SOUTHERN TASMANIAN NETBALL ASSOCIATION
'We're having a ball'

Address: PO Box 310 Moonah • Tel: 03 6228 0760 • Email: info@stna.org.au

10 December 2021

Liz Wilson
Acting Senior Statutory Planner
City Planning
City of Hobart

Re: Application No. PLN-21-809

Dear Liz

In response to the additional information requested **HER 2**, I offer the following and the additional attachments (quotations for the works to give details).

1. Aerial photo attached separately shows the dotted line where the 3 sides of new fence will be situated and points to where gates will be placed.
   The gate closest to the netball centre will be a pedestrian gate PLUS a double gate to allow Ambulance access if required. The other gate indicated is a pedestrian gate only to allow access to grass/garden for upkeep.

2. No structures are to be removed at all. The existing seats and shade structures on green 3 that will become netball courts, will stay and be used.
   The hedge will not be removed and the fence behind it will stay in place and form the 4th side of the fencing.

3. The walkways are not cantilevered, they are simply replacing existing grass with artificial grass to make them more level and suitable in all-weather conditions to ensure non-slip, stable footing for bowlers.
   The shade/shelter structures (as per the previously supplied quotes and diagrams) are on all 3 sides as indicated by the solid pink lines around green 2 in the attached picture.
   Currently bowling green 2 has umbrellas for shade (picture attached) that are not fit for purpose, can not be used when windy and do not provide sufficient protection from the sun or rain.
   Recently a visiting bowls team refused to play on green 2 because of the lack of protection from the weather when there were intermittent showers affecting the game.
   The proposed changes will solve this ongoing problem and add to the comfort, safety and enjoyment of Buckingham Bowls Club members.

This plan has been developed through cooperation and a partnership between STNA and Buckingham Bowls club with fencing design and placement approved by both parties.

Please let me know if you need any other information.

Kind regards

Dean

Dean Jackson
Centre Manager
Southern Tasmanian Netball Association
Hobart Netball and Sports Centre

SOUTHERN TASMANIAN NETBALL ASSOCIATION
'We're having a ball'

Address: PO Box 310 Moonah • Tel: 03 6228 0760 • Email: info@stna.org.au

29 November 2021

Dear City of Hobart

The Southern Tasmanian Netball Association requests approval to change the surface (and the sport using it) of an unused bowling green at the Buckingham Bowls Club at 4-10 St Johns Avenue.

Buckingham Bowls club offered the land to our netball association as they have no need for the third green and have gone through an exhaustive process of trying to find a new user including leasing the space to another bowls club.

With no use found for the area as a bowling green they offered the space to us to develop an additional two netball courts as the area borders our centre.

We have had several meetings with the bowls club, and with Shannon Avery from the City of Hobart who both enthusiastically support the plan and we were ready to proceed with the change to the surface when we were notified the area is Heritage Listed and therefore we must lodge a Planning Application to be able to proceed with the change.

We have been granted funds from the Tasmanian Government to do this project and replace some shading on the other bowls greens and to make the surface around the other bowls green safer and all weather and this was all in fact organised to proceed and be completed by November 2021 until we were notified we needed approval due to the Heritage listing of the bowls club.

The new surface will be contained completely within the current bowling green area so there is no change to the size of the playing area and we are adding a security fence so the netball operations do not interfere at all with the bowls club.

Our centre is at capacity, and this change will allow us to continue to cater for a very large netball community and to provide a valuable asset that can be used by the wider community for netball and Basketball.

I have included the accepted quote for the works on the netball courts.

Please let me know if you need any further information to help with your decision.

We hope to hear from you soon.

Kind regards

Dean Jackson
Centre Manager
Hobart Netball & Sport Centre
Southern Tasmanian Netball Association
Email: venue.operations@stna.org.au

BLACKTAC

Plexipave

BLACKTAC NO3 PTY LTD
448 WESTBURY ROAD
PROSPECT TASMANIA 7250
PHONE / FAX : 03 6344 5723
EMAIL : blacktac@bigpond.com
WEB : www.blacktac.com.au

WAYNE CHUGG : 0417 331 001
ABN : 18 629 876 151

18TH June 2021

2 NETBALL COURTS – 1444m2

Dean Jackson
Southern Netball Association

Email : venue.operations@stna.org.au

Hello Dean,

Further to our recent conversation we would like to submit the following quotation.
Provide temporary access roadway for site access and remove at project completion.
Removal of steel/timber rack from site.
Excavate existing bowling green to approx.150mm depth and grade to suit new levels.
Supply geo-fabric under base course. Import 200mm thick base materials and grade to suit new levels.
Supply and install grated drain (Everhard 'Evomax' item #4770235 from Bunnings) to both side of the courts (76 metres total). Connect grated drain to existing storm water connection.
Excludes any other works than stated in inclusions, any council permit fees or other.
Any rock obstructions to be deemed variation to contract.
Supply, lay and compact 30mm thickness asphalt.
Surface to be crowned in the centre with approx.. 200mm fall to both sides. (1444m2)

Supply and lay a 'Plexipave' surfacing system to match existing courts at Creek Road.
Erect a 3 metre high galvanized chain wire fence with top rail and (2) P.A. gates.
Supply and install (4) netball posts. (Lighting has not been included).
Clean up site.

PRICE : $214,860.00
GST : $ 21,486.00
TOTAL : $236,346.00

The 'Plexipave' system under the control of Blacktac Pty Ltd is guaranteed against faulty material and workmanship for a period of (5) years.
Save and except from fair wear and tear and 'Acts of God'.

Hoping to be of service.

Kind Regards
Wayne Chugg

SOUTHERN TASMANIAN NETBALL ASSOCIATION
'We're having a ball'

Address: PO Box 310 Moonah • Tel: 03 6228 0760 • Email: info@stna.org.au

3 December 2021

Liz Wilson
Acting Senior Statutory Planner
City Planning
City of Hobart

Re: Application No. PLN-21-809

Dear Liz

In response to the additional information requested **HER 1**, I offer the following and the additional attachments (quotations for the works to give details).

1. Clarify what is meant by the covering letter that states: 'replace some shading on the other bowls greens and to made the surface around the other bowls greens safer and all weather'. Show on a site plan what additional works are proposed including pathways, steps or other landscaping.

Response: The current shading on Bowling Green 2 is inadequate and does not offer vital UV protection to the players. As per the attached quotations, it is proposed to install robust shading that will stand up to the elements and protect the players while they are waiting to bowl.

There are no additional works in the form or pathways, steps or landscaping except to replace current grass surrounds of Bowling Green 2 with all-weather artificial grass that will provide a stable, non-slip surface that will not become dangerous or slippery for the players when it is wet.

The playing surface is not changing, but it is worth noting that the playing surface of Bowling Green 1 was changed from grass to artificial grass several years ago and it also has artificial surrounds as this application is proposing.

2. The chain wire fence is shown on only one side of the existing bowls green. Please clarify if there will be fencing on the other three sides.

Response: The initial request for more information only mentioned the external chain wire fence as it is visible from the road. There are two other sides that will have new fencing. The side that borders the Bowls Club and the side that will border the Bowls Club storage shed.
The existing fence on the driveway currently between the existing netball court and the bowling green we want to turn into netball courts will be kept and will form the 4th side of

the new fenced area. We are also keeping the hedge in place that is growing against the existing fence.
The new fencing is designed to keep the bowls club secure and separate from the netball courts.

This plan has been developed through cooperation and a partnership between STNA and Buckingham Bowls club with fencing design and placement approved by both parties.

Please let me know if you need any other information.

Kind regards

Dean

Dean Jackson
Centre Manager
Southern Tasmanian Netball Association
Hobart Netball and Sports Centre

– – – – – – indicates 3m high fence. At least 5m from existing border fence that meets the footpath

Google Maps

the Green closest to our Netball Centre

SOUTHERN TASMANIAN NETBALL ASSOCIATION
'We're having a ball'

Address: PO Box 310 Moonah • Tel: 03 6228 0760 • Email: info@stna.org.au

1 December 2021

Dear Liz

Thank you for your letter dated 30 November 2021 to venue.operations@snta.org.au.

In response to the request for additional information, I have provided an aerial photograph showing PLN 1 the bowling green that will be converted to the netball courts.

And PLN 2 on the same picture I have drawn a series of dashes - - - to indicate where the fence will go. It is approx. 5m from the current boundary wall/fence that meets the footpath, so is not within 4.5m of the frontage with New Town Road.

PLN3 The hours of use would be primarily Saturdays from 8.40am until 5.30pm
And Monday to Friday between 3pm and 5.30pm

PLN 4 I can confirm there is no external lighting proposed for the new courts

PLN 5 Commercial and patron movements will be in-line with PLN 3. Saturdays from 8.40am until 5.30pm
And Monday to Friday between 3pm and 5.30pm

Please let me know if you need any other information

Kind regards

Dean Jackson
Southern Tasmanian Netball Association
Centre Manager

City of HOBART

Enquiries to: City Planning
Phone: (03) 6238 2715
Email: coh@hobartcity.com.au

3 November 2021

Dean Jackson (STNA)
4-10 St Johns Avenue
NEW TOWN TAS 7008

mailto: venue.operations@stna.org.au

Dear Sir/Madam

4 - 10 ST JOHNS AVENUE, NEW TOWN - WORKS ON COUNCIL LAND NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION - GMC-21-66

Site Address:

4 – 10 St Johns Avenue, New Town

Description of Proposal:

Works on Council Land

Applicant Name:

Dean Jackson
Southern Tasmanian Netball Association

PLN *(if applicable)*:

N/A

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents. I granted consent pursuant to delegation, a copy of which is enclosed.

Please note that the granting of the consent is only for the making of the application and in no way should such consent be seen as prejudicing any decision the Council is required to make as the statutory planning authority.

This consent does not constitute an approval to undertake any works and does not authorise the owner, developer or their agents any right to enter or conduct works on any Council managed land whether subject to this consent or not.

If planning approval is granted by the planning authority, you will be required to seek approvals and permits from the City as both landlord, land manager, or under other statutory powers (such as other legislation or City By-Laws) that are not granted with the issue of a planning permit under a planning scheme. This includes the requirement for you to reapply for a permit to occupy a public space under the City's Public Spaces By-law if the proposal relates to such an area.

Accordingly, I encourage you to continue to engage with the City about these potential requirements.

Yours faithfully

(Glenn Doyle)
DIRECTOR CITY AMENITY

Relevant documents/plans:

Letter - Dean Jackson, Southern Tasmanian Netball Association

SOUTHERN TASMANIAN NETBALL ASSOCIATION

'We're having a ball'

Address: PO Box 310 Moonah • Tel: 03 6228 0760 • Email: info@stna.org.au

22 October 2021

Dear General Manager

The Southern Tasmanian Netball Association requests your consent to submit a Planning Application to change the surface (and the purpose) of an unused bowling green at the Buckingham Bowls Club at 4-10 St Johns Avenue.

Buckingham Bowls club offered the land to our netball association as they have no need for the third green and have gone through an exhaustive process of trying to find a new user including leasing the space to another bowls club.

With no use found for the area as a bowling green they offered the space to us to develop an additional two netball courts as the area borders our centre.

We have had several meetings with the bowls club, and with Shannon Avery from the City of Hobart who both enthusiastically support the plan and we were ready to proceed with the change to the surface when we were notified the area is Heritage Listed and therefore we must lodge a Planning Application to be able to proceed with the change.

I have included the quote we received for the work and we have been granted a sum of money by the Tasmanian Government to make the change and now we request your consent to lodge our application and hopefully move ahead with the much needed community project.

The new surface will be contained completely within the current bowling green area so there is no change to the size of the playing area and we are adding a security fence so the netball operations do not interfere at all with the bowls club.

Our centre is at capacity, and this change will allow us to continue to cater for a very large netball community and to provide a valuable asset that can be used by the wider community for netball and Basketball.

Please let me know if you need any further information to help with your decision.

We hope to hear from you soon.

