APPENDIX 11 EGG INDUSTRY DESIGN PHILOSOPHY AP11

Pollock's Block Rearing Farm | Torrumbarry

Egg Industry Design Philosophy

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This report is a professional opinion based on the information available at the time of writing. It is not intended as a quote, guarantee or warranty and does not cover any latent defects.
This report will comment on the Civil infrastructure to the project and may outline probable costs but the extent of the commission of RMA does not extend to detailed cost feasibility, as such the costs should not be relied on for financing arrangements.
The conclusions in this report should not be read in isolation. We recommend that its contents be reviewed in person with the author so that the assumptions and available information can be discussed in detail to enable the reader to make their own risk assessment in conjunction with information from other sources.

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1. Introduction

1.1 Background

RMA Engineers Pty Ltd have been commissioned by McLean Farms Australia Pty Ltd to prepare an Egg Industry Design Philosophy Report in support of a Development Application for the State Minister's Office for a proposed integrated egg laying operation located in Torrumbarry, Victoria, within the Campaspe Shire Council (CSC).

The purpose of this technical report is to evaluate the proposed development against the Egg Industry Environmental Guidelines and investigate compliance.

This report will outline environmental mitigation strategies regarding the following considerations:

- Proposed location including climate, land, geotechnical investigations, erosion and sediment control and landscaping.
- Proposed facility including, size, infrastructure, by-product management and storage and biosecurity.
- Surface and groundwater assessment as required.
- Control measures and shed design suitable for a Low Environmental Risk Rating in accordance with the Australian Egg Industry Guidelines.

1.2 Basis of Report

This report has been prepared based on:

- Information provided by discussions between RMA Engineers Pty Ltd and the client.
- Proposed Site Layout Plan.
- Australian Egg Industry Environmental Guidelines.
- Victorian Code for Broiler Farms.
- GeoVIC Interactive Mapping.
- Campaspe Shire Council Planning Scheme.

This report has been prepared specifically for the Client, site and project. It has been written solely for the purpose of providing engineering advise on the above issues for the Council and the Client for this development site. Please note that this report has been compiled based on the information that is current at the time of report printing, and that the recommendations supplied within this report are based solely on the above.

1.3 Proposed Development

The proposed development is intended to be constructed in conjunction with two other applications to form an integrated egg laying operation consisting of:

- Pollock's Block Rearing Farm (720,000 birds),
- Warwick's Block Cage Free Layer Farm (1,280,000 birds),
- T-Block Free Range Layer Farm (800,000 birds) and,
- Organic Nutrients Composting Facility (OGN) – to be submitted as part of T-Block Planning application.

Refer to **Figure 1-1** below for the ultimate farming operation concept plan.

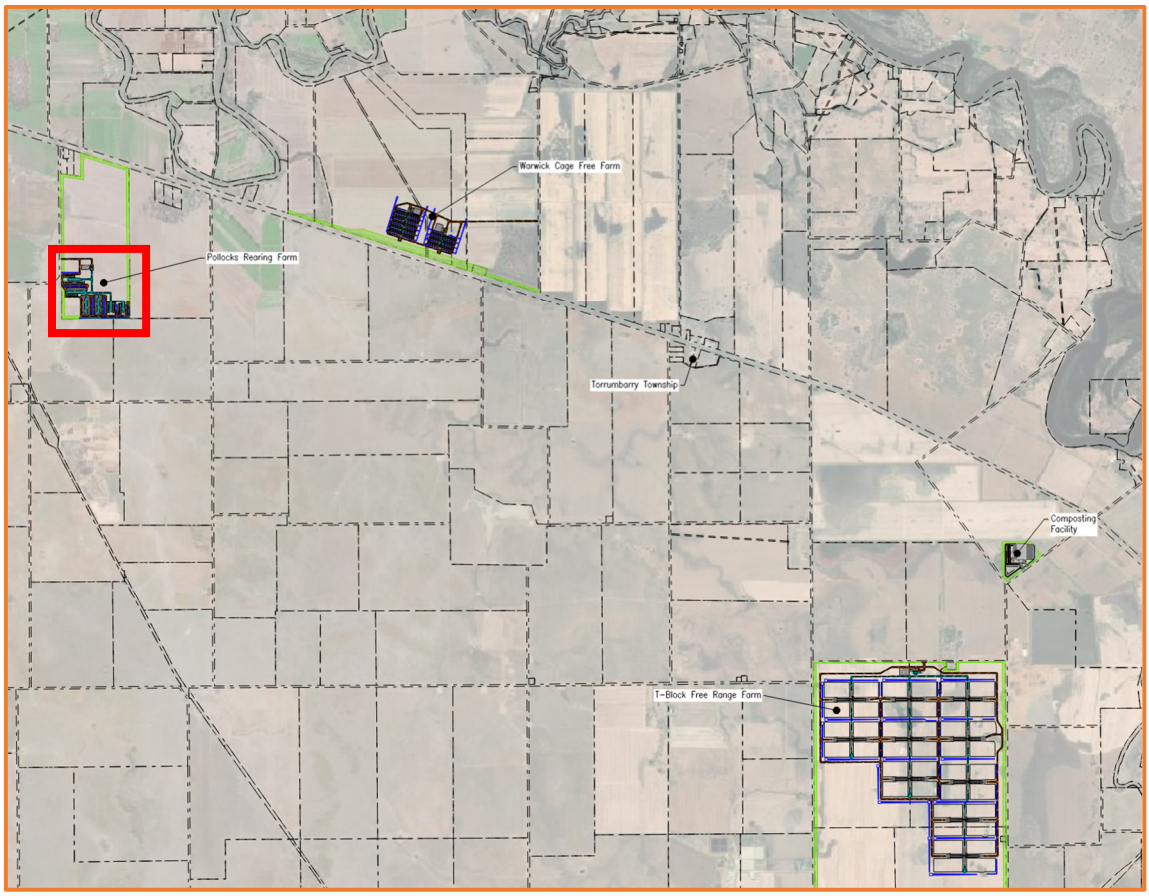

Figure 1-1: Ultimate Concept Layout Plan

This report has been developed in relation to the Pollock's Block Rearing Farm and is intended to be assessed in conjunction with other development applications mentioned above.

Refer to **Figure 1-2** below for the individual proposed development site layout plan that will be assessed in this report.

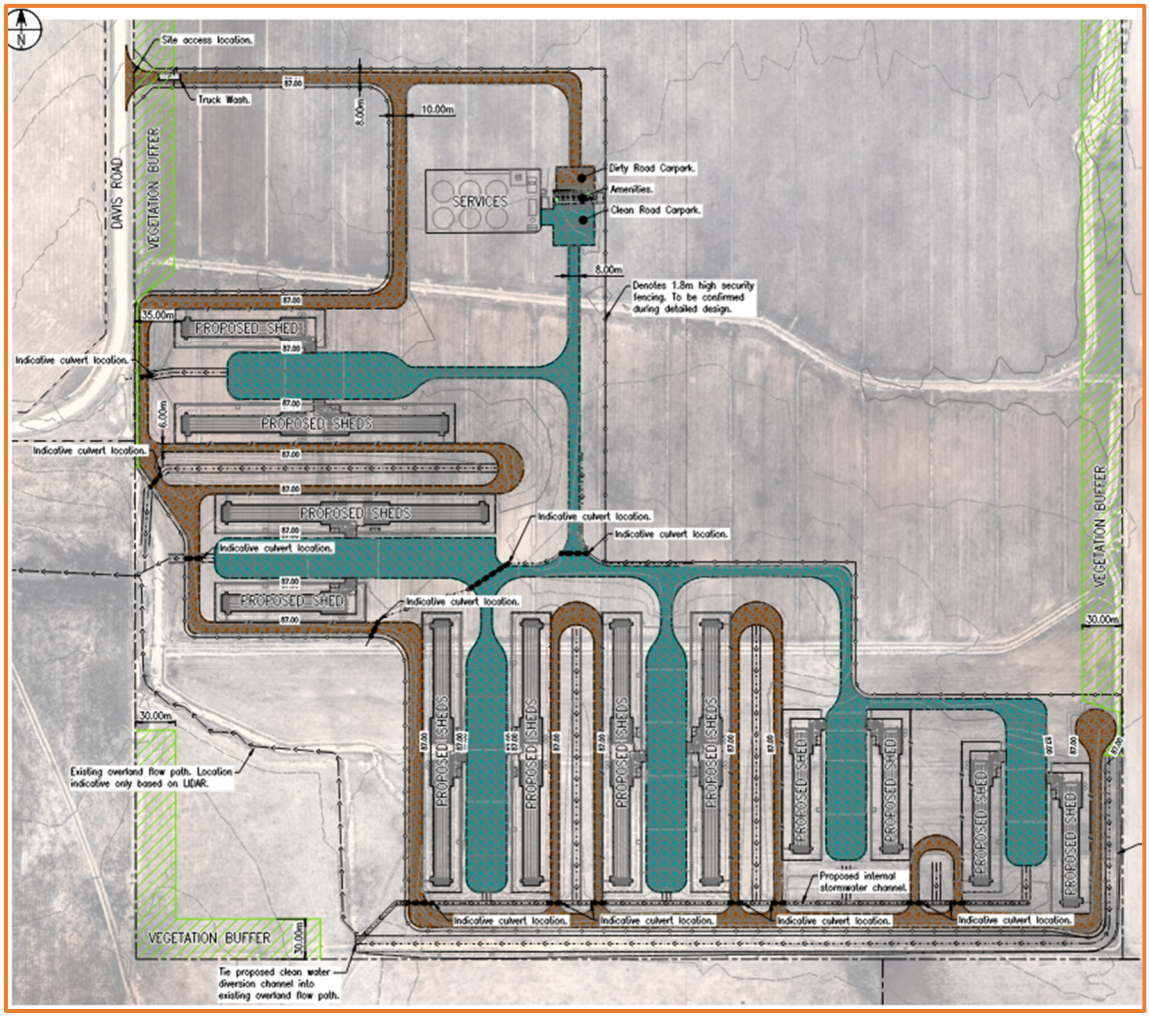

Figure 1-2: Proposed Development Site Layout Plan

The proposed Pollock's Block Rearing Farm is located on land fronting the Murray Valley Highway to the north, and Davis Road to the west within Torrumbarry. The land is specifically identified as Lot 4 on LP206281 and has an area of 124.4ha. The site is located within the Farming Zone under the Campaspe Planning Scheme.

The proposed development involves the construction of a new poultry rearing farm which is used for raising chicks until they reach point-of-lay. The proposed farm will accommodate a maximum of 720,000 chicks within 18 purpose-built, best practice rearing sheds. These sheds will be constructed in 2 stages (12 sheds in stage 1 and 6 sheds in stage 2).

The proposed sheds will be supported by ancillary services and infrastructure including:

- Staff office and amenities building
- Workshop
- Water treatment
- Shed specific feed silos
- Truck wash

The proposed development involves the construction of a new poultry rearing farm which is used for the rearing of laying birds from day old chicks until they reach point-of-lay (around 17 weeks). At this age, the birds are collected from the farm and transferred to the proposed egg laying farms. The birds will be housed within the proposed sheds. There is not ranging of these birds.

The proposed Pollock's Block Rearing Farm is defined as a **Poultry Farm** and is identified as development requiring a permit within the Farming Zone. As the project involves an agricultural use with a capital value of greater than $10 million, the project is classified as Significant Economic Development, and the Minister for Planning (Ministers Office for Assessment) will be the responsible authority for determination of the application.

The proposed rearing operation is to be established in two stages and would include the construction of 18 rearing sheds. Each of the rearing sheds will house 40,000 birds for a total of 720,000 birds onsite.

Refer to **Appendix A** for further information.

1.3.1 Site Characteristics

The development site is approximately 124.16ha of dry and irrigated cropping. The site terrain is generally flat.

A series of overland flow paths are located throughout the site.

The current site access is assumed to be through a driveway located on Davis Road. Davis Road extends north to an intersection with the Murray Valley Highway.

