0.8m			
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

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coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **905 / 906**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N					SC	**Clayey SAND;** fine to coarse, brown, low plasticity clay	D	VD	>> >>
					0.5			Practical refusal. Borehole 905 / 906 terminated at 0.3m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

DCP LOXFORD STAGE 8 & 9.GPJ COFFEY.GDT 31.8.26

Form GEO 5.4 Issue 3 Rev.2

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **906 / 907**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: **EP RISK MANAGEMENT**

Date started: **24.8.2026**

Principal:

Date completed: **24.8.2026**

Project: **EP4751 - LOXFORD STAGE 8 & 9**

Logged by: **JB**

Borehole location: **SEE FIGURE**

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Clayey SAND, fine to coarse, dark brown, low plasticity clay	D - M		
					0.5		CL - CH	**Sandy CLAY;** medium to high plasticity, brown, fine to coarse sand - 400 pp	PL	VSt - H	>>
					1.0			Practical refusal. Borehole 906 / 907 terminated at 0.8m			
					1.5						
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **908**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						**FILL;** Sandy CLAY, medium plasticity, dark brown, fine to coarse sand, trace sub-angular gravel	PL		>>
					0.5			Practical refusal on SANDSTONE. Borehole 908 terminated at 0.3m			
					1.0						
					1.5						
					2.0						

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **909**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						Practical refusal on SANDSTONE.			>>
								Borehole 909 terminated at 0.1m			

0.5

1.0

1.5

2.0

method
- N natural exposure
- X existing excavation
- BH backhoe bucket
- B bulldozer blade
- R ripper
- E excavator
- HA hand auger
- DT diatube

support
- C casing
- N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- V vane shear (kPa)
- Bs bulk sample

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **910**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information | **material substance**

penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count: blows per 100 mm (2 4 6 8 10 12 14)
	N	N						Practical refusal on SANDSTONE.			>>
					0.5			Borehole 910 terminated at 0.1m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

coffey TESTING

Engineering Log - Dynamic Penetrometer

Borehole No. **911**

Sheet 1 of 1

Project No: **TESTCCOA0063AA**

Client: ***EP RISK MANAGEMENT***

Date started: ***24.8.2026***

Principal:

Date completed: ***24.8.2026***

Project: ***EP4751 - LOXFORD STAGE 8 & 9***

Logged by: ***JB***

Borehole location: ***SEE FIGURE***

Checked by:

dynamic penetrometer type: DYNAMIC | hammer mass: 9 | Easting: | R.L. Surface: Not Measured

hole diameter: 100 | hammer drop: 510 | Northing: | datum: AHD

drilling information						material substance					
penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	blow count blows per 100 mm 2 4 6 8 10 12 14
	N	N					SC	**Clayey SAND;** fine to coarse, brown, low plasticity clay	D	VD	>>
					0.5			Practical refusal on SANDSTONE. Borehole 911 terminated at 0.4m			
					1.0						
					1.5						
					2.0						

method

N	natural exposure
X	existing excavation
BH	backhoe bucket
B	bulldozer blade
R	ripper
E	excavator
HA	hand auger
DT	diatube

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
V	vane shear (kPa)
Bs	bulk sample

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

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

Appendix E
BOREHOLE LOCATIONS

Plotted By: Dean Woodbridge Plot Date: 25/06/26 10:32:07AM



INSET
SCALE 1:500

CUT (−) / FILL (+) DEPTHS Lower_value		Upper_value		Colour
−3	to	−1.8	m	
−1.8	to	−1.6	m	
−1.6	to	−1.4	m	
−1.4	to	−1.2	m	
−1.2	to	−1	m	
−1	to	−0.8	m	
−0.8	to	−0.6	m	
−0.6	to	−0.4	m	
−0.4	to	−0.2	m	
−0.2	to	−0.02	m	
0.02	to	0.2	m	
0.2	to	0.4	m	
0.4	to	0.6	m	
0.6	to	0.8	m	
0.8	to	1	m	
1	to	1.2	m	
1.2	to	1.4	m	
1.4	to	1.6	m	
1.6	to	1.8	m	
1.8	to	3	m	

