Public Notice Details

Planning Application Details

Application No	DA2400122

Property Details

Property Location	1661 Midland Highway Bagdad

Application Information

Application Type	Discretionary Development Application
Development Category	Sports pavilion, indoor sports centre, car parking, oval works and boundary re-organisation
Advertising Commencement Date	17/03/2025
Advertising Closing Period If the Council Offices are closed during normal office hours within the above period, the period for making representations is extended.	01/04/2025

Enquiries regarding this Application can be made via to Southern Midlands Council on (03) 6254 5050 or by emailing planningenquires@southernmidlands.tas.gov.au. Please quote the development application number when making your enquiry.

Representations on this application may be made to the General Manager in writing either by

Post: PO Box 21, Oatlands Tas 7120
Email: mail@southernmidlands.tas.gov.au
Fax: 03 6254 5014

All representations must include the authors full name, contact number and postal address and be received by the advertising closing date.

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SOUTHERN MIDLANDS COUNCIL

APPLICATION FOR PLANNING PERMIT

DEVELOPMENT / USE

Use this form to apply for a permit in accordance with section 57 and 58 of the *Land Use Planning and Approvals Act 1993*

Proposed use/development: *(Provide details of proposed works and use).*	***Multipurpose Indoor Sports Centre, Sports Pavilion and Oval Development plus Demolition of the Existing Small Shed***
Location of Development: *(If the development includes more than one site, or is over another property include address of both Properties).*	*Bagdad Recreation Precinct, 1661 Midland Highway, Bagdad 7030 off Hall Lane*
Certificate of Title/s Volume Number/Lot Number:	*CTs 54450/1, 51272-1, 100182-1, 222905/1 & 108882/1*
Land Owners Name:	*Bagdad Community Club Inc*
Applicant's Name:	*Andrew Benson,* *Deputy General Manager, Southern Midlands Council - ABN 68 653 459 589*
Contact details:	*PO Box 21 Oatlands, Tas 7120* *03 62545000, 0429 852 730* *mail@southernmidlands.tas.gov.au* *abenson@southernmidlands.tas.gov.au* (
Details Tax Invoice for application fees to be in the name of: (if different from applicant)	*As above* *Full Name/s or Full Business or Company Name and ABN if registered business or company name*

Print email address	*ABN*

What is the estimated value of all the new work proposed

$15,178,534.00 ex GST (less Consultant Fees and FFE)

For Commercial Planning Permit Applications Only

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SOUTHERN MIDLANDS COUNCIL

Signage:	Is any signage proposed?	Yes		No ✓

If yes, attach details: size, location and art work

Business Details:

Existing hours of operation

Hours		to	
Weekdays	*17.00*		*23.00*
Sat	*10.00*		*23.00*
Sun	*10.00*		*20.00*

Proposed hours of new operation

Hours	am	to	pm
Weekdays	*10.00*		*23.00*
Sat	*10.00*		*23.00*
Sun	*10.00*		*20.00*

Number of existing employees:	*Nil*	Number of proposed new employees:	*Nil*	
Traffic Movements:	Number of commercial vehicles serving the site at present	*1/week*	Approximate number of commercial vehicles servicing the site in the future	*1/week*
Number of Car Parking Spaces:	How many car spaces are currently provided	*51*	How many new car spaces are proposed	*Nil increase*

Please tick ✓answer

Is the development to be staged:	Yes		No ✓

Please attach any additional information that may be required by Part 6.1 *Application Requirements* of the Tasmanian Planning Scheme – Southern Midlands.

Signed Declaration

I/we as owner of the land or person with consent of the owner hereby declare that:

1. I/we have read the Certificate of Title and Schedule of Easements for the land and I/we are satisfied that this application is not prevented by any restrictions, easements or covenants.

2. I/we provide permission by or on behalf of the applicant for Council officers to enter the site to assess the application.

3. The information given in this application is true and accurate. I/we understand that the information and materials provided with this application may be made available to the public. I/we understand that the Council may make such copies of the information and materials as, in its opinion, are necessary to facilitate a thorough consideration of the application.

4. I/we have secured the necessary permission from the copyright owner to communicate and reproduce the plans submitted with the application for assessment. I/we indemnify the Southern Midlands Council for any claim or action taken against it regarding a breach of copyright in respect of any of the information or material provided.

5. I/we declare that, in accordance with Section 52(1) of the Land Use Planning and Approvals Act 1993, that I have notified the owner of the intention to make this application. Where the subject property is owned or controlled by Council or the Crown, their consent is attached and the application form signed by the Minister of the Crown responsible and/or the General Manager of the Council.

Applicant Signature (If not the Title Owner)	Applicant Name (*please print*)	Date
	*Andrew Benson (DGM SMC)*	*09.09.24*

Address all correspondence to: The General Manager, PO Box 21, Oatlands, Tasmania 7120
Oatlands Office: 71 High Street, Oatlands 7120 Phone (03) 62545000
Kempton Office: 85 Main Street, Kempton 7030 Phone (03) 62545050
Email Address: mail@southernmidlands.tas.gov.au Web: www.southernmidlands.tas.gov.au
ABN 68 653 459 589

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14/03/2025

SOUTHERN MIDLANDS COUNCIL

Delegate for the Minister administering the *Roads and Jetties Act 1935*

5/02/2025

Land Owner(s) Signature	Land Owners Name *(please print)*	Date
	Lyndon Foster Committee Delegate Bagdad Community Club Inc.	09.09.24

PRIVACY STATEMENT

The Southern Midlands Council abides by the Personal Information Protection Act 2004 and views the protection of your privacy as an integral part of its commitment towards complete accountability and integrity in all its activities and programs.

Collection of Personal Information: The personal information being collected from you for the purposes of the Personal Information Protection Act, 2004 and will be used solely by Council in accordance with its Privacy Policy. Council is collecting this information from you in order to process your application.

Disclosure of Personal Information: Council will take all necessary measures to prevent unauthorised access to or disclosure of your personal information. External organisations to whom this personal information will be disclosed as required under the Building Act 2000. This information will not be disclosed to any other external agencies unless required or authorised by law.

Correction of Personal Information: If you wish to alter any personal information you have supplied to Council please telephone the Southern Midlands Council on (03) 62545050. Please contact the Council's Privacy Officer on (03) 6254 5000 if you have any other enquires concerning Council's privacy procedures.

Information & Checklist Sheet DEVELOPMENT / USE

Use this check list for submitting your application for a planning permit –Please do not attach the check list with your application

Submitting your application ✓

1. All plans and information required per Part 6.1 Application Requirements of the Tasmanian Planning Scheme i.e.: site plan showing all existing buildings, proposed buildings, elevation plans etc. ✓
2. Copy of the current Certificate of Title, Schedule of Easements and Title Plan (Available from Service Tasmania Offices) ✓
3. Any reports, certificates or written statements to accompany the Application (if applicable) required by the relevant zone or code. ✓
4. Prescribed fees payable to Council

Information

If you provide an email address in this form then the Southern Midlands Council ("the Council") will treat the provision of the email address as consent to the Council, pursuant to Section 6 of the Electronic Transactions Act 2000, to using that email address for the purposes of assessing the Application under the Land Use Planning and Approvals Act 1993 ("the Act").

If you provide an email address, the Council will not provide hard copy documentation unless specifically requested.

It is your responsibility to provide the Council with the correct email address and to check your email for communications from the Council.

If you do not wish for the Council to use your email address as the method of contact and for the giving of information, please tick ✓ the box ❑

Heritage Tasmania

If the Property is listed on the Tasmanian Heritage Register then the Application will be referred to Heritage Tasmania unless an Exemption Certificate has been provided with this Application. (Phone 1300 850 332 (local call cost) or email enquires@heritage.tas.gov.au)

TasWater

Depending on the works proposed Council may be required to refer the Application to TasWater for assessment (Phone 136992)

IMPORTANT: There is no connection between Planning approval and Building & Plumbing approvals.

Owners are to ensure that the work is either Low-Risk Building Work, Notifiable Building Work or Permit work in accordance with the Directors Determination – Categories of Building & Demolition Work v 1.4 dated 12 March 2021 prior to any building works being carried out on the land.

https://www.cbos.tas.gov.au/__data/assets/pdf_file/0014/405014/Directors-determination-categories-of-building-and-demolition-work-2021.pdf

Department of State Growth

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Salamanca Building Parliament Square
4 Salamanca Place, Hobart TAS
GPO Box 536, Hobart TAS 7001 Australia
Email permits@stategrowth.tas.gov.au Web www.stategrowth.tas.gov.au
Ref: SRA-25-36

Tasmanian Government

Marcus Richardson
JMG Engineers
By email: mrichardson@jmg.net.au

Dear Marcus

Crown Landowner Consent Granted – 1661 Midland Highway, Bagdad

I refer to your recent request for Crown landowner consent relating to the development application at 1661 Midland Highway, Bagdad for subdivision and new water connections.

I, Fiona McLeod, Director Asset Management, the Department of State Growth, having been duly delegated by the Minister under section 52 (1F) of the *Land Use Planning and Approvals Act 1993* (the Act), and in accordance with the provisions of section 52 (1B) (b) of the Act, hereby give my consent to the making of the application, insofar as it affects the State road network and any Crown land under the jurisdiction of this Department.

The consent given by this letter is for the making of the application only insofar as that it impacts Department of State Growth administered Crown land and is with reference to your application dated 16 January 2025, and the approved documents, as accessible via the link below:

https://files.stategrowth.tas.gov.au/index.php/s/Mmwfuhj8EBa512T

A copy of the Instrument of Delegation from the Minister authorising the delegate to sign under section 52 of the Act can also be accessed via the above link.

Please access and download these documents for your records as soon as possible as this link will expire six months from the date of this letter.

In giving consent to lodge the subject development application, the Department notes the following applicable advice:

- **Other types of works (pipeline, etc.) OR Construction of infrastructure in the road reserve/on Crown land (Works permit required)**

  In giving consent to lodge the subject development application, the Department notes that the works in the State road network will require the following additional consent:

  The consent of the Minister under Section 16 of the *Roads and Jetties Act 1935* to undertake works within the State road reservation.

  For further information please visit https://www.transport.tas.gov.au/roads_and_traffic_management/permits_and_bookings or contact permits@stategrowth.tas.gov.au.

The Department reserves the right to make a representation to the relevant Council in relation to any aspect of the proposed development relating to its road network and/or property.

Yours sincerely

Fiona McLeod
DIRECTOR ASSET MANAGEMENT

Delegate for the Minister administering the *Roads and Jetties Act 1935*

5 February 2025

cc: General Manager, Southern Midlands Council

Tasmanian Government

Crown Landowner Consent Application

Department of State Growth

Application Submitted: Thursday, 16 January, 2025 8:52 AM

Applicant Details

Applicant First Name:	Marcus	Applicant Last Name:	Richardson
Company Name:	JMG Engineers	Postal Address:	117 Harrington Street
Contact Phone Number:	03 62312555	Contact Email:	mrichardson@jmg.net.au

Application Details

Type of Application to Council:	Planning permit application
Development Involve Any Of The Following:	Subdivision of land

Details of Proposal

Street Address:	1661 Midland Highway, Bagdad
Description of Site:	Modifications to existing water connection with Midlands Highway Road Reservation
Impact on Crown Land or State Road:	Access required during completion of works
Description of Proposal:	New water connections and sealing of existing redundant connections
Local Council Area:	Southern Midlands
Previous Contact With Anyone At The Department Of State Growth:	

Supporting Documents

Development Involve Any Of The Following:	
Drainage:	No
Sewer:	Yes TasWater Consent of Ownership.pdf
Altered Access To State Road Network:	No
Planning Permit Application:	Application for Planning Permit.pdf
Files to be send separately due to size limit:	No
All Plans, Reports And Supporting Documentation:	Bagdad Road Reservation.pdf
Current Certificate of Title details:	Title -108882-1.pdf

PHILP LIGHTON ARCHITECTS

49 Sandy Bay Road
Hobart Tasmania 7004
T +61(3) 6223 2333
hobart@philplighton.com.au

www.philplighton.com.au
Hobart/Launceston

General Manager

Planning Authority – Southern Midlands Council

PO Box 21

71 High Street

OATLANDS TAS 7120

17 January 2024

Dear Sir / Madam

Southern Midlands Council – Application for Planning Permit

Proposed Works to 1661 Midland Highway Bagdad

Bagdad Recreation Ground / Bagdad Community Club

On behalf of Southern Midlands Council, the landowners of the property, please accept this *Application for Planning Permit* under the *Tasmanian Planning Scheme – Southern Midlands Local Provisions* for demolition of existing buildings, construction of two new buildings and their associated infrastructure and services to the existing property at 1661 Midland Highway Bagdad, Certificate of Title no. CT54450/1, CT51372/1, CT100182/1, CT108882/1 and CT22905/1 commonly known as the Bagdad Recreation Ground and / or the Bagdad Community Club.

The Recreation Ground site area (all five titles) is approximately 8.10Ha.

Proposal

The proposal is further illustrated and explained in detail within the attached documents (see below)

ACN 009 515 182 ABN 82 009 515 182

The existing public toilets and golf / cricket club sheds shall be demolished (for replacement with new) to contemporary standards.

The existing cricket club sheds' building floor area is approximately 315m^2

The existing public toilets building floor area is approximately 50m^2

The proposed new works are proposed to meet the requirements of the *Bagdad Recreation Precinct Master Plan* and comprise:

- Multi-purpose sports facility featuring a full-sized multi-sport court, spectator stands, small gymnasium, manager's office, multi-purpose activity room, storage rooms, male/female change rooms, toilet facilities, lounge area and small canteen area for facility users. The floor area of this building is 1,650m^2
- New build Cricket pavilion building centralised single level multi-sport clubhouse with scorers' box, large clubroom overlooking the oval, outdoor spectator area, kitchen and bar space, storage room, male/ female umpire rooms, and inclusive male/ female amenities, two separate male/ female club and visitor change rooms including shower/ toilet facilities and first aid/ massage rooms. The floor area of this building is 350m^2
- Sports oval repositioned approx. 30m north to accommodate the revised layout of the precinct
- New pedestrian pathway to provide safer travel for pedestrians entering and traversing through the site
- New safer vehicle entry/ exit points
- Retention of the existing TasWater mains
- Replacement of the existing non-compliant ramps into the Bagdad Community Club with a shallower path from the main carpark
- A landscape buffer along the Midland Highway frontage
- A centralised two-way asphalt road providing safe and controlled vehicle access to the main carpark, multi-sport clubhouse and the tennis court
- Designated bus parking bay
- Two-way gravel access to the southern vehicle-based spectator area with

bollards to restrict access to adjoining grassed areas

- On-site waste water treatment and disposal
- Additional, rationalised and consolidated carparking and civil works
- Stormwater management and disposal, including flood mitigation
- Amalgamation of 5No. land titles over the land into one title
- Creation of a separate, new title to accommodate the Tasmania Fire Service Station, located on site

No work is proposed to the Child Care Centre nor the Bagdad Community Club, unless noted above

Documents

Enclosed are the *Application for Planning Permit* documents comprising:

a. This *Letter* to Southern Midlands Council, dated 17 January 2025, describing the use and development

b. Completed Southern Midlands Council *Application for Planning Permit* form

c. Title Folio text and Folio plan CT54450/1, CT51372/1, CT100182/1, CT108882/1 and CT22905/1

d. Planning Application Drawings and associated documents:

Philp Lighton Architects

SK000	COVER PAGE
SK0100	SITE PLAN
SK1000	M.P. SPORTS CENTRE FLOOR PLAN
SK3000	M.P. SPORTS CENTRE BUILDING ELEVATIONS 01
SK3001	M.P. SPORTS CENTRE BUILDING ELEVATIONS 02
SK9000	M.P. SPORTS CENTRE EXTERNAL RENDER 01
SK9001	M.P. SPORTS CENTRE EXTERNAL RENDER 02
SK9002	M.P. SPORTS CENTRE EXTERNAL RENDER 03

A003	SPORTS PAVILION FLOOR PLAN
A004	SPORTS PAVILION ELEVATIONS 01
A005	SPORTS PAVILION ELEVATIONS 02
A007	SPORTS PAVILION 3D VIEWS 01
A009	SPORTS PAVILION 3D VIEWS 03
A010	SPORTS PAVILION 3D VIEWS 04
A011	SPORTS PAVILION 3D VIEWS 05
A012	SPORTS PAVILION 3D VIEWS 06
A013	SPORTS PAVILION 3D VIEWS 07

JMG Engineers – Civil Works

STORMWATER MANAGEMENT REPORT	
SK-C-1	CONCEPT SERVICES PLAN
SK-C-2	CONCEPT SERVICES PLAN
SK-C-3	CONCEPT SERVICES PLAN
SK-C-4	CONCEPT SERVICES PLAN – TURNPATHS
SK-C-5	EXISTING DN300 WATERMAIN LONGITUDINAL PROFILE
SK-E-3	ELECTRICAL SUPPLY OVAL SPORTS LIGHTING

Hubble Traffic

TRAFFIC IMPACT ASSESSMENT

Hofto Waste Water Report

ONSITE WASTEWATER SYSTEM DESIGN

Flussig Engineers

FLOOD HAZARD REPORT

Rogerson & Birch Land Surveyors

CONTOUR AND DETAIL PLAN

EXISTING TITLES & ZONING PLAN PROPOSED SUBDIVISION

RESULTANT TITLES PROPOSED SUBDIVISION

STRI

OVAL CONCEPT DESIGN

Use

The existing use – *Sports and Recreation* - will not change.

Under the Tasmanian Planning Scheme Southern Midlands *Local Provisions Schedule – 27.0 Community Purpose* the use is *Discretionary* being for organised or competitive recreation or sporting purposes including associated clubrooms.

Zone Purpose

The purpose of the *Community Purpose Zone* is to provide for key community facilities and services including health, cultural and social facilities, and to encourage multi-purpose, flexible and adaptable social infrastructure.

The proposal meets these provisions.

Discretion

Use – as above

Height – due to the sporting regulation height requirements of the Multi-purpose Sports Hall the maximum height to the building to the ridge is 11.5m.

The Pavilion building is 5.5m high to ridge.

Operating Hours – Multi-Purpose Sports Hall - it is anticipated the MPSH would be booked and in use as per demand, probably from early morning gym sessions to night matches trainings and meetings, seven days per week. An indicative time bracket would be 06:00-22:00

Operating Hours – Oval and pavilion - it is anticipated the oval and pavilion would be in use for midweek trainings and weekend matches as per demand. An indicative time bracket would be 09:00:00-22:00, with the possibility of some early morning training sessions and night games

Local Area Codes

The land is under several *Local Area Codes*

C6.0 Local Historic Heritage Code

The Bagdad Community Club buildings on the corner of Hall Lane and Midland Highway fall under the SOU - Table C6.1 Local Heritage Places- SOU-C6.1.23 - *Federation era Weatherboard buildings with strong community value*.

No works or change of use are planned to these buildings

C7.0 Waterway Protection code

The overland flow is protected and enhanced – refer civil engineering

C13.0 Bushfire Prone Area

This will be addressed through the *Building Permit* detail design and subject to the *Bushfire Hazard Management Plan* and Building Attack Levels being addressed by the Bushfire Hazard Report currently under preparation.

Cost

The estimated cost of this work is $ 15,178,534 (excl GST).

Architectural design and engineering

The works will be designed and certified by Philp Lighton Architects and our consulting engineers.

The building will be tendered to and constructed by accredited construction companies utilizing professional tradespeople to contemporary standard in accordance with the *Building Code of Australia Tasmanian Building Regulations* and applicable standards and codes.

Building & Plumbing Permits

Detailed design documentation and certification shall be provided for *Building and Plumbing Permits* following the issue of the *Planning Permit*. The works will be certified by our consulting building surveyors.

Application

Please assess towards the issue of a *Planning Permit*.

Should you have any queries regarding any of the above, please do not hesitate to contact me.

Yours faithfully

Philp Lighton Architects Pty Ltd

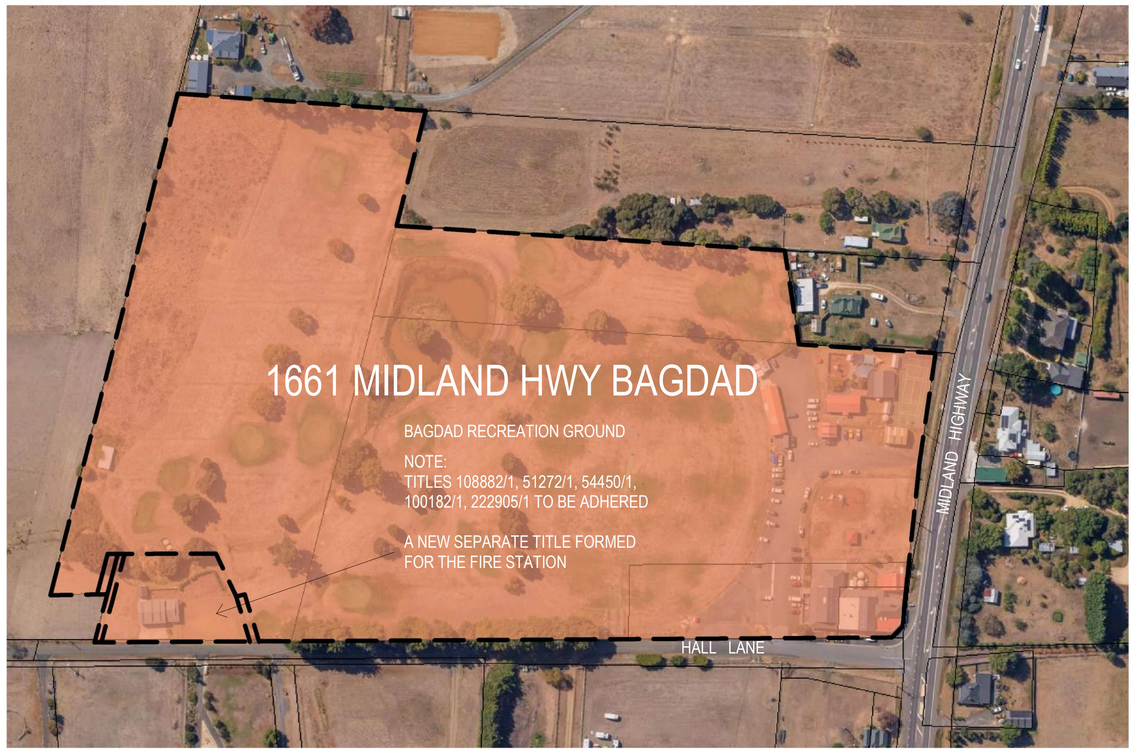
Peter Gaggin

Director + Principal Architect

B.A. (Env Des), B.Arch

Fellow, Royal Australian Institute of Architects

CBOS ABSP 997A Architect



1 LOCATION PLAN
1 : 2000

DRAWING SCHEDULE

SHEET	Sheet Name	Current Revision	Current Revision Date	Current Revision Description
SK000	COVER PAGE	G	21-02-25	AMENDED DA
SK0100	SITE PLAN	G	21-02-25	AMENDED DA
SK1000	M.P. SPORTS CENTRE FLOOR PLAN	F	16-01-25	AMENDED DA
SK3000	M.P. SPORTS CENTRE BUILDING ELEVATIONS 01	F	16-01-25	AMENDED DA
SK3001	M.P. SPORTS CENTRE BUILDING ELEVATIONS 02	F	16-01-25	AMENDED DA
SK9000	M.P. SPORTS CENTRE EXTERNAL RENDER 01	D	16-01-25	AMENDED DA
SK9001	M.P. SPORTS CENTRE EXTERNAL RENDER 02	D	16-01-25	AMENDED DA
SK9002	M.P. SPORTS CENTRE EXTERNAL RENDER 03	D	16-01-25	AMENDED DA
A003	SPORTS PAVILION FLOOR PLAN	E	16-12-24	DA RFI
A004	SPORTS PAVILION ELEVATIONS 01	E	16-12-24	DA RFI
A005	SPORTS PAVILION ELEVATIONS 02	E	16-12-24	DA RFI
A007	SPORTS PAVILION 3D VIEWS 01	D	16-01-25	AMENDED DA
A009	SPORTS PAVILION 3D VIEWS 03	D	16-01-25	AMENDED DA
A010	SPORTS PAVILION 3D VIEWS 04	D	16-01-25	AMENDED DA
A011	SPORTS PAVILION 3D VIEWS 05	D	16-01-25	AMENDED DA
A012	SPORTS PAVILION 3D VIEWS 06	D	16-01-25	AMENDED DA
A013	SPORTS PAVILION 3D VIEWS 07	D	16-01-25	AMENDED DA

NOTE
A01, A02, A06 & A08 A014 ARE REDUNDANT & DELETED

PHILP LIGHTON ARCHITECTS
Accredited Designers: Anthony Dalgleish: 567913835
Peter Gaggin: CC997A
Thomas Floyd: 611728668

SOUTHERN MIDLANDS COUNCIL

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

COVER PAGE

DRAWING No: SK000
PROJECT No: 095.24183
SCALE: 1 : 2000 @ A1
DATE: 21-02-25
REVISION: G

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RECEIVED
14/03/2025

SITE BOUNDARY
EXG TREES
WATERWAY AND COASTAL PROTECTION AREA
1713 MIDLAND HWY
1711 MIDLAND HWY
GOLF GREEN
RELOCATE GOLF GREEN
WATER FEATURE
SHED
EXG TREES
BRIDGE
PATH
EXG TREE
LIGHT TOWER
REMOVE TREES
RELOCATED OVAL
110m OVAL + 3.3m BUFFER (116.6m TOTAL)
28 x 2.8m SYNTHETIC CRICKET PITCH
REMOVE TREE
FUTURE ELECTRONIC SCOREBOARD
BAGDAD COMMUNITY CENTRE
1661 MIDLAND HWY BAGDAD
ADHERE EXISTING TITLES
EXG OVAL NOM BOUNDARY
DEMO GOLF CLUB BUILDING, PAVING & FENCE
PROPOSED PAVILION
DEMO CRICKET CLUB BUILDING & PAVING
1200 H BLACK P/COATED CHAIN MESH BOUNDARY FENCE & POSTS
DEMO SHED
NEW TREES
NEW GRAVEL
EXG GRAVEL
1250 SETBACK
2500
6925
WATERMAIN EASEMENT
EXG FENCE
EXG TREE
CHILD CARE CENTRE
OUTDOOR COURTS
SHED
F/PATH
EXG FOOTPATH
NEW FENCE
DEMO FENCE
DEMO TOILET & FOOTPATH
BINS
DEMO ASPHALT
DEMO GRAVEL
EXG ROAD
NEW CARPARK
FOOTPATH
BUS PARKING
NEW ASPHALT
LIGHT TOWER
NEW GRAVEL ROAD & PARKING
DEMO FENCES
NEW FENCE
RELOCATE PLAYGROUND & EXERCISE EQUIPMENT
LANDSCAPED BUFFER
EXG BBQ
DEMO FENCE
DEMO ASPHALT
EASEMENT
DEMO
EXG KERB
EXG MEMORIAL
INFILL F/PATH, KERB & FENCE
BAGDAD COMMUNITY CLUB
PROPOSED MULTIPURPOSE SPORTS CENTRE
EXG CRICKET NETS
DRIVE
GARDEN BEDS
4500 SETBACK
129650
DEMO RAMP & C/OVER
EXG ASPHALT
EXG TREE
NEW ASPHALT
HALL LANE
MIDLAND HIGHWAY
WATERWAY AND COASTAL PROTECTION AREA
EXG
FORM NEW 3m W DRAINAGE EASEMENT
WATER COURSE
NEW 10,000 Lt FIRE TANK
EXG FENCE
BAGDAD FIRE STATION
FORM NEW 4m W RIGHT OF WAY
FORM NEW TITLE
SITE BOUNDARY
HALL LANE

PHILP LIGHTON ARCHITECTS
Accredited Designers: Anthony Dalgleish: 5679138J35
Peter Gaggin: CC997A
Thomas Floyd: 611728668

SOUTHERN MIDLANDS COUNCIL

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

SITE PLAN LEGEND
- TITLE BOUNDARY
- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- EXISTING GROUND SURFACES
- PROPOSED GROUND SURFACES

0 10 20 30m

NORTH

SITE PLAN

DRAWING No: SK0100
PROJECT No: 095.24183
SCALE: 1 : 500 @ A1
DATE: 21-02-25
REVISION: G

PHILP LIGHTON ARCHITECTS

Accredited Designers: Anthony Dalgleish: 567913835
Peter Gaggin: CC997A
Thomas Floyd: 611728668

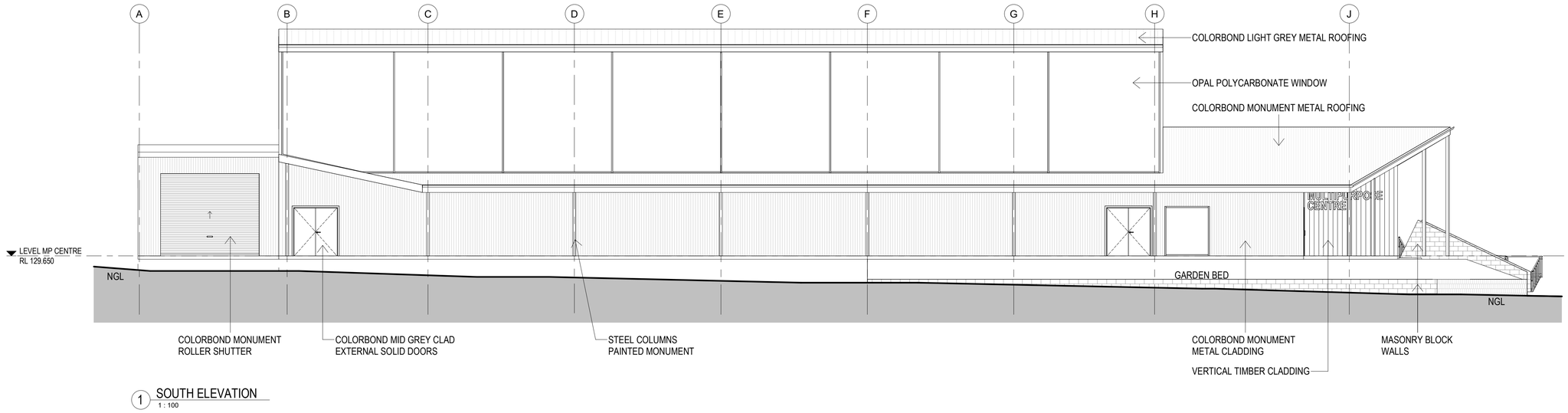
BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: SOUTHERN MIDLANDS COUNCIL
ADDRESS: 1661 MIDLAND HWY BAGDAD

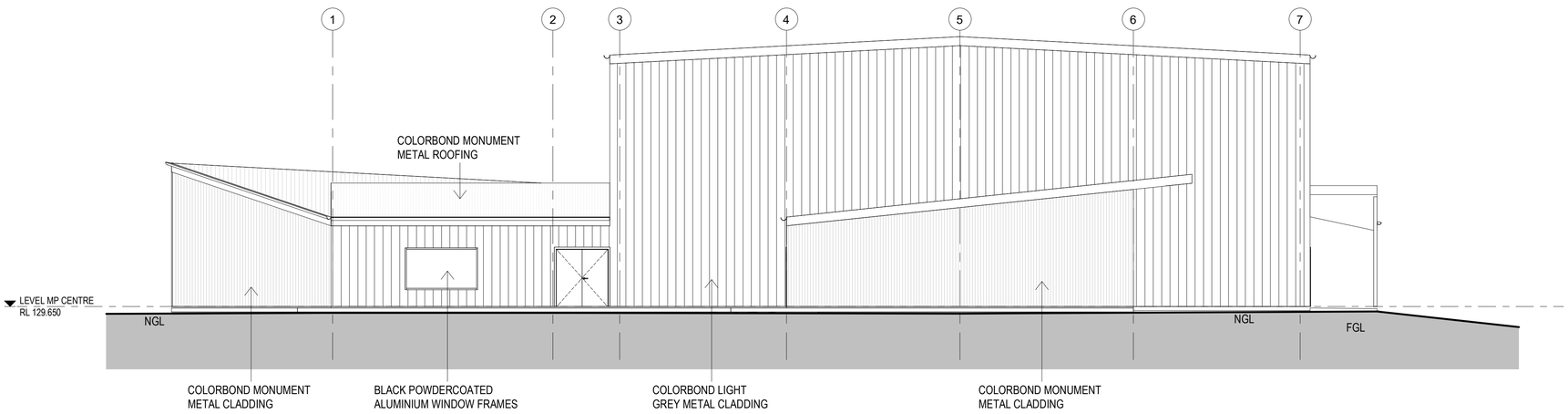
BUILDING OVERALL FLOOR AREA : 1660m²

M.P. SPORTS CENTRE FLOOR PLAN	DRAWING No: SK1000
	PROJECT No: 095.24183
SCALE: 1 : 100 @ A1	REVISION: F
DATE: 16-01-25	

Autodesk Docs://095-24183 Bagdad MP Sports Centre - Pavilion - Oval/095-24183 Bagdad MP Sports Centre.rvt
15/01/25 5:53:40 PM



1 SOUTH ELEVATION
1 : 100



2 EAST ELEVATION
1 : 100

PHILP LIGHTON ARCHITECTS
Accredited Designers: Anthony Dalgleish: 5679138535
Peter Gaggin: CC997A
Thomas Floyd: 611728668

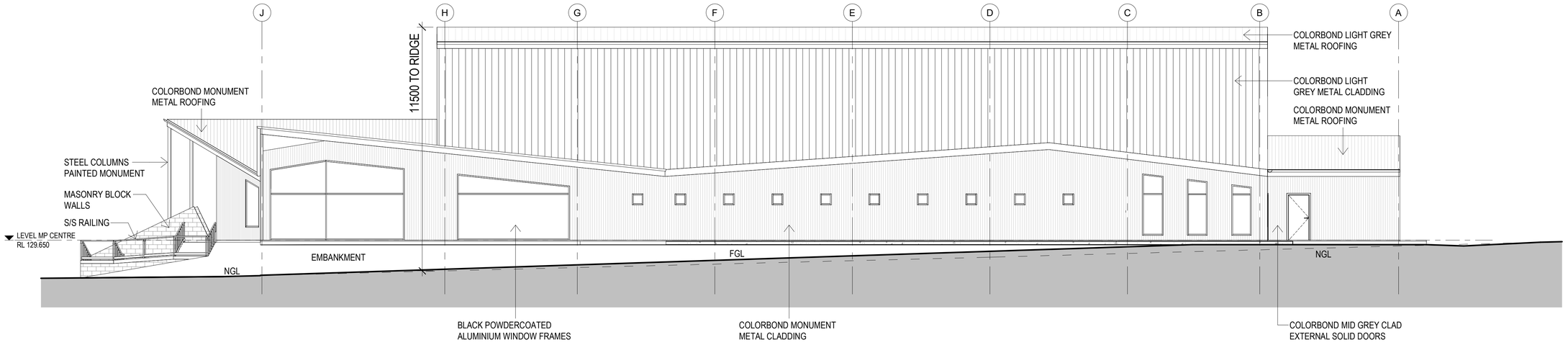
SOUTHERN MIDLANDS COUNCIL

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

M.P. SPORTS CENTRE BUILDING ELEVATIONS 01

DRAWING No: SK3000
PROJECT No: 095.24183
SCALE: 1 : 100 @ A1
DATE: 16-01-25
REVISION: F



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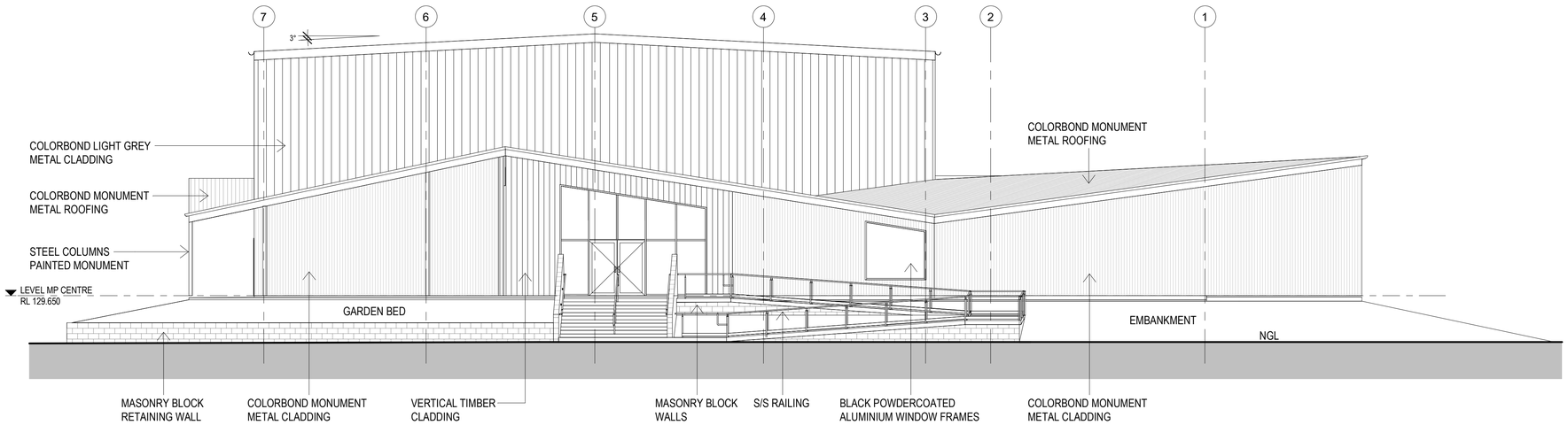

2 EAST ELEVATION
1 : 100

PHILP
LIGHTON
ARCHITECTS
Accredited Designers: Anthony Dalgleish: 5679138535
Peter Gaggin: CC997A
Thomas Floyd: 611728668

SOUTHERN MIDLANDS COUNCIL

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

M.P. SPORTS CENTRE BUILDING ELEVATIONS 02

DRAWING No: SK3001
PROJECT No: 095.24183
SCALE: 1 : 100 @ A1
DATE: 16-01-25
REVISION: F

PHILP
LIGHTON
ARCHITECTS
Accredited Designers: Anthony Dalgleish: 5679138 35
Peter Gaggin: CC997A
Thomas Floyd: 611728668

SOUTHERN MIDLANDS COUNCIL

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

M.P. SPORTS CENTRE EXTERNAL RENDER 01

DRAWING No: SK9000
PROJECT No: 095.24183
SCALE: @ A1
DATE: 16-01-25
REVISION: D

PHILP
LIGHTON
ARCHITECTS
Accredited Designers: Anthony Dalgleish: 5679138 35
Peter Gaggin: CC997A
Thomas Floyd: 611728668