2. Egg Industry Environmental Guidelines

The purpose of the Australian Egg Industry Environmental Guidelines is to provide a proactive guideline for the establishment and expansion of egg production in Australia and to encourage egg producers to improve environmental management practices.

The guidelines detail considerations that should be made in the establishment and management of poultry laying farms. The following sections illustrate how this guideline's recommendations have been utilised to design the proposed development.

3. Location

3.1 General

In accordance with the Egg Industry Environmental Guidelines, the location of the farming operation has been considered in accordance with recommendations from the local government planning scheme. Clause 14.01-2L-02 of the Campaspe Shire Council Planning Scheme identifies that Council's strategy for intensive farming location is within the Patho Plainlands. Refer to **Figure 3-1** below for Campaspe Shire Council Strategic Framework that identifies the location of the Patho Plainlands.

The proposed development is located within the Productive Agricultural Land zoning and is located adjacent to the Intensive Animal Industries Zoning.

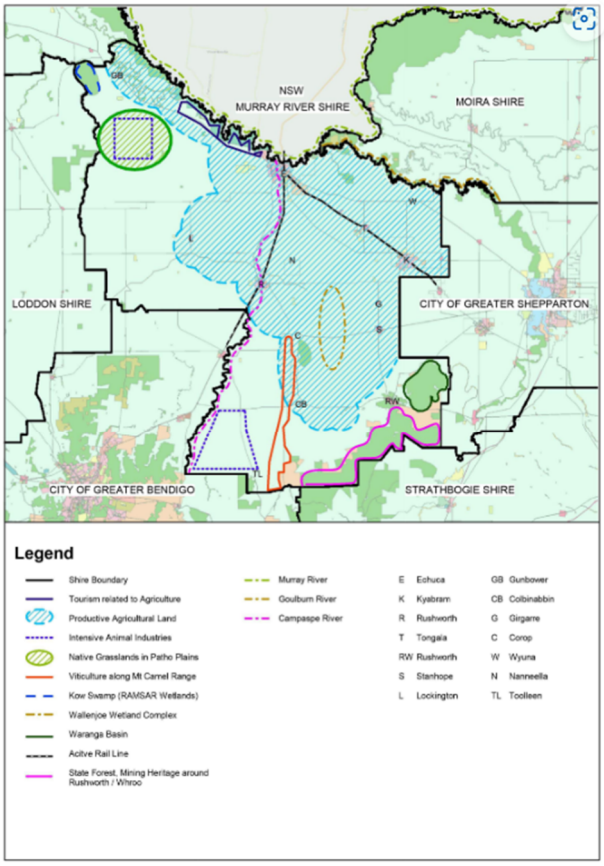

Figure 3-1: Campaspe Shire Council Planning Scheme Strategic Framework

3.1.1 Climate

The development site is located in Torrumbarry which can be described as a 'semi-arid' climate that is characterised by hot summer months and mild winter months. The hottest temperatures are observed in January with a mean temperature of 31.1 degrees Celsius. The coldest temperatures occur in July with a mean temperature of 13.5 degrees Celsius.

Refer to for the climatic summary of all years as taken from 26 kilometres away, Torrumbarry's nearest weather station, Echuca Aerodrome VIC (080015).

Figure 3-2: Climatic Conditions of Torrumbarry (Bureau of Meteorology, accessed July 2025)

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature												
Mean	31.1	30.7	27.4	22.3	17.6	14.3	13.5	15.3	18.4	22.2	26.2	29.1
Highest Daily	46.9	46.8	41.8	38.2	28.4	24.4	24.2	26.8	36.0	38.4	43.2	46.3
Lowest Daily	16.6	11.8	12.4	11.8	8.12	3.82	5.5	8.3	8.2	10.7	12.2	13.9
Rainfall												
Mean	28.4	25.5	30.6	32.7	40.1	42.8	40.5	42.0	38.4	42.7	33.3	29.9
Median	18.4	13.5	19.8	26.3	34.8	38.2	36.2	39.2	33.0	33.2	28.1	19.1
Highest Daily	90.7	90.2	94.0	59.4	56.6	69.1	54.9	45.5	44.5	73.6	77.0	123.0

The relative humidity of Torrumbarry is ideal for poultry, ranging between 68% at 9am in the morning and 45% at 3pm on average.

There is low annual rainfall, on average 426.9mm, making it a suitable location for a poultry farming operation where the risks of nutrient loss in local water bodies and diseases contracted from ponding water are reduced.

The site has been chosen to avoid overland flow paths and avoid water ponding onsite. There are existing water systems in the area, however, these sites are anticipated to pose minimal risks to the farming operations.

A monitoring program will be implemented to assess and monitor wildlife movements around the site.

3.1.2 Land

In general, for poultry farms, larger land areas are ideal to allow for the establishment of adequate buffer zones.

The land is ideal for the Pollock's Block rearing farm operation due to:

- The existing land use is zoned for farming which supports the proposed purpose.
- The terrain of the site is relatively flat which is ideal for large scale construction.
- The Pollock's Block rearing farm is to be established on approximately 124.16ha which is suitable to implement suitable odour and vegetation buffer zones.

3.1.3 Flora and Fauna

The intention of flora and fauna is to avoid impacts to remnant vegetation, wildlife habitats and wetlands. Strategic placement of onsite flora has been considered to minimise impacts to existing external environments and habitats. The existing trees located adjacent to the property boundaries are intended to be retained in the design to avoid disturbance to the remaining onsite vegetation.

The existing property is cultivated land, previously used for cropping grains and cereals with portions of dry land and irrigated land. Due to the nature of the previously disturbed land, the proposed construction is likely to have minimal further impacts on any remaining flora and fauna. Further land clearing is not required for the construction of the poultry operation.

Please refer to the Ecological Report provided in conjunction with this report for further ecological considerations.

3.1.4 Landscaping and Vegetation

The landscaping and vegetation are important to consider when designing a poultry farm as vegetation improves the visual appearance of the site and filters the dust, odour and noise that is exposed to the external environment and society.

Additionally, appropriate utilisation of vegetation reduces the quantities of ammonia, byproducts and dust leaving the site through surface and groundwater flows.

The following has been considered in designing the proposed farming operation:

- Planting of low-maintenance native species specific for the environment and the climate will be chosen to tie in seamlessly with the existing perimeter vegetation.

- Vegetation Environmental Buffers (VEBs) are generally proposed around the perimeter of the site to enrich existing vegetation with a seamless transition from existing vegetation to the proposed vegetation. Different shape and sized vegetation are anticipated to be planted to achieve upper and lower canopy screening around the perimeter of the site.
- Native onsite vegetation and existing terrain is expected to be implemented in the design where possible.

Refer to the site layout plan in **Appendix A** provided in support of this application for further information on the proposed Vegetation Environmental Buffer location and extent.

3.2 Geotechnical Investigation

3.2.1 General

A Preliminary Geotechnical Investigation was carried out on site on the 15th of February 2025. Refer to the Geotechnical Investigation Report in **Appendix B**.

The preliminary investigation consisted of excavating and logging 7 test pits in the proposed development sites up to 1.0m in depth. Laboratory testing was carried out on selected samples collected from the field investigation.

The testing of the subsurface materials assessed:

- Plasticity and dispersive characteristics
- Atterberg limits
- Emerson Class Number

The subsurface profile encountered during the site investigation generally consisted of:

- Sandy Silty CLAY – high plasticity (CH), fine to coarse grained sand, dry to moist, firm.
- Sandy CLAY – high to very high plasticity (CH), dry to moist, stiff, fine to coarse grained.

3.2.2 Borehole Locations

The borehole test pit locations can be seen in **Figure 3-3** below.

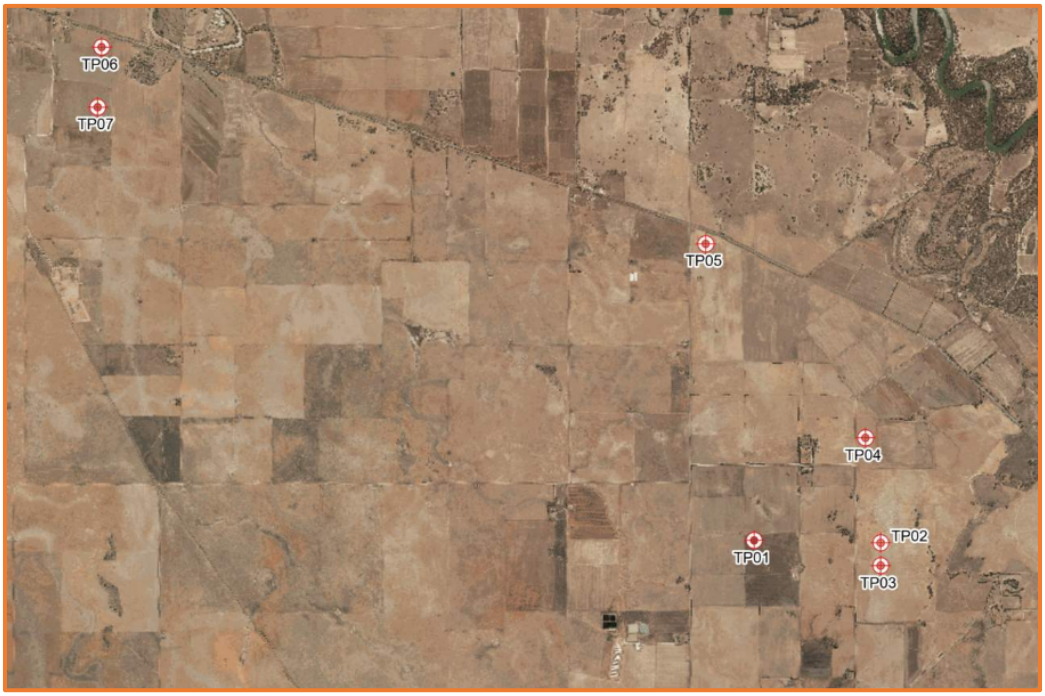

Figure 3-3: Test Pit Location Plan

Within the Geotechnical Report **(Appendix B),** the following Test Pit locations are relevant to the Pollock Block Rearing Farm development:

- TP06
- TP07

3.2.3 Geotechnical Assessment

The following tables shows the Atterberg Limits test results and Emerson Class Number results within the vicinity of the proposed development. The tables below identify the key characteristics of the subsurface materials.

Please note that selected samples were tested and TP07 was not assessed for the Atterberg Limits or Emerson Class Number.

Table 1: Laboratory Test Results - Atterberg Limits.

Test Locations	Depth (m)	Material Type	Liquid Limit (%)	Linear Shrinkage (%)
TP06	0.20 – 0.40	Sandy Silty Clay	60	15.5
	0.80 – 1.00	Sandy Silty Clay	61	16.5

Table 2: Laboratory Test Results - Emerson Class Number.

Test Locations	Depth (m)	Material Type	Emerson Class Number	Dispersive Potential
TP06	0.20 – 0.40	Sandy Silty Clay	5	Low
	0.80 – 0.80	Sandy Silty Clay	4 *	Moderate

*** Gypsum in the soil**

Table 3: Summary of Subsurface Profile.

Test Pit		Profile		Ys Value (mm)
Number	Depth (m)	Type	Thickness (m)	
TP06	1.0	Sandy Silty Clay	1.00	75 – 100
TP07	1.0	Sandy Silty Clay	1.00	75 – 100

Refer to **Appendix B** for the Preliminary Geotechnical Report and further details.

3.3 Erosion and Sediment Control Assessment

Where soil is left uncovered after being disturbed, the risk of erosion is increased. Refer to the PEAR prepared by RMA Engineers Pty Ltd prepared in conjunction with this report for further erosion and sediment control information.

The following erosion and sediment control objectives are anticipated for the construction and operational phase of development:

- Where cut and fill are required onsite, the fill material should be clean spoil recovered from the site cut and is to be laid down in 150mm (maximum depth) layers where each layer should have adequate moisture and compaction. A balanced approach is anticipated to be utilised where cut material will be stripped of topsoil and refuse and then used as fill material where needed.
- Topsoil and silt materials that are prone to erosion and are unsuitable for compaction are not intended to be used as fill material.
- Areas where ground is disturbed is to be promptly revegetated upon completion of construction to minimise ongoing erosion.
- Stormwater drainage is anticipated to be designed to minimise flow velocity and volume eroding the site.