Kind regards

Dean Jackson
Centre Manager
Hobart Netball & Sport Centre
Southern Tasmanian Netball Association
Email: venue.operations@stna.org.au

BLACKTAC

BLACKTAC NO3 PTY LTD
448 WESTBURY ROAD
PROSPECT TASMANIA 7250
PHONE / FAX : 03 6344 5723
EMAIL : blacktac@bigpond.com
WEB : www.blacktac.com.au

WAYNE CHUGG : 0417 331 001
ABN : 18 629 876 151

18TH June 2021

2 NETBALL COURTS – 1444m2

Dean Jackson
Southern Netball Association

Email : venue.operations@stna.org.au

Hello Dean,

Further to our recent conversation we would like to submit the following quotation.
Provide temporary access roadway for site access and remove at project completion.
Removal of steel/timber rack from site.
Excavate existing bowling green to approx.150mm depth and grade to suit new levels.
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Supply and install grated drain (Everhard 'Evomax' item #4770235 from Bunnings) to both side of the courts (76 metres total). Connect grated drain to existing storm water connection.
Excludes any other works than stated in inclusions, any council permit fees or other.
Any rock obstructions to be deemed variation to contract.

Supply, lay and compact 30mm thickness asphalt.
Surface to be crowned in the centre with approx.. 200mm fall to both sides. (1444m2)

Supply and lay a 'Plexipave' surfacing system to match existing courts at Creek Road.
Erect a 3 metre high galvanized chain wire fence with top rail and (2) P.A. gates.
Supply and install (4) netball posts. (Lighting has not been included).
Clean up site.

PRICE : $214,860.00
GST : $ 21,486.00
TOTAL : $236,346.00

The 'Plexipave' system under the control of Blacktac Pty Ltd is guaranteed against faulty material and workmanship for a period of (5) years.
Save and except from fair wear and tear and 'Acts of God'.

Hoping to be of service.

Kind Regards
Wayne Chugg

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
149031	1
EDITION	DATE OF ISSUE
1	01-Mar-2007

SEARCH DATE : 30-Nov-2021
SEARCH TIME : 10.34 AM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Sealed Plan 149031
Derivation : Whole of Lot 1000 (229m2) The Crown and Whole of Lot 1 on Plan 131801 Gtd. to The Crown
Prior CTs 149031/1000 and 138753/1

SCHEDULE 1

C215003 & C583173 TRANSFER HOBART CITY COUNCIL is seized of a conditional estate in fee simple

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
C165059 Application Reserving unto THE CROWN the right upon payment of $20,000 to resume the said land within described: (a) If it is not used for the purpose of public or recreational use and, (b) If having been used for such purpose it is no longer being so used. (as relates to that portion of Lot 1 formerly comprised in Certificate of Title Volume 138753 Folio 1)
C215003 Application Reserving unto THE CROWN the right upon payment of $20,000 to resume the said land within described: (a) If it is not used for the purpose of public or recreational use and, (b) If having been used for such purpose it is no longer being so use (as relates to that portion of Lot 1 formerly comprised in Certificate of Title Volume 138753 Folio 1)
C215003 & C583173 FENCING PROVISION in Transfer

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

OWNER HOBART CITY COUNCIL
THE CROWN

FOLIO REFERENCE C.T. 138753-1
27A. C583172

GRANTEE WHOLE OF LOT 1, 5·126ha., GRANTED TO THE CROWN.
WHOLE OF LOT 1000 229 m² THE CROWN.

PLAN OF SURVEY

BY SURVEYOR TONY WOOLFORD
LOCATION 72 GRAHAMS ROAD, MT. RUMNEY. 7170
Phone 6248 5224

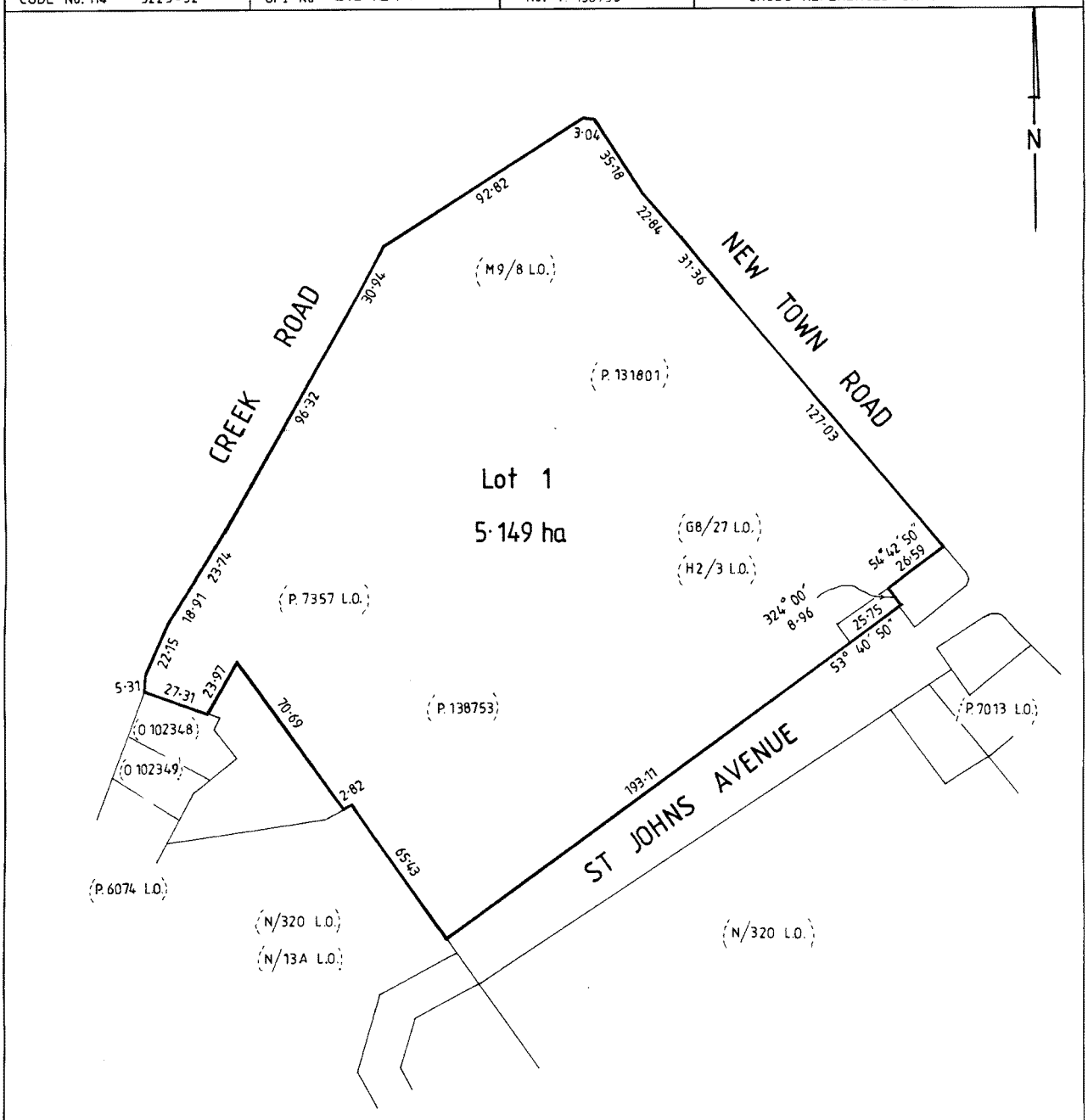
CITY OF HOBART

SCALE 1: 1,500 LENGTHS IN METRES

REGISTERED NUMBER
SP149031

APPROVED
EFFECTIVE FROM - 1 MAR 2007
Alice Kawa
Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114 5225-32	LAST UPI No 2104574	LAST PLAN No. P 138753	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



LOT 1 COMPILED FROM C.T. 138753-1 AND THIS SURVEY.

Manager, Crown Land Services
~~COUNCIL DELEGATE~~ DATE

(1-1)

SCHEDULE OF EASEMENTS	Registered Number
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	SP 149031

EASEMENTS AND PROFITS

Each lot on the plan is together with:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
(2) any easements or profits a prendre described hereunder.
Each lot on the plan is subject to:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
(2) any easements or profits a prendre described hereunder.
The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

No easements covenants or profits a prendre are intended to be created.

SIGNED by Michael David Jones)
being and as a Manager Crown Land Serv.)
prescribed in Statutory Rule No. 187 of 2001 and)
pursuant to an Instrument of Delegation dated the)
25th November 2004 in the presence of:-)

Signature of witness: T. Ferraro-Quinn
Occupation: Public Servant
Address: 134 Macquarie St Hobart

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: HOBART CITY COUNCIL & THE CROWN	SEALED BY:
FOLIO REF: 138753/1 & 149031/1000	DATE:
SOLICITOR & REFERENCE: Crown Solicitor	..... REF NO. ..... Council Delegate

NOTE: The Council Delegate must sign the Certificate for the purposes of identification.

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
138753	2
EDITION	DATE OF ISSUE
1	02-Apr-2003

SEARCH DATE : 30-Nov-2021
SEARCH TIME : 10.34 AM

DESCRIPTION OF LAND

City of HOBART
Lot 2 on Diagram 138753 (Section 27A of the Land Titles Act.)
Derivation : Whole of Lot 2 on Diagram 138753 Gtd. to The Crown

SCHEDULE 1

C436802 TRANSFER to HOBART CITY COUNCIL Registered 02-Apr-2003 at 12.01 PM

SCHEDULE 2

C436811 Land is limited in depth to 15 metres, excludes minerals and is subject to reservations relating to drains sewers and waterways in favour of the Crown
C436802 Land is limited in depth to 15 metres, excludes minerals and is subject to reservations relating to drains sewers and waterways in favour of the Crown
C436802 Transfer Made Subject To Fencing Condition.

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

OWNER HOBART CITY COUNCIL & THE CROWN

FOLIO REFERENCE 131801/1 & SECTION 27A APPN (C.436811)

GRANTEE WHOLE OF LOT 1 ON PLAN 131801 5.126Ha GTO TO THE CROWN & WHOLE OF 2192m² GTD TO THE CROWN. F. LOT 1

PLAN OF SURVEY

BY SURVEYOR OAVIO B MILLER

LOCATION

CITY OF HOBART

SCALE 1: 1500 LENGTHS IN METRES

REGISTERED NUMBER

P 138753

APPROVED

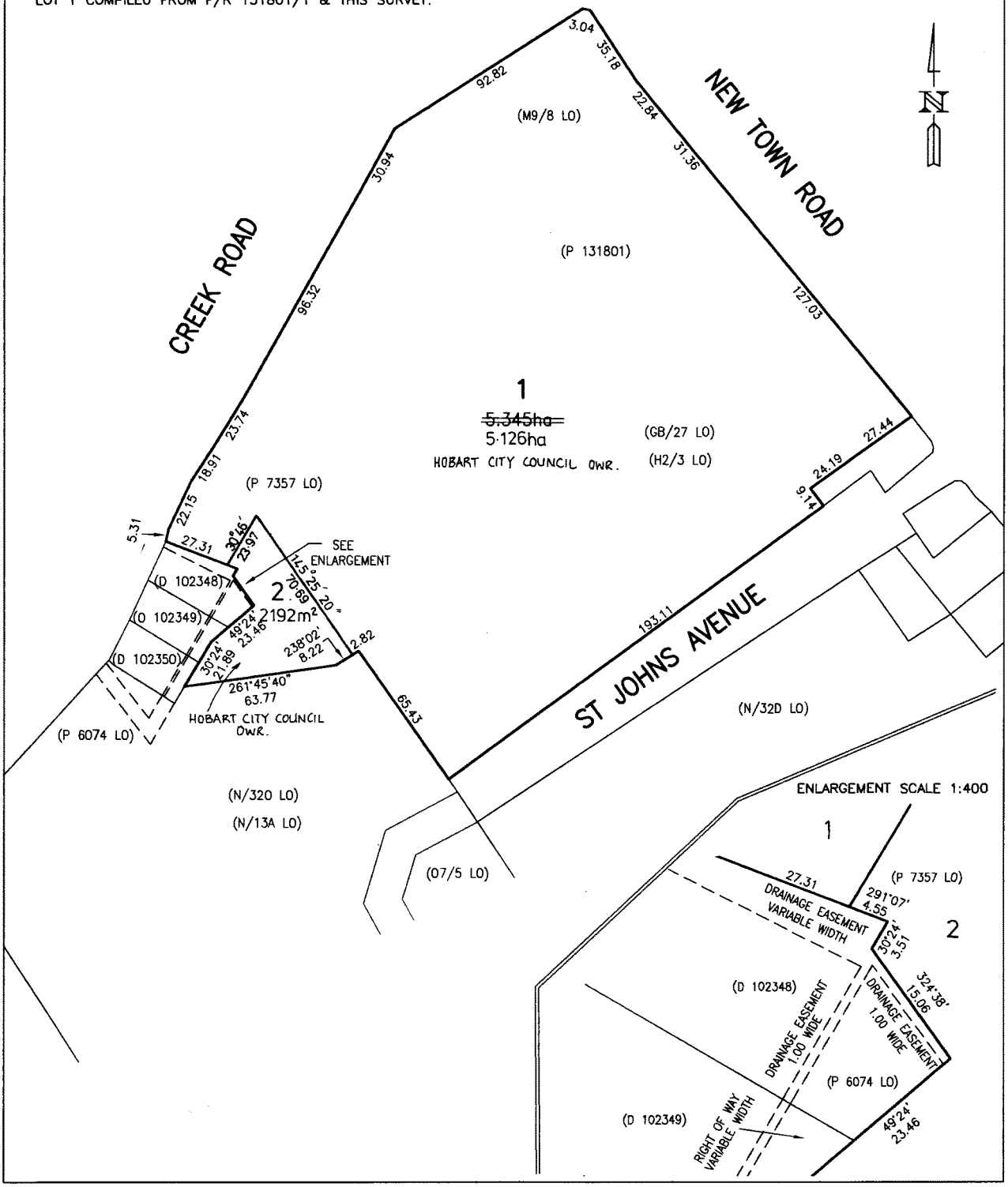
EFFECTIVE FROM 1 APRIL 2003

Alice Kawa

Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114 / 5225-32	LAST UPI No. 2104574 2104873	LAST PLAN No. P 131801 P.6074 L.O.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

LOT 1 COMPILED FROM F/R 131801/1 & THIS SURVEY.