NOTES:
1. REGRADE AREA TO BE STRIPPED TO STOCKPILE FOR REUSE.
2. FILL REGRADE AREAS WITH SITE WON FILL (INCLUDING STOCKPILE) IN ACCORDANCE WITH GEOTECHNICAL REPORT. EARTHWORKS TO BE UNDERTAKEN UNDER LEVEL 1 SUPERVISION IN ACCORDANCE WITH AS3798-2007. NO FILL IS TO BE PLACED WITHOUT PRIOR APPROVAL FROM GEOTECHNICAL ENGINEER.
3. PLACE A MINIMUM 150mm, MAXIMUM 300mm THICK TOPSOIL TO REGRADE AREAS.
4. ALL DISTURBED AREA, EXCLUDING FUTURE ROAD CORRIDORS, TO BE SEEDED WITH NATIVE SEED MIX.

● Proposed BH Locations

BEFORE YOU DIG byda.com.au

REV	DATE	DESCRIPTION	DESIGN	DRAFT	VER'D	APP'D
A	01.12.2025	INITIAL ISSUE	TL	DW	RB	RK
B	15.01.2026	STORMWATER UPDATED	TL	DW	RB	RK
C	30.01.2026	PAVEMENT DESIGN ADDED	TL	DW	RB	RK
D	27.03.2026	MC01 MEDIAN REMOVED	TL	DW	RB	RK
0	10.06.2026	ISSUED FOR CONSTRUCTION	TL	DW	RB	RK
1	25.06.2026	STORMWATER UPDATES FOR ELECTRICAL CROSSINGS	TL	DW	RB	RK

CLIENT: McCLOYGROUP

SCALES ON A1 SIZE DRAWING: A1 1:500 | 0 12.5 25.0m | A3 1:1000

CO-ORDINATE SYSTEM: GDA2020 MGA Z56
HEIGHT DATUM: AHD
SURVEYED BY: .

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
_HVP\03 Projects\1001 - Regrowth Kurri Kurri\12d\1001_1A_5-7\1001_1A_57\1001_1A_57.project

NORTH

ALL DIMENSIONS IN METRES UNLESS SHOWN OTHERWISE

HIGHVIEW PARTNERS

Highview Partners (NSW) Pty Ltd
1 Dickson Road Loxford, NSW 2326
ABN 65 675 146 862

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PROJECT: THE LOXFORD - PRECINCT 1A, STAGES 8 & 9
DRAWING TITLE: SITE REGRADE PLAN

ISSUE STATUS	PROJECT	CODE	DRG NO.	REV
CONSTRUCTION ISSUE	1001(1A8)	CE	501	1

CAD File: \\HVP\03 projects\1001 - regrowth kurri kurri\CAD\1001(1a8) precinct 1a stage 8 to 9\CE\1001(1A8)-CE-501.dwg

100 mm ON A1 SIZE ORIGINAL
0 50

Appendix F
LABORATORY TEST RESULTS

Material Test Report

Report Number:	**CCOA25132-76**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	Ovidiu
Project Number:	CCOA25132
Project Name:	Geotech Investigations - Various Locations
Client Reference:	EP4751.002
Work Request:	6841
Sample Number:	CCOA6841A
Date Sampled:	24/08/2026
Dates Tested:	24/08/2026 - 08/09/2026
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Site Selection:	AS 1289.1.4.1
Sample Location:	**Lot 804, Depth: 0.4-0.7m**