3.4 Groundwater Locations

At the time of the preliminary geotechnical investigation conducted by RMA Soils Pty Ltd, groundwater was not encountered within the termination depth of the boreholes. However, various soil types were encountered during excavation and there is potential for seepage to occur through permeable layers of soil.

The site is located within a ‘porous, extensive aquifers of low to moderate productivity’ zoning according to the Geoscience Australia Portal. Refer to **Figure 3-4** below for groundwater zoning map.

Figure 3-4: Groundwater Zoning Map (Geoscience Australia Portal).

The Pollock's Block development site is also located within the Shepperton Irrigation Groundwater Management Area which suggests that groundwater limits and restrictions may be implemented by the governing authority.

A Hydrogeological Desktop Review has been prepared in support of this development which has identified that the site may have potential to be serviced by local aquifers.

There are various aquifers located within the vicinity of the development site; however, further testing should be undertaken to assess the output potential and water quality of the aquifers.

Two levels of aquifers have been identified, the Shepperton Formation (shallow upper level) and the Calvil (Deep Lead) Formation (deeper level).

Due to the nature of a high-level desktop analysis, there remains uncertainty regarding the quality and quantity available from groundwater aquifers in the area.

4. Proposed Facility

4.1 Facility Size

The Egg Industry Guidelines requirements for facility size indicates that considerations need to be made for future expansion of the operation.

The design of the rearing sheds enables the farm to be located on a small portion of the available land and is anticipated to be suitable to accommodate any future expansions. Any expansions would be subject to development assessments and environmental factors that would need to be considered prior to any proposed expansion works.

4.2 Facility Staff

The general operations of the facility will require 20 staff including a rearing manager, supervisors, packers, leading hands, shed hands, cleaners and rouse. Additional staff will work within ancillary facilities and will perform tasks like relocation, veterinary and onsite maintenance.

To maintain operational biosecurity measures, staff should not come into contact with other avian or poultry from external sites.

4.3 Facility Infrastructure

The infrastructure utilised in the rearing sheds has been designed to service the birds' needs. Considerations have also been made to minimise environmental impacts from utilising necessary infrastructure.

4.3.1 Ventilation System

The ventilation system proposed within the rearing farm is specifically designed to support the health of the birds by providing a constant circulation of airflow to create the ideal temperatures and humidity inside the sheds.

Fans utilised within the ventilation systems are designed to provide sufficient air movement to allow soiled litter and water spills to dry.

The ventilation system has been specifically designed by a poultry operations supplier for large-scale rearing poultry farms.

The operational cycle of the ventilation system has been designed to operate based on the temperature and season of the day.

4.3.2 Feeding Systems

The feeding system utilised within the sheds has been designed to allow feed access to all birds via feeding columns that have been strategically aligned with the stillages. The feed is intended to be delivered into silos located externally to the rearing sheds. The feed will then be distributed to the birds through a closed feeding system.

The closed silo to feed system has been designed to prevent pest access into the feeding system and prevent feed spills or wastage.

The feed silos have been designed to allow for multiple days of feed in the event of an emergency.

The operation of the feeding systems ensures that feed will be ordered prior to the silos becoming empty.

4.3.3 Watering Systems

The shed design has considered the placement of the watering system to always allow for adequate water access for the birds.

Water is intended to be delivered into the water tanks located external to the rearing sheds; the water is then to be issued to the birds through a closed watering system. The shed has been designed with a closed water system to minimise water leakage, wastage, pest access and disease contamination.

The operation of the watering systems enables birds to have unrestricted access to water.

4.3.4 Water Treatment

4.3.4.1 Water Pumped from Unprotected Water Bodies:

In addition to monitoring water administering systems, due to the water supply processes, all water to be utilised on the rearing farm will require extensive water treatment.

The water supplied to birds for drinking water will require extensive treatment. Below outlines the general intended process.

- Clarification – the first process for removing suspended solids, oils and particle matter from water using methods like coagulation, flocculation and sedimentation.
- Media Filtration – the process of passing water through a bed of granular media like sand, gravel, anthracite to remove suspended solids and contaminants.
- Ultra Filtration – the process of passing water through a semi-permeable membrane to remove large particles and solutes.
- Reverse Osmosis – the process of pumping pressurised water through a semi-permeable membrane to remove contaminants and salts.
- Chlorination – the process of adding chlorine to water to disinfect and make safe for consumption.

Refer to **Figure 4-1** below for the water treatment process to be utilised for treatment of extracted water from bodies of water.

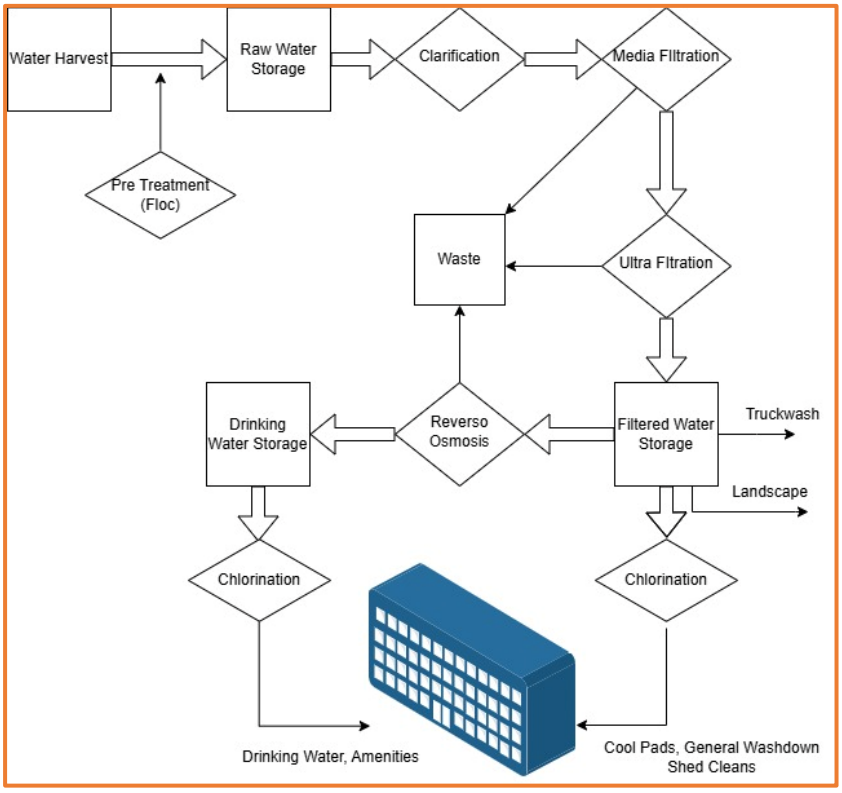

Figure 4-1: Water Treatment Process.

The water treatment process will result in various by-products in the form of waste. These by-products are intended to be disposed of in suitable ways by a licensed contractor.

Treated wastewater can be used for irrigation whereas sludge may be treated to produce biosolids and used for agricultural purposes.

4.3.4.2 Groundwater Extracted Through Boreholes:

Groundwater extracted through boreholes will require extensive treatment processes due to the quality of water in the area.

The water administered to birds for drinking water will require extensive treatment following the processes in the following respective order:

- Ultra Filtration – the process of passing water through a semi-permeable membrane to remove large particles and solutes.
- Reverse Osmosis – the process of pumping pressurised water through a semi-permeable membrane to remove contaminants and salts.

Prior to consumption, the water extracted from boreholes will require the following process:

- UV Disinfection – the process of exposing water to ultraviolet light to kill and damage the DNA of harmful pathogens and bacteria. Following UV disinfection, water should be immediately utilised and not stored in tanks.
- Chlorination – the process of adding chlorine to water to disinfect and make safe for consumption.

Refer to the **Pollock's Block Rearing Farm PEAR** prepared by RMA Engineers provided in conjunction with this report for further information.

4.3.5 Monitoring and Control Systems

To maintain conditions for the chicks, the following design controls are proposed:

- Installation of automatic monitoring systems that alert abnormalities e.g. humidity, temperature levels.
- Audible alarms for malfunctions and abnormal shed conditions.

4.4 By-Product Management

The proposed development anticipates that byproducts including manure and spent litter are to be collected directly from the rearing sheds and will be transported directly to the proposed composting facility located on the top section of T-Block.

By-product materials are generated will be composted and utilised to improve soil quality.

The by-products generated from the rearing farm would include chicken manure, soiled litter, dead birds and feathers. These by-products are intended to be collected from the site and transported to the composting facility where the by-products will be used to create a soil conditioner and fertiliser to be respread onsite for the rejuvenation of cropping lands.

Any solid waste materials that cannot be composted will be removed to an approved waste disposal facility through a garbage collection process by a licensed contractor.

4.4.1 Storage of By-Product Materials

The by-product materials generated from the poultry rearing farm are intended to be stored and transported using the following considerations:

- Individual sheds will have manure belts that will be scraped every two to three days or as required. By-product materials are to be collected and transported directly from the farms to the composting facility. By-product materials are not intended to remain onsite for any period of time following the manure scrape down.
- During the cleanout stage – a two-week period of cleaning the sheds and facilities between batches of chicks – litter will be removed and transported to the composting facility. Sheds are to be hosed out and sanitised, a grey water system with a grit chamber will be used to collect any remaining by-product materials.
- An impermeable base is designed below the composting facility (located at another site) to minimise groundwater contamination and nutrient loss through soil.

4.4.2 By-Product Utilisation Site Assessment

Following the composting of by-product materials in the ancillary composting facility, the compost is intended to be transported back to the farm to be utilised for onsite soil rejuvenation.

4.4.3 Disposal of Dead Birds

Any bird mortalities within the farm are expected to be disposed of through composting.

Dead birds are to be disposed of immediately or kept in a cold storage facility until they can be composted in the ancillary composting facility or at an approved rendering facility off site.

4.5 Biosecurity

Biosecurity management practices are essential to prevent the spread of livestock diseases which is particularly crucial in the poultry industry.

Biosecurity measures are required for the management of the rearing sheds with the inclusion of the following operational biosecurity controls:

- Individualised site-specific transportation vehicles e.g. trucks, trailers, forklifts to be site specific.
- Site specific Vehicle “Truckwash”. Where all vehicles entering and leaving the site will pass through.
- Individualised sanitation stations – foot washes, upon entrance to rearing shed facilities.
- Site specific amenities building to allow all staff, contractors and visitors to the site to shower in/out of the facility including full laundry system for internal uniforms.
- Site specific equipment sanitisation transfer room and individual UV item transfers. All equipment and object taken into the facility are required to undergo a sanitisation process.
- Flocks should be transported in isolation from other flocks.
- Infrastructure and equipment should not be used for multiple flocks without appropriate sanitation between facilities.
- External stormwater design is to consider draining water away from the building to reduce prolonged ponding and not attract wild bird flocks. Further to this stormwater is to be directed away from the shed to avoid cross contamination from shed to shed.
- Each shed will be treated as its own biosecurity environment. The design of the common access corridor will create air locks to assist this. Staff in general will not go from shed to shed to avoid cross shed transfers.
- Egg collection will exit the shed at a single point through an airlock.
- A strict biosecurity protocol for operation will be implemented which will outline operational processes and movements.

Biosecurity philosophies will be incorporated into both the design and operational processes. With the fundamental principles of design to prevent, control, isolate, and manage risks associated with diseases, pests and weeds.

4.6 Hazardous Substances and Dangerous Goods

Hazardous substances and dangerous goods are required for onsite operation. Potential hazardous substances and dangerous goods could include:

- Vermin baiting chemicals/products.
- Pests/Flies treatment chemicals.
- Herbicides/Vegetation poisons.
- Maggot Spot treatment chemicals.
- Petrol/Diesel + Oil + Coolant (Any chemicals/products used for machinery and vehicle operation).

- Gas
- Sanitation chemicals for cleaning/disinfecting
- General kitchen chemicals/products (in staffroom – cleaning products, medical supplies)
- Veterinary chemicals/treatments/products for outbreaks or any vaccination products.
- Any feed supplements e.g. copper.