Planning: #243594

Property

1 ST JOHNS AVENUE NEW TOWN TAS 7008

People

Applicant
*
STNA
Dean Jackson
Cnr Creek Road and New Town Road
NEW TOWN TAS 7008
0467 853 980
venue.operations@stna.org.au

Owner
*
STNA
Dean Jackson
Cnr Creek Road and Main Road
NEW TOWN TAS 7008
0467 853 980
venue.operations@stna.org.au

Entered By
DEAN JACKSON
4 - 10 ST JOHNS AVENUE
NEW TOWN TAS 7008
0467 853 980
venue.operations@stna.org.au

Use

Other

Details

Have you obtained pre application advice?

- No

If YES please provide the pre application advice number eg PAE-17-xx

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application.
*

- No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the

number of signs under Other Details below.
*

- No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)?
*

Sport and Leisure

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage)
*

Change playing surface from grass to concrete, add perimeter fencing

Estimated cost of development
*

245000.00

Existing floor area (m2)	Proposed floor area (m2)	Site area (m2)
160.00	160.00	200

Carparking on Site

Total parking spaces	Existing parking spaces	N/A
0	0	Other (no selection chosen)

Other Details

Does the application include signage?
*

No

How many signs, please enter 0 if there are none involved in this application?
*

0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register?

- Yes

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements)
*
CouncilCertificate-149031-1.pdf

Plans (proposed, existing)
*
GMC-21-66 - 4-10 ST JOHNS AVENUE NEW TOWN TAS 7008 - Notice of Land Owner Consent to Lodge a Planning Application (including documents) (2).PDF

GM or Crown consent
GMC-21-66 - 4-10 ST JOHNS AVENUE NEW TOWN TAS 7008 - Notice of Land Owner Consent to Lodge a Planning Application (including documents) (2).PDF

Covering Letter
STNA Covering Letter for Planning Application.pdf


Creek Rd
Creek Rd
Southern Tasmanian Netball Association
Gate
3 Netball
2
Hobart Bowls Centre
New Town Cricket Club
Croquet Club

AD DESIGN+CONSULTING

Engineering + Development
Infrastructure Services
Project Management

13/09/2022

Liz Wilson
Acting Senior Statutory Planner
CITY OF HOBART
16 Elizabeth Street
Hobart, TAS 7001

Dear Liz,

RE: 4 – 10 St John Avenue, New Town
PLN-21-809

In reference to your request for further information dated 14th December 2021 regarding the above-mentioned project, please refer responses below addressing the raised items.

Should you have any further queries, please contact me on the details below.

Yours sincerely,

Tom Norman

Senior Engineer

AD Design & Consulting Pty Ltd

tom@addconsulting.com.au

SW 1:

Request

A site plan and sufficient levels to demonstrate how stormwater from the proposed development (including roofed areas, ag drains and impervious surfaces) will be disposed of via gravity to public stormwater infrastructure. Clearly distinguish between public infrastructure and Council-owned private infrastructure. Show all existing lot connections.

Advice: a single lot connection is allowed under the Urban Drainage Act, unlessdemonstrated that this is not practicable.

Response

Please refer to the enclosed stormwater management plan detailing how stormwater run off generated from the site will be drained via gravity to Council infrastructure. The lot connection is an existing kerb adaptor which has been clearly shown on the plan.

SW 5:

Request

A report prepared by a suitably qualified person demonstrating that the stormwater system for the new development incorporates stormwater quality treatment which achieves 80% removal total sediments, 45% removal total nitrogen and 45% removal of total phosphorous and (if a carpark) targets fine sediments and hydrocarbons.

If this treatment cannot be achieved, demonstrate why it is not feasible. Demonstrate no environmental harm to New Town Rivulet will occur from cleaning of the new court, addressing chemicals used, frequency and method.

Response

Please refer to the enclosed stormwater management plan detailing how stormwater run off generated from the site will be treated and pollutants removed to the treatment targets specified by the State Stormwater Strategy.

SW 6:

Request

A stormwater drainage report, design and supporting calculations prepared by a suitable qualified person which demonstrates compliance with the following:

1. Accommodate a storm with an ARI of 20 years when the land serviced by the system is fully developed.
2. Stormwater runoff will be no greater than pre-existing runoff or any increase can be accommodated within existing or upgraded public stormwater infrastructure.

This information must include the location and sizing (both volume and orifice size) for any detention tanks required, a statement that installation and operation will be prior to occupation or first use, and a maintenance plan. Timing of both flows from the site and within the Rivulet must be discussed. No worsening of flooding will beaccepted.

Advice: Council notes the pipework within the property boundaries which services only the lot is not considered public infrastructure but Council-owned private.

Response

Please refer to the enclosed stormwater management plan detailing how stormwater run off generated from the site will detained in underground storage tanks and flow restricted to the same rate as pre-development.

DESIGN MEMO

TO: **Development Engineer, City of Hobart**

FROM: **Tom Norman**

DATE: **24/08/2022**

PROJECT: **4 - 10 St John Avenue, New Town**

RE: **Design Memorandum – Stormwater Management**

Southern Tasmanian Netball Association has engaged AD Design & Consulting to provide advice on the stormwater management requirements for two proposed netball courts at 4 – 10 St John Avenue, New Town.

This document aims to satisfy the requirements of the Hobart Interim Planning Scheme 2015 through:

- assessment of the peak pre-development and post-development stormwater discharges from the site and providing mitigation solutions if required.
- Provide water-sensitive urban design in line with the State Stormwater Strategy.

Key site details are tabulated in Table 1.

Table 1: Site details

Location	**4 - 10 St John Avenue, New Town**
Municipality	City of Hobart
Policy Controls	Hobart Interim Planning Scheme 2015

Figure 1: 64 Alexander Street, Sandy Bay (LIST, 2021)

1 Stormwater Quantity

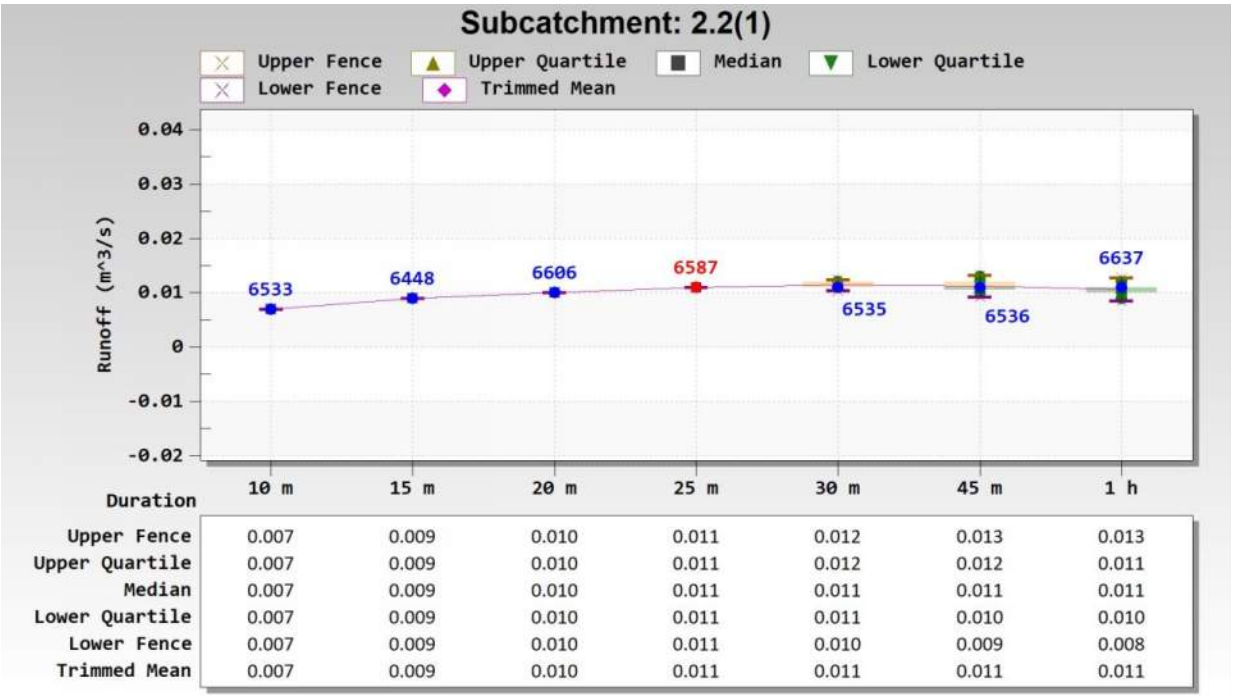
Determining Permissible Site Discharge

The Permissible Site Discharge (PSD) is based on the undeveloped scenario for the site. A predevelopment percentage impervious of 0% for the site has been adopted, this accounts for the current use case, being a lawn bowls green. Table 2 outlines the model parameters used to determine the PSD.

Table 2: PSD model parameters

Catchment Area	0.1444 ha
Fraction Impervious	0%
Manning's number	0.05 Previous 0.013 Impervious
Catchment slope	1%

The results of the hydrological analysis show that the mean peak discharge from the undeveloped site for the 25-minute storm duration was 11 L/s. Figure 2 shows the results of the analysis for the 5% AEP ensemble storm event.



Duration	10 m	15 m	20 m	25 m	30 m	45 m	1 h
Upper Fence	0.007	0.009	0.010	0.011	0.012	0.013	0.013
Upper Quartile	0.007	0.009	0.010	0.011	0.012	0.012	0.011
Median	0.007	0.009	0.010	0.011	0.011	0.011	0.011
Lower Quartile	0.007	0.009	0.010	0.011	0.011	0.010	0.010
Lower Fence	0.007	0.009	0.010	0.011	0.010	0.009	0.008
Trimmed Mean	0.007	0.009	0.010	0.011	0.011	0.011	0.011

Figure 2: Pre-development runoff (PSD)

Developed Scenario Runoff

The proposed development will increase the site's impervious area, which will increase stormwater runoff. Table 3 summarises the post develop catchment characteristics. To assess whether detention is required, the post-development and PSD are compared.

Table 3: Driveway model parameters

Court Area	0.1444 ha
Fraction Impervious	100%
Manning's number	0.013
Catchment slope	1%

The results of the hydrological analysis (Figure 3: post-development runoff) show that the critical storm duration is 15 min, with a mean peak discharge of 29 L/s. As such the site requires on-site detention to be installed to mitigate flows to pre-development flow rates.