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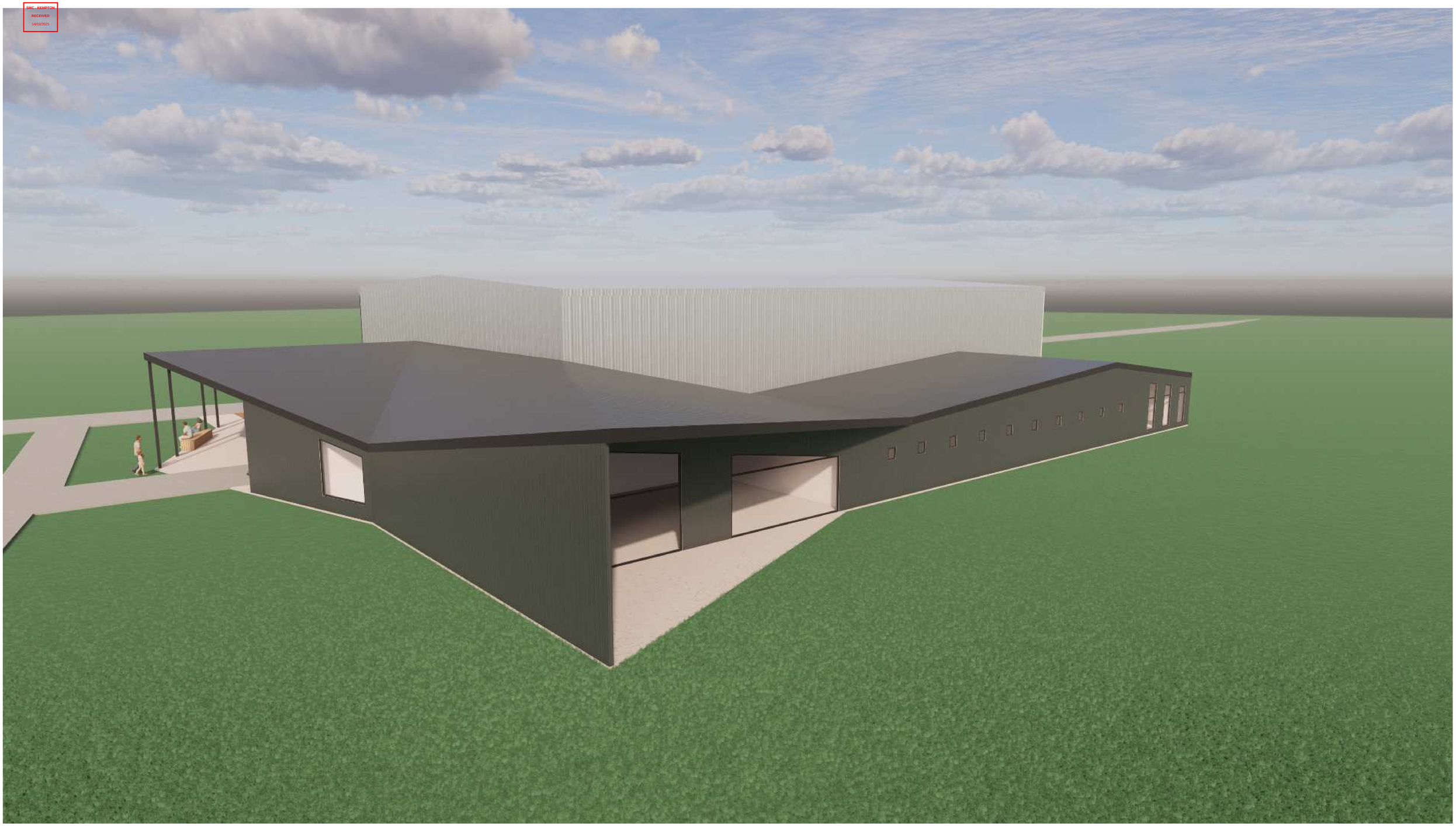
BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

M.P. SPORTS CENTRE EXTERNAL RENDER 02

DRAWING No: SK9001
PROJECT No: 095.24183
SCALE: @ A1
DATE: 16-01-25
REVISION: D



PHILP LIGHTON ARCHITECTS

Accredited Designers: Anthony Dalgleish: 567913835
Peter Gaggin: CC997A
Thomas Floyd: 611728668

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BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

M.P. SPORTS CENTRE EXTERNAL RENDER 03

DRAWING No: SK9002
PROJECT No: 095.24183
REVISION: D
SCALE: @ A1
DATE: 16-01-25

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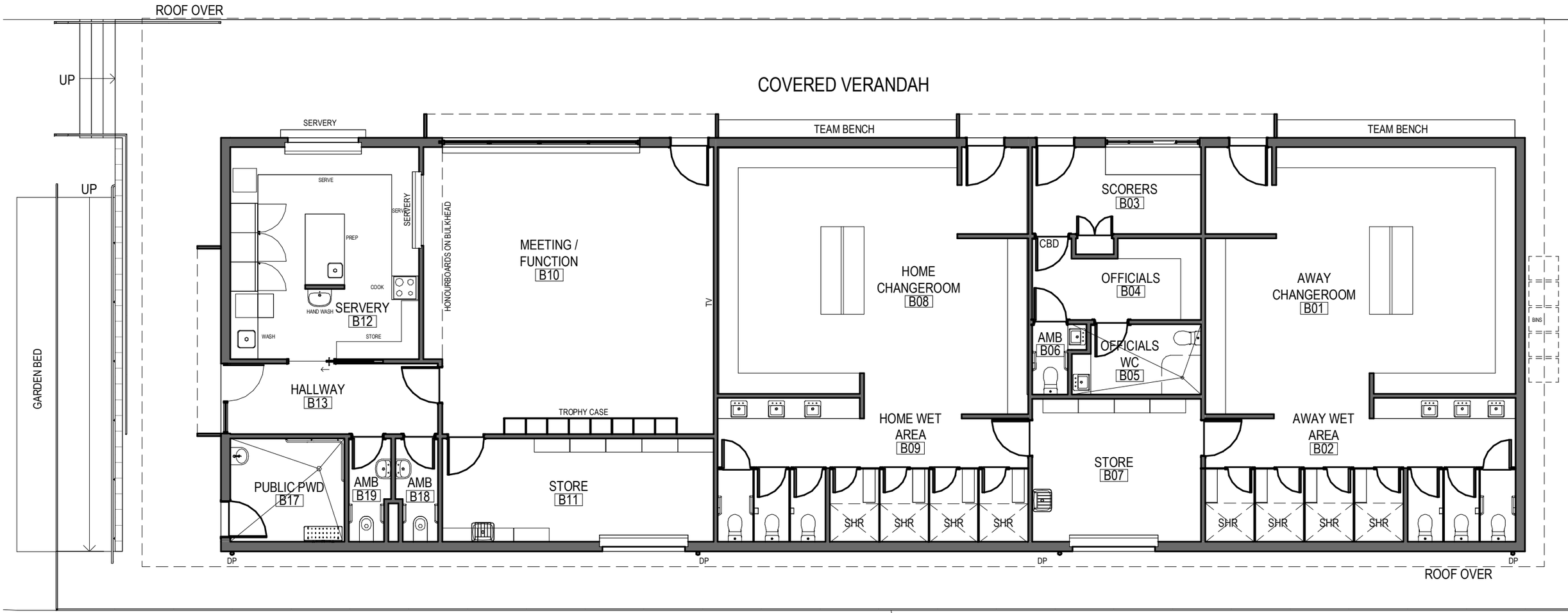

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SPORTS PAVILION FLOOR PLAN

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No: A003
	PROJECT No: 095.24183
	SCALE: 1 : 100 @ A3
	DATE: 16-12-24
	REV: E

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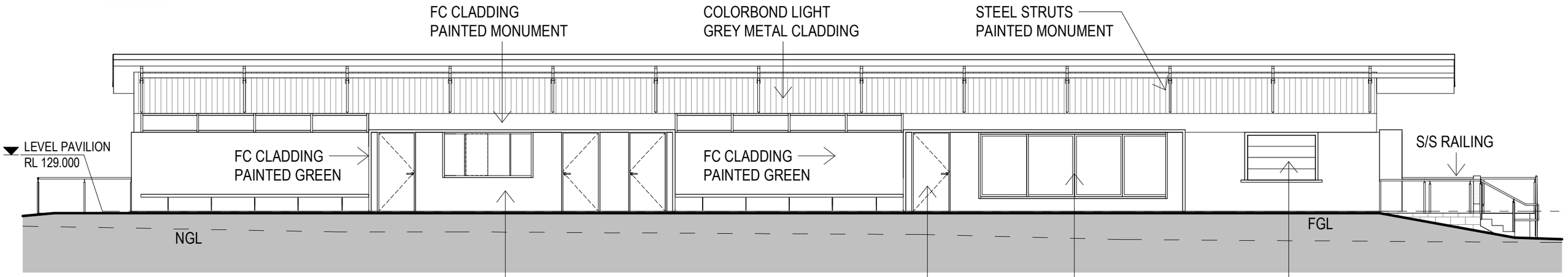

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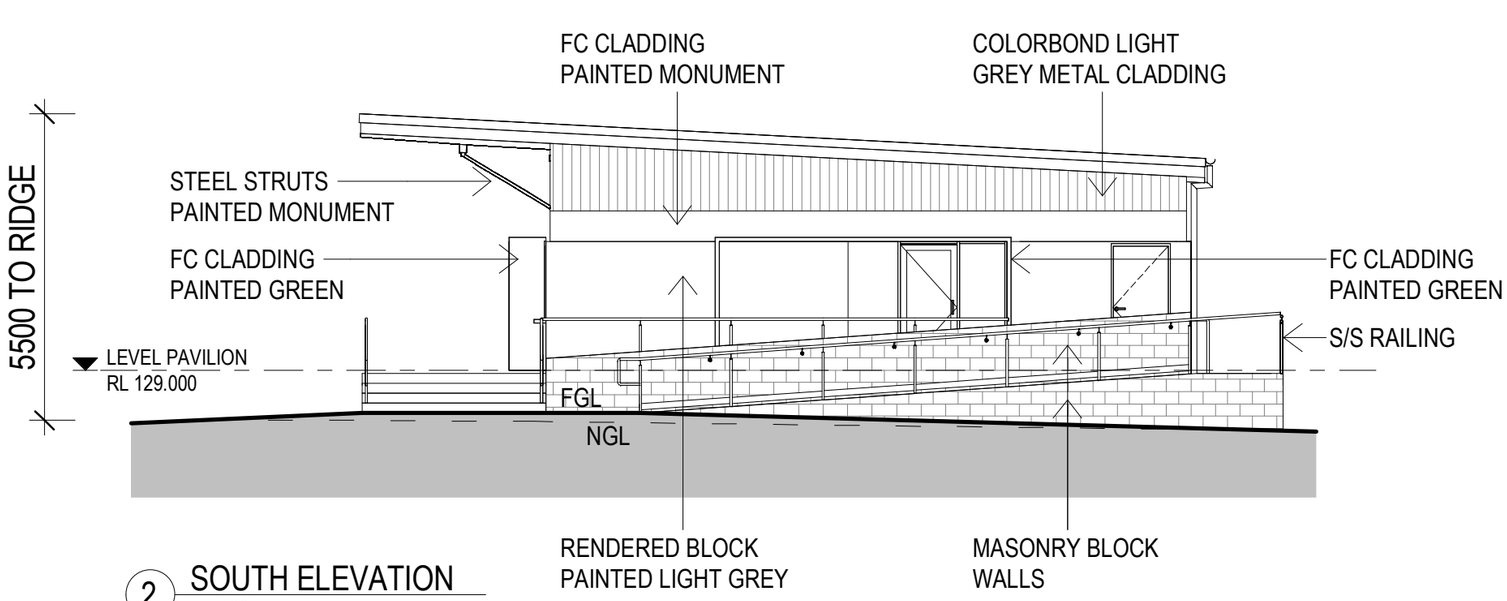


2 SOUTH ELEVATION
1 : 100

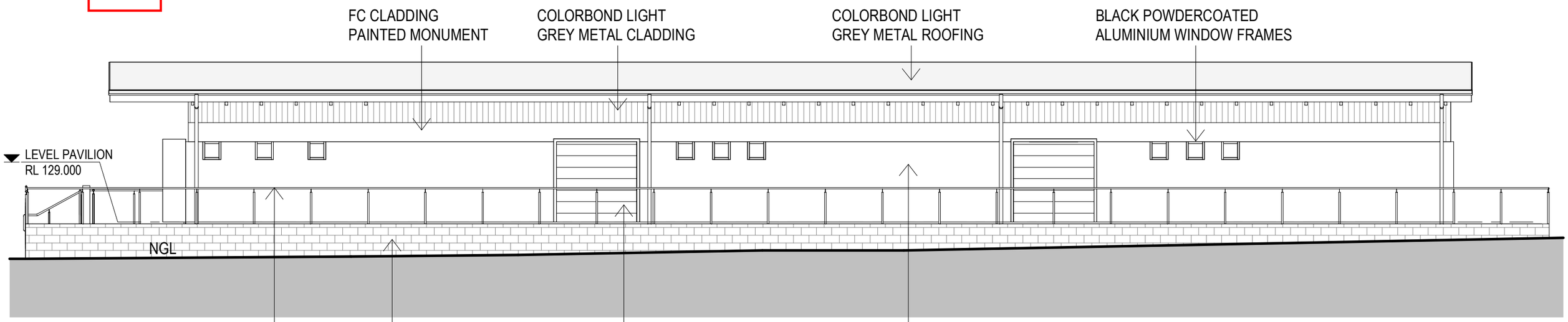
PHILP LIGHTON ARCHITECTS

SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION ELEVATIONS 01

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No:	A004
	PROJECT No:	095.24183
	SCALE: 1 : 100 @ A3 DATE: 16-12-24	REV: E



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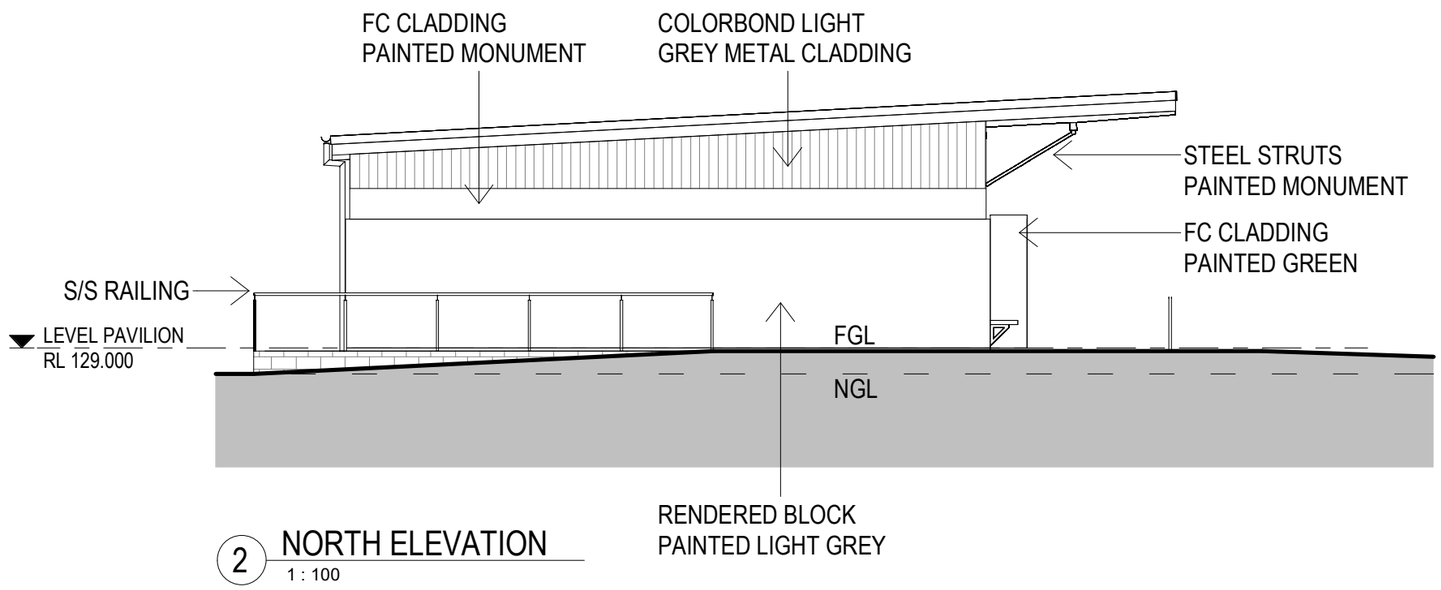
1 : 100



2 NORTH ELEVATION
1 : 100

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SPORTS PAVILION ELEVATIONS 02

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No: A005
	PROJECT No: 095.24183
SCALE: 1 : 100 @ A3	REV: E
DATE: 16-12-24	

VIEW FROM OVAL

PHILP LIGHTON ARCHITECTS

SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 01

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No: A007
	PROJECT No: 095.24183
	SCALE: @ A3
	DATE: 16-01-25
	REV: D

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ENTRY ELEVATION VIEW

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SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 03

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No:	A009
	PROJECT No:	095.24183
	SCALE: @ A3	REV: D
	DATE: 16-01-25	

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ENTRY VIEW

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SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 04

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL

DRAWING No: A010
PROJECT No: 095.24183

SCALE: @ A3
DATE: 16-01-25
REV: D

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VIEW NORTH FROM OVAL

PHILP LIGHTON ARCHITECTS

SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 05

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No:	A011	
	PROJECT No:	095.24183	
	SCALE: @ A3	REV:	D
	DATE: 16-01-25		

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VIEW SOUTH FROM OVAL

PHILP LIGHTON ARCHITECTS

SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 06

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No:	A012
	PROJECT No:	095.24183
	SCALE: @ A3 DATE: 16-01-25	REV: D

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VIEW TO SOUTH

PHILP LIGHTON ARCHITECTS

SOUTHERN MIDLANDS COUNCIL

SPORTS PAVILION 3D VIEWS 07

CLIENT: **SOUTHERN MIDLANDS COUNCIL**
ADDRESS: **1661 MIDLAND HWY BAGDAD**

BAGDAD M.P. SPORTS CENTRE, PAVILION & OVAL	DRAWING No:	A013
	PROJECT No:	095.24183
	SCALE: @ A3 DATE: 16-01-25	REV: D

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BushfireWise
DEVELOPMENT PLANNING

Bushfire Hazard Report

Location: 1661 Midland Highway, Bagdad.
Applicant: Southern Midlands Council
Date: March 2025
Certification number: BW027v1
Author: Mark Van den Berg – BFP-108

Contents

Disclaimer:
The measures contained in Australian Standard 3959-2009 cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Reasonable steps have been taken to ensure that the information contained within this report is accurate and reflects the conditions on and around the proposal at the time of assessment. The assessment has been based on the information provided by you or your designer.
Authorship:
This report was prepared by Mark Van den Berg BSc. (Hons.) FPO (planning) of BushfireWise. Base data for mapping including digital and aerial photography: TasMap, LIST, GoogleEarth, Mark Van den Berg.

1.0 Purpose

This bushfire hazard report provides information relevant to the development of new sporting facilities in the context of the bushfire environment within which it is located and demonstrates compliance with the, *Directors Determination – Bushfire Hazard Areas. Version 1.2, 16 July 2024* (Determination). It includes a Certificate of Qualified Person (form 55), as required by the Director of Building Control for bushfire hazards and offers guidance for bushfire mitigation through a certified Bushfire Hazard Management Plan. This plan outlines approved measures for bushfire protection in accordance with the Chief Fire Officer of the Tasmania Fire Service.

2.0 Site Details

Title reference:	51272/1, 54450/1, 100182/1
Address:	1661 Midland Highway, Bagdad
Applicant:	Southern Midlands Council
Municipality:	Southern Midlands
Planning Scheme:	Tasmanian Planning Scheme - Southern Midlands
Zoning:	Community Purpose
Land size:	~7.5 Ha
Bushfire Attack Level:	Multipurpose Centre and Sports Pavillion - BAL-12.5
Certificate of others (form 55):	Complete and attached
Bushfire Hazard Management Plan:	Certified & attached
Compliance pathway:	Deemed to Satisfy

3.0 Introduction

New building work is proposed within a bushfire-prone area which is defined by the Tasmanian Planning Scheme - Southern Midlands. This report will form part of supporting documentation for a building permit application for the construction of two new class 9 buildings (Multi Purposes Centre and Sports Pavilion). A site-specific bushfire hazard management plan which includes measures to reduce the impact of bushfire attack on the new buildings is provided for practical application and compliance purposes.

4.0 Proposal

Construction of two new class 9 buildings is proposed, generally in accordance with the site plan located at appendix C. The specifications required by this report will achieve compliance with the Deemed to Satisfy requirements of the Determination if implemented in accordance with this report and the bushfire hazard management plan.

5.0 Site Description

The proposal is located at 1661 Midlands Highway, Bagdad, in the municipality of Southern Midlands and is zoned Community Purpose under the Tasmanian Planning Scheme - Southern Midlands. The lot is ~7.5 Ha, is irregular in in shape and is located south of the Bagdad settled area, approximately 0.7 km north of Stamford Hill (Figure 1). The lot is serviced by a two-lane gravel no through road and is provided with access to a reticulated water supply system. Access to the sites from Hall Road is achieved via an existing sealed crossover. The proposals involve the development of a new Multipurpose Centre and a Sports Pavilion with associated infrastructure.

Existing development within the site includes a community centre, childcare centre, public toilets, tennis court, playground, golf course with modest club room and sports pavilion. The site carries by enlarge low threat vegetation in the form of large, paved areas, a golf course and cricket ground all of which are maintained for regular use. Adjacent lands carry a mosaic of grassland and low threat vegetation associated with residential development and are zoned Rural and Rural Living (figure 2). The lot has gentle slopes and large flat areas with multiple aspects. Fire behaviour will be governed by prevailing weather conditions and bushfire fuels.

Vegetation within and adjacent to the site was assessed in accordance with the vegetation classification system of AS3959-2018 and was classified as grassland and low threat vegetation. The classified vegetation with the potential to have the greatest impact on the site occurs to the north and south of the sites.

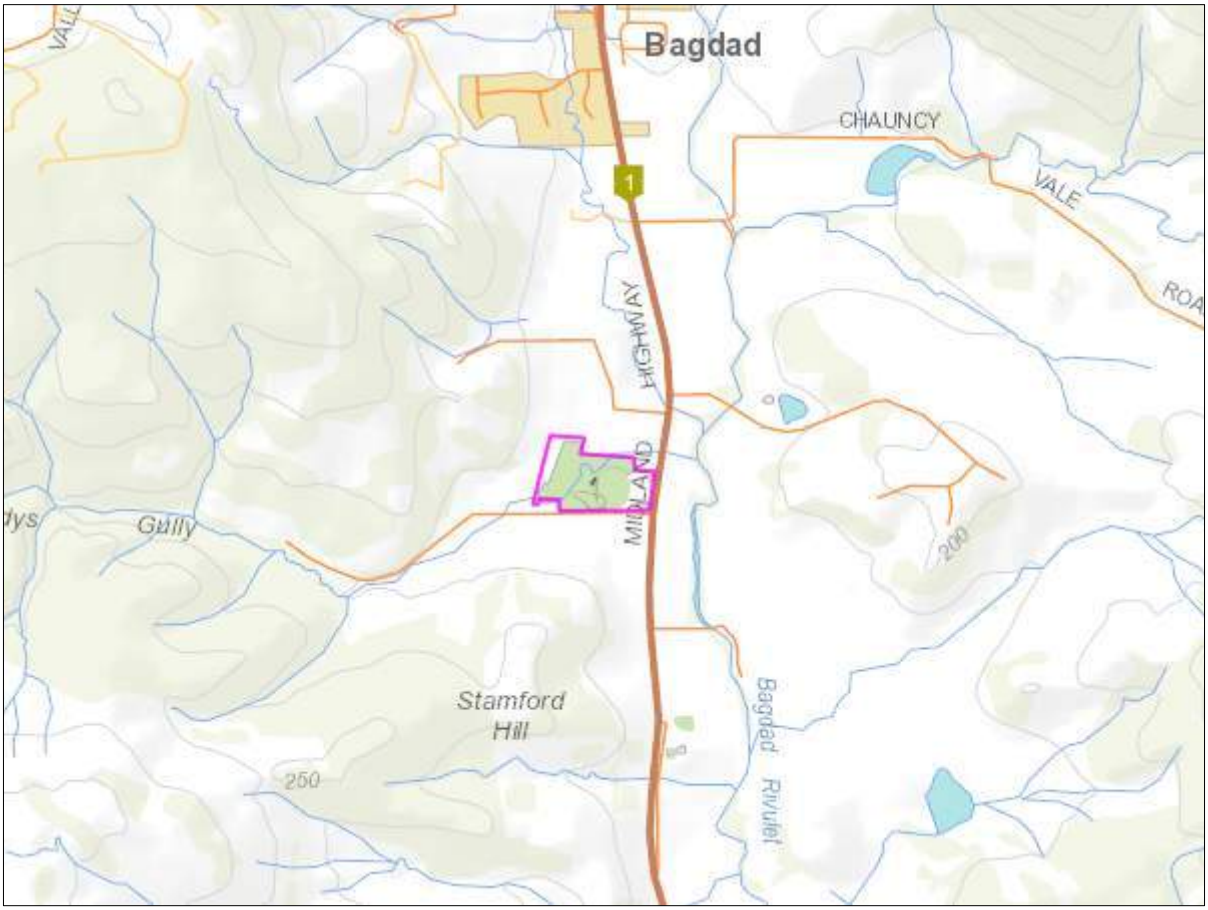

Figure 1. The location of the lot in a topographical context, the lot is outlined in pink.

Figure 2. Aerial image of the site (pink line) showing grassland and low threat vegetation within and adjacent to the sites.

6.0 Bushfire Attack Level assessment

The Bushfire Attack Level (BAL) has been assessed in accordance with Section 2 of AS3959-2018 '*Simplified Procedure*'. Vegetation has been classified using a combination of on-site observations and remotely sensed data, ensuring consistency with Table 2.3 of AS3959-2018. Slope and distance measurements have been obtained through field surveys and/or the analysis of remotely sensed data, including aerial and satellite imagery and other publicly available data sources and processed using proprietary software. Where applicable the vegetation assessment has considered edge effects and the potential for changes in vegetation classification through natural processes. A detailed bushfire attack level assessment is located at appendix A. The bushfire attack level for the Multipurpose Centre and Sports Pavilion is BAL-12.5

7.0 Bushfire Protection Measures

The bushfire attack level has been determined as BAL-12.5. Structures exposed to bushfire attack can expect low to moderate levels of radiant heat exposure up to 12.5kW/m^2. While the risk of direct flame contact is low, embers may ignite vegetation, debris, or vulnerable parts of buildings. Smoke will reduce air quality and visibility.

Following, are requirements that will not only achieve administrative compliance if implemented but also provide practical measures which will enhance the survivability of buildings, structures and occupants in the event of bushfire attack.

7.1 Construction Standards

The Determination and the National Construction Code do not require minimum construction standards for class 9 buildings which are not classified as a health-care building, Primary or Secondary school, early childhood centre or a residential care building. While not required for compliance it is recommend as best practice to construct buildings to BAL-12.5 specifications of AS3959.

7.2 Property Access

Property access to the new sporting facilities will be required to meet the following minimum requirements, the location of the property access is shown on the BHMP.

a) all-weather construction;
b) load capacity of at least 20 tonnes, including for bridges and culverts;
c) minimum carriageway width of 4 metres;
d) minimum vertical clearance of 4 metres;
e) minimum horizontal clearance of 0.5 metres from the edge of the carriageway, excluding gate posts;
f) cross falls of less than 3 degrees (1:20 or 5%);
g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;
h) curves with a minimum inner radius of 10 metres;
i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and
j) terminate with a turning area for fire appliances provided by one of the following:
   (i) a turning circle with a minimum outer radius of 10 metres;
   (ii) a property access encircling the building; or
   (iii) a hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

7.3 Firefighting Water Supplies

The new buildings are to be provided with new fire hydrants, the new hydrants are to meet the following minimum requirements. The indicative locations of the new hydrants are shown on the BHMP.

Table 1. Specifications for static firefighting water supplies.

Element		Requirement
A.	Distance between building to be protected and water supply	The following requirements apply: (a) the building to be protected must be located within 120 metres of a fire hydrant; and (b) the distance must be measured as a hose lay between the firefighting water point and the furthest part of the building.
B.	Design criteria for proposed fire hydrants	The following requirements apply: (a) fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia WSA 03 — 2011-3.1 MRWA Edition V2.0 as amended from time to time; and (b) fire hydrants are not installed in parking areas.

Element		Requirement
C.	Hardstand associated with proposed fire hydrants	A hardstand area for fire appliances must be provided: (a) no more than thirty metres from the hydrant measured as a hose lay; (b) no closer than six metres from the building to be protected; (c) with a minimum width of three metres and a minimum length of six metres constructed to the same standard as the carriageway; and (d) connected to the property access by a carriageway equivalent to the standard of the property access.

7.4 Hazard Management Areas

The size and management of the Hazard Management Area (HMA) directly influences the Bushfire Attack Level (BAL) of buildings. The minimum dimensions of the HMA are shown on the Bushfire Hazard Management Plan associated with this report to ensure appropriate protection. By reducing flammable material around a building, the HMA enhances the ability to defend the building, protects occupants, and supports firefighters. Combined with construction standards, firefighting water supplies and safe property access, the HMA forms part of an integrated approach to reducing the bushfire risk.

A hazard management area will need to be established and maintained for the life of the development and is shown on the BHMP. Guidance for the establishment and maintenance of the hazard management area is given below and on the BHMP.

An effective hazard management area can be achieved through, but is not limited to the following strategies;

- Remove fallen limbs, sticks, leaf and bark litter;
- Maintain grass at less than a 100mm height;
- Avoid the use of flammable mulches (especially against buildings);
- Thin out under-story vegetation to provide horizontal separation between fuels;
- Prune low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers;
- Remove and or prune larger trees to maintain horizontal separation between canopies;
- Minimise the storage of flammable materials such as firewood;
- Maintain vegetation clearance around vehicular access;
- Use low-flammability plant species for landscaping purposes where possible;
- Clear out any accumulated leaf and other debris from roof gutters and other debris accumulation points.

8.0 Compliance

The bushfire hazard management plan associated with this report demonstrates how the proposal will comply with the Determination. The following table also shows how compliance with the Determination is achieved and provides the administrative pathway. The proposal is for the construction of a new class 1a building.

Table 3. Compliance with the Directors Determination – Bushfire Hazard Areas. Version 1.2. 16th July, 2024. A Deemed-to-Satisfy solution which complies with the following Deemed-to-Satisfy provisions is deemed to achieve compliance with the Performance Requirements in the Determination.

Requirements	Relevant Compliance Pathway
2.3.1 Design and Construction	In this circumstance minimum design and construction requirements for buildings do not apply. s2.3.1(1)(a) relates to Part G5 of the NCC and is applicable to class 2 and 3 buildings and certain class 9 buildings, being: class 9a health-care buildings, class 9b early childhood centres and schools and class 9c residential care buildings and associated class 10a buildings. s2.3.1(1)(b) applies to class 1 and associated class 10a buildings. This proposal is for two class 9b assembly buildings.
2.3.2 Property Access	(1) The following building work must be provided with property access to the building and the firefighting water point, accessible by a carriageway designed and constructed as specified in subclause (4) below: **(a) a new habitable building;** or (b) applicable to Class 10 buildings. (2) applicable to alterations and additions. (3) applicable to alterations and additions. (4) Vehicular access from the public road to the building must: (a) Comply with the property access specifications of Table 2. **Complies at element B, minimum property access specifications required**. (b) include access from a public road to a hardstand within 90 metres of the furthest part of the building as measured by a hose lay; **proposed property access complies**. (c) include access to the hardstand area for the firefighting water point, **proposed hardstand adjacent to proposed water connection points, complies.** (5) The proposal does not involve 'certain' class 9 buildings.
2.3.3 Water Supply for Firefighting	(1) The following building work must be provided with a water supply dedicated for firefighting purposes which complies with the requirements specified in Table 3A or Table 3B: **(a) a new habitable building;** or (b) applicable to Class 10 buildings. (2) applicable to alterations and additions. (3) The proposal does not involve 'certain' class 9 buildings. **The firefighting water supply complies with table 3A, the relevant specifications of table 3B are replicated in this report and on the BHMP.**
2.3.4 Hazard Management Areas	(1) The following building work must be provided with a hazard management area of sufficient dimensions, and which provides an area around the building which separates the building from the bushfire hazard and complies with subclauses (2), (3), (4) and (5): (a) **a new habitable building;** (b) an existing building in the case of an addition or alteration to a building; or (c) a new Class 10a Building to which this Determination applies unless fire separation is provided in accordance with clause 3.2.3 of AS3959. (2) The hazard management area must comply with the requirements specified in Table 4. **Complies, element B, HMA not smaller than that required for BAL-29,**

Requirements	Relevant Compliance Pathway
	HMA to be established in accordance with the bushfire hazard management plan. Elements A and C to G have no application. (3) The hazard management area for a particular BAL must have the minimum dimensions required for the separation distances specified for that BAL in Table 2.6 of AS 3959 (Method 1). **Complies min 16 metres required, 16 metres provided.** (4) The hazard management area must be established and maintained such that fuels are reduced sufficiently, and other hazards are removed such that the fuels and other hazards do not significantly contribute to the bushfire attack. **To be established in accordance with the bushfire hazard management plan.** (5) applicable to 'certain' class 9 buildings only.
2.3.5 Bushfire Emergency Plan	(1) In a bushfire prone area, a bushfire emergency plan must be prepared for: **(a) a new building;** (b) an existing building in the case of an addition or alteration to a building; (c) an existing building in the case of a change of building class; (d) a building associated with the use, handling, generation or storage of a hazardous chemical or explosive. (i) clause (1) does not apply to following: (a) Class 1a Buildings; (b) Class 10a Buildings; or (c) decks associated with another class of building. **Bushfire Emergency Plans to be provided prior to occupancy.**

9.0 References

Australian Building Codes Board, *National Construction Code, Building Code of Australia,* Australian Building Codes Board, Canberra.

Building Amendment (Bushfire-Prone Areas) Regulations 2016

Standards Australia, AS3959-2018 Construction of buildings in bushfire-prone areas. Sydney, NSW., Australia.

Tasmanian Planning Scheme – Southern Midlands. Tasmanian Planning Commission, Hobart.

The Bushfire Planning Group 2005, Guidelines for development in bushfire prone areas of Tasmania – Living with fire in Tasmania, Tasmania Fire Service, Hobart, Tasmania.

Directors Determination – Bushfire Hazard Areas. 16th July, 2024. Version 1.2. Consumer, Building and Occupational Services, Hobart, Tasmania 2024,

Appendix A – bushfire attack level assessment

Table 1. Bushfire attack level assessment for the Multipurpose Centre

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 100 metres	25 metres	BAL-LOW
	--	--	--		
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	--	--	--		
East	Exclusion 2.2.3.2 (e, f)^^	>0 to 5º downslope	0 to 100 metres	25 metres	BAL-LOW
	--	--	--		
	--	--	--		
	--	--	--		
South	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 14 metres	4.5m	**BAL-12.5**
	Grassland^	flat 0º	14 to 100 metres		
	--	--	--		
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West	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 100 metres	25 metres	BAL-12.5
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	--	--	--		
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^ Vegetation classification as per AS3959-2018 amendment 3, Table 2.3 and Figures 2.4(A) to 2.4 (G).
^^ Exclusions as per AS3959-2018.

Table 2. Bushfire attack level assessment for the Sports Pavilion

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 37 metres	25 metres	**BAL-12.5**
	Woodland^	flat 0º	37 to 60 metres		
	Grassland^	flat 0º	60 to 100 metres		
	--	--	--		
East	Exclusion 2.2.3.2 (e, f)^^	>0 to 5º downslope	0 to 100 metres	12 metres	BAL-LOW
	--	--	--		
	--	--	--		
	--	--	--		
South	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 100 metres	25 metres	BAL-LOW
	--	--	--		
	--	--	--		
	--	--	--		
West	Exclusion 2.2.3.2 (e, f)^^	flat 0º	0 to 100 metres	25 metres	BAL-LOW
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 amendment 3, Table 2.3 and Figures 2.4(A) to 2.4 (G).
^^ Exclusions as per AS3959-2018.

Vegetation map for BAL assessment purposes 1661 Midland highway, Bagdad.

Appendix B – proposal plans

Appendix C – site images

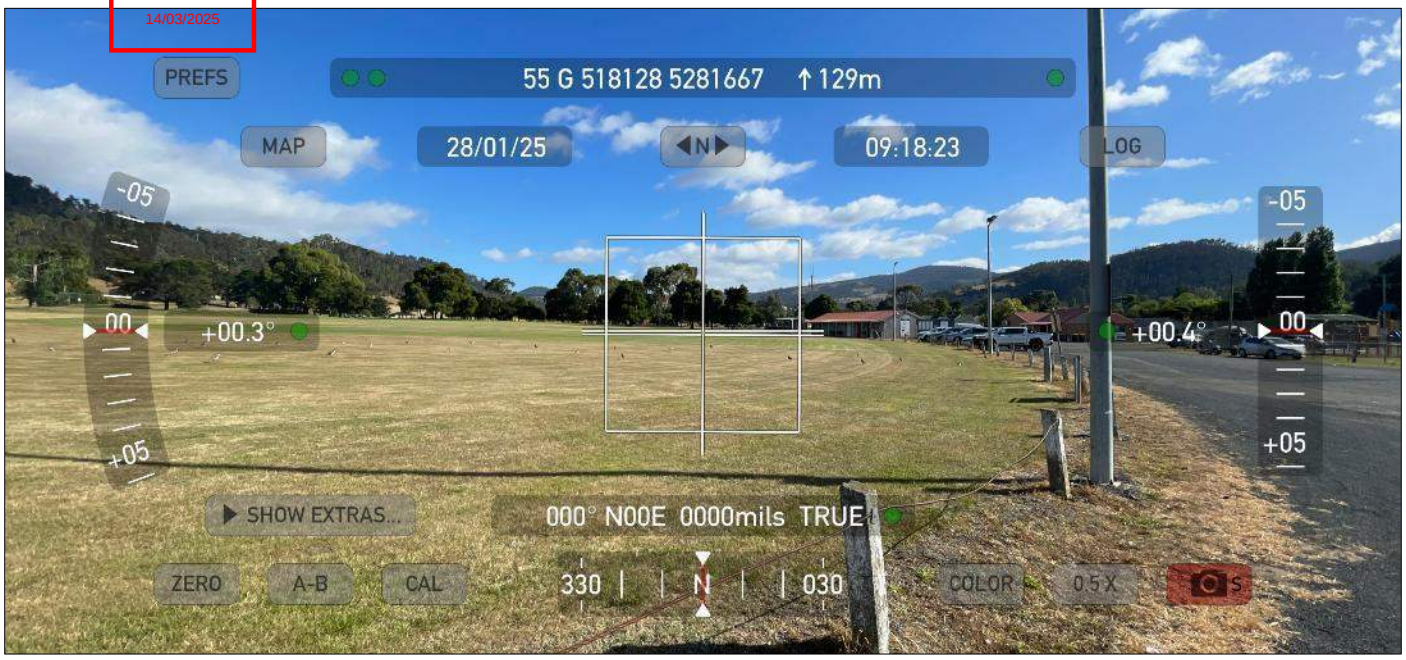

Figure 1. Northern azimuth from the Multipurpose Centre, low threat vegetation to greater than 100m from the site.

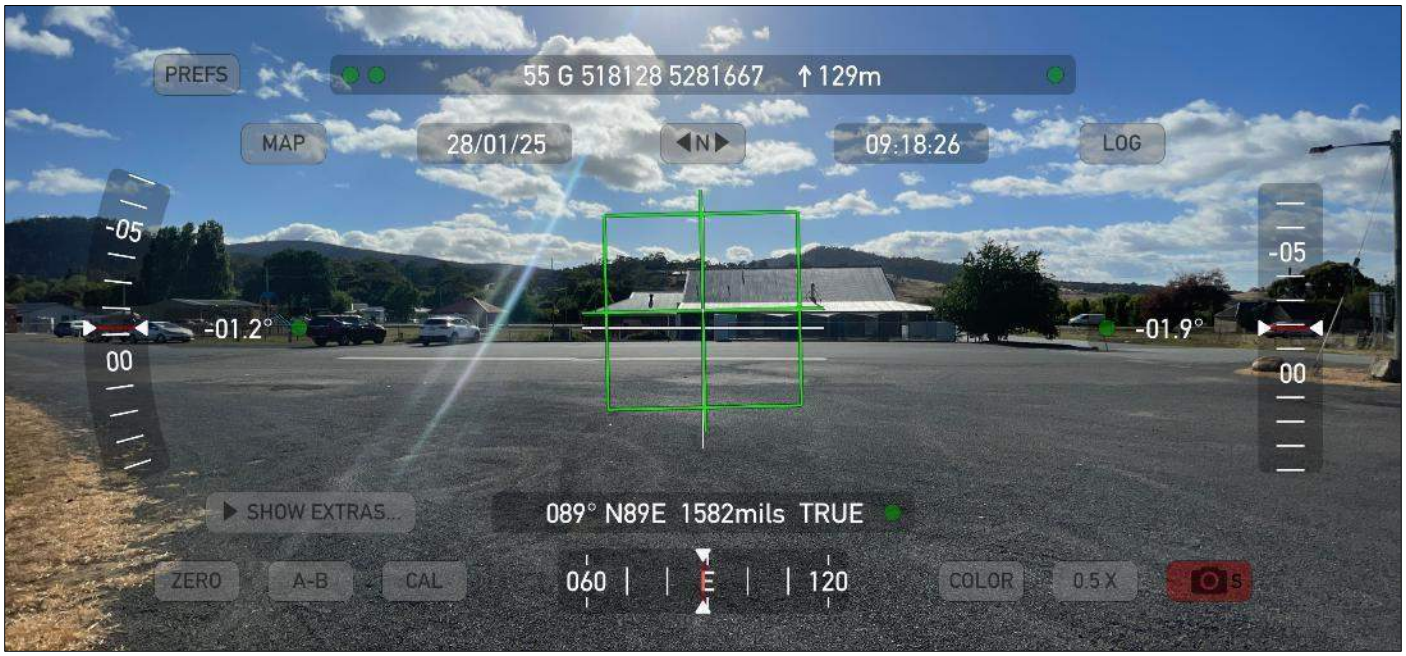

Figure 2. Eastern azimuth from the Multipurpose Centre, low threat vegetation to greater than 100 metres from the site.

