

# **Environmental Assessment Report**

# Sunshine Coast Stadium Expansion

Proposed Ministerial Infrastructure Designation

320 Nicklin Way, Bokarina 31 Sportsman Parade, Bokarina Lot 2 on SP163937

Prepared for Sunshine Coast Council

January 2021

Our Ref: 200604

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# Infrastructure Entity Details

The Infrastructure Entity for the proposed Ministerial Infrastructure Designation is the Sunshine Coast Council. It is requested that all project correspondence is provided to Sunshine Coast Council, care of ADAMS + SPARKES.

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#### **Document Control and Verification**

This Environmental Assessment Report has been prepared and reviewed by the identified key personnel, in accordance with Part 5 of the *Planning Act 2016*, as well as the requirements under the *Minister's Guidelines* and *Rules 2017*.

ADAMS + SPARKES is led by Directors Cameron Adams and Pete Sparkes, who have a combined experience of over 30 years in both public and private sectors. ADAMS + SPARKES have extensive experience in the management of development applications including residential, commercial, retail and mixed use developments, industrial projects and mining and infrastructure projects.

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# 1 Executive Summary

- This Environmental Assessment report has been prepared by Adams + Sparks Town Planning on behalf of the Sunshine Coast Council and seeks approval from the Minister for State Development, Infrastructure, Local Government and Planning to designate Lot 2 on SP163937 for the purpose of a 'Sporting facility'.
- 2. The proposed Infrastructure Designation seeks the modifications of the existing Sunshine Coast Stadium, including an extension (northern and southern) to the existing western grandstand, as well as the construction of an additional eastern grandstand. The existing northern and southern mounds, as well as playing surface are not proposed to be altered as part of the site works. As part of the grandstand works, the development will provide for improved operational elements (i.e. change rooms, warm up/cool down spaces, catering facilities etc), as well as additional office spaces. Overall, the grandstand works will increase the seating capacity for sports events to 11,905 fixed seats, as well as increase the overall capacity for sports events to approximately 16,905 persons.
- 3. Post completion of the Sunshine Coast Stadium expansion, the site will form a Major Project for the Sunshine Coast and will provide an anchor sports facility, which will further strengthen the Kawana Waters Sport Precinct. Through the proposed expansion, it is expected that the Sunshine Coast Stadium will attract higher profile state and national sporting events (including NRL fixtures), as well as major entertainment events.
- 4. This Environmental Assessment Report (EAR) undertakes an assessment against Section 36 of the *Planning Act 2016*, as well as state and local planning interests and confirms that all legislative requirements and applicable assessment benchmarks are complied with. In addition, this EAR undertakes an Environmental Assessment, which confirms that the development will not result in adverse impacts upon surrounding land uses, infrastructure networks, ecological features, and has the capability of appropriately mitigating construction and operational requirements.
- 5. Due to the proposed expansion to the Sunshine Coast Stadium suitably mitigating potential environmental impacts and the infrastructure being proposed in response to population growth, the proposed infrastructure is suitably required and positioned within the regional context of the Sunshine Coast and provides a much-needed facility, which will provide numerous social and economic benefits to the Sunshine Coast.

# 2 Introduction

- 6. This Environmental Assessment Report has been prepared by ADAMS + SPARKES Town Planning (hereafter; 'ADAMS + SPARKES') for the purpose of a request for an Infrastructure Designation on land located at 320 Nicklin Way, Bokarina, legally described as Lot 2 on SP163937.
- 7. This Environmental Assessment Report (hereafter; 'EAR') has been prepared for and on behalf of the Infrastructure Entity, Sunshine Coast Council. In accordance with Section 2, Part 5 of the *Planning Act* 2016, Sunshine Coast Council seeks approval from the Minister for State Development, Infrastructure, Local Government and Planning (hereafter; the 'Minister') to designate Lot 2 on SP163937 for the purpose of a 'Sporting facility'.
- 8. This EAR will follow the legislative context in which this report is prepared, the relevant site and the infrastructure proposed, and address the associated impacts and relevant Local and State Government considerations with respect to the proposal. This EAR should be read in conjunction with the following supporting documentation:
  - Appendix 1 Architectural Plans prepared by Aspect Architects and Project Managers
  - Appendix 2 Acoustic Impact Assessment prepared by ASK Acoustics and Air Quality
  - ▶ Appendix 3 Traffic Impact Assessment and Management Plan prepared by Bitzios Consulting
  - Appendix 4 Landscape Design prepared by Element Design
  - Appendix 5 Waste Management Plan prepared by TTM Consulting
  - Appendix 6 Civil Engineering Report prepared by Barlow Shelley Consulting Engineers
  - Appendix 7 Response to Environmental Issues prepared by Future Plus Environmental
  - ▶ Appendix 8 Lighting Impact Assessment has been prepared by Webb Consulting Engineers
  - Appendix 9 Pre-lodgement Written Advice prepared by DSDMIP
  - Appendix 10 Pre-lodgement advice prepared by TMR
  - Appendix 11 Stakeholder Engagement Evidence
  - Appendix 12 Sunshine Coast Stadium Expansion Project Summary
  - Appendix 13 Services Impact Information prepared by Sunshine Coast Council
  - Appendix 14 Economic Impact Model prepared by .id
  - Appendix 15 Construction Management Plan prepared by Aspect Architects and Project Managers
  - Appendix 16 Cultural Heritage Register Search
  - Appendix 17 Surrounding landowners map
  - Appendix 18 Environmental Management and Contaminated Land Register Search

# 2.1 Legislative Context

- 9. Chapter 2, Part 5 of the *Planning Act 2016* sets out the way in which an Infrastructure Designation can be undertaken. Further, Sections 36 and 37 of the Act describes the criteria and process for making an Infrastructure Designation. Under Section 36, to make a designation, the Minister must be satisfied that:
  - The infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or
  - There is or will be a need for the efficient and timely supply of the infrastructure.
- 10. Additionally, the Minister must be satisfied that adequate environmental assessment and consultation has been carried out in relation to the development that is the subject of the Infrastructure Designation.

- 11. Schedule 5 of the *Planning Regulation 2017* (hereafter; the 'Regulation') details the infrastructure types, which can be designated by the Minister. The infrastructure type, that is the subject of this EAR, is described as 'Sporting Facilities'<sup>1</sup>.
- 12. Section 36 (3) of the *Planning Act 2016* and Division 4, Sections 14 and 15 of the *Planning Regulation 2017* refer to the *Minister's Guidelines and Rules 2020* for the process in which environmental assessment and consultation are to be undertaken. The applicable guideline in this instance is Chapter 7 (*Guidelines for the process for environmental assessment and consultation for making or amending a Ministerial designation*) of the Minister's *Guidelines and Rules 2020*. This application will be made in accordance with the legislative framework for Infrastructure Designations prescribed under the aforementioned legislation.

## 2.2 Pre-Application Process

13. In accordance with the Operational Guidance for Making or Amending a Ministerial Infrastructure Designation, the following pre-application processed have been undertaken.

#### 2.2.1 Initial Advice (Pre-Lodgement Meeting)

- 14. The Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP) provided Pre-Lodgement Written Advice (**Appendix 9**) on 18 March 2020.
- 15. The Pre-Lodgement Written Advice confirmed the type of infrastructure as being 'Type 15 Sporting Facilities'. The Written Advice also identified technical reporting, which was recommended as being provided in support of the application. **Table 1** below demonstrates the recommended reporting detailed within the Written Advice, and confirms this EAR as providing the required supporting documentation.

Reporting Recommended	Provided Reporting
Coastal processes assessment/statement	Response to Environmental Matters – Future Plus
	Environmental - Appendix 7
Flood risk assessment/statement	Civil Infrastructure Report – Barlow Shelley Consulting
	Engineers – Appendix 6
Stormwater management plan	Civil Infrastructure Report – Barlow Shelley Consulting
	Engineers – Appendix 6
Traffic impact assessment	Traffic Impact Assessment – Bitzios Consulting – Appendix 3

#### Table 1 Recommended and Provided Reporting

16. In addition to the pre-lodgement written advice received from DSDMIP, the Department of Transport and Main Roads (TMR) provided pre-lodgement advice with respect to the proposed expansion to the Sunshine Coast Stadium. A copy of the TMR pre-lodgement is available in **Appendix 10**.

#### 2.2.2 Preliminary Stakeholder Engagement

- 17. In accordance with DSDMIP Written Advice dated 18 March 2020, the following pre-engagement activities were required to be undertaken prior to requesting the Endorsement to Proceed (dated 15 June 2020):
  - a) Consultation with Council;
  - b) Consultation with Native Title parties;
  - c) Letters sent to local and State elected members; and,

<sup>&</sup>lt;sup>1</sup> The *Planning Regulation 2017* does not specifically define the term 'Sporting Facilities'.

- d) Letterbox drop to surrounding properties.
- 18. **Table 2** below provides a response to the required Preliminary Stakeholder Engagement.

Required Action	Method and Evidence
Consultation with Council	Letter of Endorsement received by Sunshine Coast
	Council – Appendix 11
Consultation with Native Title Parties	Cultural Heritage Search confirmed that the site
	does not contain Aboriginal or Torres Strait Islander
	Cultural Heritage – Appendix 16
Consultation with State Elected Members	Undertaken by Sunshine Coast Council
Consultation with Surrounding Properties	Chris Lee (Queensland Treasury) advised via email
	(Appendix 11) that the requirement to letterbox
	drop to surrounding properties has been waived
	given the current closure of businesses in the local
	area due to the COVID-19 global pandemic.
	Consultation with surrounding properties is
	required to be undertaken during the formal
	consultation phase.

 Table 2 Stakeholder Engagement – Requirements and Evidence

# 2.2.3 Pre-Lodgement Endorsement

19. After the completion of Initial Advice and Preliminary Stakeholder Engagement process, a request was lodged with Queensland Treasury for an Endorsement to Proceed (9 June 2020). On 15 June 2020, Queensland Treasury confirmed the proposed project has been endorsed for the Infrastructure Designation (Appendix 11) assessment process and advised that the proponent may submit an Environmental Assessment Report.

# 3 Site Context and Description

20. This section of the EAR will describe the site context (regional, local and site specific), as well as detailing the surrounding major infrastructure investment and existing infrastructure supporting the site.

# 3.1 Site Location – Regional Context

- 21. This EAR has been prepared for an Infrastructure Designation (Sporting Facility) located at 31 Sportsman Parade, Bokarina, legally described as Lot 2 on SP163937 (hereafter; the 'subject site').
- 22. The subject site is located in Bokarina on the Sunshine Coast and is located approximately 100km north of Brisbane (as demonstrated in **Figure 1** below). In terms of a local context, the site the site is located 19km south of Sunshine Coast Airport and 8km south-east of Maroochydore. The site presents the premier sports stadium location (for rectangle field ball sports) north of Brisbane and south of Townsville.



Figure 1 Regional Context (Source: Google)

# 3.2 Site Location – Local Context

- 23. Locally, the subject site forms part of a sports, health and wellbeing precinct in the wider Kawana Waters area, including the recently constructed Sports Hub, Lake Kawana (rowing venue), as well as the Kawana Aquatic Centre. It is noted that the Sports Hub has been developed to provide world class athlete training facilities and provides a training location for professional sports persons using the Sunshine Coast Stadium.
- 24. In addition to the sports related facilities, the site is located in close proximity to the Health Hub and Hospital precinct, as well Business Village (commercial) and forthcoming Kawana Waters Town Centre (retail and commercial) to the west and south. The development within the Health Hub and Business Village is/has been constructed in accordance with the development controls under the Kawana Waters Development Control Plan.
- 25. Development on the eastern side of the Nicklin Way is characterised by residential development, with development to the north of the site comprising industrial and commercial premises.

- 26. **Figure 2** below details these features generally and broadly demonstrates the surrounding urban fabric associated with the site.
- 27. The broader locality context includes the Sunshine Coast University public and private hospitals and the Sunshine Coast Health Precinct, which are located approximately 1.3km south-west of the site, the Kawana Shopping World located approximately 3km north of the site and the University of the Sunshine Coast located approximately 9.3km west of the site.



Figure 2 Local Site Context (Source: QLD Globe)

# 3.3 Site Description and Existing Use/s

- 28. On a site specific level, the subject site (Lot 2 on SP163937) is located at 320 Nicklin Way, Bokarina. The site contains a total lot size of 12.08ha and has frontage of approximately 320 metres to both Nicklin Way and Sportsman Parade. As demonstrated in **Figure 3** below, the subject site contains a number of sports fields and associated buildings, which house various sporting entities (Kawana Dolphins, Brothers Rugby).
- 29. The subject site is currently improved by the following buildings, structures:
  - Sunshine Coast Stadium One (1) grandstand with a seated capacity of 1046 people;
  - Sunshine Coast Stadium Three (3) engineered grass mounds;
  - Three (3) clubhouse buildings with small-scale food and beverage provision associated with the surrounding sports grounds; and,
  - At grade marked and unmarked parking areas.
- 30. Presently the Sunshine Coast Stadium has a total event capacity <sup>2</sup>of 12,000 (1,046 seated capacity) people and features a high standard of athlete facilities including bathroom amenities, changerooms and a gymnasium. It is noted that the Stadium currently services a catchment of more than one million people and is owned and run by Sunshine Coast Council. The Sunshine Coast Stadium includes recently upgraded

<sup>&</sup>lt;sup>2</sup> The identified capacity relates to sports events held on the site.

lighting structures at the corner of the sports field, which provide ample lighting during evening and night events and have been designed to a standard to host national sporting events.

31. As demonstrated in **Figure 3** below, access to the site is obtained via Nicklin Way and Sportsman Parade, with four (4) access points currently present on the site.



Figure 3 Subject Site (Source: Nearmap 2020)

#### 3.3.1 Relevant Approval History

- 32. In ascending order, please refer to the below list of Development Permits that have previously been granted over the subject site:
  - 1991/10013 Town Planning Consent application to establish Indoor and Outdoor Entertainments and Refreshment Service
  - 1992/10042 Town Planning Consent Application to establish Outdoor Entertainment (Markets)
  - 2005/510005 Material Change of use to Establish and Outdoor Sport Recreation and Entertainment (Stadium) and Indoor Sport Recreation and Entertainment (Club Room and Function Room) and Preliminary Approval for Building Works
  - 2006/530170 Sewer (Pump Station and Connection)
  - 2007/510007- Material Change of Use to Establish an Outdoor Sport Recreation and Entertainment and Indoor Sport Recreation and Entertainment and Establish an Educational Establishment and Preliminary Approval for Building Work
  - 2009/550023 Change to Development Approval (Conditions 4, 19, 18, 20 & 25) and Extension to Relevant Period - Material Change of Use to Establish an Outdoor Sport, Recreation and Entertainment (Stadium) and an Indoor Sport, Recreation and Entertainment (Club Room & Function Room) and Preliminary Approval for Building Works
  - Operational Works Approvals:
    - o 2006/5300741 Roadworks & Stormwater (Arena Works and Bypass Road)

- o 2006/530089 Civil Works (Filling)
- OPW10/2032 Works associated with Stadium Development
- OPW11/0143 Operational Works Footpaths
- 33. It is noted that none of the above approvals conflict with the proposal for an Infrastructure Designation over the subject site. Further, it is confirmed that there are no outstanding obligations associated with past approvals.

## 3.4 Site Tenure, Encumbrances and Site Contamination

- 34. The subject site is owned in Freehold tenure by Sunshine Coast Regional Council. The site is not encumbered or benefited by any easements and not identified on the Environmental Management or Contaminated Land Registers (**Appendix 18**), as searched on 23 November 2020.
- 35. Further, a review of the State's SARA DA Mapping confirms that the subject site is located within an area identified as having substantial potential for unexploded ordnance. Previous ground truthing of the site required to construct the existing buildings onsite has confirmed that there are no unexploded ordnance present.

## 3.5 Surrounding Infrastructure Investment

- 36. Being one of Queensland's fastest growing regions, the Sunshine Coast has been the focus for a range of infrastructure initiatives, both completed and planned. With a rapidly expanding population, Council's 20-year economic plan, alongside State Government investment, has seen the following projects shape the urban fabric of the Sunshine Coast:
  - Solar Farm (Yandina/Coolum)
  - Sunshine Coast Airport Expansion
  - International Broadband Submarine Cable
  - Sunshine Plaza Expansion
  - Maroochydore CBD development
  - University of the Sunshine Coast
  - Bruce Highway upgrades
  - Palmview residential development (Harmony Estate)
  - Beerwah East major development area
  - Aura (Caloundra South) priority development area
  - Sunshine Coast University Hospital
  - Planned mass transit solution (commencing 2025)
- 37. It is considered that the expansion to the Sunshine Coast Stadium proposed as part of this application forms an additional 'Major Project' for the Sunshine Coast. **Figure 4** below highlights the subject site in spatial context of abovementioned infrastructure projects.



Figure 4 Sunshine Coast Major Projects (Source: Sunshine Coast Council)

# 3.6 Relevant Infrastructure Characteristics

## 3.6.1 Transport - Road Network

38. As stated in Section 3.3 (Site Description and Existing Use/s) above, the subject site gains vehicular access from Nicklin Way (Arterial Road) and Sportsman Parade (Neighborhood Collector Street), with four (4) access points currently provided to the site. The site is also located within proximity to Main Drive (Controlled Distributor Road), as demonstrated in in Figure 5 below (extract of Council's Functional Transport Hierarchy Map 2031)).



Figure 5 Transport Hierarchy Map (2031) (Source: SCC Planning Scheme 2014)

#### 39. Table 3 below provides a summary of the road network, which supports the Sunshine Coast Stadium.

Attribute	Nicklin Way	Sportsman Pde	Main Dr
Hierarchy	Arterial Road	Neighbourhood Collector	Controlled Distributor Road
		Street	
Jurisdiction	DTMR - State Controlled	Council	Council (future busway
	Road & (future busway		corridor)
	corridor)		
Speed Limit	70km/hr	50km/hr (school hrs 40km/hr	60km/hr
		otherwise not signed)	
Lanes	4 lanes	2 lanes	2 lanes
Line Marked	Yes – Bus parking (west side)	Yes	Yes
Street Parking	Car parking (east side)		
Footpath	Yes	Yes	Yes
Bicycle Lane	Yes	No	No
Bus Route Yes		No	No (future network planned)
Bus Stops	Yes	No	No

#### Table 3 Road Network Summary

#### 3.6.2 Transport - Public and Active Transport Network

40. As detailed in **Table 1** above, Nicklin Way forms part of the TransLink bus network. There are three (3) bus stops along Nicklin Way within 500 metres of the subject site (refer to **Figure 6** below), with two (2) northbound and one (1) southbound. This stretch of Nicklin Way is services by the 600, 602 and 611 TransLink bus routes. This provides a public transport connection from Caloundra to Maroochydore via Mooloolaba and Kawana (route 600), Caloundra to Maroochydore via Mountain Creek (route 602) and Maroochydore to the Sunshine Coast University Hospital via Mooloolaba and Kawana (route 611).



Figure 6 Bus stops within proximity to the site (Source: Google Maps 2020)

41. As stated in **Table 3** above, Nicklin Way, Sportsman Parade and Main Drive all provide pedestrian pathways to support active transport movement to and from the subject site. Further, Nicklin Way provides a dedicated 2 metre wide bicycle lane traveling northbound past the site.

#### 3.6.3 Stormwater

- 42. **Figure 7** below demonstrates the existing stormwater network that supports the Sunshine Coast Stadium. The existing stormwater network comprises of stormwater pits and underground pipes, as well as open drains, which direct stormwater flows to Council's existing network.
- 43. It is noted that the existing grandstand captures rainwater and stores this water within an underground retention tank. The retention tank discharges into the stormwater network within Sportsman Parade.



Figure 7 Existing Council Stormwater Assets (Source: Sunshine Coast Council

#### 3.6.4 Electrical Infrastructure

- 44. **Figure 8** below demonstrates the electricity infrastructure associated with the site. The infrastructure on the western side of Sportsman Parade is located underground, with the electrical infrastructure located east of the primary playing field being above ground infrastructure.
- 45. The existing stadium takes power from the pad mounted transformer positioned adjacent to pedestrian crossing at Sportsman Parade. All electrical connections are underground within the site.



Figure 8 Existing Electrical Infrastructure (Source: Energex)

#### 3.6.5 Unitywater Services

46. As depicted in **Figure 9** below demonstrated the site as containing access and connection to trunk sewerage and reticulated water infrastructure.



Figure 9 Unity water Infrastructure Network (Source: SCC Site Report 2020)

# 4 Designation Proposal

# 4.1 Infrastructure Description Under the *Planning Regulation 2017*

- 47. As comprehensively detailed in **Section 3** (Site Context and Description) above the existing site is utilised as a Sports Stadium, colloquially known as the Sunshine Coast Stadium.
- 48. Schedule 5 of the *Planning Regulation 2017* (hereafter; the 'Regulation') details the infrastructure types, which can be designated by the Minister. The list of land uses contained within Schedule 5 includes 'Sporting Facilities', which aligns with the current and planned land use of the site under the proposal.
- 4.2 Intent of Designation (Compliance with Section 36 (1)(b) of the *Planning Act 2016*)
- 49. Although detailed in additional detail below in **Section 5.1** (*Planning Act 2016*), Section 36(1) of the *Planning Act 2016*, requires that in order to make a designation, a designator must be satisfied that:

(a) the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or(b) there is or will be a need for the efficient and timely supply of the infrastructure.'

- 50. With respect to the above requirements, the intent of this Infrastructure Designation is to facilitate the expansion of the existing Sunshine Coast Stadium, which will deliver improved facilities and enable larger events to be held on the site.
- 51. The integrated and timely delivery of the proposed infrastructure is sought in response to regional population growth, which is anticipated to reach more than 518,000 by 2041. With increased population growth, there will be an increased requirement for higher capacity sporting and entertainment facilities that will attract State and National interest.
- 52. Due to this, it is considered that the proposed expansion to the Sunshine Coast Stadium complies with element (b) of Section 36 (1) of the *Planning Act 2016*.

# 4.3 Sunshine Coast Stadium History

#### 4.3.1 Tenure and location

- 53. The Sunshine Coast Stadium is owned and managed by Sunshine Coast Council and the expansion of the facility is identified by Council as an infrastructure priority that presents a region-shaping opportunity. As detailed in the Sunshine Coast Stadium Expansion Project Summary (**Appendix 12**), an enhanced stadium with the capability to stage national sport events and large entertainment events is considered a 'missing piece' of the core economic and community infrastructure mix for the Sunshine Coast region given its size and its projected growth.
- 54. The Sunshine Coast Stadium services a catchment population of more than one million people and is positioned within the Kawana Sports Precinct, which comprises a broader sporting and community events precinct. The Kawana Sports Precinct includes the stadium itself, the western fields precinct, the eastern fields precinct Lake Kawana, the High-Performance Strength and Conditioning Gym, the Kawana Aquatic Centre, and the Skate Park (refer to **Figure 10** below).
- 55. In addition to the existing sports facilities within the Kawana Sports Precinct, the site is located within close proximity to a range of other complementary services and facilities including the Kawana Health Hub, a proposed new footbridge connection over Lake Kawana, and the new high-performance sports hub at the head of Lake Kawana, as detailed in **Section 3** (Site Context and Description) of this EAR.



Figure 10 Kawana Sports Precinct (Source: Sunshine Coast Stadium)

#### 4.3.2 Approval/Development Background

- 56. As briefly detailed in Section 3.3.1 (Relevant Approval History) a Material Change of Use to Establish an Outdoor Sport, Recreation and Entertainment (Stadium) and an Indoor Sport, Recreation and Entertainment (Club Room & Function Room) was approved by Council in 2005 (Council Ref: 2005/510005).
- 57. At the time, there were plans to build a \$22 million Grandstand with both oval and rectangular playing fields. However, withdrawal of State Government funding led to a more modest submission in 2009, with the current Western Stand Design documentation submitted and approved. This included a new bitumen car park for 190 cars and a gravel carpark for 44 cars at the Eastern Fields. The current venue is based off these approvals and comprises a traditional roofed Western Grandstand, constructed in 2011 after a nine-month build. Total fixed seating capacity in the current Western Grandstand is 1046.
- 58. Recent upgrades to the stadium in 2016 included construction of grass mounds to the North, South and East increasing the total capacity for sports events to 12,000, as well as a 36 square metre LED scoreboard, which is installed on the Northern mound (refer to Figure 11). It is noted the previous entertainment events held on the site have accommodated for approximately 16,000 persons. In 2019, Council funded a \$2.7 million main field lighting upgrade to increase quality and brightness to >1400 lux thus ensuring it is broadcast compliant for evening fixtures. Additionally, council have a planned and approved 160 bay bitumen carpark to the North of the existing Western stand, currently budgeted for in the 2023 Council forecast this replaces the existing gravel carpark facility, and will be used as part of the proposed stadium upgrade.



Figure 11 Existing Stadium Precinct (Source: Sunshine Coast Council)

#### 4.3.3 Project Feasibility and Projections

- 59. In 2017, KPMG were engaged by Sunshine Coast Council to investigate the feasibility of developing a national standard stadium on the Sunshine Coast. This was based on the view that there may be a need for a larger national standard venue to accommodate the needs of a growing population on the Sunshine Coast. Additionally, the facilities at the current Sunshine Coast Stadium, were assessed as being below the standard (quantity and/or quality) demanded of modern stadiums and thus impeding the venue's ability to meet expectations for both spectators, event owners and hirers.
- 60. The outcomes and projections from the KPMG feasibility study, led Council to seek tender applications to further develop an initial concept design and develop a budget proposal for the proposed expansion works. In 2018, a consortium of consultants were engaged to develop this concept design and explore options to deliver Councils' brief. The developed concept design outlines a North and South extension of the existing Western Grandstand, a new Eastern Grandstand and site upgrade works. The existing northern and southern mounds are to be retained with one (1) new LED Scoreboard and perimeter screening are planned.
- 61. Presently, the Sunshine Coast Stadium has demonstrated the ability to attract and host major events, including regular NRL fixtures and major entertainment acts such as Sir Elton John. The proposed expansion will provide an increase in fixed seating capacity and a higher standard of player and spectator experience. **Figure 12** below details the historic, current and projected use of the stadium by way of entertainment events and national competition and confirms that development will provide improved potential to attract national and international events, bringing with them significant economic benefit to the region and wider Queensland.

	NATIONAL COMPETITIONS	ENTERTAINMENT EVENTS
2016*	1 1 x NRL trial game	1 X Nitro Circus
2020	3 2 X NRL regular season games 1 X Women's NRL State of Origin	4 2 x Elton John concerts 1 x Nitro Circus 1 x Under the Southern Stars
PROJECTED**	6 3 x NRL games 3 X A-League / Super Rugby games	<ul> <li>7 4 x concerts</li> <li>2 x entertainment events</li> <li>1 x large scale community event</li> </ul>

Figure 12 Projected Events (Source: SCC Stadium Expansion Project Summary)

- 62. Key Drivers for the Stadium Expansion include:
  - Delivery of a major sports facility with the capacity to stage national and international sporting, recreational and entertainment events;
  - Creation of jobs during both the construction and operational phases;
  - Enhancement of the region's offering in respect to training camps and major competition events;
  - Complement the existing infrastructure mix planned or underway including the Sunshine Coast Airport expansion, Sunshine Coast University Hospital and Sunshine Coast International Broadband Network;
  - Delivery of a community facility that is vibrant, inclusive, accessible, adaptable and which meets the needs of the region and of people of all ages, abilities, and backgrounds; and,
  - An overall development that is part of the Sunshine Coast urban fabric and identity.
- 63. The development will add significant value to the region through providing a modern sporting facility that can accommodate regional, national and state events. Thereby resulting in a catalyst for economic growth, providing increased tourism activity, as well as supporting a growing localised sports economy.

# 4.4 Proposal Description and Details

- 64. The Proposal Plans prepared by Aspect Architects and Project Managers (**Appendix 1**) detail the proposed expansion to the Sunshine Coast Stadium, with **Figure 13** below demonstrating the proposed expansion elements, which includes an expansion to the existing western grandstand, as well as the construction of a new eastern grandstand.
- 65. Through the expansion of the existing western grandstand, as well as the construction of a new eastern grandstand the Sunshine Coast Stadium will contain a total fixed seat capacity of 11,905 persons, and a total overall capacity of approximately 16,905 persons for sporting events (when utilising the existing northern and southern mounds).
- 66. The proposed expansion presents an increase to the existing stadium capacity, which currently provides seating for up to 12,000 persons for sports events<sup>3</sup>. The additional spaces are provided through an additional 2,400 fixed seats provided on the northern and southern sides of the existing western grandstand (total 3,600 spaces), as well as a total of 8,305 spaces on the new eastern grandstand. Whilst it is noted that the development only increases the overall capacity by 4905 persons, the development results in an increase of 10,855 fixed seats within a grandstand arrangement. It is noted that these figures do not anticipate potential entertainment events held on the site, with the overall capacity of entertainment events being dependent on specific event management plans.

<sup>&</sup>lt;sup>3</sup> Previous entertainment events held on the site have accommodated up to approximately 16,000 persons.



Figure 13 Extraction of Locational Plan (Source: Aspect Architects and Project Managers)

67. **Figure 14** below provides an expanded site plan, which includes further detail by way of the location of the northern and southern mounds, as well as extent of roofing structures. As demonstrated on the plans prepared by Aspect Architects and Project Managers (**Appendix 1**), the development is staged, with Stage 1 comprising the majority of the development inclusive of eastern and western grandstand works listed above. Stage 2 of the development is limited to the amenities, commercial areas and food and beverage spaces on the undercroft and main concourse levels of the eastern grandstand. Timing has not been identified for the delivery of the stages.



Figure 14 Proposed Site Plan (Source: Aspect Architects and Project Managers)

#### 4.4.1 Key Development Parameters

68. **Table 4** below provides a broad overview of the key development parameters associated with the proposed expansion to the Sunshine Coast Stadium.

Development Particulars	Proposed
Gross Floor Area (GFA)	West Stand –10,265m <sup>2</sup> (excludes awning)
	East Stand – 6,648m <sup>2</sup>
Grandstand Dimensions	West Stand – 159m x 33m
	East Stand – 139.5m x 32.5m
Building Height	West Stand – 16.3 metres
(Note: Stadium Lighting has not been included in building height)	East Stand – 23 metres

#### Table 4 Development Particulars

#### 4.4.2 Expansion to Western Grandstand

- 69. As demonstrated in Figure 14 above, the development includes a northern and southern expansion to the existing western grandstand, which will increase the existing seating capacity from 1,200 seats to 3,600 seats. Figure 15 18 below demonstrates the floor layouts of the proposed western stand upgrade.
- 70. The western grandstand contains all the functional elements for the operation of the stadium, with the grandstand including:
  - Lockers, change rooms and game preparation areas;
  - Kitchen and security facilities;
  - Office, meeting, function rooms and corporate suites;
  - Media, broadcast and commentary boxes; and,
  - Serveries and bars.



Figure 15 West Stand - Ground Floor Plan (Source: Aspect Architects and Project Managers)



Figure 16 West Stand – Mezzanine Floor Plan (Source: Aspect Architects and Project Managers)



Figure 17 West Stand – Upper Concourse Floor Plan (Source: Aspect Architects and Project Managers)



Figure 18 West Stand – Upper Concourse Roof Level Plan (Source: Aspect Architects and Project Managers)

71. In addition to the above, Figure 19 below provides a perspective to the grandstand from the east and the west and demonstrates the development as retaining the same perforated screen, as well as other design elements presently applied to the existing western stand. Section 4.4.3 (Architectural Design and Built Form) below will provide further discussion on the built form elements of the proposal.



Figure 19 West Stand - Perspectives (east and west) (Source: Aspect Architects and Project Managers)

#### 4.4.3 Proposed Eastern Grandstand

- 72. As demonstrated in Figure 14 (Proposed Site Plan) above, the development includes the construction of a new eastern grandstand, which contains a seating capacity of 8,305 seats. In order to facilitate to construction of the eastern grandstand, the exiting eastern earth mound is required to be removed. Figure 20 22 below demonstrates the floor layouts of the proposed eastern stand.
- 73. The proposed eastern grandstand will be primarily utilised for seating of persons, with the majority of the operational functions/elements provided for within the western grandstand. The key elements of the eastern grandstand are as follows:
  - Seating Areas;
  - Undercroft vendor and commercial areas; and,
  - Food and beverage service areas.



Figure 20 East Stand – Ground Level (Source: Aspect Architects and Project Managers)



Figure 21 East Stand – Main Concourse Level (Source: Aspect Architects and Project Managers)



Figure 22 East Stand – Overall Seating Plan (Source: Aspect Architects and Project Managers)

74. In addition to the above, **Figure 23** below provides a perspective to the grandstand from the east and the west and demonstrates the development as containing a unique screening and roof from, which is different to that provided on the western stand. **Section 4.4.4** (Architectural Design and Built Form) below will provide further discussion on the built form elements of the proposal.



Figure 23 East Stand – Perspectives (east and west) (Source: Aspect Architects and Project Managers)

#### 4.4.4 Architectural Design and Built Form

- 75. This Stadium Expansion Proposal is a design development of an already widely published Sunshine Coast Stadium Concept. The proposed design has been rigorously refined by a range of architectural consultants including Aspect Architects and Project Managers, RWA Sports Architecture, as well as Marchese Partners.
- 76. In addition to the rigorous, multi architectural design process, the design of the stadium also considered the key guiding design principles contained within the 'Sunshine Coast Design' book. The below listed design principles provided the 'starting blocks' for the exploration of the Stadium Expansions architectural design and form.
  - Work with the local climate
  - Create places that respect and incorporate landscape
  - Bring culture, arts, and heritage to life
  - Capture and frame views and create vistas
  - Strengthen and extend a network of green
  - Be inspired by the nature and built environment
  - Create shady streets that put people first
  - Create welcoming places that can be enjoyed by everyone
  - Design places to be resilient and ready for change
  - Design places to be resilient and ready for change
  - Create and add value
- 77. The proposed Architectural Stadium Plans prepared by Aspect Architects and Project Managers (Appendix 1) have been designed to achieve compliance with the above listed design principles, as well

as Council's intent to provide a modern, state-of-the-art sports stadium. **Figure 24** and **25** below provide a development perspective when viewed from the north-west and south-east.