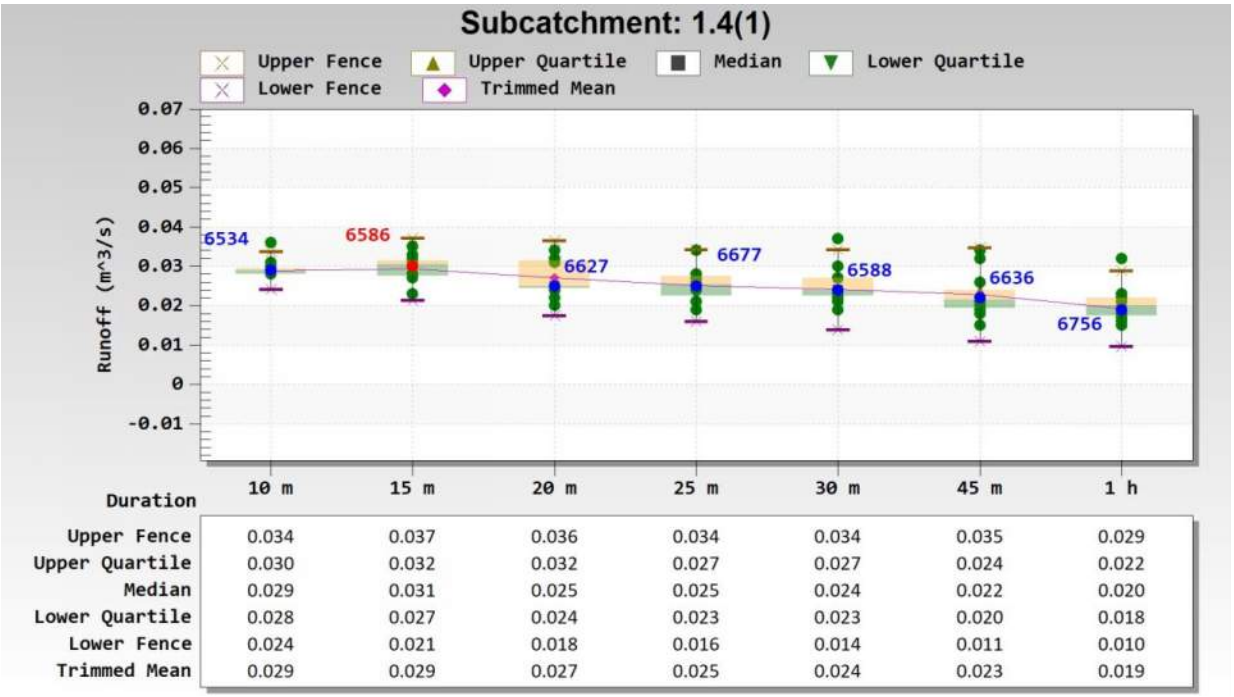


Figure 3: post-development runoff

Detention Design

It is proposed to drain the entire court area to an underground detention tank. Limiting the permissible site discharge for the developed site to the required 11/s, the modelling results are tabulated below. The hydrograph of the critical storm (ID6586) was selected for the design of the detention tank.

Table 4: Detention modelling results

Total Detention Volume	12m³
Detention Tank Size	4m x 3m x 1m underground detention tank
Control	DN70 orifice control valve located at the base of the last tank
Mitigated flow	11 l/s.

The results of the mitigate flow are shown in Figure 4. It is shown that the maximum storage volume in the tank reaches 12.16m^3, inflow is 30L/s and outflow is 11L/s. The results demonstrate that the underground detention tank is sufficient to effectively mitigate site discharge to the permissible site discharge.

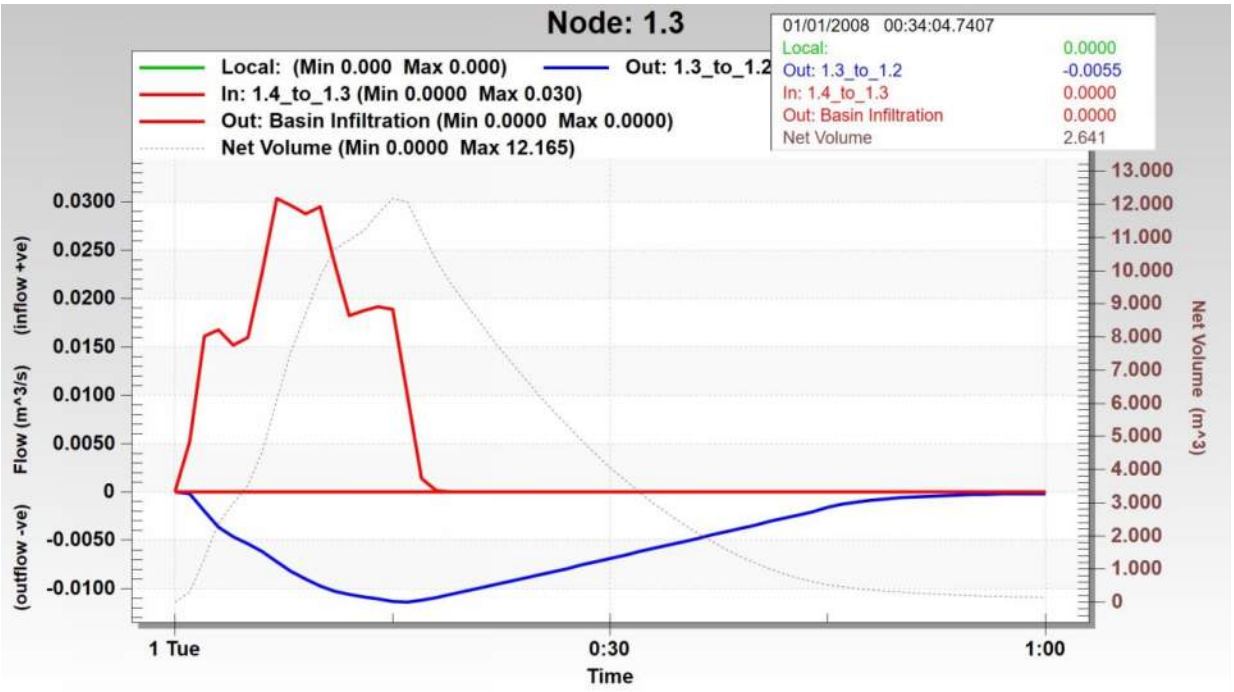


Figure 4: Storage volume calculation

2 Stormwater Quality

Methodology

Water quality modeling has been undertaken in accordance with Derwent Estuary Program and Water by Design guidelines. MUSIC software has been used to estimate the reduction targets for the given development. The parameters used within MUSIC are tabulated below.

Model Parameters

Table 5: Rainfall data

Parameter	Value
Rain station	Hobart - 094145
Time step (minutes)	6

Table 6: Rainfall parameters

Parameter	Value
Rainfall threshold (mm/day)	1
Soil storage capacity (mm)	120
Initial storage capacity (% of capacity)	25
Field capacity (mm)	50

Infiltration rapacity coefficient A	200
Infiltration capacity coefficient B	1
Initial depth (mm)	10
Daily recharge rate (%)	25.00
Daily base flow rate (%)	5.00
Daily deep seepage rate (%)	0

Table 7: Urban pollutant sources

Pollutant	Surface Type	Storm Flow		Base Flow	
		Mean (log mg/l)	SD (log mg/L)	Mean (log mg/l)	SD (log mg/L)
TSS	Roof	1.301	0.333	-	-
	Hardstand/ Road	2.431	0.333	-	-
	Ground	1.900	0.333	0.96	0.401
TP	Roof	-0.886	0.242	-	-
	Hardstand/ Road	-0.301	0.242	-	-
	Ground	-0.700	0.242	-0.731	0.360
TN	Roof	0.301	0.205	-	-
	Hardstand/ Road	0.342	0.205	-	-
	Ground	0.243	0.182	0.455	0.363

Table 8: Pollutant catchments

Pollutant Catchment	Pollutant Catchment (m^2)
Court	1443

2.1.1 Treatment Train

The proposed treatment train has been summarised in Figure 5: MUSIC model schematic and results in Table 9. A single pollutant source catchment was used as both sides of the tennis court will be drained to the treatment device before being discharged from the site. No catchment bypass was identified.

Table 9: Treatment node

Node	Quantity	Description
SPEL Hydrosystem 400 x 2 cartridges	1	The SPEL Hydrosystem is specifically designed for the the capture of gross pollutants and provide tertiary treatment of stormwater for small developments.

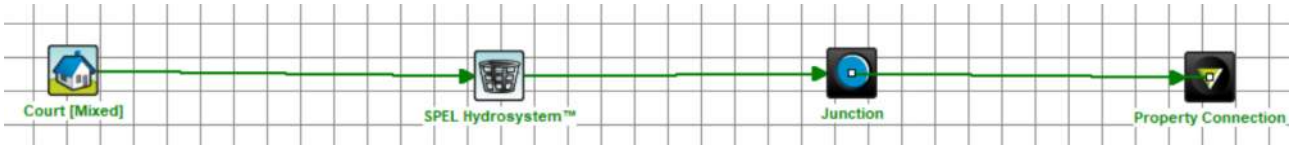


Figure 5: MUSIC model schematic and results

2.1.2 Results

The results of the pollution reduction are summarised in Table 10. It is shown that the proposed treatment train is effective at reducing pollutant levels.

Table 10: MUSIC treatment train effectiveness results summary

Pollutant (kg/yr)	Source (kg/yr)	Residual Load (kg/yr)	Reduction (%)
Total Suspended Solids	205	30.8	85
Total Phosphorus	0.344	0.117	66
Total Nitrogen	1.3	0.717	45
Gross Pollutants	21.9	0	100

3 Conclusion

It is concluded that stormwater runoff detention can be employed to control runoff to pre-development levels. The following arrangement has been modelled and is proposed:

A detention volume of at least 12m^3 with a DN70 orifice. This volume can be provided in any underground detention arrangement deemed suitable by the developer.

Stormwater from the site can be effectively treated by the installation of a **SPEL Hydrosystem HS400 with two cartridges**. This treatment train effectively brings down the pollutant load in line with the State Stormwater Strategy.

The site can therefore be developed in accordance with E7 of the Hobart Interim Planning Scheme 2015.

Regards,

Tom Norman
Senior Engineer

AD Design and Consulting

NOTE:

This plan represents the conceptual stormwater arrangement as specified in the accompanying stormwater management plan. These plans shall not for construction purposes. Refer to the stormwater management plan prepared by ADDC for additional details.

0 2.5 5 7.5 10 12.5m

SCALE 1:250 A3

SUBJECT TO FINAL VERIFICATION AND APPROVAL

FOR INFORMATION
NOT FOR CONSTRUCTION

Rev No	Date	Revision Note	Drn	Ver.	App.
A	01/09/22	Preliminary Issue	AB	TN	TN

AD DESIGN+CONSULTING
Engineering / Infrastructure Services / Project Management

Client: Southern Tasmanian Netball Association (STNA)

Project: 4-10 St Johns Avenue, New Town (Stormwater)

Drawn	Signed	Date
Designed	Signed	Date
Checked	Signed	Date
Approved	Signed	Date

Drawing Title: Drainage General Arrangement

Project No.: 22041
Scale: 1:250
Sheet Size: A3
Drawing No.: C-1-07-01
Rev: A

PLOTTED: 9/8/2022 10:21:10 AM c:\12ds\data\addc-s1\22047 - 4-10 st johns avenue, new town (stormwater)_10253\02 cadd\drawings\da\c-1-07-01.dwg

AMBIENT GARDENS

Horticulturists and Landscapers

PO Box 662
MOONAH TAS 7009

Mobiles: Rod Walker 0418 221 884
Jennifer Thomson 0400 792 619
Email: jenniferthomson2@bigpond.com
ABN: 65 085 035 521

26 April 2021

ATTENTION: Pat

Buckingham Bowls Club
4 St Johns Avenue
NEW TOWN TAS 7008

Email: bucksbowls@bigpond.com

Quote for the supply and installation of artificial grass at
4 St Johns Avenue
NEW TOWN TAS 7008

Location: Club bowling green: Area 2
Tasks:

- Excavate the existing lawn areas around the perimeter of the bowling green to allow for the introduction of base materials for the artificial grass; dispose of excavated material.
- Supply, install and compact the FCR (fine crushed rock) base layer.
- Supply, install and screed the metal dust layer; compact the metal dust to complete the base preparations.
- Supply and lay *Premium 40mm* artificial grass, trim to fit, join all sections with tape, and secure in place with pegs.
- Supply and apply the sand infill; sweep in to finish.
- Dispose of rubbish and any unwanted off cuts.