coffey TESTING

Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

Accredited for compliance with ISO/IEC 17025 - Testing

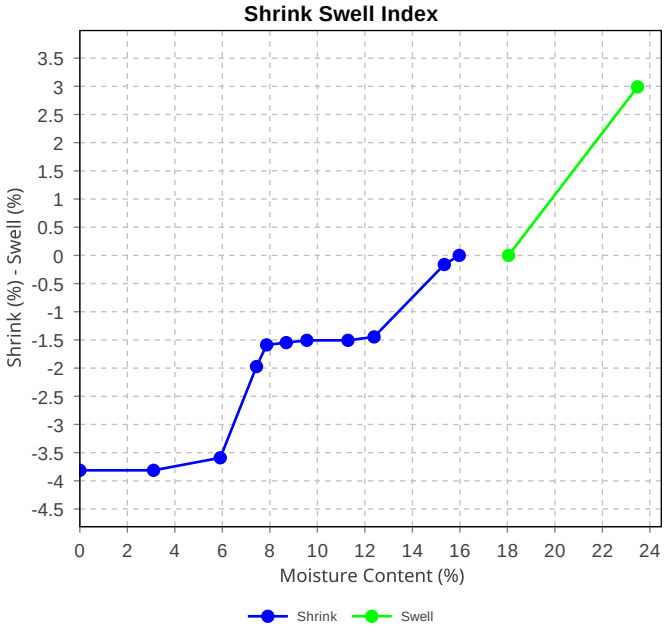
Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**2.9**
Visual Description	sandy CLAY (brown orange)
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**3.8**
Estimated % by volume of significant inert inclusions	0
Cracking	Highly Cracked
Crumbling	No
Moisture Content (%)	16.0

Swell Test	
Initial Pocket Penetrometer (kPa)	300
Final Pocket Penetrometer (kPa)	200
Initial Moisture Content (%)	18.0
Final Moisture Content (%)	23.5
Swell (%)	**3.0**
* scope of accreditation does not cover the performance of pocket penetrometer readings.	





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Material Test Report

Report Number:	**CCOA25132-76**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	Ovidiu
Project Number:	CCOA25132
Project Name:	Geotech Investigations - Various Locations
Client Reference:	EP4751.002
Work Request:	6841
Sample Number:	CCOA6841B
Date Sampled:	24/08/2026
Dates Tested:	24/08/2026 - 09/09/2026
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Site Selection:	AS 1289.1.4.1
Sample Location:	**Lot 809, Depth: 0.7-1.0m**

Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

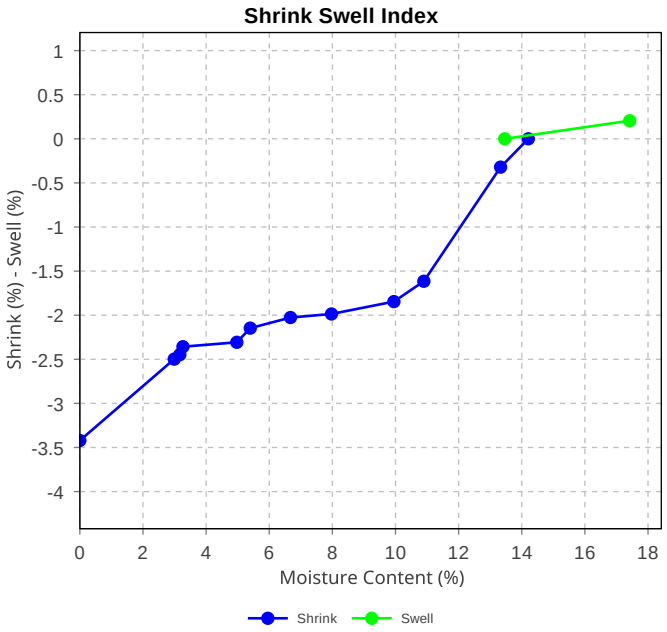
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Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**2.0**
Visual Description	sandy rocky CLAY (brown yellow orange)
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**3.4**
Estimated % by volume of significant inert inclusions	8
Cracking	Slightly Cracked
Crumbling	No
Moisture Content (%)	14.2

Swell Test	
Initial Pocket Penetrometer (kPa)	450
Final Pocket Penetrometer (kPa)	400
Initial Moisture Content (%)	13.5
Final Moisture Content (%)	17.4
Swell (%)	**0.2**
* scope of accreditation does not cover the performance of pocket penetrometer readings.	