Figure 24 North-West Elevation (Source: Aspect Architects and Project Managers)



Figure 25 South-East Elevation (Source: Aspect Architects and Project Managers)

#### 4.4.4.1 Architectural Design - Western Grandstand

- 78. The Existing Architectural form of the western grandstand has informed the proposed design. The existing seating platforms are continued to the North and South, extending the open upper-level concourse below a continuation of a single pitch skillion roof. The focal point of the façade is the existing 'basket weave' steel screening, already iconic and expanded upon to create continuity of form and identity, whilst also providing sun-screening from the west.
- 79. The architectural design of the grandstand has been primarily focused on its ability to accommodate and hold regional, state and national sports events. However, it is also noted that Music and Entertainment events, as well as other external fund generating sources such as weekend markets, exhibitions and conventions present extremely viable alternative funding opportunities. This flexibility is a key driver for the proposed Architectural design and spatial planning of the western stand.
- 80. The western grandstand currently holds 1046 patrons, and an addition to the grandstand will formalise 3,600 seated patrons. This will also include increased access to food and beverage outlets and public amenities, as well as a range of other adaptable facilities, including:

- <u>Athlete facilities:</u> Improved amenities including cold and warm water recovery baths, recovery areas, warm up areas, and team auditorium;
- <u>Multi-purpose/community spaces</u>: To meet event requirements and provide hire/lease opportunities on non-event days. Opportunities are also being explored to accommodate community outreach programs and services in the multi-purpose spaces in the expanded stadium;
- <u>Change rooms</u>: Current change rooms are of high quality and meet current elite sporting guidelines. To accommodate larger scale events and women's events, two additional change room facilities are included in the design;
- <u>Compliance:</u> All event compliance requirements will be included in the western grandstand. This includes first aid rooms, drug testing room, operations rooms, media boxes, camera platforms, coaches' boxes, production area and ground announcer's room;
- <u>Operations:</u> Also included is a state-of-the-art venue control and operations room, a dedicated police operations room and a serious medical injury clinic;
- <u>Function/corporate facilities:</u> The corporate offering in the western grandstand will be maximised to satisfy the potential market need for various product types and non-event days. Current designs include eight private corporate boxes, a function room/chairman's lounge, and a sky bar; and,
- <u>Commercial and community leasing</u>: Cricket Queensland/Brisbane Heat, National Rugby League/Sunshine Coast Falcons, Sunshine Coast Rugby Union, Sunshine Coast Churches Soccer and Melbourne Storm are amongst those sporting bodies currently leasing office space at Sunshine Coast Stadium. There is an opportunity to develop a 'sports house' based on a shared services model, with an additional 1208 square metres of office space incorporated in the Sunshine Coast Stadium expansion design.
- 81. It is noted that the western grandstand is currently designed as an extension of the existing architectural design. The complexities of the multiple users and the specialised functionality requires continued development of the internal spatial planning and extensive coordination with fire and compliance consultants. This proposal therefore has three (3) possible resolutions to the pedestrian circulation and hence the elevational treatment of the west stands western façade (**Figure 26** and **27**). Further development with additional cost analysis will be key drivers in defining this final detail and outcome. Outlined below are the three (3) options for the western stand:
  - Option 1 as detailed in the plans and elevations in the Architectural documentation package. A continuation of the existing western façade form with internalised main spectator paths of exit, mimicking the existing spatial planning and compliance rationale. An additional two smaller fire escape and circulation stairs are located to the North and South (Refer to Figure 26 and 27).
  - Option 2 A revised spectator circulation route with main circulation paths to the extreme north and south of the western stand. Thus, resulting in an alternative elevational form and treatment. While this is the preferred pedestrian circulation route, compliance assessments are yet to be conducted and will form part of the detail design. These assessments, as well as more detailed cost analysis, will define the suitability of this proposed option (Refer to Figure 28 and 29).
  - Option 3 Given the defined fixed budget and the complexities of the overall project, possible cost saving elements may need to be explored in the detail design stage. This option proposes a simplified façade treatment with no façade screening. This includes the spectator circulation routes as proposed in Option 2, as well as a 1.5 m reduction in the roof height to the extended built form. Until the detail has been progressed and costed, this option cannot be confirmed as a requirement (Refer to Figure 30 and 31).



Figure 26 Option 1 – West Stand Elevation (Source: Aspect Architects and Project Managers)



Figure 27 Option 1 – West Stand Plan (Source: Aspect Architects and Project Managers)



Figure 28 Option 2 – West Stand Elevation (Source: Aspect Architects and Project Managers)



Figure 29 Option 2 - West Stand Plan (Source: Aspect Architects and Project Managers)



Figure 30 Option 3 – West Stand Elevation (Source: Aspect Architects and Project Managers)



Figure 31 Option 3 – West Stand Elevation (Source: Aspect Architects and Project Managers)

#### 4.4.4.2 Architectural Design - Eastern Grandstand

- 82. As detailed above, the stadium expansion includes construction of a new grandstand on the eastern side of the playing field, which contains seating for up to 8,305 persons. In addition to the proposed seating, the eastern grandstand includes the provision of food and beverage outlets, public amenities, and operational areas (storerooms, waste management, water tanks etc.)
- 83. As shown in the proposal plans prepared by Aspect Architects and Project Managers (**Appendix 1**), the eastern stand contains a functional synthesis of lightweight materials, semitransparent stretched fabrics and exposed structure. The structure has been designed to provide a design icon with a strong Sunshine Coast identity. In terms of the user experience, the seating plans set out in a parabolic format allows for

optimum viewing and 'C' values for all spectators at any level. Spectator amenity is further enhanced through the provision of the stretched roof fabric that wraps up and over to the east façade providing weather protection to the upper stand users (providing cover to 50% of the stand) as well as the concourse level.

- 84. The Architectural design aims at creating a uniquely Sunshine Coast experience for all potential users with a concept drawn from the following:
  - The main eastern façade details tall triangle forms, referencing sailing yachts and windsurfers sails, iconic images of the maritime inheritance of the Sunshine Coast;
  - Folded roof patterns referencing triangular shaped remnant of the Glasshouse Mountains;
  - A lightweight frame, cover, and triangular shape resemble a group of "Gunyah" structures. (Indigenous Bush Huts);
  - A fabric membrane and expression of structure transparency and lightweight building tradition of Sunshine Coast, which touches the earth lightly;
  - Modulated and articulated to human scale with the grouping of smaller-scaled forms;
  - Visually dynamic and engaging forms from all vantage points;
  - Night-time visibility through open weave portions of the fabric façade with opportunities for illumination or projection onto the façade; and,
  - Weather-protected concourse with views out to the ocean.

## 4.4.5 Pedestrian, Access and Parking

#### 4.4.5.1 Vehicle Access and Parking

- 85. A Traffic Impact Assessment has been prepared by Bitzios Consulting (**Appendix 3**) in support of the application. The Traffic Impact Assessment confirms the that surrounding road network contains sufficient capacity to service the proposed stadium.
- 86. Further, the Traffic Impact Assessment confirms that a total of 380 car parking spaces will be provided within close proximity of the site, with an additional 1,400 car parking spaces capable of being informally provided on five (5) of the seven (7) Kawana sports precinct playing fields surrounding the stadium, as well as an additional 1,200 car parking spaces provided in the surrounding area.
- 87. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**), details that through the application of various mode shares (car parking, car drop-off/pick-up, public transport and active transport), the development contains sufficient parking capacity to service a range of events from small (3,000 persons) to large (17,500 persons).

#### 4.4.5.2 Pedestrian Access

88. In terms of internal circulation, the eastern and western grandstands contains four (4) staircases and two(2) lifts, which service the main concourse and the primary route to the grandstand seating.

#### 4.4.6 External Lighting

- 89. A Lighting Impact Assessment has been prepared by Webb Consulting Engineers (**Appendix 8**) in support of the application.
- 90. The Lighting Impact Assessment confirms the retention of the existing lighting towers positioned at the corners of the playing field, as well as the provision of an addition lighting fixtures mounted on the roof canopy of the western canopy. With the inclusion of the additional canopy lighting across the entire extent of the roof form, the development will ensure a suitable lighting outcome for the expansion.

91. In addition to this, the Lighting Impact Assessment confirms that additional general exterior lighting will be provided for wayfinding purposes (pathway lighting, plaza/forecourt lighting and architecture feature lighting). General exterior lighting will be designed to comply with Australian Standard AS/NZS1158.3 and AS4282.

#### 4.4.7 Landscaping

92. A Landscape Concept Plan has been prepared by Element Design (**Appendix 4**) in support of the application. **Figure 32** below provides an extract of the Landscape Plan and demonstrates additional supplementary landscaping around the perimeter of the playing field and at pedestrian entry points to the facility.



Figure 32 Landscape Overall Plan (Source: Element Design)

#### 4.4.8 Waste Management

- 93. A Waste Management Plan has been prepared by TTM Consulting (**Appendix 5**) in support of the application. The Waste Management Plan identifies that it is estimated that a total of 8,601L of general waste and 3,539L of recyclable waste will be generated for the western stand per event, with 4,868L of general waste and 4,593L of recyclable waste will be generated for the eastern stand per event.
- 94. The development contains enclosed bin storage areas within both the western and eastern grandstand, with it being proposed that waste is collected on-site via a WCV on alternative days. Refer to the Waste Management Plan for further details.

#### 4.5 Event Management

95. The Sunshine Coast Stadium and Precinct is a multi-purpose facility hosting a wide range of events including local, regional, national and international sporting fixtures sporting fixtures, music concerts,

outdoor expos, and other entertainment events. Each of these events comes with its own unique requirements with varying crowd sizes, activation zones, operational requirements, event times and event durations. To facilitate and plan for these events, and in accordance with the 2005 Development Application Decision Notice; Event Management Plans (EMP's) are prepared for all events with expected crowd capacities over 3,000. Many events also have their own unique protocols and compliance requirements that are also incorporated into these EMP's.

- 96. All EMP's are prepared by the Sunshine Coast Council's dedicated Sports and Venues management team, with the assistance of specialist consultants as and when required. Items that are generally addressed in each EMP include detailed assessment and planning for the following elements:
  - 1. Event Profiles:
    - a. Event risk assessments and risk management planning
    - b. Event descriptions, demographics, crowd expectations, event programs
    - c. Staff Structures and contact lists
    - d. Permits required Liquor & food licenses, legislative standards, insurance requirements
  - 2. Venue Overview:
    - a. Player/Officials/VIP Zones
    - b. Venue Zones for staffing
    - c. Event Facilities and Services
    - d. Public Zones for Patrons standing, seated, amenities and food & beverage
    - e. Power and lighting requirements
  - 3. Entry and Circulation Procedures:
    - a. Ticketing, Gate queue systems & Security Checks
    - b. Area/Room allocations and capacities
    - c. Seating Areas public, corporate
    - d. Amenities and accessibility
  - 4. Traffic Management Plan:
    - a. Traffic External and Internal to precinct
    - b. Signage locations, road closures and traffic controller planning
    - c. Parking VIP, staff, public, accessible, and emergency services
    - d. Public Transport and event shuttles
    - e. Pedestrian management
  - 5. <u>Emergency services and evacuation plans</u>
  - 6. <u>Security and Crowd management functions</u>
  - 7. Media and Marketing
  - 8. <u>Food & Beverage Detail including cash management plans</u>
  - 9. <u>Communications</u>
  - 10. Waste Management
  - 11. Overall event operational procedures
- 97. Upon request, a number of examples can be provided for a more detailed review of the individual EMP's content and the extent of preliminary investigates and planning that are undertaken before each event.
  - 2019 Queensland Oztag Junior State Cup 25<sup>th</sup> January 2019
  - 2019 NRL Game EMP 13<sup>th</sup> April 2019, Rabbitohs vs Warriors
  - 2020 Elton John Traffic Operations Plan 3<sup>rd</sup> March 2020, Traffic, Transport and Parking Operational Plan
  - NRL Game 17 July Traffic Transport & Parking Management Plan, Melbourne Storm vs Gold Coast Titans

• Event Management Plan – Storm vs Cowboys – 13<sup>th</sup> September 2020, NRL Fixture

# 98. **Table 5** below represents a summary of Events and Event Management Plans.

Description	Event	Event type	Event	Event	Additional	Existing EMP
	Capacity		processes	examples	considerations	references
Small Event	Up to	Local & State	Consultation	Oztag and	COVID 19	2019
	3,000	sports events,	with local	other sports	Scenarios	Queensland
			Public	events		Oztag Junior
			Transport			State Cup,
Medium	3,000 to	Sports Fixtures,	Event	Sports events	COVID 19	2020 NRL Storm
Event	10,000	Music Concerts	Management	– Sunshine	Scenarios	vs Cowboys,
			Plan, Traffic	Coast Falcons		2020 NRL
			Management			Melbourne
			Report			Storm vs Gold
						Coast, SC
						Falcons
Large Event	10,000	Sports Fixtures,	Event	Elton John,	Future Mass	2019 NRL
	plus	Music Concerts	Management	NRL Fixture	Transit Corridor,	Rabbitohs vs
			Plan, Traffic		Precinct Master	Warriors, 2020
			Management		plan (Western	Elton John Tour
			Report,		fields parking	
			Terrorism		opportunities),	
			assessment,		COVID 19	
			Department		Scenarios	
			of mains road			
			and			
			Queensland			
			Police Service			
			Engaged as			
			part of event			
			management			
			Structure			

**Table 5** Event and Event Management Plan Summary
# 5 Compliance with Legislative Requirements (Local and State)

- 99. This section of the EAR will demonstrate compliance with the local and state legislative requirements, namely:
  - Planning Act 2016;
  - State Planning Policy;
  - South East Queensland Regional Plan; and,
  - Sunshine Coast Planning Scheme 2014.

# 5.1 Planning Act 2016

- 100. Chapter 2, Part 5, Section 36 of the *Planning Act 2016* sets out the criteria that a designator must be satisfied is achieved in order to make a designation.
- 101. **Table 6** below details provides comment on the development and its compliance with the relevant criteria contained within Section 36 of the *Planning Act 2016*.

Criteria	Response
(1) To make a designation, a designator must be satisfied	Refer to Section 4.2 (Intent of Designation), which
that—	details that there is a need for the timely delivery of
(a) the infrastructure will satisfy statutory requirements, or	the proposed infrastructure upgrade.
budgetary commitments, for the supply of the	
infrastructure; or	
(b) there is or will be a need for the efficient and timely	
supply of the infrastructure.	
(2) To make or amend a designation, if the designator is the	This EAR contains a comprehensive environmental
Minister, the Minister must also be satisfied that adequate	assessment (within Section 5.3, 5.4 and 6), which
environmental assessment, including adequate	addresses all state and local government planning
consultation, has been carried out in relation to the	controls and demonstrates the development does
development that is the subject of the designation or	not result in any unmitigable or adverse
amendment.	environmental impacts.
	Consultation will be undertaken in accordance with
	the requirements listed within Schedule 4, Part 7 of
	the Ministers Guidelines and Rules.
(3) The Minister may, in guidelines prescribed by	This EAR has been prepared in accordance with
regulation, set out the process for the environmental	Chapter 7 of the Ministers Guidelines and Rules.
assessment and consultation.	
(4) The Minister is taken to be satisfied of the matters in	This EAR has been prepared in accordance with
subsection (2) if the process in the guidelines is followed.	Chapter 7 of the Ministers Guidelines and Rules.
(5) However, the Minister may be satisfied of the matters	Not Relevant.
in another way.	
(6) Sections 10 and 11 apply to the making or amendment	Not Relevant.
of the guidelines as if the guidelines were a State planning	
policy.	
(7) To make or amend a designation, a designator must	
have regard to—	
(a) all planning instruments that relate to the premises; and	Sections 5.2, 5.3 and 5.4 of this EAR provides a
	comprehensive assessment of all relevant planning
	instruments.

# Table 6 Compliance with Section 36 of the Planning Act

Criteria	Response
(b) any assessment benchmarks, other than in planning	There is no known existence of any other (non-
instruments, that relate to the development that is the	planning) assessment benchmark, which would
subject of the designation or amendment; and	require consideration as part of this EAR.
(c) if the premises are in a State development area under	The premises is not located within a State
the State Development Act—any approved development	Development Area.
scheme for the premises under that Act; and	
(ca) if the premises are in a priority development area	The premises is not located within a Priority
under the Economic Development Act 2012—any	Development Area.
development scheme for the priority development area	
under that Act; and	
(d) any properly made submissions made as part of the	This designation request is made by Sunshine Coast
consultation carried out under section 37; and	Council.
the written submissions of any local government.	

# 5.2 State Interests

# 5.2.1 State Planning Policy

- 102. The State Planning Policy (SPP) presents the principal state land use planning instrument, with the policy outlining the states interest in land use planning, development, as well as providing assessment benchmarks as well as state wide policies. In accordance with Part B (Application and Operation), the SPP applies where designating premises for infrastructure. As such, the SPP has been addressed as part of this EAR.
- 103. **Table 7** below details all State Interest Policies contained within Part E of the SPP and designated applicable policies relevant to the assessment of the EAR.

Sate Interest Policy	Applicability	
Livable Communities and Housing		
Housing Supply and Diversity	Not Applicable	
Livable Communities	Not Applicable	
Economic Growth		
Agriculture	Not Applicable	
Development and Construction	Not Applicable	
Mining and Extractive Resources	Not Applicable	
Tourism	Not Applicable	
Environment and Heritage		
Biodiversity	Not Applicable	
Coastal Environment	Not Applicable	
Cultural Heritage	Not Applicable	
Water Quality (Water Resource Catchments)	Addressed in Section 5.2.1.1 below	
Safety Resilience and Hazards		
Emissions and Hazardous Activities	Not Applicable	
Natural Hazards, Risk and Resilience (Erosion Prone Area,	Addressed in Section 5.2.1.2 below	
Medium Storm Tide Inundation Area)		
Infrastructure		

#### Table 7 Applicable State Interest Policy Elements

Sate Interest Policy	Applicability
Energy and Water Supply	Not Applicable
Infrastructure Integration	Not Applicable
Transport Infrastructure	Addressed in Section 5.2.1.3 below
Strategic Airports and Aviation Facilities	Not Applicable
Strategic Port	Not Applicable

- 104. The below sections will detail the developments compliance with the relevant State Interest Policies identified in **Table 7** above.
- 105. Whilst the 'Tourism' and 'Livable Communities' policy elements are not relevant to the assessment of the application, it is considered that the proposed development advances the intent of these policy elements through providing an expansion to a land use that services the lifestyle needs of the community, as well as providing appropriate infrastructure to support and strengthen the tourism economy of the Sunshine Coast.

## 5.2.1.1 State Interest Policy – Water Quality

- 106. The proposed infrastructure will result in an increase to Gross Floor Area, as well as result in additional impervious area to that of the pre-development scenario. The Civil Infrastructure Report prepared by Barlow Shelley Consulting Engineers (Appendix 6), provides details in relation to the application Stormwater Quality Improvement Devices (Bioretention Basin) that are proposed to ensure that the development complies with the Stormwater Management Design Objectives contained within Tables A and B Appendix 2 of the SPP.
- 107. Due to the application of the Stormwater Quality Improvement Devices, as detailed in the Civil Infrastructure Plan, the development complies with the Water Quality State Interest Policy.

## 5.2.1.2 State Interest Policy – Natural Hazards Risk and Resilience

- 108. The subject site is identified as being partially identified as an Erosion Prone Area, and a Medium Storm Tide Inundation Area. In assessing the development against the policy, it is relevant to note that the development is positioned entirely within the Urban Footprint and on urban zoned land under Council's planning scheme. Additionally, the development mitigates risk to persons and property, through the grandstands detailed in **Section 4.4** (Proposal Description and Details) being constructed above the flood immunity levels and containing sufficient capability to evacuate staff and visitors prior to a storm tide event.
- 109. Further, the development will not increase the severity of the impact, through the development not impacting upon the waterway, or impacting on emergency response capability. Lastly, the development will not result in adverse modifications of natural landforms, or result in the release of hazardous materials.
- 110. As such, the development complies with the Natural Risk and Resilience State Interest Policy.

#### 5.2.1.3 State Interest Policy – Transport Infrastructure

111. Whilst there are no specific Assessment Benchmarks for Transport Infrastructure under (aside from strategic ports and airports) the development complies with the state interest policy statements, with the development:

- Being located on a site which is presently serviced by high capacity road network and public transport infrastructure;
- Proposing the use of the existing road, as well as future and planned public transport network;
- Not being adversely impacted by environmental emissions generated by the existing and planned transport infrastructure; and,
- Not impacting upon the safety and efficient of the existing state transport network (refer to Traffic Impact Assessment prepared by Bitzios Consulting **Appendix 3**).
- 112. As such, the development complies with the Transport Infrastructure State Interest Policy.

# 5.2.2 South East Queensland Regional Plan

- 113. The *South East Queensland Regional Plan 2017* (hereafter; SEQRP) is the principal planning document for managing growth and development within the South East Queensland region until 2041. The subject site is located within the 'Urban Footprint' designation of the SEQRP.
- 114. According to the SEQRP, the 'Urban Footprint' comprises sufficient land to accommodate a full range of acceptable urban uses, such as housing, industry, business, **infrastructure**, community facilities and urban open spaces that can meet the region's urban development needs.
- 115. The proposed development satisfies the intent of the Urban Footprint, with the proposed expansion of the existing centrally located infrastructure ensuring that the development that is consistent with the desired land use pattern for the local area. The site is also suitably positioned within close proximity to primary transport corridors (Nicklin Way, Kawana Way) as well as the existing sports precinct.
- 116. Lastly, it is noted that this EAR does not require assessment against the SEQ Regulatory Provisions on the basis that the development is not located within a Major Development Area.

# 5.3 State Development Assessment Provisions – Referral Agency

- 117. A review of the Development Assessment Mapping System (DAMS) confirms the below mapping layers applying to the site:
  - Unexploded Ordnance (UXO) Areas with substantial potential for UXO
  - Coastal Protection Coastal Area Erosion Prone Area, Medium Storm Tide Inundation Area
  - Water Resources Water Resource Planning Area Boundary
  - State Transport Corridor State Transport Corridor Area within 25 metres of a State Controlled Road
  - State Transport Corridor Future State Transport Corridor Future Busway Corridor
- 118. Schedule 10 of the *Planning Regulation 2017* confirms that under a standard Development Application process made in accordance with Section 51 of the *Planning Act 2016* the development application would require referral for the following triggers:
  - Schedule 10, Part 9, Division 4, Subdivision 1, Table, (8)(a)(i) State Code 1: Development in a State-Controlled Road Environment
  - Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, (8)(b)(ii) – State Code 1: Development in a State-Controlled Road Environment
  - Schedule 10, Part 4, Division 3, Table 1 (1)(b) State Code 13: Unexploded Ordnance
- 119. **Table 8** below details the referral trigger, applicable state code and that applicable specialist report, which addresses the relevant state code.

#### Table 8 Referral Trigger Assessment

Referral Trigger	Applicable State Code	Code Response Detail
Schedule 10, Part 9, Division 4,	State Code 1: Development in a	Appendix 3 – Traffic Impact
Subdivision 1, Table, (8)(a)(i)	State-Controlled Road	Assessment prepared by Bitzios
	Environment	Consulting (Appendix G)
Schedule 10, Part 9, Division 4,	State Code 1: Development in a	Appendix 3 – Traffic Impact
Subdivision 2, Table 4, (8)(b)(ii)	State-Controlled Road	Assessment prepared by Bitzios
	Environment	Consulting (Appendix G)
Schedule 10, Part 4, Division 3,	State Code 13: Unexploded	Appendix 7 – Response to
Table 1 (1)(b)	Ordnance	Environmental Matters prepared
		by Future Plus Environmental
		(Appendix C)

# 5.4 Local Government - Sunshine Coast Planning Scheme 2014

120. The subject site is located within the Sunshine Coast Council Local Government Area, with the *Sunshine Coast Council Planning Scheme 2014* forming the local government planning scheme, which applies to the subject site and region. Although the proposed designation will result in the development being Accepted Development, consideration against the planning scheme development controls has been undertaken as part of this EAR.

#### 5.4.1 Applicable Planning Scheme Elements

121. **Table 9** below, provides a breakdown of the planning scheme, which relates to the subject site and proposed development.

Planning Instrument	Sunshine Coast Council Planning Scheme 2014	
Zone	Sport and Recreation Zone	
Local Plan	Kawana Waters Local Plan Area	
Overlays	<ul> <li>Height of Buildings and Structures Overlay</li> <li>Acid Sulfate Soils Overlay</li> </ul>	
	<ul> <li>Airport Environs Overlay</li> </ul>	
	Flood Hazard Overlay	
	Regional Infrastructure Overlay	

#### Table 9 Planning Scheme Particulars

#### 5.4.2 Use Definition

122. Under the Planning Scheme, the proposed land use is defined as a 'Major Sport, Recreation and Entertainment Facility', which is specifically defined as '*Premises with large scale built facilities designed to cater for large scale events including major sporting, recreation, conference and entertainment events'*.

#### 5.4.3 Strategic Framework

123. From a spatial context, the subject site is located within an 'Urban Area', with the site being identified as a 'Major Sport and Recreation Open Space' as per Strategic Framework Map 1 Land Use Elements (Figure 33) below.



Figure 33 Extract of Strategic Framework Map 1 – Land Use Elements (Source: Sunshine Coast Council)

- 124. The Strategic Framework sets the policy direction for the planning scheme and forms the basis for ensuring appropriate development occurs within the Sunshine Coast. In reviewing the Strategic Framework, there are common themes that are reiterated throughout the document in relation to sports and open space facilities, with a Strategic Framework indicating a general intent for:
  - The protection of and future provision of sport and recreation facilities, for use by residents and visitors;
  - The provision of well located sport and recreational facilities that contribute to active, healthy living and community wellbeing;
  - The provision of tourism, sport and leisure related activities that offer unique and world class tourism, sport and leisure experiences as well as major events; and,
  - New investment and re-investment in high value industries, including sport and tourism.
- 125. The expansion of the Sunshine Coast Stadium detailed within **Section 4.4** (Proposal Description and Details) advances all four detailed common themes through the provision of an improved sporting facility, which will deliver local, regional and national sporting events and will strengthen and solidify the existing sports network located within proximity to the site.
- 126. On this basis the development complies with the desired intent of the Strategic Framework.

#### 5.4.4 Overlays

127. **Table 10** below will demonstrate the overlays that are relevant to the site under the planning scheme, with a response provided in relation to compliance with the assessment criteria.





Overlay	Response
Flood Hazard Overlay	
	The subject site is identified as being within a Flooding
The first of the f	<ul> <li>Section 3.7 – 3.10 of the Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (Appendix 6) provides commentary on the flooding aspects of the site and how the development mitigates flood risk.</li> <li>Further, a code response to the Flood Hazard Overlay Code is contained within Appendix C (Development Codes) of the Civil Engineering Report (Appendix 6), which confirms that the development complies with the Flood Hazard Overlay Code.</li> </ul>
Regional Infrastructure Overlay	
	The subject site is identified as being subject to the Major Road Corridor and Buffer under the Regional Infrastructure Overlay. Performance Outcome PO7 – PO9 of the Regional
	development based on the sites designation.
Major Road Corridor and Buffer	The Traffic Impact Assessment prepared by Bitzios Consulting ( <b>Appendix 3</b> ) confirms that the development will not impact upon the operation of the surrounding road network. Further, the development does not propose sensitive land uses or propose the removal of vegetation that interfaces with the Nicklin Way (Major Road) and therefore the development complies with
	the relevant Assessment Benchmarks of the Regional Infrastructure Overlay Code.

# 5.4.5 Sport and Recreation Zone Code

- 128. As detailed in **Table 9** above, the subject site is located within the Sport and Recreation Zone. In accordance with Table 6.2.13.2.1 (Consistent Uses and Potentially Consistent Uses in The Sport and Recreation Zone) the development of a 'Major Sport, Recreation and Entertainment Facility' is a consistent land use, where located on Council owned and controlled land and undertaken by Council. Given the development satisfies this criteria, the proposed development of the site is consistent with the land use intent.
- 129. **Table 11** below will list the Overall Outcomes of the Sport and Recreation Code, with commentary provided in relation to how the proposed expansion to the Sunshine Coast Stadium achieves the applicable outcomes.

Overall Outcome	Comment
(a) development provides for a range of sport and recreation activities that meet the active recreation needs of residents and visitors including indoor sport and recreation, outdoor sport and recreation and park uses;	<b>Complies</b> The proposed expansion of the Sunshine Coast Stadium improves the existing stadium through providing increased seating capacity, which will support larger local, regional, state and national events.
	The proposed expansion will assist in solidifying the site, as well as the Kawana Waters Sports Precinct as a destination for active recreation needs of the community.
(b) the zone predominantly accommodates formalised recreation activities that support organised team and individual sports and recreation pursuits including sporting fields, golf courses, outdoor courts, indoor sports centres, public swimming pools, equestrian facilities, and active leisure facilities;	<b>Complies</b> The proposed expansion will provide an improved sporting facility, which will be utilised for local, regional, state and national sporting events.
(c) ancillary uses and facilities that support the predominant recreation activities including caretaker's accommodation, clubs, certain community activities, function facilities, amenities blocks, kiosks, shelters, spectator stands and lighting infrastructure may be established in the zone where they support the ongoing safe, comfortable and efficient operation of sport and recreation activities;	Complies The expansion of the Sunshine Coast Stadium includes the delivery of ancillary facilities, which are required to provide a high-quality national level sporting facility on the site. As demonstrated in the Architectural Plans prepared by Aspect Architects and Project Managers (Appendix 1) the development integrates all elements within the grandstands and does not require the reduction of overall sports fields on the site.
<ul> <li>(d) sport and recreation open space may also be used for temporary or periodic uses, such as markets or outdoor entertainment events, where these uses are of a scale that can reasonably be accommodated by the existing open space facilities and do not unduly impact on the amenity and character of the surrounding area;</li> <li>(e) the co-location and multiple use of sport and recreation fields and facilities by complementary recreation activities is encouraged;</li> </ul>	Complies The existing Sunshine Coast Stadium is currently utilised for temporary and periodic uses. The proposed expansion to the Sunshine Coast Stadium does not seek to alter the temporary and periodic nature of the site for outdoor entertainment uses. Complies The subject site contains a cluster of sports fields, which are not proposed to be modified/reduced as part of the development on the site. The site also forms part of the broader Kawana Sports
<ul> <li>(f) premises used for showgrounds in Eumundi, Kenilworth, Maleny and Nambour may provide accommodation in the form of a small scale camping ground or caravan park for short-term stays, which remains ancillary to the primary use of the showgrounds for sport and recreation purposes;</li> <li>(g) areas used for recreation activities complement, and where practicable, are connected to other parts of the</li> </ul>	Precinct, which is detailed in Section 3.2 (Site Location – Local Context) above. Not Applicable The Sunshine Coast Stadium is not referred to in Overall Outcome (f). Complies As listed in response to Overall Outcome (e)

# Table 11 Sport and Recreation Zone – Overall Outcome Assessment

Overall Outcome	Comment
Open space zone and the Environmental management and conservation zone;	Kawana Waters Sports Precinct, which includes a significant land holding that is zoned as either Sport and Recreation Zone or Community Facilities.
(h) existing and planned recreation activities are protected from the intrusion of incompatible land uses that may compromise or conflict with the primary use of the sport and recreation open space for organised sport and recreation activities;	<b>Complies</b> The proposed expansion to the Sunshine Coast Stadium will further consolidate the site for sport and recreational uses. Further, the development does not include incompatible land uses, which may compromise of conflict the use of the site for sports purposes.
(i) development provides a high level of amenity and mitigates the potential for land use conflicts with existing and planned development in the locality;	<b>Complies</b> The proposed expansion to the Sunshine Coast Stadium has been architecturally designed such that the development delivers a visually appealing development, which will assist in mitigating noise impacts through partially enclosing the currently open eastern face of the playing field.
	In terms of land use compatibility, the stadium expansion is located on the south-west portion of the site and adjoins the Kawana Aquatic Centre to the south and industrial zoned land to the north. Due to this surrounding land use pattern, the proposed development does not increase or present additional land use conflicts to that of the existing stadium.
(j) the scale, intensity and built form of development is compatible with the existing and intended scale and character of the streetscape and surrounding area;	<b>Complies</b> The expansion to the Sunshine Coast Stadium presents a type and form of development that is anticipated for the site, with the planning scheme not seeking to restrict the intensity of events on the site.
	grandstand results in an exceedance to the prescribed height limit (21 metres), with the development containing a maximum height of 23 metres. <b>Section 6.2.1</b> (Visual Impacts) of this EAR will address the impact of the proposed height exceedance.
(k) sport and recreation activities and other activities established in the zone make a positive contribution to the image of the Sunshine Coast by incorporating a high quality of built form and landscape design;	<b>Complies</b> The proposed expansion to the Sunshine Coast Stadium presents a high quality architectural form, which positively contributes to the urban fabric, as well as Sunshine Coast image as a sporting hub for local, regional, state and national sporting events.
(I) development is located, designed and operated to be responsive to the Sunshine Coast's sub-tropical climate and	Complies Consideration to the environmental and climate
minimises the consumption of energy and water;	impacts of the development were considered

Overall Outcome	Comment
	through the design stage of the Sunshine Coast
	Stadium.
(m) development protects and enhances the open space character and amenity of sport and recreation areas;	<b>Complies</b> The expansion to the Sunshine Coast Stadium further consolidates the Kawana Sports precinct as the preeminent sports location on the Sunshine Coast and north of Queensland.
	The design of the development has been architecturally designed and has progressed through a thorough design process to ensure that the development enhances the open space character of the area. <b>Section 6.2.1</b> (Visual Impact) of the EAR will provide further detail about the visual impacts of the development.
(n) development avoids as far as practicable, or where	Not Applicable
avoidance is not practicable, minimises and otherwise	As per Council's planning scheme maps, the
mitigates, adverse impacts on ecologically important areas,	subject site does contain ecologically important
including creeks, gullies, waterways, wetlands, coastal areas,	areas.
nabitats and vegetation through location, design, operation	
(a) development is designed and sited to sensitively respond	Complies
to the physical characteristics and constraints of land.	The subject site is not identified as being subject
including flooding, steep land, landslide hazard and bushfire	to steep land or bushfire prone land on either the
hazard, where applicable;	Council or SPP mapping.
(p) development encourages public and active transport accessibility and use and provides for pedestrian, cycle and vehicular movement networks that maximise connectivity, permeability and ease of movement within and to sport and recreation open space areas;	The subject site is identified as being subject to the Flood Hazard Overlay (not overland flow path). The development has been designed such that the stadium additions are located above the flood extent for the site. <b>Section 6.4.3</b> (Flooding) of the EAR will provide further detail in relation to avoidance/mitigation of natural hazards. <b>Complies</b> The development seeks the combined use of public transport, car access/ride sharing to support events held on the site. Further, the subject site and surrounds also contains a suitable active transport network, which assists in facilitating pedestrian/cycle access to the site. <b>Section 6.3.1</b> (Public Transport) and <b>Section 6.3.2</b> (Traffic Impact and Parking Assessment) of the
	EAR provide further detail in relation to access to
	and from events held at the site.
(q) development provides for infrastructure and services that	Complies
are commensurate with the location and setting of the sport	The subject site and existing stadium are
and recreation open space and the nature and scale of	connected to reticulated water, sewer,
development that is intended to occur in the zone;	stormwater, telecommunications and electrical infrastructure.
(r) development does not adversely impact on the continued	Not Applicable
operation, viability and maintenance of existing	

Overall Outcome	Comment
infrastructure or compromise the future provision of planned	Under the Local Government Infrastructure Plan
infrastructure; and	(LGIP) there is no identified trunk infrastructure
	planed for the site.
(s) development provides for the following:-	Complies
(i) a use listed as a consistent use in column 1 of Table	The development of the site for a 'Major Sport,
6.2.13.2.1 (Consistent uses and potentially consistent uses in	Recreation and Entertainment Facility' is a
the Sport and recreation zone) to occur in the Sport and	consistent land use within the zone, due to the
recreation zone; and	site being located on Council owned land and the
(ii) a use listed as a potentially consistent use in column 2 of	development is being undertaken on behalf of
Table 6.2.13.2.1 to occur in the Sport and recreation zone	Council.
only where further assessment has determined that the use	
is appropriate in the zone having regard to such matter as its	
location, nature, scale and intensity.	

# 5.4.6 Kawana Waters Local Plan Area

130. The subject site is located within the Kawana Waters Local Plan Area. As demonstrated in **Figure 34** below, the Kawana Waters Local Plan designates the site as the 'Sunshine Coast Stadium'. It is noted that there is no specific precinct that applies to the site under the Kawana Waters Local Plan.



Figure 34 Kawana Waters Local Plan Area Code Mapping (Source: SCC 2014)

131. **Table 12** below will list the Overall Outcomes of the Kawana Waters Local Plan Code, with commentary provided in relation to how the proposed expansion to the Sunshine Coast Stadium achieves the applicable outcomes.