Excavation and disposal of soils	$8,700.00
FCR and metal dust base materials	7,000.00
Premium 40mm artificial grass, joining tape, pegs and kiln dried sand	+ 38,500.00
Materials	**$54,200.00**
Labour	**+ $11,550.00**
TOTAL (GST and delivery fees inclusive)	**$65,750.00**

Additional Information

- **This quotation is valid for three (3) months as from 26 April 2021.**
- **Ambient Gardens is fully insured and have White Card accreditation; verification of each can be produced upon request.**
- **Please note our terms of payment are strictly 14 days from Invoice Date.**

Cantilever Walkway Quote
#SGSNBC0022

System: v3.6.19
Eng Solution Ver: Gama Consulting: v13 March 2020
Date Produced: 02-Sep-21 3:11 PM

FIELDERS Centenary PATIOS CARPORTS VERANDAHS

Sheds N Homes Hobart
:
:
:Kyla Davidson
:0362636545

- CUSTOMER DETAILS -

First Name: Buckingham
Last Name: Bowls
Site Address: 4 St Johns Street
Suburb: New Town
TAS
Phone

- JOB DETAILS -

Email
Customer Reference: Buckingham Bowls
Wind: N2 B0
Delivery Notes

QUOTATION

Materials:	$28,927.26
Installation:	$0.00
SUPPLY ONLY	$28,927.26
+ Extra Items:	$0.00
+ Packing & Delivery:	$517.00
+ GST (10%):	$2,944.43
TOTAL (inc-GST)	$32,388.69

• extra fees may apply for specified time drop if required

PAYMENT STRUCTURE

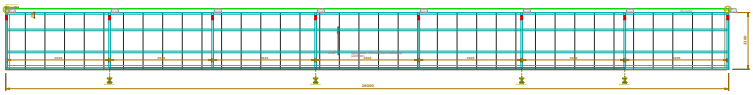
Deposit:	Payment 1:	Payment 2:	Payment 3:	Final:
0%	0%	0%	0%	100%
$0.00	$0.00	$0.00	$0.00	$32,389

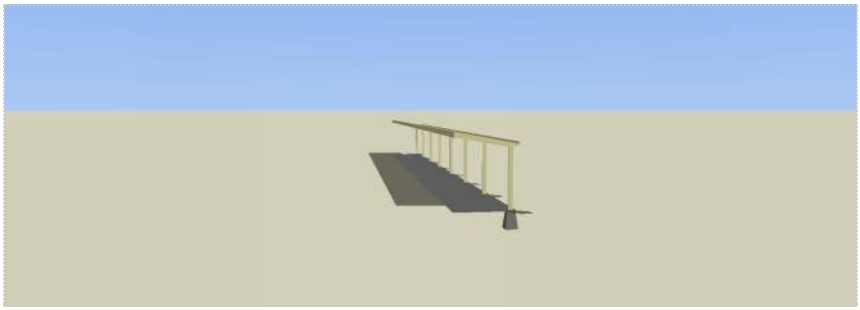
CONTRACT ACCEPTANCE

Please print your name, sign and date the box below. By signing this declaration, this quotation becomes a CONTRACT. You agree to the terms and conditions and the price of $32,388.69.

- NOTES -

- DESIGN SPECIFICATION -





COLOUR SELECTIONS

Purlin: Classic Cream	Roof: Classic Cream/Grey
Rafter: Classic Cream	Flashing: Classic Cream
Column: Classic Cream	Gutter: Classic Cream

Structure Use: Domestic
Type: Skillion, Monoslope, Free-standing Canopy
Size: approx. 2.2 metres wide x 36 metres long.
Height: 2300 mm (Column: 2300 mm)
Cantilever: 2000mm ; Rear:200mm
Number of Bays: 9
Bay Length: 3927 mm (between columns)
Roofing Material: Corrugated Colorbond (Non-Trafficable) roof sheeting.
Roof Pitch: 10°
Gutters: Colorbond OG Gutter
Fascia Beam: 158 x 65 x 1.0 Box Beam
Rafter: 158 x 65 x 1.0 Box Beam
Purlins: 65 x 65 x 0.8 Box Beam
Column: 150 x 50 x 3.0 RHS
Insert Frame: 150 x 50 x 3.0 RHS

Footing Type: Square Concrete Piers, In Ground
Footing Size: 900mm sq piers x 950 mm deep

Cantilever Walkway Quote
#SGSNBC0022

System: v3.6.19
Eng Solution Ver: Gama Consulting: v13 March 2020
Date Produced: 02-Sep-21 3:08 PM

FIELDERS Centenary PATIOS CARPORTS VERANDAHS

Sheds N Homes Hobart
:
:
:Kyla Davidson
:0362636545

- CUSTOMER DETAILS -

First Name: Buckingham
Last Name: Bowls
Site Address: 4 St Johns Street
Suburb: New Town
TAS
Phone

- JOB DETAILS -

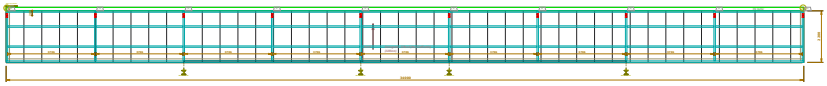
Email
Customer Reference: Buckingham Bowls
Wind: N2 B0
Delivery Notes

QUOTATION

Materials:	$35,570.96
Installation:	$0.00
SUPPLY ONLY	$35,570.96
+ Extra Items:	$0.00
+ Packing & Delivery:	$517.00
+ GST (10%):	$3,608.80
TOTAL (inc-GST)	$39,696.76

• extra fees may apply for specified time drop if required

- DESIGN SPECIFICATION -

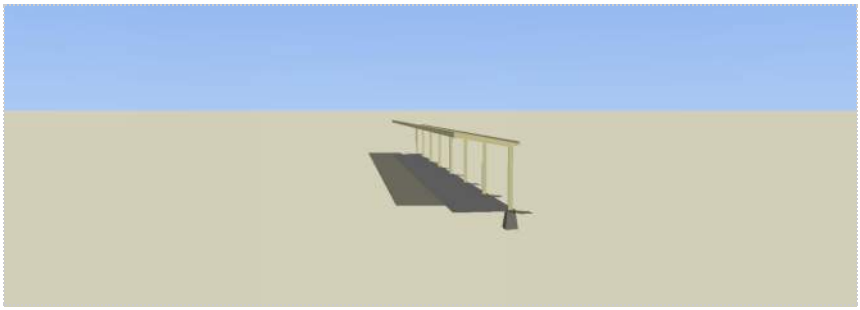


PAYMENT STRUCTURE

Deposit:	Payment 1:	Payment 2:	Payment 3:	Final:
0%	0%	0%	0%	100%
$0.00	$0.00	$0.00	$0.00	$39,697

CONTRACT ACCEPTANCE

Please print your name, sign and date the box below. By signing this declaration, this quotation becomes a CONTRACT. You agree to the terms and conditions and the price of $39,696.76.



COLOUR SELECTIONS

Purlin: Classic Cream	Roof: Classic Cream/Grey
Rafter: Classic Cream	Flashing: Classic Cream
Column: Classic Cream	Gutter: Classic Cream

- NOTES -

Structure Use: Domestic
Type: Skillion, Monoslope, Free-standing Canopy
Size: approx. 2.2 metres wide x 36 metres long.
Height: 2300 mm (Column: 2300 mm)
Cantilever: 2000mm ; Rear:200mm
Number of Bays: 9
Bay Length: 3927 mm (between columns)
Roofing Material: Corrugated Colorbond (Non-Trafficable) roof sheeting.
Roof Pitch: 10°
Gutters: Colorbond OG Gutter
Fascia Beam: 158 x 65 x 1.0 Box Beam
Rafter: 158 x 65 x 1.0 Box Beam
Purlins: 65 x 65 x 0.8 Box Beam
Column: 150 x 50 x 3.0 RHS
Insert Frame: 150 x 50 x 3.0 RHS

Footing Type: Square Concrete Piers, In Ground
Footing Size: 900mm sq piers x 950 mm deep

Cantilever Walkway Quote
#SGSNBC0022

System: v3.6.19
Eng Solution Ver: Gama Consulting: v13 March 2020
Date Produced: 02-Sep-21 3:05 PM

FIELDERS Centenary PATIOS CARPORTS VERANDAHS

Sheds N Homes Hobart
:
:
:Kyla Davidson
:0362636545

- CUSTOMER DETAILS -

First Name: Buckingham
Last Name: Bowls
Site Address: 4 St Johns Street
Suburb: New Town
TAS
Phone

- JOB DETAILS -

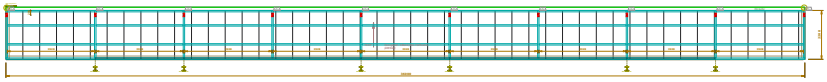
Email
Customer Reference: Buckingham Bowls
Wind: N2 B0
Delivery Notes

QUOTATION

Materials:	$36,568.76
Installation:	$0.00
SUPPLY ONLY	$36,568.76
+ Extra Items:	$0.00
+ Packing & Delivery:	$517.00
+ GST (10%):	$3,708.58
TOTAL (inc-GST)	$40,794.34

• extra fees may apply for specified time drop if required

- DESIGN SPECIFICATION -

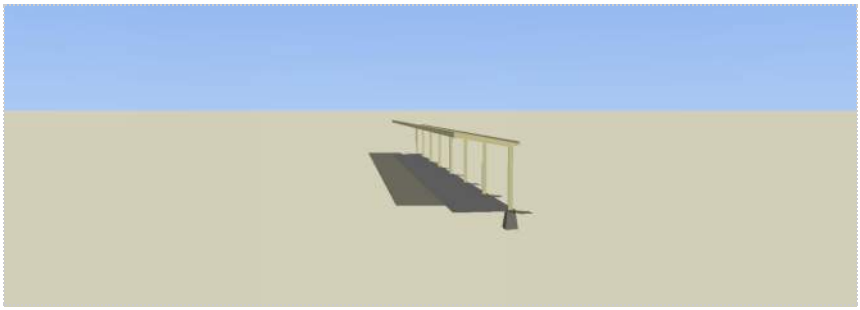


PAYMENT STRUCTURE

Deposit:	Payment 1:	Payment 2:	Payment 3:	Final:
0%	0%	0%	0%	100%
$0.00	$0.00	$0.00	$0.00	$40,794

CONTRACT ACCEPTANCE

Please print your name, sign and date the box below. By signing this declaration, this quotation becomes a CONTRACT. You agree to the terms and conditions and the price of $40,794.34.



COLOUR SELECTIONS

Purlin: Classic Cream	Roof: Classic Cream/Grey
Rafter: Classic Cream	Flashing: Classic Cream
Column: Classic Cream	Gutter: Classic Cream

- NOTES -

Structure Use: Domestic
Type: Skillion, Monoslope, Free-standing Canopy
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Rafter: 158 x 65 x 1.0 Box Beam
Purlins: 65 x 65 x 0.8 Box Beam
Column: 150 x 50 x 3.0 RHS
Insert Frame: 150 x 50 x 3.0 RHS

Footing Type: Square Concrete Piers, In Ground
Footing Size: 900mm sq piers x 950 mm deep

DESIGN MEMO

TO: **Development Engineer, City of Hobart**

FROM: **Tom Norman**

DATE: **21/12/2022**

PROJECT: **4 - 10 St John Avenue, New Town**

RE: **Design Memorandum – Stormwater Management**

Southern Tasmanian Netball Association has engaged AD Design & Consulting to provide advice on the stormwater management requirements for two proposed netball courts at 4 – 10 St John Avenue, New Town.

This document aims to satisfy the requirements of the Hobart Interim Planning Scheme 2015 through:

- assessment of the peak pre-development and post-development stormwater discharges from the site and providing mitigation solutions if required.
- Provide water-sensitive urban design in line with the State Stormwater Strategy.

The site has been split into two area. One site is for the re-development of the lawn bowls into a netball court (shown red), and the other site is the installation of four new sheltered areas (shown blue). The detention tank designs have been calculated individually however the water quality design has taken both sites as a single development to provide a single net reduction in water pollutants for the centre. This was done to avoid duplication of unnecessary infrastructure.

Key site details are tabulated in Table 1.