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Material Test Report

Report Number:	**CCOA25132-76**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	Ovidiu
Project Number:	CCOA25132
Project Name:	Geotech Investigations - Various Locations
Client Reference:	EP4751.002
Work Request:	6841
Sample Number:	CCOA6841C
Date Sampled:	24/08/2026
Dates Tested:	24/08/2026 - 08/09/2026
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Site Selection:	AS 1289.1.4.1
Sample Location:	**Lot 813, Depth: 1.0-1.3m**

Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

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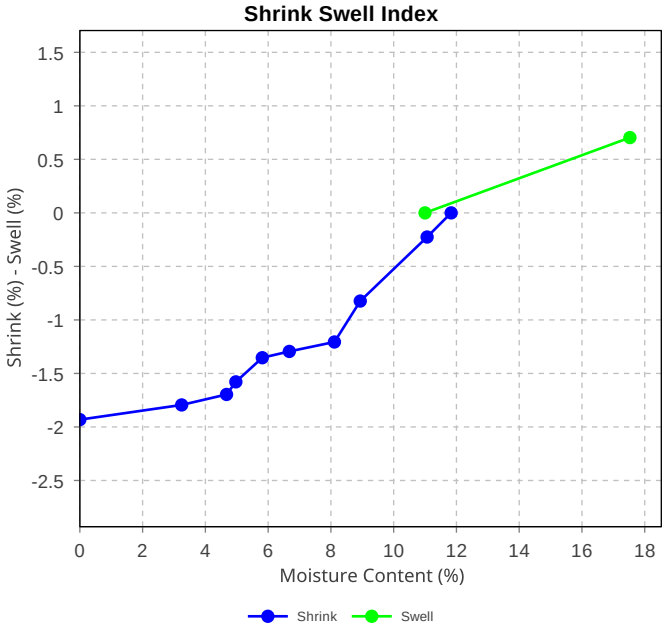
Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**1.3**
Visual Description	sandy rocky CLAY (brown, yellow, orange)
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**1.9**
Estimated % by volume of significant inert inclusions	5
Cracking	Slightly Cracked
Crumbling	No
Moisture Content (%)	11.8

Swell Test	
Initial Pocket Penetrometer (kPa)	120
Final Pocket Penetrometer (kPa)	200
Initial Moisture Content (%)	11.0
Final Moisture Content (%)	17.5
Swell (%)	**0.7**
* scope of accreditation does not cover the performance of pocket penetrometer readings.	





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Material Test Report

Report Number:	**CCOA25132-76**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	Ovidiu
Project Number:	CCOA25132
Project Name:	Geotech Investigations - Various Locations
Client Reference:	EP4751.002
Work Request:	6841
Sample Number:	CCOA6841D
Date Sampled:	24/08/2026
Dates Tested:	24/08/2026 - 09/09/2026
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Site Selection:	AS 1289.1.4.1
Sample Location:	**Lot 817, Depth: 0.5-0.8m**

coffey TESTING

Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

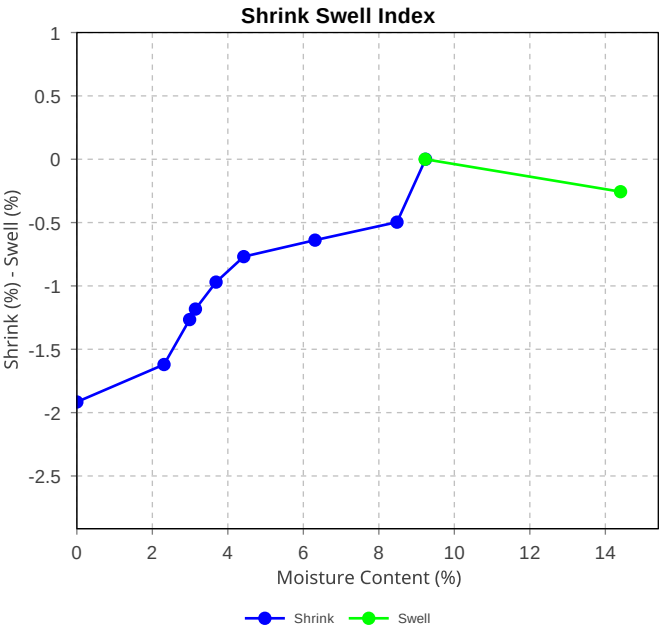
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Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**1.1**
Visual Description	sandy GRAVEL (brown)
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**1.9**
Estimated % by volume of significant inert inclusions	12
Cracking	Highly Cracked
Crumbling	Yes
Moisture Content (%)	9.2

Swell Test	
Initial Pocket Penetrometer (kPa)	400
Final Pocket Penetrometer (kPa)	210
Initial Moisture Content (%)	9.2
Final Moisture Content (%)	14.4
Swell (%)	**-0.3**
* scope of accreditation does not cover the performance of pocket penetrometer readings.	