To minimise the risks associated with these goods, the following controls have been designed:

- Any hazardous liquid substances are to be contained within self-bunded tanks away from animals and poultry sheds.
- Any hazardous liquid substances are to be located adjacent to the amenities building only.
- Any hazardous solids are to be stored in suitable containers away from animals and poultry sheds.
- Any handling of hazardous substances should be followed by extensive equipment cleaning and sanitation processes.

5. Surface and Ground Water Assessment

Due to the nature of the design of the rearing sheds, whereby the birds and associated nutrients and contaminants are not exposed to the external environment, a surface and groundwater assessment are not deemed necessary.

6. Conclusion

In accordance with the Victorian Code for Broiler Farms 2009 and the Australian Egg Industry Environmental Guidelines, the proposed Pollock's Block Rearing Farm has been designed to meet the requirements as set out in each of the guidelines. The two guidelines complement each other and detail the processes to consider for the design and operation of the poultry farm.

This farming operation has been designed with considerations for the animals' health and environmental impacts of a poultry farm in Torrumbarry. This report considers the requirements detailed in the guidelines including:

- Farm Location
  - Climate, land, flora and fauna and landscaping and vegetation.
- Geotechnical Investigation
  - Borehole locations, geotechnical assessment, erosion and sediment control assessment and groundwater locations.
- Proposed Facilities
  - Size, infrastructure, by-product storage and management, biosecurity and hazardous substances and dangerous goods.
- Surface and Groundwater Assessment
  - Groundwater assessment, Surface water assessment and control measures for shed design.

7. References

Australian Eggs Limited, *Egg Industry Environmental Guidelines – Edition 2*, Effective May 2018.

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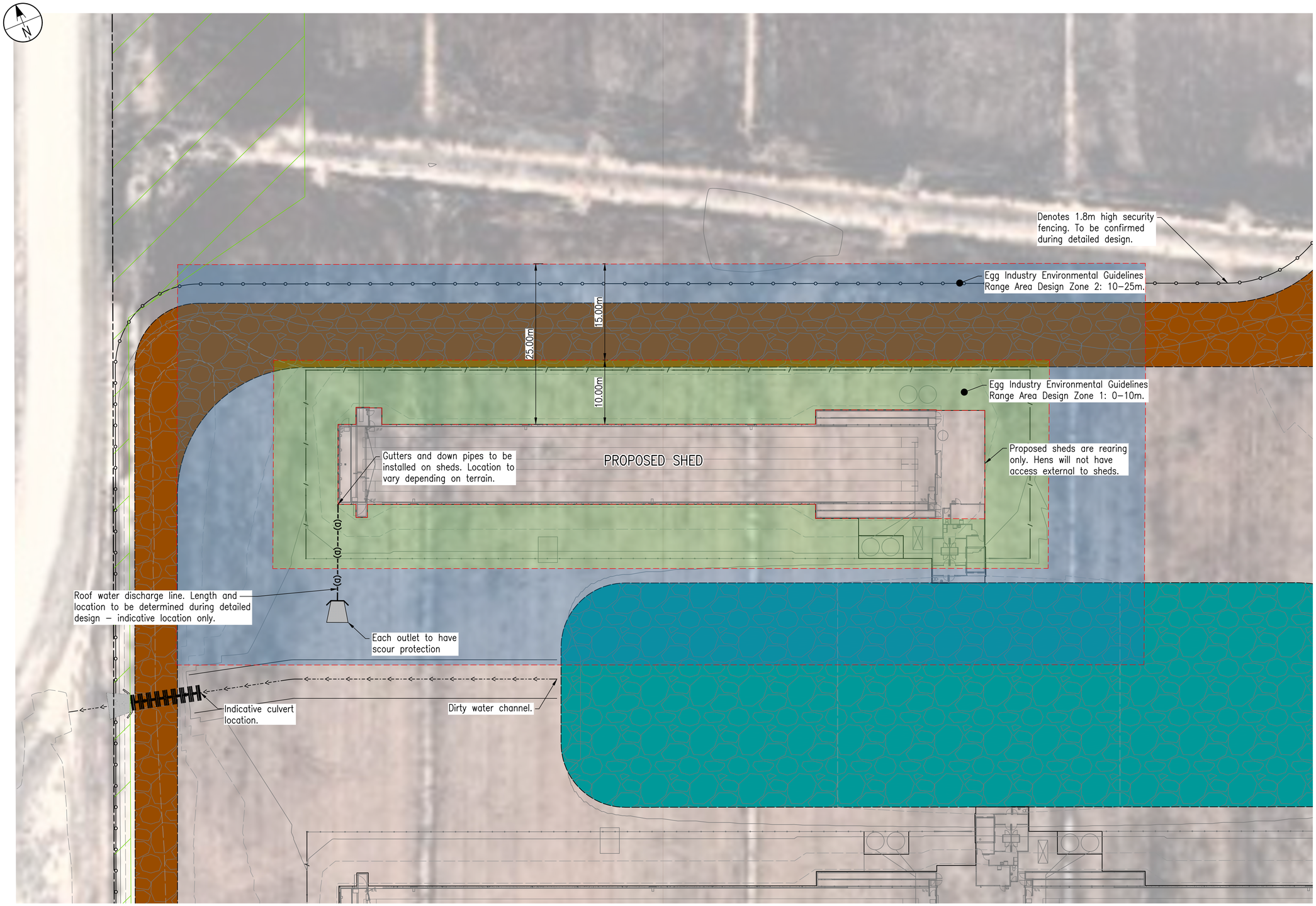
Appendix A Typical Shed Concept Layout Plans



LEGEND:

EXISTING

- Invert
- Property Boundary

PROPOSED

- Clean Area Road Pavement
- Dirty Area Road Pavement
- Vegetation Buffer
- Property Boundary
- Invert
- Indicative Stormwater Culvert
- Fence
- Design Area Zone 1: 0-10m
- Design Area Zone 2: 10-25m

PLAN NOTES:

P.1. Plan is intended to be viewed in colour.
P.2. Intervals between contours - 0.2m.
Contours are design surface levels.

DISCLAIMER NOTES:

D.1. This is a sketch plan only and is conceptual only.
D.2. This sketch plan represents design intent and concepts only.
D.3. Information shown on these plans has been compiled from varying sources and may not be accurate and will need verifying. This includes imagery, existing infrastructure, property boundaries and natural surface data.
D.4. No reliance should be placed on the information on this plan for detailed design or any financial dealings involving this land.
D.5. This plan shall not be used for tendering, financing, ordering of materials, construction or any other unintended purpose.
D.6. Proposed mitigation strategies will be tested on a shed to determine bench marks. Best concepts to be adopted.
D.7. Arrangement of each shed is indicative only. Final arrangements to be determined during detailed design.

PROPOSED MITIGATION STRATEGIES:

C.1. Gutters and down pipes.
C.2. External hobs.
C.3. Defined external drainage points.

PASSIVE:

P.1. Sample soil test to be determined during detailed design to define bench marks.
P.2. Trial vegetative swales, types and locations to be determined during detailed design.

OPERATIONAL:

O.1. Trial mid batch apron cleaning.

EGG INDUSTRY ENVIRONMENTAL GUIDELINES

E.1. Zone 1: 0-10m
E.2. Zone 2: 10-25m
E.3. Zone 3: >25m

POLLOCK'S BLOCK EGG INDUSTRY GUIDELINES CONCEPT PLAN

Scale 1:300 (A1)

0 3 6 9 12m
1:300(A1) 1:600(A3)

ISSUE	DESCRIPTION	DATE	DWN	DES	CHK	APP
1	FOR APPROVAL	16/10/25	LMB	LMB	GS	
0	FOR APPROVAL	15/08/25	LMB	LMB	GS	
A	FOR COMMENT	12/08/25	LMB	LMB	GS	

R.P.E.Q.

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PITTSWORTH, QLD, 4356

PROJECT
INTEGRATED EGG LAYING OPERATION
MURRAY VALLEY HIGHWAY
TORRUMBARRY, VIC, 3562

TITLE
POLLOCK'S BLOCK EGG INDUSTRY GUIDELINES CONCEPT PLAN

HEIGHT DATUM	MAP GRID	SIZE
AHD	VICGRID	A1

COUNCIL RAL/MCU NO.

COUNCIL OW NO.

PROJECT NO.	DRAWING NO.	ISSUE
25E-0010	P-SK1006	1

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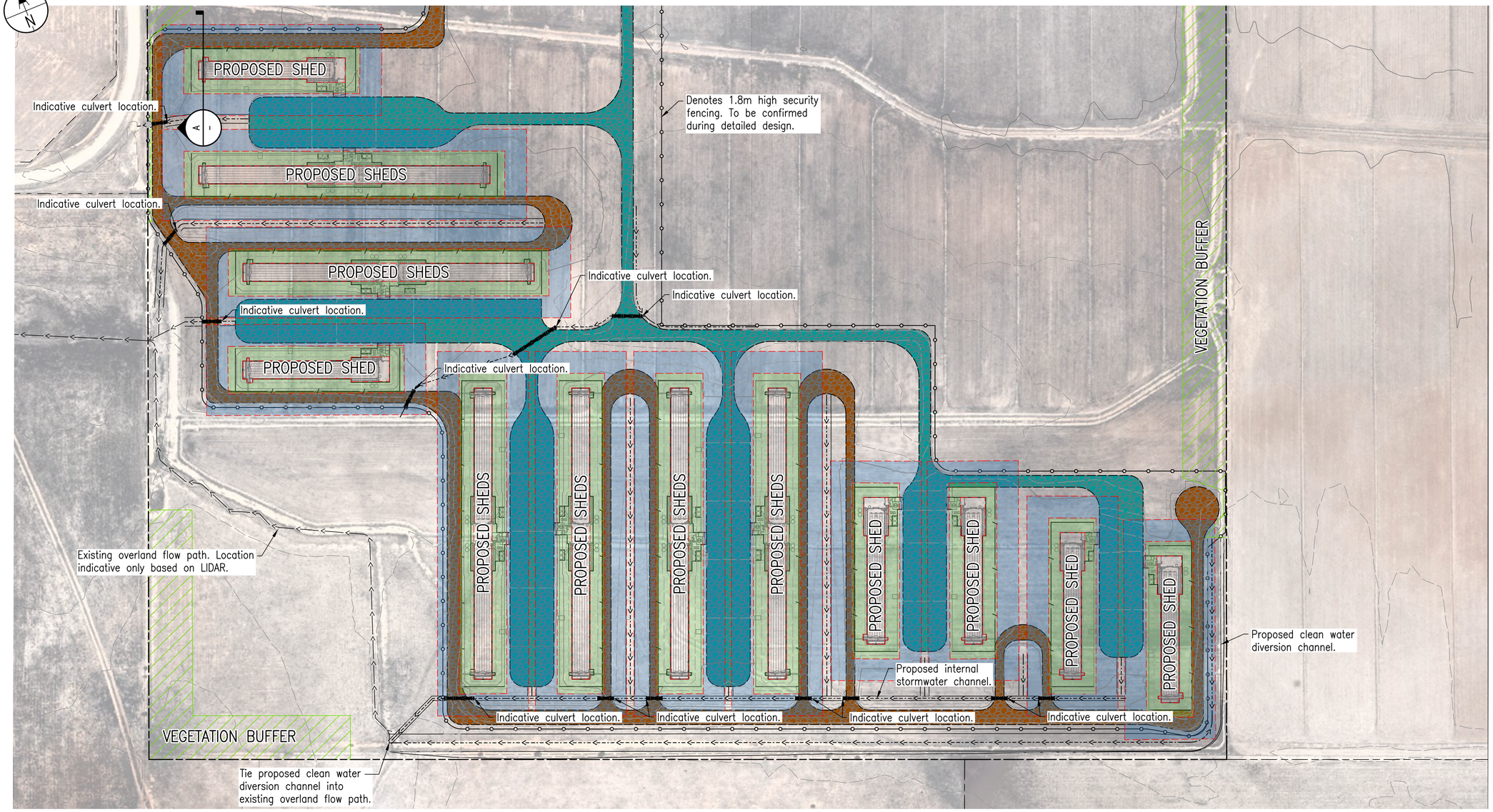

LEGEND:

EXISTING

- Invert
- Property Boundary

PROPOSED

- Clean Area Road Pavement
- Dirty Area Road Pavement
- Vegetation Buffer
- Property Boundary
- Invert
- --(D)---(D)-- Indicative Stormwater Culvert
- Fence
- Design Area Zone 1: 0-10m
- Design Area Zone 2: 10-25m

PLAN NOTES:

P.1. Plan is intended to be viewed in colour.
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P.2. Trial vegetative swales, types and locations to be determined during detailed design.