Figure 3. Southern azimuth from the Multipurpose Centre, low threat and grassland vegetation to greater than 100m from the site.

Figure 4. Western azimuth from the Multipurpose Centre, low threat vegetation greater than 100m from the site.

Figure 5. Northern azimuth from the Sports Pavilion, low threat and woodland vegetation to greater than 100m from the site.

Figure 6. Eastern azimuth from the Sports Pavilion, low threat vegetation to greater than 100 metres from the site.

Figure 7. Southern azimuth from the Sports Pavilion, low threat vegetation to greater than 100m from the site.

Figure 8. Western azimuth from the Sports Pavilion, low threat vegetation greater than 100m from the site.

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Compliance Requirements

Property Access

• Property access must have an all-weather surface, support a 20-tonne load (including bridges and culverts), and provide a minimum 4 m carriageway width, 4 m vertical clearance, and 0.5 m horizontal clearance (excluding gate posts).

• Cross falls must be les than 3°, dips less than 7°, and curves must have a 10 m inner radius. Maximum gradients are 15° for sealed roads and 10° for unsealed roads.

• The access must terminate with a turning area for fire appliances provided by one of the following: a 10 m outer-radius turning circle, a property access encircling the building, or a 4 m x 8 m hammerhead “T” or “Y” turning head.

Water Supplies for Firefighting

A. Distance between building to be protected and water supply
The following requirements apply:
(a) the building to be protected must be located within 120 metres of a fire hydrant; and
(b) the distance must be measured as a hose lay between the firefighting water point and the furthest part of the building.

B.Design criteria for proposed fire hydrants.
The following requirements apply:
(a) fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia WSA 03 — 2011-3.1 MRWA Edition V2.0 as amended from time to time; and
(b) fire hydrants are not installed in parking areas.

C.Hardstand associated with proposedfire hydrants.
A hardstand area for fire appliances must be provided:
(a) no more than thirty metres from the hydrant measured as a hose lay;
(b) no closer than six metres from the building to be protected;
(c) with a minimum width of three metres and a minimum length of six metres constructed to the same standard as the carriageway; and
(d) connected to the property access by a carriageway equivalent to the standard of the property access.

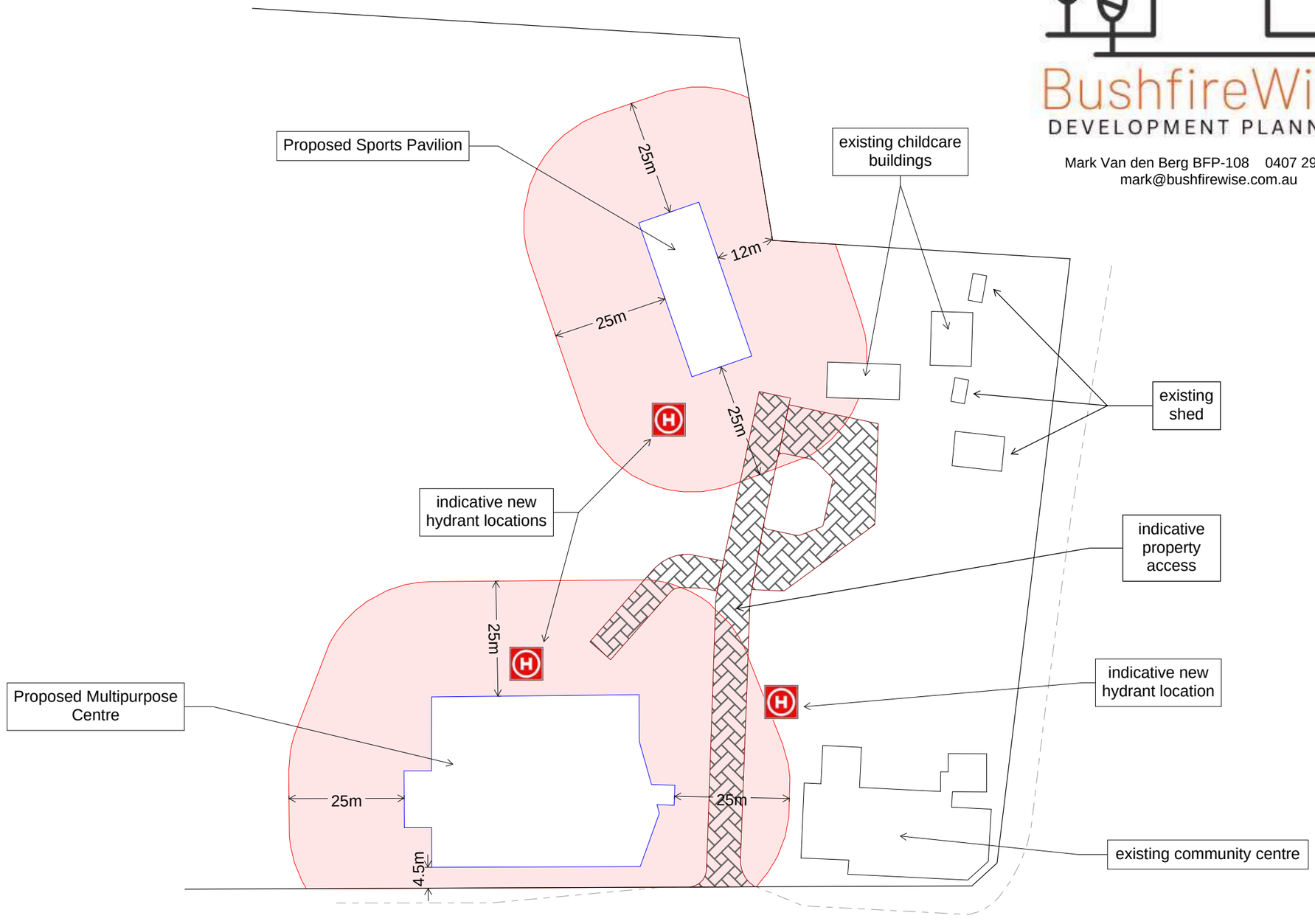
Hazard Management Area

A hazard management area is required to be established and maintained for the life of the building and is shown on this BHMP. Guidance for the establishment and maintenance of the hazard management area is also provided.

A hazard management area is the area, between a habitable building or building area and the bushfire prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through, but is not limited to the following actions;

• Remove fallen limbs, sticks, leaf and bark litter;
• Maintain grass at less than a 100mm height;
• Remove pine bark and other flammable mulch (especially from against buildings);
• Thin out under-story vegetation to provide horizontal separation between fuels;
• Prune low-hanging tree branches (<2m from the ground) to provide (vertical separation between fuel layers;
• Prune larger trees to maintain horizontal separation between canopies;
• Minimise the storage of flammable materials such as firewood;
• Maintain vegetation clearance around vehicular access and water supply points;
• Use low-flammability species for landscaping purposes where appropriate;
• Clear out any accumulated leaf and other debris from roof gutters and other accumulation points.

It is not necessary to remove all vegetation from the hazard management area, trees may provide protection from wind borne embers and radiant heat under some circumstances.



BushfireWise
DEVELOPMENT PLANNING
Mark Van den Berg BFP-108 0407 294 240
mark@bushfirewise.com.au

Do not scale from this drawing, use dimensions only. Written specifications to take precedence over diagrammatic representations. To be read in conjunction with associated Bushfire Hazard Report.	Date : 14/03/2025 PID: 1968670	Southern Midland Council 71 Hhigh Street, Oatlands, Tas., 7120	**Bushfire Hazard Management Plan** 1661 Midland Highway, Bagdad. March 2025. BW027.v1. Tasmanian Planning Scheme - Southern Midlands	Bushfire Attack Level BAL-12.5	Certification No. BW027v1 Mark Van den Berg Acc. No. BFP-108 Scope 1, 2, 3A, 3B, 3C.

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Southern Midlands Council *Owner /Agent*
71 High Street *Address*
Oatlands, Tasmania 7120 *Suburb/postcode*

Qualified person details:

Qualified person: Mark Van den Berg
Address: 18 Marlborough Street
Sandy Bay 7005
Phone No: 0407 294 240
Fax No:
Licence No: BFP-108
Email address: mark@bushfirewise.com.au

Qualifications and Insurance details: Accredited to report on bushfire hazards under the Fire Service Act 1979.
Insurance Policies:
NPP-34336-PI.
180U352645BPK -PL
(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Analysis of hazards in bushfire prone areas.
(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 1661 Midland Highway
Bagdad, Tasmania 7030
Lot No:
Certificate of title No: TBA

The assessable item related to this certificate: Bushfire hazard management plan for two proposed class 9 buildings.

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Bushfire Hazard
(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable items, at any stage, as part of – *(tick one)*

◉ building work, plumbing work or plumbing installation or demolition work

OR

○ a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Management Plan 1661 Midland Highway, Bagdad. March 2025. BW027.v1. Bushfire Hazard Report 1661 Midland Highway, Bagdad. March 2025. BW027.v1.
Relevant calculations:	AS 3959:2018 - Method 1 BAL assessment.
References:	AS 3959:2018.

Substance of Certificate: *(what it is that is being certified)*

1. The proposed building work – if designed and constructed in accordance with the bushfire hazard management plan referred to in this certificate – will comply with the applicable Deemed-to-Satisfy requirements of the Director's Determination – Bushfire Hazard Areas v1.2

2. The applicable Bushfire Attack Level (BAL) determined using AS 3959:2018 for Establishment of hazard management areas is BAL-12.5

Scope and/or Limitations

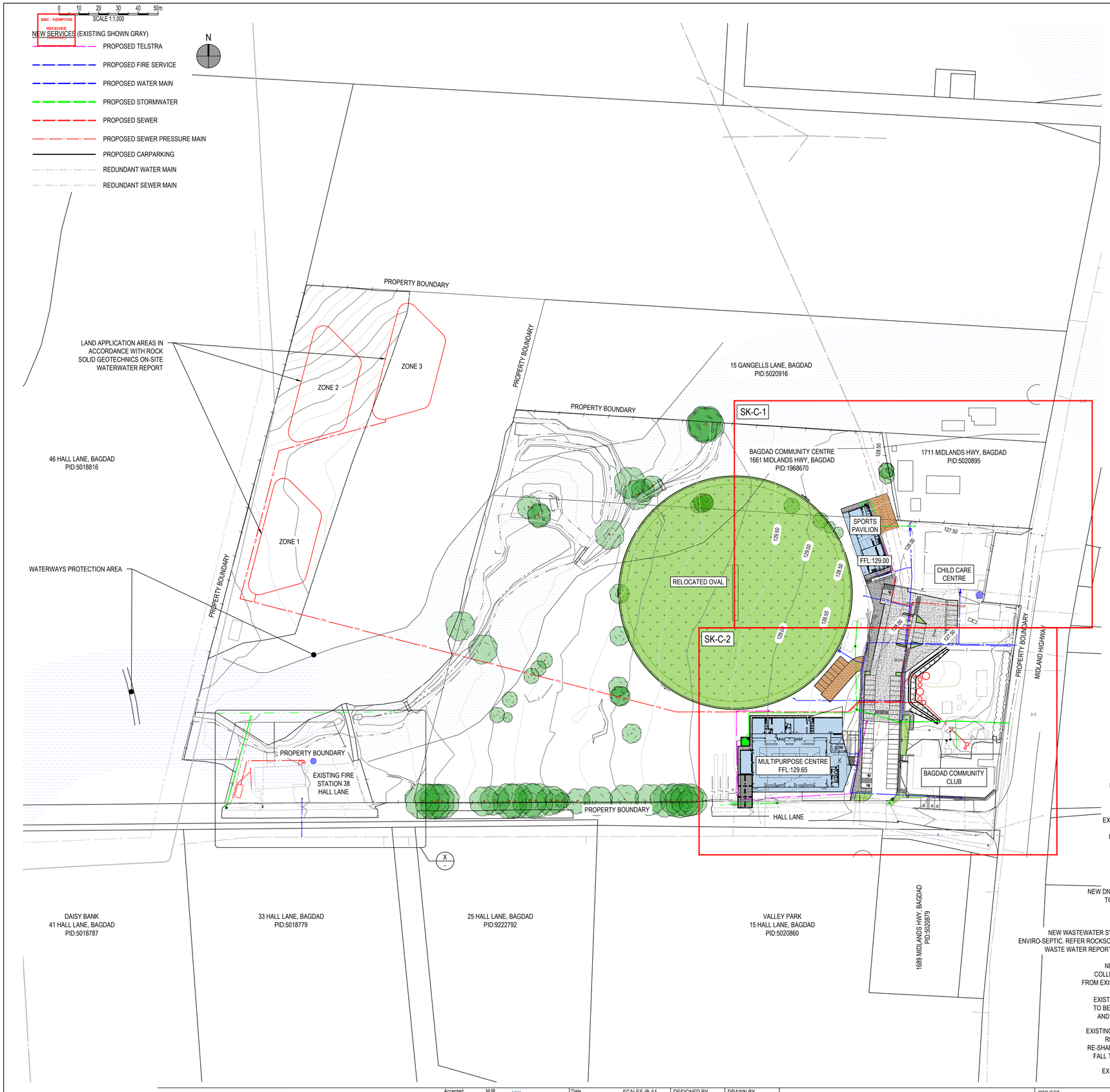
1. The scope of this certification is limited to compliance with the requirements of the Director's Determination – Bushfire Hazard Areas v1.2.

2. The effectiveness of the measures prescribed in the bushfire hazard management plan and supporting report are dependent on their correct implementation and maintenance for the life of the development.

3. No guarantee can be provided that the building work will survive every bushfire event.

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		BW027v1	14/03/2025



WATER DESIGN FLOWS CALCULATIONS

JMG

PROJECT DESCRIPTION:	Bagdad Recretation Grounds
PROJECT ADDRESS:	1661 Midland Highway
PROJECT NUMBER:	240785CS
REVISION:	1

DATE:	19/12/2024
DESIGNED:	mjr
REVIEWED:	mjr

SITE PARAMETERS		
Site Area	50000	m²
Number of Development Types	1	-

Proposed Equivalent Tenement Rates

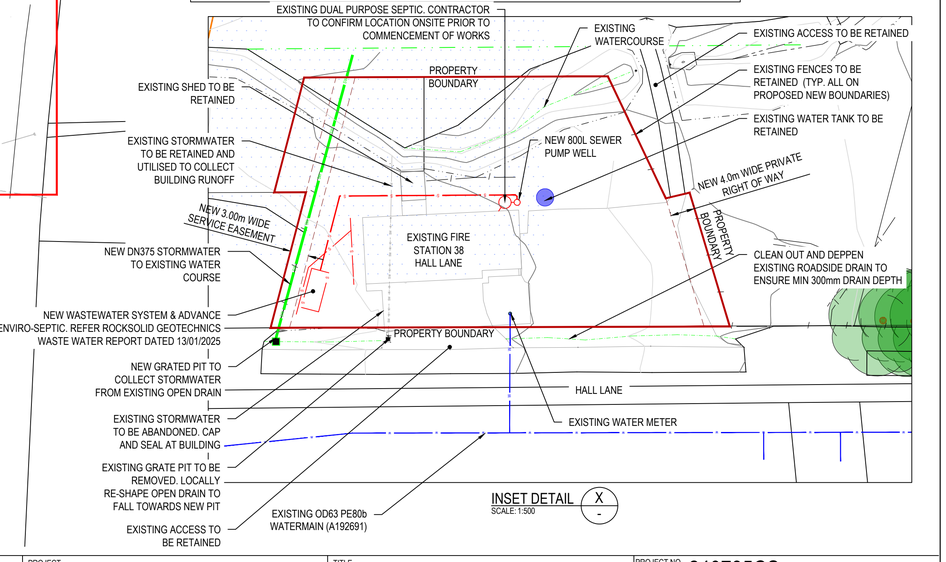
Development Number	Development Type	Rate	Units	Value	ETs
Community Centre/Zeldas	Restaurant/ Café	0.005	GBFA (m²)	1000	5
Computer Centre	Community Centre/ Hall	0.006	GBFA (m²)	120	0.72
Childcare Centre	Child Care Centre/ Pre-school	0.06	Person	95	5.7
Clubrooms	Amenities & Indoor Facilities	0.008	GBFA (m²)	350	2.8
Multipurpose Centre	Amenities & Indoor Facilities	0.008	case-by-case	1885	15.08
			Total ETs		29.3

Demand Flow Rates

Variable	TasWater Formula	Calculated Value	Units	Comments
Sports oval Irrigation	Irrigation Design Requirements	4.0	L/s	
Golf Course Irrigation	Irrigation Design Requirements	3.0	L/s	
Average Day Demand (AD)	685 L/ET/day x ETs	20070.5	L/day	Section 2.3.1 TasWater Supp
Peak Day Demand (PD)	2.25 x AD	45158.6	L/day	Section 2.3.4.2 TasWater Supp
Peak Hour Demand (PH)	PH/PD = 2.0	3763.2	L/hr	Section 2.3.4.3 TasWater Supp
Peak Day Flow Rate	PD/(day/hr/min)	0.523	L/s	
Peak Day Flow Rate + Irrigation	PD/(day/hr/min)	7.52	L/s	

Fire Flow Rates

Variable	Hydrants	Pressure	Units	Comments
Fire Hydrants	1	250.0	Kpa	Nil



REV	DATE	REMARK
DA3	21.02.2025	PROPERTY BOUNDARY AMENDMENTS
DA2	28.01.2025	UPDATED RFI RESPONSE
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

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Accepted (Discipline Head)	MJR		Date 21.02.2025
Accepted (Team Leader)	MJR		Date 21.02.2025
Approved (Principal)	CJM		Date 21.02.2025

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 1

PROJECT NO. 240785CS
DWG NO. SK-C-1
REVISION DA3
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG

SMC - KEMPTON
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14/03/2025

JOINS DRAWING SK-C-3

N
0 2 4 6 8 10m
SCALE 1:200

EXISTING SOAKAGE TRENCHES TO BE REMOVED

SUB-METER WITH RPZD FOR IRRIGATION SYSTEM CONNECTION

NEW STORMWATER PIT IN LOW POINT OF PERIMETER SPOON DRAIN WITH DN225 CONNECTION @ 1% FALL TO EXISTING PIT

NEW RISING MAIN TO LAND APPLICATION AREAS. REFER TO ROCK SOLID GEOTECHNICS CONCEPT DESIGN DATED 05/12/2024

NEW FIRE HYDRANT

LOCATE EXISTING TELSTRA PIT AND REDIRECT EXISTING TELSTRA SERVICE CLEAR OF NEW BUILDING

10.0m

RELOCATED 20KL ABOVE GROUND ON-SITE STORMWATER DETENTION TANK AND ORIFICE IN ACCORDANCE WITH STORMWATER MANAGEMENT REPORT DATED DECEMBER 2024

PROPERTY BOUNDARY

EX TELSTRA CONDUIT TO BE RELOCATED CLEAR OF NEW BUILDING

MULTIPURPOSE CENTRE
FFL:129.65

9.18m

9.81m

PROPERTY BOUNDARY

NEW WATER SUPPLY TO MULTIPURPOSE CENTRE

Ex WATER PROPERTY CONNECTION (A3406870) SIZE UNKNOWN

EX SW PIT (TOP:127.846, IL:127.440) TO BE REPLACED WITH NEW PIT (APPROX. IL 127.10)

EX SW INLET IL:127.191

EX DN225 SW TO BE REPLACED WITH DN375 SW

EX SW INLET IL:126.745

EX SW OUTLET IL:126.566

EX SW PIT TOP:127.744

Ex DN300 SW

EX SW PIT TO BE RETAINED
TOP:127.840
PIT IL:126.885
OUTLET IL:126.980

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640). LOCATED USING GROUND PENETRATING RADAR AND SURVEYED BY ROGERSON AND BIRCH

LOCATE EXISTING DOMESTIC CONNECTION (A3406870). CONNECTION TO BE REMOVED BY TASWATER ACCREDITED CONTRACTOR

Ex DICL DN300 BULK TRANSFER MAIN (A3350640)

DS: 128.08
NS: 128.02

DS: 128.05
NS: 127.99

DS: 128.02
NS: 127.96

DS: 127.98
NS: 127.95

DS: 127.94
NS: 127.91

DS: 127.91
NS: 127.91

DS: 127.53
NS: 127.76

DS: 127.57
NS: 127.79

DS: 127.43
NS: 127.65

DS: 127.41
NS: 127.57

DS: 127.29
NS: 127.55

DS: 127.31
NS: 127.45

DS: 127.25
NS: 127.43

DS: 127.99
NS: 127.82

DS: 127.75
NS: 127.75

DS: 127.00
NS: 127.11

NEW BIO-SWALE FOR STORMWATER TREATMENT. REFER TO STORMWATER REPORT FOR DETAILS

EXISTING PLAYGROUND TO BE RELOCATED

PROPOSED ON-SITE WASTE WATER TREATMENT SYSTEM IN ACCORDANCE WITH ROCK SOLID GEOTECHNICS CONCEPT DESIGN DATED 05/12/2024

EXISTING PLAYGROUND TO BE RELOCATED

NEW FIRE HYDRANT

DISCHARGE BIO-SWALE INTO EXISTING STORMWATER PIT

EX SW PIT
TOP:126.816
IL:126.486

EX SW IL:126.373

EX SERVICE IL:126.598

EX STOP VALVE RL: IL:126.474

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

EXISTING SOAKAGE TRENCHES TO BE REMOVED

EX SW PIT
TOP:126.422
INLET IL:126.314
OUTLET IL: 126.223

EX SW HEADWALL TO BE REPLACED WITH NEW DN375 HEADWALL IL:126.223

EX DN300 SW TO BE REPLACED WITH DN375 SW

EX DN300 SW TO BE REPLACED WITH DN375 SW

EX SW PIT
RL: 127.001
INLET IL:126.627
OUTLET IL: 126.582

EX SEWER MH TO BE DEMOLISHED
TOP:127.043
IL:124.337

EX SW PIT
TOP:126.826
IL:126.635

PROPERTY BOUNDARY

NEW DN150 STORMWATER MAIN TO CONNECT TO EXISTING TANK TO EXISTING DN300 MAIN

RELOCATE 20KL TANK TO NEW MULTI PURPOSE BUILDING

EX SW HEADWALL

PROPERTY BOUNDARY

NEW COMMERCIAL GREASE TRAP AND PUMP WELL IN ACCORDANCE WITH ROCK SOLID GEOTECHNICS WATER CONCEPT DESIGN DATED 15/12/2024

EXISTING STORMWATER TANKS TO BE RETAINED

PROPERTY BOUNDARY

MIDLAND HIGHWAY

BAGDAD COMMUNITY CLUB

EX DN450 STORMWATER

DN200 CICL (A192688)

SUB-METER FOR COMMUNITY CLUB

PROPERTY BOUNDARY

EXISTING SW PIT
TOP: 126.49m
IL: 125.82m

LOCATE AND RECONNECT EXISTING 20mm PROPERTY SERVICE TO COMMUNITY CLUB

EXISTING 20mm PROPERTY CONNECTION TO BEOME REDUNDANT

EXISTING DN750 STORMWATER

CAP AND SEAL EXISTING DN50 CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

EXISTING SW PIT
TOP: 126.40m
IL: 125.67m

PROPERTY BOUNDARY

Ex DN300 SW

EX SW HEADWALL
IL:127.716

EX TELSTRA PIT
REDIRECT EXISTING TELSTRA SERVICE CLEAR OF NEW BUILDING

HALL LANE

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640)

SW PIT
TOP:127.422
INLET IL:126.965
OUTLET IL:126.863
REPLACE PIT WITH MANHOLE AND CLASS D LID

NEW GRATED SW PIT TO IPWEA STANDARD DRAWINGS

NEW DN300 STORMWATER MAIN

Ex DN300 SW

EX SW PIT
TOP:127.357
INLET IL:126.693
PIT IL: 126.365

HALL LANE

Ex 20mm WATER PROPERTY CONNECTION (A192690)

Ex 20mm WATER PROPERTY CONNECTION (A3248580)

EX TELSTRA PIT

Ex DN450 SW

Ex PE80 OD63 WATER MAIN (A192689)

CAP AND SEAL EXISTING PROPERTY CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

REV	DATE	REMARK
DA3	21.02.2025	PROPERTY BOUNDARY AMENDMENTS
DA2	28.01.2025	UPDATED RFI RESPONSE
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

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Accepted (Discipline Head)	MJR		Date 21.02.2025
Accepted (Team Leader)	MJR		Date 21.02.2025
Approved (Principal)	CJM		Date 21.02.2025

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 2

PROJECT NO. 240785CS
DWG NO. SK-C-2
REVISION DA3
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG

0 2 4 6 8 10m
SCALE 1:200

N

128.50

PROPERTY BOUNDARY

1500L ABOVE GROUND ON-SITE STORMWATER DETENTION TANK AND ORIFICE IN ACCORDANCE WITH STORMWATER MANAGEMENT REPORT DATED DECEMBER 2024

9.26m

PROPERTY BOUNDARY

SPORTS PAVILION FFL:129.0

LOCATE AND RECONNECT EXISTING DN50 SERVICE TO GOLF COURSE IRRIGATION

DISCHARGE STORMWATER TO EXISTING OPEN DRAIN

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

EX HEADWALL TO BE RETAINED
IL: 127.09m

EX 63 OD HDPE WATER MAIN TO BE REMOVED

EX WATER METER TO BE REMOVED AND RETURNED TO TASWATER

127.50

EXISTING FENCE

SUB-METER FOR GOLF COURSE

EX OPEN DRAIN
RL:
IL:128.183

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640). LOCATED USING GROUND PENETRATING RADAR AND SURVEYED BY ROGERSON AND BIRCH

EX STOP VALVE TO BE REMOVED

CAP AND SEAL EXISTING DN50 PROPERTY. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

DN200 CICL (A192688)

EXISTING FENCE

EXISTING GRAVEL PAVEMENT

EXISTING DN150 STORMWATER

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640)

CHILD CARE CENTRE

5.87m

EX TELSTRA CONDUIT TO BE RELOCATED CLEAR OF NEW BUILDING

EX CLUBROOMS TO BE DEMOLISHED

129.00

128.50

NEW WATER SUPPLY TO COMMUNITY CLUBROOMS

NEW FIRE HYDRANT

OVAL

10.0m

CHILD CARE CENTRE

EX GP
RL:127.700
IL:127.205

LOCATE AND RECONNECT EXISTING WATER TO CHILD CARE CENTRE

EXISTING STORMWATER TANK TO BE RETAINED

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

MIDLAND HIGHWAY

EX SEWER MH
RL:127.284
IL:126.522

IRRIGATION VALE EXISTING

CAP AND SEAL EXISTING DOMESTIC CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

EX SW GRATED PIT
RL:126.816
IL:126.486

EXISTING FENCE

EX SEWER MH
RL:126.324
IL:126.111

EXISTING SHED TO BE RETAINED

EX SW OUTLET HEADWALL
IL:126.407

Ex DICL DN300 BULK TRANSFER MAIN (A3350640)

EXISTING TOILET BLOCK TO BE DEMOLISHED

NEW STORMWATER PIT IN LOW POINT OF PERIMETER SPOON DRAIN WITH DN225 CONNECTION @ 1% FALL TO EXISTING PIT

EX SEWER MH
RL:127.825
IL: UNKNOWN

LOCATE AND RECONNECT EXISTING SEWER TO CHILD CARE CENTRE

EXISTING SOAKAGE TRENCHES TO BE REMOVED

PROPOSED CARPARKING AND ACCESS ROAD

NEW ABOVE GROUND DN80 DOMESTIC WATER & DN100 HIGH HAZARD FIRE SUPPLY ASSEMBLY

Ex WATER PROPERTY CONNECTION (A3406871) SIZE UNKNOWN

DN100

DN200 CICL (A192688)

CAP AND SEAL EXISTING DOMESTIC CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

LOCATE EXISTING DN200 CICL MAIN AND INSTALL NEW DN100 OFFTAKE. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

JOINS DRAWING SK-C-2

DA3 21.02.2025 PROPERTY BOUNDARY AMENDMENTS
DA2 28.01.2025 UPDATED RFI RESPONSE
DA1 19.12.2024 DEVELOPMENT APPROVAL ISSUE

REV	DATE	REMARK

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Approved (Principal)	CJM		Date 21.02.2025

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	PLOT DATE	21/02/2025

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TITLE
CONCEPT SERVICES PLAN
SHEET 3

PROJECT NO. 240785CS
DWG NO. SK-C-3
REVISION DA3
PLOT DETAILS 240785CS BAGDAD DRAWINGS DA.DWG

SMC - KEMPTON
BAGDAD
DA1

0 2 4 6 8 10m
SCALE 1:200

N

SPORTS PAVILION FFL:129.0

VEHICLE BODY EXTENTS (TYP.)

VEHICLE FRONT AXLE (TYP.)

14.5m BUS TURNPATH INTERNAL MANOEUVRE

SPORTS PAVILION FFL:129.0

EXISTING FENCE

EXISTING TOILET BLOCK

EX DICL DRAIN (SLK TRANSFER MAIN (A3356640)

14.5m BUS TURNPATH INTERNAL MANOEUVRE PAST PARKED BUS

BAGDAD COMMUNITY CENTRE

HALL LANE

14.5m BUS TURNPATH ENTRY MANOEUVRE

BAGDAD COMMUNITY CENTRE

HALL LANE

14.5m BUS TURNPATH EXIT MANOEUVRE

REV	DATE	REMARK
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

SAFETY IN DESIGN REPORT PER WHS REGULATIONS

The following risks which are unique to this design have been identified:	NIL

This report does not relieve contractors from their responsibilities under the Act to identify, report, mitigate and manage all aspects of risk and safety.

Accepted (Discipline Head)	MJR		Date 29.01.2025
Accepted (Team Leader)	MJR		Date 29.01.2025
Approved (Principal)	CJM		Date 29.01.2025

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SCALES @ A1	DESIGNED BY	DRAWN BY
1:200	MJR	CEF
	PLOT DATE	29/01/2025

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 4
TURNPATHS

PROJECT NO. 240785CS
DWG NO. SK-C-4
REVISION DA1
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG

Prepared for:
Southern Midlands Council

Bagdad Recreation Ground

FLOOD HAZARD REPORT

FE_24095
13 January 2025

flüssig Engineers

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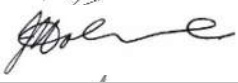
Document Information

Title	*Client*	*Document Number*	*Project Manager*
Bagdad Recreation Ground, Bagdad, Flood Hazard Report	**Southern Midlands Council**	FE_24095	Max W. Möller *Principal Hydraulic Engineer*

Document Initial Revision

REVISION 00	Staff Name	Signature	Date
Prepared by	Max W. Moller ***Principal Hydraulic Engineer***		08/01/2025
Prepared by	Ash Perera ***Hydraulic Engineer***		08/01/2025
Prepared by	Christine Keane ***Senior Water Resources Analyst***		07/01/2025
GIS Mapping	Damon Heather ***GIS Specialist***		07/01/2025
Reviewed by	John Holmes ***Senior Engineer***		08/01/2025
Reviewed by	Max W. Möller ***Principal Hydraulic Engineer***		09/01/2025
Authorised by	Max W. Moller ***Principal Hydraulic Engineer***		13/01/2025

Rev No.	Description	Prepared by	Authorised by	Date

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1. Introduction

Flüssig Engineers has been engaged by **Southern Midlands Council** to undertake a site-specific Flood Hazard Report for the development known as **Bagdad Recreation Ground, Bagdad** in the Southern Midlands Council municipality.

1.1 Development

The proposed development at 1661 Midland Highway, Bagdad involves the construction of new structures, including a multipurpose centre, community clubrooms, and associated car parking areas within the existing lot, which currently contains residential dwellings and other structures. This development activates the Flood Prone Areas Hazard Code, as it is located within a designated flood-prone area under the Southern Midlands Council jurisdiction.

1.2 Objectives and Scope

This flood analysis has been written to meet the standards of the Tasmanian Planning Scheme (TPS) and Building Regulations 2016, Section 54, with the intent of understanding the development risk with respect to riverine flooding. The objectives of this study are:

- Provide an assessment of the site's flood characteristics under the combined 1% AEP + CC scenario.
- Provide comparison of flooding for pre- and post-development against acceptable and performance criteria.
- Provide flood mitigation recommendations for the development, where appropriate.

1.3 Limitations

This study is limited to the objectives of the engagement by the client, the availability and reliability of data, and including the following:

- The flood model is limited to a 1% AEP + CC worst case temporal design storm.
- All parameters have been derived from best practice manuals and available relevant studies (if applicable) in the area.
- All provided data by the client or government bodies for the purpose of this study is deemed fit for purpose.
- The study is to determine the effects of the new development on flooding behaviour and should not be used as a full flood study into the area without further assessment.

1.4 Relevant Planning Scheme Requirements

This report addresses the Tasmanian Planning Scheme codes C12.5.1 and C12.6.1 of the Flood Prone Areas Hazard Code as described below in Table 1.

Table 1. TPS Planning Scheme Requirements

Planning Scheme Code	Objective
C12.5.1 Uses within a flood prone hazard area	That a habitable building can achieve and maintain a tolerable risk from flood
C12.6.1 Building and works within a flood prone hazard area	(a) building and works within a flood-prone hazard area can achieve and maintain a tolerable risk from flood; and (b) buildings and works do not increase the risk from flood to adjacent land and public infrastructure.

2. Model Build

2.1 Overview of Catchment

The contributing catchment for Bagdad Recreation Ground in Bagdad is approximately 800 ha. With an average slope of 10%, the streams from Andersons Ridge to the west flow in a easterly direction through McGradys Gully approximately 4500 m from the development site.

The catchment's land use is a combination of Rural Living, Agriculture and Environmental Management in the upper reaches. The lot of the development site is zoned as Community Purpose.

Figure 1 below outlines the approximate contributing catchment for the site at the Bagdad Recreation Ground, Bagdad.

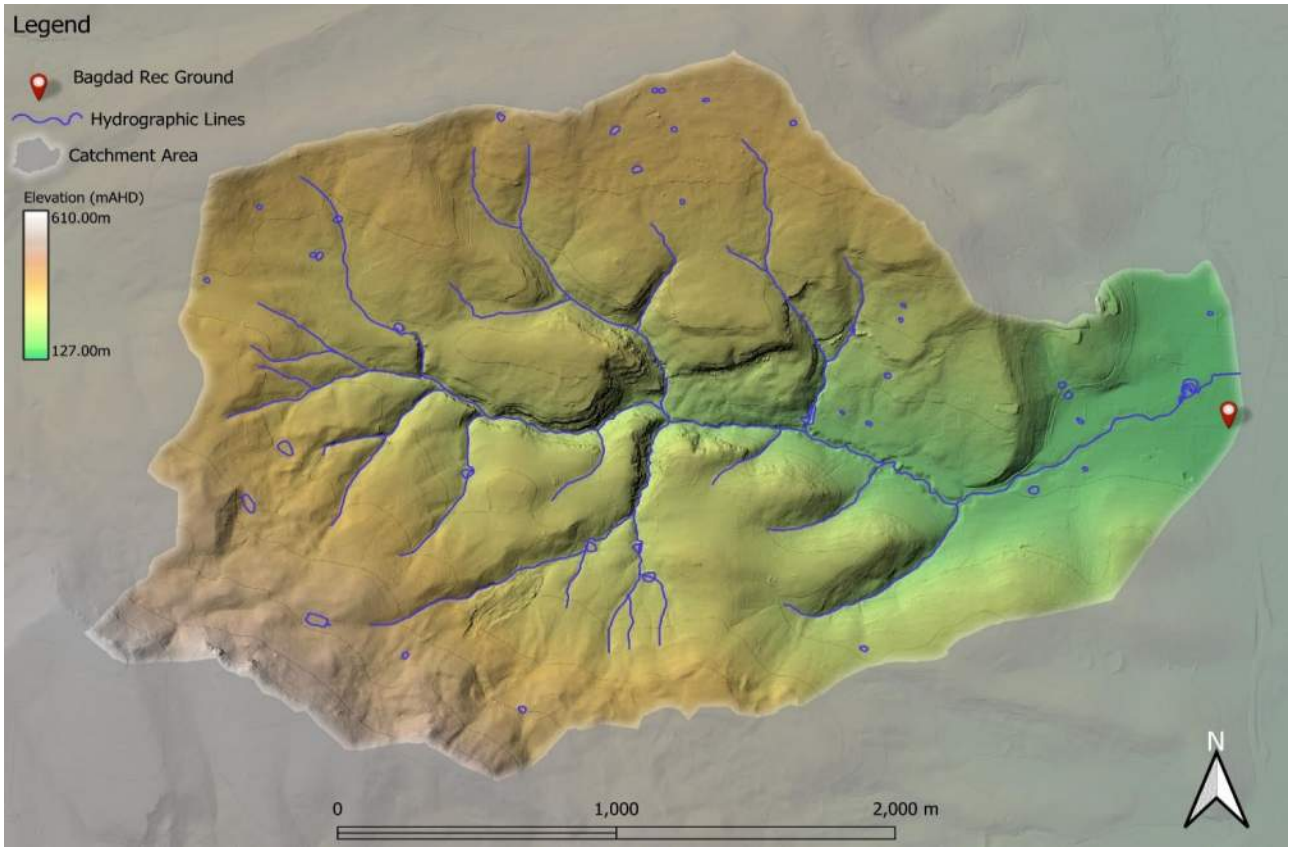

Figure 1. Contributing Catchment, Bagdad Recreation Ground, Bagdad

2.2 Hydrology

The following Table 2 states the adopted hydrological parameters for the RAFTS catchment.

Table 2. Parameters for RAFTS catchment

Catchment Area (ha)	Initial Loss Perv/imp (mm)	Continuing Loss Perv/imp (mm/hr)	Manning's N pervious	Manning's N impervious	Non-linearity factor
800	26/1	4.3/0.0	0.045	0.02	-0.285

2.2.1 Design Rainfall Events

Figure 2 shows the box and whisker output of the model run. The model shows that the 1% AEP 4.5hr - hour storm, temporal pattern 2 was the worst-case median storm. Therefore, this storm event was used within the hydraulic model.

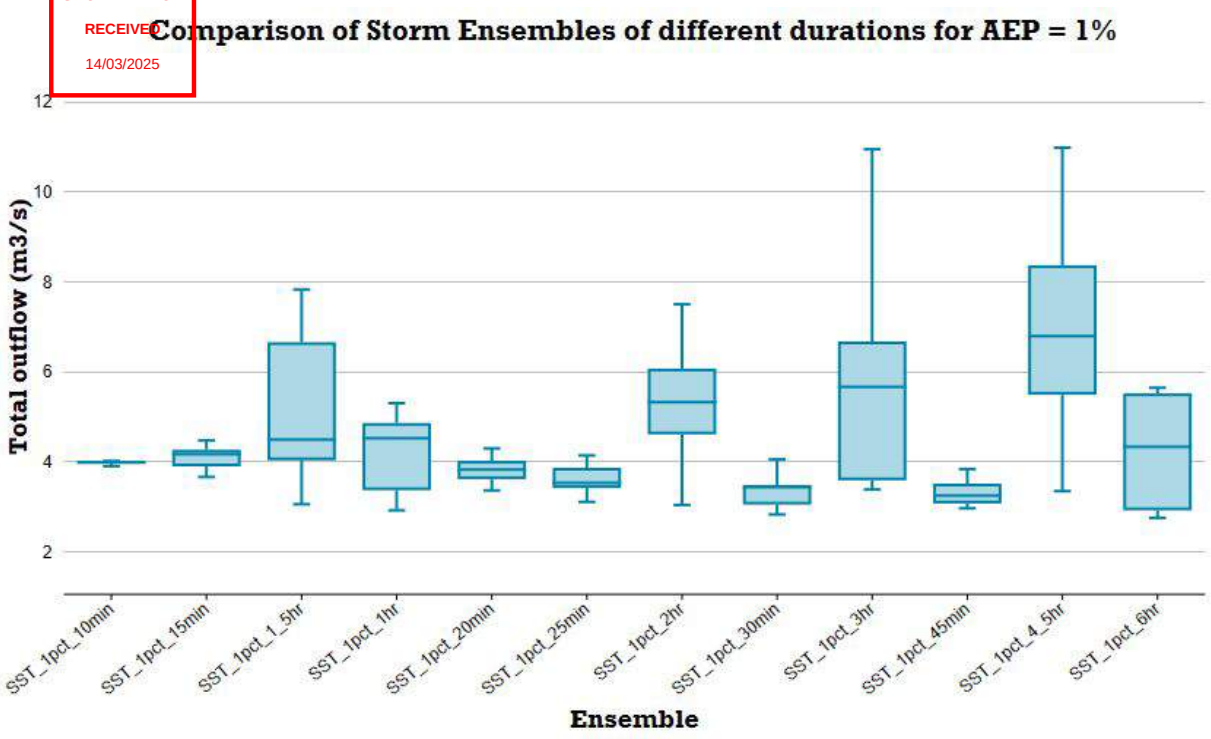

Figure 2. 1% AEP Flood Event Model, Box and Whisker Plot.