 Table 12 Kawana Waters Local Plan Code – Overall Outcome Assessment

Overall Outcome	Comment
(a) Kawana Waters is a diverse coastal urban area comprising a	Complies
number of mature and emerging residential communities,	The proposed expansion of the Sunshine
supported by a proposed major regional activity centre at Kawana	Coast Stadium contributes to the vision of
Town Centre and district activity centre in the vicinity of Kawana	Kawana Waters, through further

Overall Outcome	Comment
Shoppingworld, as well as the Sunshine Coast University Hospital,	enhancing the existing sport and
an industrial area and significant community, sport and recreation	recreational facilities provided within the
facilities.	local plan area extent.
(b) Opportunities for transit oriented development are maximised,	Complies
particularly within and adjacent to the Kawana Town Centre	Although the development does not
(Kawana Waters Community Development Area) and at designated	include residential and traditional
nodes along the CoastConnect Priority Public Transport Corridor in	commercial uses, which are considered in
accordance with relevant zonings.	the transit oriented development model,
	the development will leverage off and
	utilise the existing and future public
	cito
(c) Urban development in the Kawana Waters local plan area is	Site.
(c) Orban development in the kawana waters local plan area is	The subject site is located within the
as to protect environmental areas and landscape values and	Irban Growth Management Boundary
as to protect environmental areas and landscape values and	orban Growth Management Boundary.
(d) Development in the District centre zone supports the role and	Not Applicable
function of the Kawana Shoppingworld and nearby business areas	The subject Site is not located within the
as a district activity centre providing retail, commercial,	District Centre Zone.
community, entertainment (other than a theatre being a cinema)	
and tourist uses predominantly servicing the needs of residents and	
visitors in the northern part of the local plan area. Development in	
the District centre zone provides for limited expansion of retail and	
commercial uses within the District centre zone in a manner which	
does not detract from the intended functioning of the planned	
major regional activity centre at Kawana Town Centre.	
(e) In order to protect the intended functioning of the planned	Not Applicable
major regional activity centre at Kawana Town Centre and the	The subject Site is not located within the
Sunshine Coast activity centre network, development in the District	District Centre Zone.
centre zone:-	
(i) provides for:-	
(A) the total gross leasable floor area for retail and commercial uses	
to hot exceed 40,000m <sup>-</sup> in Precinct NAW LPP-1 (South of Point	
(B) the gross leasable floor area of any single retail tenancy to not	
exceed 1.000m <sup>2</sup> in Precinct KAW JPP-2 (North of Point Cartwright	
Drive): and	
(ii) does not provide for the following higher order uses:-	
(A) a department store;	
(B) a discount department store; or	
(C) a theatre (being cinemas).	
(f) Development in the District centre zone in Precinct KAW LPP-1	Not Applicable
(South of Point Cartwright Drive) in the vicinity of Kawana	The subject Site is not located within the
Shoppingworld provides for an integrated, high quality design	District Centre Zone.
which minimises building bulk and provides an attractive interface	
to Nicklin Way, Point Cartwright Drive and adjoining residential	
areas. Development provides safe and efficient vehicular access	
and enhances pedestrian connectivity.	
(g) Development in the District centre zone in Precinct KAW LPP-2	Not Applicable
(NOTH) of Point Cartwright Drive) provides for high quality mixed	District Contro Zono
use development which enhances the amenity of the area and	District Centre Zone.
recognises the existing amenity of adjoining residential areas to the	

Overall Outcome	Comment
north and west. Development in this precinct provides an attractive	
and publicly accessible interface to Kawana Waters Canal and	
maintains public views to the waterway. Active or semi-active	
street frontages are provided at the ground storey to encourage	
movement and interaction between private development, the	
adjacent waterway and surrounding streets. Such development is	
supported by resident and visitor accommodation above the	
ground storey.	
(h) Development in the District centre zone in Precinct KAW LPP-3	Not Applicable
(Nicklin Way North Minyama) provides for predominantly office	The subject Site is not located within the
and health related uses with limited retail uses in accordance with	District Centre Zone.
Table 7.2.14.4.2 (Kawana Waters supplementary table of consistent	
uses and potentially consistent uses in the District centre zone).	
Development presents an attractive appearance to Kawana Waters	
Canal, adjoining residential areas and all road frontages, especially	
Nicklin Way.	
(i) Development in the Local centre zone supports the role and	Not Applicable
function of the local business areas, including those located at	The subject Site is not located within the
nodes along the Nicklin Way, and in Buddina, and Hideaway	Local Centre Zone.
Waters, as local (not full service) activity centres servicing the basic	
convenience needs of residents and visitors. Development in the	
Local centre zone provides for the expansion and enhancement of	
business uses; however such development does not extend beyond	
the boundaries of this zone.	
(j) Development in the Specialised centre zone provides for	Not Applicable
improved and expanded comparison	The subject Site is not located within the
shopping functions predominantly in the form of showrooms and	Specialised Centre Zone.
bulky goods retailing.	
(k) Development in the Specialised centre zone and Local centre	Not Applicable
zone provides for a high standard of building and landscape design	The subject Site is not located within the
quality which minimises building bulk, improves pedestrian	Specialised Centre Zone.
connectivity, promotes community interaction and provides a high	
quality presentation to Nicklin Way and other local roads.	
(I) Development in Precinct KAW LPP-4 (Buddina Urban Village)	Not Applicable
provides for the creation of the Buddina Urban Village linking	The subject Site is not located within
Kawana Shoppingworld to Kawana Waters Surf Lifesaving Club by a	Precinct KAW LPP-4 (Buddina Urban
public pedestrian way and providing active frontages which	Village).
encourage movement and interaction between the district activity	
centre and the adjacent foreshore areas. Development at this	
location provides for higher density residential accommodation in	
the form of permanent and visitor accommodation buildings and	
multiple dwellings. In response to the tragmented nature of existing	
and holdings, higher density residential development is sited	
(m) Development in the Medium density residential zone:	Not Applicable
(ii) provides for a range of bousing shallon leasted at a shallow with	The subject Site is not leasted within the
(i) provides for a range of nousing choices located at nodes with	Modium Donsity Posidential Zara
convenient access to centres and/or local business areas, public	wealum Density Residential Zone.
(ii) contributor to a high loyal of racidantial amonity and design	
auality consistent with the scale and character of the structures	
and surrounding development	

Overall Outcome	Comment
(n) Development in the Medium density residential zone at Nicklin Way, Warana and Regatta Boulevard, Wurtulla provides a high quality presentation to Nicklin Way and is designed to ensure the acoustic, visual and traffic impacts of Nicklin Way are minimised.	Not Applicable The subject Site is not located within the Medium Density Residential Zone.
(o) Brightwater continues to be developed as an integrated residential community. Development contributes to the establishment of a walkable, integrated residential community providing a mix of dwelling types supported by a local (full service) activity centre providing convenience shopping and local commercial uses, as well as a range of community facilities and large areas of open space.	Not Applicable The subject Site is not located within Brightwater Residential Community.
(p) Development in the Low density residential zone at Minyama Island maintains the low density character and amenity of this area by providing for any residential lot to be a minimum of 1,500m <sup>2</sup> in area.	Not Applicable The subject Site is not located within the Low Density Residential Zone, or located on Minyama Island.
(q) Industrial development is contained in the Medium impact industry zone, which is progressively developed as a modern industrial estate. Development in this zone maintains a high standard of building and landscaping design and an attractive waterfront address to Parrearra Lake.	Not Applicable The subject Site is not located within the Medium Impact Industrial Zone.
(r) The transport network is progressively upgraded to meet the needs of the local plan area and to reduce traffic pressure on Nicklin Way. Development does not compromise the provision and operation of the proposed Sunshine Motorway extension, Dedicated Public Transport Corridor (CAMCOS) or the CoastConnect Priority Public Transport and Bicycle Corridor.	<b>Complies</b> The proposed development utilises the existing road network, as well as public transport networks presently available. A review of the Local Government Infrastructure Plan confirms that there are no resumptions, road and public transport upgrades required within proximity to the site.
	<b>Section 6.2.1</b> (Public Transport) and <b>Section 6.2.2</b> (Traffic Impact and Parking Assessment) of the EAR provides further detail in relation to the existing transport network.
(s) Development is designed and sited to protect and enhance the natural environmental and scenic values of the local plan area including wetland, dunal systems and riparian vegetation associated with major open space links along the coastal foreshore, Currimundi Creek, Mountain Creek and the Mooloolah River.	Not Applicable The subject site is not identified as containing any ecologically important areas, character vegetation, landscape buffier of significant views.
(t) Development is supported by a network of open space to meet the needs of the local community and facilitates safe and convenient pedestrian and cycle connections between and around key destinations within the local plan area. The coastal foreshore area provides an important continuous pedestrian, cycle and open space link, from the mouth of the Mooloolah River to Currimundi Lake.	Not Applicable The development is zoned for Sport and Recreational Purposes and does not impact upon current or LGIP designated open space areas.

132. Further to the response to the Overall Outcomes provided in Table 12 above, Table 13 below provides a code assessment against the relevant Assessment Benchmarks contained within Table 7.2.1.14.4.1 (Performance Outcome and Acceptable Outcome for Assessable Development). Table 13 below only addresses the sections of the code relevant to the assessment of the development.

Performance Outcomes	Acceptable Outcomes	Response
Development in the Kawana Waters Lo	ocal Plan	
Development in the Kawana Waters Lo PO1 Development provides for buildings, structures and landscaping that are consistent with and reflect and enhance the coastal urban character of the Kawana Waters local plan area.	AO1.1 Development for a residential, business or community activity provides for building design which incorporates the following features:- (a) a mix of lightweight and textured external building materials, including timber finishes or masonry construction with variation provided in texture and detailing; (b) articulated, pitched, skillion or curved roof forms; (c) open or transparent balustrades;	Not Applicable The development is not for a residential, business or community activity (as defined).
	and (d) landscaping integrated into the building design.	
	AO1.2 Development uses understated colour schemes and low-reflective roofing and cladding materials.	<b>Complies</b> As demonstrated in the Proposal Plans prepared by Aspect Architects and Project Managers ( <b>Appendix 1</b> ) the development utilises understated colour schemes, as well as low- reflective roofing and cladding material, which minimises solar heat gain.
	AO1.3 Development provides for existing mature trees to be retained and incorporated into the design of development.	<b>Complies with PO</b> The development will require the removal of a select number of trees within the site that are required to be removed to facilitate the northern and southern expansion of the western grandstand.
		Despite the removal of the existing trees, the Landscape Plans prepared by Element Design ( <b>Appendix 4</b> ) demonstrate the development contains an integrated landscaping outcome, which will ensure the continuation of the coastal character.
PO2 Development contributes to the establishment of attractive and	AO2.1 Development adjacent to a primary streetscape treatment area or gateway/entry point where identified	<b>Complies</b> Although the site contains a frontage to the Nicklin Way, the Sunshine Coast

#### Table 13 Kawana Local Plan Code – Code Assessment

Performance Outcomes	Acceptable Outcomes	Response
coherent streetscapes and gateways	on Figure 7.2.14A (Kawana Waters	Stadium is setback in the order of 190
to:-	local plan elements), or with frontage	metres from the Nicklin Way.
(a) enhance the sense of entry to, and	to Nicklin Way or Point Cartwright	Further, it is used that the suisting
the coastal urban character of, the	Drive:-	sports fields and landscape buffers
(b) enhance the landscape and visual	landscape treatments which enhance	adjoining the Nicklin Way are not
amenity of Nicklin Way to better	the sense of arrival to, and the coastal	being modified to support the
define the boundaries of individual	urban character of, the local plan area	development.
neighbourhoods; and	and emphasise corner locations; and	
(c) enhance the landscape and visual	(b) incorporates building materials	Given the separation of the Sunshine
amenity of other major roads in the	such as varied roof forms, changes in	Coast Stadium from the Nicklin Way,
local plan area.	materials and variations in projected	as well as the presence of the existing
	and recessed elements and facades.	playing fields and landscaping buffers,
		further works are not proposed to be
		undertaken along the interface with
		the Nickim Way.
		Despite the development not
		including additional works along the
		frontage, the existing frontage to the
		Nicklin Way maintains positive sense
		of arrival to the site.
	A02.2	Complies
	Development provides for streetscape	A suite of Landscaping Plans have
	existing or proposed streetscape	(Appendix 4) and demonstrates
	works in the local area to ensure	streetscape improvements to
	continuity of streetscapes and	Sportsman Parade.
	landscape design.	
		As detailed in the commentary to
		AO2.1 above, further improvements
		to the Nicklin Way frontage are not
		proposed or required, given the
		field interface
PO3	AO3	Not Applicable
Development provides through block	Development provides through block	The subject site is not identified as
pedestrian linkages which:-	pedestrian linkages where identified	containing through block pedestrian
(a) are located to reflect the desire	on Figure 7.2.14A (Kawana Waters	linkages (as per Figure 7.2.14A).
lines of pedestrian movement	local plan elements)	
between major points of attraction		
and public spaces;		
(b) provide a safe alternative to the		
street based pedestrian and cycle		
(c) provide a comfortable podestrian		
environment in terms of access		
width, shelter, materials and function.		
PO4	AO4	Not Applicable
Development provides for a	Development integrates with and	The subject site is not adjacent to a
continuous pedestrian and cycle link	extends the coastal path where	designated Coastal Path (as per Figure
along the coastal foreshore from the		7.2.14A).

Performance Outcomes	Acceptable Outcomes	Response	
mouth of the Mooloolah River to	identified on the Figure 7.2.14A		
Currimundi Lake.	(Kawana Waters local plan elements).		
PO5	A05.1	Complies	
The major open space links and scenic	Development protects and enhances	The Sunshine Coast Stadium	
qualities offered by the foreshore park	the greenspace link where identified	expansion is located on land identified	
and reserve system along the	Waters local plan elements).	as 'Greenspace'. Despite this, the	
coastline, and wetland areas and		development retains the intended use	
remnant vegetation along Currimundi		of the site and does not compromise	
Creek, Currimundi Lake, Mountain		the greenspace.	
Creek and the Mooloolah River, are	A05.2	Not Applicable	
protected and enhanced.	Development provides for the	The site does not contain a frontage to	
	retention and enhancement of native	Mooloolah River, Currimundi Creek,	
	vegetation adjacent to the foreshore,	Currimundi Lake or Mountain Creek.	
	Currimundi Creek, Currimundi Lake,		
	iviountain Creek and the Mooloolah		
	River.		
PU6		Not Applicable	
Development on land with frontage to	No acceptable outcome provided.	The site does not contain a frontage to	
Creek or on land otherwise identified		contain an ocological linkage (as nor	
as a local ocological linkage on Figure		Eiguro 7.2.14A)	
7.2.14A (Kawana Waters local plan		rigure 7.2.14A).	
elements) facilitates the provision of			
the local ecological linkage			
PO7	A07	Complies	
Development does not compromise	No acceptable outcome provided.	The subject site is not located on land	
the future provision and operation of		identified as part of the CAMCOS	
transport networks including:-		corridor, North Coast Rail Line, and	
(a) the Dedicated Public Transport		Sunshine Motorway.	
Corridor (CAMCOS), linking the North			
Coast Rail Line at Beerwah to		Further, the development does not	
Caloundra, Kawana Waters and		propose modification to the Nicklin	
Maroochydore;		Way. Section 6.3.2 (Traffic Impact and	
(b) the Sunshine Motorway extension		Parking Assessment) of the EAR	
linking Caloundra Road with the		provides further assessment on the	
Sunshine Motorway; and		traffic and parking impacts associated	
(c) the Maroochydore to Caloundra		with the development.	
Priority Public transport and Bicycle			
corridor along the Nicklin Way.			
Development in the District centre Zon	e Generally - Not Applicable: Site not loca	ated within the District Centre Zone	
Development in the District Centre Zone in Precinct KAW LPP-1 (South of Point Cartwright Drive) - Not Applicable: Site not located within the KAW LPP-1 precinct			
Development in the District Centre Zone in Precinct KAW LPP-2 (North of Point Cartwright Drive) - Not Applicable: Site			
not located within the KAW LPP-2 precinct			
Development in the District Centre Zon	Development in the District Centre Zone in Precinct KAW LPP-3 (Nicklin Way North Minyama) - Not Applicable: Site not		
located within the KAW LPP-3 precinct			
Development in the Local Centre Zone- Not Applicable: Site not located within the Local Centre Zone			
Development in Precinct KAW LPP-4 (Buddina Urban Village) Generally- Not Applicable: Site not located within the			
Buddina Urban Village			
Development in Sub-precincts KAW LPSP-4b and KAW LPSP-4c (Buddina Urban Village) - Not Applicable: Site not located			
within the KAW LPSP-4c and 4b precinct.\			

Performance Outcomes	Acceptable Outcomes	Response
Development in the Medium Density I	Residential Zone Generally- Not Applicat	le: Site not located within the Medium
Density Residential Zone		
Development in the Medium Density Residential Zone in Precinct KAW LPP-5 (Nicklin Way Warana) - Not Applicable:		
Site not located within the KAW LPP-5 precinct		
Development in the Medium Density Residential Zone in Precinct KAW LPP-6 (Regatta Boulevard Wurtulla) - Not		
Applicable: Site not located within the KAW LPP-6 precinct		
Reconfiguring a Lot in the Low Density Residential Zone (Minyama Island) - Not Applicable: Site not located within the		
Low Density Residential Zone		
Development in the Emerging Community Zone (Brightwater) - Not Applicable: Site not located within Emerging		
Community Zone		

## 5.4.7 Sport and Recreation Uses Code

133. The primary use code for the proposed infrastructure is the Sport and Recreation Uses Code. This section of the EAR provides an assessment against the Overall Outcomes, as well as Table 9.3.19.3.1 (Performance Outcomes and Acceptable Outcomes for Assessable Development). The Overall Outcomes will be addressed below with Table 9.3.19.3.1 of the Sport and Recreation Uses Code addressed in Table 14 below.

(2) The purpose of the Sport and recreation uses code will be achieved through the following overall outcomes:-

(a) sport and recreation uses are established in appropriate locations that provide convenient access for users;

## Response:

134. The proposed expansion of the Sunshine Coast Stadium maintains the position of the existing facility, which contains a high level of access by way of private vehicle access and parking areas, as well as public transport.

(b) sport and recreation uses are located and designed so as to be compatible with the preferred character of the local area;

## Response:

135. The subject site and existing stadium is identified in Figure 7.2.14A (Kawana Waters Local Plan Elements) as the 'Sunshine Coast Stadium' and forms part of an Greenspace network. Due to the clear designation of the site for this purpose, the expansion of the Sunshine Coast Stadium remains compatible with the preferred character and land use for the site.

(c) sport and recreation uses involving the establishment of major facilities provide high quality buildings, structures and facility design;

## Response:

136. The proposed expansion of the Sunshine Coast Stadium has proceeded through a thorough design process, with involvement from the local Council, as well as key stakeholders. This design review process has resulted the stadium design containing a high-quality development, which will enable an increase range of local, regional, state and national sporting events on the site.

(d) sport and recreation uses do not have an adverse impact upon the amenity of existing or proposed future residential areas or neighbouring premises; and

- 137. The proposed expansion of the Sunshine Coast Stadium maintains the position of the existing facility, which does not directly adjoin sensitive land uses to all directions. It is noted that there are existing residential uses on the eastern side of Nicklin Way, as well as on the western side of Lake Kawana.
- 138. The proposed expansion of the Sunshine Coast Stadium does not propose additional lighting poles, with the only additional lighting being positioned on the western grandstand roof. It is considered that the proposed grandstand works has the potential to mitigate some noise and light spill through providing an extended buffer to both the east and west, which will provide a level of mitigation. Refer to **Section 5.4.8** (Nuisance Code) of this EAR in relation to noise and light impacts.

(e) sport and recreation uses provide access, car parking, public transport and other services and utilities commensurate with the scale and nature of the use.

# Response:

139. A Traffic Impact Assessment has been prepared by Bitzios Consulting (Appendix 3) in support of the application. The Traffic Impact Assessment indicated that there is sufficient parking within and surrounding the site to accommodate the anticipated events. Further, the report indicates that the existing road and active transport networks are generally adequate to support the use. Section 6.2.1 (Public Transport) and Section 6.2.2 (Traffic Impact and Parking Assessment) of the EAR provides further detail in relation to the transport network and parking availability.

Performance Outcomes	Acceptable Outcomes	Response
Location and Facility Design		
PO1	AO1	Complies
The sport and recreation use is located	No acceptable outcome provided.	The expansion to the Sunshine Coast
and designed so as to be:-		Stadium remains in a highly accessible
(a) convenient to users; and		location, with vehicle and public
(b) compatible with the preferred		transport networks supporting the
character of the local area.		existing site.
		The site also forms part of a large
		sports precinct and open space
		network and therefore the proposed
		expansion remains compatible for the
		preferred and existing character of the
		area.
PO2	AO2	Complies
The sport and recreation use:-	No acceptable outcome provided.	The expansion to the Sunshine Coast
(a) is effectively designed to meet the		Stadium has been designed to meet
needs of users, having regard to the		current national standards required to
scale and nature of the use;		further attract national sports events
(b) has buildings and structures that		at the facility and Sunshine Coast.
are fit for purpose; and		
(c) in the case of a major sport,		The development has, where
recreation and entertainment facility,		appropriate, included passive design
has buildings and structures that		responses, including awnings over the
incorporate passive design responses		grandstands, open stadium ends to

## Table 14 Sport and Recreation Uses Code – Code Assessment

Performance Outcomes	Acceptable Outcomes	Response
that acknowledge and reflect the region's sub-tropical climate.		maintain breeze corridors, as well as consolidation of operational elements on the western stand, which limits the need for heating and cooling to one side to the stand.
		The development also includes low reflective colours and permeable façade treatment, which limit the need for mechanical plant.
PO3 The sport and recreation use ensures that mechanical plant and equipment and storage areas associated with the use are designed and screened so as to provide an attractive address to streets and adjoining properties.	AO3 No acceptable outcome provided.	<b>Complies</b> The suite of Architectural Plans prepared by Aspect Architects and Project Managers ( <b>Appendix 1</b> ) detail the mechanical plant elements as being positioned within the building and therefore the building elements are not visible from street or adjoining premises.
Road System and Public Transport		
PO4 The surrounding road system is capable of accommodating the additional traffic generated by the sport and recreation use without adverse impacts.	AO4 No acceptable outcome provided.	Complies The subject site contains access to a high order road network (Nicklin Way – Arterial, Main Drive- Controlled Distributor, Kawana Way – Arterial), which contains sufficient capacity to facilitate the expansion to the Sunshine Coast Stadium. Section 6.3.1 (Public Transport) and Section 6.3.2 (Traffic Impact and
		Parking Assessment) of the EAR provides further detail in relation to the existing transport network.
PO5 The sport and recreation use provides for public transport facilities and services, where required, to accommodate the needs of users, having regard to the scale and nature of the use.	AO5 No acceptable outcome provided.	<b>Complies</b> Both the Nicklin Way and Kawana Way are Public Transport Corridors, with the planned Coast Connect and Sunshine Coast Light Rail Corridor containing planned stops within walking distance of the stadium.
		Section 6.3.1 (Public Transport) of the EAR provides further detail in relation to the existing transport network.
Additional Requirements for Outdoor S	Sport and Recreation and Major Sport, R	Complies
Any structure associated with the use does not result in a significant loss of amenity for surrounding development, having regard to:-	No acceptable outcome provided.	The development is surrounded by sports fields to north, east, with the Kawana Waters Aquatic Centre located to the south and the Lake Kawana being located to the west.

Performance Outcomes	Acceptable Outcomes	Response
(a) the extent and duration of lighting		
and overshadowing;		It is noted that the expansion to the
(b) privacy and overlooking impacts;		Sunshine Coast Stadium contains a
(c) impacts on views and vistas; and		grandstand alignment, which would
(d) the scale of the structure relative		result in limited overshadowing
to its surroundings.		impacts to the north and south. In
		addition to this, the surrounding land
		uses listed above are not defined as
		'sensitive land uses' under the
		planning scheme and therefore the
		development will not result in
		overshadowing, or privacy impacts.
		Lastly, the proposed expansion
		remains relative to the existing form
		of the structure and surrounding area.

#### 5.4.8 Nuisance Code

- 140. The Nuisance Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014*.
- 141. In reviewing the code it is noted that the following Performance Outcomes and corresponding Acceptable Outcomes are applicable to the assessment of the development PO1, PO2, PO9, PO11. The Lighting Impact Assessment prepared by Webb Consulting Engineers (Appendix 8), as well as the Noise Impact Assessment prepared by ASK Acoustics and Air Quality (Appendix 2), address the relevant assessment benchmarks contained within Table 9.4.3.3.1 (Performance Outcome and Acceptable Outcomes for Assessable Development). In addition to this, Section 6.2.2 and 6.2.3 (Acoustic Impacts, Lighting Impacts) of this EAR provides commentary in relation to the impacts associated with the development.
- 142. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Nuisance Code will be achieved through the following overall outcomes:-

(a) development is located, designed, constructed and operated to maintain appropriate levels of amenity and environmental performance by:-

(i) not imposing unacceptable noise, light, glare, dust or odour emissions on surrounding sensitive land uses; and

(ii) ensuring that proposed sensitive land uses are not subject to unacceptable nuisance emissions generated from surrounding development, having regard to the location and context of the proposed development;

#### Response:

143. As detailed in Section 6.2.2 (Acoustic Amenity) of this EAR, it is proposed the hours of operation will continue to be limited to 10pm to mitigate noise impacts to surrounding residential uses. Further, Section 6.2.3 (Lighting Impacts) confirms that the lighting will have no further impact upon surrounding premises.

(b) development, including development or redevelopment of residential activities and entertainment venues, within and in close proximity to a designated special entertainment precinct, provides appropriate noise attenuation and mitigation to reduce potential impacts from live music and amplified music; and

144. The proposed development does not include residential activities and development within an entertainment precinct.

(c) environmental values are protected by preventing or minimising potential environmental harm or environmental nuisance resulting from the release of contaminants, particularly noise, odour, light, glare, dust and particulates.

#### Response:

145. As confirmed by the Lighting Impact Assessment prepared by Webb Consulting Engineers (**Appendix 8**), as well as the Noise Impact Assessment prepared by ASK Acoustics and Air Quality (**Appendix 2**), development will not result in environmental harm or nuisance outside of what is permitted under the *Environmental Protection Act 1994*.

#### 5.4.9 Safety and Security Code

- 146. The Safety and Security Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014.*
- 147. Table 15 below provide a Code Assessment against the Assessment Benchmarks contained within Table 9.4.5.3.1 (Performance outcomes and acceptable outcomes for assessable development) under the Safety and Security Code.

Performance Outcomes	Acceptable Outcomes	Response
Site and Boundary Identification		
PO1	A01	Complies
Development provides for buildings,	The boundaries of property and space	The existing site contains security
fences, landscapes and other features	are identified by means such as:-	fencing to ensure that there is a clear
that are designed to clearly define	(a) fencing; and/or	delineation between public and
territory and ownership of all public,	(b) changes in surface materials or	private space.
common, semi-private and private	levels; and/or	
space.	(c) landscape treatments.	
PO2	AO2	Complies
Development is designed such that all	All premises are identified by the	The expansion to the Sunshine Coast
premises and access routes are clearly	provision of a street number in a	Stadium will contain suitable street
identifiable to all persons, particularly	prominent location.	numbering to ensure the premises is
emergency services personnel.		easily identifiable.
Casual Surveillance		
PO3	AO3	Complies
Development provides for casual	Active uses (e.g. shopfronts and living	Although a Major Sport and
surveillance to be achieved by	areas) are arranged within buildings at	Recreation Facility is not defined as an
arranging uses within buildings and on	ground floor level, so that they	'Active Use' the development provides
sites to enable external areas to be	overlook publicly accessible areas.	casual surveillance opportunities with
monitored.		access and control points provided
		from Sportsman Parade, as well as the
		service road connecting to the Nicklin
		Way.

#### Table 15 Safety and Security Code – Code Assessment

Performance Outcomes	Acceptable Outcomes	Response
PO4 Development is designed such that open space areas, including seating areas, are located where they can be monitored.	AO4 No acceptable outcome provided.	Complies The development does not contain open space areas that are to be utilised by the general public. The existing other grounds and facilities on the subject site are open with clear view lines provided from within the site internally.
Fencing and Walls		within the site internally.
PO5	A05	Complies
Development provides for fencing and walls to be designed and constructed so as to:- (a) protect the privacy and amenity of	Fences and solid walls adjacent to pedestrian walkways and street frontages do not exceed 1.5 metres in height.	The development contains security fencing greater than 1.5 metres in height.
private open space; (b) not present a security risk by screening doors, windows and major paths; and (c) provide for casual surveillance of both properties and public thoroughfares.		Despite this, the development achieves compliance with Performance Outcome PO5, through the fencing being highly permeable such that casual surveillance is maintain to available public walkways, as well as internally within the site, and therefore the potential for security risk is mitigated as far as practical.
Landscapes		
PO6 Development provides for landscapes that do not present a security risk by screening doors, windows and pedestrian and cyclist paths or lead to opportunities for concealment.	AO6 No acceptable outcome provided.	Complies As detailed within the Landscape Plans prepared by Element Design (Appendix 4) the development does not include dense landscaping buffers and zones, with visibility to the stadium control points being a focus. As such the pedestrian pathways remain open and do not contain obvious concealment areas.
Lighting		
PO7 Development provides for lighting to pathways, building entries, driveways and car parking areas in a manner which:- (a) provides a sense of safety and	AO7.1 Lighting of appropriate intensities is provided which satisfies the requirements of AS1158 – Lighting for Roads and Public Spaces and the Sunshine Coast Public Lighting Plan.	<b>Complies</b> As detailed in <b>Section 6.2.3</b> (Lighting Impacts) of this EAR, the development will comply with the requirements of Australian Standard AS1158.
security for residents, staff and visitors; (b) does not cause adverse impact on adjacent land uses; and (c) minimises the maintenance and	AO7.2 Lighting is focussed to illuminate concealment areas and entrances (e.g. entrances to loading docks).	Complies As detailed in Section 6.2.3 (Lighting Impacts) of this EAR, the development will contain appropriate lighting within potential concealment areas.
operational cost of lighting infrastructure.	AO7.3 Lighting is directed onto the site or building and away from neighbouring sites.	<b>Complies</b> As detailed in <b>Section 6.2.3</b> (Lighting Impacts) of this EAR, the development

Performance Outcomes	Acceptable Outcomes	Response
		will comply with the requirements of Australian Standard AS1158.
	AO7.4 Lighting is consistent to reduce the contrast between shadows and well lit areas.	<b>Complies</b> As detailed in <b>Section 6.2.3</b> (Lighting Impacts) of this EAR, all on-site lighting will be designed in accordance with relevant codes/standards (including AS/NZS 1158 and AS/NZS 4282), including broader CPTED recommendations.
Building Design		
PO8 Development provides for buildings which are designed to ensure a high level of safety and security for residents, staff and the community and:-	AO8.1 Windows and activities in buildings are directed, where possible, to overlook public and semi-public areas.	<b>Complies</b> The development contains windows and permeable surfaces, which project towards public spaces contained along Sportsman Parade, as well as the service road.
<ul> <li>(a) optimise casual surveillance;</li> <li>(b) provide unimpeded sight lines;</li> </ul>		
<ul> <li>(c) control illegitimate access and minimise opportunities for vandalism; and</li> <li>(d) avoid concealment spots.</li> </ul>	AO8.2 No blank building facade is presented to any street frontage. AO8.3 Toughened glass, screens and other measures are used in windows that	Complies The development does not result in the delivery of a blank façade fronting a road reserve or public space. Complies As per the extent identified on the site plan contained within the
	are provided at the ground storey, to deter unlawful entry.	Architectural Plans prepared by Aspect Architects and Project Managers ( <b>Appendix 1</b> ), the development includes appropriate security controls (i.e. fencing) that deter unlawful entry to the facility.
	AO8.4 Vandal proof materials and anti- graffiti paint are used.	<b>Complies</b> Due to the application of the security fencing surrounding the precinct, the application of vandal proof materials and anti-graffiti paint are not considered necessary to ensure the protection of the building from vandalism.
		Due to the application/retention of the security fencing, which prevents access to the site, Performance Outcome PO8 is complied with.
	AO8.5 Along property boundaries adjacent to the street or in view of the street and other publicly accessible areas within sites, building facades are provided which do not incorporate	<b>Complies</b> The development does not contain publicly accessible concealment areas. All pedestrian control points will be well lit and will contain sufficient directional signage to direct users to public zones.

Performance Outcomes	Acceptable Outcomes	Response
	recesses of sufficient size to conceal a person.	
	AO9.1 Building entrances (including ramps and elevator entrances) are exposed to the primary street frontage and are well lit and clearly legible.	<b>Complies</b> All pedestrian control points will be well lit and contain signage to ensure a high level of legibility, as well as ensuring safe entry and exit of the facility is maintained.
PO9 Development provides for all building entrances to be located and designed so as to be easily identifiable and accessible.	AO9.2 For non-residential premises:- (a) building entrances provide clear sightlines from the building foyer so that occupants can see outside before leaving the building, and have lobbies visible from the exterior; and (b) staff entrances are located on the primary street frontage and not in side access ways.	<b>Complies</b> All pedestrian control points will be well lit and contain signage to ensure a high level of legibility, as well as ensuring safe entry and exit of the facility is maintained.
Movement and Access		
PO10 Development provides for pedestrian and cyclist pathways and facilities that are safe, useable and readily accessible.	AO10.1 All barriers (including landscape features along principal pedestrian routes are regularly visually permeable.	<b>Complies</b> The development does not result in the delivery of 'barriers' adjacent to frontages, with the development including highly permeable security fencing and landscaping design, which enable visibility to and from the site.
	AO10.2 Pedestrian and cyclist facilities are designed to encourage the use of active transport modes by:- (a) minimising distances and providing safe grading paths, separated from motorised traffic; and (b) using even, non-slip pavement materials.	Complies The development includes pedestrian control points, as well as bicycle parking areas within convenient locations, which ensure the safe and efficient access to the facility. These access points will be designed and constructed in accordance with the relevant standards.
	AO10.3 Pedestrian and cyclist and vehicular movement systems are co-located to encourage maximum surveillance, while providing for safe travel for each mode. AO10.4 Legible and consistent signage, which indicates designated routes and safe places, is provided.	Complies All pedestrian, cycle and car parking areas are located and integrated into the public realm in a way which ensures maximum surveillance to these areas is provided. Complies The development will include provide wayfinding signage within pedestrian zones throughout the development. A detailed signage plan has not been prepared in support of the application material.

Performance Outcomes	Acceptable Outcomes	Response
PO11 Development provides for safe pedestrian access to and from the building's main entrance.	AO11 Development is designed such that priority is given to the needs of pedestrians for direct links to a building's main entrance and to any adjoining local activities or public transport facilities.	<b>Complies</b> The development has been designed to ensure that pedestrians can enter, navigate and leave the site as efficiently as possible. The pedestrian control points on both Sportsman Parade, as well as the Service Road are positioned within close proximity to current and planned public transport facilities.
Car Parks		
PO12 Development provides car parks which are designed, located and managed to promote public safety, security and nondiscriminatory access.	AO12.1 Public parking areas:- (a) are clearly designated; (b) are well-lit; and (c) have clearly defined access points.	Complies The development contains car parking areas, which are clearly identifiable, well-lit and contain clear access pathways to the pedestrian control points. Complies
	After hours staff parking is well lit and in close proximity to staff access points.	The development contains car parking areas, which are located within close proximity to the pedestrian control points and ensure safe access and egress for staff members.
	AO12.3 Enclosed underground car parks can only be accessed from inside the building or through a security system.	Not Applicable The development does not include an underground car park.
	AO12.4 Multi-level car parks include the following:- (a) emergency telephones to security personnel; (b) mechanical surveillance; (c) alarms or poles; and (d) other similarly effective safety and security measures.	Not Applicable The development does not include a multi-level car park.
	AO12.5 Signs are strategically located to direct people to entries and exits and to parking bays within the site.	<b>Complies</b> The development will include a pedestrian legibility signage to ensure the safe and access/egress from car parking areas to pedestrian control points and vice-versa.
PO13 Development provides for restricted access areas to be designed, located and managed to promote public safety and security.	AO13 Loading docks, storage areas and other restricted access areas are well lit and/or can be locked after hours.	<b>Complies</b> As detailed in <b>Section 6.2.3</b> (Lighting Impacts) of this EAR, the development will contain appropriate lighting to loading docks, with service vehicle access to the site also being restricted via security fencing.