Table 1: Site details

Location	**4 - 10 St John Avenue, New Town**
Municipality	City of Hobart
Policy Controls	Hobart Interim Planning Scheme 2015

Figure 1: 64 Alexander Street, Sandy Bay (LIST, 2021)

1 Stormwater Quantity – Netball Courts

Determining Permissible Site Discharge

The Permissible Site Discharge (PSD) is based on the undeveloped scenario for the site. A predevelopment percentage impervious of 0% for the site has been adopted, this accounts for the current use case, being a lawn bowls green. Table 2 outlines the model parameters used to determine the PSD.

Table 2: PSD model parameters

Catchment Area	0.1444 ha
Fraction Impervious	0%
Manning's number	0.05 Previous 0.013 Impervious
Catchment slope	1%

The results of the hydrological analysis show that the mean peak discharge from the undeveloped site for the 25-minute storm duration was 11 L/s. Figure 2 shows the results of the analysis for the 5% AEP ensemble storm event.

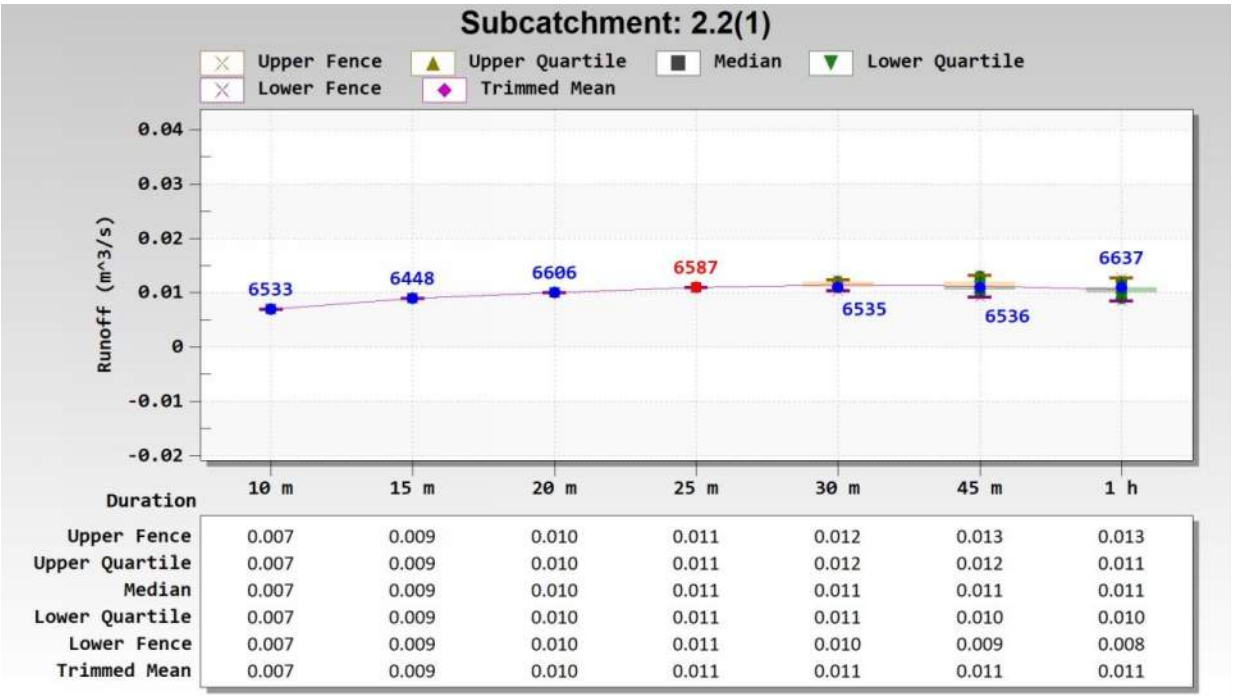


Figure 2: Pre-development runoff (PSD)

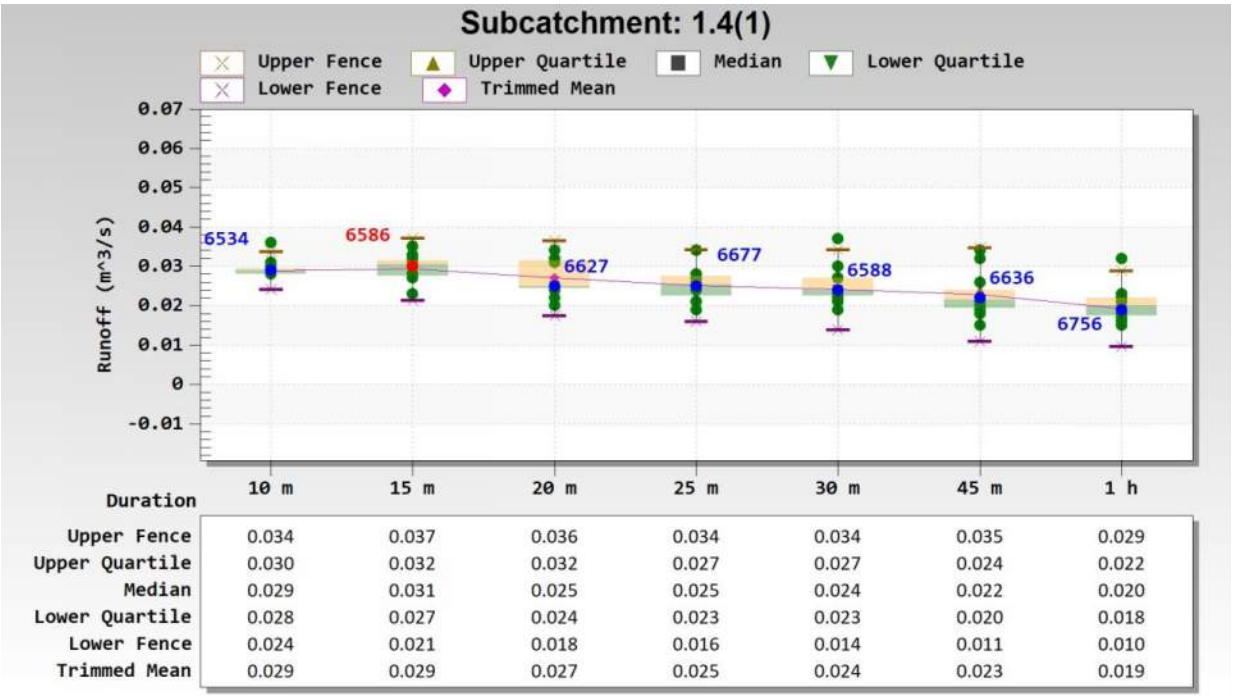
Developed Scenario Runoff

The proposed development will increase the site's impervious area, which will increase stormwater runoff. Table 3 summarises the post develop catchment characteristics. To assess whether detention is required, the post-development and PSD are compared.

Table 3: Courts model parameters

Court Area	0.1444 ha
Fraction Impervious	100%
Manning's number	0.013
Catchment slope	1%

The results of the hydrological analysis (Figure 3: post-development runoff) show that the critical storm duration is 15 min, with a mean peak discharge of 29 L/s. As such the site requires on-site detention to be installed to mitigate flows to pre-development flow rates.



Duration	10 m	15 m	20 m	25 m	30 m	45 m	1 h
Upper Fence	0.034	0.037	0.036	0.034	0.034	0.035	0.029
Upper Quartile	0.030	0.032	0.032	0.027	0.027	0.024	0.022
Median	0.029	0.031	0.025	0.025	0.024	0.022	0.020
Lower Quartile	0.028	0.027	0.024	0.023	0.023	0.020	0.018
Lower Fence	0.024	0.021	0.018	0.016	0.014	0.011	0.010
Trimmed Mean	0.029	0.029	0.027	0.025	0.024	0.023	0.019

Figure 3: post-development runoff

Detention Design

It is proposed to drain the entire court area to an underground detention tank. Limiting the permissible site discharge for the developed site to the required 11/s, the modelling results are tabulated below. The hydrograph of the critical storm (ID6586) was selected for the design of the detention tank.

Table 4: Courts detention modelling results

Total Detention Volume	12m³
Detention Tank Size	4m x 3m x 1m underground detention tank
Control	DN70 orifice control valve located at the base of the last tank
Mitigated flow	11 l/s.

The results of the mitigate flow are shown in Figure 4. It is shown that the maximum storage volume in the tank reaches 12.16m³, inflow is 30L/s and outflow is 11L/s. The results demonstrate that the underground detention tank is sufficient to effectively mitigate site discharge to the permissible site discharge.

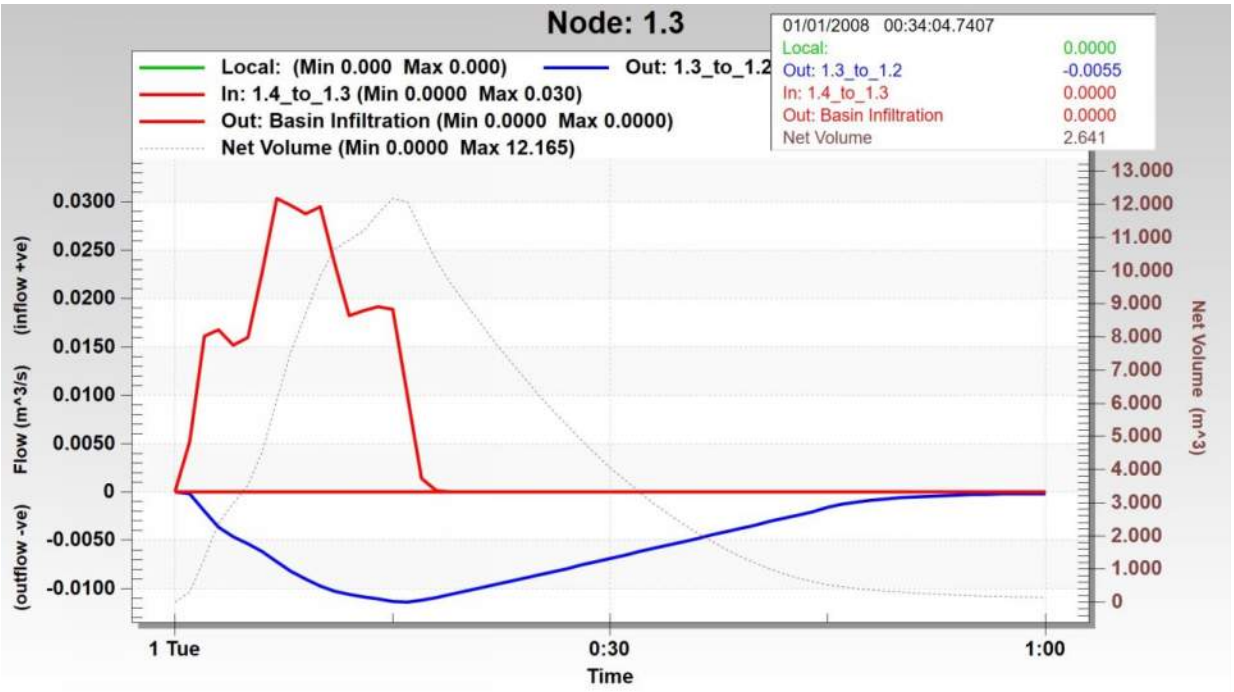


Figure 4: Courts storage volume and flows

2 Stormwater Quantity – Shelters

Determine Permissible Site Discharge

The Permissible Site Discharge (PSD) is based on the undeveloped scenario for the site. A predevelopment percentage impervious of 0% for the site has been adopted, this accounts for the current use case, being a lawn bowls green with no shelters. Table 5 – Shelters PSD Model Parameters, outlines the model parameters used to determine the PSD.

Table 5 – Shelters PSD Model Parameters

Catchment Area	0.029 ha
Fraction Impervious	0%
Manning's number	0.05 Previous 0.013 Impervious
Catchment slope	1%

The results of the hydrological analysis show that the mean peak discharge from the undeveloped site for the 10-minute storm duration was 2 L/s, this will be adopted as the PSD. Figure 5 – Shelters Pre-development runoff (PSD) shows the results of the analysis for the 5% AEP ensemble storm event.