2.2.2 Climate Change

As per ARR 2019 Guidelines, for an increase in rainfall due to climate change at 2100, it is recommended the use of RCP 8.5. However, ARR 2019 recommends that this figure be used in lieu of more local data being available.

The base scenario of the Climate Futures Tasmania (2010) study was revised following the ARR 2019 Australasia Climate Change study (undertaken by the University of Tasmania), resulting in the original increase in rainfall being reduced to 14.6% in cooler climates (Southern Tasmania). Table 3 shows the ARR 8.5 increase compared to the revised increase of 16.1% that has been adopted by the Southern Midlands Council and therefore used within the model.

Table 3. Climate Change Increases

Catchment	CFT increase @ 2100	ARR 8.5 increase @ 2100
Southern Tasmania	14.6%	16.1%

2.2.3 Calibration/Validation

As this immediate catchment has no stream gauge, a Regional Flood Frequency Estimation model (RFFE) has been used to calibrate our rain on grid rainfall estimation. The RFFE values are listed in Table 4 below.

Table 4. Regional Flood Frequency Estimation model (RFFE) v/s Flussig Result.

AEP (%)	Discharge (m^3/s)	Lower Confidence Limit (5%) (m^3/s)	Upper Confidence Limit (95%) (m^3/s)	Flussig Discharge (m^3/s)
50	1.73	0.760	4.02	2.01
20	2.99	1.31	6.83	3.12
10	4.04	1.54	10.5	4.55
5	5.21	1.65	15.7	5.88
2	6.99	1.76	25.7	7.25
1	8.53	1.79	36.3	**8.87**

Input Data	
Date/Time	2024-12-05 15:05
Catchment Name	**McGradys Gully - Bagdad**
Latitude (Outlet)	-42.617
Longitude (Outlet)	147.222
Latitude (Centroid)	-42.615
Longitude (Centroid)	147.189
Catchment Area (km^2)	8.0
Distance to Nearest Gauged Catchment (km)	27.96
50% AEP 6 Hour Rainfall Intensity (mm/h)	4.41655
2% AEP 6 Hour Rainfall Intensity (mm/h)	9.250329
Rainfall Intensity Source (User/Auto)	Auto
Region	Tasmania
Region Version	RFFE Model 2016 v1
Region Source (User/Auto)	Auto
Shape Factor	0.96
Interpolation Method	Natural Neighbour
Bias Correction Value	0.42

2.3 Hydraulics

2.3.1 Survey

The 2D surface model was taken from a combination of Bagdad_2019 LIDAR (Geoscience Australia) and site survey by Rogerson and Birch Surveyors to create a 1m and 0.2 m cell size DEM. For the purposes of this report, 1m cells are enough to capture accurate flow paths. The DEM with hill shading can be seen below (Figure 3).

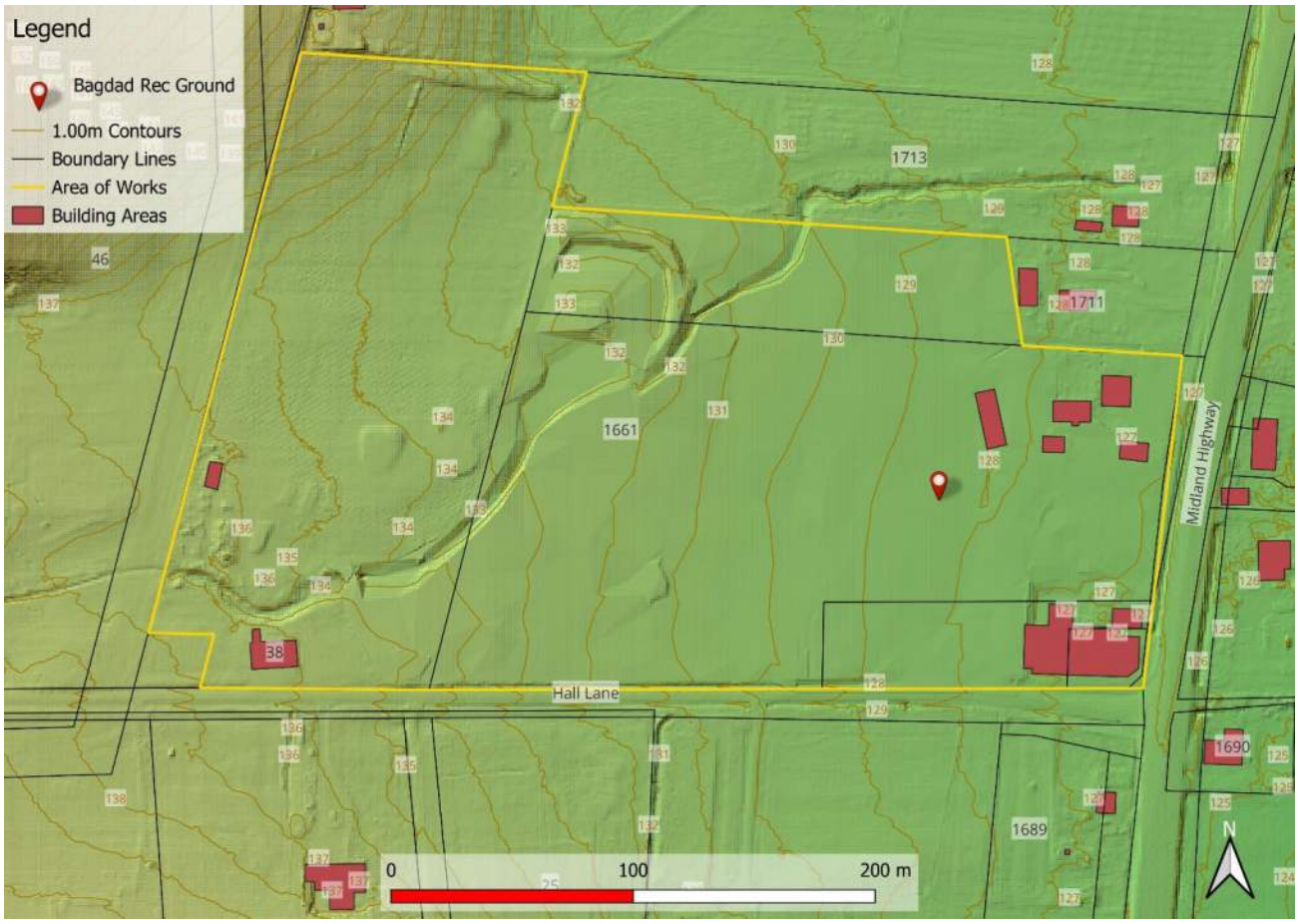

Figure 3. 1m and 0.2m DEM (Hill shade) of development area

2.3.2 Roughness (Manning's n)

Roughness values for this model were derived from the ARR 2019 Guidelines. The Manning's values are listed in Table 5.

Table 5. Manning's Coefficients (ARR 2019)

Land Use	Roads	Open Channel	Rural	Residential	Parks	Buildings	Piped Infrastructure
Manning's n	0.018	0.035	0.04	0.045	0.05	0.3	0.013

2.3.3 Structures

The 2D model has been carefully designed to incorporate several critical structural elements, including buildings, an inlet culvert, underground pipes, and open concrete channel structures located at the lot area and also crossing under the Southern Midlands Highways. These features play a vital role in the overland flow path and have been thoroughly integrated into the model's framework.

By meticulously representing the structural dynamics and hydraulic interactions of both the underground pipes and the open channel outlet within the model, we have significantly enhanced our ability to simulate and analyse the flow dynamics of the catchment flood system. This detailed inclusion allows the model to accurately capture the influence of these structures on flow patterns, hydraulic gradients, and the potential impacts under various flood scenarios.

Through this comprehensive approach, we ensure that the model not only reflects the physical reality of the site but also provides reliable predictions of how these elements might affect flood behaviour, ultimately contributing to more informed decision-making and better flood risk management strategies.

2.3.4 Existing Pond

The existing pond at the Bagdad Public Golf Course forms an integral component of the site's hydraulic systems. This pond serves as a critical element in managing stormwater flow and mitigating localised flooding impacts. Its incorporation into the hydraulic design demonstrates a thoughtful approach to leveraging existing natural and constructed features to enhance flood resilience.

The pond has been carefully analysed for its storage capacity, inflow and outflow dynamics, and its ability to attenuate peak flow rates during storm events. Its role as a retention and energy dissipation feature is essential for managing runoff and ensuring downstream areas are protected from the adverse impacts of high velocity flows.

Key considerations include:

- The pond's ability to temporarily store stormwater reduces peak discharge rates, helping to moderate flow volumes in the downstream drainage network.
- The pond also contributes to improved water quality by promoting sedimentation and the settlement of suspended particles before water is discharged downstream.

2.3.5 Structures Blockage

In alignment with the ARR2019 guidelines, specific blockage factors have been carefully determined for the culvert situated beneath the Southern Midlands Highway.

For the culvert, a blockage factor of 30% has been applied. This figure has been calculated based on a thorough assessment of the potential for debris accumulation, encompassing both natural materials such as branches, leaves, and sediment, as well as human made obstructions that may impede the flow.

3. Model Results

3.1 Pre-Development Scenario

The pre-development flood modelling results, shown in Figure 4, highlight significant inundation across the site and its surroundings during the 1% Annual Exceedance Probability (AEP) event with climate change scenarios considered. Flood depths vary across the site, with the most prominent inundation occurring around existing structures and open areas along natural overland flow paths.

Notably, Hall Lane, which runs along the southern boundary of the site, is impacted by floodwaters. Overland flow crosses the Midland Highway and spreads across the site in an easterly direction, with depths exceeding 600 mm in certain areas. There is also significant flooding originating from the pond within the golf course that overtops and flows across the existing oval towards the Midland Highway. These depths are particularly prominent near the central parts of the site, where existing structures and flat topography contribute to water ponding and localised flooding.

The model also indicates that the majority of the flow is channelled through an existing table drain at both side of Hall Lane and inflow into a culvert system near the eastern boundary. However, the limited capacity of this culvert leads to overflow conditions, further increasing the flood risk for the surrounding properties. The map clearly delineates the extents of the inundation, highlighting key areas that will require flood mitigation measures to address existing and future risks under proposed development scenarios.

3.1 Post-Development Scenario

In the post-development model (shown in Figure 5), the placement of the proposed structures leads to notable changes in the extent of flooding within the site. These changes, however, are largely contained within the boundaries of the lot itself, ensuring that water continues to discharge as expected at the southern boundary without any significant deviation. Most critically, there is no measurable change in flood depth or velocity at the boundaries of neighbouring properties, confirming that the proposed development does not contribute to or exacerbate flooding risks for adjacent lots.

The design incorporates several features aimed at mitigating flood risks and managing overland flow paths effectively. The inclusion of the proposed buildings and carpark areas, along with targeted maintenance work on the existing pond and open drains, is expected to significantly alleviate the overland flow path that would otherwise impact the proposed building footprint. Together, these elements enhance the site's ability to manage stormwater, reducing flood risks within the lot and contributing to an overall improvement in site conditions.

In particular, the maintenance of the existing pond and open drains is a critical aspect of this strategy. These measures ensure that the drainage infrastructure operates efficiently, preventing blockages or overflow that could redirect floodwaters toward the new structures.

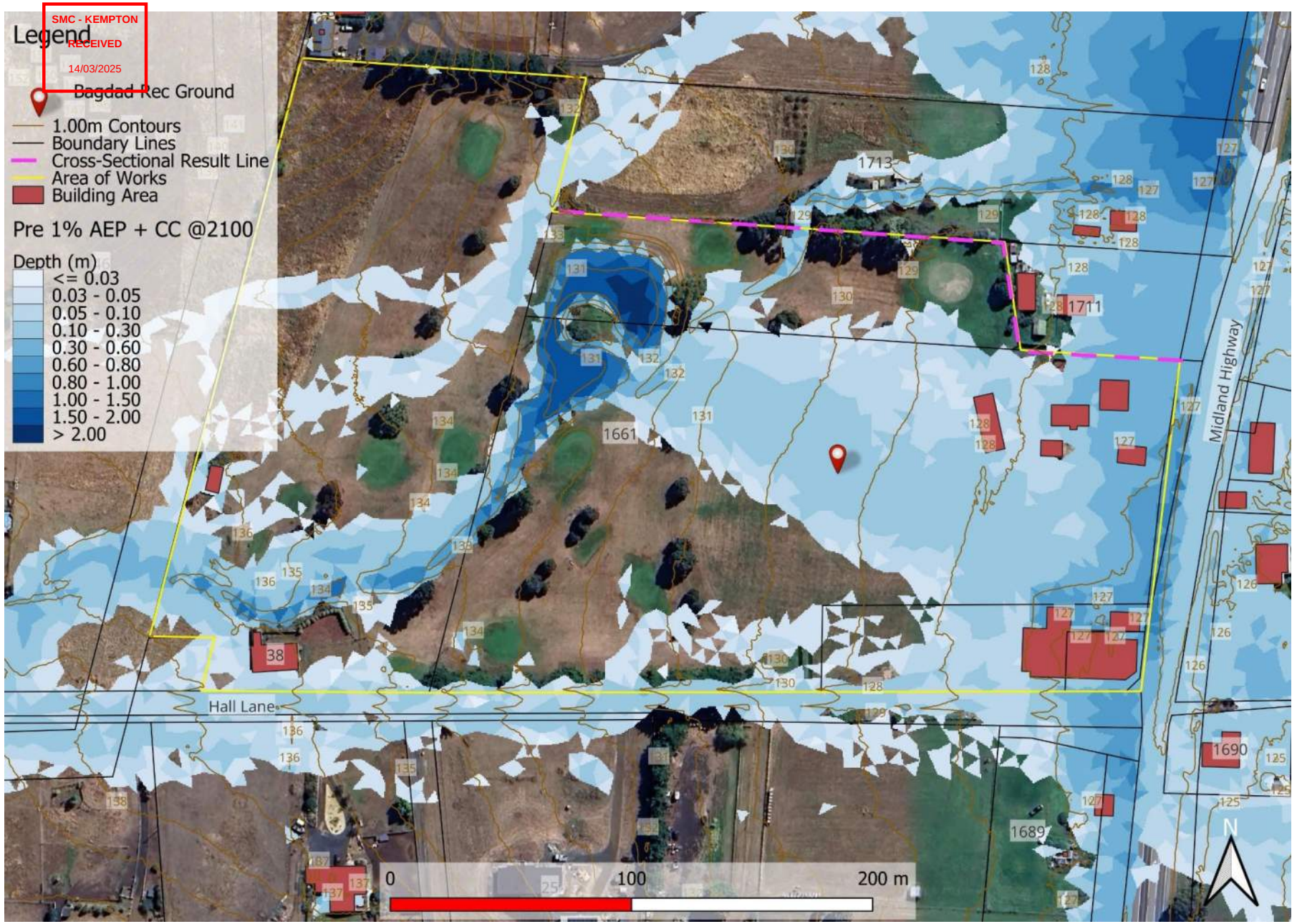

Figure 4. Pre-Development 1% AEP + CC Depth Bagdad Recreation Ground.

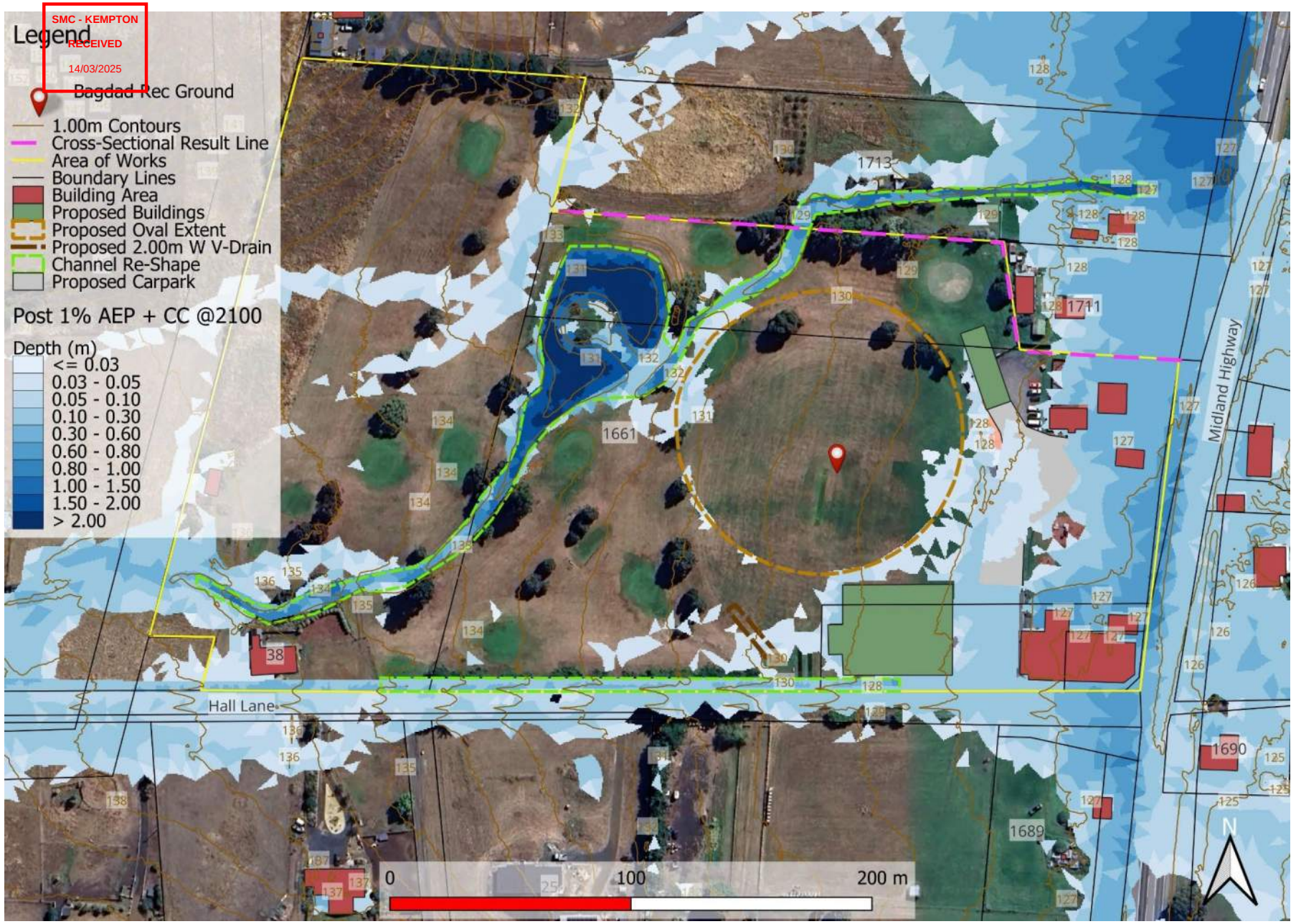

Figure 5. Post-Development 1% AEP + CC Depth, Bagdad Recreation Ground.

3.2 Displacement of Overland Flow on Third Party Property

Post-development flows, as shown in Figure 5, demonstrate that the overland flow path inside the lot diverts flood waters into designated channels to the north-eastern side of the pond and along Hall Street to the south, reducing the impact of overland flow on proposed building areas compared to the pre-development scenario depicted in Figure 4. In the post-development scenario, with the proposed maintenance work on the channel discharging from the pond, floodwater is directed away from the oval preventing much of the floodwater from impacting the proposed clubrooms. While this results in minor adjustments to the overland flow, these changes are confined entirely within the lot boundary, as indicated by the depth, velocity, and discharge data along the northern boundary of the site.

Consequently, it is concluded that the post-development model does not adversely impact flood flows through neighbouring properties, with minimal displacement of floodwaters outside the lot boundaries.

3.3 Development Effects on Flooding

As per Figure 4 and Figure 5, the flood depths show some minor changes in depth within the lot in the post-development scenario.

Figure 6 shows the net discharge hydrograph from the cross-sectional result line on the northern lot boundary. The peak discharge in the pre-development scenario is 5.60 m³/s which slightly increases to 5.80 m³/s in the post development scenario, while the velocity increases from 0.95 m/s to 1.22 m/s in the post development scenario, which is most likely due to the improved flow through a narrower channel following maintenance works. As this data shows, there is negligible impact on flood behaviour in the post development scenario compared to pre-development conditions, and therefore having no observable adverse impact on stormwater infrastructure.

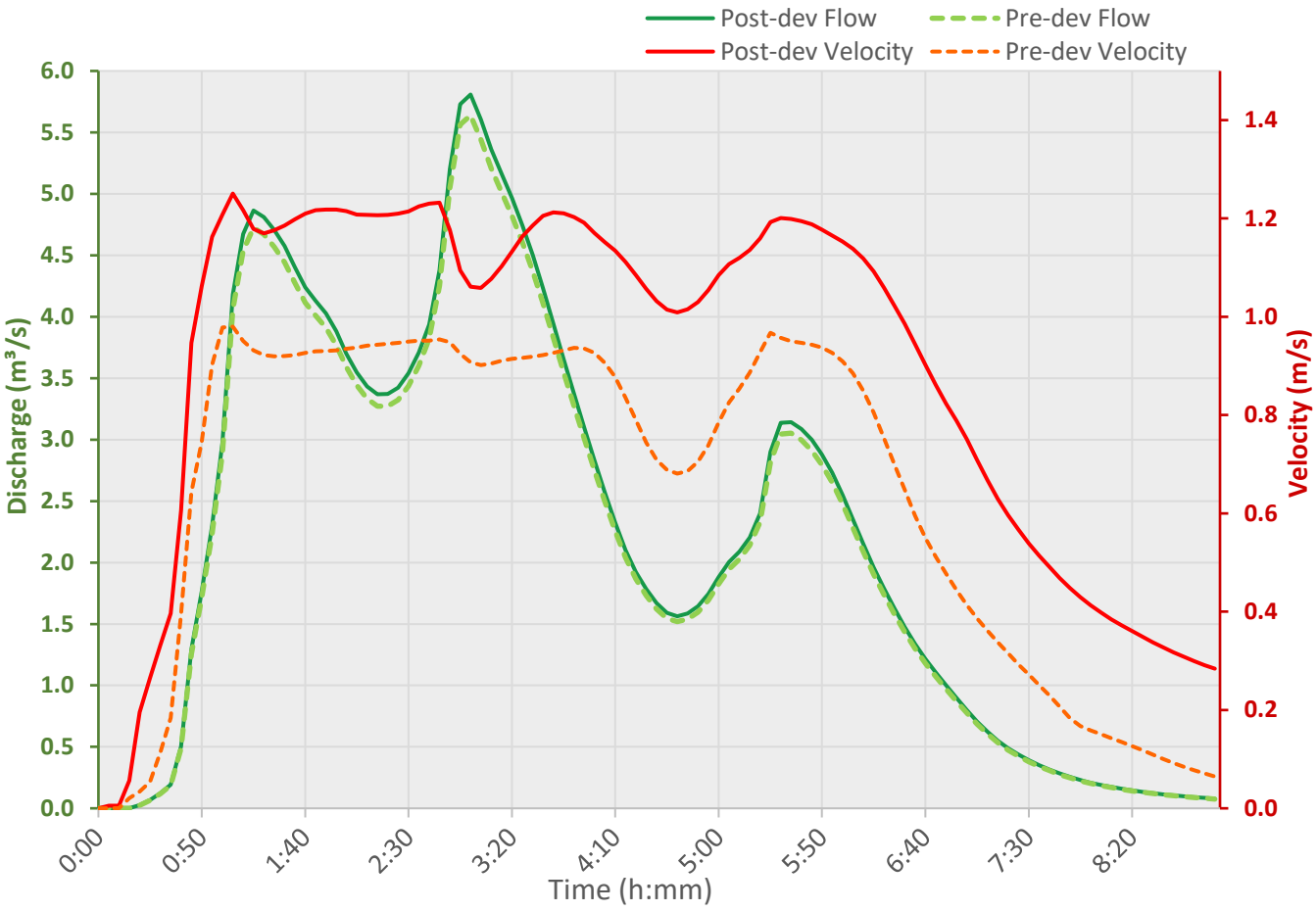

Figure 6. Pre and Post Development Net Discharge 1% AEP +CC

3.4 New Habitable Building

To comply with the performance criteria set out in the Building Regulations 2016, Section 54, the construction of any new habitable building must ensure that the habitable floor level is elevated at least 300 millimetres above the flood level associated with a 1% AEP + CC event. This regulation is crucial for mitigating the risk of flood damage to living spaces and ensuring the safety and resilience of the building in extreme weather events.

For the proposed habitable buildings at the Bagdad Recreation Ground, it is essential that this requirement is met. This elevated floor level is critical for providing an additional safety margin against potential flooding and ensuring that the building remains a safe and secure environment during such events.

It is important to note that this requirement for a floor level greater than 300 millimetres above the 1% AEP + CC flood level applies exclusively to habitable areas of the building. Non-habitable areas, such as garages, sheds, and storage spaces, are not subject to this specific elevation requirement. However, it is still advisable to consider flood resilience measures for these areas to protect against possible water ingress and damage during flood events.

Table 6. Habitable Floor Construction Levels

Bagdad Recreation Ground, Bagdad	1% AEP + CC flood level (mAHD)	Minimum floor levels (mAHD)
Proposed Multipurpose Centre	129.35	129.65
Proposed Community Clubrooms	128.40	128.70

4. Flood Hazard

Appendix A provides a comprehensive analysis of velocity and depth measurements at the area of works, comparing pre-development and post-development conditions. This analysis is critical for assessing flood hazard risks associated with the proposed development.

In the pre-development scenario, the maximum velocity recorded at the cross-sectional line is 0.95 m/s, with a corresponding depth of 0.25 m. According to the Australian Flood Resilience and Design Handbook, this combination places the hazard rating at H1, which is classified as generally safe for people, vehicles, and buildings. This is further illustrated in Figure 7.

Following the implementation of watercourse channel maintenance works, there is a minor increase in maximum velocity of 0.27 m/s, resulting in a new maximum velocity of 1.22 m/s. Concurrently, the depth decreases from 0.25 m in the pre-development scenario to 0.10 m at the location of the new facilities.

Despite this change, the hazard classification remains at H1, indicating that the area is still considered generally safe for people, vehicles, and buildings. It is important to note that this change in velocity and depth is confined to the defined watercourse only, with no apparent increase in flood hazard to surrounding areas.

In the pre-development scenario, areas with a hazard rating of H4 were identified, representing a high hazard level. The presence of these pre-existing high-hazard areas highlights that the proposed development and associated works do not contribute to an increased flood hazard risk. Instead, the minor changes in velocity and depth are localised to the watercourse and do not negatively impact the surrounding properties or infrastructure.

It is important to note that this study does not extend to the evaluation of public access roads, and as such, we cannot provide comments on site accessibility during a flood event. Residents and visitors are advised to remain indoors during a flood unless directed otherwise by emergency services.

This analysis confirms that the proposed maintenance works and associated amenities do not exacerbate flood risks, aligning with safe development principles and ensuring compliance with relevant flood hazard guidelines.

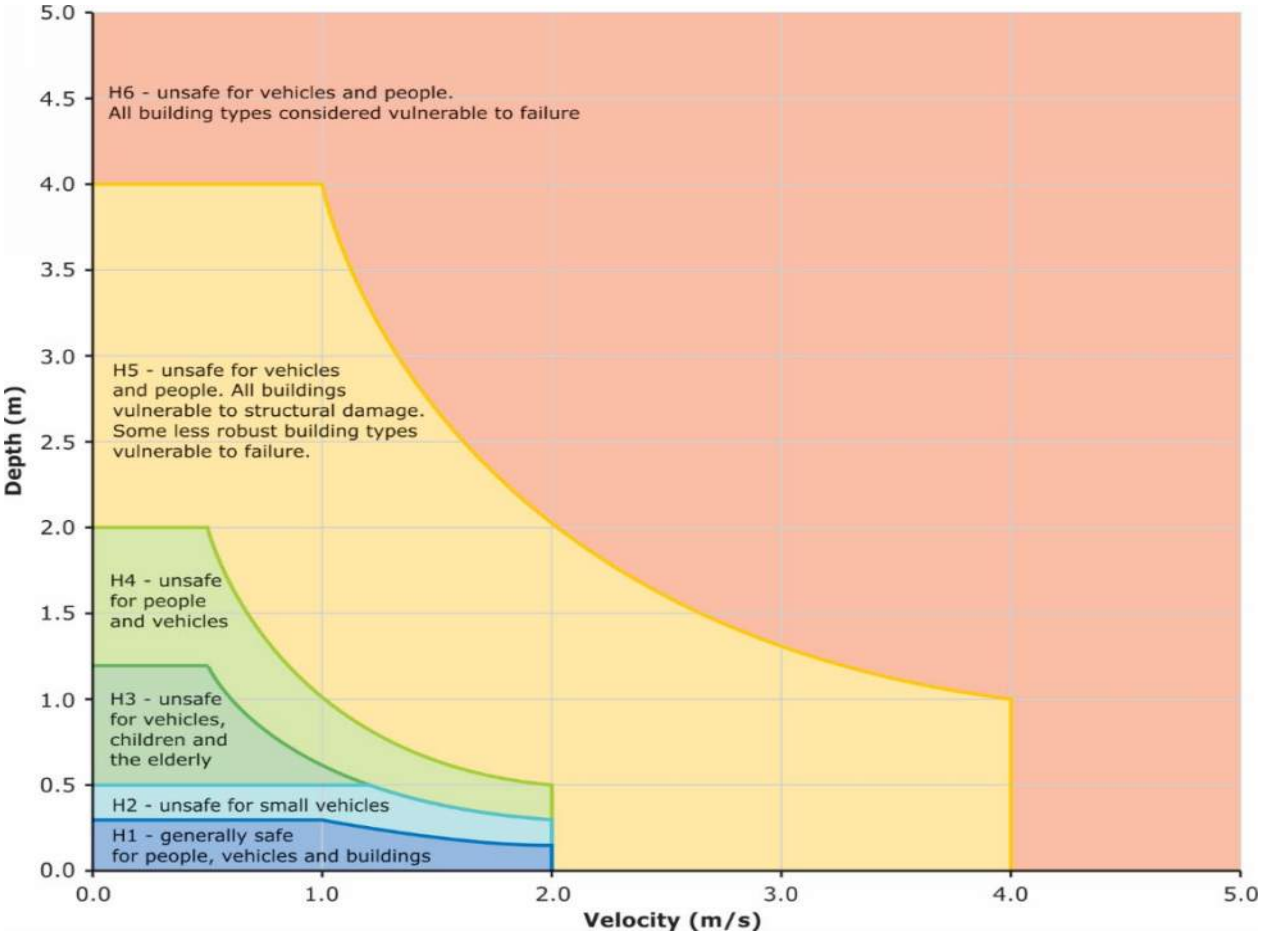

Figure 7. Hazard Categories Australian Disaster and Resilience Handbook

4.1 Tolerable Risk

Flood analysis for the lot at Bagdad Recreation Ground, reveals that the proposed development is situated within a shallow overland flow path. The majority of the surrounding area is classified as having a low hazard rating of H1 – H3 under the 1% AEP + CC scenario.

In both the pre-development and post-development scenarios, small, localised areas with a higher hazard rating of H4 are identified near the road reservation at the Midlands Highway and within the channel and dam area of the golf course. However, as these areas are located at the rear of the properties and do not affect access to or from public roads, the development is considered to pose a tolerable risk in relation to flooding hazards.

Although the velocities and depths of floodwaters are moderately low, they still pose some risk in terms of potential erosion and debris movement. Therefore, it is recommended that all proposed structures undergo a hydrostatic and hydrodynamic analysis to ensure their suitability for the site conditions. Provided that appropriate structural considerations are applied, the proposed buildings, with an expected asset life of 50 years (as per BCA 2019 standards), is considered capable of achieving a tolerable level of risk to flooding throughout their lifespan, assuming that the recommendations outlined in this report are followed.

5. Report summary TPS – Southern Midlands Council

Table 7. TPS C12.5.1 Uses within a flood prone hazard area

C12.5.1 Uses within a flood prone hazard area			
Objectives: That a habitable building can achieve and maintain a tolerable risk from flood			
Performance Criteria			
P1.1		**P1.1**	
A change of use that, converts a non-habitable building to a habitable building, or a use involving a new habitable room within an existing building, within a flood-prone hazard area must have a tolerable risk, having regard to:		Response from flood report	
(a)	the location of the building;	(a)	Proposed habitable buildings within a low hazard classified overland flood path.
(b)	the advice in a flood hazard report;	(b)	Assuming recommendations of this report, including finished floor levels, are implemented, no additional flood protection measures required for the life expectancy of a habitable building.
(c)	any advice from a state authority, regulated entity or a council;	(c)	N/A
P1.2		**P1.2**	
A flood hazard report also demonstrates that:		Response from flood report	
(a)	any increase in the level of risk from flood does not require any specific hazard reduction or protection measures;	(a)	Negligible increase in level of risk from pre-development scenario not requiring additional hazard reduction or protection measures.
(b)	the use can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event for the intended life of the use without requiring any flood protection measures	(b)	Maximum hazard rating at the proposed habitable structures is at H1. Some areas of hazard H4 in pre post development scenario but are located in the existing watercourse and adjacent to the Midlands Highway away from the proposed facilities areas.

Table 8: TPS C12.6.1 Building and works within a flood prone hazard area.

C12.6.1 Building and works within a flood prone hazard area			
Objective: (a) building and works within a flood-prone hazard area can achieve and maintain a tolerable risk from flood; and (b) buildings and works do not increase the risk from flood to adjacent land and public infrastructure.			
Performance Criteria			
P1.1		**P1.1**	
Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to:		Response from flood report	
(a)	the type, form, scale and intended duration of the development;	(a)	Proposed habitable buildings.
(b)	whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures;	(b)	No increase in the level of risk following the proposed development.
(c)	any advice from a state authority, regulated entity or a council; and	(c)	N/A
(d)	the advice contained in a flood hazard report.	(d)	Flood report and recommendations provided within.
Performance Criteria			
P1.2		**P1.2**	
A flood hazard report also demonstrates that the building and works:		Response from Flood Report	
(a)	do not cause or contribute to flood on the site, on adjacent land or public infrastructure; and	(a)	There is no measurable increase in the level of risk within the lot, adjacent land and to surrounding infrastructure.
(b)	can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event for the intended life of the use without requiring any flood protection measures.	(b)	Can achieve tolerable risk without mitigation measures provided the recommendations are followed.

6. Conclusion

The Flood Hazard Report for Bagdad Recreation Ground Bagdad has reviewed the potential pre- vs post- development flood scenarios.

The following conclusions were derived in this report:

1. A comparison of the post-development peak flows for the 1% AEP at 2100 were undertaken against the Tasmanian Planning Scheme – Bagdad, C12.5.1 & C12.6.1
2. Building Regulations S.54 requires a floor level of no less than the values stated in Table 6.
3. Decrease in peak flood depths from 0.25 m to 0.10 m at the proposed facilities in the 1% AEP +CC in the post-development model compared to the pre-development model.
4. Peak discharge sees a negligible increase of 0.20 m^3/s from pre- to post-development, riverine flood scenarios.
5. There is a negligible increase of 0.27 m/s in velocity to 1.22 m/s between pre-development and post-development scenarios.
6. The pre-development model shows the hazard classification from flooding in the area remains unchanged in the post-development scenario.
7. The proposed facilities and carpark do not provide an opportunity for further development that would have an unacceptable risk to flooding.

7. Recommendations

Flussig Engineers therefore recommend the following engineering design be adopted for proposed development to ensure the works meets the Flood Prone Areas Hazard Code of the Tasmanian Planning Scheme and the Building Regulations:

1. The new buildings facilities to be designed to resist flood forces including debris.
2. Ensure adequate stormwater drainage within the proposed development.
3. Existing watercourse and pond to be reshaped and cleared of any obstruction.
4. Existing table drain at Hall Lane to be reshaped to achieve better capacity inflow.
5. No additional solid structures be constructed around the property without further flood assessment.
6. Future use of lot areas to be limited to areas deemed safe under the ARR Disaster manual categories.
7. All future proposed structures within the flood extent not shown within this report will require a separate report addressing their impacts.

Under the requirements of Flood Hazard Report, the proposed development will meet current acceptable solutions and performance criteria under the Tasmanian Planning Scheme 2021.

8. Limitations

Flüssig Engineers were engaged by **Southern Midlands Council,** for the purpose of a site-specific Flood Hazard Report at the Bagdad Recreation Ground, Bagdad as per C12.5.1 and C12.6.1 of the Tasmanian Planning Scheme - 2021. This study is deemed suitable for purpose at the time of undertaking the study. If the conditions of the development should change, the plan will need to be reviewed against all changes.

This report is to be used in full and may not be used in part to support any other objective other than what has been outlined within, unless specific written approval to do otherwise is granted by Flüssig Engineers.

Flüssig Engineers accepts no responsibility for the accuracy of third-party documents supplied for the purpose of this flood report.