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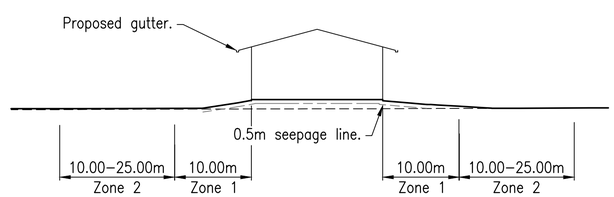
O.1. Trial mid batch apron cleaning.

EGG INDUSTRY ENVIRONMENTAL GUIDELINES

E.1. Zone 1: 0-10m
E.2. Zone 2: 10-25m
E.3. Zone 3: >25m



TYPICAL SHED SECTION (A)
Do not scale.

EGG INDUSTRY GUIDELINES DESIGN SITE LAYOUT PLAN

Scale 1:1500 (A1)

0 15 30 45 60m
1:1500(A1) 1:3000(A3)

ISSUE	DESCRIPTION	DATE	DWN	DES	CHK	APP
1	FOR APPROVAL	16/10/25	LMB	LMB	GS	
0	FOR APPROVAL	15/08/25	LMB	LMB	GS	
A	FOR COMMENT	12/08/25	LMB	LMB	GS	

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PROJECT
INTEGRATED EGG LAYING OPERATION
MURRAY VALLEY HIGHWAY
TORRUMBARRY, VIC, 3562

TITLE
EGG INDUSTRY GUIDELINES DESIGN SITE LAYOUT PLAN

HEIGHT DATUM	MAP GRID	SIZE
AHD	VICGRID	A1

COUNCIL RAL/MCU NO.

COUNCIL OW NO.

PROJECT NO.	DRAWING NO.	ISSUE
25E-0010	P-SK1007	1

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Appendix B Geotechnical Investigation Report

RMA
Soils + Geotechnical

Geotechnical Investigation Report

Alpair Pty Ltd - McLean Farms

Project Number 25-S-0016

Project Name GA - Torrumbarry Property Victoria

REPORT CONTROL SHEET

RMA Ref No	**25-S-0016**
Site:	Torrumbarry – Murray Valley Highway | Torrumbarry
Report Title:	Geotechnical Investigation Report

Document Control					
Revision	**Author**	**Reviewer**	**Approved for Issue**		
			Name	**Signature**	**Date**
1	Danny Coleborn *RPEQ24004*	Daniel Keogh *QBCC15072125*	Danny Coleborn *RPEQ24004*		20/02/2025

Disclaimer:

This report is a professional opinion based on the information available at the time of writing. It is not intended as a quote, guarantee or warranty and does not cover any latent defects.

The conclusions in this report should not be read in isolation. We recommend that its contents be reviewed in person with the author so that the assumptions and available information can be discussed in detail to enable the reader to make their own risk assessment in conjunction with information from other sources.

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1. Introduction

1.1 General

A broadscale investigation was undertaken for a proposed development within Lot 1 on registered plan LP86931, Lot 2 on registered plan PS547702, Lot 2 on registered plan PS404891, Lot 2 on registered plan LP69483 and Lot 4 on registered plan LP206281, Murray Valley Highway Torrumbarry.

The location of the site is shown in Figures 1 & 2 presented in Appendix A.

It is understood that the proposed development will likely include the construction of:

- Poultry Farm Sheds
- Internal Roads
- Other essential infrastructure

1.2 Scope of Services

RMA Soils component of the work is generally to undertake a site and soil assessment to inform on the due diligence phase of the project.

The objective of the geotechnical investigation was to provide information on the:

- Subsurface profile
- Indicative site classification/soil reactivity
- Assessment of materials for:
    - material usage
    - excavatability
- Assessment of potential geotechnical hazards for the site
- Construction recommendations
- Groundwater assessment

To collect the appropriate data and site information, the methodology and scope of works for the investigation and laboratory testing program included:

- Excavating test pits up to 2m depth or prior refusal
    - Plasticity
    - Dispersive potential

2. Geotechnical Investigation

2.1 Site Description

Lot 1 (LP86931) & Lot 2 (PS547702) are adjacent to each other. They are bound on the southern side by rural properties, on the eastern side by Baillieu Road, on the western side by Rosalynmead Road and on the northern side by Lot 2 on (PS404891). Crystal Road traverses the properties through the centre.

Lot 2 (PS404891) is bound on the southern side by Lot 1 (LP86931) & Lot 2 (PS547702), on the eastern side by rural properties, on the western side by Rosalynmead Road and on the northern side by the Murray Valley Highway.

Lot 2 (LP69483) is bound on the southern sides by rural properties, on the eastern side by rural properties & the Murphy Swamp Wildlife Reserve and on the western side by Baillieu Road.

Lot 4 (LP206281) is bound on the southern, eastern & western sides by rural properties and on the northern side by the Murray Valley Highway.

Access to the sites is from the Murray Valley Highway and Baillieu Road.

At present the sites are generally cultivated paddocks and are sparsely to moderately vegetated with short grasses and sparsely timbered with small to large trees.

A dam has been constructed around the centre of the northern boundary of Lot 2 (PS547702). The excavated material was used to construct a hardstand area on the western side of the dam.

The lots are gently sloping, generally towards the Murray River to the north.

Site characteristics are shown in photographs presented in Appendix A.

2.2 Field Investigation

The field investigation completed on the 15th of February 2025 was carried out using a 1.7t Excavator.

The excavator utilised a 0.6m wide tiger tooth bucket from the ground surface to the termination depth of the test pits.

The field investigation consisted of:

- Excavating & logging 7 test pits
- Disturbed samples collected for:
    - Atterberg Limits
    - Emerson Class Number

The soil classification descriptions, field and laboratory testing were carried out in general accordance with Australian Standards:

- AS1289: Methods of Testing Soils for Engineering Purposes
- AS1726-2017: Geotechnical Site Investigations

The borehole locations are shown on the Site Map presented in Appendix B. The borelogs are presented in Appendix C.

2.3 Laboratory Testing

2.3.1 General

Laboratory testing was carried out on selected samples collected from the field investigation program. The testing was directed towards assessing the plasticity & dispersive characteristics of the subsurface materials.

The laboratory testing was carried out in general accordance with the relevant Australian Standards from AS1289 Methods of Testing Soils for Engineering Purposes. Laboratory testing included:

- Atterberg Limits – to assess the plasticity
- Emerson Class Number – to assess the dispersive potential

The results of the laboratory testing is shown in the Sections below.

2.3.2 Atterberg Limits Testing Results

Disturbed samples were collected during the investigation and were used to undertake Atterberg Limits testing in accordance with AS1289.3.4.1 (LS) and 1289.3.9.2 (LL).

The Atterberg Limits test reports are presented in Appendix D and summarised in Table 1 below.

Table 1: Laboratory Test Results – Atterberg Limits

Test Locations	Depth (m)	Material Type	Liquid Limit (%)	Linear Shrinkage (%)
TP01	0.20 – 0.50	Sandy Silty Clay	53	13.0
	0.60 – 0.90	Sandy Silty Clay	50	13.5
	0.90 – 1.00	Sandy Clay	54	15.5
TP03	0.70 – 1.00	Sandy Clay	51	16.5
TP04	0.10 – 0.30	Sandy Clay	57	17.0
TP05	0.10 – 0.30	Sandy Silty Clay	63	17.5

Test Locations	Depth (m)	Material Type	Liquid Limit (%)	Linear Shrinkage (%)
TP06	0.20 – 0.40	Sandy Silty Clay	60	15.5
	0.80 – 1.00	Sandy Silty Clay	61	16.5

2.3.3 Emerson Class Number Results

Part of the sample used to complete Atterberg Limits testing was used to undertake Emerson Class Number testing. This testing was completed in accordance with AS1289.3.8.1.

The Emerson Class Number test results are outlined in Table 2 below with the reports presented in Appendix D.

Table 2: Laboratory Test Results – Emerson Class Number

Test Locations	Depth (m)	Material Type	Emerson Class Number	Dispersive Potential
TP01	0.20 – 0.50	Sandy Silty Clay	5	Low
	0.60 – 0.90	Sandy Silty Clay	5	Low
	0.90 – 1.00	Sandy Clay	4 *	Moderate
TP03	0.70 – 1.00	Sandy Clay	4 **	Moderate
TP04	0.10 – 0.30	Sandy Clay	6	Very Low
TP05	0.10 – 0.30	Sandy Silty Clay	6	Very Low
TP06	0.20 – 0.40	Sandy Silty Clay	5	Low
	0.80 – 1.00	Sandy Silty Clay	4 *	Moderate

** Gypsum in the soil*

*** Carbonate in the soi*

3. Geotechnical Assessment

3.1 Regional Geology

The 1:250,000 scale Bendigo Geological Map published by the Geological Survey of Victoria in 2001 indicates that the surface and near-surface geology of the site comprises:

- Quaternary age sediments: gravel, sand, silt (variably sorted and rounded) & clay, generally unconsolidated, includes deposits of low terraces & alluvial floodplain deposits
- Tertiary Quaternary age Shepparton Formation: clay, sand, silt, poorly sorted lenticular gravel, dissected flood plain alluvium (terraces 1-10 metres above present river channels & well-developed soil 2-3 m thick)

The subject site lies within the Tertiary Quaternary age Shepparton Formation sediments and residual soils. The regional geology of the area is shown on Figures 3 & 4 presented in Appendix A,

3.2 Subsurface Profile

3.2.1 General

The site investigation consisted of drilling and logging seven test pits. The test pits were excavated across the subject properties.

The target depth for termination of the test pits was 2m. All test pits were terminated at 1m depth due to the size & capacity of the excavator.

3.2.2 Subsurface Profile

The subsurface profile encountered during both investigations is outlined in Table 3 below.

The borehole locations are presented in Appendix B. The test pit logs are presented in Appendix C.

Table 3: Summary of the Subsurface Profile

Test Pit		Soils		Bedrock	
Number	**Depth (m)**	**Type**	**Thickness (m)**	**Depth (m)**	**Type**
TP01	1.0	Sandy Silty Clay Sandy Clay	0.90 0.10	-	Not Encountered
TP02	1.0	Sandy Silty Clay Sandy Clay	0.80 0.20	-	Not Encountered

Test Pit		Soils		Bedrock	
Number	**Depth (m)**	**Type**	**Thickness (m)**	**Depth (m)**	**Type**
TP03	1.0	Sandy Silty Clay Sandy Clay	0.70 0.30	-	Not Encountered
TP04	1.0	Sandy Clay	1.00	-	Not Encountered
TP05	1.0	Sandy Silty Clay Sandy Clay	0.60 0.40	-	Not Encountered
TP06	1.0	Sandy Silty Clay	1.00	-	Not Encountered
TP07	1.0	Sandy Silty Clay	1.00	-	Not Encountered

3.3 Site Classification

The classification of soil reactivity for a particular site to allow for the design of foundations, strictly only applies to residential buildings up to two-storeys and to other buildings of similar size, loading and flexibility as defined in accordance with AS 2870–2011.

It does not strictly apply to industrial or commercial constructions or infrastructure applications and as such is not directly applicable for this development. It is, however, a valuable method of classification and provides an indication of the tendency of the ground surface to move with seasonal variation in moisture content.

The borelogs show variable depths to weathered basalt across the site and therefore potential surface movement will vary.