Duration	10 m	15 m	20 m	25 m	30 m	45 m	1 h
Upper Fence	0.001	0.001	0.003	0.002	0.002	0.002	0.002
Upper Quartile	0.001	0.001	0.002	0.002	0.002	0.002	0.002
Median	0.001	0.001	0.002	0.002	0.002	0.002	0.002
Lower Quartile	0.001	0.001	0.001	0.002	0.002	0.002	0.002
Lower Fence	0.001	0.001	0.001	0.002	0.002	0.002	0.002
Trimmed Mean	0.001	0.001	0.002	0.002	0.002	0.002	0.002

Figure 5 – Shelters Pre-development runoff (PSD)

Developed Scenario Runoff

The proposed development will increase the site's impervious area, which will increase stormwater runoff. Table 6 - Shelters model parameters summarises the post develop catchment characteristics. To assess whether detention is required, the post-development and PSD are compared.

Table 6 - Shelters model parameters

Court Area	0.029 ha
Fraction Impervious	100%
Manning's number	0.013
Catchment slope	1%

The results of the hydrological analysis (Figure 6 – Shelters post development runoff) show that the critical storm duration is 10 min, with a mean peak discharge of 6 L/s. As such the site requires on-site detention to be installed to mitigate flows to pre-development flow rates.

Duration	10 m	15 m	20 m	25 m	30 m	45 m	1 h
Upper Fence	0.008	0.008	0.008	0.007	0.007	0.007	0.006
Upper Quartile	0.007	0.007	0.007	0.006	0.006	0.005	0.005
Median	0.006	0.006	0.005	0.005	0.005	0.004	0.004
Lower Quartile	0.006	0.006	0.005	0.004	0.005	0.004	0.004
Lower Fence	0.005	0.005	0.003	0.003	0.003	0.002	0.002
Trimmed Mean	0.006	0.006	0.006	0.005	0.005	0.005	0.004

Figure 6 – Shelters post development runoff

Detention Design

It is proposed to drain all shelters to an underground detention tank before discharging to a kerb adaptor in New Town Road. Limiting the outflows to the permissible site discharge for the developed site of 2L/s, the modelling results are tabulated below. The hydrograph of the critical storm (ID6534) was selected for the design of the detention tank.

Table 7 - Shelter detention modelling results

Total Detention Volume	2m³
Detention Tank Size	2m x 1m x 1m underground detention tank
Control	DN25 orifice control valve located at the base of the tank
Mitigated flow	1 l/s.

The results of the mitigate flow are shown in Figure 7 - Shelter detention storage and flows. It is shown that the maximum storage volume in the tank reaches 1.83m³, the inflow is 5L/s and outflow is 1L/s. The results demonstrate that the underground detention tank is sufficient to effectively mitigate site discharge to the permissible site discharge.

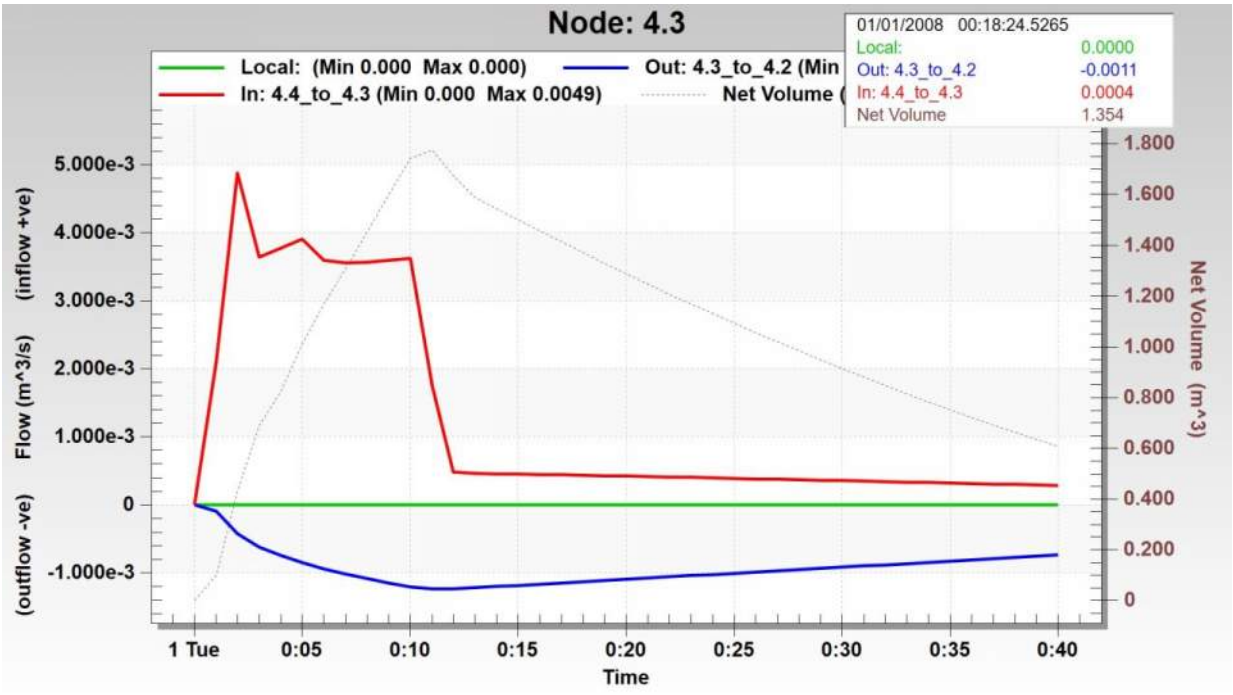


Figure 7 - Shelter detention storage and flows

3 Stormwater Quality

Methodology

Water quality modeling has been undertaken in accordance with Derwent Estuary Program and Water by Design guidelines. MUSIC software has been used to estimate the reduction targets for the given development. The parameters used within MUSIC are tabulated below.

The netball court development and the shelter development have been considered as a joint catchment. This was done as we are interested in reductions across the whole development and not just at each point (net reduction). As the development is small, and water quality devices are effective at treating stormwater, it is possible to overtreat one area and undertreat another area to have a net result compliant with the planning scheme.

Model Parameters

Table 8: Rainfall data

Parameter	Value
Rain station	Hobart - 094145
Time step (minutes)	6

Table 9: Rainfall parameters

Parameter	Value
Rainfall threshold (mm/day)	1

Soil storage capacity (mm)	120
Initial storage capacity (% of capacity)	25
Field capacity (mm)	50
Infiltration rapacity coefficient A	200
Infiltration capacity coefficient B	1
Initial depth (mm)	10
Daily recharge rate (%)	25.00
Daily base flow rate (%)	5.00
Daily deep seepage rate (%)	0

Table 10: Urban pollutant sources

Pollutant	**Surface Type**	**Storm Flow**		**Base Flow**	
		Mean (log mg/l)	SD (log mg/L)	Mean (log mg/l)	SD (log mg/L)
TSS	Roof	1.301	0.333	-	-
	Hardstand/ Road	2.431	0.333	-	-
	Ground	1.900	0.333	0.96	0.401
TP	Roof	-0.886	0.242	-	-
	Hardstand/ Road	-0.301	0.242	-	-
	Ground	-0.700	0.242	-0.731	0.360
TN	Roof	0.301	0.205	-	-
	Hardstand/ Road	0.342	0.205	-	-
	Ground	0.243	0.182	0.455	0.363

Table 11: Pollutant catchments

Pollutant Catchment	**Pollutant Catchment (m^2)**
Court	1443
Roofs	290

3.1.1 Treatment Train

The proposed treatment train has been summarised in Figure 8: MUSIC model schematic and results in Table 12. A single pollutant source catchment was used as both sides of the tennis court will be drained to the treatment device before being discharged from the site. As the shelters will go untreated (as the courts are being over treated), this was setup as a catchment bypass.

Table 12: Treatment node

Node	Quantity	Description
Detention Basins	2	Detention basin help to still water allowing nutrient and sediment to drop out of the water.
SPEL Hydrosystem HS1000	1	The SPEL Hydrosystem is specifically designed for the the capture of gross pollutants and provide tertiary treatment of stormwater for small developments.

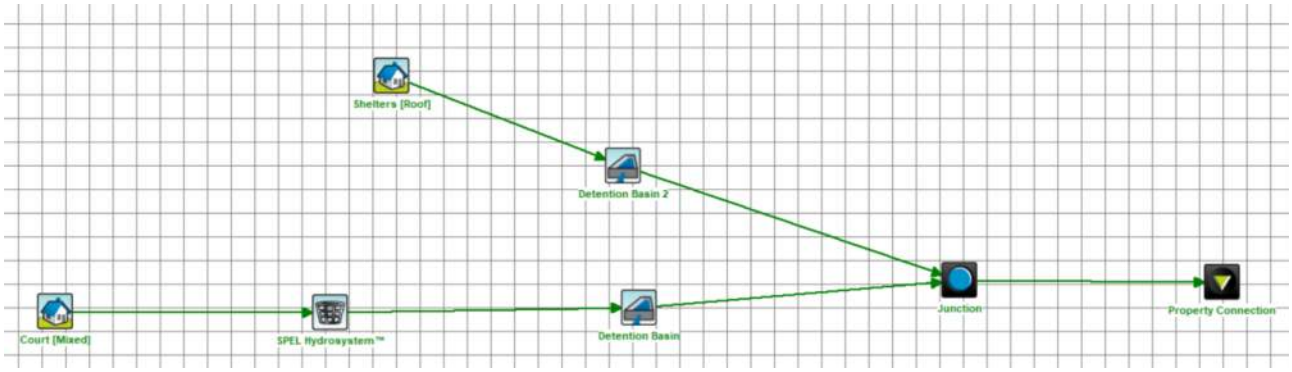


Figure 8: MUSIC model schematic and results

3.1.2 Results

The results of the pollution reduction are summarised in Table 13. It is shown that the proposed treatment train is effective at reducing pollutant levels.

Table 13: MUSIC treatment train effectiveness results summary

Pollutant (kg/yr)	Source (kg/yr)	Residual Load (kg/yr)	Reduction (%)
Total Suspended Solids	205	30.8	91.5
Total Phosphorus	0.344	0.117	73.5
Total Nitrogen	1.3	0.717	45
Gross Pollutants	21.9	0	100

4 Conclusion

It is concluded that stormwater runoff detention can be employed to control runoff to pre-development levels. The following arrangement has been modelled and is proposed:

The netball courts require a **detention volume of at least 12m^3 with a DN70 orifice.** This volume can be provided in any underground detention arrangement deemed suitable by the developer.

The shelters require a **detention volume of at least 2m^3 with a DN25 orifice.** This volume can be provided in any underground detention arrangement deemed suitable by the developer.

Stormwater from the site can be effectively treated by the installation of a **SPEL Hydrosystem HS1000**. This treatment train effectively brings down the pollutant load in line with the State Stormwater Strategy.

The site can therefore be developed in accordance with E7 of the Hobart Interim Planning Scheme 2015.

Regards,

Tom Norman
Senior Engineer

AD Design and Consulting

NOTE:

This plan represents the conceptual stormwater arrangement as specified in the accompanying stormwater management plan. These plans shall not for construction purposes. Refer to the stormwater management plan prepared by ADDC for additional details.