9. References

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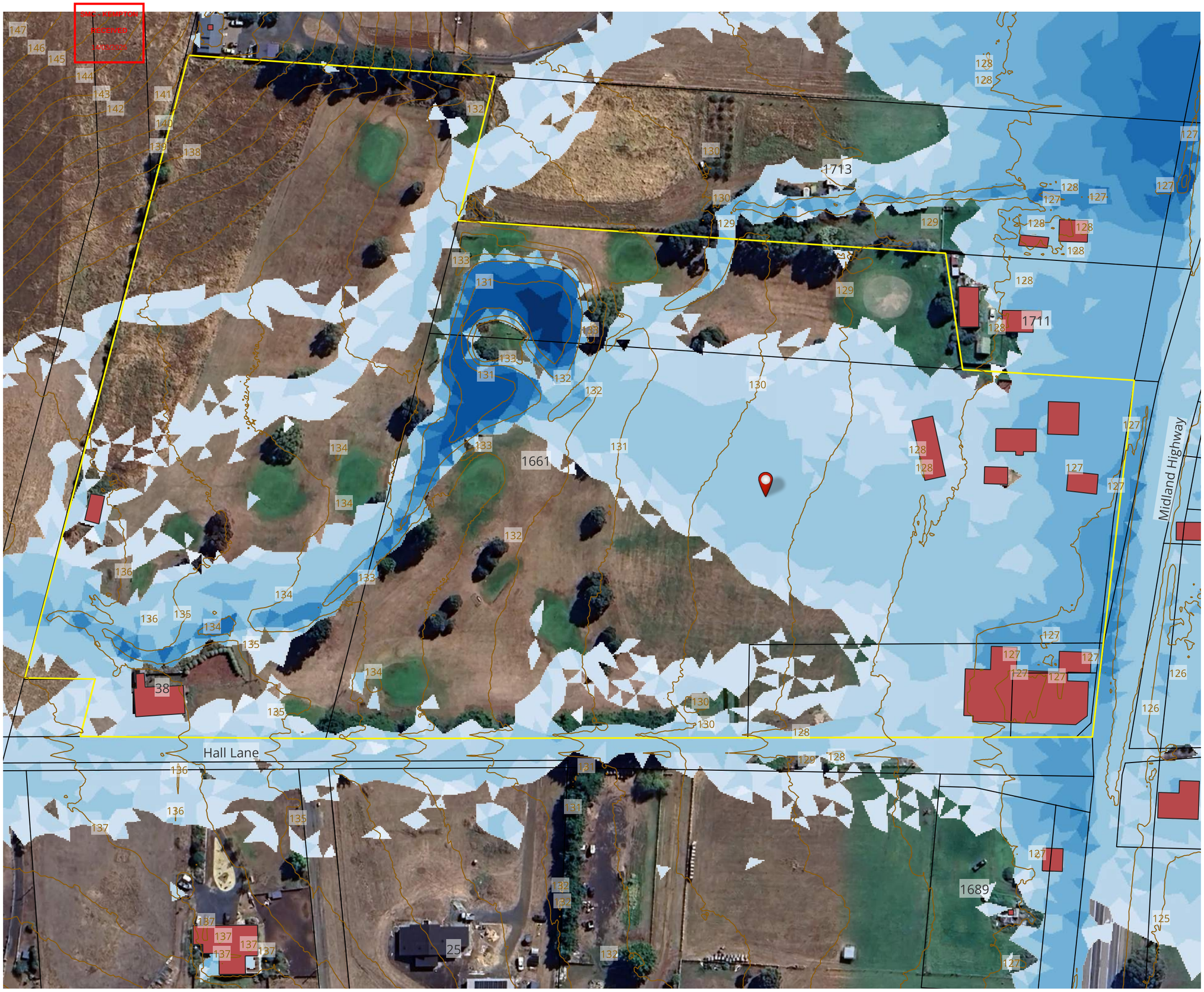
Appendices

Appendix A Flood Study Maps

PRE 1% AEP + CC @2100



Legend

- Bagdad Rec Ground
- Area of Works
- Boundary Lines
- 1.00m Contours
- Building Areas

Pre 1% AEP + CC @2100

Depth (m)

- <= 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

0 40 80 m

meters

N

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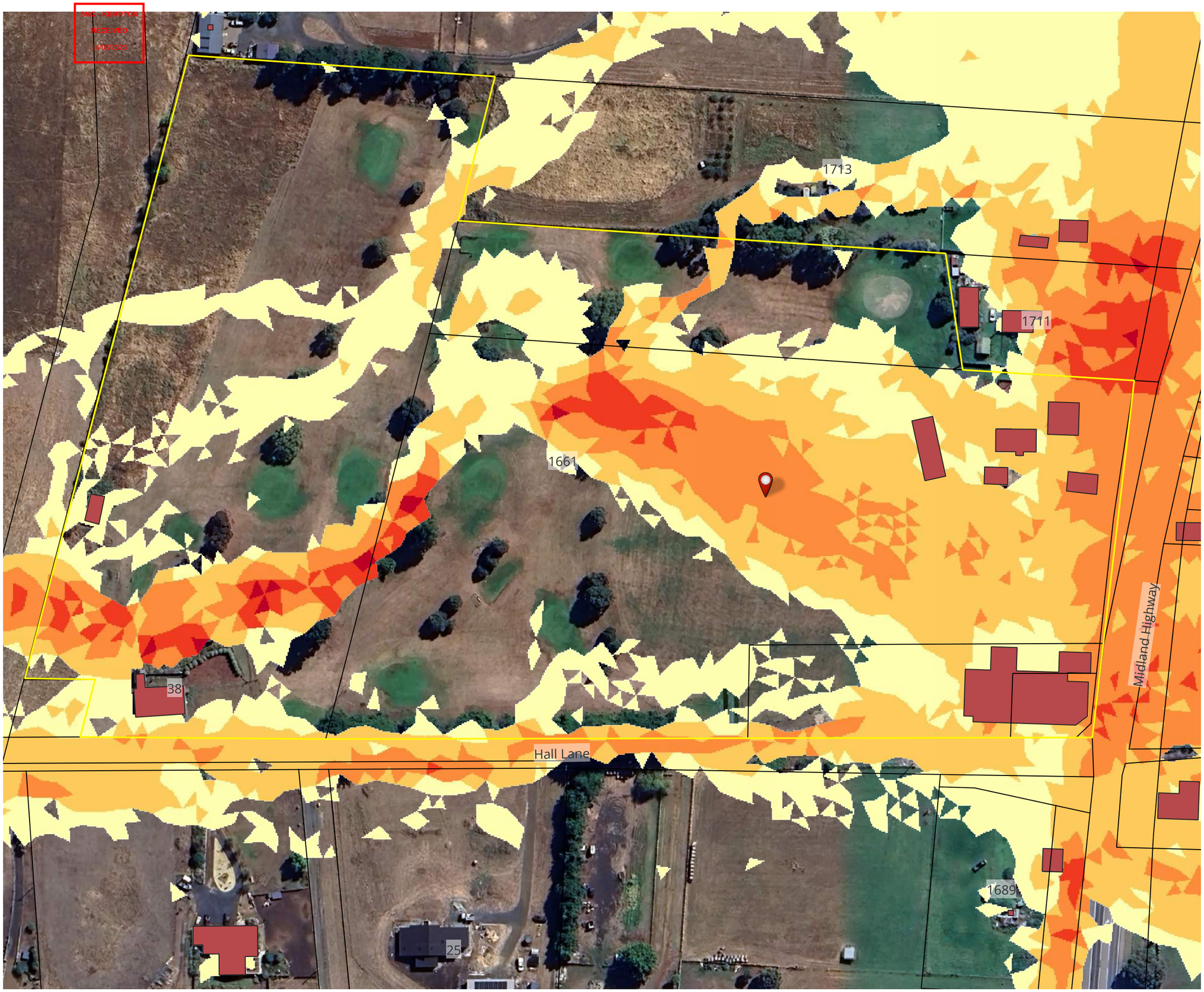
Hobart, 7000, TASMANIA

PRE 1% AEP + CC @2100



Legend

Bagdad Rec Ground
Area of Works
Boundary Lines
Building Areas

Pre 1% AEP + CC @2100

Velocity (m/s)
<= 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00

0 40 80 m

meters

N

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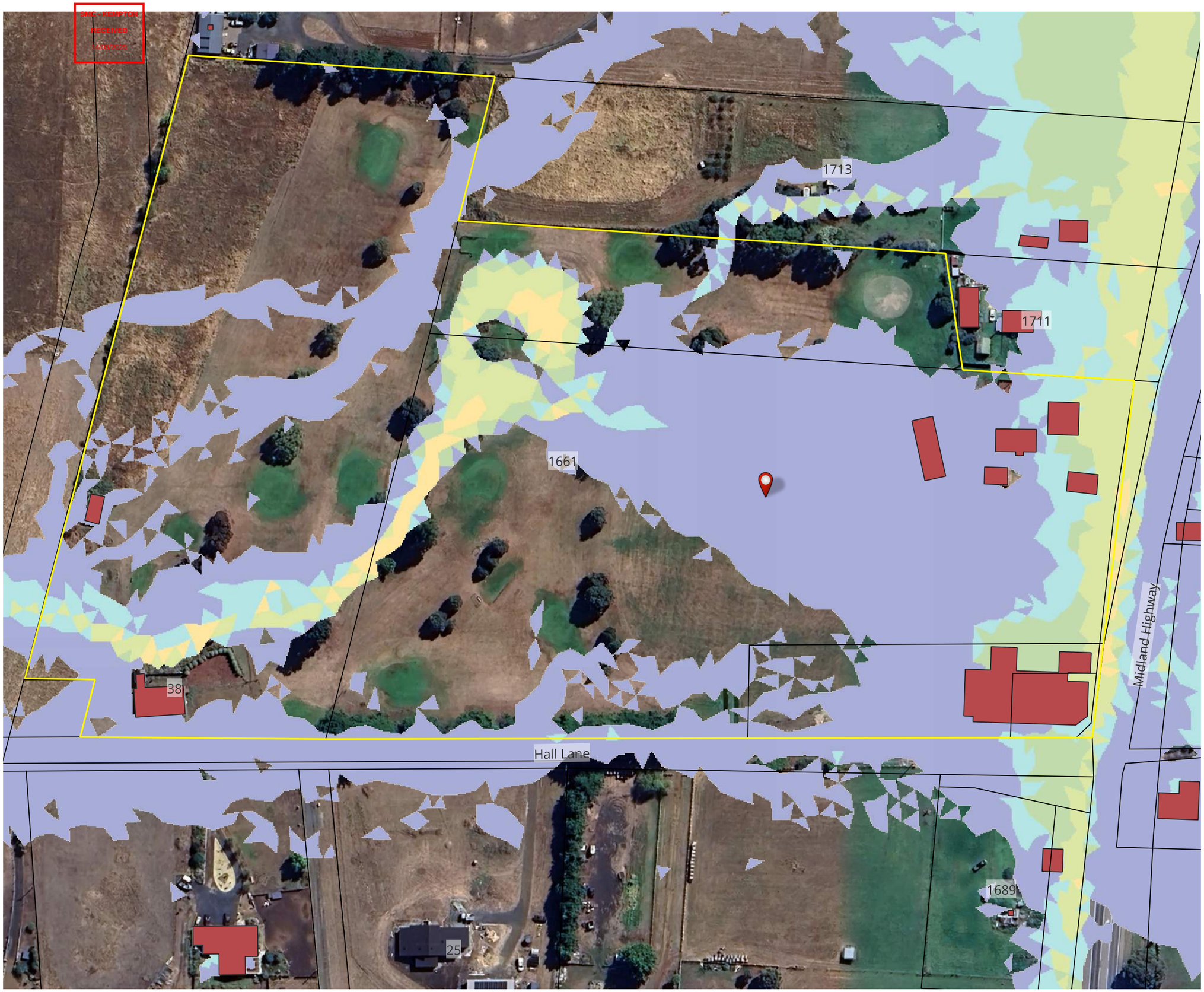
PRE 1% AEP + CC @2100



Legend

Bagdad Rec Ground
Area of Works
Boundary Lines
Building Areas

Pre 1% AEP + CC @2100

Hazard
H1
H2
H3
H4
H5
H6

0 40 80 m

meters

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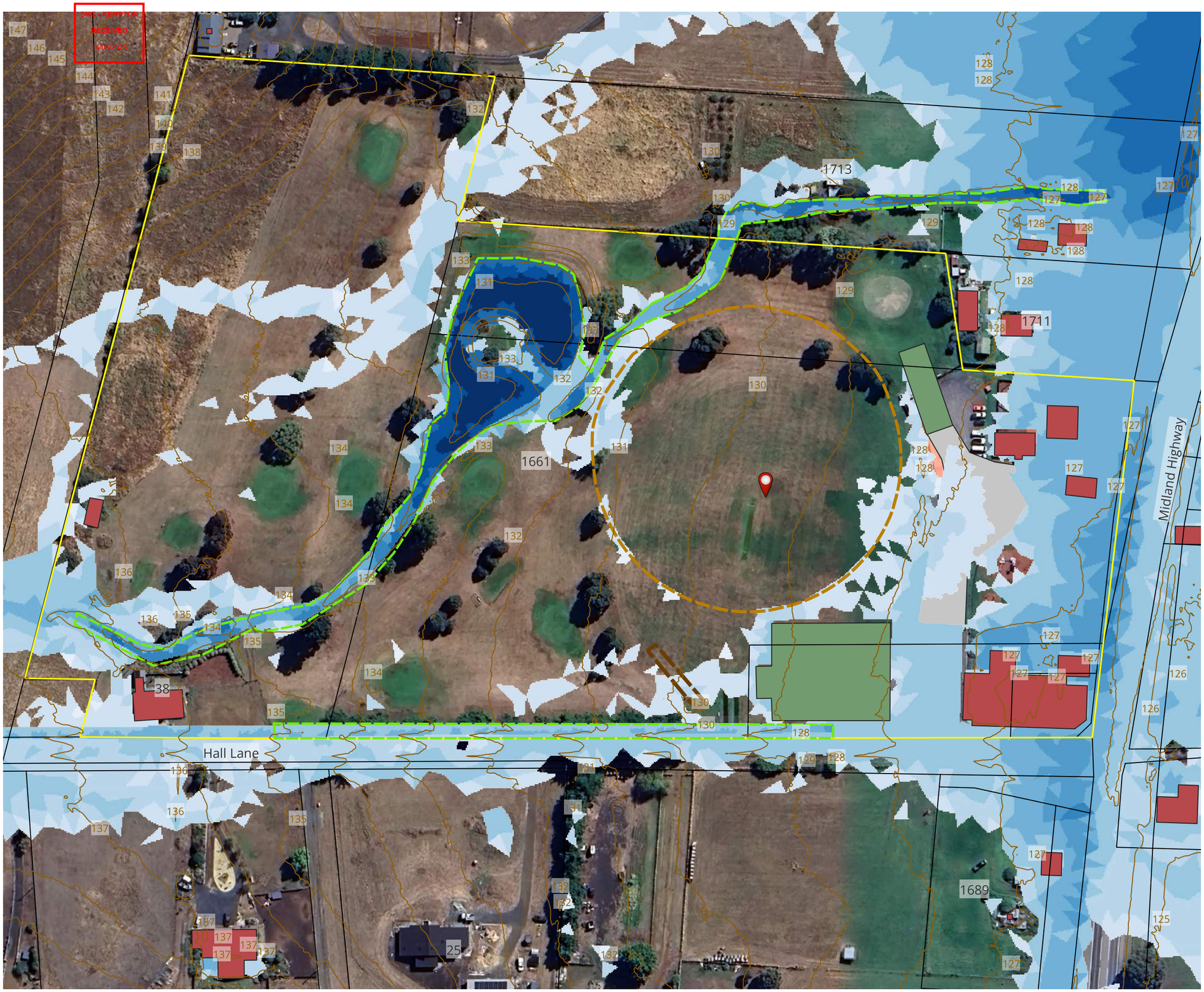
POST 1% AEP + CC @2100



Legend

- Bagdad Rec Ground
- 1.00m Contours
- Area of Works
- Boundary Lines
- Channel Re-Shape
- Building Areas
- Proposed 2.00m W V-Drain
- Proposed Buildings
- Proposed Carpark
- Proposed Oval Extent

Post 1% AEP + CC @2100

Depth (m)

- <= 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

0 40 80 m

meters

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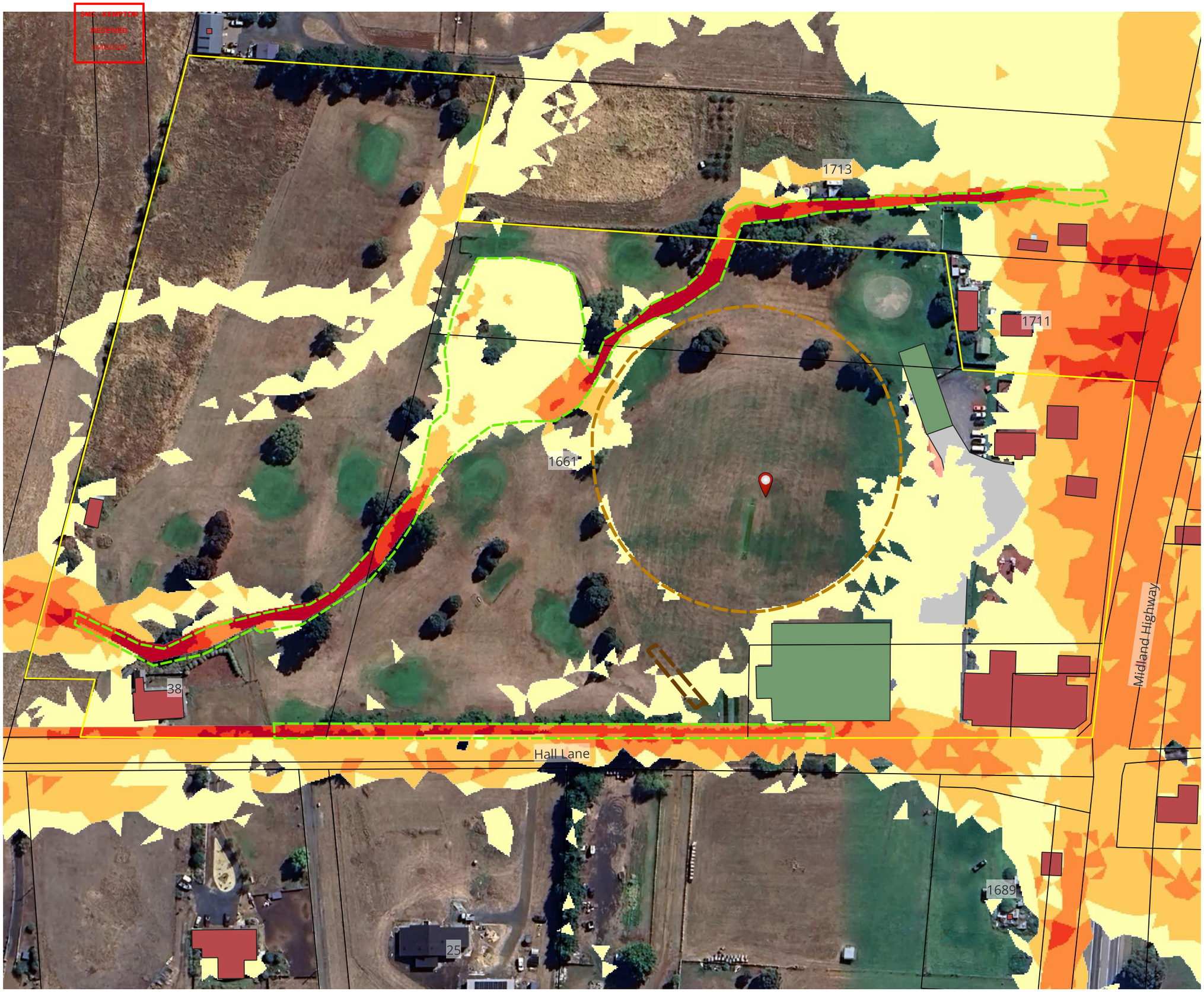

Legend

- Bagdad Rec Ground
- Area of Works
- Boundary Lines
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- Building Areas
- Proposed 2.00m W V-Drain
- Proposed Buildings
- Proposed Carpark
- Proposed Oval Extent

Post 1% AEP + CC @2100

Velocity (m/s)
- <= 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

0 40 80 m

meters

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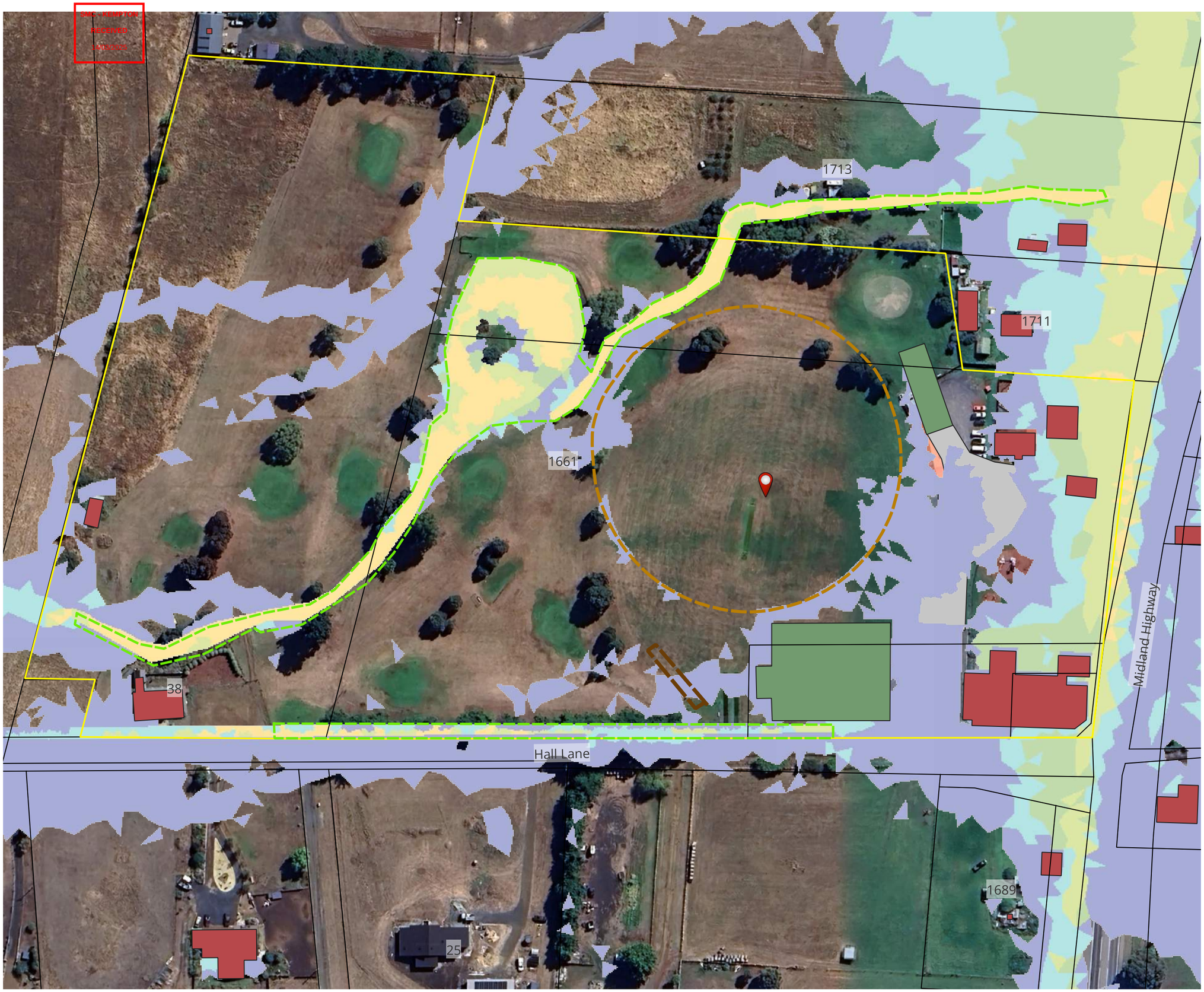

Legend

- Bagdad Rec Ground
- Area of Works
- Boundary Lines
- Channel Re-Shape
- Building Areas
- Proposed 2.00m W V-Drain
- Proposed Buildings
- Proposed Carpark
- Proposed Oval Extent

Post 1% AEP + CC @2100

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

0 40 80 m

meters

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- 13-01-2025 - Flussig Engineers Map CRS: GDA2020 / MGA zone 55 EPSG:7855

Contact Project Manager: **Max Möller**

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NOTES:

SMC - KEMPTON
RECEIVED
14/03/2025

This plan and associated digital model is prepared for Souther Midlands Council from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.
Due to the nature of the title boundary information, if any structures are designed on or near a boundary we would recommend a re-mark survey be completed and lodged with the Land Titles Office to support the boundary definition.

Services shown have been located where visible by field survey. Services denoted as being "per UDM" have been located by Utility Detection and Mapping Services. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

LEGEND

Water Meter	Electricity Conn.	Easement	Property Boundary
Stop Valve	Telstra/NBN Pit	Putting Green	Fence
Sewer Manhole	Power Pole	Shed	SW Main
Stormwater Manhole	Power Pole with Light	Concrete	Table Drain
Side Entry Pit	Light Pole	Bitumen	Electric Line Overhead
Grated Pit	Floor Level	Play Ground	Underground Telstra per UDM
		Gravel Hardstanding	Water Main per UDM
		Building	Underground Electrical per UDM

C.T.100182/1
C.T.54450/1
C.T.222905/1
C.T.51272/1
C.T.108882/1
PIPELINE EASEMENT 6.00m WIDE
HALL
LANE
MIDLAND HIGHWAY
Coordinate Origin SPM8336

HORIZONTAL DATUM is GDA2020, Coordinates are Plane
Coordinate Origin: SPM8336
E 518209.429 N 5281625.201 PER SURCOM

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

Contour & Detail Plan

FOR: SOUTHERN MIDLANDS COUNCIL

LOCATION: 1661 MIDLAND HIGHWAY
BAGDAD

Date: 15-11-2024	Contour interval: 0.25m	Reference: SOUTM01 15822-01
Drawn: AH	Scale: 1:1250 (A3)	Bearing Datum: MGA
Approved: AB	C.T. Reference: See Plan	Vertical Datum: AHD

GEOTECH 25-004

13/1/2025

Southern Midlands Council

c/o Mr Andrew Benson
abenson@southernmidlands.tas.gov.au

ROCK SOLID GEOTECHNICS PTY LTD
Peter Hofto
163 Orielton Road
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peter@rocksolidgeotechnics.com.au

ONSITE WASTEWATER SYSTEM DESIGN – Bagdad Fire Station - 38 Hall Lane, Bagdad

Below find a wastewater design for the Bagdad Fire Station at 38 Hall Lane, Bagdad (Figure 1, Plate 1). This assessment should be read in conjunction with Site & Soil Evaluation Report (GEOTECH 25-004) - enclosed.

The 'Hall Lane Fire Shed' is serviced with an onsite wastewater system that consists of;

- A septic tank (sited somewhere to the immediate north of the building) that accepts all the wastewater from the building (toilets, handbasins and kitchen – Plate 2). The septic tank discharges to;
- Some form of absorption trench(es) located approximately 60m to the north of the creek that runs west to east on the northern side of the building.

It is proposed to separate the Fire Station land from the Recreation Grounds by creating a new boundary. The current absorption trenches will need to be decommissioned and replaced to retain the wastewater on the proposed new 'Hall Lane Fire Shed' block.

Plate 1 – 'Hall Lane Fire Shed' - looking to the northwest.

Plate 2 – Wastewater fixtures exiting the building on the northern side - looking to the east.

A site investigation was completed on Wednesday 8 January, 2025. This included the excavation of two test holes to assess the site for onsite wastewater disposal (4WD mounted SAMPLA25 mechanical auger with 100mm diameter solid flight augers).

The land to the immediate west of the 'Hall Lane Fire Shed' was assessed for a potential new wastewater disposal Land Application Area (LAA) (Plate 3). This area slopes at approximately 2 degrees to the northeast, is covered in grass, and is devoid of trees.

Plate 3 – Proposed new LAA - looking to the north.

The Tasmanian Geological Survey 1:25000 Digital Geological Atlas 'Elderslie' indicates that the site is underlain by Quaternary aged alluvial deposits (dominantly clays). Most of the proposed 'Hall Lane Fire Shed' block lies within the 'Waterway and Coastal Protection Area Guidance Map overlay' (Figure 2).

The profiles encountered in the Test Holes consisted of:

0.00 – 0.20m	SAND: fine grained, brownish grey, trace rootlets – TOPSOIL
0.20 – 1.60m	sandy CLAY: medium to high plasticity, dark brown, to 25% fine to medium grained sand, slightly moist
1.60m+	Holes terminated at required depths – 1.60m.

Groundwater was not encountered in either Test Hole.

The site is classified as Class 5 (light CLAY) with an Indicative Permeability of 0.06-0.5m/day, and a Design Loading Rate of 10mm/day (secondary quality effluent).

Plate 4 – Test Hole #2 - looking to the northwest.

ONSITE WASTEWATER SYSTEM DESIGN

It is proposed to decommission the current absorption trench(es). The current dual purpose septic tank will now discharge to a new 800 litre Netco pumpwell, which will distribute the effluent to an Advanced Enviro-Septic (AES) bed, configured as a partially in-ground mound sited to the west of the Fire Station building. The AES bed will be contained within timber sleeper retaining walls (400mm high).

The exact location of the current septic tank is unknown, but is likely sited upslope from the maroon coloured water tank to the northeast of the Fire Station building. It will need to be accurately located by the contracted plumber and relocated if not contained within the proposed new property boundary.

Secondary treatment of wastewater prior to land disposal/absorption is preferred; an Advanced Enviro-Septic meets this definition, as provided by the *Director's Guidelines for Onsite Wastewater Management* (means effluent that has been treated via aerobic biological processing and settling or filtering of wastewater to a quality equal to, or less than, 20mg/l BOD^5 and 30mg/l suspended solids).

The pumpwell (minimum 800 litre capacity and utilising a Zenox ZSV-015 macerating pump or similar) must be fitted with an alarm in case of malfunction. The septic tank should be retro-fitted with an outlet filter to protect the submersible pump.

A 32mm diameter pressure pipe will distribute the effluent between the pumpwell and the AES Bed.

An ag-drain must be installed upslope from the AES bed – see specifications on attached plan. A second ag-drain will be installed between the AES bed and the Fire Shed – to protect the Fire Station building from potential increased subsoil seepage - see specifications on attached plan.

WASTEWATER LOADINGS

Mr Jason Vinen (District Officer – Midlands District – Tasmania Fire Service) has provided some occupancy numbers for the 'Hall Lane Fire Shed'.

- Brigade meets for training every 2nd Sunday.
- Brigade meeting once every month.
- 20 members on average at the training / meetings.
- Kitchen rarely used – external catering used for events.
- Facility has 2 toilets – no shower facilities.

Predicted from the above information 20 persons/week @ 10 litres/person/meeting = 200 litres/week.

The following wastewater design is based on a potential wastewater load of 200 litres/day. This will provide a sufficient safety factor for;

- peek loads during fire events,
- future expansion,

- suitable consideration of the low permeability of the sandy clay subsoils, and;
- the proximity to the creek to the north and its associated Waterway and Coastal Protection Zone.

The attached design is the most suitable system for this facility on this site. The AES bed produces secondary quality wastewater effluent as defined in the *Director's Guidelines for Onsite Wastewater Management*. The raised bed provides a suitable medium for the interface of the wastewater into the sandy clay subsoils, and the location of the bed provides the maximum setback distance of the system from the seasonal creek and associated Waterway and Coastal Protection Zone.

The following calculations determine the size of the AES Bed designed to service 'Hall Lane Fire Shed'.

Wastewater Flow Rate	200 litres / week = 30 litres/day
Design Loading Rate (DLR)	10mm/day
DLR	10 litres / m^2 / day
Basal Area of Land Application Area	200 / 10 = 20m^2

This module consists of a single run of 2 x 300mm diameter AES pipes, 300mm side-wall clearance on each side - total width 900mm.

Distribution unit length	AES pipe length + (0.3m x 2) = 6m + 0.6m = 6.6m
Width of 1-pipe wide AES unit	0.90m
A System Extension is required for this site.	6.6m long x 2.00m wide = 13.8m^2
Area of AES bed	6.6m x 2.90m = 20m^2

Compliance with statutory requirements - *Director's Guidelines for Onsite Wastewater Systems.*

Compliance Table Directors Guidelines for OSWM		
Acceptable Solutions	**Performance Criteria**	**Compliance achieved by**
7. Standards for Wastewater Land Application Areas		
A1 Horizontal separation distance from a building to a LAA must comply with one of the following: a) be no less than 6m; b) be no less than: (i) 3m from an upslope boundary or level building; (ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building.	P1 The LAA is located so that the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.	Complies with A1 Distance between building & the LAA >6m.

A2 Horizontal separation distance from downslope surface water to a LAA must comply with (a) or (b) (a) be no less than 100m; or (b) be no less than the following: (i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water.	P2 Horizontal separation distance from downslope surface water to a LAA must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 LAA >100m from downslope surface water (dam). LAA >30m from creek – measured downslope.
A3 Horizontal separation distance from a property boundary to a LAA must comply with either of the following: (a) be no less than 40m from a property boundary; or (b) be no less than: (i) 1.5m from an upslope or level property boundary; & (ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	P3 Horizontal separation distance from a property boundary to a LAA must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 LAA > 1.5m from western property boundary. 2° slope. Setback required to lower-slope (northwestern) boundary; 1.5m + (1m x 2°) = 3.5m
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a LAA must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient.	P4 Horizontal separation distance from a downslope bore, well or similar water supply to a LAA must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable.	Complies with A4 No known potable bores within 50m of the site.
A5 Vertical separation distance between groundwater & a LAA must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.6m if secondary treated effluent	P5 Vertical separation distance between groundwater and a LAA must comply with the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable.	Complies with A5 Groundwater not encountered.
A6 Vertical separation distance between a limiting layer & a LAA must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent.	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A6 Limiting layer not encountered.
A7 Nil	P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties.	Complies with P7

The AES system should be installed by a plumber who has been accredited by Chankar Environmental Proprietary Limited to install Advanced Enviro Septic systems, and who has appropriate experience.

Site Preparation

- Rope off the site to prevent damage to the area during other construction activity on the lot.
- Vehicular traffic over the area must be prohibited to avoid compaction.
- Excavate the existing soil surface, parallel with the contour (cross slope) to a depth of 750mm over the selected wastewater land application area.
- Rake/scarify the exposed soil surface.
- Connect the septic tank and AES bed in accordance with the AES site instructions (see below) and the design plans attached.
- The AES pipe must be laid in a bed of approved "system sand". This is a coarse sand meeting the specifications as listed below.

AES System Sand Specifications

- Percentage Restrictions - 35% or less of the total sand may be gravel. 40%-90% of the total sand is to be coarse and very coarse sand.
- Gravel Quality Restrictions - No gravel is to exceed 9mm in diameter. No gravel is smaller than 2mm in diameter.
- Coarse Sand Quality Restrictions - No coarse sand is smaller than 0.5mm in diameter.
- Fines Quality Restrictions - No more than 2% of the total sand may pass through a 75µ m sieve.

Venting – AES system and septic tank

- Ensure that roof vent comprises a minimum of single 80mm diameter pipe or 2 x 40mm diameter vent pipes.
- Roof vent to be a minimum of 3m above ground vent.
- Venting of the septic tank is to be consistent with NCC Pt 3 Tas F101.2.

Low vent as per AES pipe layout plan (Low vent at end of pipework).

SITE AND SOIL EVALUATION REPORT

Soil Category: (as stated in AS/NZS 1547-2000) 1,...2,...3,...4,...5,...6	Modified Emerson Test Required If Yes, Emerson Class No.	No
Measured or Estimated Soil Permeability (m/d):	0.06-0.12m/d	
Design Loading Rate: (mm/d)	10 mm/day	
Geology:	Quaternary sediments.	

Slope:	2 degrees
Drainage lines / water courses:	Seasonal creek to the north
Vegetation:	Grass
Site History: (land use)	Fire Station
Aspect:	NE
Pre-dominant wind direction:	Northwest to southwest
Site Stability: Will on-site wastewater disposal affect site stability?	No
Is geological advice required?	No
Drainage/Groundwater:	No
Depth to seasonal groundwater (m):	N/A
Are surface or sub-surface drains required upslope of the land application area	Yes
Water Supply:	
☐ Reticulated	
Date of Site Evaluation:	8/1/2025
Weather Conditions:	Fine

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13/1/2025

Loading Certificate for Onsite Wastewater System - Bagdad Fire Station - 38 Hall Lane, Bagdad

1 System Capacity:

- (medium/long term) 200 litres/day

2 Design Criteria Summary:

- Primary Treated Effluent 3250 litre (minimum) dual-purpose septic tank.
- Soil Category Class 5 light CLAY
- Land Application System AES Bed 6.6m x 2.9m configured as a mound

3 Reserve Area:

- Suitable available reserve area.

4 Consequences of overloading the system:

- Long term use producing more than 200 litres of wastewater per day may result in overloading of the system, surfacing of effluent, public and environmental health nuisances, pollution of surface water etc.

5 Consequences of under-loading the system:

- Nil.

6 Consequences of lack of operation, maintenance and monitoring attention:

- The septic tank should be pumped at least every 3 years. The outlet filter should be cleaned every 6 months.

Peter Hofto
Rock Solid Geotechnics Pty Ltd

CONDITIONS OF INVESTIGATION

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This report should not be used for submission for Building or Development Application until RSG has been paid in full for its production. RSG accepts no liability for the contents of this report until full payment has been received.

The results & interpretation of conditions presented in this report are current at the time of the investigation only. The investigation has been conducted in accordance with the specific client's requirements &/or with their servants or agent's instructions. This report contains observations & interpretations based often on limited subsurface evaluation. Where interpretative information or evaluation has been reported, this information has been identified accordingly & is presented based on professional judgement. RSG does not accept responsibility for variations between interpreted conditions & those that may be subsequently revealed by whatever means.

Due to the possibility of variation in subsurface conditions & materials, the characteristics of materials can vary between sample & observation sites. RSG takes no responsibility for changed or unexpected variations in ground conditions that may affect any aspect of the project. The classifications in this report are based on samples taken from specific sites. The information is not transferable to different sites, no matter how close (ie. if the development site is moved from the original assessment site an additional assessment will be required).

It is recommended to notify the author should it be revealed that the sub-surface conditions differ from those presented in this report, so additional assessment & advice may be provided.

Investigations are conducted to standards outlined in Australian Standards:

- AS1547-2012: Onsite Domestic Wastewater Management

& as specified in 'Guidelines for Geotechnical Assessment of Subdivisions and Recommended Code of Practise for Site Classification to AS2870 in Tasmania' - Institute of Engineers, Tasmanian Division.

Any assessment that has included an onsite wastewater system design will require a further site visit / inspection once the system has been installed. After the inspection to verify that the system has been installed as per RSG's design a statement will be provided. An additional fee applies for the site visit & issuing the certificate.

RSG is not responsible for the correct installation of wastewater systems. Any wastewater installation is the sole responsibility of the owner/agent and certified plumber. Any variation to the wastewater design must be approved by RSG, and an amended Special Plumbing Permit obtained from the relevant council. The registered plumber must obtain a copy and carefully follow the details in the council issued Special Plumbing Permit. A "Certificate of Completion" will be based on surface visual inspection only, to verify the location of the system. All underground plumbing works are the responsibility of the certified plumber.

PETER HOFTO
ROCK SOLID GEOTECHNICS PTY LTD

GDA94 MGA55 : 517836E, 5281689N 1:425 **Disclaimer and Copyright Notice**

ADVANCED ENVIRO-SEPTIC™
"Always the First Option"

Advanced Enviro-septic Design Calculator V9.0 ©

AES The World Leader in Passive Solutions ©

Site Address	Hall Lane Fire Shed		State TAS	Post Code	
Client Name	Southern Midlands Council			Date of Site Visit	8/1/25
Designers Name	Peter Hofto, Rock Solid Geotechnics Pty Ltd	Designers Ph Number	0417 960 769	Designer Lic (e.gQBCC)	CC6159I
Lic Plumber	TBA	Plumber Ph Number		Plumb / Drainer Lic Number	TBA
Council Area	Southern Midlands COuncil	Designers AES Cert Number	1463	Date	13/1/25

This Calculator is a guide only, receiving soil classification, surface water, water tables and all other site constraints addressed by the qualified designer.

System Designers site and soil calculation data entry		IMPORTANT NOTES
Enter AES L/m loading rate, "30" for ADV Secondary or "38" Secondary	38	*>> This design is for a SECONDARY system.*
Is this a new installation Y or N	Y	**>> Minimun single vent size is 80mm or 2 x 50mm house vents**
Number of Bedrooms	0	**>> This is not used in ANY Calculation. If not known use N/A or 0.**
Number of persons	20	**>> A septic tank outlet filter is NOT RECOMMENDED**
Daily Design Flow Allowance Litre/Person/Day	10	
Number of rows required to suit site constraints	1	**>> The maximum length of a single AES pipe run is 30m or 10 PIPES**
Infiltration Soil Category from site/soil evaluation. CATEGORY	10	**>> Catagory may require design considerations. Ref AS1547**
Design Loading Rate based on site & soil evaluation DLR (mm/day)	10	**>> Soil conditioning may be necessary. Ref AS1547 & Comments.**
Bore log depth below system Basal area	1.5m	**>> Min depth 1.5m. Check water table/restrictive layer**
Is this design a GRAVITY system with no outlet filter? Y or N	n	**>> PUMPED. HIGH & LOW vent required including a Velocity Diffuser**

COMMENTS :- *" The outcome must be important to everyone. "*

- **Ripping of receiving surface required in clay soil structures in Cat 4,5,6. In addition refer to AS 1547. Always excavate & rip parallel to the site slope/AES pipe.**
- **Specialist soils advice & special design techniques will be required for clay dominated soil having dispersive or shrink/swell behaviour. Refer AS1547**
- **Designers need to be familar with special requirements of Local Authorities. ie - Minimum falls from Septic tank outlets to Land application areas etc**
- **Plumbers are reminded good construction techniques as per AS1547 are especilly important in these soil types. Refer AS1547 & AES installation Instructions**

AES System Calculator Outcomes		
Total System load - litres / day (Q).	**200**	l/d
Min Length of AES pipe rows to treat loading	**5.26**	lm
Number of FULL AES Pipe lengths per row	**2**	lths
Total Capacity of AES System pipe in Litres	**445**	ltr.