Performance Outcomes	Acceptable Outcomes	Response
Public Facilities		
PO14 Development provides for publicly accessible facilities, including toilet facilities, to be located and designed to maximise safety.	AO14.1 Publicly accessible toilet facilities are well lit and located where they are obvious so that they can be monitored by other persons, including motorists. AO14.1 Bicycle parking facilities are located in view of highly trafficked areas (i.e. the street).	Complies Although not public, the development includes toilet facilities that are well lit and contain appropriate way finding devices. Complies The development contains bicycle parking facilities that are visible from Sportsman Parade, which is a primary pedestrian and vehicle thoroughfare.
	AO14.1 Automatic Teller Machines are located on the outer edges of buildings, and visible from highly trafficked areas or inside buildings, where a key card is required to access the facilities.	Not Applicable Details of ATM use and locations have not been provided for consideration as part of this EAR.
Additional Requirements for Entertain	ment Uses that Operate Primarily Outsid	e Daylight Hours
PO15 Development provides for any entertainment business use that operates primarily outside of daylight hours, such as a function facility or nightclub entertainment facility, to be:- (a) located above street level; (b) designed to minimise adverse amenity impacts, including impacts associated with excessive noise; and (c) subject to a safety, security and emergency management plan developed in conjunction with the Council and relevant emergency services.	AO15 No acceptable outcome provided.	Complies The Sunshine Coast Stadium will be utilised during the day, as well as the evening. Although this does not correspond with 'primarily outside of daylight hours', the development has been designed to achieve compliance with the sub-criteria contained within PO15, with the stadium, including pedestrian control that are positioned above street level. In addition to this the development includes controls to mitigate excessive noise (refer to Section 6.2.2– Acoustic Impacts) and the Sunshine Coast Stadium including an events management procedures, specific to the event held on the site (refer to Section 4.5 – Event Management).
Contaminated Land		
PO16 Development is located and designed to avoid risk to human health and the environment from contaminated land.	AO16 Development for a residential, business or community activity is located on a site where soils are not contaminated by pollutants which represent a health or safety risk.	Not Applicable The development is not for a 'residential', 'business', or 'community activity'. Despite the development not being identified as a land use within the above activity groups, the development complies with the assessment benchmark on the basis

Performance Outcomes	Acceptable Outcomes	Response
		that the site is not identified on the
		Environmental
		Management/Contaminated Land
		register as being contaminated.

#### 5.4.10 Sustainable Design Code

- 148. The Sustainable Design Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014.*
- 149. In reviewing the code it is noted that the following Performance Outcomes and corresponding Acceptable Outcomes are applicable to the assessment of the development – PO1, PO2, PO3 and PO5. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Sustainable design code will be achieved through the following overall outcomes:-(a) development is located, designed, constructed and operated in accordance with best practice subtropical and sustainable design principles in order to:-

(i) take advantage of local climatic and environmental conditions;

(ii) optimise energy efficiency;

(iii) minimise reliance on non-renewable energy sources; and

(iv) facilitate and promote alternative energy supply through the use of renewable energy sources.

## Response:

- 150. The development proposes to provide a comprehensive approach to sustainability across the construction and design stages of the development to minimise its environmental impacts, elements proposed including minimisation of paved areas, application of shading devices where possible, as well as modern plant and water saving technologies which reduces the overall environmental impact and reduces the overall energy demand.
- 151. It is also noted that the electricity supply for the Sunshine Coast Stadium is generated by the Sunshine Coast Council Solar Farm, which ensures that the stadium does not result in use of non-renewable energy sources.
- 152. Based on the above, the Sunshine Coast Stadium Expansion complies with the Overall Outcomes of the Sustainable Design Code.

## 5.4.11 Waste Management Code

- 153. The Waste Management Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014.*
- 154. The Waste Management Plan prepared by TTM Consulting (**Appendix 5**) includes a Code Assessment, which addresses the relevant Assessment Benchmarks contained within Table 9.4.10.3.1 (Performance Outcome and Acceptable Outcomes for Assessable Development) of the Waste Management Code.
- 155. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

- (2) The purpose of the Waste management code will be achieved through the following overall outcomes:-
- (a) development provides opportunities to minimise waste generation and increase re-use and recycling;
  (b) development provides for waste management facilities which are conducive to the storage of waste in an environmentally acceptable, nuisance free and aesthetically pleasing manner;
- (c) waste storage facilities are functionally appropriate for users of the facilities; and
- (d) waste collection services are undertaken in a safe, efficient and unobstructed manner.

156. As detailed in Waste Management Plan prepared by TTM Consulting (**Appendix 5**), the development proposes on-site waste storage, collection and servicing, with refuse minimisation strategies, which ensures compliance with the Assessment Benchmarks contained within Table 9.4.10.3.1 (Performance Outcomes and Acceptable Outcome for Assessable Development) of the Waste Management Code.

# 5.4.12 Transport and Parking Code

- 157. The Transport and Parking Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014*.
- 158. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**) provides a Code Assessment against the relevant Assessment Benchmarks contained within Table 9.4.8.3.1 (Requirements for Accepted Development and Performance Outcomes and Acceptable Outcomes for Assessable Development) and Table 9.4.8.3.2 (Performance Outcome and Acceptable Outcomes for Assessable Development). In addition to this **Section 6.3.1** (Public Transport) and **6.3.2** (Traffic Impact and Parking Assessment) of this EAR addresses address provides commentary in relation to the traffic and parking aspects of the proposal.
- 159. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Transport and parking code will be achieved through the following overall outcomes:-

(a) development is consistent with the objectives of the strategic transport network, which are to:-

(i) provide for a highly permeable and integrated movement network;

(ii) improve coordination between land use and transport so as to maximise the potential for walking, cycling and public transport use and reduce reliance on private motor vehicle travel;

(iii) achieve acceptable levels of access, convenience, efficiency and legibility for all transport users, with the needs of pedestrians considered in the first instance, then cyclists, public transport and then motorists; (iv) preserve the amenity of sensitive land uses;

(v) limit road construction to the minimum necessary to meet the endorsed levels of service for ultimate development of the Sunshine Coast; and

(vi) provide for staging of Council's limited trunk road construction program to maximise sustainability;

## Response:

160. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development is serviced by a series of Arterial and District Collector Road networks, which contain existing public transport networks, as well as planned mass transit networks (Coast Connect, Sunshine Coast Light Rail, CAMCOS). It is noted that no upgrades are required to the existing networks to facilitate the operation of the Sunshine Coast Stadium Expansion.

161. In addition to the existing and planned road and public transport networks, the site is supported by a suitable active transport networks, which ensures that a broad range of transport options are provided for development on the stadium site.

(b) the environmental, economic and social impacts of transport on the natural and urban environment are minimised;

#### **Response:**

162. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development does not require the modification to the exiting transport networks and therefore there will be no further environmental, economic and social impacts as a result of the development.

(c) transport infrastructure is designed and constructed to acceptable standards and operates in a safe and efficient manner that meets community expectations, prevents unacceptable off-site impacts and reduces whole of life cycle costs, including reduced ongoing maintenance costs;

#### Response:

163. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development does not require the modification to the exiting transport networks.

(d) development provides for on-site parking, access, circulation and servicing areas that are safe, convenient and meet the reasonable requirements of the development;

#### Response:

164. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development provides for access and on-site parking within close proximity to the site that meet the needs of the development.

(e) development provides for parking areas that are shared between many uses rather than separate parking areas attached to each building where peak parking times of the uses occur at different times and where the parking area is sufficient to meet the anticipated demands of all uses;

## Response:

165. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development provides for a dedicated car parking area, which will be upgraded from the current unsealed area north of the stadium to a sealed arrangement and will contain a capacity of 380 car parking spaces, which is deemed sufficient for everyday use of the stadium. During larger events a combination of parking strategies including parking of vehicles on the surrounding playing fields is proposed. The application of this approach minimises the need for significant extents of parking areas, which would be largely under utilised.

(f) development provides appropriate buffering between sensitive receptors and the major road network and rail corridors; and

(g) development provides for major intersections and access points to be designed and constructed to reflect the natural values, character and identity of the Sunshine Coast.

#### Response:

166. As detailed within the Traffic Impact Assessment (**Appendix 3**), the development does not require the modification to the exiting transport networks.

## 5.4.13 Landscape Code

- 167. The Landscape Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014*.
- 168. **Section 6.2.1** (Visual Impacts) of this EAR broadly touches on the integration of landscaping elements into the built form and how this results in a positive overall outcome for the site.
- 169. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Landscape code will be achieved through the following overall outcomes:(a) development provides landscapes that retain, as far as practicable, existing vegetation and topographic features for their biodiversity, ecological, wildlife habitat, recreational, aesthetic and cultural values;

#### Response:

- 170. As demonstrated in the Landscape Plans prepared by Element Design (**Appendix 4**) the development, where possible retains the existing vegetation on the site, with additional planting proposed as part of the extension to the Sunshine Coast Stadium.
- 171. It is noted that site is highly urbanised and does not contain any notable environmental features, that are required to be retained.

(b) development provides landscapes that create new landscape environments that coordinate and complement the natural elements of climate, vegetation, drainage, aspect, landform and soils;

## Response:

172. As demonstrated in the Landscape Plans prepared by Element Design (**Appendix 4**) the development seeks to coordinate the landscape elements with the built form. All proposed landscape species are low maintenance and are native species, and therefore are suitable for the climate and the environment which they are proposed within.

(c) development provides landscapes that complement the vegetation mix of the original regional ecosystem of the site, where practicable, in order to protect and enhance native flora and fauna and encourage ecological connectivity;

## Response:

173. As detailed in Paragraph 171, the site is highly urbanised and does not contain remnants of the historic ecosystem on the site. Further the site does not form part of an ecological linkage, which requires rehabilitation. Accordingly, the landscaping layout and planting pallet is suitable with respect to the use of the site and surrounding area.

(d) development provides landscapes that rehabilitate areas of poor environmental quality and provide mechanisms for long term protection of works;

174. As detailed in Paragraph 173, the subject site is highly urbanised and is not identified as an ecological linkage. Accordingly, rehabilitation works are not proposed or required.

(e) development provides landscapes that successfully integrate the built form with the local urban landscape character, contribute to the local streetscape, enhance the sub-tropical qualities of the Sunshine Coast and mitigate the impact of increased urbanisation;

## Response:

175. **Section 6.2.1** (Visual Impacts) of this EAR broadly details how the proposed landscaping integrates with the proposed built form and provides a positive contribution to the streetscape.

(f) development provides landscapes that minimise the consumption of energy and water, and encourage the use of local native plant species and landscape materials, where practicable;

#### Response:

176. The Landscape Plans prepared by Element Design (**Appendix 4**) detail an indicative species pallet and demonstrate the use of native species, which will ensure energy and water consumption is minimised.

(g) development provides landscapes that enhance personal safety and security;

#### **Response:**

177. The landscaping outcome includes a combination of ground covers, shrubs and trees, which have been designed to ensure sightlines into and through the development. In addition to this, the development includes fencing on the perimeter of the stadium to ensure pedestrian and user safety.

(h) development provides landscapes that are functional, durable and provide for the efficient use of water and energy; and

(i) development provides landscapes that are practical and low maintenance, with ongoing management considered as an integral part of the overall landscape design.

#### Response:

178. As per Paragraph 174 above, the Landscape Plans prepared by Element Design (**Appendix 4**) detail an indicative species pallet and demonstrate the use of native species, which will ensure energy and water consumption is minimised.

#### 5.4.14 Works, Services and Infrastructure Code

- 179. The Works, Services and Infrastructure Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014*.
- 180. The Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (Appendix 6) address the relevant Assessment Benchmarks contained within Table 9.4.11.3.1 (Performance Outcome and Acceptable Outcomes for Assessable Development) for the Works, Services and Infrastructure Code.
- 181. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Works, services and infrastructure code will be achieved through the following overall outcomes:-

(a) works are undertaken such that environmental harm and nuisance resulting from construction activities is avoided or minimised and the environmental values of water and retained vegetation are protected;

## Response:

182. As detailed the Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (**Appendix 6**), construction works will be undertaken in accordance with relevant policy requirements to minimise environmental harm.

(b) development is designed and constructed to a standard that meets community expectations, prevents unacceptable off-site impacts and minimises whole of life cycle costs;

#### Response:

183. The Sunshine Coast Stadium expansion presents a considerable investment for the Sunshine Coast. Due to the investment in the project, the development will be constructed to a high standard and will avoid (where possible) off-site impact and minimise whole of life cycle costs.

(c) physical and human infrastructure networks that provide basic and essential services and facilities to local communities are able to meet the planned increase in demand resulting from a planned increase in development density;

#### Response:

184. As detailed in the Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (Appendix 6), the development proposes to connect to existing infrastructure. The existing telecommunications, stormwater and electricity networks contain sufficient capacity, with the sewer and water networks to be determined as part of the Unitywater connection application process.

(d) development is provided with an appropriate level of water, wastewater treatment and disposal, drainage, energy and communications infrastructure and other services;

(e) infrastructure is designed, constructed and provided in a manner which maximises resource efficiency and achieves acceptable maintenance, renewal and adaptation costs;

(f) infrastructure is integrated with surrounding networks;

(g) development over or near infrastructure does not compromise or interfere with the integrity of the infrastructure; and

#### **Response:**

185. As per Paragraph 182 above, the development will be connected to all available services, which are presently provided to the site. The development will provide the connections in accordance with the relevant standards to ensure efficiency of the applicable network.

(h) filling or excavation does not adversely or unreasonably impact on the natural environment or adjacent properties and provides for sites to be suitably remediated to maximise landscape outcomes.

186. As detailed in the Civil Infrastructure Report prepared by Barlow Shelly Consulting Engineers (Appendix 6), the development proposes the removal of the existing eastern earth-mound to establish the eastern grandstand.

## 5.4.15 Stormwater Management Code

- 187. The Stormwater Management Code is applicable to the assessment of all development assessed under the *Sunshine Coast Planning Scheme 2014*.
- 188. The Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (**Appendix 6**) addresses address the relevant Assessment Benchmarks contained within Table 9.4.6.3.1 (Performance Outcome and Acceptable Outcomes for Assessable Development) for the Stormwater Management Code.
- 189. In terms of general compliance with the code, the development complies with the Overall Outcomes of the Code, as detailed below:

(2) The purpose of the Stormwater management code will be achieved through the following overall outcomes:-

(a) development is located, designed, constructed and operated to protect and enhance the environmental values and flow regimes of both constructed and natural waterways, wetlands, lakes, ground waters and drainage systems;

(b) development is provided with effective stormwater drainage systems to protect people, property and the environment from the effects of stormwater runoff;

(c) development avoids the provision of new constructed waterbodies, except where a demonstrated overriding need exists;

(d) development provides for suitable treatment, harvesting and re-use systems for urban stormwater runoff; and

(e) stormwater management systems are designed and constructed to enhance biodiversity, landscape and recreational values, and to achieve acceptable maintenance, renewal and adaptation costs.

## Response:

190. As detailed in the Civil Infrastructure Report prepared by Barlow Shelly Consulting Engineers (Appendix 6), the development will enhance the environmental regimes through the provision of water quality devices, which integrate with Council's stormwater network

# 6 Environmental Assessment

# 6.1 Outline

- 191. This Section of the EAR provides an assessment of the Environmental Impacts associated with the proposed infrastructure. The intent of the assessment is to detail the:
  - Impacts upon surrounding land uses;
  - Impacts on the surrounding infrastructure network;
  - Environmental impacts;
  - Heritage and Native Title impacts;
  - Economic impacts;
  - Construction based impacts; and,
  - Operational impacts.
- 192. Assessment contained within this section is supported by specialist documentation, listed within the Appendices of this EAR.

# 6.2 Impact on Surrounding Land Uses

- 193. The below section will detail the potential impacts upon the surrounding land uses, particularly:
  - Visual Impacts;
  - Acoustic Impacts; and,
  - Lighting Impacts.

## 6.2.1 Visual Impacts

- 194. A suite of Proposal Plans have been prepared by Aspect Architects and Project Managers (**Appendix 1**) in support of this EAR.
- 195. Section 4.4 (Proposal Description and Details) of this EAR details the scale, façade treatment, as well as how the development will integrate within the site. Notably Section 4.4.1 (Key Development Parameters) details the eastern grandstand as containing a building height of 23 metres, which exceeds the allowance of 21 metres for the site, as outlined within the Height of Buildings and Structures Overlay of the planning scheme.
- 196. Apart from the building height exceedances, it is noted that there are no other scale or intensity controls contained within the applicable local and state government instruments, which the development conflicts with.
- 197. With respect to the building height exceedance, a Visual Impact Assessment Schematic has been prepared by Aspect Architects and Project Managers and is included within **Appendix 1**. Figure 35 below demonstrates the location where the visual assessment has been undertaken from, which includes:
  - P1 Lake Kawana North-East Pontoon
  - P2 Nicklin Way South-East Corner of Subject Site
  - P3 Lake Kawana Western Footpath (opposite Kawana Aquatic Centre)
  - P4 Lake Kawana Western Footpath (opposite Sunshine Coast Stadium)


Figure 35 Visual Assessment Locations (Source: Aspect Architects and Project Managers)

- 198. Figure 36 39 below demonstrates the view of the proposed grandstand works, from vantage points P1
   P4. The development when viewed from these points reflects a regional scale stadium, with there being no demonstratable difference in building form, to that of a compliant building height stadium.
- 199. In relation to visual impacts, development heights on the western side of the Lake Kawana are controlled by Master Plan No. 5, with the number of storeys permitted in the precincts opposite the stadium being 6 storeys. The maximum number of meters per storey is limited 3 metres, and therefore the total permitted building height within these precincts is 18 metres.
- 200. Given the permitted building height (under the planning scheme Height and Buildings Overlay) for the Sunshine Coast Stadium site (21 metres) is higher than permitted building height of development on the western side of Lake Kawana, the proposed eastern grandstand building height (23 metres) will not impact upon view lines to the ocean, given that the views would already be blocked as a result of a permitted building height outcome on the site.
- 201. In addition, the existing residential dwellings on eastern side of Nicklin Way are in the order of 230 metres from the Sunshine Coast Stadium. It is noted that the residential dwellings on the eastern side of the Nicklin Way have a maximum building height of 8.5 metres, with the building height exceedance not resulting in a demonstratable loss of amenity for these dwellings.
- 202. Lastly, it is noted that the stadium does not adjoin a 'sensitive use' (as defined) on any side and therefore, the development will not result in a loss of amenity by way of overshadowing, or overlooking.



Figure 36 'P3' View from Southwest Across Lake Kawana (Source: Aspect Architects and Project Managers)



Figure 37 'P1' View from Northwest Across Lake Kawana (Source: Aspect Architects and Project Managers)



Figure 38 'P2' View from Southeast – Nicklin Way (Source: Aspect Architects and Project Managers)



Figure 39 'P4' View from Southwest (at 22m height) (Source: Aspect Architects and Project Managers)

## 6.2.2 Acoustic Impacts

- 203. A Noise Impact Assessment has been prepared by ASK Acoustics and Air Quality (**Appendix 2**). The Noise Impact Assessment considers noise impacts from Major Events, as well as Non-Major Events/Activities and Mechanical Plant
- 204. Based on modelling, the Noise Impact Assessment details that the predicted noise levels for <u>sporting</u> <u>events</u> do not exceed the 70 dBA day/evening criterion, at any of the nominated nearest noise sensitive receivers. For <u>concert events</u> the predicted noise levels of 49/50dBA for 10pm to midnight would be exceeded at the sensitive receivers to east, west and south, and <u>therefore major sporting and concert</u> <u>events should be completed by 10pm</u>. In addition to this, noise impacts on nearby fauna habitats are not expected from the project.
- 205. The Noise Impact Assessment recommends that a general stadium Noise Management Plan should be developed, and that specific Noise Management Plans should be provided for major events. The Noise Impact Assessment indicates that subject to the application of the recommendations contained within the report, the expansion of the Sunshine Coast Stadium will comply with the environmental controls contained within the *Environmental Protection Act 1994* and the *Environmental Protection (Noise) Policy 2008*.

## 6.2.3 Lighting Impacts

- 206. A Lighting Impact Assessment has been prepared by Webb Consulting Engineers (**Appendix 8**). The Lighting Impact Assessment details that the existing pole lighting structures will be retained, with some additional lighting fixtures applied along the full length of the extended western grandstand.
- 207. The Lighting Impact Assessment details that although the development contains additional lighting fixtures on the western grandstand, there is expected to be no net worsening impacts to the night time environment for urban receivers.
- 208. The Light Impact Assessment (**Appendix 8**) also indicates that there are known turtle nesting site located within 1.5km of the site. The Lighting Impact Assessment indicates that as part of the recent sports lighting upgrade a number of operational procedures were established to mitigate the impacts of artificial lighting on nesting turtles, the following operational procedures to minimise impacts upon the turtle nesting sites are as follows:
  - It is acknowledged that there may be some events that occur during turtle nesting season (typically October May), however the primary "major event" usage will be for televised NRL games. These will generally occur throughout winter which is outside of peak turtle nesting season;
  - Broadcast lighting control is located in the level 2 control room and is password protected for the exclusive control by Council site management staff (ie. The broadcast lighting is not able to be operated by third party users outside the direct control of site management);
  - As part of event planning process, Event Management are required to check with wildlife@sunshinecoast.qld.gov.au to ensure use of lighting will not impact any current registered nests on the adjacent dune area during the turtle nesting period; and,
  - Should nesting be present in the adjacent dune area a wildlife officer may be required to manage the nest during the event, this may include the installation of barriers/guards at the back of the known nests.

209. In summary, the Lighting Impact Assessment indicates that within respect to the urban setting, the proposed lighting outcome will not result in a worsening impact, further, the ongoing application of the operational procedures will minimise impacts upon the turtle nesting site areas.

## 6.3 Impacts on the Surrounding Infrastructure Network

- 210. The below section will detail the potential impacts upon the surrounding infrastructure network, particularly:
  - Transport Network Public Transport;
  - Transport Network Traffic Impact and Parking Assessment; and,
  - Services Network Stormwater, water and sewer infrastructure.

## 6.3.1 Transport Network - Public Transport

- 211. The subject site is serviced by the existing public transport (bus) network which, travels along the Nicklin Way, Innovation Parkway and Kawana Way (bus routes 600, 602, 607, 611). In addition to the existing bus services, there are three (3) key public transport projects planned within close proximity to the site, which would assist in providing an improved public transport offering to the site. The future planned public transport infrastructure include:
  - CoastConnect;
  - Sunshine Coast Light Rail; and,
  - Caloundra and Maroochydore Corridor Option Study (CAMCOS).
- 212. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**), provides further detail in relation to the existing and planned public transport network upgrades, including likely transport routes.
- 213. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**) confirms that the proposed Sunshine Coast Stadium expansion is not expected to prejudice the existing or planned public transport infrastructure.

## 6.3.2 Transport Network - Traffic Impact and Parking Assessment

- 214. The subject site is serviced by the Nicklin Way, Kawana Way and Sportsman Parade (north-south), as well as Main Drive (east-west).
- 215. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**) undertakes an Intersection Analysis (based on an 'Typical Event' containing 3,000 persons) for the following intersections:
  - Intersection 1 Nicklin Way / Palkana Drive
  - Intersection 2 Nicklin Way / Main Drive
  - Intersection 3 Nicklin Way / Site Access (Service Road)
  - Intersection 4 Nicklin Way / Meridian Street
  - Intersection 5 Nicklin Way / Lake Kawana Boulevard
  - Intersection 6 Kawana Way/ Metier Linkway
  - Intersection 7 Main Drive / Sportsman Parade
- 216. The intersection analysis confirms that all intersections, with the exception of Intersection # 3, contains adequate capacity to accommodate an event on the site, without the need for mitigation measures. With respect to Intersection # 3, the intersection analysis recommends a left-in/left-out arrangement during events only. This changed intersection operation will be temporary and is proposed to be controlled through an event management plan.

- 217. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**) confirms that for any event exceeding 3,000 persons must be subject to an Event Management Plan, which will aim to mitigate the safety and efficiency impacts on the surrounding transport network. Further discussion regarding EMP procedures is included in Section 7 of the Traffic Impact Assessment (**Appendix 3**).
- 218. With respect to Car Parking there are 380 car parking spaces provided within close proximity of the site, with an additional 1,400 car parking spaces capable of being informally provided on five (5) of the seven (7) Kawana Sports precinct playing fields surrounding the stadium. Further, there is an additional 1,200 car parking spaces provided in the surrounding area, which could be utilised during an event.
- 219. The Traffic Impact Assessment prepared by Bitzios Consulting (**Appendix 3**), details that through the application of various mode shares (car parking, car drop-off/pick-up, public transport and active transport), the development contains sufficient parking capacity to service a range of events from small (3,000 persons) to large (17,500 persons). Section 4.3 of the Traffic Impact Assessment provides further detail with regard to the split in terms of mode share.

## 6.3.3 Services Network – Stormwater, Water and Sewer Infrastructure

- 220. The Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (**Appendix 6**), provides commentary with respect to Stormwater, Water and Sewer infrastructure.
- 221. With respect to sewer and water, Civil Engineering drawing 2057-CIV-09 outlines the proposed water and sewer connections and confirms the existing diameter of the reticulated water and sewer mains that the development proposes to connect to.
- 222. As detailed within the Civil Engineering Report (**Appendix 6**), all required sewer and water supply works will be designed and constructed in accordance with the South East Queensland Water Supply and Sewerage Design and Construction Code, Unitywater's Connections Administration Manual, and other relevant design guidelines.

## 6.3.4 Services Network – Telecommunications and Electricity Infrastructure

- 223. Sunshine Coast Council have provided a Services Impact Statement (**Appendix 13**), with respect to telecommunications and electricity supply.
- 224. With respect to telecommunications, the statement indicates that the existing telecommunications line (current provided via the Service Road) is not preferential and that the service provider (Telstra) would prefer the infrastructure to be provided direct via Sportsman Parade. The connection via this point is expected to limit potential future construction works.
- 225. With respect to electricity supply, the Services Impact Statement (**Appendix 13**) indicates that currently supply and loading at the stadium are at full capacity. In order to facilitate the proposed stadium expansion a second transformer will be required. The correspondence indicates that there will be limited impact upon the existing service, as the 11kv supply will connect to the existing pit and Energex supply feed.

## 6.4 Environmental Impacts

- 226. The below section will detail the proposed expansion to the existing Sunshine Coast Stadium and will detail the impacts upon:
  - Ecology;
  - Acid Sulfate Soils;
  - Coastal Erosion;
  - Flooding; and,
  - Sustainability /Water and Waste Assessment.

## 6.4.1 Ecology

227. A review of Council's Overlay mapping, as well as Queensland Government's Development Assessment Mapping System confirms that the site does not contain any mapped vegetation areas. It is however noted that according to the state mapping, site contains a 'moderate' waterway, which traverses through the site (refer to **Figure 40** below).



Figure 40 Mapped Queensland Waterway for Waterway Barrier Works (Source: SARA DAMS mapping)

- 228. Section 2.3 of the Response to Environmental Matters prepared by Future Plus Environmental (Appendix 7) outlines that the mapped waterway is an error and the presence of an open waterway able to facilitate fish passage does not exist on the subject site.
- 229. Due to there being no actual ecology on the site, the development of the site will not result in any ecological impacts.

### 6.4.2 Acid Sulfate Soils

- 230. The subject site is identified as being subject to Sunshine Coast Council's Acid Sulfate Soils Overlay, with the site being identified as containing the potential for Acid Sulfate Soils on land at or below 5m AHD.
- 231. Section 3.11 (Acid Sulfate Soils) of the Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (Appendix 6) indicates that the development will result in excavation below 5m AHD. Due to the detailed design in relation to footing design not being completed at this stage, an Acid Sulfate Soils

Management Plan has not been prepared, which demonstrates that the development will not result in activation of Acid Sulfate Soils.

232. Generally speaking, the management of Acid Sulfate Soils does not pose a development constraint that cannot be resolved. As such, it is considered suitable for the provision of an Acid Sulfate Soils Management Plan to be provided at a subsequent stage of the project for endorsement.

### 6.4.3 Coastal Erosion

- 233. The subject site is identified as being an Erosion Prone Area on Queensland Government's Development Assessment Mapping System.
- 234. In accordance with **Section 2.1** of Response to Environmental Management prepared by Future Plus Environmental (**Appendix 7**), the upgrade to the Sunshine Coast Stadium does not fall within land mapped as an erosion prone area and is separated by an existing roadway intended to be retained as part of the future development of the site. Therefore, the risk of the stadium expansion being impacted by coastal processes is considered to be remote.

### 6.4.4 Flooding

- 235. Section 3.7 3.10 of the Civil Engineering Report prepared by Barlow Shelley Consulting Engineers (Appendix 6) details that the subject site is located adjacent to the Kawana Lake waterway, which experiences flooding from regional and riverine sources, as well as localised overland flow.
- 236. In order to mitigate flooding impacts upon the development, the proposed stadium expansion has been designed to provide a Finished Floor Level of 3.38m AHD, which is in accordance with the flood immunity requirements prescribed under the Flood Hazard Overlay Code.
- 237. The Civil Engineering Report includes a Preliminary Flood Evacuation Management Plan, which includes the inclusion of the following components flood warning message, flood level and action response and flood escape routes.
- 238. Section 3.9 of the Civil Engineering Report indicates that considerable earthworks have been undertaken on the site since the previous flood study undertaken by Cardno in 2015. Due to the filling on the sports fields additional flood modelling may be required to assess the impact the development (filling within the flood plain) has on surrounding properties.

## 6.5 Heritage, Cultural Heritage and Native Title

239. A review of the National and Queensland Heritage Register, Cultural Heritage Register, as well as the National Native Title Register confirms that the subject site is not identified on any of the listed registers (refer to Appendix 16). Accordingly, the development will not impact on known historical or heritage, cultural heritage and native title artifacts.

## 6.6 Economic Impacts

240. An Economic Impact Model has been prepared by .id (Appendix 14) in support of the expansion to the Sunshine Coast Stadium. The Economic Impact Model confirms that the expansion to the Sunshine Coast Stadium is estimated to add an addition 308 direct and indirect jobs and an overall economic impact of \$100.6m for the Sunshine Coast Economy.

241. Further, post completion, events attracted on a 12 month calendar is estimated to have an economic impact of \$23.8m, which is estimated to add 263 direct and indirect jobs to into the Sunshine Coast.

## 6.7 Construction Impacts

242. A Construction Management Plan has been prepared by Aspect Architects and Project Managers (Appendix 15). Please refer to this document for details on the potential impacts/management procedures associated with the Sunshine Coast Stadium expansion.

## 6.8 Operational Impacts

- 243. In order to mitigate adverse amenity impacts, Event Management Plans (EMP's) will be prepared for all events with expected crowd capacities over 3,000. Most events have their own unique protocols and compliance requirements that are also incorporated into these EMP's.
- 244. All EMP's are prepared by the local Sunshine Coast Councils dedicated Sports and Venues management team, with the assistance of specialist consultants as and when required. Items that are generally addressed in each EMP include detailed assessment and planning for the following elements:
  - 1. Event Profiles:
    - a. Event risk assessments and risk management planning
    - b. Event descriptions, demographics, crowd expectations, event programs
    - c. Staff Structures and contact lists
    - d. Permits required Liquor & food licenses, legislative standards, insurance requirements
  - 2. Venue Overview:
    - a. Player/Officials/VIP Zones
    - b. Venue Zones for staffing
    - c. Event Facilities and Services
    - d. Public Zones for Patrons standing, seated, amenities and food & beverage
    - e. Power and lighting requirements
  - 3. Entry and Circulation Procedures:
    - a. Ticketing, Gate queue systems & Security Checks
    - b. Area/Room allocations and capacities
    - c. Seating Areas public, corporate
    - d. Amenities and accessibility
  - 4. Traffic Management Plan:
    - a. Traffic External and Internal to precinct
    - b. Signage locations, road closures and traffic controller planning
    - c. Parking VIP, staff, public, accessible, and emergency services
    - d. Public Transport and event shuttles
    - e. Pedestrian management
  - 5. <u>Emergency services and evacuation plans</u>
  - 6. <u>Security and Crowd management functions</u>
  - 7. Media and Marketing
  - 8. <u>Food & Beverage Detail including cash management plans</u>
  - 9. <u>Communications</u>
  - 10. Waste Management
  - 11. Overall event operational procedures
- 245. Through the application of the event specific Event Management Plans for events over 3,000 persons operational impacts associated with events should be appropriately controlled.

# 7 Consultation Strategy

# 7.1 Stakeholders

- 246. The relevant stakeholders that may have an interest in the proposed Infrastructure Designation for the Stadium expansion are as follows:
  - Affected Parties
    - Sunshine Coast Regional Council
  - Government Departments
    - o Queensland Treasury representing relevant State Departments
    - o Dept. of Housing and Public Works
  - Elected Representatives
    - Councillor Peter Cox Sunshine Coast Regional Council (Division 3)
    - Mr Jarrod Bleijie Federal Electoral District of Kawana
  - Other Stakeholders
    - Adjoining landowners
    - Surrounding landowners
    - Local sporting associations / teams
  - Cultural Heritage Party
    - Kabi First Nation

## 7.2 Initial Consultation

- 247. In accordance with Queensland Treasury's (formerly DSDMIP's) Written Advice dated 18 March 2020, the following pre-engagement activities were required to be undertaken prior to requesting the Endorsement to Proceed (dated 15 June 2020):
  - a) Consultation with Council;
  - b) Consultation with Native Title parties;
  - c) Letters sent to local and State elected members; and,
  - d) Letterbox drop to surrounding properties.
- 248. As outlined in Section 2.2.2 (Preliminary Stakeholder Engagement) of this EAR, Sunshine Coast Council issued a letter of endorsement (Appendix 10) on 08 June 2020. Further, a Cultural Heritage Search (Appendix 16) was conducted, confirming that there are no Aboriginal or Torres Strait Islander cultural heritage site points recorded over or near the subject site.
- 249. In accordance with emailed advice received from Chris Lee (Queensland Treasury), the requirement to letterbox drop to surrounding properties has been waived given the current closure of businesses in the local area due to the COVID-19 global pandemic, however, this consultation will be undertaken during the formal consultation phase detailed in **Section 7.3** below.

## 7.3 Community Consultation Strategy

250. The following table identifies the consultation activities that are to be carried out as part of the community engagement process for the proposed Infrastructure Designation.