The site classification was based on a visual assessment of relevant site conditions, laboratory test results and the characteristic surface movement. The estimated Ys and site classification of each borehole is outlined in Table 4.

Table 4: Site Classification – RMA Soils Boreholes

Test Pit	Characteristic Surface Movement, Ys (mm)	Site Classification
TP01	65 – 90	H2 – D / E – D

Test Pit	Characteristic Surface Movement, Ys (mm)	Site Classification
TP02	65 – 90	H2 – D / E – D
TP03	65 – 90	H2 – D / E – D
TP04	80 – 110	E – D
TP05	75 – 100	E – D
TP06	75 – 100	E – D
TP07	75 – 100	E – D

The characteristic surface movement and site classification outlined above is based on the following:

- Climate Categories 4 & 5
- Zone of moisture variation of 3m & 4m
- Cracked zone of 1.5m & 2.0m deep
- pF = 1.2
- No cut / fill
- Assumptions of material characteristics below 1m depth

The '-D' suffix indicates that this site lies in a climatic zone that is typically dry. These areas have a design depth of suction change, Hs, of greater than or equal to 3 and generally experience deep-seated moisture changes which may lead to higher than usual soil movements.

The Ys values outlined above show that the underlying soil profile has a High to Extremely High potential to swell/shrink under normal climatic changes, in terms of reactivity. This swelling &/or shrinking of the soils, particularly clay soils, is attributed to the absorption &/or loss of moisture.

Good practice in design, construction and management of the site will be required to accommodate the potential site movements in the short and long term.

This will include management of surface and subsurface drainage throughout the site along with limits on landscaping and adequate moisture preparation of any fill areas.

Commentary on the management of sites is outlined in Appendix B of AS 2870-2011.

4. Engineering Assessment

4.1 Material Usage / Import Type

The clay fill and natural sandy & silty clay material, where free of organic and deleterious material, may be used for structural fills.

Topsoil and silt materials, where encountered, may not be used as fill. These materials should be stripped from the site and discarded.

It should be noted that the onsite soils could be expected to present difficulties in handling, placement, and compaction if the appropriate moisture content is not achieved, particularly if the soils are overly moist. The detailed design should consider the effect of earthworks on site classification.

If imported, reactive clay soils are to be used, close control of moisture content during placement and compaction is required so as to minimise the potential for swelling and shrinkage movement. A moisture content within the range of OMC (standard Optimum Moisture Content) -3% to OMC +1% is recommended. Foundation design must reflect the use of the potentially reactive clays if they are used as structural fill.

Any imported general fill material should be free of deleterious material, of good quality with a Liquid Limit of less than 60% & Linear Shrinkage of less than 15%, a maximum particle size of 75mm with at least 80% passing the 19mm sieve. Quality testing to confirm imported fill quality should be carried out prior to delivery to site.

4.2 Excavatability

The target depth for termination of the boreholes 2m. All test pits were terminated at 1m depth due to the size of the excavator. The excavator utilised a 0.6m wide tiger tooth bucket from the ground surface to the termination depth of the test pits.

Excavations within the fill and natural clays could be undertaken using conventional small to medium sized earthmoving equipment, such as drotts, backhoes or 5 to 15t (or larger) excavators.

Based on the borelogs & geological mapping, it is unlikely that harder materials will be encountered within the upper 3m to 4m of the subsurface profile.

It should be noted that the excavatability estimates are based on materials encountered at the test locations only and that conditions may differ for excavatability beyond these test locations and the termination depths drilled or excavated as part of this investigation.

4.3 Site Earthworks

All site earthworks should be carried out in accordance with the procedures outlined in AS3798 - 2007.

AS3798 recommends that before any construction work is attempted, each building site should be scraped free of all significant organic material and debris. All soils containing organic and deleterious matter should be stripped from the construction area to the base of the root systems. This material is not considered suitable for reuse as controlled fill. The stripped soils could be stockpiled for landscaping purposes only.

AS3798 recommends that grub holes produced during tree removal should be backfilled and compacted to prevent ‘soft’ spots occurring underneath the building which may lead to differential

settlement. Backfilling must be done in accordance with the procedures outline in AS3798. This will also apply to backfilling the following the removal of large floating rocks.

If cut and fill is required, then the fill should be clean spoil recovered from the site cut and laid down in 150mm (maximum) layers. Each layer should be moistened and compacted using suitable compaction equipment to a minimum 98% standard compaction. Each 300mm lift should be tested in accordance with AS1289.5.8.1 and 5.4.1 or 5.1.1.

The subgrade below any pavement layers or filled platform should be tyned to a depth of 150mm and recompacted a minimum of 98% standard compaction. The pavement layers for any carparks or driveways should be compacted to 100% standard compaction. The layers should be compacted in 150mm (maximum) layers. Each layer should be moistened and compacted using suitable compaction equipment. Each 300mm lift should be tested in accordance with AS1289.5.8.1 and 5.4.1 or 5.1.1.

Should compaction testing be required, RMA Soils can be engaged to carry out compaction density testing on the platform during construction of the building pad.

4.4 Seismic Sub-Soil Class and Site Factor

The site sub-soil class for earthquake actions in this report is based on assessment of geological information collected during the site investigations and methods provided in Australian Standard AS1170.4-2018 – Structural design actions - Part 4: Earthquake actions in Australia.

In accordance with Section 4.2 of AS1170.4 the site sub-soil class of the proposed site is “Class Ce – Shallow Soil.” In accordance with Table 4.1 and Figure 3.2(F) a Hazard Design Factor of 0.08 should be adopted for the proposed site.

4.5 Site Trafficability

At the time of the field investigation trafficking problems were not encountered.

Trafficking problems for earthworks and construction machinery will arise due to the clayey nature of the surface and near surface materials. These problems may be caused by:

- Rainfall events softening the surface and near surface soils.
- Disturbance of the surface and near surface soils with the removal of vegetation, rock & ground cover and construction of underground elements.
- Disturbance of the surface and near surface soils with the construction of underground elements.

To minimise these problems, the site trafficability may be improved by:

- Controlling water seepage/drainage by diverting runoff away from the construction area to prevent ponding.
- Adequate compaction of the fill material used to backfill any constructed underground elements.
- Proof rolling the exposed area following stripping, clearing and grubbing to identify any weak

areas and then compacting the subgrade to strengthen these areas

- "Sealing" the construction area by rolling with a smooth drum roller at the completion of each day or prior to any rain event.
- Providing an all-weather working layer consisting of either:
  - crushed concrete type material, or
  - large size gravel, or
  - imported sub-base material.

Areas which demonstrate excessive movement and/or do not improve sufficiently after compaction should be removed and replaced as outlined in Section 4.4.

All subgrades below pavements, structures and heavy machinery should be inspected by competent persons to identify any weak areas in the founding materials. Weak areas may cause failures in pavements, structures and lead to issues with subsidence below heavy machinery during construction.

5. Ground Condition Assessment

5.1 General

The aim of the broadscale investigation is to identify potential issues that may cause issues during the construction of the future development.

An assessment of the surface and subsurface characteristics revealed potential issues which will include:

- Unsuitable materials may include:
    - Topsoil
    - Silt
- Fill
- Extremely expansive soils

Unsuitable materials are defined as those containing deleterious materials such as organics, silt, rubbish, soft or loose soils etc. Unsuitable materials encountered on the site include topsoil & silt.

The topsoil may not be used as structural fill and should be removed from site or used for landscaping purposes.

Where bulk earthworks are to be undertaken, removal of these materials will need to be considered during assessment of the cut and fill volumes.

The uncontrolled fill material is unsuitable as a founding material for future structures. Where structures are to be placed in this area, the fill shall be removed and, where suitable, may be used as fill for the construction of building platforms.

The clay materials have the potential for high reactivity when exposed to moisture changes. Based on the climate categories for this area, this then correlates as high to extreme potential surface movements, as shown by the site classification. These potential surface movements should be considered during the design of foundations for future structures.

5.2 Groundwater

At the time of the investigation groundwater was not encountered within the termination depth of the boreholes.

Differing material types were encountered during the drilling and seepage was encountered within some boreholes, and it is possible that seepage could be expected through the more permeable soils and material interfaces during and after periods of rainfall within other areas across the site.

6. Conclusions

A preliminary geotechnical investigation was undertaken for a proposed development within Lot 1 on registered plan LP86931, Lot 2 on registered plan PS547702, Lot 2 on registered plan PS404891, Lot 2 on registered plan LP69483 and Lot 4 on registered plan LP206281, Murray Valley Highway Torrumbarry.

It is understood that the proposed development will likely include the construction of:

- Poultry Farm Sheds
- Internal Roads
- Other essential infrastructure

The field investigation consisted of excavating & logging 7 test pits. The target depth for termination of the test pits was 2m. All boreholes were terminated at 1m depth due to the capacity of the excavator used to excavate the test pits.

The investigations found natural materials consisting of stiff silty & sandy clay. Bedrock was not encountered within the termination depth of the test pits.

Laboratory testing was undertaken on selected materials within the natural clay soils.

Atterberg limits testing indicate that the natural clay materials have high plasticity.

Emerson class number testing indicates that the natural clays have moderate to very low dispersive potential.

7. Construction Inspection

It is recommended that footing excavations and cut batter slopes in soil and rock together with building & pavement subgrades and placement of all structural fills, should be inspected by a suitably qualified Geotechnical Engineer/Engineering Geologist. Should subsurface conditions other than those described in this report be encountered, RMA Soils Pty Ltd should be consulted immediately and appropriate modifications developed and implemented if necessary.

8. Limitations

This investigation is intended as a preliminary investigation to assess the surface and subsurface materials. The preliminary assessment is to be used as part of the due diligence phase of the project.

We have prepared this report for the use by Alpair Pty Ltd or your preferred contractor for design purposed in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has not been prepared for use by parties other than the Alpair Pty Ltd or their civil and structural engineers and their approved consultants and/or contractors. It may not contain sufficient information for purposes of other parties or for other uses.

RMA Soils Pty Ltd offer a documentation review services to verify that the intent of geotechnical recommendations is properly reflected in the design. It is recommended that clients avail themselves of this service. Our standard fees would apply in those cases.