AES dimensions	AES System	System Extension
Length:(L)	6.90m	6.90m
Width:(W)	0.90m	2.00m
Sand Depth :	0.75m	0.15m
Area m2	6.2 m^2	13.8 m^2

USE CUT LENGTHS OF PIPE IN THIS DESIGN? (ENTER Y) n

IF YOU WISH TO USE A TRENCH EXTENSION DESIGN OPTION ENTER "Y"

Enter Custom Width in metre

AES INFILTRATION FOOT PRINT AREA - L = Q / (DLR x W)	Length		Width		Minimum AES foot print required	
for this Basic Serial design is	**6.900m**	x	**2.90m**	=	**20.0**	m2 total

Single rows have 2 parts with a 300mm straight raised connector. The 1st part would contain the extra pipe if number of pipes are not even. IE 3+2 , 4+3, 5+4. etc

Code	AES System Bill of Materials.			Chankar Environmental Use Only
AES-PIPE	AES 3 metre Lengths required	**2**	lths	
AESC	AES Couplings required	**0**	ea	
AESO	AES Offset adaptors	**4**	ea	
AESODV	AES Oxygen demand vent	**2**	ea	
AES-IPB	AES 100mm Inspection point base	**2**	ea	
TD Kit 4	4 Hole Distribution Box Kit		ea	
TD Kit 7	7 Hole Distribution Box Kit		ea	
VS43-4	Sweet Air Filter VS43-4		ea	
AES DESO	Double Offset Adaptors		ea	
	TOTAL SYSTEM SAND REQUIRED (Estimate Only)	**8**	m3	

Please email your AES Calculator (EXCEL FORMAT), Site Layout & AES Design to

designreview@enviro-septic.com.au

designreview@enviro-septic.com.au

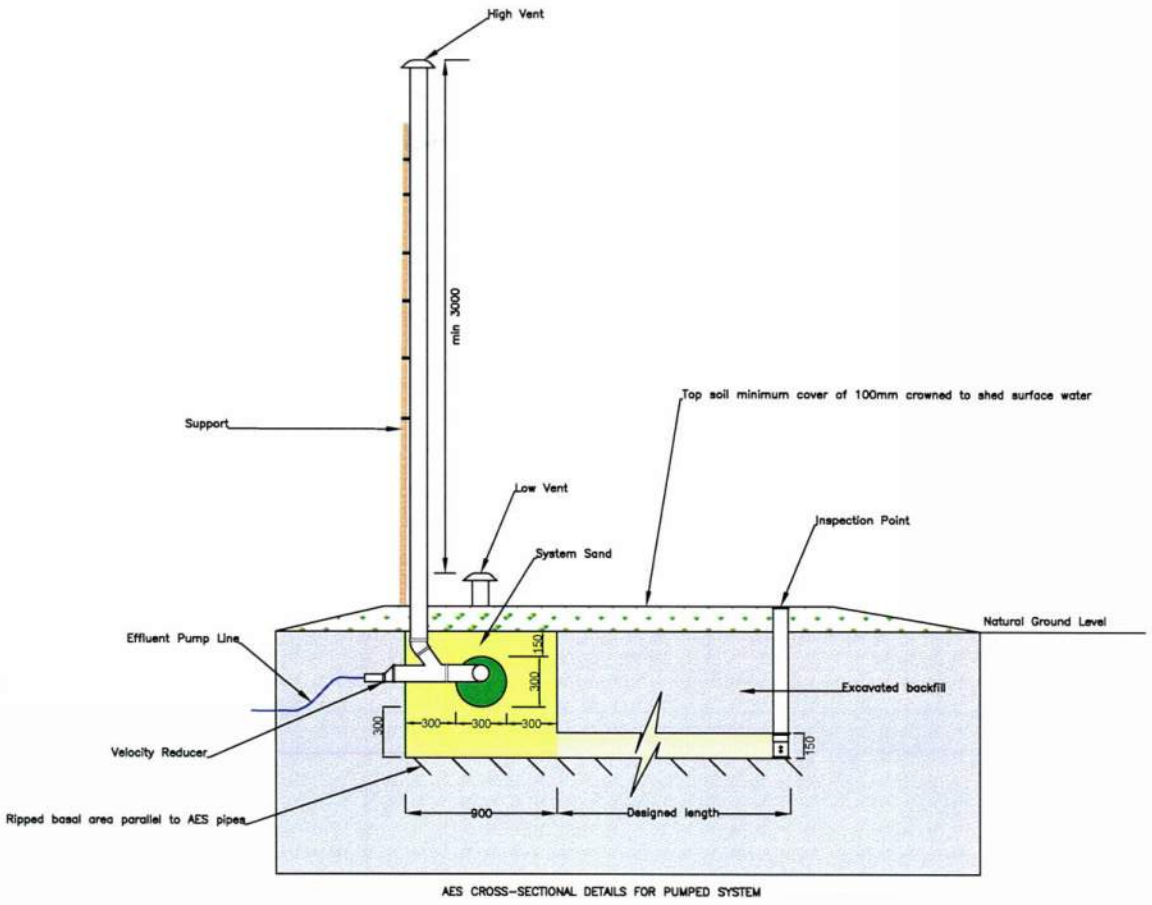
> The AES Calculator is a design aid to allow checking of the AES components, configuration and is a guide only. Site and soil conditions referencing AS1547 are calculated and designed by a Qualified Wastewater Designer.

> Chankar Environmental accepts no responsibility for the soil evaluation, loading calculations or DLR entered by the designer for this calculator.

> AES pipes can be cut to length on site. They are supplied in 3 meter lengths only.

> AES ONLY supply AES components as detailed in the Bill of Materials.

> SEPTIC Tank & other components including SAND will need to be sourced from other suppliers. Refer to our WEBSITE www.enviro-septic.com.au OR 07 5474 4055



AES CROSS-SECTIONAL DETAILS FOR PUMPED SYSTEM

SCALE

10

30

ADVANCED ENVIRO - SEPTIC

OWNER / ENGAGED BY

LOT AND PLAN

N

AMENDMENTS

ISSUE	DATE	SUBJECT	AUTHORISED
A	24/01/2018	REVISION A	R CRISP

CHANKAR ENVIRONMENTAL PTY LTD
T/A
ADVANCED ENVIRO-SEPTIC
QBCC LICENCE NUMBER
150 238 31
Phone: +61 7 5474 4055
Fax: +61 7 5335 1691
Email: designreview@enviro-septic.com.au
www.enviro-septic.com.au

T.SHERPA
DESIGNER DATE

ADVANCED ENVIRO-SEPTIC CROSS SECTIONAL DETAILS FOR SINGLE ROW PUMPED SYSTEM

SCALE
1:30 (A4)

PROJECT JOB NUMBER	REVISION	SHEET NO
AES - CHK	A	SL1

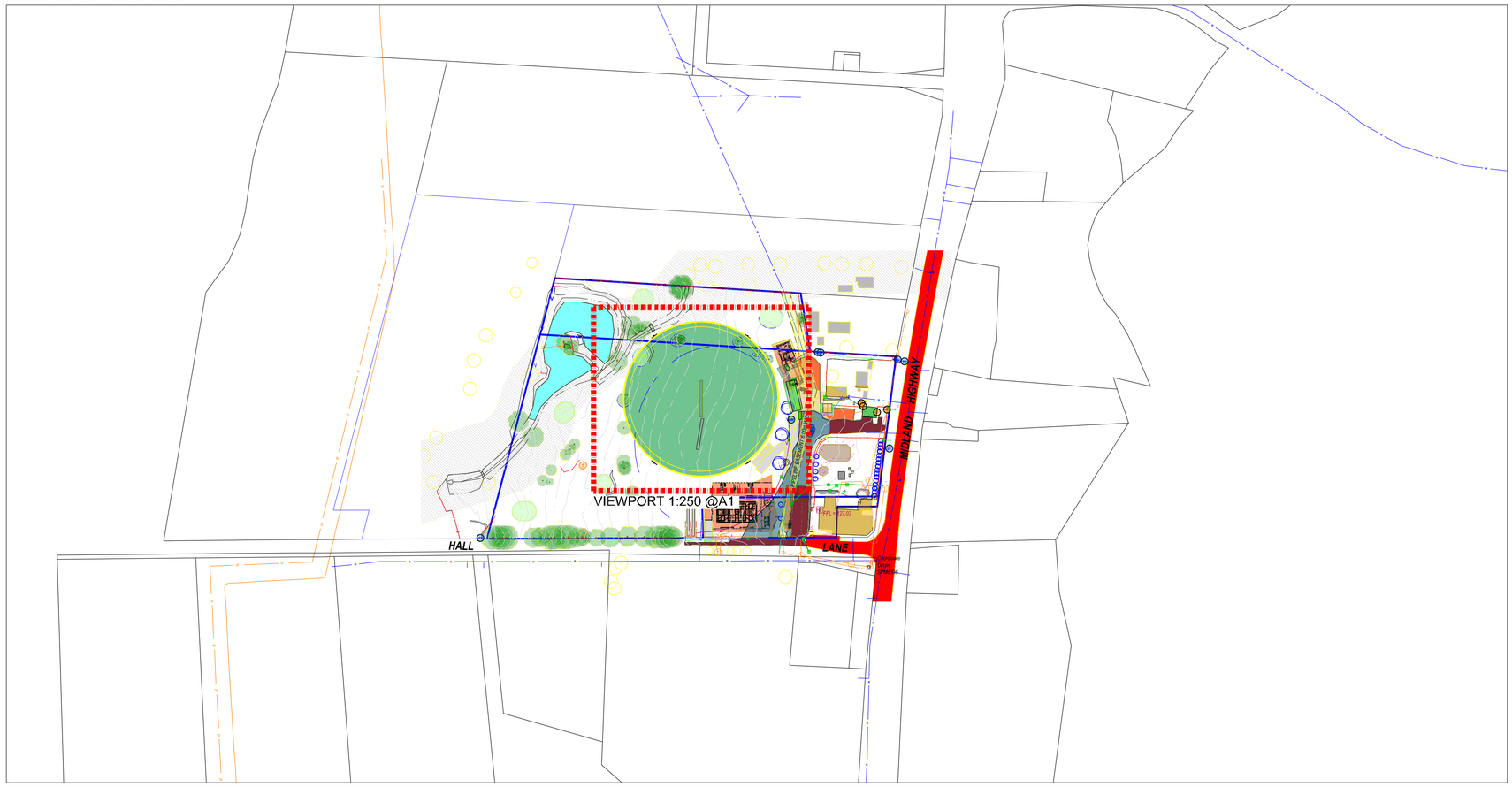
WATERWAY + COASTAL PROTECTION ZONE

GDA94 MGA55 : 517655E, 5282014N 1:3,385 **Disclaimer and Copyright Notice**

BAGDAD OVAL

1661 Midland Hwy, Bagdad TAS 7030

AREA OF WORKS



INDICATIVE

SMC - KEMPTON
RECEIVED
14/03/2025

AREA OF 50mm STRIP OF EXISTING MATERIAL
10973m²

PIPELINE EASEMENT 6.00m WIDE

WM

Legend

drawing details

client:	project:	drawing title:	
SOUTHERN MIDLANDS COUNCIL	BAGDAD OVAL	SITE DEMOLITION PLAN	drawn by: DK checked by: SM date: 13.12.2024 scale: 1:250 @ A1
		Drawing no: 011-00	

revision history

revision:	details:	DR	CH	AP	date:

drawing status

CONCEPT DESIGN

notes

STRI

Melbourne
Unit 14-19 23 Clarinda Rd,
Oakleigh South VIC 3167

tel: 03 9558 6514
email: info@striaustralia.com.au
web: www.striaustralia.com.au

SMC - KEMPTON
RECEIVED
14/03/2025

Levels Table			
Number	Minimum Level	Maximum Level	Color
1	-0.800	-0.700	
2	-0.700	-0.600	
3	-0.600	-0.500	
4	-0.500	-0.400	
5	-0.400	-0.300	
6	-0.300	-0.200	
7	-0.200	-0.100	
8	-0.100	0.000	
9	0.000	0.100	

VOLUMES

CUT: 2404.23 m³
FILL: 2.44 m³
NET: 2401.79 m³ <CUT>

PIPELINE EASEMENT 6.00m WIDE

WM

Legend

drawing details

client:	project:	drawing title:	
SOUTHERN MIDLANDS COUNCIL	BAGDAD OVAL	BULK EARTHWORKS PLAN	drawn by: DK checked by: SM date: 13.12.2024 scale: 1:250 @ A1
		Drawing no: 015-00	

revision history

revision:	details:	DR	CH	AP	date:

drawing status

CONCEPT DESIGN

notes

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email: info@striaustralia.com.au
web: www.striaustralia.com.au

SMC - KEMPTON
RECEIVED
14/03/2025

131.50
131.40
131.30
131.20
131.00
130.90
130.80
130.70
130.60
130.50
130.40
130.30
130.20
130.10
130.00
129.90
129.80
129.70
129.60
129.50
129.40
129.30
129.20
129.10
129.00
128.90
128.80
128.70
128.60
128.50
128.40

PIPELINE EASEMENT 6.00m WIDE

WM

Legend

- Natural Turf Playing Surface
- Synthetic Turf Wicket

drawing details

client:	project:	drawing title:	
SOUTHERN MIDLANDS COUNCIL	BAGDAD OVAL	FUNCTIONAL LAYOUT PLAN	drawn by: DK checked by: SM date: 13.12.2024 scale: 1:250 @ A1
		Drawing no: 020-00	

revision history

revision:	details:	DR	CH	AP	date:

drawing status

CONCEPT DESIGN

notes

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STORMWATER MANAGEMENT REPORT

STAGE 1 BAGDAD COMMUNITY CLUB
1661 MIDLAND HIGHWAY, BAGDAD

SOUTHERN MIDLANDS COUNCIL
FEBRUARY 2025

TABLE OF CONTENTS

Issuing Office: 117 Harrington Street, Hobart 7000
JMG Project No. 240785CS

Document Issue Status

Ver.	Issue Date	Description	Originator		Checked		Approved	
1	19/12/2024	Issued for DA RFI Response	CAG		MJR		CJM	
2	29/01/2025	Issued for DA RFI Response (Section 2 and 6 Updated)	CAG		MJR		CJM	
3	21/02/2024	Appendix A Amended	CAG		MJR		CJM	

1. Introduction

JMG has been engaged by the Southern Midlands Council to prepare a stormwater management report addressing a request for additional information related to the planning application (DA 2024/122) for Stage 1 of the Bagdad Community Club Master Plan, located at 1661 Midland Highway, Bagdad.

This report aims to demonstrate that the proposed stormwater drainage system will be able to accommodate a storm with a 5% AEP when the land serviced by the system is fully developed and that site will not exceed pre-existing runoff levels or, where increased runoff occurs, it can be accommodated within existing or upgraded public stormwater infrastructure. Additionally, it will confirm compliance with the stormwater treatment standards specified in Table 3 (Water Quality Treatment Targets) of the DEP and LGAT Stormwater Policy Guidance.

2. Hydrology Analysis and Minor System

The stormwater flows for the site are being designed using the Rational Method. Given the size of the site and the quick time of concentration, this methodology is suitable and widely accepted for developments of this scale. The Rational Method provides a reliable approach for estimating peak flows in small catchments, ensuring efficient stormwater design outcomes.

The ARR Data Hub, which sources information from the Climate Change in Australia website, provides projections for Interim Climate Change Factors across the country. However, ARR recommends that the design of significant stormwater infrastructure considers the predicted climate change increase for the year 2100, whereas the Data Hub only provides data projections up to 2090. To address this gap, the data was extrapolated linearly to determine the factor for the year 2100. This simple yet appropriate extrapolation ensures consistency with the dataset and aligns with ARR guidelines.

Table 1: Climate Change, Allowance

Location	Oatlands Tasmania
Representative Concentration Pathway (RCP)	8.5
Year	2090
Factor	3.090 (16.3%)
Year	2100
Factor (Extrapolated)	***18.3%***

An 18.3% increase has been applied to account for the climate change factor projected for the year 2100 in the post-development scenario. The stormwater network will be designed to accommodate flows from a storm with a 5% Annual Exceedance Probability (AEP) under fully developed conditions for the land serviced by the system. Additionally, the flows from the pre-development scenario will be considered in determining the maximum allowable discharge from the site.

The stormwater system serving the site currently comprises a DN225 pipe followed by a DN300 pipe, discharging to the Midland Highway Road Reserve. The existing system collects runoff from an upstream catchment of approximately 19,150 m^2comprising the existing oval

and adjacent grassed areas and the existing carpark. These areas contributing a peak flow of 145 L/s during a 5% AEP storm event. However, due to the size and limited grade of the current piped system capacity is limited to 67 L/s, resulting in frequent overland flow around the existing buildings and structures during rainfall events. These overland flows ultimately flow to the Hall Lane / Midland Highway junction, the same location as the piped flows cross the highway in a DN750 culvert. It should be noted that roof run-off from the existing Sports pavilion discharges to an open drain on the northern boundary of the site before being collected in a DN150 pipe draining around the tennis courts and discharging to the highway reservation via a DN150 headwall. It is proposed that this existing discharge method be retained for the new Sports Pavillion.

Figure 5: Pre-Development Catchment Plan

The proposed development, including the Sports Pavillion and Multipurpose Centre introduces additional impervious surfaces. However, runoff from these new buildings will discharge into the system at a controlled rate, consistent with the pre-development flow contribution from these areas. This ensures the post-development scenario does not increase the current discharge rates from the site in events up to the 1% AEP event.

To improve the system's performance and reduce the frequency of overland flow, it is proposed to upsize the entire internal DN225/DN300 piped branch to DN375 pipes. The new DN375 pipe will be installed at the same grade as the existing pipes, ensuring adequate cover and maintaining connections to branches from existing buildings without changing their grades. This upgrade will accommodate the calculated peak flow from the catchment and the controlled discharge from the new buildings, effectively managing the 5% AEP storm event.

For further details, refer to JMG Civil Drawings provided in Appendix A.

3. On-site Detention

The minimum storage requirements for the full site incorporating the two new buildings and new carpark have been assessed using Boyd’s Formula, a methodology appropriate for small catchments and short event durations. This approach aligns with the current level of project detail. The results provide an initial estimate required for both th 5% & 1% AEP storm events, with further refinement to be undertaken during the detailed design phase using unsteady flow hydraulic modelling in DRAINS to calculate the storage required for each zone.

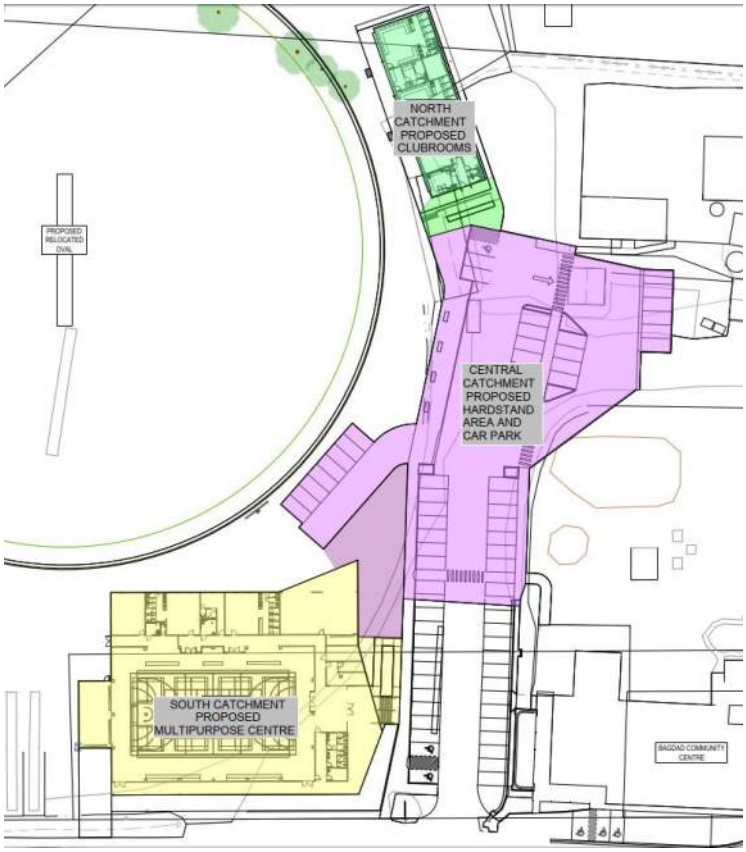


Figure 6: Post-Development Catchment Plan

Total Site Area	1982	m^2			
Pre-Dev	**Buildings/Roof**	**Hardstand**	**Gravel**	**Grass/Landscape**	
Area (m2)	0	606	0	1376	
					Total
Sum	0.00	606.00	0.00	1376.00	1982
Factor	1.00	0.95	0.80	0.40	N/A
Impervious Area	0.00	575.70	0.00	550.40	1126.1
				% Impervious	**57%**

Total Site Area	1982	m^2			
Post-Dev	**Buildings/Roof**	**Roads**	**Gravel**	**Grass/Landscape**	
Area (m2)	1885	97	0	0	
					Total
Sum	1885	97	0	0	1982
Factor	1	0.95	0.8	0.4	N/A
Impervious Area	1885	92.15	0	0	1977.15

% Impervious	100%

Figure 7: South Catchment Parameters, Multipurpose Hall (Pre and Post-Development Impervious Fraction)

Total Site Area	2750	m^2			
Pre-Dev	**Buildings/Roof**	**Hardstand**	**Gravel**	**Grass/Landscape**	
Area (m2)	77	1997	0	676	
					Total
Sum	77.00	1997.00	0.00	676.00	2750
Factor	1.00	0.95	0.80	0.40	N/A
Impervious Area	77.00	1897.15	0.00	270.40	2244.55
				% Impervious	**82%**

Total Site Area	2750	m^2			
Post-Dev	**Buildings/Roof**	**Roads**	**Gravel**	**Grass/Landscape**	
Area (m2)	0	2513	0	237	
					Total
Sum	0	2513	0	237	2750
Factor	1	0.95	0.8	0.4	N/A
Impervious Area	0	2387.35	0	94.8	2482.15
				% Impervious	**90%**

Figure 8: Central Catchment Parameters, Carpark (Pre and Post-Development Impervious Fraction)

Total Site Area	600	m^2			
Pre-Dev	**Buildings/Roof**	**Hardstand**	**Gravel**	**Grass/Landscape**	
Area (m2)	195	405	0	0	
					Total
Sum	195.00	405.00	0.00	0.00	600
Factor	1.00	0.95	0.80	0.40	N/A
Impervious Area	195.00	384.75	0.00	0.00	579.75
				% Impervious	**97%**

Total Site Area	600	m^2			
Post-Dev	**Buildings/Roof**	**Roads**	**Gravel**	**Grass/Landscape**	
Area (m2)	350	250	0	0	
					Total
Sum	350	250	0	0	600

Factor	1	0.95	0.8		0.4	N/A
Impervious Area	350	237.5	0		0	587.5
				% Impervious		**98%**

Figure 9: North Catchment Parameters, Clubrooms (Pre and Post-Development Impervious Fraction)

The proposed Multi-Purpose Sports Building, with its large impervious surfaces, is the primary driver of increased runoff in the post-development scenario. To address this it is proposed to utilise an existing 20kl above ground storage tank, relocated from behind Zeldas cafe, the tank will feature a two-step discharge system with two orifices to regulate discharges. This setup ensures compliance with 5% and 1% Annual Exceedance Probability (AEP) outflow requirements for the existing public drainage system, including council and Department of State Growth assets.

The northern catchment has a nominal increase in flows, a smaller 1.5kl tank will be utilised to detain roof discharge from this building.

Runoff from hardstand areas, which cannot be directed to the tanks due to flat grades, will flow into a proposed flat swale along the eastern boundary of the car park. Designed with a 0.5% longitudinal fall, the swale will provide detention and treatment, further enhancing stormwater management. Details on water quality measures are included in the water quality section of this report.

The on-site storage volumes for minor and major AEP events for each of the catchments are detailed in Figure 9.

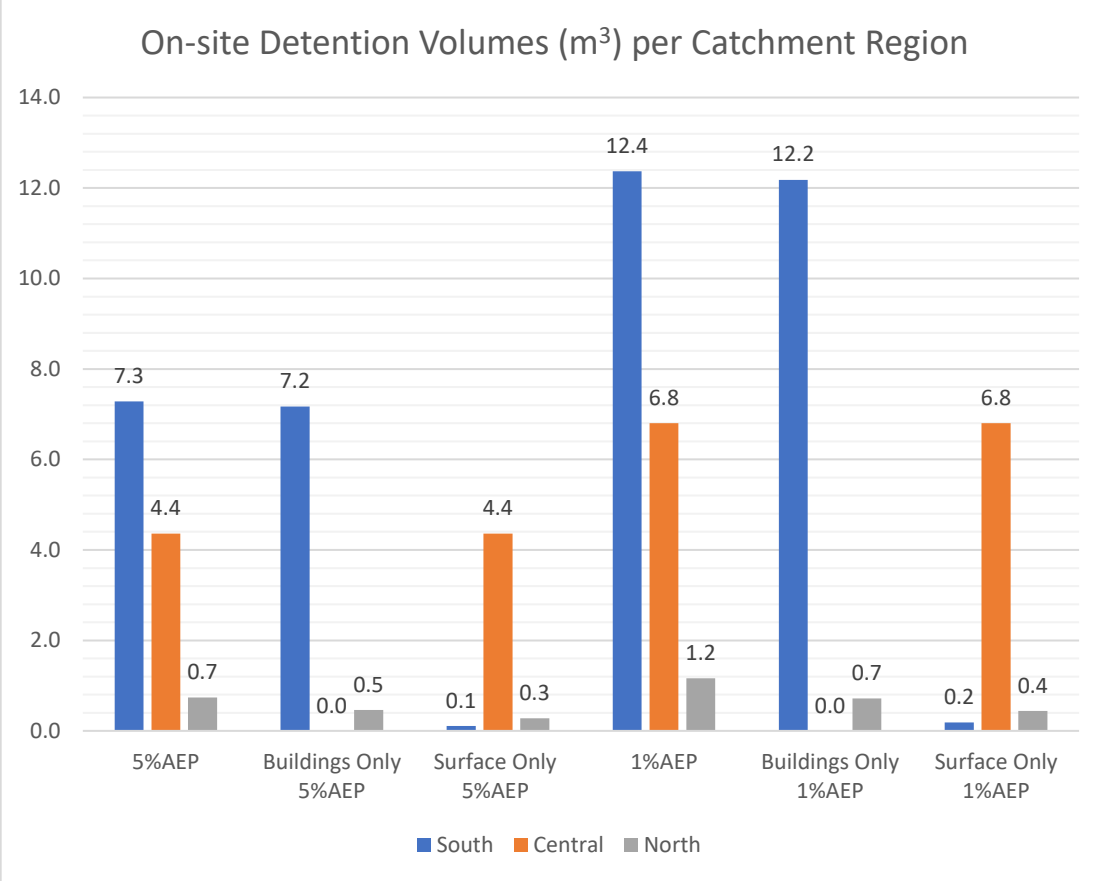


Figure 10: 5% and 1% On-site Detention Volumes with Climate Change Factor Summary

Storage Requirements for AEP Events (with Climate Change Factor):

- **Multi-Purpose Sports Building:**
  - 5% AEP: 7.20 m^3 - 116mm orifice (bottom of the tank)
  - 1% AEP: additional 12.2 m^3 - 72mm orifice (800mm above the 5%AEP I.L. Discharge)

- **Sports Pavilion Building (Slimline Tank 1.5kL):**
  - 5% AEP: 0.50 m^3 - 67mm orifice (bottom of the tank)
  - 1% AEP: additional 0.72 m^3 - 45mm orifice (960mm above the 5%AEP I.L. Discharge)

Overall, the buildings will capture runoff for both AEP events and release flows, regulated to the maximum allowable discharge, through a two-step process. Surface runoff will be diverted to the proposed swale for treatment and detention before discharging into the existing public system.

The full unsteady hydraulics design is to be confirmed at the detailed design stages.

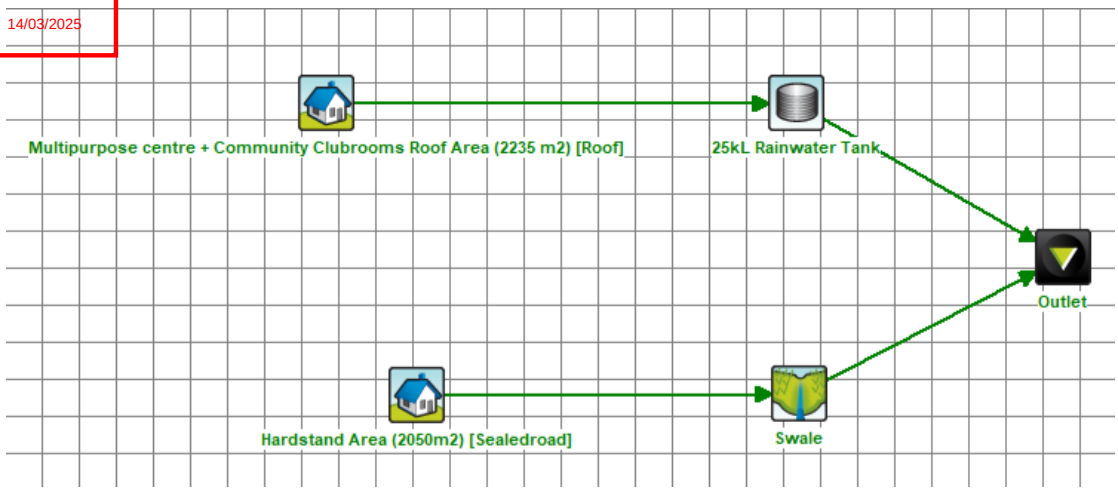
4. Water Quality

The water quality assessment was conducted using the MUSIC model to evaluate compliance with the Standard Stormwater Treatment Requirements, as outlined in Table 3 of the Water Quality Treatment Targets from the DEP and LGAT Policy.

The model was set up considering:

- **Building Runoff:** Runoff from the proposed Multi-Purpose Sports Building and Sports Pavilion is directed to detention tanks.
- **Carpark Runoff:** Runoff from the carpark is directed to a grassed swale with the following characteristics:
  - Length: 50 m
  - Longitudinal grade: 0.4%
  - Base width: 1 m
  - Batters: 1:5 slopes

These measures ensure that the development addresses water quality treatment targets effectively. Refer to Figure 9 for the results.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.71	1.1	36.1
Total Suspended Solids (kg/yr)	285	19.2	93.3
Total Phosphorus (kg/yr)	0.628	0.163	74.1
Total Nitrogen (kg/yr)	3.93	2.11	46.3
Gross Pollutants (kg/yr)	65.3	0	100

Figure 11: MUSIC Model Setup and Results

5. Major Flow Paths

The site currently experiences major flood runoff originating from an existing creek and dam located to the northwest of the new oval. This runoff flows across the site, moving southeast through the existing playground and eventually crossing the Midland Highway.

The Flood Hazard Assessment for this runoff is being conducted by Flussig Engineers, who will provide a detailed analysis in their report. For the potential impacts and flood hazard recommendations or managing flood hazards associated with these overland flow paths, please refer to Flussig Engineers Flood Hazard Assessment.

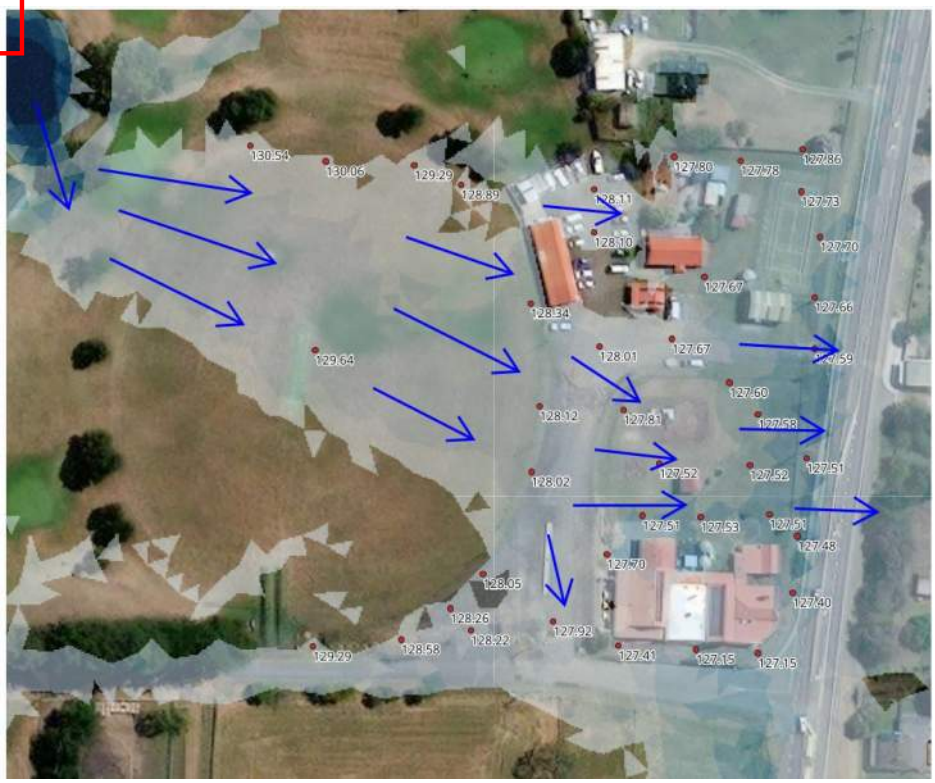


Figure 12: Flood Extents Screenshot from Flussig Engineers Assessment. (Runoff Vectors in Blue and Depth Elevation Points mAHD in Red Dots)

6. Conclusions and Recommendations

The proposed development addresses stormwater management requirements for both quantity and quality. Runoff from the Multi-Purpose Sports Building and the upgraded Sports Pavilion is managed using detention tanks, which are designed to handle the 5% and 1% AEP events. Runoff from the carpark is directed to a grassed swale, which provides detention and treatment, meeting water quality targets set by the DEP and LGAT Policy.

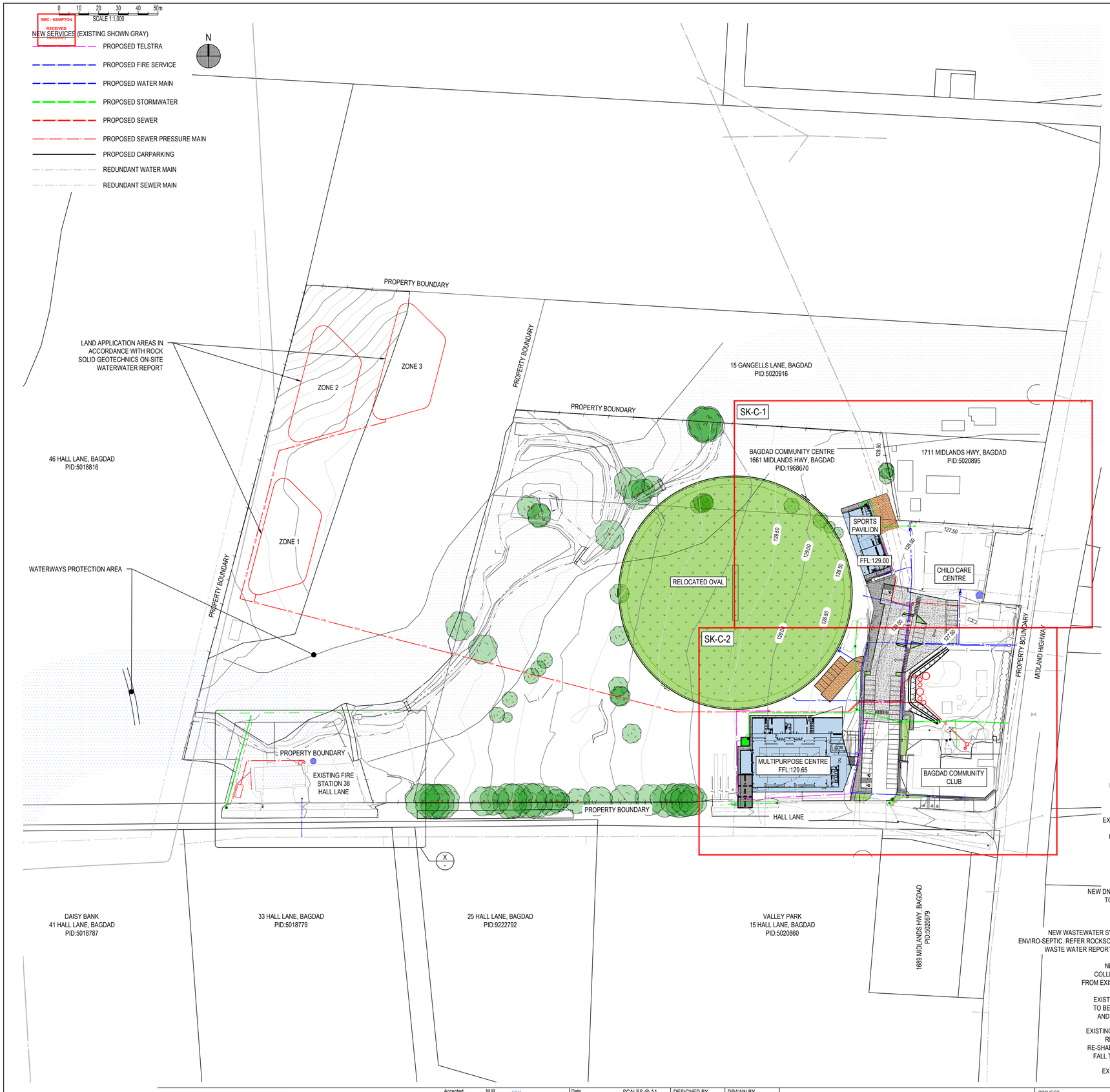
To further address the capacity constraints in the existing stormwater system, it is recommended to upsize the entire branch of the DN225/DN300 system to DN375 pipes while maintaining the same grade as the existing network. This approach ensures adequate cover for the new pipes and retains existing branch connections without altering their grades. The upgraded system will accommodate the calculated peak flow of 145 L/s from the upstream catchment during a 5% AEP event, reducing the frequency of overland flow around the existing buildings and structures.

Major flow paths for the 1% AEP event are addressed in Flussig Engineers Flood Hazard Report January 2015. This report provides a detailed analysis of overland flow behaviour. A preliminary overview of the proposed overland flow path is included here with a visual representation of the runoff directions.

These measures comply with regulatory requirements and provide effective management of stormwater for the site. However, it is noted that during larger storm events (e.g., 1 in 20 years or greater), overland flow may still occur on the site.