Activity	Description	Affected Parties / Stakeholders
Notice	<ul><li>Issue notice to launch the consultation period.</li><li>Notice will outline:</li></ul>	<ul><li>Minister</li><li>Elected Representatives</li></ul>

## Table 16 Community Consultation Strategy

Activity	Description	Affected Parties / Stakeholders
	<ul> <li>proposed Ministerial designation</li> <li>land to which the proposed designation applies</li> <li>type of infrastructure for which the land is proposed to be designated</li> <li>how the draft EAR can be viewed or accessed</li> <li>how to make a submission to the Minister within the 20 business day consultation period</li> <li>the day by when submissions may be made to the Minister</li> </ul>	<ul> <li>Affected parties (i.e. directly affected landowners)</li> </ul>
Webpage	<ul> <li>Sunshine Coast Council Webpage will outline:         <ul> <li>proposed Ministerial designation</li> <li>land to which the proposed designation applies</li> <li>type of infrastructure for which the land is proposed to be designated</li> <li>how the draft EAR can be viewed or accessed</li> <li>how to make a submission to the Minister within the 20 business day consultation period</li> <li>the day by when submissions may be made to the Minister</li> <li>contact details for representatives of the Sunshine Coast Council</li> </ul> </li> <li>Provide links (or upload) EAR to Sunshine Coast Council's website/DSDMIP website.</li> </ul>	Sunshine Coast Community
Publish Public Notice	<ul> <li>Digitally publish public notice in Sunshine Coast Daily.</li> <li>Public notice will address requirements of Schedule 4, Section 7 of Minister's Guidelines and Rules, outlining: <ul> <li>the proposed Ministerial designation</li> <li>the land to which the proposed designation applies</li> <li>type of infrastructure for which the land is proposed to be designated</li> <li>how the draft environmental assessment report can be viewed or accessed</li> <li>how to make a submission about the proposed Ministerial designation</li> <li>the day by when submissions may be made to the minister.</li> </ul> </li> </ul>	Sunshine Coast Community
Mailout Letter	<ul> <li>Letter box drop to surrounding landowners (refer to Appendix 17)</li> <li>Letter will outline:         <ul> <li>proposed Ministerial designation</li> </ul> </li> </ul>	<ul> <li>Affected parties (i.e. directly affected landowners)</li> </ul>

Activity	Description	Affected Parties / Stakeholders
	<ul> <li>land to which the proposed designation applies</li> <li>type of infrastructure for which the land is proposed to be designated</li> <li>how the draft EAR can be viewed or accessed</li> <li>how to make a submission to the Minister within the 20 business day consultation period</li> <li>the day by when submissions may be made to the Minister</li> <li>contact details for representatives of the Sunshine Coast Council</li> </ul>	
Consultation Report	<ul> <li>Prepare Community Consultation Report and include in the final EAR. The report will summarises input from engagement process, and how this input has been considered.</li> <li>Community consultation report to be published on Sunshine Coast Council's website.</li> </ul>	• All

# 8 Conclusion and Recommendations

- 251. The Infrastructure Entity for the proposed Ministerial Infrastructure Designation is the Sunshine Coast Council. This EAR has been prepared by Adams + Sparkes Town Planning for and on behalf of the Sunshine Coast Council.
- 252. In accordance with Section 2, Part 5 of the *Planning Act 2016*, Sunshine Coast Council seeks approval from the Minister for State Development, Infrastructure, Local Government and Planning to designate Lot 2 on SP163937 for the purpose of a 'Sporting facility'.
- 253. This EAR has been prepared in accordance with Chapter 7, Part 1, as well as Schedule 3 of the Ministers Guidelines and Rules and contains a detailed response on how the proposed infrastructure complies with:
  - Planning Act 2016 Section 36 (Criteria for making or amending designations);
  - State Government State Planning Policy, South East Queensland Regional Plan, State Development Assessment Provisions; and,
  - Local Government Sunshine Coast Planning Scheme.
- 254. In addition, this EAR details known and anticipated impacts that may occur as a result of the development, with the findings indicating that the continued use and expansion existing sports facility on the site presents a suitable land use outcome, which has the potential to mitigate impacts resulting from the construction of and use of the premises for sports and entertainment events. The impacts addressed as part of the Environmental Assessment include:
  - Impacts upon surrounding land uses;
  - Impacts on the surrounding infrastructure network;
  - Environmental impacts;
  - Heritage and Native Title impacts;
  - Economic impacts;
  - Construction based impacts; and,
  - Operational impacts.
- 255. We look forward to progressing the application through the Infrastructure Designation process contained within Schedule 7, Part 1 of the Ministers Guidelines and Rules.

# ADAMS + SPARKES TOWN PLANNING

CAMERON ADAMS MANAGING DIRECTOR

PETE SPARKES DIRECTOR

MICHAEL LYELL SENIOR TOWN PLANNER

# 9 Appendices

- 256. The following Appendices are relevant to this Environmental Assessment Report and will be provided separately.
  - Appendix 1 Architectural Plans prepared by Aspect Architects and Project Managers
  - Appendix 2 Acoustic Impact Assessment prepared by ASK Acoustics and Air Quality
  - Appendix 3 Traffic Impact Assessment and Management Plan prepared by Bitzios Consulting
  - Appendix 4 Landscape Design prepared by Element Design
  - Appendix 5 Waste Management Plan prepared by TTM Consulting
  - Appendix 6 Civil Engineering Report prepared by Barlow Shelley Consulting Engineers
  - Appendix 7 Response to Environmental Issues prepared by Future Plus Environmental
  - ▶ Appendix 8 Lighting Impact Assessment has been prepared by Webb Consulting Engineers
  - Appendix 9 Pre-lodgement Written Advice prepared by DSDMIP
  - Appendix 10 Pre-lodgement advice prepared by TMR
  - Appendix 11 Stakeholder Engagement Evidence
  - Appendix 12 Sunshine Coast Stadium Expansion Project Summary
  - Appendix 13 Services Impact Information prepared by Sunshine Coast Council
  - Appendix 14 Economic Impact Model prepared by .id
  - Appendix 15 Construction Management Plan prepared by Aspect Architects and Project Managers
  - Appendix 16 Cultural Heritage Register Search
  - Appendix 17 Surrounding landowners map
  - Appendix 18 Environmental Management and Contaminated Land Register Search

Appendix 1 Architectural Plans prepared by Aspect Architects and Project Managers







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B 11/12/20 MID Issue



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marchesepartners



# Sunshine Coast Stadium

# Drawing Schedule Drawing Number Drawing Title 200170\_S-ARC-00-00 Cover Sheet Site 200170\_S-ARC-10-01 Site Plan - Location 200170\_S-ARC-10-02 Site Plan - Proposed 200170\_S-ARC-90-01 Perspectives - Site 200170\_S-ARC-90-10 Visual Impact Views 200170\_S-ARC-90-11 Visual Impact Views West 200170\_A-ARC-21-01 Western Stand - Overall Plan 200170\_A-ARC-21-02 Western Stand - Ground Floor Plan 200170\_A-ARC-21-03 Western Stand - Level 1 Plan 200170\_A-ARC-21-04 Western Stand - Level 2 Plan 200170\_A-ARC-21-05 Western Stand - Level 3 Plan 200170\_A-ARC-40-01 Western Stand - Elevations 200170\_A-ARC-40-02 Western Stand - Elevations & Section (Option 1) 200170\_A-ARC-40-20 Western Stand – Elevation Option 2 200170\_A-ARC-40-30 Western Stand – Elevation Option 3 200170\_A-ARC-90-01 Western Stand - Perspectives 200170\_B-ARC-21-01 East Eastern Stand - Overall Plan 200170\_B-ARC-21-02 Eastern Stand - Ground Floor Plan 200170\_B-ARC-21-03 Eastern Stand - Main Concourse Plan Eastern Stand - Overall Seating Plan 200170\_B-ARC-21-04 200170\_B-ARC-40-01 Eastern Stand - Elevations 200170\_B-ARC-40-02 Eastern Stand - Elevations 200170\_B-ARC-50-01 Eastern Stand - Sections Eastern Stand - Perspectives 200170\_B-ARC-90-01

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# **RP DESCRIPTION**

Lot 2 on SP163937 Parish of Mooloolaha County of Canning Area 12.08 ha

GROSS FLOOR AREAS CA	<b>LCULATION (GFA)</b>
WEST STAND	
GROUND FLOOR	<b>3,834m</b> <sup>2</sup>
LEVEL 1 (MEZZANINE)	<b>3,345</b> m <sup>2</sup>
LEVEL 2 (UPPER CONCOURSE)	<b>3,087m</b> <sup>2</sup>
LEVEL 3 (AWNING)	453m <sup>2</sup>
SUBTOTAL	10,719m <sup>2</sup>
EAST STAND	
GROUND FLOOR	3,601m²
MAIN CONCOURSE	<b>3,047m</b> <sup>2</sup>
SUBTOTAL	6,648m <sup>2</sup>
TOTAL GFA	17,367m <sup>2</sup>

SEATING AREAS AND NUMBERS		
WEST STAND		
TOTAL PLAN AREA OF SEATING	1,806m²	
TOTAL NUMBER OF SEATS	3,600	
EAST STAND		
TOTAL PLAN AREA OF SEATING	2,587m <sup>2</sup>	
TOTAL NUMBER OF SEATS	8,305	
TOTAL PLAN AREA OF SEATING	<b>4,393m</b> <sup>2</sup>	
TOTAL NUMBER OF SEAT	11,905	

# **LEGEND**

======= NEW AND EXISTING FENCES

# NOTES:

LEVELS AND CONTOURS REFLECT EXISTING SURVEY (NOT PROPOSED LEVELS)

AMENTITIES AVAILABLE IN BOTH EAST & WEST STANDS. REFER TO BUILDING PLANS.

ARCHITECTURAL DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CONSUTLANT REPORTS AND DRAWINGS. INPART ICULAR REFER TO CIVIL & LANDSCAPE CONCEPT DRAWINGS.



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AMENDMENT SCHEDULE







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# **SITE FROM NORTHWEST**

# SITE FROM SOUTHEAST



**ASPE** ARCHITECTURE INTERIORS PROJECT MANAGEMENT QUANTITY SURVEYING TOOWOOMBA | BRISBANE | MOOLOOLABA www.aspectapm.net ABN 96 071 786 948 ACN 071 786 948 BOAQ 4487



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# PROJECT SUNSHINE COAST STADIU

SUNSHINE COAST COUNCIL

31 SPORTSMANS PARADE, BOK

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Sunshine Coast Stadium





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# P1 - VISUAL IMPACT VIEW FROM NORTHWEST ACROSS LAKE KAWANA

# P2 - VISUAL IMPACT VIEW FROM SOUTHEAST (NICKLIN WAY)



NOTE: REFER TO LOCATION PLAN FOR ORIGIN OF PHOTOGRAPHS

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P3 - VISUAL IMPACT VIEW FROM SOUTHWEST ACROSS LAKE KAWANA

# P4 - VISUAL IMPACT VIEW FROM SOUTHWEST AT APPROXIMATELY 22m <u>HIGH</u>

NOTE: REFER TO LOCATION PLAN FOR ORIGIN OF PHOTOGRAPHS

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3 <u>View from North West</u>





2 Option 2 Partial West Elevation 1:200

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AMENDMENT SCHEDULE ISS DATE DESCRIPTION

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Sunshine Coast Stadium BY PC PC PC 



CONSULTANT

**marchese**partners



2 EASTERN STAND - SOUTHERN ELEVATION 1 21-01 1 : 200



# PRELIMINARY

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STEEL MESH BALUSTRADE. PTFE FABRIC 50% OPEN WEAVE MESH.

ENTRY PORTAL WITH SIGN

GENERAL NOTE:

FOR FOOD AND BEVERAGE.

**IMPORTANT:** ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE GENERAL NOTES SHEET

EASTERN STAND - SECTIONS

200170\_ B - ARC - 50-01

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REFER TO 'EASTERN STAND F&B SCHEDULE\_MPI COMMENTS' FOR

ASSUMPTIONS REGARDING THE SIZE AND SERVICES PROVISIONS

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DRAWING No.

VOID

STADIUM SIGNAGE. (INDICATIVE)

PTFE FABRIC SOLID

PTFE FABRIC TO ROOF SOLID

Appendix 2 Acoustic Impact Assessment prepared by ASK Acoustics and Air Quality




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# Sunshine Coast Stadium Redevelopment

31 Sportsmans Parade, Bokarina, Sunshine Coast

# Noise Impact Assessment

Report: 207401.0125.R01V01

## **Prepared for:**

Aspect Architects and Project Managers

10 December, 2020





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# 1. Introduction

ASK Consulting Engineers (ASK) was commissioned by Aspect Architects and Project Managers to provide acoustic consultancy services for the proposed Sunshine Coast stadium redevelopment at 31 Sportsmans Parade, Bokarina.

This acoustic report is to accompany documentation to obtain Ministerial Infrastructure Development (MID) approval.

The purpose of this report is as follows:

- Outline the relevant project noise criteria.
- Present the results of noise monitoring.
- Prediction and assessment of the noise emissions from the development.
- Noise mitigation and/or management requirements, if any.

To aid in the understanding of the terms in this report a glossary is included in **Appendix A**.



# 2. Study Area Description

The proposed development is to be located at 31 Sportsmans Parade, Bokarina, Sunshine Coast. The site location is shown in **Figure 2.1** (source: Queensland Globe).



Figure 2.1 Location of Existing Stadium and Surrounds

The site is currently occupied by the existing stadium.

The proposed development is surrounded by the following uses (refer Figure 2.1):

- Sporting facilities to the adjoining properties.
- Mixture of residential apartments, child care centre, hospital and commercial buildings to the west of Lake Kawana.
- Aquatic centre, Police Station and Kawana Waters State College to the south.



- Commercial and/or light industrial area to the north.
- Residential area to the east of Nicklin Way.

The main noise emission concerns relate to impacts on residences to the west of Lake Kawana and east of Nicklin Way.



# 3. Proposed Development

The proposed redevelopment includes the following components:

- Extension and reconfiguration of Western Grandstand (Northern and Southern part).
- Construction of new Eastern Stand and roof.
- External works on the Eastern Stand and Western Grandstand.

Parking is accessed off John Street via a driveway located at the southern side of the street frontage. The loading dock is accessed from Mary Road at the southern end of the site.

The proposed hours of operation are as follows:

- Stadium events: 7am to 10pm, 7 days/week.
- Other uses: 24 hours/day, 7 days/week.

The proposed development has the potential to create noise impacts on nearby sensitive uses (e.g. residences, hospital) due to crowds, amplified music, mechanical plant and onsite vehicles. These potential impacts are required to be considered in the project design.

An overview of the stadium site plan is shown in **Figure 3.1** and additional plans are included in **Appendix B**.





Figure 3.1 Stadium Redevelopment Site Plan



# 4. Acoustic Criteria

# 4.1 Overview

As Ministerial Infrastructure Development (MID) approval is being sought, the main noise criteria are those contained within the Queensland Environmental Protection Act and Environmental Protection Policy (Noise).

Other criteria presented include:

- Queensland EcoAccess Guidelines, in support of EP(Act) and EPP(Noise).
- Sunshine Coast Regional Council Sunshine Coast Planning Scheme 2014.
- Office of Liquor and Gaming Regulation (OLGR), due to the presence of licensed areas.
- Relevant acoustic standards and guidelines.

# 4.2 Environmental Protection Act

In Queensland, the environment is protected under the Environmental Protection Act 1994 (i.e. EP(Act)).

Section 3 of the EP Act states that the object of the Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).

Section 12 of the EP Act defines noise as including *"vibration of any frequency, whether emitted through air or another medium"* and thus includes underwater noise.

Section 319 of the EP Act relates to General Environmental Duty and states that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.

Section 14(1) of the EP Act defines environmental harm as any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

Section 15 of the EP Act defines environmental nuisance as an unreasonable interference or likely interference with an environmental value caused by (a) ... noise.

Section 440 of the EP Act relates to the offence of causing a nuisance, and section 440Q relates to the offence of contravening a noise standard. In both cases, the sections state it does not apply to an environmental nuisance of the variety mentioned in schedule 1, part 1 of the EP Act.

Schedule 1, part 1 of the EP Act relates to environmental nuisance excluded from sections 440 and 440Q specifically. Part 1, section 1. Safety and transport noise, refers to:

Environmental nuisance caused by any of the following types of noise-

(b) noise from a warning signal for a railway crossing;

(c) safety signal from a reversing vehicle;

- (d) noise from operating a ship;
- (e) noise from aircraft movement;
- (f) noise from the ordinary use of a public road or State-controlled road;

(g) noise from the ordinary use of a busway, light rail or rail transport infrastructure.



Part 3 of the *Environmental Protection (Noise) Policy 2008* (EPP (Noise)) outlines environmental values and acoustic quality objectives. Section 8(4)(a) specifies that the acoustic quality objectives for sensitive receptors do not apply to a noise mentioned in the EP Act, schedule 1, part 1, section 1.

This Act refers to the Environmental Protection Policies as being subordinate legislation to the Act.

The Act describes a number of offences relating to noise standards, including building work, regulated devices (e.g. power tools), pumps, air-conditioning equipment, refrigeration equipment, indoor venues, outdoor events, amplifier devices other than at indoor venue or open-air event, power boat sports in waterway, operating power boat engine at premises, blasting, and outdoor shooting ranges. The relevant standards are included below.

#### 440T Pumps

- (1) This section applies to premises at or for which there is a pump.
- (2) An occupier of the premises must not use, or permit the use of, the pump on any day—
  - (a) before 7a.m, if it makes an audible noise; or
  - (b) from 7a.m. to 7p.m, if it makes a noise of more than 5dBA above the background level; or
  - (c) from 7p.m. to 10p.m, if it makes a noise of more than 3dBA above the background level; or
  - (d) after 10p.m, if it makes an audible noise.
- (3) Subsection (2)(a), (c) and (d) do not apply to a noise made at an educational institution, that is not more than 5dBA above the background level.
- (4) In this section—

#### pump-

- (a) means an electrical, mechanical or pneumatic pump; and
  - Examples liquid pump, air pump, heat pump
- (b) includes a swimming pool pump and a spa blower.

#### 440U Air-conditioning equipment

- (1) This section applies to premises at or for which there is air-conditioning equipment.
- (2) An occupier of the premises must not use, or permit the use of, the equipment on any day—
  - (a) before 7a.m, if it makes a noise of more than 3dBA above the background level; or
  - (b) from 7a.m. to 10p.m, if it makes a noise of more than 5dBA above the background level; or
  - (c) after 10p.m, if it makes a noise of more than 3dBA above the background level.

#### 440V Refrigeration equipment

- (1) This section applies to a person who is—
  - (a) an occupier of premises at or for which there is plant or equipment for refrigeration (*refrigeration equipment*); or
  - (b) an owner of refrigeration equipment that is on or in a vehicle, other than a vehicle used or to be used on a railway.
- (2) The person must not use, or permit the use of, the refrigeration equipment on any day—
  - (a) before 7a.m, if it makes a noise of more than 3dBA above the background level; or



- (b) from 7a.m. to 10p.m, if it makes a noise of more than 5dBA above the background level; or
- (c) after 10p.m, if it makes a noise of more than 3dBA above the background level.
- (3) In this section—

vehicle includes a trailer.

#### 440X Open-air events

- (1) An occupier of premises must not use, or permit the use of, the premises for an open-air event on any day—
  - (a) before 7a.m, if the use causes audible noise; or
  - (b) from 7a.m. to 10p.m, if the use causes noise of more than 70dBA; or
  - (c) from 10p.m. to midnight, if the use causes noise of more than the lesser of the following-
    - (i) 50dBA;
    - (ii) 10dBA above the background level.
- (2) However, subsection (1) does not apply to licensed premises.
- (3) Also, subsection (1)(b) does not apply if—
  - (a) the premises is, or is part of, an educational institution; and
  - (b) the use of the premises for an open-air event is organised by or for the educational institution for non-commercial purposes of the institution.

(Note: The relevant parameter for the above criteria is the  $L_{eq}$ )

## 4.3 Environmental Protection (Noise) Policy

#### 4.3.1 Overview

In respect of the acoustic environment, the object of the Act is achieved by the Environmental Protection (Noise) Policy 2019 (EPP (Noise)). This policy identifies environmental values to be enhanced or protected, states acoustic quality objectives, and provides a framework for making decisions about the acoustic environment.

## 4.3.2 Acoustic Quality Objectives

The EPP (Noise) contains a range of acoustic quality objectives for a range of receptors. The objectives are in the form of noise levels, and are defined for various periods of the day, and use a number of acoustic parameters.

Schedule 1 of the EPP(Noise) includes the following acoustic quality objectives to be met at residential dwellings:

- Outdoors
  - $\circ$  Daytime and Evening: 50 dBA  $L_{Aeq,adj,1hr}$ , 55 dBA  $L_{A10,adj,1hr}$  and 65 dBA  $L_{A1,adj,1hr}$
- Indoors
  - $\circ$  Daytime and Evening: 35 dBA  $L_{Aeq,adj,1hr}$  40 dBA  $L_{A10,adj,1hr}$  and 45 dBA  $L_{A1,adj,1hr}$
  - $\circ$  Night: 30 dBA  $L_{Aeq,adj,1hr}$ , 35 dBA  $L_{A10,adj,1hr}$  and 40 dBA  $L_{A1,adj,1hr}$

In the DEHP EcoAccess Guideline "Planning For Noise Control" documentation it is proposed that the noise reduction provided by a typical residential building façade is 7 dBA assuming open windows. That is, with an external noise source, a 7 dBA reduction in noise levels from outside a house to inside a house is



expected when windows are fully open. Thus the indoor noise objectives noted above could be converted to the following external objectives (with windows open):

- Daytime and Evening: 42 dBA LAeq, adj, 1hr, 47 dBA LA10, adj, 1hr and 52 dBA LA1, adj, 1hr
- Night: 37 dBA  $L_{Aeq,adj,1hr},$  42 dBA  $L_{A10,adj,1hr}$  and 47 dBA  $L_{A1,adj,1hr}$

A sensitive receptor is defined as "an area or place where noise is measured".

## 4.3.3 Background Creep

The EPP(Noise) identifies that background creep is to be prevented or minimised. Background creep is defined as a gradual increase in the total amount of background noise in the area of place as measured under the document called the 'Noise measurement manual'.

Unlike the former 2008 EPP(Noise), there are no specific criteria proposed for the control of background creep. It is therefore proposed to refer to noise criteria that have been used over a number of decades in Queensland and are still used in the EP Act as offence criteria for mechanical plant, i.e.

- from 7am to 10pm, noise (inclusive of background noise) is to be no more than 5 dBA above the background level.
- before 7am or after 10pm, noise (inclusive of background noise) is to be no more than 3 dBA above the background level.

## 4.4 EcoAccess Guidelines

DEHP has a number of EcoAccess guidelines relevant to the assessment of noise and vibration. These are summarised as follows.

## 4.4.1 EcoAccess – Planning for Noise Control

DEHP EcoAccess Guideline "Planning For Noise Control" contains procedures and methods that are applicable for setting conditions relating to noise emitted from industrial premises for planning purposes. The guideline is applicable to noise from all sources, individually and in combination, which contribute to the total noise from a site.

## 4.4.2 Control and Prevention of Background Creep

The procedure takes into account three factors: firstly, the control and prevention of background noise creep in the case of a steady noise level from equipment such as caused by ventilation fans and other continuously operating machinery; secondly, the containment of variable noise levels and short-term noise events such as those caused by forklifts and isolated hand tools to an acceptable level above the background noise level; thirdly, the setting of noise limits that should not be exceeded to avoid sleep disturbance.

## 4.4.3 Sleep Disturbance Criteria

The World Health Organization (WHO) issued its "Guidelines for Community Noise" in April 1999. The WHO guideline states the following in regard to sleep disturbance from continuous noise from activities such as mining operations:

"Where noise is continuous, the equivalent sound pressure level should not exceed 30 dBA indoors, if negative effects on sleep are to be avoided. When noise is composed of a large proportion of low-frequency sounds a still lower guideline value is recommended, because low-frequency noise (eg from a ventilation system) can disturb rest and sleep even at low sound pressure levels."

The EcoAccess Guideline "Planning for Noise Control", in referring to the World Health Organisation guidelines, makes the following general recommendation regarding short term transient noise events:



"As a rule in planning for short-term or transient noise events, for good sleep over eight hours, the indoor sound pressure level measured as a maximum instantaneous value should not exceed approximately 45 dBA maxLpA more than 10 to 15 times per night."

For less regular night events, the allowable internal noise level is higher, as follows:

- Approximately 3 events per night: 50 dBA L<sub>max</sub>.
- Approximately 1 event per night: 65 dBA L<sub>max</sub>.

Note: For the purpose of this assessment the  $maxL_{pA}$  level is defined using the  $L_{max}$  descriptor.

The WHO guideline states the following in regard to annoyance response to community noise:

"Annoyance to community noise varies with the type of activity producing the noise. During the daytime few people are seriously annoyed by activities with  $L_{Aeq}$  levels below 55 dBA; or moderately annoyed by  $L_{Aeq}$  levels below 50 dBA. Sound pressure levels during the evening and night should be 5 – 10 dBA lower than during the day. Noise with low frequency components requires even lower levels."

DEHP propose that the noise reduction provided by a typical residential building façade is 7 dBA assuming open windows. Thus the indoor noise objectives noted above could be considered external objectives (with windows open) with the appropriate correction.

The criteria are summarised in Table 4.1.

Descriptor	Number of Noise Events	Indoor Criterion dBA	Outdoor Criterion dBA
Sleep Disturbance	10 – 15	L <sub>max</sub> 45	L <sub>max</sub> 52
(Short Duration Events)	3	L <sub>max</sub> 50	L <sub>max</sub> 57
	1	L <sub>max</sub> 55	L <sub>max</sub> 62
Sleep Disturbance (Continuous Noise)	Continuous	L <sub>eq</sub> 30	L <sub>eq</sub> 37
Annoyance (Night Time)	Continuous	L <sub>eq</sub> 35	L <sub>eq</sub> 42

 Table 4.1
 Summary of WHO Sleep Disturbance and Annoyance Criteria

Note: The outdoor criteria are based on a DEHP EcoAccess nominated outdoor-to-indoor noise reduction of 7 dBA for open windows.

## 4.4.4 EcoAccess – Assessment of Low Frequency Noise

DEHP EcoAccess Guideline "Assessment of Low Frequency Noise" contains methods and procedures that are applicable to low frequency noise emitted from industrial premises and mining operations for planning purposes. Items such as boilers, pumps, transformers, cooling fans, compressors, oil and gas burners, foundries, wind farms, electrical installations, diesel engines, ventilation and air-conditioning equipment, wind turbulence and large chimney resonance may comprise sources of high level noise having frequency content less than 200 Hz.

These sources may exhibit a spectrum that characteristically shows a general increase in sound pressure level with decrease in frequency. Annoyance due to low frequency noise can be high even though the dBA level measured is relatively low. Typically, annoyance is experienced in the otherwise quiet environments of residences, offices and factories adjacent to or near low frequency noise sources. Generally, low level/low frequency noises become annoying when the masking effect of higher frequencies is absent. This loss of high frequency components may occur as a result of transmission through the fabric of a building, or in propagation over long distances.



Where a noise immission occurs exhibiting an unbalanced frequency spectrum, the overall sound pressure level inside residences should not exceed 50 dB(Linear) to avoid complaints of low frequency noise annoyance. A spectrum is considered unbalanced when the un-weighted overall noise level is more than 15 dB higher than the A-weighted overall noise level.

# 4.5 Sunshine Coast Regional Council - Sunshine Coast Planning Scheme 2014

On 14 April 2014 Sunshine Coast Regional Council (SCRC) adopted the Sunshine Coast Planning Scheme 2014 and the associated planning scheme policies. The planning scheme and the planning scheme policies were gazetted on 2 May 2014 and commenced on 21 May 2014.

In regards to the assessment of noise impacts, the relevant sections of the planning scheme are the Nuisance Code (Section 9.4.3) and the Planning Scheme Policy for the Nuisance Code (Section SC6.15). The Nuisance Code presents Performance Outcomes and Acceptable Outcomes for assessable development for acoustic amenity and noise but does not specifically nominate noise limits or assessment criteria (refer **Table 4.2**).

Perform	mance Outcomes	Acceptable Outcomes		
PO1	Development, other than development involving live entertainment or amplified sound in a hospitality area or as part of a temporary event, is located, designed, constructed and operated to ensure that noise emissions do not adversely impact on surrounding <i>sensitive land</i> <i>uses</i> . Note—this performance outcome applies even if noise emissions are generated by <i>sensitive land uses</i> , from sources such as communal areas, service areas, plant and equipment (e.g. air conditioning units) and the like.	A01	Development does not involve activities that would cause noise related environmental harm or nuisance. OR Development ensures noise does not emanate from the <i>site</i> through site layout, design, construction, and operation.	
PO2	Development that is a sensitive land use is located, designed, constructed and operated to achieve a satisfactory level of acoustic amenity where there is potential for noise emissions generated from surrounding development to adversely affect the sensitive land use. Editor's note—this performance outcome relates to a 'reverse amenity' situation where a proposed <i>sensitive</i> <i>land use</i> may be adversely impacted by noise emissions from surrounding development. In such cases, it is contingent upon the proposed <i>sensitive land use</i> to implement measures to ensure a satisfactory level of acoustic amenity is provided to prospective occupants and users of the development.	AO2	The sensitive land use is not established in an area that will be adversely impacted by noise generated by existing land uses, activities and possible future development in the area. OR Where located in an area where adverse noise impacts are likely, the sensitive land use mitigates all potential impacts through site layout, design, construction, and operation.	
PO3	Development involving live entertainment or amplified sound in a hospitality area, or as part of a temporary event, provides a satisfactory level of acoustic amenity for surrounding sensitive land uses, having regard to the location and setting of the development and the frequency of the event.	AO3	No acceptable outcome provided.	

Table 4.2	Acoustic Amenity	and Noise	Criteria	(partial copy	v of Table 9.4.3.3.1)	
	/		Circeira	(partial cop		£



The Planning Scheme Policy for the Nuisance Code provides guidance for the assessment of road and rail noise, live entertainment, amplified music and voices (patrons). The policy does not specify noise limits but references the following guidelines to achieve the Nuisance Code outcomes:

- Australian Standard AS/NZS2107–2000: Acoustics— Recommended design sound levels and reverberation times for building interiors.
- Department of Housing and Public Works (HPW) Queensland Development Code (QDC) Mandatory Part 4.4 (MP4.4) 'Buildings in transport noise corridors'.
- Department of Environment and Heritage Protection (EHP) Environmental Protection Policy (Noise) and Environmental Protection Act.
- Department of Transport and Main Roads (TMR) Road Traffic Noise Management: Code of Practice.

# 4.6 Office of Liquor and Gaming Regulation

The Queensland Office of Liquor and Gaming Regulation (OLGR) requires licensed premises to comply with specific noise criteria within the Liquor Regulation 2002 (the regulation) and Liquor Act 1992 (the Act).

The Act is understood to allow OLGR to limit 'unreasonable noise' through abatement notices and compliance orders. OLGR may "require the person to stop all specified noise coming from the premises until the person demonstrates to the commissioner that the noise can be permanently limited to reasonable noise", and it "may require the person to give the commissioner an acoustic report that complies with the commissioner's guideline (if any) about acoustic reports.".

In the Act, unreasonable noise is defined as

- (a) exceeds the limits (if any) prescribed by regulation; or
- (b) contravenes a compliance order that applies to the premises; or
- (c) contravenes a condition that applies to the licence or permit for the premises.

The definition of unreasonable noise in the Regulation is as follows:

- (a) between 6am and 10pm the adjusted maximum sound pressure level  $L_{A10}$ , plus adjustments for tonal and impulse components, exceeding the background level  $L_{A90}$  by more than 10dBA.
- (b) between 10pm and 6am the sound pressure level L<sub>OCT10</sub>, in a full octave band with centre frequencies from 63Hz to 2000Hz, exceeding the background level L<sub>OCT90</sub> by more than 8dB in any octave band.

It is understood that the noise limits in the Regulation apply on a 'per premises' basis. Therefore if there are multiple premises causing noise emissions, the actual noise limit at the nearest sensitive receiver may be higher than proposed in the regulation.

When determining the background noise level for the noise assessment of licensed establishments according to OLGR requirements, it is typically required that the background noise levels be measured on a Monday or Tuesday. It is expected that Monday and Tuesday are the quieter days of the week with respect to entertainment noise, and thus allow a representative sample of the background noise to be determined.

A new licensed venue may choose to have a noise report prepared which determines allowable noise levels for the specific venue based on achieving the "unreasonable noise" criteria within the regulation. However, in some instances where a noise report is not sought, a general noise limit is set by OLGR, being 75 dBC  $L_{10}$  at 3 metres from the speakers. This limit of 75 dBC is understood to have been determined many years ago by OLGR as an easily assessed limit at a venue which is expected to result in compliance with the noise limits in the regulation.



# 4.7 Summary of Criteria

The proposed criteria for major stadium events is taken from the EP(Act) Open-Air Event requirements, and are as follows:

- Day/ Evening events (7am to 10pm): 70 dBA LAeq, adj, T
- Night events (10pm to midnight): Lesser of 50dBA LAeq,adj,T or 10 dBA plus background level

It is advised that the above event criteria are maximum limits and compliance with these limits does not necessarily result in acoustic amenity for nearby residents. It is our understanding that amenity impacts from the application of the above criteria would require the number of major stadium events to be limited at the stadium.

It is noted that whilst the above criteria state that the 70 dBA noise limit is for the hours of 7am to 10pm, enforcement at another Brisbane based stadia refer to a limit of 10:30pm. For example, the Queensland Major Sports Facilities Regulation 2014 includes 'Schedule 2: Conditions for special events at Brisbane Stadium (Lang Park)' which include a 70 dBA  $L_{Aeq,15min}$  noise limit, and permits event hours of 10am to 10:30pm, and stadium closure to public by 11:30pm.

The proposed noise criteria for other activities and equipment have been taken from the sections on EP(Act) and Background Creep and are as follows:

- Day (7am to 6pm)  $L_{Aeq,adj,T} \leq Background L_{A90} + 5 dBA$
- Evening (6pm to 10pm)  $L_{Aeq,adj,T} \leq Background L_{A90} + 5 dBA$
- Night (10pm to 7am)  $L_{Aeq,adj,T} \leq Background L_{A90} + 3 dBA$



# 5. Acoustic Measurements

# 5.1 Overview and Locations

Acoustic measurements consisted of an attended noise measurements and noise logging. The attended measurements and logging were timed to include the following events:

- Women's State of Origin game on Friday 13/11/2020, approximately 7pm to 8pm.
- Monster Thrillmasters Live on Saturday 21/11/2020, approximately 6pm to 7:30pm.

The noise measurement locations E1, E2, NW and SW are shown in Figure 5.1.



Figure 5.1 Measurement Locations E1, E2, NW and SW



The noise monitoring locations are described as follows:

- Location E1 was located in the front yard of 323 Nicklin Way at 7 metres east of the front (western) boundary and 1 metre north of the side (southern) boundary. The logger and attended microphone positions were in the free field.
- Location E2 was located in the front yard of 23 Peacock Crescent at 0 metres from the front (eastern) boundary and 1 metre south of the side (northern) boundary. The attended microphone position was in the free field.
- Location NW was located in Quad Park QLD 4575 at the approximate co-ordinate location: 26.733162, -153.122111. The logger and attended microphone positions were in the free field. A more detailed map location is shown in **Figure 5.2**.
- Location SW was located near-by the Lake Kawana Exercise Park QLD 4575 at the approximate coordinate location: -26.736568, 153.122556. The logger and attended microphone positions were in the free field. A more detailed map location is shown in **Figure 5.3**.



Figure 5.2 Measurement Location NW





Figure 5.3 Measurement Location SW

The noise monitoring was undertaken in general accordance with Australian Standard AS1055 Acoustics – Description and measurement of environmental noise and the EHP Noise Measurement Manual 2013.

# 5.2 Attended Noise Measurements

Attended noise measurements were undertaken at all four locations. The measurements were undertaken on several dates and times over separate 15-minute measurement intervals, using a field and laboratory calibrated LD831 sound level meter. The microphone height was approximately 1.3m above natural ground level and was in the free field at each location. Weather during the time of monitoring was generally fine and warm, 1/8 to 4/8 cloud cover, with a slight breeze from the east of approximately 1 to 3 m/s.

The measured noise levels are summarised in Table 5.1.