0 2.5 5 7.5 10 12.5m

SCALE 1:250 A3

SUBJECT TO FINAL VERIFICATION AND APPROVAL

FOR INFORMATION
NOT FOR CONSTRUCTION

Rev No	Date	Revision Note	Drn	Ver.	App.
A	01/09/22	Preliminary Issue	AB	TN	TN

AD DESIGN+CONSULTING
Engineering / Infrastructure Services / Project Management

Client: Southern Tasmanian Netball Association (STNA)

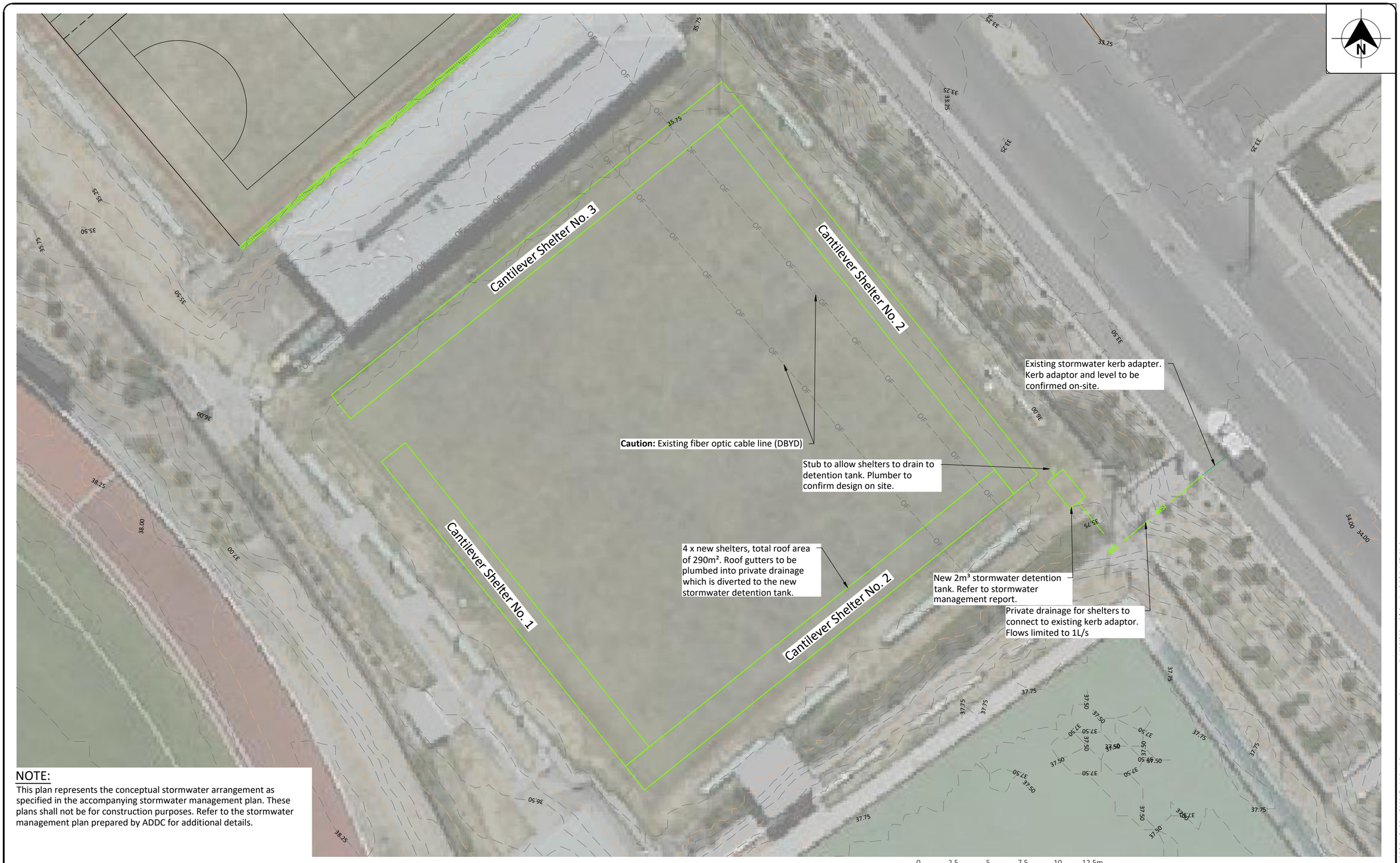
Project: 4-10 St Johns Avenue, New Town (Stormwater)

Drawn	Signed	Date
Designed	Signed	Date
Checked	Signed	Date
Approved	Signed	Date

Drawing Title: Drainage General Arrangement

Project No.: 22041
Scale: 1:250
Sheet Size: A3
Drawing No.: C-1-07-01
Rev: A

PLOTTED: 9/8/2022 10:21:10 AM c:\12ds\data\addc-s1\22047 - 4-10 st johns avenue, new town (stormwater)_10253\02 cadd\drawings\da\c-1-07-01.dwg



NOTE:

This plan represents the conceptual stormwater arrangement as specified in the accompanying stormwater management plan. These plans shall not be for construction purposes. Refer to the stormwater management plan prepared by ADDC for additional details.

SUBJECT TO FINAL VERIFICATION AND APPROVAL

FOR INFORMATION
NOT FOR CONSTRUCTION

Rev No	Date	Revision Note	Drn	Ver.	App.
A	18/11/22	New Drawing Added	AB	TN	TN

AD DESIGN+CONSULTING
Engineering / Infrastructure Services / Project Management

Client: Southern Tasmanian Netball Association (STNA)

Project: 4-10 St Johns Avenue, New Town (Stormwater)

	Signed	Date
Drawn		
Designed		
Checked		
Approved		

Drawing Title: Drainage General Arrangement Shelters

Project No.: 22047
Scale: 1:250
Sheet Size: A3
Drawing No.: D-1-07-02
Rev: A

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Technical Note

To:	City of Hobart		
Project:	New Town Netball Court Lighting Upgrade	**Date:**	19/12/2022
		Job No.	15922
From:	Terence Ling	**Document No.**	15922_TN_001_A
Subject:	New Town Netball Court Lighting Design	**Client Contract No.**	

Revision A

1. Background

The existing bowling ground is converted to 2 new netball courts. The new sport lighting is proposed to the new netball courts.

2. Proposed Sport Lighting for the New Netball Court

The new sport lighting for the netball court is design to meet AS 2560.2-2021 Sport Lighting. The illuminance level is designed to meet mid-level for local and regional competition (see Table 2.9.1).

Table 2.9.1 — LTPs for netball and basketball

Level of play	Average horizontal maintained illuminance ($\bar{E}_h$)	Minimum horizontal uniformity		Maximum glare rating (GR)	Minimum colour rendering index (R_a)
		($E_{hmin}/\bar{E}_h$) (U_1)	(E_{hmin}/E_{hmax}) (U_2)[b]		
Recreation or training, and low-level local competition	100	0.50	0.30	50	65
Mid-level local and regional competition, high level training	200	0.60	0.40	50	65
International and national competition with large spectator galleries[a]	500	0.70	0.50	45	65

[a] International and national competitions are rarely (if at all) played on outdoor courts.

[b] Where two or more courts are adjacent, and with luminaires operating simultaneously U_2 may be reduced by an absolute value of 0.1, e.g. from 0.30 to 0.20 for low level competition.

Lighting scheme comprises four lighting structures of approximately 12m height that provide average 249lux. The new sport lighting system will comprised of 2 illuminance levels that can be control from onsite switchboard/control board.

3. Montage of existing site and proposed new sport lighting

View 1 from Main Road.

	
Existing	New lighting system installed

View 2 from Main Road

	
Existing	New lighting system installed

View 3 from

	
Existing	New lighting system installed

4. Attachment

a. Lighting calculation
   - AS2560.2:2021 – Netball Mid Level
   - AS4282:2019 – Obtrusive Light Assessment at property boundaries and carriageway

END OF DOCUMENT

Design Notes:

Draft Design for Review.
Dimensions and set-out have been taken from a pdf/satellite image,
subject to confirmation prior to installation/commissioning.
For further calculations and/or for installation/aiming details
please contact Southern Lighting.

MH = the nominal height above the playing surface to a single cross-arm, as shown.
No account is taken for any difference in height of the pole base and the playing surface.
Any significant difference should be advised.
The cross-arm design should be checked so that luminaires can be aimed without obstruction.
The suitability of new/existing poles to support floodlights must be confirmed by others.

Philips OptiVision LED gen3.5 CCT=5700K, Ra8=70. DALI (max. dim level 10%).
BVP528 BV 50K 757 T30 IP66 3 module, Weight=26.5 kg (remote driver 6.3 kg).
SCx=0.29 (at 30° uplift), SCx=0.33 (at 40-50° uplift)
For A35 types subtract 35° from "Tilt" to get the uplift of the body
(do not use the clear visor). All A35 luminaires have uplift <= 35°.
Floodlights should be spaced at least 95cm apart.
Note trunnion depth is 30 mm, longer bolts may be required.
Drivers remote (BV version) , poles must be checked for capacity to house.
Driver rating: 230-400V +/-10% 50Hz. Single phase preferred.
Supplemental SPD recommended (supplied by others).
Refer to Mounting instructions for inrush current details.
Cable from driver to floodlight 6C+E 1000V (by others):
Length<25m use 1.5mm2, Length<=50m use 2.5mm2. <= 200m possible with extra core.
Can be mounted over/under without modification/accessories,
(single cross-arm only, if two or more cross-arms are required,
then provision must be made for sufficient offset to avoid the
luminaires on the lower arm/s shadowing those on the upper arm).

Glare Ratings (GR) are based on a diffuse playing surface reflectance of 20%.
GRmax <=50 for observers per Figure 2.9.6 AS2560.2:2021 for netball.

A maintenance factor (LLF) of 0.88 has been allowed to apply to all luminaires.
A maintenance policy should be adopted to support the maintenance factor.
These calculations use LLF = 1.0 to show obtrusive light initial values.
All illuminance values should multiplied by the maintenance factor for maintained values.

AS/NZS 4282:2019 Obtrusive light assessment:
Conforms to Environmental Zone A3 - Medium District Brightness (suburban) limits:
- Maximum luminous intensity per luminaire (I) < 12500 cd non-curfew (Level 1)
- Vertical illuminance (Ev) <= 10 lux
- Threshold Increment (TI) <= 20% (adaptation level Lad = 1 cd/m2 or as shown)
- ULR (UWLR) <= 0.02
All luminaires on, direct flux only, no obstructions such as trees are included.
Ev and I calculated at building lines or property boundaries at the heights as shown.
For TI the carriageway plane is assumed to be horizontal at z = 0.

Ev 1_Cd_Seg2
z = 1.5 - 15 m
Obtrusive - Luminous Intensity (Cd)
Maximum = 1597
Minimum = 123

Ev 1_Ill_Seg2
z = 1.5 - 15 m
Obtrusive - Illuminance (Lux)
Maximum = 0.2
Minimum = 0.0

Ev 1_Cd_Seg1
z = 1.5 - 15 m
Obtrusive - Luminous Intensity (Cd)
Maximum = 1845
Minimum = 102

Ev 1_Ill_Seg1
z = 1.5 - 15 m
Obtrusive - Illuminance (Lux)
Maximum = 0.9
Minimum = 0.0

New Town Road EB
Lad = 0.2
Obtrusive - Threshold Increment (%)
Relative Threshold Increment = 3.1

New Town Road WB
Lad = 0.2
Obtrusive - Threshold Increment (%)
Relative Threshold Increment = 3.2

P4
MH = 12 m

P1
MH = 12 m

P3
MH = 12 m

P2
MH = 12 m

Netball 1
Illuminance (Lux)
Average = 249
Min/Avg Ratio = 0.83
Min/Max Ratio = 0.60

Netball 2
Illuminance (Lux)
Average = 249
Min/Avg Ratio = 0.83
Min/Max Ratio = 0.60

UWLR Area Summary	
Label	**UWLR**
ULR	0.000

Ev I			
Project: Ev I			
Label	**CalcType**	**Description**	**Max**
Ev 1_Cd_Seg1	Obtrusive - Cd	z = 1.5 - 15 m	1845
Ev 1_Cd_Seg2	Obtrusive - Cd	z = 1.5 - 15 m	1597
Ev 1_Ill_Seg1	Obtrusive - Ill	z = 1.5 - 15 m	0.9
Ev 1_Ill_Seg2	Obtrusive - Ill	z = 1.5 - 15 m	0.2

GR			
Project: GR			
Label	**CalcType**	**Refl.**	**Max**
GRmax Netball 1	Glare Rating	r = 0.2	42.0
GRmax Netball 2	Glare Rating	r = 0.2	42.0

TI			
Project: TI			
Label	**CalcType**	**Lad**	**TI (%)**
New Town Road EB	Obtrusive - TI	0.2	3.1
New Town Road WB	Obtrusive - TI	0.2	3.2

Calculation Summary				
Project: Illuminance				
Label	**CalcType**	**Av. (lx)**	**Min/Avg**	**Min/Max**
Netball 1	Illuminance	249	0.83	0.60
Netball 2	Illuminance	249	0.83	0.60

Luminaire Schedule						
Symbol	**Qty**	**Label**	**Description**	**Source**	**Power**	**LLF**
	4	BVP528 A35-MB +LO	Apex OptiVision LED Gen3.5 3-module 5700K	LED2130/757 OUT T30 50K	1420	1.000

Rev:	Date:	By:	Comment:
A	2022-11-30	AN	Original issue

Project: NEW TOWN NETBALL
Title: 200 Lux
Client:
Scale: As shown
Doc #: A22014-01
Page:

SOUTHERN LIGHTING & DISTRIBUTION

A3