APPENDIX A

JMG – Civil Drawings



WATER DESIGN FLOWS CALCULATIONS

JMG

PROJECT DESCRIPTION:	Bagdad Recretation Grounds
PROJECT ADDRESS:	1661 Midland Highway
PROJECT NUMBER:	240785CS
REVISION:	1

DATE:	19/12/2024
DESIGNED:	mjr
REVIEWED:	mjr

SITE PARAMETERS		
Site Area	50000	m²
Number of Development Types	1	-

Proposed Equivalent Tenement Rates

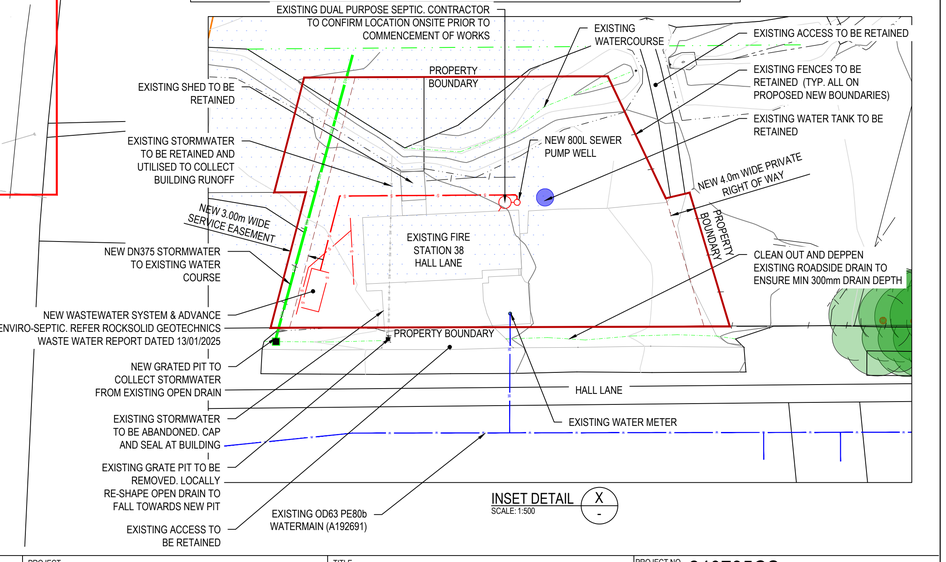
Development Number	Development Type	Rate	Units	Value	ETs
Community Centre/Zeldas	Restaurant/ Café	0.005	GBFA (m²)	1000	5
Computer Centre	Community Centre/ Hall	0.006	GBFA (m²)	120	0.72
Childcare Centre	Child Care Centre/ Pre-school	0.06	Person	95	5.7
Clubrooms	Amenities & Indoor Facilities	0.008	GBFA (m²)	350	2.8
Multipurpose Centre	Amenities & Indoor Facilities	0.008	case-by-case	1885	15.08
			Total ETs		29.3

Demand Flow Rates

Variable	TasWater Formula	Calculated Value	Units	Comments
Sports oval Irrigation	Irrigation Design Requirements	4.0	L/s	
Golf Course Irrigation	Irrigation Design Requirements	3.0	L/s	
Average Day Demand (AD)	685 L/ET/day x ETs	20070.5	L/day	Section 2.3.1 TasWater Supp
Peak Day Demand (PD)	2.25 x AD	45158.6	L/day	Section 2.3.4.2 TasWater Supp
Peak Hour Demand (PH)	PH/PD = 2.0	3763.2	L/hr	Section 2.3.4.3 TasWater Supp
Peak Day Flow Rate	PD/(day/hr/min)	0.523	L/s	
Peak Day Flow Rate + Irrigation	PD/(day/hr/min)	7.52	L/s	

Fire Flow Rates

Variable	Hydrants	Pressure	Units	Comments
Fire Hydrants	1	250.0	Kpa	Nil



REV	DATE	REMARK
DA3	21.02.2025	PROPERTY BOUNDARY AMENDMENTS
DA2	28.01.2025	UPDATED RFI RESPONSE
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

SAFETY IN DESIGN REPORT PER WHS REGULATIONS

The following risks which are unique to this design have been identified:	NIL
This report does not relieve contractors from their responsibilities under the Act to identify, report, mitigate and manage all aspects of risk and safety.	

Accepted (Discipline Head)	MJR		Date 21.02.2025
Accepted (Team Leader)	MJR		Date 21.02.2025
Approved (Principal)	CJM		Date 21.02.2025

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1:200	MJR	CEF
	PLOT DATE	21/02/2025

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 1

PROJECT NO. 240785CS
DWG NO. SK-C-1
REVISION DA3
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG

SMC - KEMPTON
RECEIVED
14/03/2025

JOINS DRAWING SK-C-3

N
0 2 4 6 8 10m
SCALE 1:200

EXISTING SOAKAGE TRENCHES TO BE REMOVED

SUB-METER WITH RPZD FOR IRRIGATION SYSTEM CONNECTION

NEW STORMWATER PIT IN LOW POINT OF PERIMETER SPOON DRAIN WITH DN225 CONNECTION @ 1% FALL TO EXISTING PIT

NEW RISING MAIN TO LAND APPLICATION AREAS. REFER TO ROCK SOLID GEOTECHNICS CONCEPT DESIGN DATED 05/12/2024

NEW FIRE HYDRANT

LOCATE EXISTING TELSTRA PIT AND REDIRECT EXISTING TELSTRA SERVICE CLEAR OF NEW BUILDING

10.0m

RELOCATED 20KL ABOVE GROUND ON-SITE STORMWATER DETENTION TANK AND ORIFICE IN ACCORDANCE WITH STORMWATER MANAGEMENT REPORT DATED DECEMBER 2024

PROPERTY BOUNDARY

EX TELSTRA CONDUIT TO BE RELOCATED CLEAR OF NEW BUILDING

MULTIPURPOSE CENTRE
FFL:129.65

9.18m

9.81m

PROPERTY BOUNDARY

NEW WATER SUPPLY TO MULTIPURPOSE CENTRE

Ex WATER PROPERTY CONNECTION (A3406870) SIZE UNKNOWN

EX SW PIT (TOP:127.846, IL:127.440) TO BE REPLACED WITH NEW PIT (APPROX. IL 127.10)

EX SW INLET IL:127.191

EX DN225 SW TO BE REPLACED WITH DN375 SW

EX SW INLET IL:126.745

EX SW OUTLET IL:126.566

EX SW PIT TOP:127.744

Ex DN300 SW

EX SW PIT TO BE RETAINED
TOP:127.840
PIT IL:126.885
OUTLET IL:126.980

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640). LOCATED USING GROUND PENETRATING RADAR AND SURVEYED BY ROGERSON AND BIRCH

LOCATE EXISTING DOMESTIC CONNECTION (A3406870). CONNECTION TO BE REMOVED BY TASWATER ACCREDITED CONTRACTOR

Ex DICL DN300 BULK TRANSFER MAIN (A3350640)

DS: 128.08
NS: 128.02

DS: 128.05
NS: 127.99

DS: 128.02
NS: 127.96

DS: 127.98
NS: 127.95

DS: 127.94
NS: 127.91

DS: 127.91
NS: 127.91

DS: 127.53
NS: 127.76

DS: 127.57
NS: 127.79

DS: 127.43
NS: 127.65

DS: 127.41
NS: 127.57

DS: 127.29
NS: 127.55

DS: 127.31
NS: 127.45

DS: 127.25
NS: 127.43

DS: 127.99
NS: 127.82

DS: 127.75
NS: 127.75

DS: 127.00
NS: 127.11

NEW BIO-SWALE FOR STORMWATER TREATMENT. REFER TO STORMWATER REPORT FOR DETAILS

EXISTING PLAYGROUND TO BE RELOCATED

PROPOSED ON-SITE WASTE WATER TREATMENT SYSTEM IN ACCORDANCE WITH ROCK SOLID GEOTECHNICS CONCEPT DESIGN DATED 05/12/2024

EXISTING PLAYGROUND TO BE RELOCATED

NEW FIRE HYDRANT

DISCHARGE BIO-SWALE INTO EXISTING STORMWATER PIT

EX SW PIT
TOP:126.816
IL:126.486

EX SW IL:126.373

EX SERVICE IL:126.598

EX STOP VALVE RL: IL:126.474

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

EXISTING SOAKAGE TRENCHES TO BE REMOVED

EX SW PIT
TOP:126.422
INLET IL:126.314
OUTLET IL: 126.223

EX SW HEADWALL TO BE REPLACED WITH NEW DN375 HEADWALL IL:126.223

EX DN300 SW TO BE REPLACED WITH DN375 SW

EX DN300 SW TO BE REPLACED WITH DN375 SW

EX SW PIT
RL: 127.001
INLET IL:126.627
OUTLET IL: 126.582

EX SEWER MH TO BE DEMOLISHED
TOP:127.043
IL:124.337

EX SW PIT
TOP:126.826
IL:126.635

PROPERTY BOUNDARY

NEW DN150 STORMWATER MAIN TO CONNECT TO EXISTING TANK TO EXISTING DN300 MAIN

RELOCATE 20KL TANK TO NEW MULTI PURPOSE BUILDING

EX SW HEADWALL

PROPERTY BOUNDARY

NEW COMMERCIAL GREASE TRAP AND PUMP WELL IN ACCORDANCE WITH ROCK SOLID GEOTECHNICS WATER CONCEPT DESIGN DATED 15/12/2024

EXISTING STORMWATER TANKS TO BE RETAINED

PROPERTY BOUNDARY

MIDLAND HIGHWAY

BAGDAD COMMUNITY CLUB

EX DN450 STORMWATER

DN200 CICL (A192688)

SUB-METER FOR COMMUNITY CLUB

PROPERTY BOUNDARY

EXISTING SW PIT
TOP: 126.49m
IL: 125.82m

LOCATE AND RECONNECT EXISTING 20mm PROPERTY SERVICE TO COMMUNITY CLUB

EXISTING 20mm PROPERTY CONNECTION TO BEOME REDUNDANT

EXISTING DN750 STORMWATER

CAP AND SEAL EXISTING DN50 CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

EXISTING SW PIT
TOP: 126.40m
IL: 125.67m

PROPERTY BOUNDARY

Ex DN300 SW

EX SW HEADWALL
IL:127.716

EX TELSTRA PIT
REDIRECT EXISTING TELSTRA SERVICE CLEAR OF NEW BUILDING

HALL LANE

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640)

SW PIT
TOP:127.422
INLET IL:126.965
OUTLET IL:126.863
REPLACE PIT WITH MANHOLE AND CLASS D LID

NEW GRATED SW PIT TO IPWEA STANDARD DRAWINGS

NEW DN300 STORMWATER MAIN

Ex DN300 SW

EX SW PIT
TOP:127.357
INLET IL:126.693
PIT IL: 126.365

HALL LANE

Ex 20mm WATER PROPERTY CONNECTION (A192690)

Ex 20mm WATER PROPERTY CONNECTION (A3248580)

EX TELSTRA PIT

Ex DN450 SW

Ex PE80 OD63 WATER MAIN (A192689)

CAP AND SEAL EXISTING PROPERTY CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

REV	DATE	REMARK
DA3	21.02.2025	PROPERTY BOUNDARY AMENDMENTS
DA2	28.01.2025	UPDATED RFI RESPONSE
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

SAFETY IN DESIGN REPORT PER WHS REGULATIONS

The following risks which are unique to this design have been identified:	NIL

This report does not relieve contractors from their responsibilities under the Act to identify, report, mitigate and manage all aspects of risk and safety.

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 2

PROJECT NO. 240785CS
DWG NO. SK-C-2
REVISION DA3
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG

0 2 4 6 8 10m
SCALE 1:200

N

128.50

PROPERTY BOUNDARY

1500L ABOVE GROUND ON-SITE STORMWATER DETENTION TANK AND ORIFICE IN ACCORDANCE WITH STORMWATER MANAGEMENT REPORT DATED DECEMBER 2024

9.26m

PROPERTY BOUNDARY

SPORTS PAVILION FFL:129.0

LOCATE AND RECONNECT EXISTING DN50 SERVICE TO GOLF COURSE IRRIGATION

DISCHARGE STORMWATER TO EXISTING OPEN DRAIN

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

EX HEADWALL TO BE RETAINED
IL: 127.09m

EX 63 OD HDPE WATER MAIN TO BE REMOVED

EX WATER METER TO BE REMOVED AND RETURNED TO TASWATER

127.50

EXISTING FENCE

SUB-METER FOR GOLF COURSE

EX OPEN DRAIN
RL:
IL:128.183

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640). LOCATED USING GROUND PENETRATING RADAR AND SURVEYED BY ROGERSON AND BIRCH

EX STOP VALVE TO BE REMOVED

CAP AND SEAL EXISTING DN50 PROPERTY. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

DN200 CICL (A192688)

EXISTING FENCE

EXISTING GRAVEL PAVEMENT

EXISTING DN150 STORMWATER

EX TASWATER DN300 DICL BULK TRANSFER MAIN (A3350640)

CHILD CARE CENTRE

5.87m

EX TELSTRA CONDUIT TO BE RELOCATED CLEAR OF NEW BUILDING

EX CLUBROOMS TO BE DEMOLISHED

129.00

128.50

NEW WATER SUPPLY TO COMMUNITY CLUBROOMS

NEW FIRE HYDRANT

OVAL

10.0m

CHILD CARE CENTRE

EX GP
RL:127.700
IL:127.205

LOCATE AND RECONNECT EXISTING WATER TO CHILD CARE CENTRE

EXISTING STORMWATER TANK TO BE RETAINED

PROPERTY BOUNDARY

EXISTING OPEN DRAIN

MIDLAND HIGHWAY

EX SEWER MH
RL:127.284
IL:126.522

IRRIGATION VALE EXISTING

CAP AND SEAL EXISTING DOMESTIC CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

EX SW GRATED PIT
RL:126.816
IL:126.486

EXISTING FENCE

EX SEWER MH
RL:126.324
IL:126.111

EXISTING SHED TO BE RETAINED

EX SW OUTLET HEADWALL
IL:126.407

Ex DICL DN300 BULK TRANSFER MAIN (A3350640)

EXISTING TOILET BLOCK TO BE DEMOLISHED

NEW STORMWATER PIT IN LOW POINT OF PERIMETER SPOON DRAIN WITH DN225 CONNECTION @ 1% FALL TO EXISTING PIT

EX SEWER MH
RL:127.825
IL: UNKNOWN

LOCATE AND RECONNECT EXISTING SEWER TO CHILD CARE CENTRE

EXISTING SOAKAGE TRENCHES TO BE REMOVED

PROPOSED CARPARKING AND ACCESS ROAD

NEW ABOVE GROUND DN80 DOMESTIC WATER & DN100 HIGH HAZARD FIRE SUPPLY ASSEMBLY

Ex WATER PROPERTY CONNECTION (A3406871) SIZE UNKNOWN

DN100

DN200 CICL (A192688)

CAP AND SEAL EXISTING DOMESTIC CONNECTION. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

LOCATE EXISTING DN200 CICL MAIN AND INSTALL NEW DN100 OFFTAKE. WORKS TO BE UNDERTAKEN BY TASWATER ACCREDITED CONTRACTOR

JOINS DRAWING SK-C-2

DA3 21.02.2025 PROPERTY BOUNDARY AMENDMENTS
DA2 28.01.2025 UPDATED RFI RESPONSE
DA1 19.12.2024 DEVELOPMENT APPROVAL ISSUE

REV	DATE	REMARK

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Accepted (Team Leader)	MJR		Date 21.02.2025
Approved (Principal)	CJM		Date 21.02.2025

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PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 3

PROJECT NO. 240785CS
DWG NO. SK-C-3
REVISION DA3
PLOT DETAILS 240785CS BAGDAD DRAWINGS DA.DWG

SMC - KEMPTON
BAGDAD
DA1

0 2 4 6 8 10m
SCALE 1:200

N

SPORTS PAVILION FFL:129.0

VEHICLE BODY EXTENTS (TYP.)

VEHICLE FRONT AXLE (TYP.)

14.5m BUS TURNPATH INTERNAL MANOEUVRE

SPORTS PAVILION FFL:129.0

EXISTING FENCE

EXISTING TOILET BLOCK

EX DICL DRAIN (SLK TRANSFER MAIN (A3356640)

14.5m BUS TURNPATH INTERNAL MANOEUVRE PAST PARKED BUS

BAGDAD COMMUNITY CENTRE

HALL LANE

14.5m BUS TURNPATH ENTRY MANOEUVRE

BAGDAD COMMUNITY CENTRE

HALL LANE

14.5m BUS TURNPATH EXIT MANOEUVRE

REV	DATE	REMARK
DA1	19.12.2024	DEVELOPMENT APPROVAL ISSUE

SAFETY IN DESIGN REPORT PER WHS REGULATIONS

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Approved (Principal)	CJM		Date 29.01.2025

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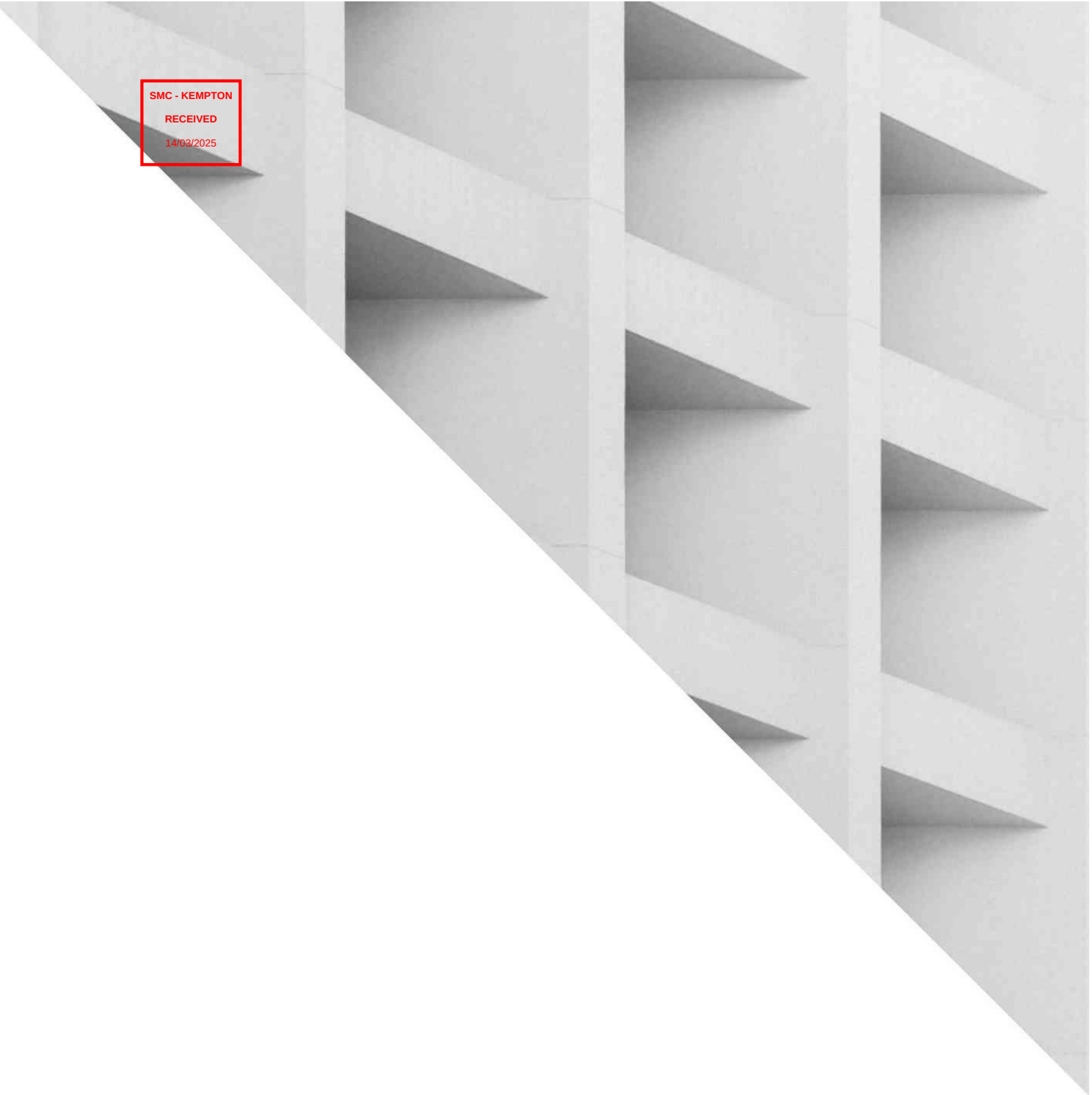
PROJECT
BAGDAD MULTI PURPOSE CENTRE
SOUTHERN MIDLANDS COUNCIL
1661 MIDLAND HIGHWAY, BAGDAD

TITLE
CONCEPT SERVICES PLAN
SHEET 4
TURNPATHS

PROJECT NO. 240785CS
DWG NO. SK-C-4
REVISION DA1
PLOT DETAILS _240785CS BAGDAD DRAWINGS DA.DWG



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Whole site is zoned 27.0 - Community Purpose

Whole site is subject to 13.0 - Bushfire-prone Areas Code

7.0 - Natural Assets Code - Waterway & Coastal Protection

6.0 - Local Historical Heritage Code - Local Heritage Place

C.T.222905/1
3.092ha

C.T.100182/1
8610m²

C.T.54450/1
3.758ha

C.T.51272/1
3430m²±

C.T.108882/1
630m²±

Cricket Club building

Child Care centre

Toilets

PIPELINE EASEMENT 6.00m WIDE

Bagdad Community Building

Bagdad Fire Station

MIDLAND HIGHWAY

HALL

LANE

This plan has been prepared only for the purpose of obtaining preliminary subdivsional approval from the local authority and is subject to that approval.

All measurements and areas are subject to the final survey.

Existing Titles & Zoning Plan

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

OWNER: Bagdad Community Club Incorporated
TITLE REFERENCE: see details above
LOCATION: 1661 Midland Highway
BAGDAD

Proposed Subdivision

Date: 14-1-2025
Reference: SOUTM01 15822-01
Scale: 1:1250 (A3)
Municipality: Southern Midlands

SMC - KEMPTON
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14/03/2025

120.9
57.8
187.4
44.9
65.3
248.1
164.53
99.7
25.7
7.4
10.3
15.7
10Z.3

1
7.93ha±

2
2,573m²

Proposed Drainage Easement 3.00m wide

Right of Way (private) 4.0m wide

Cricket Club building

Child Care centre

Toilets

PIPELINE EASEMENT 6.00m WIDE

Bagdad Community Building

Bagdad Fire Station

49.6
(15.00)
19.4
22.2
5.2
22.9
22.0
4.0
22.7
74.9
20.35

HALL

LANE

MIDLAND HIGHWAY

This plan has been prepared only for the purpose of obtaining preliminary subdivsional approval from the local authority and is subject to that approval.

All measurements and areas are subject to the final survey.

Resultant Titles

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B	changes to Lot 2 (bushfire setbacks)	AB	14-2-25	AB
A	changes to northern bdy Lot 2	AB	15-1-25	AB

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

OWNER: Bagdad Community Club Incorporated
TITLE REFERENCE: see details above
LOCATION: 1661 Midland Highway
BAGDAD

Proposed Subdivision

Date: 14-1-2025
Reference: SOUTM01 15822-01
Scale: 1:1250 (A3)
Municipality: Southern Midlands

MULTIPURPOSE SPORT CENTRE AT BAGDAD COMMUNITY CENTRE

TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

January 2025

Disclaimer: This report has been prepared based on and in reliance upon the information provided to Hubble Traffic Pty Ltd by the client and gathered by Hubble Traffic Pty Ltd during the preparation of the report. Whilst all reasonable skill, care and diligence has been used in preparation of the report, Hubble Traffic Pty Ltd take no responsibility for errors or omissions arising from misstatements by third parties.

This report has been prepared specifically for the exclusive use of the client named in the report and to the extent necessary, Hubble Traffic Pty Ltd disclaim responsibility for any loss or damage occasioned by use of or reliance upon this report, or the date produced herein, by any third party.

Version	Date	Reason for Issue
Draft	December 2024	Draft issued for client feedback
Final	January 2025	Final issued

Table of Contents

1. Introduction

Philp Lighton Architects have engaged Hubble Traffic to prepare an independent Traffic Impact Assessment, to consider the traffic impacts from the provision of a new multipurpose sports centre at 1661 Midland Highway, Bagdad.

A development application was submitted to Southern Midlands Council (DA2024/112), who have requested for an independent Traffic Impact Assessment addressing C2.0 Parking & Sustainable Transport Code and C3.0 Road and Railway Assets Code of the Tasmanian Planning Scheme.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019, and referred to the following information and resources:

- Tasmanian Planning Scheme, (Southern Midlands Council)
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards AS2890 parts 1, 2 and 6
- Austroads series of Traffic Management and Road Design
  - Part 4: Intersection and crossings, General
  - Part 4a: Unsignalised and Signalised Intersections
  - Part 12: Traffic Impacts of Development
- Department of State Growth
- Autoturn Online vehicle turning software
- LIST – Land Information System Tasmania Database

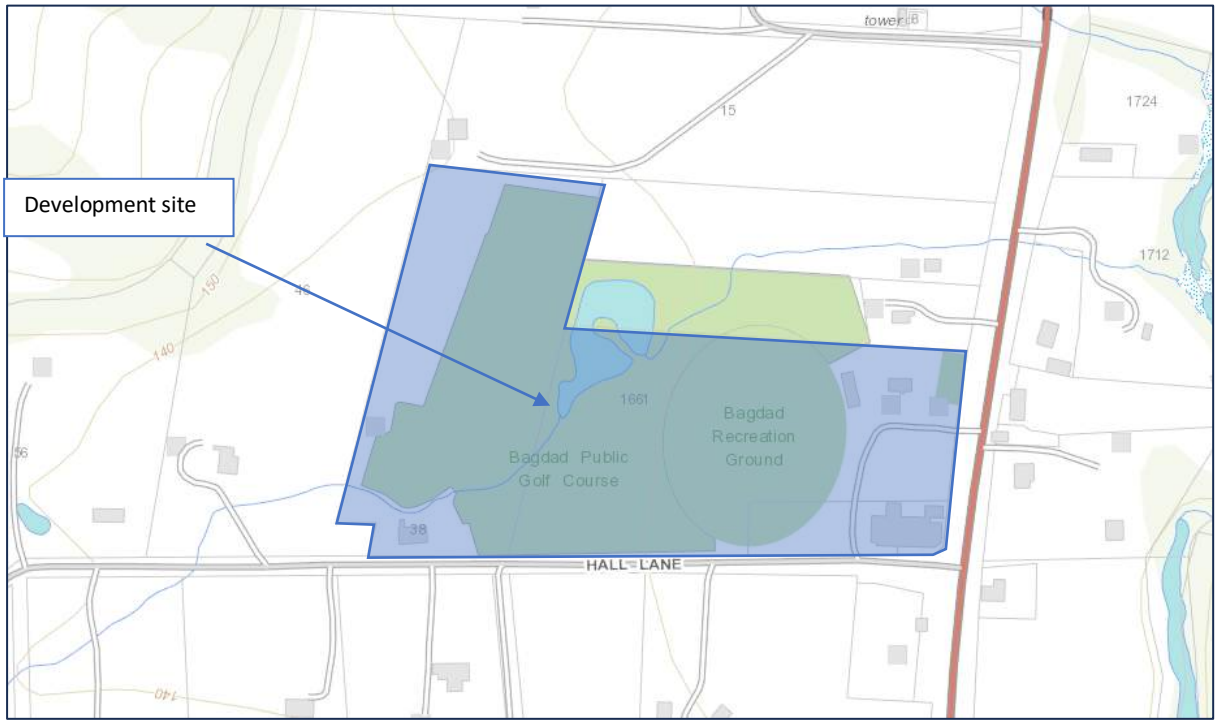
2. Site Description

Located at 1661 Midland Highway, Bagdad, the development site is a large parcel of land, with the property named 'Bagdad Community Centre'. The parcel of land has road frontage to both Midland Highway and Hall Lane, operating with an existing vehicular access onto Hall Lane.

According to Land Information System Tasmania (LIST) Database, the site is situated within a Community Purpose zone, with the surrounding land use consisting of mainly rural residential properties.

The site has an existing number of uses, including a childcare centre, community centre, recreation ground, golf course, outdoor court, and playground.

Diagram 2.0 – Extract from LIST Database



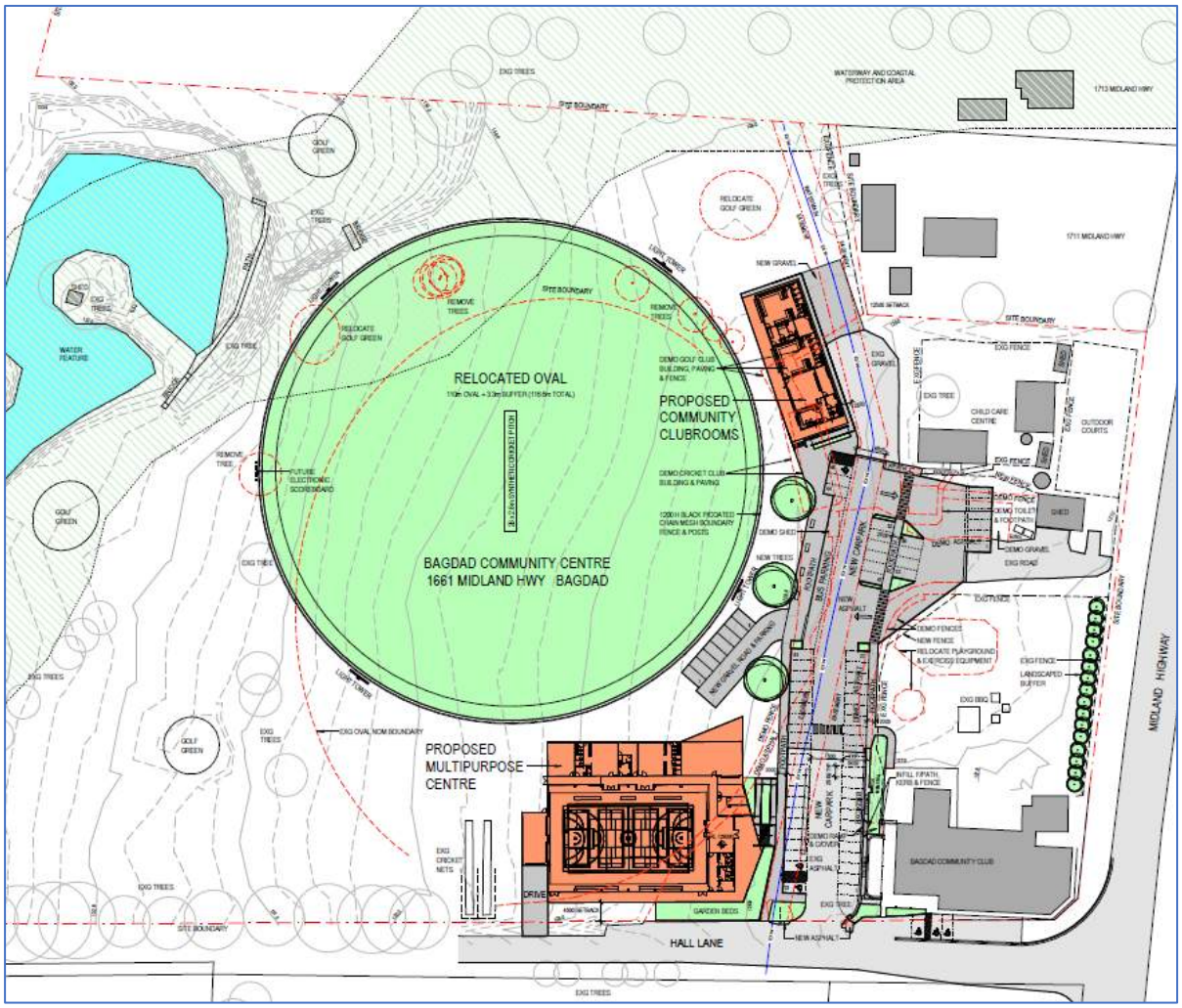
3. Development proposal

The proposal includes:

- Construction of a multipurpose centre on the southern portion of the land, which will require the relocation of the oval, and a selected number of greens associated with the golf course.
- Replacement of the clubrooms associated with the oval and golf club, with a new building to house both clubrooms.
- On-site car parking will be formalised, with the inclusion of a dedicated bus parking area.

The childcare is within the site and will be assessed as part of this development. The Community Centre is outside of the development area and has existing parking spaces with direct access off Hall Lane, and therefore has not been considered within this assessment.

Diagram 3.0 – Proposed development



4. Trip generation by this development

A trip in this report is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

4.1. Existing trips generated

Childcare centre

The client has advised that the childcare centre operates from 7:00am to 6:00pm on weekdays, accommodating 40 children and 10 staff members.

From previous manual surveys undertaken at other childcare centres, it is observed that children are typically dropped off and picked up by parents using private vehicles, generating two trips per child within both peak periods. Recent traffic surveys conducted at the development site revealed that this childcare centre generated 35 trips during both morning and evening peak periods.

With no proposed changes to the number of children cared for by the centre, it is expected that no new trips will be generated. This facility operates during weekdays only, and these trips are already integrated within the surrounding road network.

Sporting ground

Sporting grounds typically operate during the afternoons and evenings on a weekdays for training sessions. On weekends, they generally operate throughout the day to accommodate matches, which tend to draw more players and spectators. This results in peak demand occurring during a weekend, when the number of players and spectators are at its highest.

During weekdays, the ground generates minimal trips during the morning peak, while the survey captured 19 trips during the evening peak period. Peak demand is expected to occur throughout the day on weekends, with the busiest hour generating up to 40 trips, which is double the number of trips observed during the weekday evening peak. The number of daily trips for a typical weekend is difficult to determine, but it is less important as the surrounding road network is less trafficked.

Traffic surveys found that the surrounding road network, particularly the Midland Highway, is busiest during the evening weekday peak. The survey found that the sporting ground is currently generating 19 trips during this period. It is reasonable to assume that the trips generated by the ground are already integrated into the trips operating on the surrounding road network. For this purpose of this assessment, the sporting ground is not expected to generate additional trips.

4.2. New trips generated

The multipurpose centre, used for indoor sports, is expected to operate similarly to the sporting ground. Training sessions are anticipated to take place in the afternoons, with matches scheduled for weekday evenings and weekends. Activities at the multipurpose centre typically run for one-hour periods, often resulting in an overlap with the next training session or match.

It is estimated each training session or match could generate 40 trips, with 20 vehicles arriving and leaving within the same hour. With the possibility of overlapping sessions, there is a high probability that the number of trips could double, resulting in 40 vehicles arriving and leaving within the busiest hour period, which is 80 trips. This would be a worst-case scenario, and not occur every hour.

Although it is difficult to determine the number of daily trips, based on ten hours of operation (10 hourly sessions), the centre could theoretically generate 400 trips. However, it is more likely to operate around the 85th percentile demand, generating a maximum of 340 daily trips, which averages to 34 trips per hour.

5. Existing road network

Midland Highway, part of the State Road network, is the nearest arterial road. Given that Hall Lane is a no-through road maintained by the Southern Midlands Council, all vehicles generated by the development will need to use the junction with Midland Highway.

5.1. Hall Lane characteristics

Hall Lane extends westerly off the highway and provides for no-through traffic. The road services the development site, Bagdad Fire Brigade, and the surrounding rural properties.

Between the highway and Hall Lane, the road has been constructed to a rural standard, with a wide bitumen surface suitable to accommodate two-way traffic flow, concrete kerb and channel on northern side, shallow table drain on southern side, and street lighting.

Beyond the access to the development site, the rural road standard continues, with the road width reducing.

With no posted speed limit on Hall Lane, the default rural speed limit of 100 km/h would apply. This speed limit is not considered appropriate for the nature and function of the road, and Council should consider reducing the speed limit to 50km/h.

Photograph 5.1 – Hall Lane standard

5.2. Hall Lane and Midland Highway junction

Hall Lane intersects the highway at ninety degrees forming a standard T-Junction, with traffic priority for the highway motorists reinforced with a Give Way sign and marked holding line, set back two metres from the edge of the through traffic lane.

The junction has an asphalt surface that is in good condition, with a wide junction throat to accommodate the swept path of turning vehicles. Hall Lane has a slight vertical grade approaching the highway, which does not create any adverse operational impacts.

The highway has a dedicated right turn lane, while a wide sealed shoulder acts as a short left turn deacceleration lane. This section of the highway is signed with an 80 km/h speed limit.

Photograph 5.2 – Hall Lane and Midland Highway junction

5.3. Sight distance leaving Hall Lane

As the development site will be generating additional vehicles travelling through the highway junction, it is important drivers have Safe Intersection Sight Distance (SISD), which is the highest sight distance parameter. Austroads Guide to Road Design provides guidance on sight distance and specifies SISD of 170 metres for an 80 km/h speed environment, based on a driver reaction time of 1.5 seconds and observation time of three seconds.

On-site measurements of the available sight distance were taken based on the driver leaving the access being 1.1 metres above the access surface, and an approaching vehicle being 1.2 metres high. The available sight distance in both directions exceeds 200 metres.

With the available sight distance exceeding the SISD, vehicles will be able to enter and leave Hall Lane in a safe and efficient manner, without impacting other road users.

Photograph 5.3A – Available sight distance to the left

Photograph 5.3B – Available sight distance to the right

5.4. Traffic flow on the surrounding road network

In evaluating the traffic impact from the development, it is important to understand the current traffic flow on the surrounding road network. Recent manual traffic surveys were undertaken on Wednesday 11th and Thursday 12th of December, at the following locations:

- Hall Lane and the highway junction, and
- Hall Lane and development site's access.

The surveys revealed that the highway has a consistent traffic flow, with slightly higher two-way traffic flows captured in the evening peak, compared to the morning peak. Hall Lane was found to be lightly trafficked during both peak periods, with less than 75 two-way vehicles captured.

Overall, the development site was observed to be a low traffic generator, with 35 vehicles captured entering and leaving during the morning peak, with 54 vehicles in the evening peak.

At the surveys commencement, the childcare centre car park had five parked vehicles before the morning survey and 10 parked vehicles before the evening survey. The sporting ground had 14 parked vehicles before the evening survey, with none observed before the morning survey.

During the evening survey, three vehicles were observed to turn into Hall Lane and use the parking spaces located in front of the community centre, with one vehicle undertaking a U-turn manoeuvre on Hall Lane.

Table 5.4 captures the two-way flow on the surrounding roads, with the turning movements for each of the junctions available in Appendix A.

Table 5.4 – Summary of traffic flows on the surrounding road network

Junction	Road	Peak hour two-way flows	
		Morning	Evening
Midland Highway and Hall Lane	Midland Hwy north of the junction	629	739
	Midland Hwy south of the junction	632	761
	Hall Lane	49	72
Hall Lane and development site	Hall Lane north of the junction	49	72
	Hall Lane south of the junction	14	16
	Development site	35	54

5.5. Road safety of surrounding road network

The Department of State Growth maintains a database of reported road crashes, a check of this database found no crashes reported on Hall Lane, or at the junction of Hall Lane with the Midland Highway in the last five years.

6. Impact from traffic generated by this development

As determined in section 4 of this report, the development site is estimated to generate up to an additional 80 trips during the busiest peak hour. As a worst case scenario, this assessment will assume that this will occur within both the morning and evening peak periods on a weekday, where the traffic flows are at their highest.

Level of Service (LOS) is a quantifiable assessment of the factors that contribute to the traffic performance, which includes traffic density, gaps in traffic streams, expected delays, and queues. The RTA Guide provides performance criteria for junctions (diagram 6.1), with five levels from A to E.

LOS A provides the highest level of traffic performance, where motorists are not expected to incur traffic delays or queues, with ample gaps in the traffic stream for vehicles to turn freely and safely without disrupting other users. For busy arterial urban roads, LOS D within the weekday peak hour periods is acceptable.

6.1. Traffic efficiency at the surrounding road junctions

The simplest method to determine the traffic performance at a junction is to use SIDRA Intersection traffic modelling software, which uses gap acceptance theory to determine the average delay, queue lengths, and degree of saturation, which are all measures of traffic congestion and level of service. The RTA Guide provides five levels of service for junctions and roundabouts as shown in the table below.

Diagram 6.1 – RTA Guide for level of service at junctions, intersections, and roundabouts

Table 4.2
Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Traffic models were developed within the SIDRA software with the recent peak hour traffic flows, to replicate the junction of Hall Lane with the highway, and Hall Lane with the development site access.

The modelling indicates that both junctions are currently operating at a high level of traffic performance, LOS A or B, with motorists not incurring any notable delays or traffic queues.

The additional trips generated by the development were assigned to the traffic models, which allows the change in traffic performance to be quantified, with the comparison data shown in table 6.1. The traffic modelling demonstrates that the additional development trips travelling through the junctions will not cause any deterioration in traffic performance, as the junctions will continue to operate at LOS A and B.

As the local area continues to grow and develop, the traffic flows on the highway are expected to grow over the next 10 years. This incremental traffic growth has been modelled at the Hall Lane junction, based on 1.5 percent growth per year for the next 10 years. The impact of this traffic growth is also shown in table 6.1, and demonstrates the junction has sufficient spare traffic capacity for incremental growth for the next 10 years, as the intersection is expected to continue to operate at LOS B.

This traffic analysis clearly demonstrates additional peak hour trips generated by this development, are not expected to cause any adverse traffic impact to the traffic performance of the surrounding junctions.

Table 6.1 – Traffic modelling comparison, between the existing with development traffic, and traffic growth on the highway

Junction	Scenario	Period	Total vehicles	DOS	Worst delay	LOS	Max queue
Hall Lane with Midland Hwy	Existing	Morning peak	655	0.182	11.7 secs	A	1.2 metres
	With development		735	0.183	12.6 secs	A	3.3 metres
	Hwy growth 1.5%		832	0.212	14.6 secs	B	3.7 metres
	Existing	Evening peak	786	0.220	14.0 secs	A	1.9 metres
	With development		866	0.220	14.9 secs	B	4.1 metres
	Hwy growth 1.5%		981	0.255	18.1 secs	B	4.9 metres
Hall Lane with development site	Existing	Morning peak	54	0.013	5.6 secs	A	0.4 metres
	With development		138	0.038	5.7 secs	A	1.2 metres
	Existing	Evening peak	76	0.022	5.6 secs	A	0.6 metres
	With development		160	0.048	5.7 secs	A	1.4 metres

Printouts of traffic modelling can be found in Appendix B.