Location	Date & Time	Period (Minutes)	Results & Notes
Women's	State of Origin	n – Friday 13,	/11/2020
E1	06:43pm 13/11/2020	15	Statistical noise levels: L <sub>10</sub> 68 dBA, L <sub>eq</sub> 65 dBA, L <sub>90</sub> 53 dBA Dominant noise: Traffic and dogs. Road Traffic (Nicklin Way): 64 to 70 dBA Dogs Barking: 72 to 79 dBA Music (Anthem): 59 to 61 dBA Occasional Loud Cheers: 55 to 56 dBA
E2	07:07pm 13/11/2020	15	Statistical noise levels: L <sub>10</sub> 52 dBA, L <sub>eq</sub> 51 dBA, L <sub>90</sub> 47 dBA Dominant noise: Ocean and traffic. Background traffic (Nicklin Way): 49 to 51 dBA Occasional Cheers: 50 to 54 dBA Ocean Noise: 47 to 48 dBA Passing Car: 55 dBA Crow: 60 dBA Loudspeaker somewhat audible at times in the background.
NW	07:37pm 13/11/2020	15	Statistical noise levels: L <sub>10</sub> 57 dBA, L <sub>eq</sub> 55 dBA, L <sub>90</sub> 47 dBA Dominant noise: The L <sub>10</sub> and L <sub>eq</sub> parameters dominated by stadium noise (cheers and music), and L <sub>90</sub> parameter dominated by traffic noise. Background Traffic: 45 to 50 dBA Truck: 63 to 66 dBA Passing Bus: 60 dBA ½ Time Cheers: 54 to 64 dBA Music: 51 to 61 dBA Cheers: 52 to 65 dBA Loud Cheers when Try Scored: 66 to 70 dBA Loudspeaker: 51 to 55 dBA (COVID Mask Announcement) Clapping: 48 dBA
NW	07:55pm 13/11/2020	15	Statistical noise levels: L <sub>10</sub> 56 dBA, L <sub>eq</sub> 55 dBA, L <sub>90</sub> 47 dBA Dominant noise: The L <sub>10</sub> and L <sub>eq</sub> parameters dominated by stadium noise (cheers), and L <sub>90</sub> parameter dominated by traffic noise. Background Traffic: 48 to 52 dBA Cheers: 50 to 57 dBA Loud Cheers when Try Scored: 65 to 69 dBA Loudspeaker: 53 to 54 dBA Music: 53 dBA
Wonster	inniimasters L	ive – Saturda	ay 21/11/2020

## Table 5.1 Attended Noise Measurement Results



Location	Date & Time	Period (Minutes)	Results & Notes
E1	04:00pm 21/11/2020	15	Statistical noise levels: L <sub>10</sub> 66 dBA, L <sub>eq</sub> 62 dBA, L <sub>90</sub> 50 dBA Dominant noise: Traffic. Road Traffic (Nicklin Way): 54 to 68 dBA Background Traffic: 48 dBA Trucks (Nicklin Way): 74 to 77 dBA Occasional Dogs Barking: 70 to 71 dBA - Estimated <= 1% of the time. Traffic noise clearly dominant.
E2	04:30pm 21/11/2020	15	Statistical noise levels: L <sub>10</sub> 49 dBA, L <sub>eq</sub> 49 dBA, L <sub>90</sub> 44 dBA Dominant noise: Ocean and traffic. Background Traffic (Nicklin Way): 43 to 50 dBA Ocean Noise from the East: 43 to 45 dBA Passing Ute: 54 to 55 dBA
Various	Address equi	pment vanda	lism issues.
E1	06:29pm 21/11/2020	15	Statistical noise levels: L <sub>10</sub> 68 dBA, L <sub>eq</sub> 67 dBA, L <sub>90</sub> 48 dBA Dominant noise: Traffic. Road Traffic (Nicklin Way): 49 to 70 dBA Dogs Barking: 68 to 80 dBA Event noise somewhat audible but dominated by Traffic. Crows: 56 to 59 dBA Event Music: 45 to 47 dBA Fireworks: 89 dBA (Max.)
E2	06:53pm 21/11/2020	15	Statistical noise levels: L <sub>10</sub> 53 dBA, L <sub>eq</sub> 53 dBA, L <sub>90</sub> 44 dBA Dominant noise: Ocean and traffic. Constant Ocean Noise: 44 to 46 dBA Speaker Noise: 47 to 48 dBA Ute Passing: 51 to 53 dBA Car arriving at house: 54 to 60 dBA Monster trucks: 49 to 50 dBA Dog + Owner Passing: 50 to 55 dBA Some background insect noise somewhat audible from across the road in the park to the east. Traffic: 47 dBA Fireworks: 60 to 70 dBA



Location	Date & Time	Period (Minutes)	Results & Notes
SW	07:24pm 21/11/2020	15	Statistical noise levels: $L_{10}$ 65 dBA, $L_{eq}$ 78 dBA, $L_{90}$ 51 dBA Dominant noise: The $L_{10}$ was dominated by music and dogs, $L_{eq}$ parameter dominated by fireworks and music, and $L_{90}$ parameter dominated by traffic and music
			Constant Music: 49 to 60 dBA
			Monster Trucks: 57 to 59 dBA
			Dogs: 63 to 71 dBA Fireworks (finale): 78 to 94 dBA

Note: \* The reported noise levels, excluding the statistical noise levels, are the instantaneous levels read from the sound level meter, and generally represent the range in noise levels or maximum noise levels for a particular noise source.

# 5.3 Noise Logging

## 5.3.1 Overview

Noise logging was undertaken at Locations E1, NW and SW over the following dates:

- Location E1: Friday 13/11/2020 to Tuesday 17/11/2020
- Location NW: Thursday 12/11/2020 to Saturday 21/11/2020
- Location SW: Thursday 12/11/2020 to Thursday 19/11/2020

Monitoring dates varied as the equipment at locations E1 and SW was damaged by members of the public. The affected data beyond the respective end dates has been removed from consideration since the microphone cables were broken in both instances.

Logging was undertaken using field and laboratory calibrated Larson Davis LD831C environmental noise loggers.

Data from the Bureau of Meteorology (Sunshine Coast Airport) indicates that weather during the monitoring period was generally fine and warm, but with light rainfall on Wednesday 18<sup>th</sup> (4.6mm) and Thursday 19<sup>th</sup> (0.2mm). Overall, the noise monitoring data is considered acceptable for use in this report.

The measured noise levels are shown graphically in **Figures C.1** to **C.3** in **Appendix C**, and also using a 24-Hour X-Axis in **Figures C.4** to **C.6** in **Appendix C**.

From the noise logging the statistical results have been summarised in **Tables D.1** to **D.3** in **Appendix D**.

From the results above the following comments are made:

- Road traffic from Nicklin Way is the dominant noise at Locations E1 and E2.
- Road traffic from Kawana Way is generally the dominant noise at locations NW and SW, except during events when noise from the events was dominant.

## 5.3.2 Background Noise Levels

The background noise levels were relatively free of insect noise and are shown in Table 5.2.



## Table 5.2 Estimated Background Noise Levels

Period	Background Noise Level L <sub>90</sub> dBA				
	E1	E2*	NW	SW	
Day (7am to 6pm)	49	43	46	46	
Evening (6pm to 10pm)	44	39	42	40	
Night (10pm to 7am)	38	34	40	35	
Early Night (10pm to Midnight)	41	36	41	39	

Note: \* The background noise levels at E2 are estimated, based on the attended measurements and noise logging data.

## 5.3.3 Noise Levels During Events

The 15 minute noise levels on the evenings of the events are listed below in **Table 5.3**. From this table it can be seen:

- Women's State of Origin
  - Noise levels are highest at E1 due to road traffic noise from Nicklin Way.
  - At NW and SW logger locations the L<sub>10</sub> and L<sub>eq</sub> noise levels increase around 6:30pm to 8:30pm, but background noise levels L90 are relatively stable through the evening, before reducing after 8:30pm.
- Monsters Trucks
  - Only 1 of 3 loggers was available.
  - Noise levels at NW are substantially higher than the Women's SOO event.
  - All three parameters increase around 6pm and reduce after 7:45pm.

## Table 5.3Noise Levels on Event Evenings

Start Time of 15	Noise Level Statistics dBA										
Minute Period	L <sub>10,15min</sub>			L <sub>eq,15min</sub>			L <sub>90,15min</sub>				
	E1	NW	sw	E1	NW	SW	E1	NW	SW		
Women's State of Or	rigin game o	on Friday 13	3/11/2020,	approxima	tely 7pm to	9 8pm.					
5:00 PM	-	57	56	-	54	54	-	51	50		
5:15 PM	-	56	55	-	54	54	-	50	50		
5:30 PM	-	57	56	-	54	53	-	51	50		
5:45 PM	-	55	54	-	53	53	-	50	50		
6:00 PM	-	54	55	-	52	52	-	50	50		
6:15 PM	-	55	57	-	53	54	-	50	50		
6:30 PM	-	55	56	-	56	56	-	49	50		
6:45 PM	66	55	58	63	52	55	52	48	49		
7:00 PM	65	56	59	61	54	57	50	47	48		
7:15 PM	66	53	56	61	51	54	51	48	49		
7:30 PM	65	55	57	61	53	54	51	48	49		
7:45 PM	64	55	58	61	54	57	52	47	48		



Start Time of 15	Noise Lev	Noise Level Statistics dBA							
8:00 PM	65	55	58	61	53	55	52	47	49
8:15 PM	65	54	58	61	52	56	51	47	49
8:30 PM	66	53	55	63	52	52	54	48	48
8:45 PM	68	51	53	65	50	51	53	47	47
Monster Thrillmaste	rs Live on S	aturday 21	/11/2020, a	ipproximat	ely 6pm to	7:30pm.			
5:00 PM	-	57	-	-	55	-	-	47	-
5:15 PM	-	53	-	-	51	-	-	47	-
5:30 PM	-	62	-	-	59	-	-	48	-
5:45 PM	-	54	-	-	52	-	-	47	-
6:00 PM	-	69	-	-	70	-	-	49	-
6:15 PM	-	67	-	-	68	-	-	52	-
6:30 PM	-	62	-	-	63	-	-	52	-
6:45 PM	-	61	-	-	62	-	-	51	-
7:00 PM	-	68	-	-	67	-	-	54	-
7:15 PM	-	69	-	-	69	-	-	51	-
7:30 PM	-	62	-	-	77	-	-	51	-
7:45 PM	-	53	-	-	53	-	-	49	-



# 6. Major Event Noise Emissions

# 6.1 Noise Limits

Noise criteria were proposed in **Section 4.7**, and are copied as follows:

- Day/ Evening events (7am to 10pm): 70 dBA L<sub>Aeq,adj,T</sub> (EP Act Open-Air Event Limit)
- Night events (10pm to midnight): Lesser of 50dBA LAeq,adj,T or 10 dBA plus background level

The night (10pm to midnight) background noise levels are presented in **Table 5.2**, and the calculated noise limits are as per **Table 6.1**.

Measurement	Background Noise Leve	el L <sub>90</sub> dBA	Noise Limits L <sub>Aeq,adj,T</sub>				
Location	Day & Evening (7am to 10pm)	Early Night (10pm to Midnight)	Day & Evening (7am to 10pm)	Night (10pm to Midnight)			
E1	49	41	70	50			
NW	46	41	70	50			
SW	46	39	70	49			

#### Table 6.1 Noise Limits for Major Stadium Events

Note: Noise limits are not proposed at Location E2 due to screening from intervening buildings.

# 6.2 Model Description

Noise modelling was carried out using the SoundPLAN v8.2 computer program using the ISO 9613-2: 1996 algorithm, which is widely used and accepted for noise modelling. The noise model includes crowd and music noise sources across the proposed development. The SoundPLAN program was used to develop a three-dimensional digital terrain noise model of the Sunshine Coast Stadium and the surrounding area including the location of sensitive receptors.

The stadium construction is modelled as follows:

- West Grandstand acoustically solid rear wall to the grandstand which connects to the solid roof.
- East Stand no rear wall or roof has been included, as the design shows only fabric construction which offers limited acoustic performance
- North and South mounds no rear walls or roofs have been included.

## 6.3 Noise Source Data

The model uses the sound power level  $(L_w)$  of each noise source (patrons and music) to predict noise emissions. The sound power levels used in the model were based on noise source data obtained from ASK's library of information and publicly available noise data.



## 6.3.1 Patron Noise

Patron noise levels were extracted from a noise report<sup>1</sup> for the existing ANZ Stadium for a sport large sporting event and a summary of measured event sound pressure levels is presented in **Table 6.2**.

Event	Description		Measured In-crowd Sound Pressure Level at 1.5 m Height L <sub>zeq</sub> dBZ								
		63	125	250	500	1k	2k	4k	8k	dBA	
State of Origin Game 3, ANZ Stadium, 2019	Dominated by crowd noise, 15 minutes measurement during game. Measurements represent loudest 15 minute periods during game.	89	85	80	87	90	84	76	66	92	

 Table 6.2
 Sporting Event Noise Data

The model was setup to determine a sound power level (per square meter) that would result in achieving the noise levels provided in **Table 6.2**. The noise source was applied as area sources within SoundPLAN. The calculated sound power levels are provided in **Table 6.3** for (i) per square meter; (ii) existing Women's State of Origin game (3700 people); and (iii) overall future capacity crowd (16000 people).

Source	Description	Sound Power Levels L <sub>w,eq</sub> dBZ								
		63	125	250	500	1k	2k	4k	8k	dBA
Per m <sup>2</sup> (note: 2.35 people per m <sup>2</sup> )		85	81	76	83	86	80	72	62	88.5
Patron/ Crowd	For Existing Women's State of Origin Crowd (3700 people)	118	114	109	116	119	113	105	95	121
	For Overall Future Capacity Crowd (16000 people)	124	120	115	122	125	119	111	101	127

## 6.3.2 Concert Noise

The concert source noise data was based on that used for assessment of potential concert events at another stadium in Queensland, i.e. a limit of 107 dBC  $L_{eq}$  at the sound mixing area, approximately 30 m from the stage. It is noted that another stadium includes a higher limit of 107 dBC  $L_{eq}$  at 50 m, and other limits are also likely to be in existence.

The concert noise source has been modelled as two point sources with typical mid-size speaker directionality data and is therefore a simplification of the sound sources that would actually be used at a concert. The sound power levels are included in **Table 6.4**.

<sup>&</sup>lt;sup>1</sup> Mathew Simon – (ARUP Group) 2019, SSDA - Stadium Australia Redevelopment - *Noise and Vibration Assessment*, AC01-v3.



Source	Description	Sound Power Levels L <sub>w,eq</sub> dBZ						Overall		
		63	125	250	500	1k	2k	4k	8k	dBA
	Left speaker	141	145	137	135	133	132	127	121	139
Concert	Right Speaker	141	145	137	135	133	132	127	121	139
	Both Speakers	144	148	140	138	136	135	130	124	142

#### Table 6.4 Concert Noise Sound Power Levels

The model has been setup with the speakers at the southern end of the field, pointing in a northerly direction. We understand this was the source location and orientation for the recent Elton John concert event.

The directionality data for the speakers may not be the same as the directionality data for the array speakers proposed for a concert event. Further refinement of this aspect of the modelling could occur during detailed design as potential concert sound systems are considered.

## 6.3.3 Other Noise Sources

It is noted that other noise sources, including vehicle movements, associated with the stadium have not been modelled due to the lower impact compared to major events. Noise from fireworks has also not been modelled. Noise limits for lower noise activities and equipment are included in **Section 7**.

# 6.4 Model Verification with Women's State of Origin Event Noise Data

In order to verify the model, the existing stadium (i.e. small western grandstand and other grassed embankments) was modelled with patron numbers from the Women's State of Origin event. It is considered that the noise levels were dominated by crowd noise and therefore music noise was not modelled. The patron noise sound power level for this scenario was presented in **Table 6.3**.

**A** summary of the predicted noise levels is included in **Table 6.5** for the three monitoring locations. Predicted noise contours for the SOO Event are graphically shown in **Appendix E**.

Monitoring Location	Noise Levels (L <sub>eq</sub> dBA) During Women's State of Origin Event		Comparison of Predicted with Measured Noise Levels
	Predicted	Measured	
E1	58	61 to 63	Measured noise levels were highly affected by local activities such as traffic.
NW	56	54 to 56	Measured noise levels varies from 54 to 56 $L_{eq}$ dBA during event time and in a good agreement with predicted noise level.
SW	55	54 to 57	Measured noise levels varies from 54 to 57 $L_{eq}$ dBA during event time and in a good agreement with predicted noise level.

## Table 6.5 Predicted Noise Levels at Monitoring Locations

It can be seen that the predicted noise levels at location NW and SW are in good agreement with the measured noise levels and therefore the modelling methodology can be acceptable.



# 6.5 Modelling Scenarios

The following event scenarios have been modelled to capture the expected loudest 15 minute event of full capacity sporting and concert events which may be expected in future stadium.

- Sporting Event Crowd noise for overall future capacity crowd (refer **Table 6.3**) modelled as area noise sources covering tiered seating.
- Concert Event Directional point sources are modelled representing two concert speakers at the southern end of the field and facing north.

# 6.6 Predicted Noise Levels & Assessment

Noise levels have been calculated for receptors at three heights:

- Ground Floor (relevant to residential buildings to east and west of the stadium)
- 4<sup>th</sup> Floor (relevant to multistorey residential buildings west of the stadium)
- 8<sup>th</sup> Floor (relevant to multistorey residential buildings west of the stadium).

The predicted noise contours for the sporting and concert events are presented in **Appendix F** and **Appendix G**, respectively. The predicted noise contours in **Appendix F** and **Appendix G**, as follows:

- Appendix F: Sporting Event
  - Figure F.1 Sporting Event Noise Contours at Ground Floor.
  - Figure F.2 Sporting Event Noise Contours at 4<sup>th</sup> Floor.
  - **Figure F.3** Sporting Event Noise Contours at 8<sup>th</sup> Floor.
- Appendix G: Concert Event
  - **Figure G.1** Concert Event Noise Contours at Ground Floor.
  - Figure G.2 Concert Event Noise Contours at 4<sup>th</sup> Floor.
  - **Figure G.3** Concert Event Noise Contours at 8<sup>th</sup> Floor.

The results at sensitive receptors are to be compared against the proposed noise limits of 70 dBA  $L_{eq}$  for day/evening and 49/50 dBA  $L_{eq}$  for night as per **Table 6.1**.

## 6.7 Discussion

## 6.7.1 Sporting Event Noise

It can be seen by the predicted noise contour plots shown in **Appendix F** that shielding is provided by the western and eastern stands, which results in greater noise spillage to the north industrial/commercial area and to the south towards the College.

The predicted noise levels for sporting events dominated by crowd noise do not exceed the 70 dBA criterion at any of the nominated nearest noise sensitive receivers. The results are summarised as follows:

- Noise levels at residences to the west of the Lake: 55 to 62 dBA
- Noise levels at residences to the east of Nicklin Way: 50 to 58 dBA

The proposed 49/50 dBA criterion for 10pm to midnight may be exceeded at the sensitive receivers to east, west and south, and therefore major sporting events should be completed by 10pm.

## 6.7.2 Concert Noise

Predicted noise level contour plots are shown in **Appendix G** with the speakers facing north.



The predicted noise levels for concert events dominated by music noise do not exceed the 70 dBA criterion at any of the nominated nearest noise sensitive receivers. The results are summarised as follows:

- Noise levels at residences to the west of the Lake: 57 to 69 dBA
- Noise levels at residences to the east of Nicklin Way: 55 to 67 dBA

The proposed 49/50 dBA criterion for 10pm to midnight may be exceeded at the sensitive receivers to east, west and south, and therefore major concert events should be completed by 10pm.

## 6.7.3 Noise Impact onto Fauna

Noise impacts onto wildlife are also to be considered, with the nearest areas of interest being:

- Kawana Bushland Reserve
- Kawana Island Bushland Reserve
- Mooloolah River National Park

The bushland areas are some distance (over 500 metres) from the stadium and are subjected to noise levels from other sources (e.g. Kawana Way road traffic, local industries).

Noise modelling has indicated that noise emissions from the proposed stadium are similar to noise emissions from the existing stadium, particularly when considering noise impacts at ground level. This can be seen by comparing the existing noise level contours in **Figure E.1** in **Appendix E** with the predicted future ground floor noise levels contours in **Figure F.1** and **Figure G.1** in **Appendices F** and **G** respectively.

Overall, on the basis of the above review, significant noise impacts onto fauna are not expected from the project.



# 7. Noise Limits for Non-Major Events/Activities and Mechanical Plant

Noise criteria were proposed in Section 4.7, and are copied as follows:

- Day (7am to 6pm)  $L_{Aeq} \leq Background L_{A90} + 5 dBA$
- Evening (6pm to 10pm)  $L_{Aeq} \leq Background L_{A90} + 5 dBA$
- Night (10pm to 7am)  $L_{Aeq} \leq Background L_{A90} + 3 dBA$

The background noise levels are presented in **Table 5.2**, and the calculated noise limits are as per **Table 7.1**.

 Table 7.1
 Noise Limits for Non-Major Events/Activities and Mechanical Plant

Period	Backgro	ound Noi	se Level L <sub>90</sub>	dBA	Noise Limits (Inclusive of Background Noise) $L_{Aeq,adj,T}$				
	E1	E2*	NW	sw	E1	E2*	NW	sw	
Day (7am to 6pm)	49	43	46	46	54	48	51	51	
Evening (6pm to 10pm)	44	39	42	40	49	44	47	45	
Night (10pm to 7am)	38	34	40	35	41	37	43	38	
Early Night (10pm to Midnight)	41	36	41	39	44	39	44	42	

Note: \* The background noise levels at E2 are estimated, based on the attended measurements and noise logging data.



# 8. Conclusions and Recommendations

A noise assessment has been conducted for the proposed Sunshine Coast Stadium Redevelopment at 31 Sportsmans Parade, Bokarina, Sunshine Coast. The results and recommendations of the assessment are as follows:

- Noise limits have been proposed for (i) major events; and (ii) non-major events/activities and mechanical plant.
- Proposed noise criteria are presented and discussed in Section 4.7, with corresponding noise limits for major events summarised in Section 6.1. The noise limits apply to a reduction of noise limits at 10pm, but the discussion in Section 4.7 notes that a later time of 10:30pm is often used at stadia in Brisbane. A time limit is not proposed within this report.
- The predicted noise levels for sporting events are based on noise levels measured interstate at a male State of Origin football game. The noise levels are dominated by crowd noise and are predicted to be up to 60 dBA at residential areas. The predicted noise levels do not exceed the 70 dBA day/evening criterion at any of the nominated nearest noise sensitive receivers.
- The predicted noise levels for concert events are based on noise limits imposed for concerts at other venues. The noise levels are dominated by music noise and are predicted to be up to 69 dBA at residential areas. The predicted noise levels do not exceed the 70 dBA day/evening criterion at any of the nominated nearest noise sensitive receivers.
- Based on the predicted noise levels the proposed 49/50 dBA criterion for 10pm to midnight would be exceeded at the sensitive receivers to east, west and south, and therefore major sporting and concert events should be completed by 10pm.
- Noise impacts onto fauna has been addressed in **Section 6.7.3**. Overall, on the basis of the review, significant noise impacts onto fauna are not expected from the project.
- Proposed noise limits for the non-major events/activities and mechanical plant are summarised in **Section 7**.
- It is recommended that a general stadium noise management plan be developed, and that specific noise management plans are provided for major events.



# Appendix A Glossary

Parameter or Term	Description
dB	The decibel (dB) is the unit measure of sound. Most noises occur in a range of 20 dB (quiet rural area at night) to 120 dB (nightclub dance floor or concert).
dBA	Noise levels are most commonly expressed in terms of the 'A' weighted decibel scale, dBA. This scale closely approximates the response of the human ear, thus providing a measure of the subjective loudness of noise and enabling the intensity of noises with different frequency characteristics (e.g. pitch and tone) to be compared.
Day	The period between 7am and 6pm.
Evening	The period between 6pm and 10pm.
Night	The period between 10pm and 7am.
Free-field	The description of a noise receiver or source location which is away from any significantly reflective objects (e.g. buildings, walls).
L <sub>1</sub>	The noise level exceeded for 1% of the measurement period.
L <sub>10</sub>	The noise level exceeded for 10% of the measurement period. It is sometimes referred to as the average maximum noise level.
L <sub>90</sub>	The noise level exceeded for 90% of the measurement period. This is commonly referred to as the background noise level.
L <sub>eq</sub>	The equivalent continuous sound level, which is the constant sound level over a given time period, which is equivalent in total sound energy to the time-varying sound level, measured over the same time period.
L <sub>eq</sub> ,1hour	As for $L_{eq}$ except the measurement intervals are defined as 1 hour duration.
L <sub>max</sub>	Maximum A-weighted sound pressure level.
L <sub>eq</sub> (24 hour)	The average $L_{eq}$ noise level over the 24-hour period from midnight to midnight.
L <sub>10</sub> (18 hour)	The arithmetic average of the one-hour $L_{10}$ values between 6am and midnight. This parameter is used in the assessment of road traffic noise.



# Appendix B Project Drawings



# Appendix C Noise Logging Results - Graphs



Figure C.1 Graph of Noise Logging Results at Location E1





Figure C.2 Graph of Noise Logging Results at Location NW



Figure C.3 Graph of Noise Logging Results at Location SW




Figure C.4 Graph of Noise Logging Results at Location E1 (24 hours X-Axis)



Figure C.5 Graph of Noise Logging Results at Location NW (24 hours X-Axis)





Figure C.6 Graph of Noise Logging Results at Location SW (24 hours X-Axis)



## Appendix D Noise Logging Results - Tables

#### Table D.1 Statistical Noise Levels at Location E1

Parameter	Noise Levels dBA [Maximum-Top 10%-(Average)-Bottom 10%-Minimum] Day Evening Night				
L <sub>max</sub>	96, 86, (80), 75, 73	109, 86, (78), 73, 70	88, 80, (74), 69, 66		
L <sub>1</sub>	85, 73, (72), 71, 70	76, 72, (70), 68, 66	75, 71, (67), 63, 59		
L <sub>10</sub>	70, 69, (68), 67, 65	68, 67, (65), 63, 60	70, 67, (59), 51, 43		
L <sub>eq</sub>	72, 66, (64), 63, 61	71, 64, (61), 59, 56	66, 63, (56), 50, 46		
L <sub>90</sub>	61, 55, (52), 47, 42	54, 52, (47), 42, 42	52, 46, (41), 38, 35		

#### Table D.2 Statistical Noise Levels at Location NW

Parameter	Noise Levels dBA [Maximum-Top 10%-(Average)-Bottom 10%-Minimum]					
	Day Evening Night					
L <sub>max</sub>	90, 74, (69), 64, 59	81, 69, (63), 56, 52	78, 70, (59), 48, 39			
L <sub>1</sub>	79, 65, (60), 57, 51	67, 59, (55), 51, 48	71, 63, (51), 44, 39			
L <sub>10</sub>	69, 57, (54), 51, 47	56, 53, (49), 45, 43	63, 54, (47), 41, 39			
L <sub>eq</sub>	67, 55, (52), 49, 45	56, 51, (47), 44, 42	59, 53, (45), 40, 39			
L <sub>90</sub>	54, 50, (47), 44, 40	50, 47, (44), 41, 40	51, 46, (42), 39, 38			

#### Table D.3 Statistical Noise Levels at Location SW

Parameter	Noise Levels dBA [Maximum-Top 10%-(Average)-Bottom 10%-Minimum]				
	Day Evening Night				
L <sub>max</sub>	103, 80, (72), 64, 55	88, 71, (63), 54, 50	85, 76, (62), 48, 43		
L <sub>1</sub>	85, 68, (61), 56, 50	70, 61, (55), 48, 45	71, 66, (53), 42, 38		
L <sub>10</sub>	67, 57, (54), 51, 45	59, 55, (49), 44, 42	66, 54, (46), 39, 36		
L <sub>eq</sub>	73, 57, (53), 50, 42	57, 53, (48), 42, 41	61, 54, (46), 39, 35		
L <sub>90</sub>	52, 49, (47), 44, 36	50, 49, (44), 40, 38	49, 45, (40), 36, 33		



## Appendix E Noise Contours – Women's State of Origin Event





## Appendix F Noise Contours – Sporting Events



Z:\Large project files\207401\0125 - SCRC Stadium\0125 - SCRC Stadium\Figure E.1.sgs



Z:\Large project files\207401\0125 - SCRC Stadium\0125 - SCRC Stadium\Figure E.2.sgs



Sunshine Coast Stadium Redevelopment Project Number: 207401.0125





## Appendix G Noise Contours – Concert Events



Z:\Large project files\207401\0125 - SCRC Stadium\0125 - SCRC Stadium\Figure F.1.sgs



Z:\Large project files\207401\0125 - SCRC Stadium\0125 - SCRC Stadium\Figure F.2.sgs



Z:\Large project files\207401\0125 - SCRC Stadium\0125 - SCRC Stadium\Figure F.3.sgs

Appendix 3 Traffic Impact Assessment and Management Plan prepared by Bitzios Consulting





# Sunshine Coast Stadium Proposed Development

**Traffic Impact Assessment** 

**Sunshine Coast Council** 

11<sup>th</sup> December 2020

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# **1.** INTRODUCTION

### 1.1 Overview

Bitzios Consulting has been engaged to prepare a traffic impact assessment (TIA) report in relation to a proposed upgrade of the Sunshine Coast Stadium, which is located at 31 Sportsmans Parade, Bokarina (subject site). The subject site is formally described as Lot 2 on SP1639387 and is located within Sunshine Coast Council (Council) local government area (LGA).

The subject site location is indicatively illustrated on Figure 1.1.



Source: Google Maps

#### Figure 1.1: Subject Site Location

As part of the development, the existing western grandstand will be expanded, and a new eastern grandstand constructed. The stands will replace existing informal (grassed mounds and temporary grandstands) viewing areas and will include approximately 10,855 additional fixed seats. Once complete, the stadium will have approximately 11,905 fixed seats. The total capacity of the stadium (excluding potential on-field viewing areas) will be approximately 16,600.

Refer to Section 2.2 for further details.

A copy of the development plans is included at **Appendix A**.

## 1.2 Background

In 2017, KPMG was engaged by Council to investigate the feasibility of developing a national standard stadium on the Sunshine Coast. Improving the existing Sunshine Coast Stadium in Bokarina was endorsed by Council as the preferred option for the following key reasons:

- The location is aligned with current zoning and planned uses
- The site is within the high-growth section of the Sunshine Coast, and is close to 'population hubs'
- The site is well connected to existing road and bus infrastructure, and strategically located to capitalise on mass transit planned for the Sunshine Coast
- The site is highly visibility to passing traffic and has an appealing waterfront position.

It was identified that there is a demand to host additional events on the Sunshine Coast, including high-level sporting events (NRL, A-League, Super Rugby), music concerts, and entertainment events.



## 1.3 Pre-lodgement Advice

Pre-lodgement advice was sought from the Department of Transport and Main Roads (TMR).

Key advice provided by TMR during the pre-lodgement engagement is summarised below:

- It is anticipated that wider network modelling will be required to assess the performance of the network considering current and future <u>day-to-day</u> site operations
- As the site is already operating, the assessment criteria will have to be based on an acceptable Degree of Saturation (DOS) or Level of Service (LOS) rather than a "non-worsening" criteria
- It is recommended that the proponent utilises event management plans to mitigate safety and efficient impacts during events.

A copy of TMR's pre-lodgement advice is included at **Appendix B**.

Pre-lodgement advice was also sought from the Council.

Key advice provided by Council during the pre-lodgement engagement is summarised below:

- In relation to potential external traffic impacts, Council is primarily concerned with the operation of the Sportsmans Parade / Main Drive intersection
- The potential impacts associated with patrons parking in surrounding areas should be considered
- The frequency and scope of potential issues should be considered
- In the most part, addressing the matters raised by TMR in their pre-lodgement minutes will be sufficient for Council to complete their assessment.

### 1.4 Scope of Work

The following key tasks have been completed as part of preparing this TIA:

- Reviewed existing road, active, and public transport networks surrounding the subject site
- Reviewed planned transport network upgrades close to the subject site
- Undertook an inspection of the subject site and the surrounding transport networks during a recent event (Women's State of Origin, 13<sup>th</sup> November 2020)
- Undertook an inspection of the subject site and the surrounding transport networks during a period of time when there was no event being held (Thursday 3<sup>rd</sup> December 2020)
- Reviewed proposed changes to subject site traffic and transport arrangements against Council's "Traffic and Parking Code" (TAP Code), "Transport and Parking Planning Scheme Policy" (TAP Policy), relevant Australian Standards (AS2890) and other relevant industry guidelines
- Reviewed the formal and informal car parking areas against Council's TAP Code and AS2890
- Estimated trip generation, trip distribution, mode share and parking demands generated by the development based on potential 'small', 'medium' and 'large' events
- Forecast future design traffic volumes on the surrounding road network during a 'small' event
- Undertook traffic analysis (SIDRA) at several intersections surrounding the subject site, generally in accordance with TMR's "Guide to Traffic Impact Assessment" (GTIA) and pre-lodgement advice
- Determined 'trigger points' for when event traffic management planning will likely be required.



# 2. SITE OVERVIEW

## 2.1 Existing Development

The existing Sunshine Coast Stadium forms part of the 'Kawana Sports Precinct' which is managed by Council. Figure 2.1 illustrates key features of the Kawana Sports Precinct.



Source: Sunshine Coast Stadium

#### Figure 2.1: Kawana Sports Precinct

The existing stadium has accommodated up to approximately 17,500 patrons in the past, with patrons sitting and standing on-field. More typically however, the stadium caters for up to approximately 16,500 patrons. The western grandstand has approximately 1,050 fixed seats, whilst a further 2,000 temporary seats can be located adjacent to the grandstand. Remaining patrons view the field from grassed mounds located on the northern, eastern, and southern sides.

The stadium hosts an array of international, national, state, and local sporting games. It is also home to Sunshine Coast Falcons (Rugby League) and Sunshine Coast Fire (Football).

The stadium also hosts various other events which in the past has included Colour Run, music concerts (Cold Chisel and Elton John among others), the ROC Race (Ridiculous Obstacle Challenge), Nitro Circus and monster trucks.

In 2020, multiple regular season NRL matches were held at the stadium.



## 2.2 Proposed Development

Key development details are summarised below:

- Western Grandstand (existing): to be expanded from 1,050 to approximately 3,600 fixed seats
- Eastern Grandstand (new): to be constructed with approximately 8,305 fixed seats
- Total Fixed Seat Capacity: approximately 11,905 fixed seats in total
- Other Improvements:
  - Improved athlete facilities including cold and warm water recovery baths
  - Two (2) additional change rooms
  - Multi-purpose and community spaces for use on non-event days.
- **Timing:** It is expected that the development will be completed by 2023.

Importantly, the key aim of the proposed development is not to increase the capacity of the stadium but rather increase the number of fixed / formal seats that are available for patrons.

It is also worth noting that the currently proposed development is part of a longer-term plan which would ultimately see the venue accommodating approximately 20,000 to 25,000 seats.

Figure 2.2 provides an overview of the type and number of larger events held in the past at the Stadium as well as those expected to be held in the future

		NATIONAL COMPETITIONS		ENTERTAINMENT EVENTS
2016	1	1 x NRL trial game	1	1 x Nitro Circus
2020	3	2 X NRL regular season games 1 X Women's NRL State of Origin	4	2 x Elton John concerts 1 x Nitro Circus 1 x Under the Southern Stars
PROJECTED	6	3 x NRL games 3 X A-League / Super Rugby games	7	4 x concerts 2 x entertainment events 1 x large scale community event

Source: Sunshine Coast Stadium

#### Figure 2.2: Past and Projected Future Type and Number of Larger Sized Events

As indicated above, it is hoped that the stadium upgrade will increase the number of larger events from around seven (7) events per year to around 13 events per year. Whilst compared to the current number of events, the proposed increase maybe considered significant, it is important to note that events will continue to be held infrequently (i.e. approximately one (1) event per month on average).

Figure 2.3 provides a schematic overview of the currently proposed stadium development.





Source: Aspect Architecture

Figure 2.3: Proposed Stadium Development



# 3. ROAD NETWORK

## 3.1 Existing Road Network

Figure 3.1 illustrates the locations of the key roads and intersections surrounding the subject site.



#### Source: Google Maps

#### Figure 3.1: Road Network

Table 3.1 provides a summary of the key roads close to the subject site.

#### Table 3.1:Key Roads

Road	Jurisdiction	Hierarchy	<b>Cross Section</b>	Posted Speed
Nicklin Way	TMR	Arterial	4 lane divided	60km/h
Kawana Way	TMR	Arterial	4 lane divided	60km/h
Kawana Island Boulevard	Council	Distributor	4 lane divided	60km/h
Lake Kawana Boulevard	Council	Arterial	4 lane divided	60km/h
Metier Linkway / Main Drive	Council	Controlled Distributor	2 lane undivided	50km/h
Sportsmans Parade / Meridian Street	Council	Neighbourhood Collector	2 lane undivided	40-60km/h

Table 3.2 provides a summary of the key intersections close to the subject site.

#### Table 3.2: Key Intersections

ID	Intersection	Jurisdiction	Control
1	Nicklin Way / Palkana Drive	TMR	Traffic Signals
2	Nicklin Way / Main Drive	TMR	Traffic Signals
3	Nicklin Way / Site Access	TMR	Priority
4	Nicklin Way / Meridan Street	TMR	Traffic Signals
5	Nicklin Drive / Lake Kawana Boulevard	TMR	Traffic Signals
6	Kawana Way / Metier Linkway	TMR	Roundabout
7	Main Drive / Sportsmans Parade	Council	Traffic Signals



## 3.2 Planned Road Network Upgrades

Figure 3.2 illustrates the planned Council road network upgrades close to the subject site.