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Material Test Report

Report Number:	**CCOA25132-76**
Issue Number:	1
Date Issued:	09/09/2026
Client:	EP Risk Management
	PO Box 57, Lochinvar NSW 2321
Contact:	Ovidiu
Project Number:	CCOA25132
Project Name:	Geotech Investigations - Various Locations
Client Reference:	EP4751.002
Work Request:	6841
Sample Number:	CCOA6841E
Date Sampled:	24/08/2026
Dates Tested:	24/08/2026 - 09/09/2026
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Site Selection:	AS 1289.1.4.1
Sample Location:	**Lot 904, Depth: 0.3-0.6m**

Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

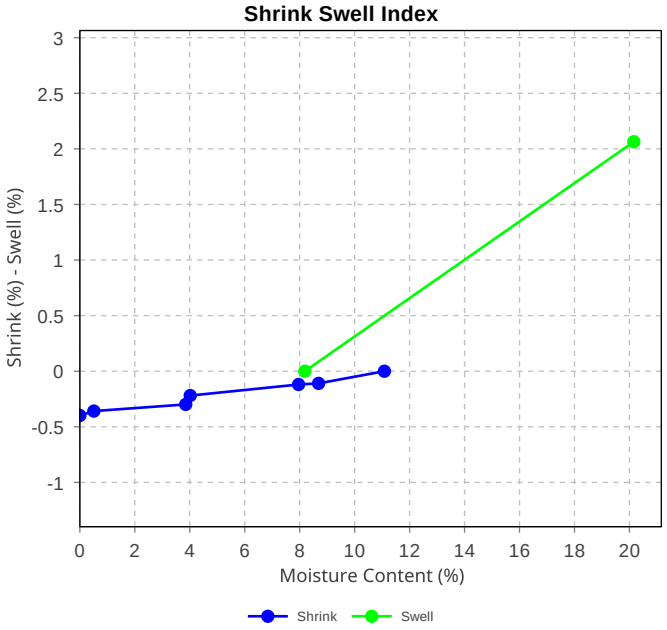
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Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**0.8**
Visual Description	sandy CLAY (red,brown)
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**0.4**
Estimated % by volume of significant inert inclusions	10
Cracking	Uncracked
Crumbling	Yes
Moisture Content (%)	11.1

Swell Test	
Initial Pocket Penetrometer (kPa)	600+
Final Pocket Penetrometer (kPa)	300
Initial Moisture Content (%)	8.2
Final Moisture Content (%)	20.2
Swell (%)	**2.1**
* scope of accreditation does not cover the performance of pocket penetrometer readings.	



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Material Test Report

Report Number: **CCOA25132-76**
Issue Number: 1
Date Issued: 09/09/2026
Client: EP Risk Management
PO Box 57, Lochinvar NSW 2321
Contact: Ovidiu
Project Number: CCOA25132
Project Name: Geotech Investigations - Various Locations
Client Reference: EP4751.002
Work Request: 6841
Dates Tested: 24/08/2026 - 09/09/2026
Location: Loxford stage 8 and 9

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Newcastle Laboratory
16 Callistemon Close Warabrook NSW 2304
Phone: (02) 4016 2300
Email: Cody.Dietrich@coffeytesting.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Cody Dietrich
Geotechnician
Laboratory Accreditation Number: 431