9. Appendices

9.1 APPENDIX A

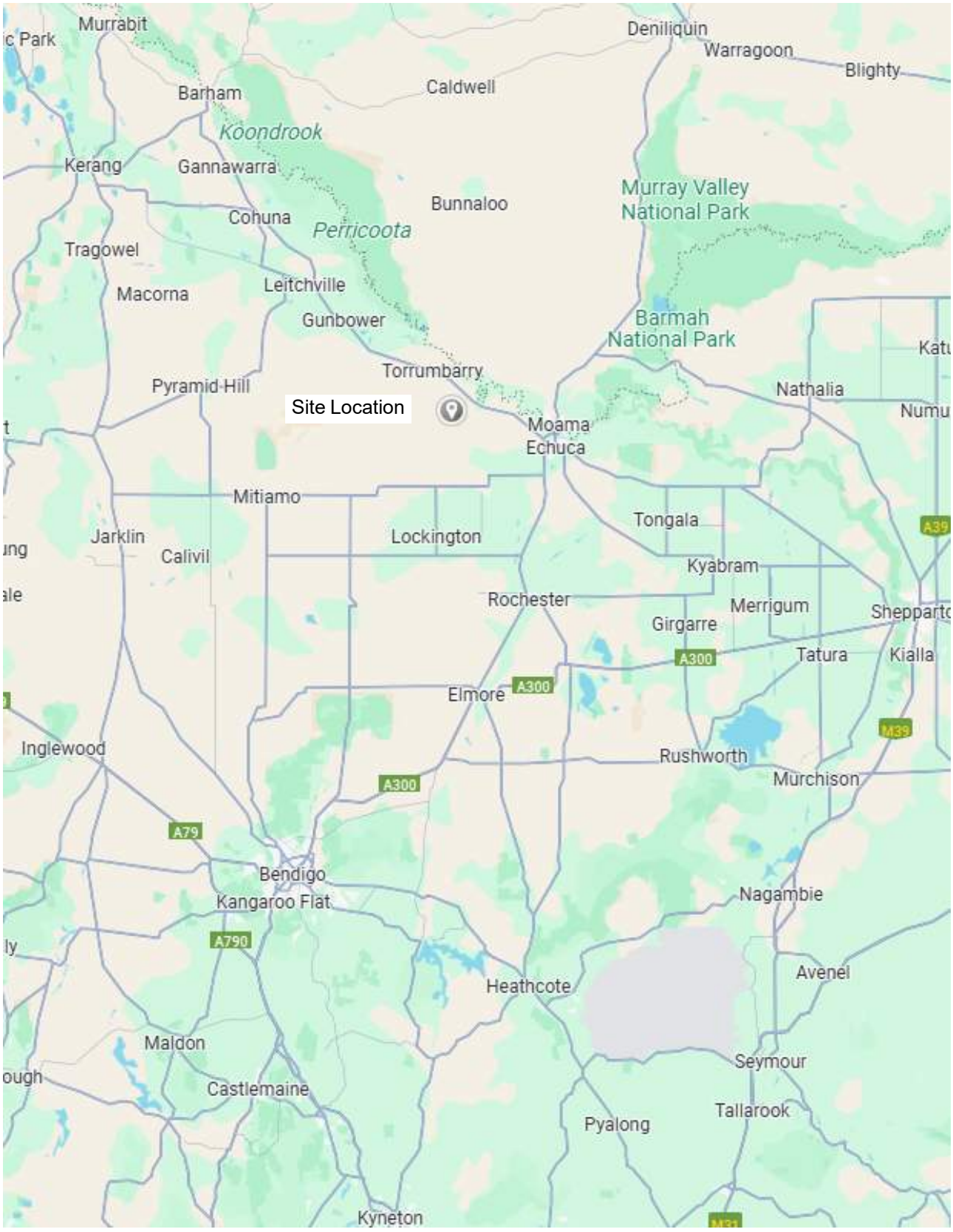

Figure 1: Site Location

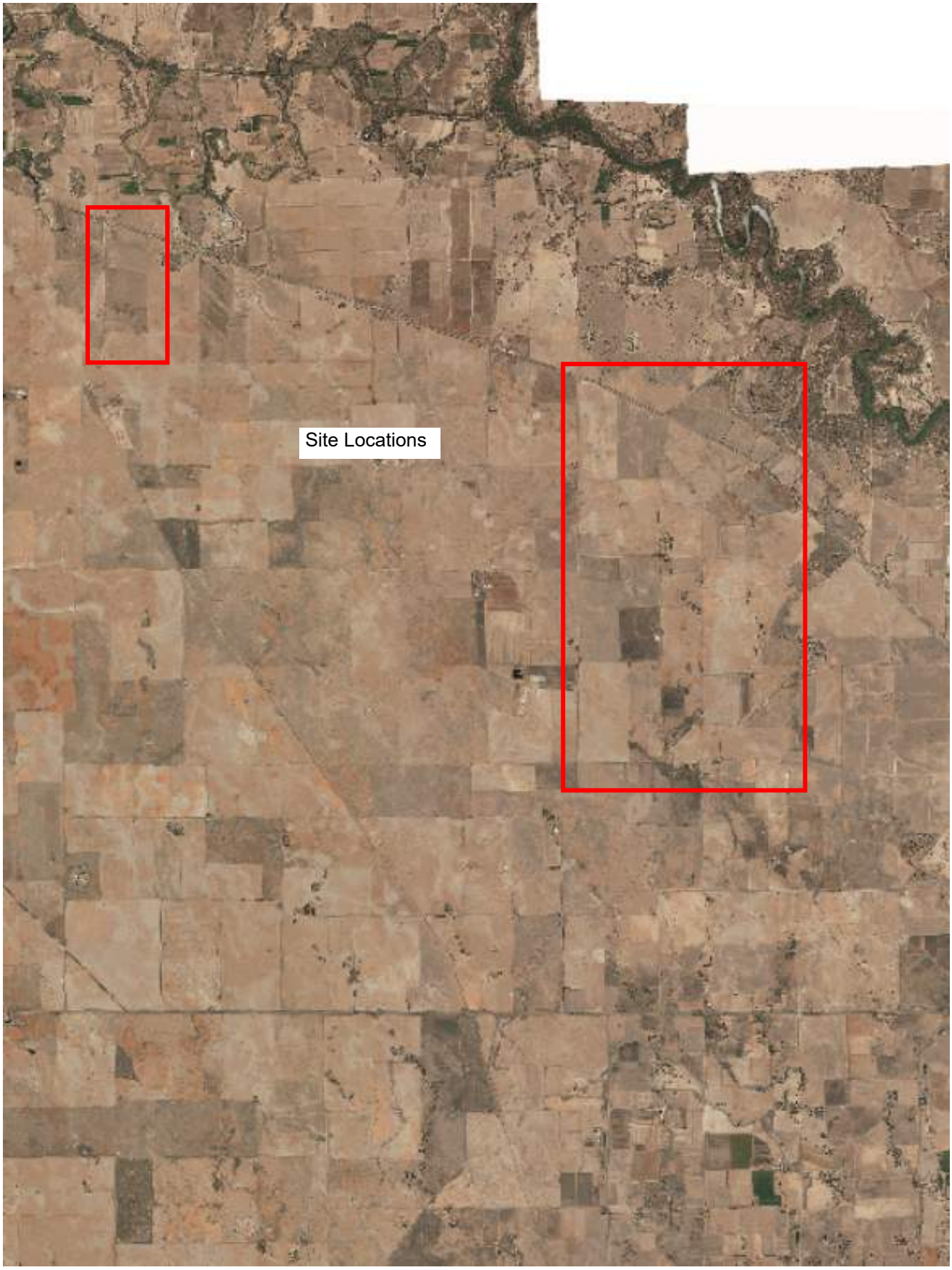

Figure 2: Aerial Map of the Site Location

Figure 3: Regional Geology

Figure 4: Regional Geology

TP01 looking N

TP01 looking NE

RMA Soils

(07) 4639 4100

5 Bowen Street,
Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P1		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP01 looking E

TP04 looking SE

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5 Bowen Street,
Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P2		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP04 looking S

TP04 looking SW

RMA Soils

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Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P3		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP04 looking W

TP05 looking N

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enquiries@rmasoils.com.au

Photo description	P4		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP05 looking NE

TP05 looking E

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Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P5		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP05 looking SE

TP06 looking S

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Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P6		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

TP07 looking N

TP07 looking NW

RMA Soils

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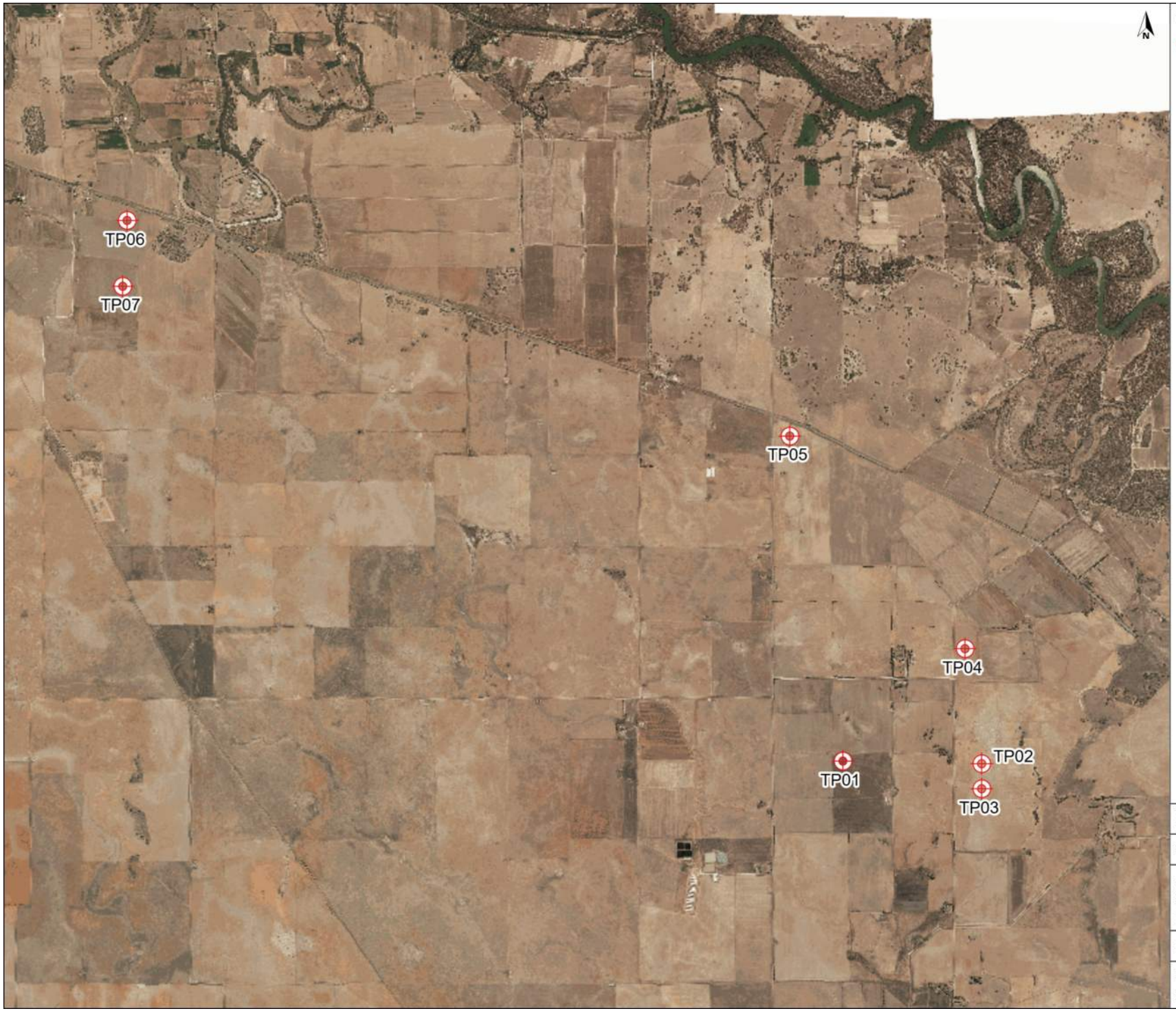
Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	P7		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

9.2 APPENDIX B

9.2.1 Site Map



Legend

sample_group

0 1 km 2 km

Land Use Victoria

RMA Soils

Produced by **Datanest.earth**

Title: Untitled Figure		
Client: Alpair Pty Ltd		Size: A4
Project: GA - Torrumbarry Property Victoria	Drawn:	Figure No.: 1
Date:	Checked:	
Proj No: 25-S-0016	Scale: 1:60005	Version:

9.3 APPENDIX C

9.3.1 Test Pit Logs TP01 – TP07

RMA Soils

5 Bowen Street, Toowoomba QLD 4350

Phone: 07 3846 5885

Geotechnical Log - Testpit

TP01

UTM	: 55H	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 278528.84	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 6005722.79	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: 91.00 (m)	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 15/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, light grey brown, fine grained sand, inorganic, dry.		D	St	
	0.2	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, brown, fine grained sand, inorganic, moist.		M		Atterberg Limits / Emerson Class: LL - 53% LS - 13.0% Iss - 2.5 EC - 5
	0.6	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, light orange brown, fine grained sand, inorganic, moist to dry.		M-D		Atterberg Limits / Emerson Class: LL - 50% LS - 13.5% Iss - 2.6 EC - 5
	0.9	Natural		CH	Natural Sandy CLAY CH: stiff, high plasticity, light brown and yellow mottled white, fine grained sand, inorganic, moist to dry.				Atterberg Limits / Emerson Class: LL - 54% LS - 15.5% Iss - 3.3 EC - 4
					TP01 Terminated at 1m				

TP01

RMA Soils
(07) 4639 4100
5 Bowen Street,
Toowoomba Qld 4350
enquiries@rmasoils.com.au

Photo description	TP01 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP01	**TP Depth**	

RMA Soils

(07) 4639 4100

5 Bowen Street.
Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	TP01 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP01	**BH Depth**	CorePhoto