Figure 3.2: Council Road Network Upgrades

As illustrated above, there are no planned upgrades to Council road infrastructure outlined within Council's Local Government Infrastructure Plan (LGIP) proximate to the subject site. Further detail relating to additional planned road network upgrades is provided in Section 6.



# 4. EVENT TRAFFIC & PARKING DEMANDS

## 4.1 Overview

The following event types have been reviewed as part of this traffic assessment:

- Small Event: 3,000 patrons
- **Medium Event**: 10,000 patrons (Full Event Management Plan Required)
- Large Event: 17,500 patrons (Full Event Management Plan Required).

It is important to note that a 'Large Event' attendance of 17,500 patrons may not be the greatest number of patrons that will attend events at the stadium. This indicative figure has only been identified to allow potential traffic and parking demands to be estimated and reviewed.

In any case, it is worth noting that events attended by 17,500 patrons and those attended by more than 17,500 patrons are likely to generate a similar numbers of car trips and car parking demands. The reason being that as the size of events increase, greater event management measures will be put in place (e.g. more bus shuttles will be scheduled and stadium management will further encourage patrons to use these shuttles or active travel modes etc.).

## 4.2 Key Traffic Assumptions

#### 4.2.1 Overview

Council has provided the following event data / information:

#### **Attendance Radius**

- 22% of patrons for a NRL trial fixture were from "outside" the Sunshine Coast LGA
- 78% of patrons for a NRL trial fixture were from "inside" the Sunshine Coast LGA.

#### **Public Transport**

- Current public transport usage could be as low as 5%
- 40-50% public transport usage for medium and large scale events is targeted. Patrons would use regular buses, event buses / park 'n' ride shuttles, and potentially light rail in the longer term.

#### **Private Transport**

- Currently 50% of patrons park on-site or surrounding the site
- Around 40-50% are dropped off / picked up by private vehicles, taxis, ride sharing services etc.

#### **Arrival Distribution (time)**

- Without pre-events (e.g. curtain raisers) there is currently no reason for patrons to arrive early
- The arrival distribution for a major event is from around 1-2hrs before kick-off.

#### **Impacts of Multiple Events**

 In all but rare cases, only one major event (excluding day-to-day training, small sports games etc.) is held at the Kawana Sports Precinct at any one time.

In addition to the above points, there are limited uses surrounding the stadium which generate the scale of traffic demands likely to significantly impact stadium access as discussed herein.

The area to the north of the stadium is primarily occupied by education (e.g. schools and child care centres) and community facilities. During the week these uses are typically busiest between 8am and 5pm. Whilst some may operate on the weekend, most are likely to be closed.



The area to the north of the stadium is primarily occupied by industrial / warehouse uses. During the week these uses are typically busiest between 7am and 4pm. On the weekend most are closed, however some operate on Saturday morning (e.g. between 8am and 12noon).

Noting the above, the surrounding areas are likely to generate low to very low traffic demands during the times most bigger events will be held at the stadium (i.e. on weekday evenings or on the weekend).

#### 4.2.2 Mode Share

Table 4.1 provides a summary of the adopted mode share for each event type.

The adopted mode share has largely been derived from the above information. We have also drawn on our previous experience with large scale sporting events / venues, including the Queensland Sports and Athletics Centre (QSAC) and the Queensland State Netball Centre (QSNC), and the Carrara Sports and Leisure Precinct (Metricon Stadium).

Mode	Small Event	Medium Event	Large Event	Notes
Car (Parking)	70%	55%	35%	As size of event increases, a higher proportion of patrons will need to rely on alternative transport.
Car (Drop-off)	20%	20%	20%	As per QSAC & QSNC.
Public Transport	5%	20%	40%	As size of event increases, a higher proportion of patrons will need to rely on alternative transport.
Active Transport	5%	5%	5%	As per QSAC & QSNC.
Total	100%	100%	100%	-

 Table 4.1:
 Mode Share Assumptions

#### 4.2.3 Vehicle Occupancy

Table 4.2 provides a summary of the adopted vehicle occupancy rates.

As noted previously, the adopted rates have largely been derived from our previous experience with large scale sporting events / venues, including the QSAC and QSNC.

#### Table 4.2: Vehicle Occupancy

Mode	Occupancy	Notes
Car (Parking)	2.8 persons / vehicle	As per QSAC & QSNC.
Car (Drop-off)	1.8 persons / vehicle	As per QSAC & QSNC.
Public Transport	45 persons / vehicle	Typical bus capacity.
Active Transport	1 person	n/a

#### 4.2.4 Arrival / Departure Profiles

Table 4.3 provides a summary of the adopted arrival / departure profiles for each event type.

As noted previously, the adopted rates have largely been derived from our previous experience with large scale sporting events / venues, including the QSAC and QSNC.



#### Table 4.3: Arrival / Departure Profiles

Time	Profile	Notes
Arrive > 60mins prior to start time	20%	Staff, athletes, some patrons.
Arrive 0 to 60mins prior to start time	80%	Majority of patrons.
Depart 0 to 60mins after finish time	90%	Majority of patrons.
Depart > 60mins after finish time	10%	Staff, athletes, some patrons.

#### 4.2.5 Traffic Distribution Patterns

The following assumptions have been utilised to derive traffic distribution patterns:

- Internal Traffic (from the Sunshine Coast): 78% (as per event data, with distribution based on 2016 population patterns as well as engineering judgement in relation to the quickest route to site)
- External Traffic (from areas surrounding the Sunshine Coast): 22% (as per event data, with an assumed 25% (north) / 75% (south) split as well as engineering judgement in relation to the quickest route to site).

Figure 4.1 and Table 4.4 provides a summary of the adopted traffic distribution patterns.



### Figure 4.1: Population Distribution Zones

#### Table 4.4: Traffic Distribution Estimates

Route	Figure Colour ID	Internal		External		Total
		100%	78%	100%	22%	Total
Nicklin Way (south)	Red	19.9%	15.5%	-	-	15.5%
Kawana Way (south)	Yellow	19.9%	15.5%	75.0%	16.5%	32.0%
Kawana Way (north)	Black	33.7%	26.3%	25.0%	5.5%	31.8%
Nicklin Way (north)	Green	26.5%	20.7%	-	-	20.7%
Total	-	100%	78%	100%	22%	100%



### 4.2.6 Car Parking

The following key points are noted in relation to car parking provisions:

- In proximity to the stadium, the Kawana Sports Precinct has approximately 380 car parking spaces (this excludes the parking provided for the Aquatic Centre)
- There is sufficient space for approximately 1,400 cars to informally park on five (5) of the seven
   (7) Kawana Sports Precinct playing fields surrounding the stadium
- If required, parking can also be provided at the West Kawana Sports Precinct which is located west of Lake Kawana, off Main Drive / Milieu Place. In these instances, shuttle buses are run to / from the stadium. There is sufficient space for approximately 1,000 cars to park at this location (~170 in the formal car park and ~870 informally on three (3) of the four (4) playing fields)
- There are approximately 200 on-street car parking spaces provided along Sportsmans Parade.
   On-street parking is also permitted on other streets surrounding the subject site
- Noting the above, at least 2,780 cars can be parked on land controlled by the Stadium if needed
- Assuming no informal (on-field) parking is permitted, drivers could park in one of the approximately 580 car parking spaces that are located on site and immediately surrounding the site (i.e. along Sportsmans Parade).

Figure 4.2 illustrates the 'Precinct Parking Plan' on-field parking layout which was utilised during the Sir Elton John Yellow Brick Road Tour in 2020. It is anticipated that this form of parking planning will be adopted in similarly sized events at the stadium.



Source: Stadium Transport and Parking Operational Plan – Sir Elton John Figure 4.2: On Field Car Parking Precinct Plan



## 4.3 Peak Traffic and Parking Estimates

Table 4.5 provides a summary of the estimated peak traffic and parking demands for each event based on the adopted assumptions.

Arrival /	Parl	Parking		Drop Offs		Public Transport (Bus)		Peak
Departure	In	Out	In	Out	In	Out		Parking
			Small Even	t – 3,000 Pa	trons			
> 60mins before Event	150	-	67	67	1	1	286	
< 60mins before Event	600	-	267	267	3	3	1,140	
< 60mins after Event	-	675	300	300	3	3	1,281	750
> 60mins after Event	-	75	33	33	1	1	143	
Total	750	750	668	668	8	8	2,850	
		Μ	ledium Ever	nt – 10,000 P	atrons			
> 60mins before Event	393	-	222	222	9	9	855	
< 60mins before Event	1,571	-	889	889	36	36	3,420	
< 60mins after Event	-	1,768	1,000	1,000	40	40	3,848	1,964
> 60mins after Event	-	196	111	111	4	4	428	
Total	1,964	1,964	2,222	2,222	89	89	8,550	
Large Event – 17,500 Patrons								
> 60mins before Event	438	-	389	389	31	31	1,278	
< 60mins before Event	1,750	-	1,556	1,556	124	124	5,110	
< 60mins after Event	-	1,969	1,750	1,750	140	140	5,749	2,188
> 60mins after Event	-	219	194	194	16	16	639	
Total	2,188	2,188	3,890	3,890	311	311	12,778	

 Table 4.5:
 Peak Traffic and Parking Estimates

The above estimates roughly equate to approximately:

- **Small Event**: 0.95 event trips per patron and one (1) parked vehicle per 4 patrons
- Medium Event: 0.86 event trips per patron and one (1) parked vehicle per 5.09 patrons
- Large Event: 0.73 event trips per patron and one (1) parked vehicle per 8.00 patrons.

The above estimates are based on achieving an increase in public transport mode share as the event size at the stadium increases. This is an important outcome which is expected to result from the implementation of various levels of traffic management.



# 5. TRAFFIC ASSESSMENT

## 5.1 Traffic Survey Data

Traffic survey data was obtained at the following intersections on Thursday 1<sup>st</sup> June 2017 to establish background traffic demands:

- Intersection 1: Nicklin Way / Palkana Drive
- Intersection 2: Nicklin Way / Main Drive
- Intersection 3: Nicklin Way / Site Access
- Intersection 4: Nicklin Way / Meridan Street
- Intersection 5: Nicklin Drive / Lake Kawana Boulevard
- Intersection 6: Kawana Way / Metier Linkway
- Intersection 7: Main Drive / Sportsmans Parade.

A copy of the traffic survey data is provided at **Appendix C**.

## 5.2 Background Traffic Growth

### 5.2.1 General Traffic Growth

Future background traffic growth has been estimated based on a review of Sunshine Coast LGA population projections. More specifically, Queensland Government population projections: Regions, 2016 to 2041, medium series data was reviewed.

Population growth was used to inform traffic growth as they are typically comparable.

Population growth is considered particularly appropriate in this case given most of the roads that have been assessed are high-order / strategic type roads. As such, they already carry relatively high traffic volumes, local increases in traffic have less influence on traffic growth. The roads are also more likely to carry non-local traffic and therefore growth is more likely to be consistent with the broader region.

Table 5.1 provides a summary of projected growth. Data was available in five (5) year increments starting in 2016. Accordingly, the data was interpolated to estimate the population in the years relevant to our assessment (i.e. 2017 – the year the surveys were completed and 2023 – the development's adopted year of opening).

#### Table 5.1:Population Projections (2016 - 2026)

Year	Projected Population
2016	303,389
2017	312,996
2021	351,424
2023	368,791
2026	394,842
Growth (2017 to 2023)	2.97% p.a.

Based on the above, we have adopted a background traffic growth rate of 3% per annum (linear).

#### 5.2.2 Nearby Development Growth

In addition to general background traffic growth, traffic expected to be generated by the Stockland Bokarina Beach development (Bokarina Beach) at Bokarina has been included.





The location of Bokarina Beach relative to the subject site is illustrated in Figure 5.1.

Source: Google Maps

#### Figure 5.1: Bokarina Beach

Development traffic volumes were sourced from the Kawana Town Centre Traffic Modelling Report, PWC, April 2017 (PWC Report). The PWC Report documented a 2031 scenario which does not align with the 2023 year assessed herein. A review of recent Nearmap aerial imagery suggests that the development is approximately 40 to 50% complete. Based on this, we assumed that 75% of Bokarina Beach would be completed by 2023 and traffic volumes adjusted accordingly.

Bokarina Beach specific traffic volumes were not identified in the PWC Report. As such, it was assumed that all traffic turning into and out of Beach Drive and Bokarina Boulevard was due to Bokarina Beach. However, traffic volumes at Beach Drive would have included that generated by other development located to the north. Noting this and the 3% p.a. general background growth rate adopted, we believe our assessment is appropriately conservative.

### 5.3 Assessed Event

The following design scenario has been assessed to determine potential development related impacts on the surrounding road network during a 'typical event':

• **Small Event (3,000 patrons):** starting at 7pm of a Thursday evening.

This event is considered most appropriate noting the following:

- It is highly unlikely that a typical event would start prior to that time outside of weekends
- Road network peaks are typically lower on weekends than weekdays, particularly when compared to weekday evenings.

It is proposed that any event exceeding 3,000 patrons is to be subject to an Event Management Plan (EMP) which will aim to mitigate the safety and efficiency impacts on the surrounding transport network. Further discussion regarding EMP procedures is included in Section 7.

As noted previously, the proposed development is expected to be completed by 2023. Accordingly, design traffic volumes have been derived for the following scenarios:

- 2017 Survey: Survey Data 6pm to 7pm peak hour
- **2023 Background**: Survey data factored by 3% p.a. (including new surrounding developments)
- **2023 With Development**: 2023 Background + Development Generated Traffic (3,000 Patrons).

A copy of the design traffic volumes is included at **Appendix D**.



## 5.4 Intersection 1 – Nicklin Way / Palkana Drive

Figure 5.2 illustrates the assessed Intersection 1 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA

#### Figure 5.2: Assessed Configuration – Intersection 1

Table 5.2 summarises the SIDRA results with detailed outputs included at **Appendix E**.

#### Table 5.2: SIDRA Results – Intersection 1

Scenario	Degree of Saturation	Average Delay Level of Serv		95 <sup>th</sup> Percentile Queue Length
2017 Survey	0.65	28.5	С	152
2023 Background	0.85	34.2	С	275
2023 Small Event	0.88	36.5	D	334

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.90), and as such mitigation measures are not warranted.



## 5.5 Intersection 2 – Nicklin Way / Main Drive

Figure 5.3 illustrates the assessed Intersection 2 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA

#### Figure 5.3: Assessed Configuration – Intersection 2

Table 5.3 summarises the SIDRA results with detailed outputs included at Appendix E

#### Table 5.3: SIDRA Results – Intersection 2

Scenario	Degree of Saturation	Average Delay	Level of Service	95 <sup>th</sup> Percentile Queue Length	
2017 Survey	0.40	23.4	С	121	
2023 Background	0.58	22.6	С	188	
2023 Small Event	0.83	38.3	D	289	

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.90), and as such mitigation measures are not warranted.



## 5.6 Intersection 3 – Nicklin Way / Site Access

Figure 5.4 illustrates the assessed Intersection 3 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA

#### Figure 5.4: Assessed Configuration – Intersection 3

It is noted that historically, this intersection has been restricted to left-in / left-out movements only during events as part of the EMP for the site. As such, a left-in / left-out configuration has been tested.

Table 5.4 summarises the SIDRA results with detailed outputs included at Appendix E

#### Table 5.4: SIDRA Results – Intersection 3

Scenario	Degree of Saturation	Average Delay Critical Delay		95 <sup>th</sup> Percentile Queue Length	
2023 Small Event	3.85	253	5313	983	
2023 Small Event Left In – Left Out	0.39	0.7	7.6	6.0	

The results indicate that the site access intersection is expected to exceed the typically adopted performance threshold (i.e. DOS > 0.8) during a small event. As such, it is recommended that the intersection is restricted to left-in / left-out as part of the EMP for small events (i.e. 3,000 patrons).


# 5.7 Intersection 4 – Nicklin Way / Meridian Street

Figure 5.5 illustrates the assessed Intersection 4 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA

### Figure 5.5: Assessed Configuration – Intersection 4

Table 5.5 summarises the SIDRA results with detailed outputs included at Appendix E

Table 5.5:	SIDRA Results – Intersection 4
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Scenario	Degree of Saturation	Average Delay	Level of Service	95 <sup>th</sup> Percentile Queue Length
2017 Survey	0.41	18.1	В	131
2023 Background	0.64	27.0	С	226
2023 Small Event	0.67	26.6	С	248

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.90), and as such mitigation measures are not warranted.



# 5.8 Intersection 5 – Nicklin Drive / Lake Kawana Boulevard

Figure 5.6 illustrates the assessed Intersection 5 configurations noting that in 2017, the eastern intersection leg and northbound Nicklin Way bus lanes did not exist.



Source: SIDRA

### Figure 5.6: Assessed Configurations – Intersection 5

Table 5.6 summarises the SIDRA results with detailed outputs included at Appendix E

### Table 5.6: SIDRA Results – Intersection 5

Scenario	Degree of Saturation	Average Delay	Level of Service	95 <sup>th</sup> Percentile Queue Length
2017 Survey	0.36	18.6	В	107
2023 Background	0.63	43.4	D	165
2023 Small Event	0.69	43.1	D	177

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.90), and as such mitigation measures are not warranted.



# 5.9 Intersection 6 – Kawana Way / Metier Linkway

Figure 5.7 illustrates the assessed Intersection 6 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA

### Figure 5.7: Assessed Configuration – Intersection 6

Table 5.7 summarises the SIDRA results with detailed outputs included at Appendix E.

### Table 5.7: SIDRA Results – Intersection 6

Scenario	Degree of Saturation	Critical Delay	Level of Service	95 <sup>th</sup> Percentile Queue Length
2017 Survey	0.27	12.2	А	13
2023 Background	0.33	12.6	A	17
2023 Small Event	0.48	14.1	A	28

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.85), and as such mitigation measures are not warranted.



# 5.10 Intersection 7 – Main Drive / Sportsmans Parade

Figure 5.8 illustrates the assessed Intersection 7 configuration and an associated aerial image.



Source: Queensland Globe / SIDRA 7

### Figure 5.8: Assessed Configuration – Intersection 7

Table 5.8 summarises the SIDRA results with detailed outputs included at Appendix E.

Table 5.8:	SIDRA Results –	Intersection 7
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Scenario	Degree of Saturation	Average Delay	Level of Service	95 <sup>th</sup> Percentile Queue Length
2017 Survey	0.22	23.4	С	59
2023 Background	0.26	23.8	С	72
2023 Small Event	0.55	23.3	С	148

The results indicate that this intersection is expected to operate within typically adopted performance thresholds during all scenarios (DOS < 0.90), and as such mitigation measures are not warranted.

# 5.11 Summary

Table 5.9 summarises the intersection performance and mitigation requirements for a small event.

Intersection	Degree of Saturation	Level of Service	Mitigation Measures Required
1	0.88	D	-
2	0.83	D	-
3	3.85	F	Restrict to Left-in / Left-out during events
4	0.67	С	-
5	0.69	D	-
6	0.48	A	-
7	0.55	С	-

 Table 5.9:
 SIDRA Results – Summary



# 6. ACTIVE AND PUBLIC TRANSPORT

# 6.1 Existing Network

Figure 6.1 illustrates the active and public transport networks surrounding of the subject site.



Source: Sunshine Coast Council Mapping

### Figure 6.1: Surrounding Active and Public Transport Networks

Table 6.1 summarises the details and frequencies of bus routes which service the subject site.

### Table 6.1: Existing Bus Services

Route	Description	Peak Frequency	Off Peak Frequency
600	Caloundra to Maroochydore via Kawana and Mooloolaba	15 min	30 min
602	Caloundra to Maroochydore via Mountain Creek	60 min	60 min
607	Caloundra to University via SCUH and Kawana	30 min	60 min
611	Maroochydore to SCUH	30 min	60 min

The subject site is within a well-established urban network and as such, it benefits from access to a good standard active transport network. Typically, all higher order roads within 1,200m of the subject site (as the crow flies) have concrete footpaths on both verges as well as recreational paths around the perimeter of Lake Kawana. Furthermore, there are signalised pedestrian crossings at key intersections on Nicklin Way and Kawana Way, to assist pedestrians crossing the arterial roads.



# 6.2 Planned and Recommended Active Transport Network Upgrades

Figure 6.2 illustrates pathways planned for the area surrounding the subject site.



# Source: Sunshine Coast Council Mapping Figure 6.2: Planned Pathways

As shown above, several pathways surrounding the site are planned to be constructed in the future.

To improve connectivity to the subject site, it is recommended that the following additional footpaths are constructed as part of the proposed development:

- Main Drive (north side) from Textile Avenue to Sportsmans Parade (~60m)
- Main Drive (north side) from ~70m west of Bearing Avenue to Commerce Avenue (~150m).

# 6.3 Event Shuttle Bus Arrangements

As discussed further in Section 7, shuttle bus services may run between the subject site and surrounding areas during events. It is understood that temporary shuttle bus stops have been provided along Sportsmans Parade in the past.

Given how infrequently these services operate, no permanent infrastructure at the bus stops is considered necessary. Instead, temporary infrastructure such as seating and shelters installed for the time the stops will be used is considered suitable. However, it is worth noting that temporary stops should be located appropriately (i.e. where accessibility standards can be met). Ushers should also be on hand to assist patrons with any queries or those with disability.

The above is supported by the discussion relating to temporary bus stop arrangements at large events in Translink's "*Public Transport Infrastructure Manual*" (PTIM).



# 6.4 Planned Public Transport Network Upgrades

There are three (3) key public transport projects planned in proximity to the subject site. They are:

- CoastConnect
- Sunshine Coast Light Rail
- Caloundra and Maroochydore Corridor Option Study.

Further details in relation to each public transport project are provided below.

### 6.4.1 CoastConnect

CoastConnect is a Queensland Government initiative to improve public transport and sustainable travel on the Sunshine Coast. It is an important part of the Queensland Government's long-term plan to meet the transport needs of the fast-growing Sunshine Coast by providing faster and more reliable public transport options. This project proposes a mixture of transport infrastructure improvements to suit different parts of the coast, including bus lanes; bus queue bypasses; dedicated on-road cycle lanes; bus stations in key activity areas; and bus stop upgrades. CoastConnect proposes additional bus and cycle lanes to be constructed on the Nicklin Way frontage of the subject site.

The CoastConnect alignment is indicatively illustrated on Figure 6.3.

The proposed stadium development is not expected to prejudice the CoastConnect project.



Source: https://www.tmr.qld.gov.au/projects/coastconnect-caloundra-to-maroochydore-quality-bus-corridor





# 6.4.2 Sunshine Coast Light Rail

Sunshine Coast Light Rail proposal includes the delivery of a light rail network traversing the Sunshine Coast coastal enterprise zone, which would connect Caloundra through to the Sunshine Coast Public University Hospital at Kawana and on to the Maroochydore City Centre PDA, with an eventual extension to the Sunshine Coast Airport and Beerwah. Detailed feasibility studies have been completed where it is envisaged that the first stage of this network (connecting the Maroochydore PDA to the Sunshine Coast Public University Hospital) could be delivered by 2025.



The Sunshine Coast Light Rail alignment is displayed indicatively on Figure 6.4.

Source:Sunshine Coast Light Rail Route Options Consultation Report, 2015 **Figure 6.4:** Sunshine Coast Light Rail

The proposed stadium development is not expected to prejudice the Light Rail project.

## 6.4.3 Caloundra and Maroochydore Corridor Option Study (CAMCOS)

CAMCOS is a passenger rail service branching off the North Coast railway line at Beerwah and extending through Caloundra to Maroochydore. It is understood that the 'Caboolture to Maroochydore Corridor Study' was completed in 2001 and that the study investigated the feasibility, preferred development, impacts and benefits of a new public transport corridor between Beerwah and the Sunshine Coast Airport. The study was undertaken in three stages, including corridor identification; corridor evaluation; and route assessment.

The Queensland Government agreed to implement the recommendations from the study, including the need to preserve the preferred future corridor from Beerwah to Maroochydore and on to the Sunshine Coast Airport. It is understood that the government has been actively acquiring land for the corridor. Furthermore, track upgrading and duplication from Caboolture to Beerburrum was completed in 2009, as was the elimination of the open level crossing at Beerwah, ultimately providing for the branching off of the new line to Caloundra and Maroochydore.

This public transport option has potential to provide alternative travel options to patrons including park 'n' ride from surrounding rail station, or direct rail service from surrounding areas including Brisbane.

The CAMCOS alignment is displayed indicatively on Figure 6.5.





# Figure 6.5: CAMCOS

The proposed stadium development does not prejudice CAMCOS.



# 7. EVENT MANAGEMENT PLANNING

# 7.1 Overview

Event management planning is proposed to be completed for all medium and large sized events at the stadium. The extent of planning required will be dependent on several factors including expected attendance and the planned event start and finish times.

Importantly, EMPs have been successfully implemented previously for various sized events including music concerts and sporting matches. Recent events for which EMPs were prepared include:

- Sir Elton John Farewell Yellow Brick Road Tour (2020): ~15,700 patrons
- NRL Regular Season Game: Storm vs Titans (2020): ~6,000 patrons
- NRL Regular Season Game: Storm vs Cowboys (2020): ~4,200 patrons
- Queensland Oztag Junior State Cup (2019): ~2,500 participants.

It is understood that whilst there is always room for improvement, there have been no major transport related issues stemming from the management procedures put in place for previous events.

# 7.2 Transport Options

Reducing reliance on private vehicle transport modes as event sizes increase, is crucial to limiting event related impacts on the surrounding transport network. Stadium management promotes a range of transport options patrons can use including park 'n' walk, cycling, carpooling, public buses, shuttle buses, taxis, ride share, pick-up / drop-off and on-site car parking.

It is noted that the majority of this information is included elsewhere in this report. However, for ease of reference, key traffic and transport arrangements relevant to the stadium are noted below:

- Public Transport: Multiple bus stops located along Nicklin Way
- Walking and Cycling: The site is surrounded by a good standard active transport network. Pathways connect the site to all major roads. Bicycle parking is provided at the southern end of the Stadium adjacent to Sportsmans Parade
- **Car Parking:** There are approximately 380 car parking spaces onsite and 200 on-street car parking spaces along Sportsmans Parade. If required, up to a further 2,400 cars can be parked on sports fields across the Kawana Sports Precinct
- Shuttle Buses: In the past, stadium management has organised shuttle buses to operate between the stadium several locations across the Sunshine Coast for large events. Temporary shuttle bus stops have been provided along Sportsmans Parade in the past
- Drop-off / Pick-up: Dedicated drop-off / pick-up areas are provided at various locations across the precinct depending on event sizes etc. As part of large events, dedicated taxi and ridesharing drop-off / pick-up areas have been provided.



# 7.3 Small Events

Traffic analysis for the site access intersection on Nicklin Way indicated that during small events, the following measure should be implemented during road peak periods (at a minimum):

Restrict right turn movements in and out of the Kawana Way site access.

Figure 7.1 illustrates the traffic control and signage arrangements implemented as part of a past event.



Source: Stadium Event Management Plan – NRL Fixture

Figure 7.1: Small Event Traffic Management Example – Site Access Restrictions

It is also recommended that the following matters be considered as part of planning for small events:

- Informal On-site Parking (on-field): The amount of parking which should be provided (if required), and the best location for this parking to occur, as well as required signage etc.
- **Drop-off / Pick-up Areas:** The number of drop-off / pick-up areas which should be provided (if required), and the best location for these areas, as well as required signage etc.
- **Traffic Controllers**: The number of traffic controllers on-site and / or surrounding the site (if required), and when they are required to start and finish etc.
- **Changed Traffic Arrangements**: If changes to typical arrangements (in addition to banning right turns at the access) are required, when they are to start and end, signage etc.

# 7.4 Medium Events

For all "medium events", the Nicklin Way site access should be restricted to left-in / left-out.

In addition to the matters considered for "small events", the following should also be considered:

- Event Bus Shuttle Services: The need for the services and if required, the frequency of services as well as the number of locations from which the services operate, where services will stop at / in proximity to the subject site, advertising of services, seeking permission for services to operate from shopping centres or other developments etc.
- Private Vehicle, Taxi and Ride Share Specific Drop-off / Pick-up Areas: The amount which should be provided if required and the best location for these areas, contacting relevant service operators, signage etc.
- Variable Message Signage: Signage in proximity to the subject site directing patrons, drop-off / pick-up procedures etc. Such signage could also be used to warn drivers of upcoming events which may result in them taking other routes, travelling at different times etc.
- Local Community Engagement: In advance of the event, notify surrounding businesses and other stakeholders of any traffic management arrangements, discuss any concerns they have etc.



Figure 7.2 illustrates drop-off / pick-up arrangements that have been implemented in the past.



Source: Stadium Event Management Plan – NRL Fixture



# 7.5 Large Events

For all "large events", the Nicklin Way site access should be restricted to left-in / left-out.

In addition to the matters considered for "small events", the following should be considered:

- Broader Community Engagement: In advance of the event advertise any proposed transport network changes (e.g. road closures) and the potential for delays in proximity to the subject site around the time of the event. This could include advertising in local newspapers, requesting local radio stations to mention changes / delays in traffic updates etc.
- Alternative Travel Mode Advertising: Strongly encourage patrons to use alternative transport modes (i.e. not travel by private vehicle) and advertise the event specific options available.

Figure 7.3 illustrates the local road network changes (e.g. road closures, access restrictions etc.) implemented, as well as advertising signage that was erected as part of a large event held in the past.



Source: Stadium Event Management Plan – Sir Elton John

Figure 7.3: Large Event Traffic Management Example- Road Closures





Figure 7.4 provides an overview of the traffic and transport arrangements which were implemented for a NRL fixture held at the stadium.

Source: Stadium Event Management Plan – NRL Fixture Figure 7.4: Event Traffic Management Overview

# 7.6 Parking Management

During pre-lodgement engagement, Council officers indicated that there had been relatively few parking related issues or complaints raised in the past. Furthermore, we inspected the site on the evening the Women's State of Origin was being held (13<sup>th</sup> November 2020), and we did not observe motorists parking across driveways or other such issues.

Given the limited issues experienced in the past and noting that only a small number of medium and large-scale events are still expected to be held after the development is completed, further parking management measures are not considered necessary.

Should parking on nearby streets become more of an issue in the future, strategies aimed at addressing the issue could be implemented. Possible strategies could include:

- Increasing the frequency of shuttle bus services and / or the number of locations from which such services operate (i.e. make catching shuttle services easier / more appealing to patrons)
- As part of advertising the event, Stadium management strongly encourage patrons make use of alternative transport options (e.g. shuttles, public transport and active transport)
- Implementing an event parking control area. Similar to those which operate around Lang Park and the Gabba in Brisbane, the duration motorists can park on streets surrounding the subject site would be limited (e.g. maximum 2 hours). Exemptions for local residents / business owners could be provided if necessary
- Restricting access to streets surrounding the subject site around the time of events (e.g. it may be possible to station traffic controllers / police at entries to surrounding streets who would confirm motorists are accessing the street for reasons unrelated to parking for the event).



# 8. TRAFFIC DESIGN REVIEW

Based on an initial review of the proposed changes to existing traffic and servicing arrangements onsite, it is noted that changes to the plans will be required for the arrangements to function as intended.

Swept path diagrams have been prepared to generally illustrate the changes required to the servicing areas to accommodate servicing by the relevant design vehicles, including a 12.5m Heavy Rigid Vehicles (HRVs) and Front Loading Refuse Collection Vehicles (RCVs).

A copy of the swept path diagrams is included at **Appendix F**.

Importantly, although changes are required, we expect that they will be relatively minor and will not significantly impact the proposed development or the surrounding transport network.

It is recommended that all traffic and servicing arrangements be designed in accordance AS2890, Council's TAP Code and Policy requirements, and other relevant industry guidelines.



# 9. CODE RESPONSES

Responses to the following codes have been prepared:

- State Development Assessment Provisions (SDAP) Code 1: Development in a state-controlled road environment
- SDAP Code 6: Protection of state transport networks
- Council's TAP Code.

A copy of our code responses is included at **Appendix G**.



# **10. SUMMARY**

In summary:

- The Sunshine Coast Stadium is proposed to be upgraded
- As part of the upgrade, the capacity of the existing western grandstand will be increased from 1,050 to approximately 3,600 fixed seats and a new eastern grandstand with approximately 8,305 fixed seats will be constructed, which will equate to a total of approximately 11,905 fixed seats
- The key aim of the proposed development is not to increase the capacity of the stadium but rather increase the number of fixed / formal seats
- The surrounding active transport network is generally of good standard. However, minor works are recommended to allow patrons to safely and efficiently access the site from surrounding areas
- A 'Small' event has been assessed to determine potential traffic impacts of a 'typical' event. The assessment indicated that:
  - Such an event will generally have negligible impacts on the surrounding road network with all external intersections operating within typically adopted performance thresholds
  - The site access intersection (Intersection 3) exceeds operational thresholds and as such traffic management is required to restrict the access to left-in / left out during road peak periods at a minimum
  - No other specific mitigation measures are required.
- EMPs will be required for any events expected to be attended by more than 3,000 persons. It is
  understood that EMPs are currently prepared for these events held at the subject site
- Potential strategies to manage traffic associated with various sized events have been identified. The need / appropriateness of such strategies will be confirmed with the various stakeholders a party to each EMP
- The traffic layout is to be designed in accordance with AS2890, Council requirements and relevant industry guidelines
- Swept path diagrams have been prepared which demonstrate that the relevant service vehicles can appropriately access and circulate through the subject site.





# Appendix A: Development Plans





AMENDMENT SCHEDULE

BY Sunshine Coast Stadium





KEN DOWN ARCHITECTS

**marchese**partners

# Sunshine Coast Stadium



# Drawing Schedule Drawing Number Drawing Title

# te200170\_S-ARC-00-00Cover Sheet200170\_S-ARC-10-01Site Plan - Location200170\_S-ARC-10-02Site Plan - Proposed200170\_S-ARC-90-01Perspectives - Site200170\_S-ARC-90-10Visual Impact Views

200170\_B-ARC-40-02

200170\_B-ARC-50-01

200170\_B-ARC-90-01

est	200170_A-ARC-21-01	Western Stand - Overall Plan
	200170_A-ARC-21-02	Western Stand - Ground Floor Plan
	200170_A-ARC-21-03	Western Stand - Level 1 Plan
	200170_A-ARC-21-04	Western Stand - Level 2 Plan
	200170_A-ARC-21-05	Western Stand - Level 3 Plan
	200170_A-ARC-40-01	Western Stand - Elevations
	200170_A-ARC-40-02	Western Stand - Elevations & Section (Option 1)
	200170_A-ARC-40-20	Western Stand – Elevation Option 2
	200170_A-ARC-40-30	Western Stand – Elevation Option 3
	200170_A-ARC-90-01	Western Stand - Perspectives
ast	200170_B-ARC-21-01	Eastern Stand - Overall Plan
	200170_B-ARC-21-02	Eastern Stand - Ground Floor Plan
	200170_B-ARC-21-03	Eastern Stand - Main Concourse Plan
	200170_B-ARC-21-04	Eastern Stand - Overall Seating Plan
	200170_B-ARC-40-01	Eastern Stand - Elevations

Eastern Stand - Elevations

Eastern Stand - Perspectives

Eastern Stand - Sections

# **SCHEMATIC DESIGN**

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	COVER SHEET		
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# **RP DESCRIPTION**

Lot 2 on SP163937 Parish of Mooloolaha County of Canning Area 12.08 ha

GROSS FLOOR AREAS CA	<b>ALCULATION (GFA)</b>
WEST STAND	
GROUND FLOOR	<b>3,834m</b> <sup>2</sup>
LEVEL 1 (MEZZANINE)	<b>3,345</b> m <sup>2</sup>
LEVEL 2 (UPPER CONCOURSE)	<b>3,087</b> m <sup>2</sup>
LEVEL 3 (AWNING)	<b>453m</b> <sup>2</sup>
SUBTOTAL	<b>10,719m</b> <sup>2</sup>
EAST STAND	
GROUND FLOOR	<b>3,601m</b> <sup>2</sup>
MAIN CONCOURSE	<b>3,047m</b> <sup>2</sup>
SUBTOTAL	6,648m <sup>2</sup>
TOTAL GFA	17,367m <sup>2</sup>

SEATING AREAS AND NUMBERS		
WEST STAND		
TOTAL PLAN AREA OF SEATING	1,806m <sup>2</sup>	
TOTAL NUMBER OF SEATS	3,600	
EAST STAND		
TOTAL PLAN AREA OF SEATING	2,587m <sup>2</sup>	
TOTAL NUMBER OF SEATS	8,305	
TOTAL PLAN AREA OF SEATING	4,393m <sup>2</sup>	
TOTAL NUMBER OF SEAT	11,905	

# **LEGEND**

======= NEW AND EXISTING FENCES

# NOTES:

LEVELS AND CONTOURS REFLECT EXISTING SURVEY (NOT PROPOSED LEVELS)

AMENTITIES AVAILABLE IN BOTH EAST & WEST STANDS. REFER TO BUILDING PLANS.