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	CCOA6841A	CCOA6841B	CCOA6841C	CCOA6841D	CCOA6841E
Date Sampled	24/08/2026	24/08/2026	24/08/2026	24/08/2026	24/08/2026
Date Tested	08/09/2026	09/09/2026	08/09/2026	09/09/2026	09/09/2026
Material Source	**	**	**	**	**
Sample Location	Lot 804 (0.4-0.7m)	Lot 809 (0.7-1.0m)	Lot 813 (1.0-1.3m)	Lot 817 (0.5-0.8m)	Lot 904 (0.3-0.6m)
Inert Material Estimate (%)	0	8	5	12	10
Pocket Penetrometer before (kPa)	300	450	120	400	600+
Pocket Penetrometer after (kPa)	200	400	200	210	300
Shrinkage Moisture Content (%)	16.0	14.2	11.8	9.2	11.1
Shrinkage (%)	**3.8**	**3.4**	**1.9**	**1.9**	**0.4**
Swell Moisture Content Before (%)	18.0	13.5	11.0	9.2	8.2
Swell Moisture Content After (%)	23.5	17.4	17.5	14.4	20.2
Swell (%)	**3.0**	**0.2**	**0.7**	**-0.3**	**2.1**
Shrink Swell Index Iss (%)	**2.9**	**2.0**	**1.3**	**1.1**	**0.8**
Visual Description	sandy CLAY (brown orange)	sandy rocky CLAY (brown yellow orange)	sandy rocky CLAY (brown, yellow, orange)	sandy GRAVEL (brown)	sandy CLAY (red,brown)
Cracking	HC	SC	SC	HC	UC
Crumbling	No	No	No	Yes	Yes
Remarks	**	**	**	**	**

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
Scope of accreditation does not cover the performance of pocket penetrometer readings.

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Appendix G

FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction
There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion
All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation
This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil
All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure
This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth
Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation
Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

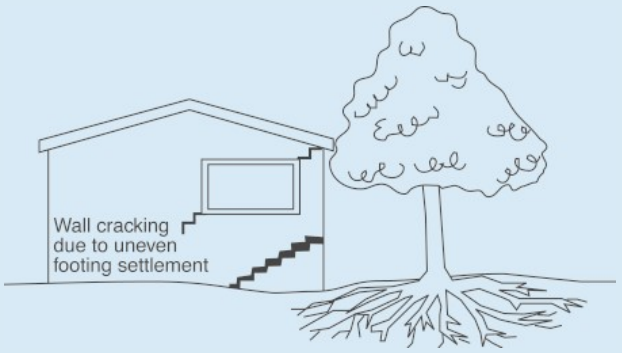
Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

Trees can cause shrinkage and damage



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots
In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself
Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures
Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem.
Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

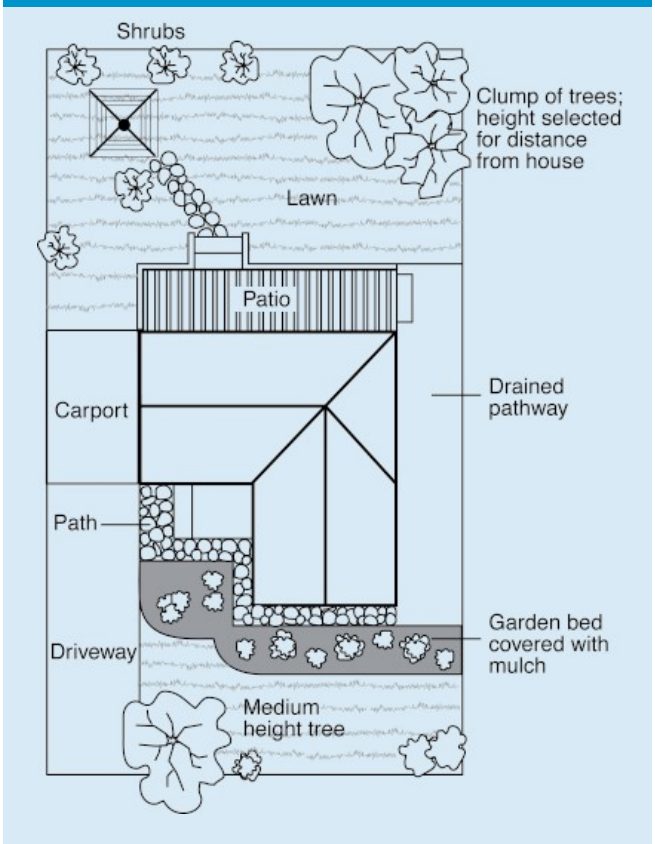
Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4

Gardens for a reactive site



should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation
In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden
The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees
Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs
State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation
Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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