7. Access arrangement to and from the development site

7.1. Existing vehicular access with Hall Lane

The development site will retain the existing vehicular access and upgrade it to a junction with Hall Lane. This new junction will be of sufficient width to accommodate two-way traffic movements and be designed to accommodate the swept path of vehicles entering and leaving.

The new junction will intersect Hall Lane at ninety degrees and form a T-Junction, and under the Australian Road Rules, vehicles must give-way when travelling on the terminating leg of the junction. To reinforce this priority a Give Way sign, supplemented with a holding line will be implemented. This holding line will also assist with defining the junction layout.

Photograph 7.1 – Existing vehicular access with Hall Lane

7.2. Sight distance at existing access

At the location of the existing access, Hall Lane has a straight horizontal road alignment, providing motorists with excellent sight distance in both directions.

With the development having the potential of generating a moderate increase in vehicle turnover, it is important drivers have Safe Intersection Sight Distance (SISD), which is the highest sight distance parameter.

Although the rural default 100 km/h speed limit would apply along Hall Lane, with vehicles having to slow down to approach the junction and speed up after travelling through the junction, an operating speed of 40 km/h would be more likely. Austroads Guide to Road Design provides guidance on sight distance and specifies SISD is 67 metres for a 40 km/h operating speed, based on a driver reaction time of 1.5 seconds and observation time of three seconds.

On-site measurements of the available sight distance were taken, with motorists having 70 metres of available sight distance to the left and 100 metres to the right.

With the available sight distance exceeding the SISD requirements, it demonstrates vehicles will be able to enter and leave the development site in a safe and efficient manner, without impacting other road users.

Photograph 7.2A – Available sight distance to the left

Photograph 7.2B – Available sight distance to the right

7.3. Hall Lane

A small driveway will be located on the western side of the multipurpose centre, to allow for the drop off and pick up of equipment associated with the centre. This driveway will be for light vehicles only.

The area along Hall Lane in front of the multipurpose centre, will be signed with no parking signs, to ensure no vehicles park on the road.

To ensure sufficient sight distance for motorists leaving the development site, a section of the paved driveway in front of the community centre, between the accessible parking space and the access, will be designated as a no-parking zone.

8. On-site parking and internal road layout

8.1. Number of car parking spaces

Planning scheme table C2.1 prescribes the number of on-site parking spaces required based on the type of land use. The childcare centre is considered to be an Educational and Occasional Care use, while the sporting ground and new multipurpose centre is considered to be a sporting facility within a Sports and Recreation use.

A sporting facility requires 50 spaces per facility, while an Education and Occasional Care use requires one space per employee. Based on the childcare centre having a maximum of ten employees, the development site is required to provide 60 on-site car parking spaces.

In total the development site is providing 70 dedicated on-site car parking spaces, with two overflow parking areas, minimising the risk of overflow parking.

Table 8.1 – Number of on-site car parking spaces

Activity	Use	Planning scheme requirements	Employees	Number of parking spaces
Sporting precinct	Sports and Recreation	50 spaces per facility		50
Childcare centre	Educational and Occasional Care	One space per employee	10	10
Total				**60**

8.2. Design vehicles

Employees and visitors to the site are expected to generate light vehicle movements, with vehicles measuring less than 5.5 metres in length. The site has the potential to generate buses, with the primary vehicle expected to be a standard coach bus, measuring 14.5 metres in length.

8.3. Dimensions of on-site parking spaces

On-site parking spaces have been designed to comply with dimensions specified within the Standard, for user class 2, suitable for sports facilities. Each space will be ninety degrees to the parking aisle, 2.5 metres wide, 5.4 metres long and supported with a minimum 5.8 metres of manoeuvring area.

The width of the parking aisles behind the parking spaces will exceed the minimum required manoeuvring area, providing sufficient width to allow vehicles to enter and leave the parking spaces in a safe and efficient manner.

All parking spaces situated on the asphalt surface, will be delineated with pavement markings and supported with wheel stops.

Eight parking spaces will be provided at the southern end of the sporting ground, specifically for spectators to park their vehicle in front of the ground. These spaces will be constructed with an all-weather gravel surface and will be delineated with wheel stops.

8.4. Gradient of parking spaces

With the redeveloped site located on reasonably flat terrain, with all parking spaces expected to have grades less than five percent complying with Section 2.4.6 of the Standard.

8.5. Overflow parking

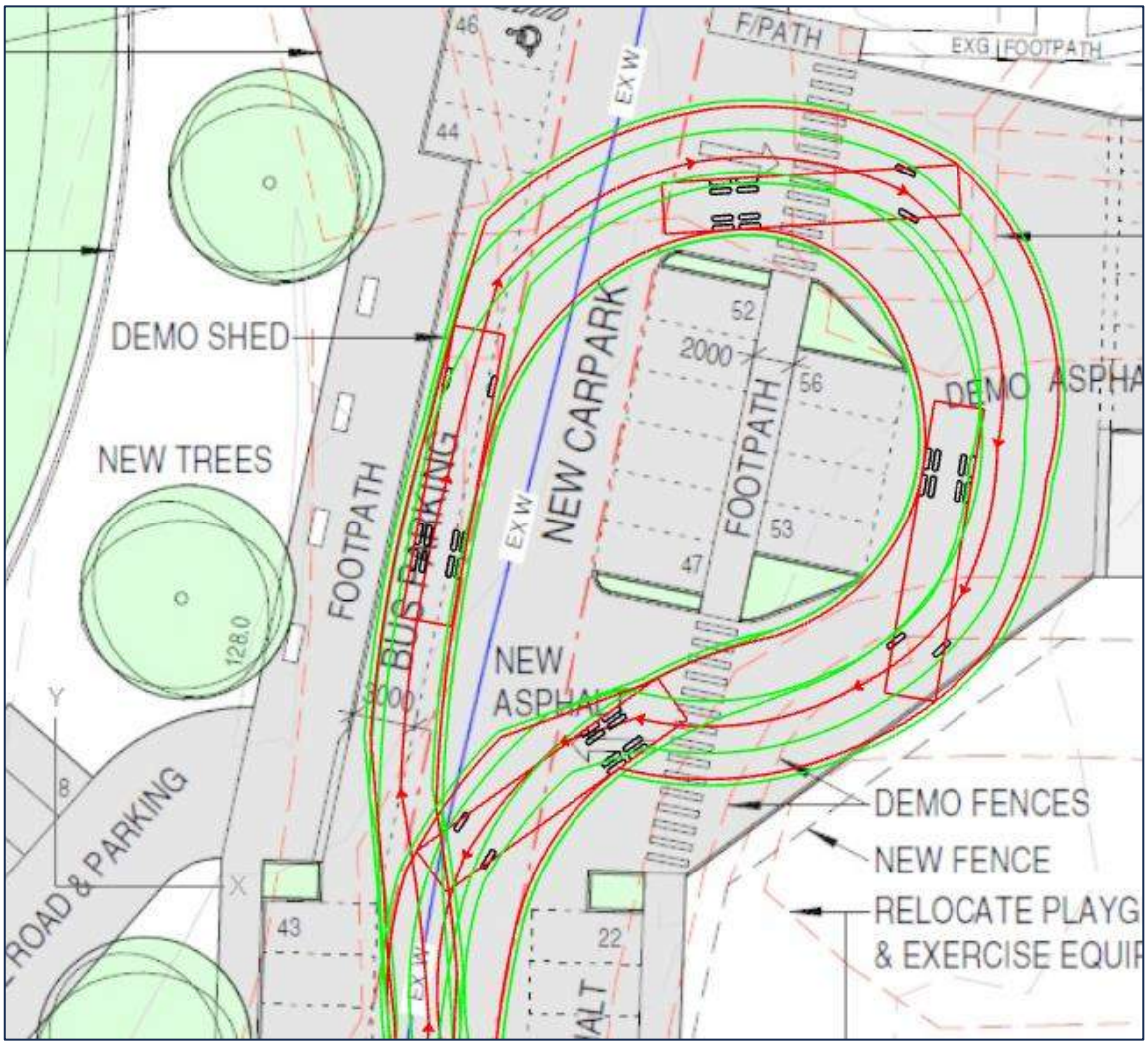
The existing gravel parking area adjacent to the clubrooms and asphalt informal parking area opposite the childcare centre, will be retained by the development without any changes. These locations will be available for overflow parking.

8.6. Bus access, and bus parking

A dedicated bus parking area will be provided adjacent to the sporting ground, allowing passengers to be collected on the left-hand side. It is anticipated that buses will be specifically linked to the sporting facilities, with the location allowing passengers to utilise the provided pedestrian pathways.

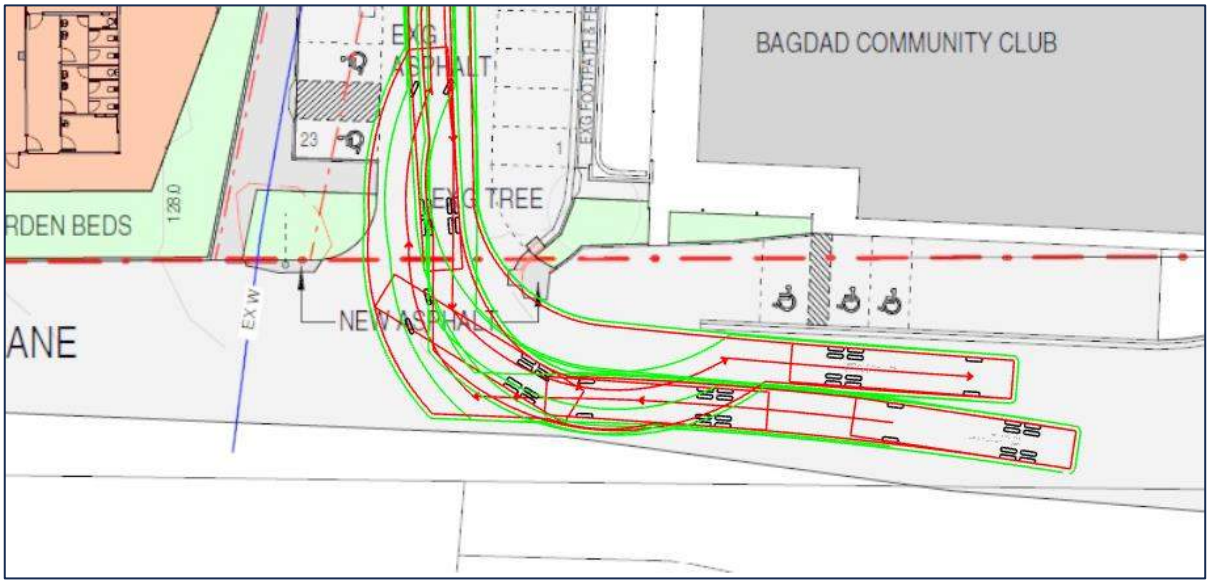
Autoturn vehicle software has been used to demonstrate that a standard coach bus (14.5 metres in length) can enter, park in the bus zone, turn around using the circular turning facility, and leave the site in a forward-driving direction. Although the bus will need to occupy the full width of the driveway when leaving the turning facility, this is acceptable given the nature of the use, the low traffic flow, and operating speeds.

Diagram 8.6A – Swept path of a 14.5 m bus turning around on-site



The bus movement would be considered as occasional service under the Australian Standards 2890.2:2018: Off-street commercial vehicles facilities, where using the full width of the access driveway is acceptable when entering and leaving the development site.

Diagram 8.6B – Swept path of 14.5 metre bus turning at Hall Lane



8.7. Internal driveway and stormwater

The design incorporates a main internal driveway extending from Hall Lane and terminating at a gravel overflow car park adjacent to the new clubrooms. The driveway has a reasonably straight alignment and will have an asphalt surface, with sufficient width to accommodate two-way traffic flow. The internal turning facility will operate with a one-way traffic flow.

Three accesses will be provided off this main driveway, providing access to two overflow car parking areas and the parking spaces adjacent to the sporting ground. Each access will be a minimum of 5.5 metres wide, suitable to provide for two-way traffic flow.

The internal driveway will be designed with a suitable camber to direct surface water to kerbing, feeding into an approved stormwater drainage system.

8.8. Internal driveway gradients

Although the designer has not provided any civil plans, with the site located on mostly flat terrain, the vertical gradients of the internal driveway are not expected to cause any adverse impact to vehicles entering, circulating, and leaving the site.

8.9. Internal pedestrian pathway

The development will include internal pedestrian pathways, to provide safe and convenient connection between the different facilities and parking spaces. The pathways will be a minimum one metre wide, constructed with a hard-wearing concrete surface that will provide a suitable contrast between the driveway, and separated from the driveway by kerbing and wheel stops where possible.

Where the pathway crosses the internal driveway, it will be delineated with road markings, defining the pathway and pedestrian crossing areas. To enhance pedestrian safety, a 10 km/h shared zone speed limit sign will be posted at the beginning of the development. Under the Australian Road Rules 2019, a shared zone speed limit sign, is covered by road rule 24, which specifies where a shared zone sign is used, drivers must give way to any pedestrian within the zone.

The proposed safety measures are expected to ensure pedestrians can move around the development site in a safe and convenient manner, meeting the objective of the planning scheme.

8.10. Large vehicles such as waste collection, delivery and emergency service vehicles

The layout of the redeveloped site will have sufficient pavement width to accommodate a medium rigid vehicle to enter, circulate, and leave in a forward-driving direction, as demonstrated in the following diagrams. This size vehicle is similar to a standard waste collection, delivery vehicle, and emergency service vehicle.

Diagram 8.10A – Swept path of a medium rigid vehicle

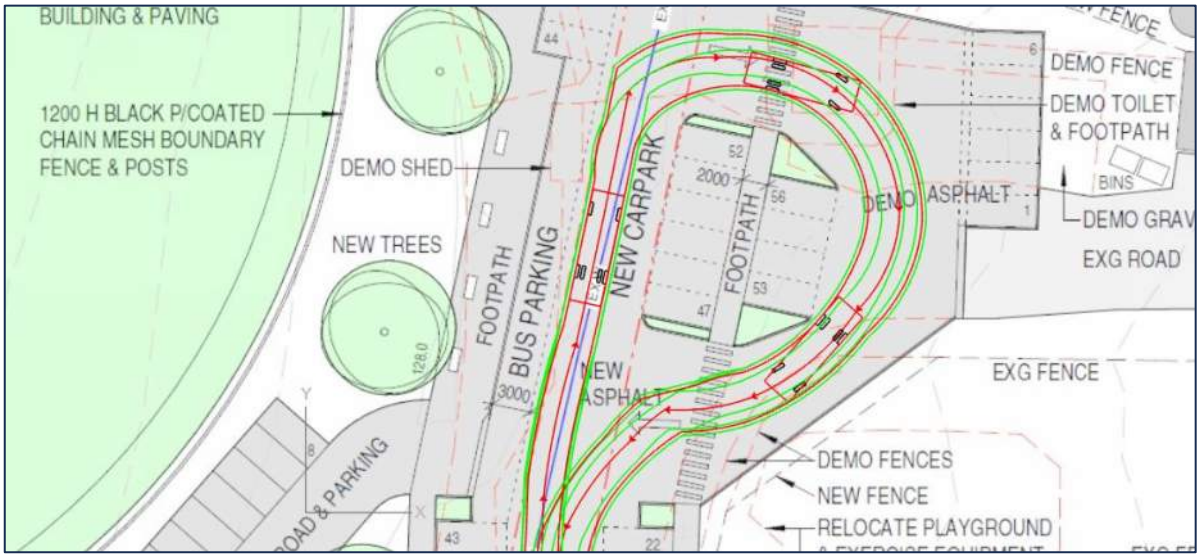
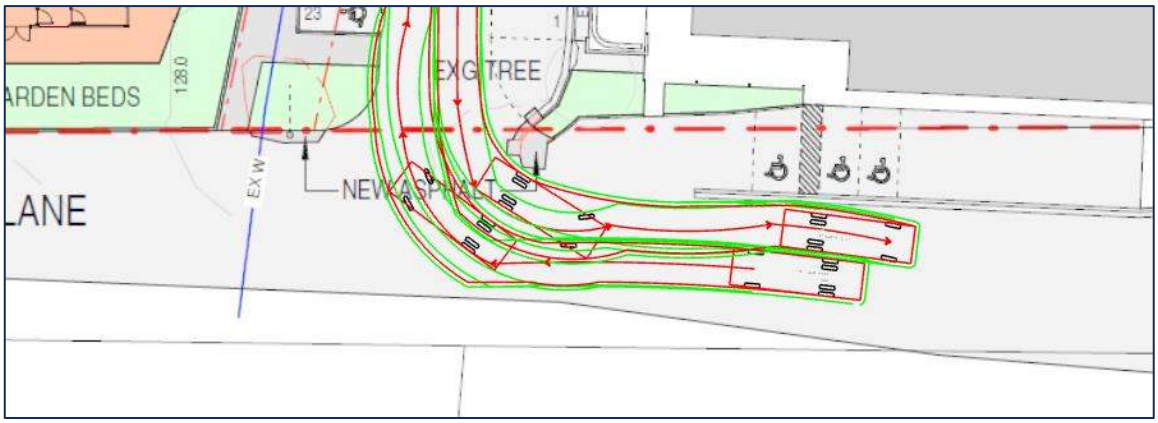


Diagram 8.10B – Swept path of medium rigid vehicle turning at Hall Lane



8.11. Other parking requirements

Bicycle parking spaces

Table C2.1 prescribes the number of bicycle parking spaces required, based on the type of use. For a Sports and Recreation use there is no requirement, while an Education and Occasional Care use requires one space per five employees.

The development site will provide two on-site bicycle parking spaces, meeting the required number under table C2.1 of the planning scheme.

Motorcycle parking spaces

Table C2.4 of the planning scheme prescribes that a use requiring 60 on-site car parking spaces, is required to provide two motorcycle parking spaces. Two motorcycle parking spaces will be provided, complying with the acceptable solution under the planning scheme.

Accessible parking spaces

According to the National Construction Code, the multi-purpose centre will be classified as a Class 9b building, which requires one accessible parking space per 50 car parking spaces.

The development will provide three on-site accessible parking spaces, supported with a shared zone. Two of the spaces will be located in close proximity to the new multipurpose centre, and one will be adjacent to the new clubrooms.

9. Planning scheme

9.1. C2.0 Parking and Sustainable Transport Code

C2.5.1 Car parking numbers

The development will provide 70 on-site car parking spaces, exceeding the number required under the planning scheme. This number of car parking spaces minimises the potential for parking overflow and complies with the acceptable solution.

C2.5.2 Bicycle parking numbers

A minimum of two bicycle parking spaces will be provided, located as close as possible to the childcare centre, complying with the acceptable solution.

C2.5.3 Motorcycle parking numbers

Two dedicated motorcycle parking spaces will be provided by the development, complying with the acceptable solution.

C2.5.4 Loading bays

A dedicated loading bay is not required for a Sports and Recreation, Educational and Occasional Care, or Community Meeting and Entertainment use.

C2.6. Development standards

C2.6.1 Construction of parking areas.	The majority of the parking spaces and internal driveways will have an asphalt surface, with the driveways operating with a one-way camber to direct surface water to the kerbing, feeding in to an approved stormwater drainage system. The design complies with the acceptable solution A1.
C2.6.2 Design and layout of parking areas.	On-site parking spaces have been designed to comply with dimensions specified within the Standard for user class 2, suitable for sports facilities. Each space will be at ninety degrees to the parking aisle, 2.5 metres wide, and 5.4 metres long, supported with a minimum of 5.8 metres of manoeuvring area. This ensures vehicles can easily manoeuvre into and out of the parking spaces efficiently and enter and leave the site in a forward-driving direction. All parking spaces will be located on gradients of less than five percent, supported with wheel stops, and delineated

	with road markings. Three accessible parking spaces will be provided, located as close as possible to the front entrance of the multipurpose centre and new clubrooms. Overall, the design complies with acceptable solutions A1.1 (a) and (b), and A1.2.
C2.6.3 Number of accesses for vehicles.	The existing vehicular access will be retained and upgraded to a junction with Hall Lane, operating with a single existing access complying with the acceptable solutions A1 (a) and (b).
C2.6.4 Lighting of parking areas within the general business zone and central business zone	Sufficient lighting will be provided to light the parking spaces, driveway, and pedestrian pathways.
C2.6.5 Pedestrian access.	The development will include pedestrian pathways connecting the parking spaces with the entrances of each building. Where possible, these pathways will be separated from the internal driveways by kerbing and wheel stops and constructed with a concrete surface to provide a suitable contrast to the driveway. Where the pathway crosses the driveway, painted markings will be used to delineate pedestrian movements. Overall, pedestrians will be provided with an acceptable level of service, complying with the intent of the planning scheme, and the acceptable solution A1.
C2.6.6 Loading bays.	Not required for this type of development.
C2.6.7 Bicycle parking and storage facilities	Bicycle wheel frames will be provided.
C2.6.8 Siting of parking and turning areas.	Not applicable for community purpose zone.

9.2. C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

The development will increase the use of the existing access by more than 20 percent, and as such, will be required to be assessed against the performance criteria P1, ensuring that the access can operate safely and efficiently.

Performance criteria	**Assessment**
Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:	
a) Any increase in traffic caused by the use;	The development site is estimated to generate an additional 80 vehicle movements during the busiest peak hour.
b) The nature of the traffic generated by the use;	The development is likely to generate mostly light vehicles, measuring less than 5.5 metres in length, which have good manoeuvrability and are compatible with the surrounding road network traffic.
c) The nature of the road	Hall Lane is a no-through road, which provides access to local rural residential properties, a fire station, and the development site. The road is constructed to a rural standard, with suitable width to accommodate two-way traffic flow. There is sufficient available sight distance at the existing access to allow vehicles to enter and leave the site, in a safe and efficient manner.
d) The speed limit and traffic flow of the road	With no posted speed limit, the default rural 100 km/h speed limit applies along Hall Lane. Recent manual surveys revealed that Hall Lane is lightly trafficked with 49 two-way vehicle movements in the morning peak period and 72 two-way vehicle movements during the evening peak period. Traffic modelling at the Hall Lane and Midland Highway junction, and Hall Lane and the development site indicates motorists are receiving a high level of traffic performance and efficiency, and the additional traffic generated by the development is not expected to cause any deterioration in traffic performance or have an adverse impact on traffic flow.
e) Any alternative access to a road	None.
f) The need for the use	The development will provide upgraded and new sporting facilities which will benefit the local community.
g) Any traffic impact assessment	A traffic impact assessment found no reason for this development not to proceed.
h) Any advice received from the rail or road authority	Aware of none.

10. Conclusion

From a traffic engineering and road safety perspective, additional traffic generated from this development is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- the amount of traffic generated is considered to be moderate and there is sufficient capacity within the current road network to absorb the extra traffic movements,
- the existing vehicular access onto Hall Lane will be upgraded to a junction, and supported with a Give Way sign and holding line to provide junction definition,
- the junction has sufficient Safe Intersection Sight Distance, ensuring safe and efficient vehicle movements, without causing adverse impact to other users,
- a sufficient supply of formal parking spaces will be provided to meet the reasonable demand, with gravel areas available for overflow parking,
- suitable pedestrian pathways will be provided to connect the facilities with the supply of parking, and the 10 km/h shared zone and marked pedestrian crossings will provide pedestrians with a high level of service,
- there is sufficient width to accommodate medium rigid vehicles, and 14.5 metre long buses, with the turning facility to ensure all vehicles can enter, circulate and leave the site in a forward-driving direction.

This Traffic Impact Assessment found no reason for this development not to proceed.

Council should consider implementing a 50 km/h speed limit to operate on Hall Lane.

11. Appendix A – Traffic surveys

Diagram 11.0 – Morning peak hour flows

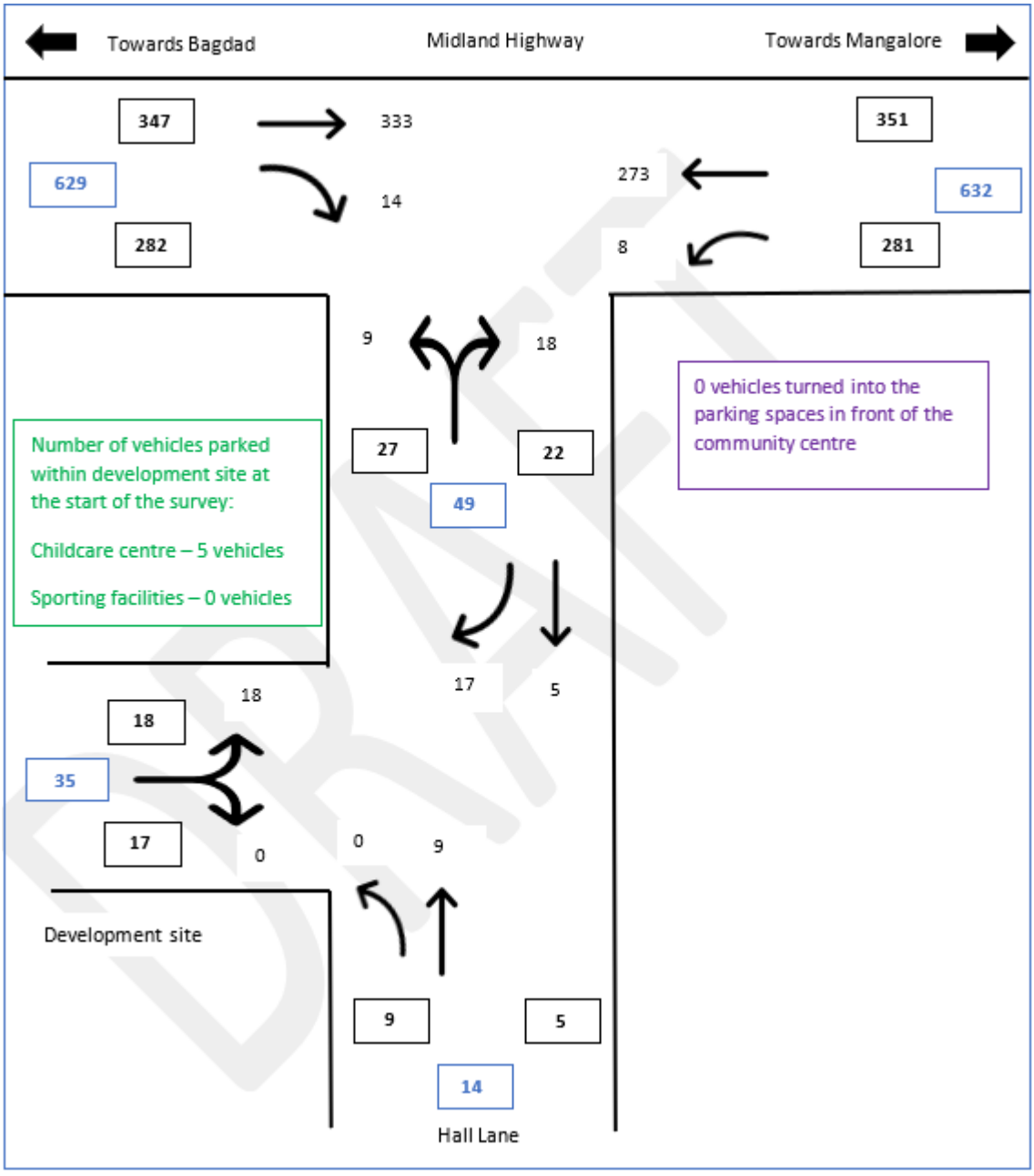
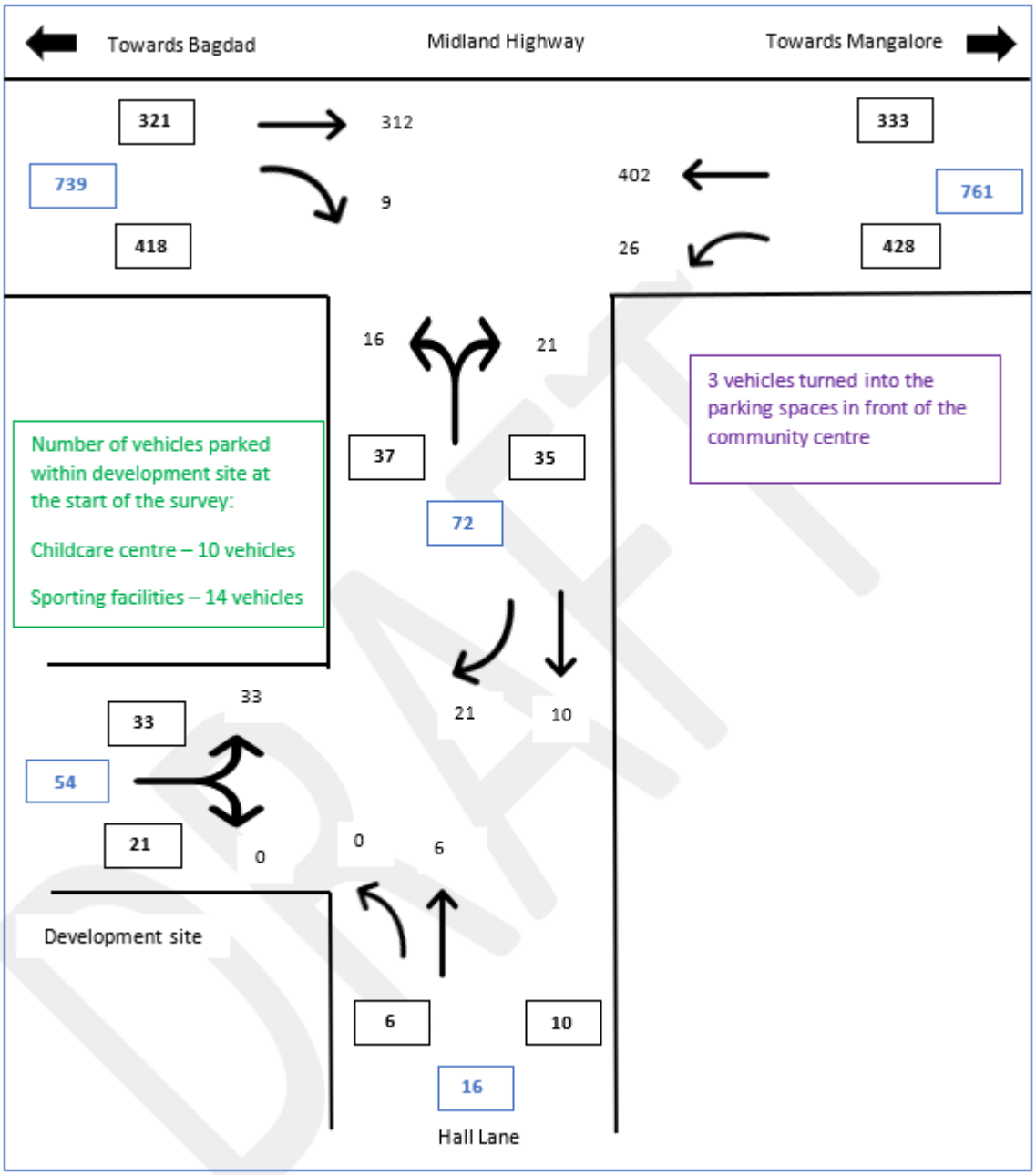


Diagram 11.1 – Evening peak hour flows



12. Appendix B – Traffic modelling

Hall Lane and the highway junction

Morning peak period – Existing flows

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Morning existing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	9	0.0	0.049	6.7	LOS A	0.2	1.2
3	R2	18	0.0	0.049	11.7	LOS A	0.2	1.2
Approach		27	0.0	0.049	10.0	LOS A	0.2	1.2
East: Midland Hwy								
4	L2	8	0.0	0.004	5.5	LOS A	0.0	0.0
5	T1	273	10.0	0.149	0.0	LOS A	0.0	0.0
Approach		281	9.7	0.149	0.2	NA	0.0	0.0
West: Midland Hwy								
11	T1	333	10.0	0.182	0.0	LOS A	0.0	0.0
12	R2	14	0.0	0.013	6.6	LOS A	0.0	0.3
Approach		347	9.6	0.182	0.3	NA	0.0	0.3
All Vehicles		655	9.3	0.182	0.6	NA	0.2	1.2

Evening peak period – Existing flows

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Evening existing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	16	0.0	0.076	7.5	LOS A	0.3	1.9
3	R2	21	0.0	0.076	14.0	LOS A	0.3	1.9
Approach		37	0.0	0.076	11.2	LOS A	0.3	1.9
East: Midland Hwy								
4	L2	26	0.0	0.014	5.5	LOS A	0.0	0.0
5	T1	402	10.0	0.220	0.0	LOS A	0.0	0.0
Approach		428	9.4	0.220	0.4	NA	0.0	0.0
West: Midland Hwy								
11	T1	312	10.0	0.170	0.0	LOS A	0.0	0.0
12	R2	9	0.0	0.010	7.4	LOS A	0.0	0.3
Approach		321	9.7	0.170	0.2	NA	0.0	0.3
All Vehicles		786	9.1	0.220	0.8	NA	0.3	1.9

Morning peak period – Existing flows with development operating

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Morning with development]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	22	0.0	0.128	6.8	LOS A	0.5	3.3
3	R2	45	0.0	0.128	12.6	LOS A	0.5	3.3
Approach		67	0.0	0.128	10.7	LOS A	0.5	3.3
East: Midland Hwy								
4	L2	23	0.0	0.012	5.5	LOS A	0.0	0.0
5	T1	273	10.0	0.149	0.0	LOS A	0.0	0.0
Approach		296	9.2	0.149	0.4	NA	0.0	0.0
West: Midland Hwy								
11	T1	333	10.0	0.183	0.0	LOS A	0.0	0.0
12	R2	39	0.0	0.037	6.7	LOS A	0.1	1.0
Approach		372	9.0	0.183	0.7	NA	0.1	1.0
All Vehicles		735	8.2	0.183	1.5	NA	0.5	3.3

Evening peak period – Existing flows with development operating

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Evening with development]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	33	0.0	0.164	7.6	LOS A	0.6	4.1
3	R2	44	0.0	0.164	14.9	LOS B	0.6	4.1
Approach		77	0.0	0.164	11.8	LOS A	0.6	4.1
East: Midland Hwy								
4	L2	56	0.0	0.030	5.5	LOS A	0.0	0.0
5	T1	402	10.0	0.220	0.0	LOS A	0.0	0.0
Approach		458	8.8	0.220	0.7	NA	0.0	0.0
West: Midland Hwy								
11	T1	312	10.0	0.171	0.0	LOS A	0.0	0.0
12	R2	19	0.0	0.022	7.7	LOS A	0.1	0.6
Approach		331	9.4	0.171	0.5	NA	0.1	0.6
All Vehicles		866	8.2	0.220	1.6	NA	0.6	4.1

Hall Lane and development site access

Morning peak period – Existing flows

MOVEMENT SUMMARY

Site: 101 [Hall lane with development - Morning existing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Hall LAne								
5	T1	5	0.0	0.013	0.0	LOS A	0.1	0.4
6	R2	18	0.0	0.013	5.5	LOS A	0.1	0.4
Approach		23	0.0	0.013	4.2	NA	0.1	0.4
North: Development site								
7	L2	19	0.0	0.013	5.6	LOS A	0.0	0.3
9	R2	1	0.0	0.013	5.5	LOS A	0.0	0.3
Approach		20	0.0	0.013	5.6	LOS A	0.0	0.3
West: Hall LAne								
10	L2	1	0.0	0.005	5.5	LOS A	0.0	0.0
11	T1	9	0.0	0.005	0.0	LOS A	0.0	0.0
Approach		11	0.0	0.005	0.6	NA	0.0	0.0
All Vehicles		54	0.0	0.013	4.0	NA	0.1	0.4

Evening peak period – Existing flows

MOVEMENT SUMMARY

Site: 101 [Hall lane with development - Evening existing]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Hall LAne								
5	T1	11	0.0	0.018	0.0	LOS A	0.1	0.6
6	R2	22	0.0	0.018	5.5	LOS A	0.1	0.6
Approach		33	0.0	0.018	3.7	NA	0.1	0.6
North: Development site								
7	L2	35	0.0	0.022	5.6	LOS A	0.1	0.6
9	R2	1	0.0	0.022	5.6	LOS A	0.1	0.6
Approach		36	0.0	0.022	5.6	LOS A	0.1	0.6
West: Hall LAne								
10	L2	1	0.0	0.004	5.5	LOS A	0.0	0.0
11	T1	6	0.0	0.004	0.0	LOS A	0.0	0.0
Approach		7	0.0	0.004	0.8	NA	0.0	0.0
All Vehicles		76	0.0	0.022	4.3	NA	0.1	0.6

Morning peak period – Existing flows with development operating

MOVEMENT SUMMARY

Site: 101 [Hall lane with development - Morning with development]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Hall LAne								
5	T1	5	0.0	0.036	0.0	LOS A	0.2	1.2
6	R2	60	0.0	0.036	5.5	LOS A	0.2	1.2
Approach		65	0.0	0.036	5.0	NA	0.2	1.2
North: Development site								
7	L2	61	0.0	0.038	5.6	LOS A	0.2	1.1
9	R2	1	0.0	0.038	5.7	LOS A	0.2	1.1
Approach		62	0.0	0.038	5.6	LOS A	0.2	1.1
West: Hall LAne								
10	L2	1	0.0	0.005	5.5	LOS A	0.0	0.0
11	T1	9	0.0	0.005	0.0	LOS A	0.0	0.0
Approach		11	0.0	0.005	0.6	NA	0.0	0.0
All Vehicles		138	0.0	0.038	4.9	NA	0.2	1.2

Evening peak period – Existing flows with development operating

MOVEMENT SUMMARY

Site: 101 [Hall lane with development - Evening with development]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Hall LAne								
5	T1	11	0.0	0.042	0.0	LOS A	0.2	1.4
6	R2	64	0.0	0.042	5.5	LOS A	0.2	1.4
Approach		75	0.0	0.042	4.7	NA	0.2	1.4
North: Development site								
7	L2	77	0.0	0.048	5.6	LOS A	0.2	1.4
9	R2	1	0.0	0.048	5.7	LOS A	0.2	1.4
Approach		78	0.0	0.048	5.6	LOS A	0.2	1.4
West: Hall LAne								
10	L2	1	0.0	0.004	5.5	LOS A	0.0	0.0
11	T1	6	0.0	0.004	0.0	LOS A	0.0	0.0
Approach		7	0.0	0.004	0.8	NA	0.0	0.0
All Vehicles		160	0.0	0.048	4.9	NA	0.2	1.4

Hall Lane and Midland Highway – development with traffic growth along the highway

Morning peak hour

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Morning with development and growth]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	22	0.0	0.149	7.1	LOS A	0.5	3.7
3	R2	45	0.0	0.149	14.6	LOS B	0.5	3.7
Approach		67	0.0	0.149	12.1	LOS A	0.5	3.7
East: Midland Hwy								
4	L2	23	0.0	0.012	5.5	LOS A	0.0	0.0
5	T1	317	10.0	0.173	0.0	LOS A	0.0	0.0
Approach		340	9.3	0.173	0.4	NA	0.0	0.0
West: Midland Hwy								
11	T1	386	10.0	0.212	0.0	LOS A	0.0	0.0
12	R2	39	0.0	0.039	7.0	LOS A	0.1	1.0
Approach		425	9.1	0.212	0.7	NA	0.1	1.0
All Vehicles		832	8.4	0.212	1.5	NA	0.5	3.7

Evening peak hour

MOVEMENT SUMMARY

Site: 101 [Hall Lane with Midland Hwy - Evening with development with growth]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Hall Lane								
1	L2	33	0.0	0.198	8.2	LOS A	0.7	4.9
3	R2	44	0.0	0.198	18.1	LOS B	0.7	4.9
Approach		77	0.0	0.198	13.8	LOS A	0.7	4.9
East: Midland Hwy								
4	L2	56	0.0	0.030	5.5	LOS A	0.0	0.0
5	T1	467	10.0	0.255	0.0	LOS A	0.0	0.0
Approach		523	8.9	0.255	0.6	NA	0.0	0.0
West: Midland Hwy								
11	T1	362	10.0	0.199	0.0	LOS A	0.0	0.0
12	R2	19	0.0	0.024	8.1	LOS A	0.1	0.6
Approach		381	9.5	0.199	0.4	NA	0.1	0.6
All Vehicles		981	8.5	0.255	1.6	NA	0.7	4.9