RMA Soils

5 Bowen Street, Toowoomba QLD 4350

Phone: 07 3846 5885

Geotechnical Log - Testpit

TP02

UTM	: 55H	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 278528.84	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 6005722.79	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: 91.00 (m)	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, light grey brown, fine grained sand, inorganic, dry.		D	St	
	0.2								
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, brown, fine grained sand, inorganic, moist.		M		
	0.8								
		Natural		CH	Natural Sandy CLAY CH: stiff, high plasticity, light brown yellow mottled white, fine grained sand, inorganic, moist to dry.		M-D		
					TP02 Terminated at 1m				

TP02

RMA Soils
(07) 4639 4100
5 Bowen Street,
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enquiries@rmasoils.com.au

Photo description	TP02 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP02	**TP Depth**	

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Photo description	TP02 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP02	**BH Depth**	CorePhoto

RMA Soils

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Phone: 07 3846 5885

Geotechnical Log - Testpit

TP03

UTM	: 55H	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 278528.84	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 6005722.79	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: 91.00 (m)	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, light grey brown, fine grained sand, inorganic, dry.		D	St	
	0.2	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, brown, fine grained sand, inorganic, moist.		M		
	0.5	Natural		CH	Natural Sandy to silty CLAY CH: soft, high plasticity, light orange brown, fine grained sand, inorganic, moist to dry.		M-D	S	
	0.7	Natural		CI-CH	Natural Sandy CLAY CI-CH: stiff, medium to high plasticity, orange brown mottled white, fine grained sand, inorganic, moist to dry. fine to coarse sand size crystals were observed..			St	Atterberg Limits / Emerson Class: LL - 51% LS - 16.5% lss - 3.7 EC - 4
					TP03 Terminated at 1m				

TP03

RMA Soils
(07) 4639 4100
5 Bowen Street,
Toowoomba Qld 4350
enquiries@rmasoils.com.au

Photo description	TP03 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP03	**TP Depth**	

RMA Soils

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Toowoomba Qld 4350

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Photo description	TP03 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP03	**BH Depth**	CorePhoto

RMA Soils

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Phone: 07 3846 5885

Geotechnical Log - Testpit

TP04

UTM	:	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 0.00	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 0.00	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: Not Surveyed	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy CLAY CH: stiff, high plasticity, light brown orange, fine grained sand, inorganic, dry.		D	St	
	0.1								
		Natural		CH	Natural Sandy CLAY CH: stiff, high plasticity, dark red brown, fine grained sand, moist.		M		Atterberg Limits / Emerson Class: LL - 57% LS - 17.0% Iss - 3.9 EC - 6
	0.7								
		Natural		CI	Natural Sandy CLAY CI: stiff, medium plasticity, brown red yellow, fine grained sand, inorganic, moist to dry.		M-D		
					TP04 Terminated at 1m				

TP04

RMA Soils
(07) 4639 4100
5 Bowen Street,
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Photo description	TP04 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP04	**TP Depth**	

RMA Soils

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Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	TP04 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP04	**BH Depth**	CorePhoto

RMA Soils

5 Bowen Street, Toowoomba QLD 4350

Phone: 07 3846 5885

Geotechnical Log - Testpit

TP05

UTM	: 55H	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 278528.84	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 6005722.79	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: 91.00 (m)	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, light grey brown, fine grained sand, inorganic, dry.		D	St	
	0.1								
		Natural		CH	Natural Sandy to silty CLAY CH: high plasticity, dark brown, fine grained sand, inorganic, moist to dry.		M-D		Atterberg Limits / Emerson Class: LL - 63% LS - 17.5% Iss - 3.1 EC - 6
	0.6								
		Natural		CI-CH	Natural Sandy CLAY CI-CH: stiff, medium to high plasticity, orange brown mottled white, fine grained sand, inorganic, moist to dry. fine to coarse sand crystals were observed..			St	
					TP05 Terminated at 1m				

TP05

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Photo description	TP05 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP05	**TP Depth**	

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Toowoomba Qld 4350

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Photo description	TP05 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP05	**BH Depth**	CorePhoto

RMA Soils

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Phone: 07 3846 5885

Geotechnical Log - Testpit

TP06

UTM	:	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 0.00	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 0.00	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: Not Surveyed	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, grey, fine grained sand, inorganic, dry.		D	St	
	0.2	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, dark grey brown, fine grained sand, inorganic, moist to dry.		M-D		Atterberg Limits / Emerson Class: LL - 60% LS - 15.5% Iss - 3.2 EC - 5
	0.5	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, brown, fine grained sand, moist to dry.				Atterberg Limits / Emerson Class: LL - 61% LS - 16.5% Iss - 3.8 EC - 4
					TP06 Terminated at 1m				

TP06

RMA Soils

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5 Bowen Street,
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Photo description	TP06 Trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP06	**TP Depth**	

RMA Soils

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Toowoomba Qld 4350

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Photo description	TP06 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP06	**BH Depth**	CorePhoto

RMA Soils

5 Bowen Street, Toowoomba QLD 4350

Phone: 07 3846 5885

Geotechnical Log - Testpit

TP07

UTM	:	**Excavator**	: 1.7t Excavator	**Job Number**	: 25-S-0016
Easting (m)	: 0.00	**Excavator Supplier**	:	**Client**	: Maclean Farms
Northing (m)	: 0.00	**Logged By**	: Roberto Garcia Abreu	**Project**	: GA - Torrumbarry Property Victoria
Ground Elevation	: Not Surveyed	**Reviewed By**	:	**Location**	: Echuca VIC, Australia
Total Depth	: 1 m BGL	**Date**	: 23/01/2025	**Loc Comment**	:

Excavator Attachment	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Weathering	Moisture	Consistency/Density	Samples
		Natural		CH	Natural Sandy to silty CLAY CH: high plasticity, light brown grey, fine grained sand, dry.		D		
	0.1	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, dark grey brown, fine grained sand, inorganic, moist to dry.		M-D	St	
	0.4	Natural		CH	Natural Sandy to silty CLAY CH: stiff, high plasticity, brown, fine grained sand, moist to dry.				
					TP07 Terminated at 1m				

TP07

RMA Soils
(07) 4639 4100
5 Bowen Street,
Toowoomba Qld 4350
enquiries@rmasoils.com.au

Photo description	TP07 trench		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
TP No	TP07	**TP Depth**	

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Toowoomba Qld 4350

enquiries@rmasoils.com.au

Photo description	TP07 Spoil		
Client	Maclean Farms		
Location	Echuca VIC, Australia		
Project name	GA - Torrumbarry Property Victoria		
Project No	25-S-0016	**Scale**	Not to Scale
BH No	TP07	**BH Depth**	CorePhoto

9.4 APPENDIX D

9.4.1 Atterberg Limits Test Reports

9.4.2 Emerson Class Number Test Reports

Material Test Report

Report Number: **25-S-0016-1**
Issue Number: 1
Date Issued: 24/01/2025
Client: RMA Engineers
5 Bowen Street, Toowoomba QLD 4350
Project Number: 25-S-0016
Project Name: GA - Torrumbarry Property Victoria
Project Location: Torrumbarry Victoria
Work Request: 5713
Date Sampled: 15/01/2025
Dates Tested: 16/01/2025 - 21/01/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Test locations are shown in RMA Soils geotechnical investigation report 25-S-0016.
Site Selection: Selected by RMA Soils Technician
Location: GA - Torrumbarry, Victoria
Material Source: Insitu

RMA Soils Pty Ltd
Toowoomba Laboratory
70 Mort Street North Toowoomba QLD 4350
Phone: (07) 4639 4100
Email: enquiries@rmasoils.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Dylan Burley
Laboratory Manager
NATA Accredited Laboratory Number: 19407

Sample Details						
Sample Number	25-5713A	25-5713B	25-5713C	25-5713D		
Date Sampled	15/01/2025	15/01/2025	15/01/2025	15/01/2025		
Sample Location	TP01	TP01	TP01	TP03		
Sample Depth	0.2-0.5m	0.6-0.9m	0.9-1.0m	0.7-1.0m		
Material	Sandy Silty Clay, Brown	Sandy Silty Clay, Light Orange Brown	Sandy Clay, Light Brown and Yellow mottled White	Sandy Clay, Orange Brown mottled White		
Atterberg Limit (AS1289 3.9.2 & 3.4.1)					**Min**	**Max**
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Liquid Limit (%)	53	50	54	51		
Plastic Limit (%)	**	**	**	**		
Plasticity Index (%)	**	**	**	**		
Linear Shrinkage (AS 1289 3.4.1)					**Min**	**Max**
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Moisture Condition Determined By	AS 1289.3.9.2	AS 1289.3.9.2	AS 1289.3.9.2	AS 1289.3.9.2		
Linear Shrinkage (%)	13.0	13.5	15.5	16.5		
Cracking Crumbling Curling	Cracking & Curling	Cracking & Curling	Cracking	Cracking		
Emerson Class Number of a Soil (AS 1289 3.8.1)					**Min**	**Max**
Soil Description	Sandy Silty Clay, Brown	Sandy Silty Clay, Light Orange Brown	Sandy Clay, Light Brown and Yellow mottled White	Sandy Clay, Orange Brown mottled White		
Nature of Water	Distilled	Distilled	Distilled	Distilled		
Temperature of Water (^{o}C)	25.0	25.0	25.0	25.0		
* Mineral Present	**	**	Gypsum	Carbonate		
Emerson Class	5	5	4 *	4 *		

Material Test Report

Report Number: **25-S-0016-1**
Issue Number: 1
Date Issued: 24/01/2025
Client: RMA Engineers
5 Bowen Street, Toowoomba QLD 4350
Project Number: 25-S-0016
Project Name: GA - Torrumbarry Property Victoria
Project Location: Torrumbarry Victoria
Work Request: 5713
Date Sampled: 15/01/2025
Dates Tested: 16/01/2025 - 21/01/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Test locations are shown in RMA Soils geotechnical investigation report 25-S-0016.
Site Selection: Selected by RMA Soils Technician
Location: GA - Torrumbarry, Victoria
Material Source: Insitu

RMA Soils Pty Ltd
Toowoomba Laboratory
70 Mort Street North Toowoomba QLD 4350
Phone: (07) 4639 4100
Email: enquiries@rmasoils.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Dylan Burley
Laboratory Manager
NATA Accredited Laboratory Number: 19407

Sample Details						
Sample Number	25-5713E	25-5713F	25-5713G	25-5713H		
Date Sampled	15/01/2025	15/01/2025	15/01/2025	15/01/2025		
Sample Location	TP04	TP05	TP06	TP06		
Sample Depth	0.1-0.3m	0.1-0.3m	0.2-0.4m	0.8-1.0m		
Material	Sandy Clay, Dark Red Brown	Sandy Silty Clay, Dark Brown	Sandy Silty Clay, Dark Grey Brown	Sandy Silty Clay, Brown		
Atterberg Limit (AS1289 3.9.2 & 3.4.1)					**Min**	**Max**
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Liquid Limit (%)	57	63	60	61		
Plastic Limit (%)	**	**	**	**		
Plasticity Index (%)	**	**	**	**		
Linear Shrinkage (AS 1289 3.4.1)					**Min**	**Max**
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Moisture Condition Determined By	AS 1289.3.9.2	AS 1289.3.9.2	AS 1289.3.9.2	AS 1289.3.9.2		
Linear Shrinkage (%)	17.0	17.5	15.5	16.5		
Cracking Crumbling Curling	Cracking	Cracking	Cracking & Curling	Curling		
Emerson Class Number of a Soil (AS 1289 3.8.1)					**Min**	**Max**
Soil Description	Sandy Clay, Dark Red Brown	Sandy Silty Clay, Dark Brown	Sandy Silty Clay, Dark Grey Brown	Sandy Silty Clay, Brown		
Nature of Water	Distilled	Distilled	Distilled	Distilled		
Temperature of Water (^{o}C)	25.0	25.0	25.0	25.0		
* Mineral Present	**	**	**	Carbonate		
Emerson Class	6	6	5	4 *		