ARCHITECTURAL DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CONSUTLANT REPORTS AND DRAWINGS. INPART ICULAR REFER TO CIVIL & LANDSCAPE CONCEPT DRAWINGS.



# SCHEMATIC DESIGN

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	SITE PLAN - PROPOSED		
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 AMENDMENT SCHEDULE
 Sunshine Coast Stadium

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# SITE FROM NORTHWEST

# SITE FROM SOUTHEAST



ASPEC ARCHITECTURE INTERIORS PROJECT MANAGEMENT QUANTITY SURVEYING TOOWOOMBA | BRISBANE | MOOLOOLABA www.aspectapm.net ABN 96 071 786 948 ACN 071 786 948 BOAQ 4487



THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH ALL RELEVANT BUILDING CODES AND STANDARDS. NO AMENDMENTS SHALL BE MADE WITHOUT THE APPROVAL FROM ASPECT AND/OR RELEVANT LOCAL AUTHORITY. THESE DRAWINGS ARE SUPPLIED ON THE CONDITION THAT, IN THE EVENT OF ERROR, ASPECTS' LIABILITY IS LIMITED ONLY TO THE COST OF AMENDING THESE DRAWINGS. CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR PRODUCING SHOP DRAWINGS. THESE DRAWINGS ARE PROTECTED BY THE LAWS OF COPYRIGHT AND MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF ASPECT .

GENERAL NOTES

# SUNSHINE COAST STADIUM EXPANSION

SUNSHINE COAST COUNCIL

31 SPORTSMANS PARADE, BOKARINA QLD 4575



 IMPORTANT:
 ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE GENERAL NOTES SHEET

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# Appendix B: TMR Pre-lodgement Advice

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)					
Netwo	ork impact (North Coast District input)					
1.	Traffic Impact Assessment					
	The Applicant is to prepare a detailed traffic impact assessment (in accordance with GTIA) identifying any proposed additional impacts on the surrounding transport network, beyond the existing land use approval for the site. The assessment should generally demonstrate compliance with relevant state codes under SDAP.					
	<b>Day to Day operations</b> It is not anticipated wider network modelling will be required to assess the performance of the network during current operations and future day to day operation of the site. It is anticipated that the detailed description of all activity will be supported with transport surveys to inform the existing operations assessment. As the development is already operating the assessment criteria will have to be based on an acceptable DOS or LOS rather than a non-worsening criteria. These items may be addressed through SIDRA analysis as part of Traffic Impact Assessment submitted in support of the application.					
	<b>Event management</b> It is recommended the proponent utilise event management plans to mitigate safety and efficiency impacts during events. TMR North Coast Region recommend the proponent consider the recommendation detailed in the MBRC Planning Scheme policy – Woodfordia Transport and Access Management especially the aspects that address preparation and implementation of the management strategies. The policy was developed in close consultation with TMR North Coast Region.					
Public	Passenger Transport					
2.	Public Transport Impact Assessment					
	A public transport impact assessment should be prepared in accordance with Austroads <i>Guide to Traffic Management</i> , Parts 1-13, to provide an assessment of the overall impact of the proposed development on all forms of public passenger transport such as urban bus services, private/chartered buses, taxis and rideshare This assessment should address the following, amongst other relevant considerations:					
	<ul> <li>(i) <u>Establish the existing context</u> Identify the location (within or beyond a walkable catchment) and capacity (i.e. number of parking bays) of all existing public passenger transport infrastructure and all existing public passenger transport services (bus stops, bus routes, car parking and taxi facilities etc) in relation to the site.</li> </ul>					
	<ul> <li>(ii) <u>Describe operational and event mode</u> The report should provide an adequate description of: <ul> <li>anticipated day to day operational mode;</li> <li>all anticipated event types (sporting and non-sporting events, and size/scale – small, medium and large);</li> <li>their frequency (number of events per month, year etc);</li> <li>likely maximum attendance with attendance threshold.</li> </ul></li></ul>					
	(iii) <u>Modal split</u> Provide the likely modal split of travel to and from the site so that it is supported by appropriate justifications for each event type. The modal split should differentiate between the different public transport modes (urban bus, private/chartered bus, taxi, rideshare), active transport modes (walking and cycling) and private vehicle travel.					

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)					
	<ul> <li>(iv) <u>Demand analysis</u> Assess the impact (including demand) of the proposed development on all forms of existing and planned public passenger transport.</li> </ul>					
	(v) <u>Capacity assessment</u> Assess the capacity of the existing public transport network to support the anticipated development impacts. This should give consideration to, for example, consultation with relevant operators and the Department of Transport and Main Roads and factors such as bus size, public passenger transport timetables, demographics, existing available service capacity and impact of the development demand.					
	(vi) <u>Recommendations</u> Identify the necessary public passenger transport infrastructure (temporary and permanent) required to support the development including the upgrade of existing facilities and/or provision of new facilities, including compliance with relevant design requirements, such as the Department of Transport and Main Roads <i>Public Transport Infrastructure Manual (2015)</i> , relevant Australian Standards, Disability Standards for Accessible Public Transport 2002 made under section 31(1) of the Disability Discrimination Act 1992, the Department of Transport and Main Roads Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design (March 2016) and other applicable requirements.					
	The following specific comments are provided:					
	<i>Events:</i> Identify the events for which a Transport Management Plan is required and events where a Transport Management Plan is not required. A Transport Management Plan should address all transport modes and take into account the following, amongst other relevant considerations:					
	<ul> <li>expected numbers of events per year and attendees;</li> <li>transport and traffic management before, during and after events;</li> <li>modelling of event traffic volumes (all modes) around the proposed site and along major nearby arterials/ public transport routes;</li> <li>based on modelling, expected bus servicing requirements and proposed means of</li> </ul>					
	<ul> <li>based of modeling, expected bus servicing requirements and proposed means of delivering additional services where identified;</li> <li>clarification of interaction with and potential delays/conflicts with scheduled urban buses in proximity to the site during events;</li> <li>extent of any regular road closures and traffic delays.</li> </ul>					
	<ul> <li>Taxis:</li> <li>a. Demonstrate how the development will provide taxi facilities with sufficient capacity (number of parking bays) to cater for maximum demand. This should consider likely passenger volumes and the demand for taxi services given factors such as the anticipated spectator capacity and demand, demographic considerations, and type of events.</li> </ul>					
	<ul> <li>b. Demonstrate how taxi facilities will be appropriately positioned to maximise coverage and decrease the distance that potential passengers have to walk. Importantly, taxi services provide an essential form of transport for those who cannot access other forms of transport or drive independently and are completely reliant on taxi services. Taxi ranks should be sited parallel to the kerb at the main entry to the development and at major pedestrian facilities.</li> </ul>					
	<ul> <li>c. Provide dedicated taxi parking bays which are not to be used for other pick-up and drop- off purposes (rideshare)</li> </ul>					
	<ul> <li>d. Minimize conflict with other vehicle types and pedestrians and avoid crossing driveways and pathways.</li> </ul>					

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)					
	e. Demonstrate that taxi facilities will be in accordance with relevant Australian Standards and Chapter 7 – Taxi Facilities of the <i>Public Transport Infrastructure Manual 2015</i> to ensure their safety and operational integrity as well as accessibility to people with a disability.					
	Rideshare:					
	<ul> <li>Demonstrate how the development will provide passenger loading zones for drop-off/ pick-up by rideshare with sufficient capacity to cater for the maximum demand. A demand analysis should be provided.</li> </ul>					
	<ul> <li>Demonstrate how passenger loading zones will be suitably positioned, in convenient location(s) to cater for this demand.</li> </ul>					
	c. Minimize conflict with other vehicle types and pedestrians and avoid crossing driveways and pathways.					
	Private/ chartered coaches/ buses:					
	a. Demonstrate adequate how bus parking provision will be provided to cater for the maximum demand generated by the development with consideration given to both passenger setdown and bus lay-by requirements, bus dwell time, and bus capacity amongst other factors.					
	<ul> <li>b. Provide a layout design for the proposed bus facility with consideration given to Chapter 5 – Bus Stop Infrastructure of the <i>Public Transport Infrastructure Manual 2015</i>. Bus setdown for events should be allocated specific stops and not be in a continuous zone.</li> </ul>					
	c. Demonstrate that setdown areas have shelter, seating and hardstand waiting areas sufficient to accommodate the maximum numbers of anticipated passengers and their associated dwell times and provide disability access.					
	d. Provide swept paths for the largest design vehicle (single unit rigid bus of 14.5m in length) to demonstrate how buses will be able to safely and efficiently manoeuvre into and out of the bus setdown areas, with priority over private vehicles and minimising conflict with other vehicles and pedestrians. This should also investigate the need for bus priority treatments during events such as bus lanes, queue jumps, etc. to prevent delays to bus services and encourage higher mode share to public transport.					
	<ul> <li>e. Demonstrate that roads intended to run buses will allow the safe, efficient passage of a 14.5m length single unit rigid bus, considering on-street parking on both sides of roads during events, roundabouts, and the need to avoid congested or circuitous routes and conflict between different vehicle types. The applicant should ensure that proposed bus routes meet the following requirements and demonstrate this through a RPEQ certified swept path analysis:</li> <li>Department of Transport and Main Roads <i>Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design</i> (March 2016);</li> <li>Department of Transport and Main Roads <i>Supplement to Austroads Guide to Road Design</i> (Parts 3, 4-4C and 6);</li> <li><i>Austroads Guide to Road Design</i> (Parts 3, 4-4C and 6);</li> <li><i>Austroads Design Vehicles and Turning Path Templates;</i> and</li> <li>Department of Transport and Main Roads <i>Queensland Manual of Uniform Traffic Control Devices, Part 13 Local Area Traffic Management (March 2018).</i></li> <li>Chapter 2 - Planning and Design, Section 2.3.2 Bus Route Infrastructure (page 6) of the Department of Transport and Main Roads <i>Public Transport Infrastructure Manual 2015.</i></li> </ul>					
3.	Active Transport Impact Assessment When lodging a formal development application, the development proponent should provide an active transport impact assessment.					
	In particular, the active transport impact assessment and associated proposal plans should demonstrate how direct, safe and convenient access to public passenger transport and also pedestrian/ cycle access to the development will be achieved during events. This should:					

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)						
	<ul> <li>Generally, give highest priority to active transport facilities with less priority to private vehicle with the aim to decrease private vehicle trips and increase active transport trips.</li> <li>Endeavour to separate transport modes, with an increased emphasis on building active transport facilities.</li> <li>Ensure consistency and good connectivity to the existing and future public transport network</li> </ul>						
	In particular, the active transport impact assessment should address the following:						
	(i) The existing and planned active transport infrastructure servicing the development, for example, pedestrian paths, crossing arrangements, shared/ bicycle paths, cycle lanes/dedicated cycle paths. This should consider the large number of pedestrian movements both on and off site during events as anticipated in the traffic engineering report.						
	(ii) Provide information and concept plans demonstrating how the proposed shared zone along Sportsmans Parade will operate during event modes. This should demonstrate that pedestrian and vehicle conflict will be avoided.						
	(iii) Anticipated cyclist and pedestrian demand generated by the development proposal based on a robust analysis of the modal split to walking and cycling and a walkable catchment of 800m and cycling catchment of 2km. The traffic engineering report should provide sufficient justification.						
	(iv) Gaps and deficiencies in existing active transport provision within the site and the surrounding area in relation to the demand generated by the development.						
	<ul> <li>(v) Potential safety risks to visitors, employees, spectators, patrons etc. walking or cycling to the development including vehicular/ pedestrian conflict and crossing arrangements of roads.</li> </ul>						
	<ul> <li>(vi) Identify the necessary active transport infrastructure (temporary and permanent) required to support the development including the upgrade of existing facilities and/or provision of new facilities.</li> </ul>						
	The recommended outputs of the active transport impact assessment should include:						
	<ul> <li>An Active Transport Movement Plan identifying key pedestrian and cyclist desire lines, the anticipated pedestrian and cyclist volumes along these desire lines and the following:</li> <li>The principal cycle routes as mapped in the South East Queensland Principal Cycle Network Plan (https://www.tmr.qld.gov.au/Travel-and-transport/Cycling/Principal-Cycle-Network-Plans.</li> <li>key attractors and high demand areas surrounding the development, for example, residential areas within a walkable catchment.</li> </ul>						
	<ul> <li>ii. A bicycle and pedestrian movement plan showing existing and proposed active transport infrastructure to support peak pedestrian and bicycle volumes, including: <ul> <li>pedestrian and bicycle pathways within and external to the development, such as, but not limited to bus setdown, taxi facility, rideshare, etc.</li> <li>pedestrian and bicycle access points to the development.</li> <li>highlight indicative location(s) of proposed bicycle parking and end of trip facilities and how these will seamlessly connect with the proposed bicycle network.</li> <li>disability access requirements.</li> <li>appropriate level of separation between cyclists, pedestrians and other modes focusing on potential conflict zones such as car parks, passenger loading areas, passenger setdown and bus stops.</li> <li>pedestrian and cyclist crossing treatments based on a safety audit that considers the locational circumstances of the site, desire lines, proposed traffic arrangements, the speed environment of roadways and anticipated pedestrian, cyclist and vehicle volumes.</li> </ul> </li> </ul>						

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)					
	<ul> <li>iii. A conceptual wayfinding strategy to enhance legibility between the proposed development and the following: <ul> <li>coach/private bus setdown;</li> <li>taxi facilities;</li> <li>passenger loading / rideshare;</li> <li>urban bus stops;</li> <li>cycle parking.</li> </ul> </li> </ul>					
	<ul> <li>Relevant references and design standards include the following:</li> <li>Cycling Aspects of Austroads Guides, focussing on the Guide to Road Design Part 64 Paths for Walking and Cycling;</li> <li>Australasian Pedestrian Facility Selection Tool [V2.0] User Guide (https://austroads.com.au/network-operations/network-management/pedestrian-facility selection-tool);</li> <li>TMR Technical Notes and Guidelines in particular Guideline Selection and Design of Cycle Tracks</li> </ul>					
	Refer to: <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-">https://www.tmr.qld.gov.au/business-industry/Technical-</a> publications/Cycling-guidelines and <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-">https://www.tmr.qld.gov.au/business-industry/Technical-</a> standards-publications/Technical-Notes/Traffic-engineering.aspx.					
4.	<ul> <li>We note that the Sunshine Coast Stadium has previously hosted an Elton John concert but the Department of Transport and Main Roads would like to highlight, that on-going events of this nature, and more frequent events at small, medium and large scales, will require transport impacts to be appropriately considered and addressed on a more permanent basis just as the seating capacity is becoming more permanent. The department notes that the concert resulted in private/contracted bus operations – shuttle services including park 'n' ride options with key attractors, conflicts with peak hour traffic and parking implications to be considered. Further consideration may need to be given to more permanent improvements identified as part of a Transport Impact Assessment (roads, public passenger transport and active transport) to facilitate the stadium's event mode function such as but not limited to:</li> <li>Bus access, manoeuvring and priority as well as setdown and lay-by provisions in relation to the surrounding road network and development site;</li> <li>Facilitating better walk-up and cycle-up catchment access to the development and to public passenger transport;</li> <li>Measures to reduce conflict between vehicle types and vehicular/pedestrian conflict.</li> </ul>					



# Appendix C: Traffic Survey Data







Turning Movement Count Summary					
	Site ID: Location 1 Site 2				
	Location: Nicklin Way & Main Dr, Warana				
	Date: 1-June-2017				
Surv	eyed Time: 3:00 PM to 9:00 PM				
	Weather: Fine				
Data for ho	ur starting: 6:00 PM 🔻 to 7:00 PM				
Ve	hicle Class: ALL VEHICLES				





Turning Movement Count Summary					
	Site ID: Location 1 Site 4				
	Location: Nicklin Way & Meridian St/Beach Dr, Bokarina				
	Date: 1-June-2017				
Surv	eyed Time: 3:00 PM to 9:00 PM				
	Weather: Fine				
Data for ho	ur starting: 6:00 PM 🔻 to 7:00 PM				
Ve	hicle Class: ALL VEHICLES				





Turning Movement Count Summary					
	Site ID: Location 1 Site 5				
	Location: Nicklin Way & Lake Kawana Blvd, Bokarina				
	Date: 1-June-2017				
Surv	eyed Time: 3:00 PM to 9:00 PM				
	Weather: Fine				
Data for ho	ur starting: 6:00 PM 🔻 to 7:00 PM				
Ve	hicle Class: ALL VEHICLES				





Turning Movement Count Summary					
	Site ID: Location 1 Site 6				
	Location: Kawana Way & Metier Linkway, Birtinya				
	Date: 1-June-2017				
Surv	eyed Time: 3:00 PM to 9:00 PM				
	Weather: Fine				
Data for ho	ur starting: 6:00 PM 🔻 to 7:00 PM				
Ve	hicle Class: ALL VEHICLES				





Turning Movement Count Summary					
Site ID: Location 1 Site 7					
Location: Main Dr & Sportsman Pde, Bokarina					
Date: 1-June-2017					
Surveyed Time: 3:00 PM to 9:00 PM					
Weather: Fine					
Data for hour starting: 6:00 PM 🔻 to 7:00 PM					
Vehicle Class: ALL VEHICLES					







# Appendix D: Design Traffic Volumes

### Table 1: Attendance, Mode Share & Vehicle Occupancy Assumptions

Parameter	Small Event		Medium Event		Large Event	
Attenance						
Attenance (Persons)		3,000		10,000		17,500
Mode Share						
Car - Parking (% Persons)	70%	2,100	55%	5,500	35%	6,125
Car - Drop Off (% Persons)	20%	600	20%	2,000	20%	3,500
Bus (% Persons)	5%	150	20%	2,000	40%	7,000
Walk / Cycle (%   Persons)	5%	150	5%	500	5%	875
Vehicle Occupancy						
Car - Parking (Persons/Car   Number of Cars)	2.8	750	2.8	1,964	2.8	2,188
Car - Drop Off (Persons/Car   Number of Cars)	1.8	333	1.8	1,111	1.8	1,944
Public Transport (People/Bus   Number of Buses)	45.0	3	45.0	44	45.0	156
TOTAL EVENT VEHICLES		1,087		3,120		4,288

### Table 2: Estimated Peak Parking Demand

Parameter	Scenario A		Scenario B		Scenario C	
Vehicle Parking Demand						
Peak Parking Demand (vehicles)		750		1,964		2,188

Table 3: Estimated Total Pre & Post Event Trips						
Parameter	Scenario A		Scenario B		Scenario C	
Pre-Event Trips						
Car - Parking (Trips/Car   Total Pre-event Trips)	1	750	1	1,964	1	2,188
Car - Drop Off (Trips/Car   Total Pre-Event Trips)	2	667	2	2,222	2	3,889
Public Transport (Trips/Bus   Total Pre-Event Trips)	2	7	2	89	2	311
TOTAL PRE-EVENT TRIPS		1,423		4,275		6,388
Post-Event Trips						
Car - Parking (Trips/Car   Total Post-event Trips)	1	750	1	1,964	1	2,188
Car - Drop Off (Trips/Car   Total Post-event Trips)	2	667	2	2,222	2	3,889
Public Transport (Trips/Bus   Total Post-event Trips)	2	7	2	89	2	311
TOTAL POST-EVENT TRIPS		1,423		4,275		6,388
TOTAL EVENT TRIPS						
Car - Parking (Trips/Car   Total Event Trips)	2	1,500	2	3,929	2	4,375
Car - Drop Off (Trips/Car   Total Event Trips)	4	1,333	4	4,444	4	7,778
Public Transport (Trips/Bus   Total Event Trips)	4	13	4	178	4	622
TOTAL EVENT TRIPS		2,847		8,551		12,775

### Table 4: Arrival / Departure Profile Assumptions

Parameter	Scenario A		Scenario B		Scenario C	
ARRIVAL TIMES						
Event Start Time	Thursday	5:00pm	Thursday	6:00pm	Thursday	6:00pm
Arrival 0 to 60 mins before Start Time (PV & PT Trips)	80%	1,139	80%	3,420	80%	5,110
Arrival > 60 mins before Start Time (PV & PT Trips)	20%	285	20%	855	20%	1,278
TOTAL TRIPS BEFORE START TIME		1,423		4,275		6,388
DEPARTURE TIMES						
Event Finish Time	Thursday	8:00pm	Thursday	9:00pm	Thursday	10:00pm
Departure 0 to 60 mins after Finish Time (PV & PT Trips)	90%	1,281	90%	3,848	90%	5,749
Departure > 60 mins after Finish Time (PV & PT Trips)	10%	142	10%	428	10%	639
TOTAL TRIPS AFTER FINISH TIME		1,423		4,275		6,388
TOTAL EVENT TRIPS		2,847		8,551		12,775

# Table 6: Traffic Growth (Population Growth)

Vear (Ending June 30)	Population	Year to Year		2017 to 2023 or 2031	
	Population	Change	% Change	Change	% Change
2016	303,389				
2017	312,996	9,607	3.17%		
2021	351,424	38,428	3.07%		
2023	368,791	17,367	2.47%	55,795	3.00%
2026	394,842	26,051	2.35%		
2031	436,785	41,943	2.12%	123,789	3.00%

Source: Queensland Government population projections, 2018 edition; Australian Bureau of Statistics, 2016 (Cat no. 3235.0).

Parameter         Small Event - TOTAL         < 60mits before/after Event	S before/after Event           Outbound         T           0         67           1         67           0         T           75         33           0         1           109         T           75         100           109         T           75         100           1         176           s before/after Event         T           0         222           9         9	TOTAL       150       133       1       285       TOTAL       75       67       1       142       TOTAL       225       200       2       427       vent       TOTAL       393       444
PRE EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound         Inbound         Outbound<	Outbound         T           0         67           1         67           67         7           0         1           67         7           0         1           75         33           0         1           109         7           75         100           1         1           75         1           100         1           176         1           sbefore/after         Eve           Outbound         T           0         2           9         9	TOTAL         150         133         1         285         TOTAL         75         67         1         142         TOTAL         225         200         2         427         vent         TOTAL         393         444
Car - Parking (Trips)         100%         0%         750         0         750         600         0         600         150           Car - Drop off (Trips)         50%         50%         33         33         667         267         267         533         67           Dvblic Transport (Trips)         76%         24%         1,087         33         3         5         1           TOTAL TRIPS         76%         24%         1,087         33         3         5         1           TOTAL TRIPS         76%         24%         1,087         33         3         67         0         675         675         0         675         675         0         675         675         0         675         675         0         675         675         0         675         675         0         675         675         0         675         1,30         0.00         600         633         3         3         3         3         3         67         575         0         0         607         617         1,313         100         1001         107AL TRIPS         33         657         567         1,133         100         1000         <	0 67 1 67 0 0 67 75 33 0 0 109 0 109 0 109 0 109 0 10 1 1 75 100 1 1 176 s before/after Even 0 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	150 133 1 285 TOTAL 75 67 1 142 TOTAL 225 200 2 427 vent TOTAL 393 444
Car - Drop Off (Trips)         50%         50%         3333         333         667         267         267         533         67           DVDL Transport (Trips)         50%         50%         3         3         7         3         3         5         1           POST EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Tital         Tital <td>67         1         67         0         75         33         0         109         0utbound         109         0utbound         109         0utbound         109         0         109         0         1176         s before/after Event         0         0         222         9</td> <td>133 1 285 TOTAL 75 67 1 142 TOTAL 225 200 2 427 vent TOTAL 393 444</td>	67         1         67         0         75         33         0         109         0utbound         109         0utbound         109         0utbound         109         0         109         0         1176         s before/after Event         0         0         222         9	133 1 285 TOTAL 75 67 1 142 TOTAL 225 200 2 427 vent TOTAL 393 444
Public Transport (Trips)         50%         50%         3         3         7         3         3         5         1           DTAL TRIPS         76%         24%         1.067         337         1.423         859         259         1.133         217           POST EVENT         00%         00         750         750         0         675         675         0           Car - Drop off (Trips)         50%         50%         33         33         667         300         300         600         333           Public Transport (Trips)         50%         50%         33         3         7         3         3         66         0           TOTAL TRIPS         24%         76%         337         1.087         1.423         300         660         675         1.281         34           TOTAL TRIPS         24%         76%         50%         750         1.007         1.0800         000         600         675         1.275         150           Car - Drop off (Trips)         50%         50%         7         7         13         6         6         11         1         1         1         1         1         1	1       67       Outbound     T       75     33       0     1       109     T       75     100       1     1       176     T       sbefore/aft=reve       Outbound     T       0     222       9     9	1 285 TOTAL 75 67 1 142 7 225 200 2 427 427 vent TOTAL 393 444
TOTAL TRIPS         76%         24%         1,087         337         1,423         869         269         1,139         217           DOST EVENT         Inbound         Outbound         Inbound         Ottound         TOTAL         Inbound         Ottound         Inbound         Intou         Intou         Intou         Intou         Inbound         Inbound         Inbound         Inbound         Inbound         Inbound         <	67     T       75     33       0     109       109     T       75     100       1     1       176     T       sbefore/after Even       Outbound     T       0     1       176     T	285 TOTAL 75 67 1 142 TOTAL 225 200 2 427 vent TOTAL 393 444
POST EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound         Sold         <	Outbound         T           75         33           0         1           109         T           75         1           75         1           100         T           75         1           100         1           176         1           sbefore/aft=         Eve           Outbound         T           0         222           9         1	TOTAL         75         67         1         142         TOTAL         225         200         2         427         vent         TOTAL         393         444
Car - Parking (Trips)         O%         100%         O         750         750         0         675         675         0           Car - Drop Off (Trips)         50%         50%         333         333         667         300         300         600         333           TOTAL TRIPS         24%         76%         337         1,087         1,423         303         978         1,281         34           TOTAL TRIPS         24%         76%         337         1,087         1,423         303         978         1,281         34           TOTAL EVENT         Inbound         Outbound         Inbound         OUtbound         TOTAL         Inbound	75       33       0       109       Outbound       T       75       100       1       176       s before/after Event       Outbound       T       0       222       9	75 67 1 142 225 200 2 427 vent TOTAL 393 444
Car- Drop Off (Trips)         50%         50%         33         333         667         300         300         600         33           Public Transpot (Trips)         50%         50%         3         3         7         3         3         667         300         600         600         33           Public Transpot (Trips)         24%         76%         337         1,087         1,423         303         978         1,281         34           TOTAL TRIPS         1nbound         Outbound         Inbound         Outbound         TOTAL         1,423         303         978         1,275         150           Car - Drop Off (Trips)         50%         50%         67         7         7         13         6         6         11         1           TOTAL TRIPS         50%         50%         7         7         7         13         6         6         11.01         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	33       0       109       Outbound       T       75       100       1       176       s before/after Eve       Outbound       T       0       222       9	67 1 142 <b>TOTAL</b> 225 200 2 427 <b>Vent</b> <b>TOTAL</b> 393 444
Public fransport (Trips)         50%         50%         3         3         7         3         3         6         0           TOTAL TRPS         24%         76%         337         1,087         1,423         303         978         1,281         34           Car - Parking (Trips)         50%         50%         750         7.50         1,500         660         675         1,275         150           Car - Parking (Trips)         50%         50%         50%         750         7.61         3         6         6         11         1           TOTAL EVENT         50%         50%         50%         750         7.61         3         6         6         11         1           TOTAL TRIPS         50%         50%         1,423         1,423         2,847         1,172         1,247         2,400         251           TOTAL TRIPS         50%         50%         1,423         1,423         2,847         1,172         1,247         2,400         2,511           TOTAL TRIPS         100M         Outbound         Inbound         Outbound         1,644         1,571         0         1,571         393           Car - Parking (Trips)	0 109 <b>Outbound</b> 75 100 1 176 <b>s before/after Eve</b> <b>Outbound</b> 7 0 222 9	1 142 <b>TOTAL</b> 225 200 2 427 <b>Vent</b> <b>TOTAL</b> 393 444
TOTAL INPS         24%         76%         337         1,087         1,423         303         978         1,281         34           TOTAL EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Soft         Soft         Soft         TotA         TotA<	109 T Outbound T 75 100 1 1 176 5 s before/after Eve Outbound T 0 222 7	142 TOTAL 225 200 2 427 vent TOTAL 393 444
TOTAL VENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound         Inbound	Outbound         T           75         1           100         1           176         1           sbefore/after         Eve           Outbound         T           0         222           9         1	TOTAL         225         200         2         427         vent         TOTAL         393         444
Car - Parking (Trips)         50%         50%         50%         750         1,500         600         675         1,275         150           Car - Drop Off (Trips)         50%         50%         50%         667         667         1,333         567         567         1,133         100           Dublic Transport (Trips)         50%         50%         1,423         1,423         2,847         1,172         1,247         2,420         251           TotALT RIPS         50%         50%         1,423         1,423         2,847         1,172         1,247         2,420         251           Parameter         Ket/EVENT         Inbound Outbound Inbound Outbound TOTAL           Inbound         00%         1,964         0         1,964         1,571         0         1,571         393         393           Car - Drop Off (Trips)         50%         50%         1,111         1,111         2,222         889         889         1,778         222         9         3,420         6624         9         9         9         1,56         2,496         924         3,420         624         9         9         1,111         1,111         1,111 <t< td=""><td>75 100 1 176 s before/after Eve Outbound T 0 222 9</td><td>225 200 2 427 vent TOTAL 393 444</td></t<>	75 100 1 176 s before/after Eve Outbound T 0 222 9	225 200 2 427 vent TOTAL 393 444
Car - Drop Off (Trips)         50%         50%         667         667         1,333         567         567         1,133         100           Public Transport (Trips)         50%         50%         7         7         13         6         6         11         1           TOTAL TRIPS         50%         50%         1,423         1,423         2,847         1,247         2,420         251           Parameter         Medium Event - VTAL         Medium Event - VTAL         Inbound         Outbound         TOTAL         Inbound         <	100 1 176 s before/after Eve Outbound T 0 222 9	200 2 427 vent TOTAL 393 444
Public Transport (Trips)         50%         50%         7         7         13         6         6         11         1           TOTAL TRIPS         50%         50%         1,423         2,847         1,172         1,247         2,420         251           Parameter         Medium         Cutbound         Inbound         Outbound         Mound         Outbound         TOTAL         Inbound         Outbound         TOTAL           RE EVENT         Inbound         Outbound         Nobund         0         1,964         0         1,964         1,571         0         1,571         393           Car - Drop Off (Trips)         50%         50%         1,111         1,112         2,220         889         889         1,778         222           Public Transport (Trips)         50%         50%         4.4         4.4         89         36         36         71         9           TOTAL TRIPS         73%         2.7%         3,120         1,156         4,275         2,496         924         3,420         624           Car - Parking (Trips)         50%         50%         1,111         1,111         2,225         1,000         1,000         2,000         1,111 <td>1 176 s before/after Eve Outbound T 0 222 9</td> <td>2 427 vent TOTAL 393 444</td>	1 176 s before/after Eve Outbound T 0 222 9	2 427 vent TOTAL 393 444
TOTAL TRIPS       50%       50%       1,423       1,423       2,847       1,172       1,247       2,420       251         Parameter         Medium Event - TOTAL       Inbound Outbound Inbound Outbound TOTAL       Inbound Car - Parking (Trips)       S0%       S0%       1,172       1,247       2,420       251         Parameter       Veeter - TOTAL       Inbound Outbound TOTAL       Inboun	176 s before/after Eve Outbound T 0 222 9	427 vent TOTAL 393 444
Parameter         Medium Event - TOTAL         < 60mir before/after Event         > 60mir           PRE EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound         10,0%         0,%         1,964         0         1,964         1,571         0         1,571         393           Car - Drop Off (Trips)         50%         50%         4.4         4.44         89         36         36         71         9           TOTAL TRIPS         73%         2.7%         3,120         1,156         4,275         2,496         924         3,420         624           Post EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL	s before/after Eve Outbound T 0 222	vent TOTAL 393 444
Parameter         Medium Event-TUTAL         < 60mir         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound<	s before/after Eve Outbound T 0 222	<b>vent</b> <b>TOTAL</b> 393 444
PRE EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbout         TOTAL         Inbound         <	Outbound         T           0	<b>TOTAL</b> 393 444
Car - Parking (Trips)       100%       0%       1,964       0       1,964       1,571       0       1,571       393         Car - Drop Off (Trips)       50%       50%       1,111       1,111       2,222       889       889       1,778       222         Public Transport (Trips)       50%       50%       44       44       89       36       36       71       9         TOTAL TRIPS       73%       27%       3,120       1,156       4,275       2,496       924       3,420       624         POST EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       Inbound       0       1,964       1,964       0       1,768       1,768       0         Car - Parking (Trips)       0%       100%       0       1,964       1,964       0       1,768       1,768       0         Car - Drop Off (Trips)       50%       50%       1,111       1,111       2,221       1,000       1,000       2,000       111         Car - Drop Off (Trips)       50%       50%       44       44       89       40       40       40       40       40       40       40       40       40       40       40	0 222 9	393 444
Car - Drop Off (Trips)       50%       50%       1,111       1,111       2,222       889       889       1,778       222         Public Transport (Trips)       50%       50%       44       44       89       36       36       71       9         TOTAL TRIPS       73%       27%       3,120       1,156       4,275       2,496       924       3,420       624         POST EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       1,000       1,000       1,000       1,000       1,000       1,000       1,000       1,000       1,000       1,000       2,000       1,111       1,111       1,111       2,222       1,000       1,000       2,000       1,111       1,111       1,111       2,222       1,000       1,000       2,000       1,111       1,011       2,222       1,000       1,000       2,000       1,111       1,111       1,111       2,222       1,000       1,000       2,000       1,111       1,111       1,111       1,000       1,000       2,000       1,111       1,110       1,222       1,000       1,000       2,000       1,111       1,110       1,222       1,000       1,000       2,000       1,111	222 9	444
Public Transport (Trips)       50%       50%       44       44       89       36       36       71       9         TOTAL TRIPS       73%       27%       3,120       1,156       4,275       2,496       924       3,420       624         POST EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       0       1,768       1,768       0       111       1       1       2,222       1,000       1,000       2,000       111       111       1       1       2,222       1,000       1,000       2,000       111       111       1       1       1,000       1,000       2,000       111       111       1       1       1       0       1,000       2,000       111       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	<u>م</u>	
TOTAL TRIPS       73%       27%       3,120       1,156       4,275       2,496       924       3,420       624         POST EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       Inbound       Outbound       TOTAL         Car - Parking (Trips)       0%       100%       0       1,964       1,964       0       1,768       1,768       0         Public Transport (Trips)       50%       50%       444       44       89       40       40       80       4111         TOTAL EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       90       1,000       2,000       1,111         Public Transport (Trips)       50%       50%       444       44       89       40       40       80       416         TOTAL EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       Inbound       000       1,964       3,929       1,571       1,768       3,339       393         Car - Parking (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,788       3,339       393         Car - Parking (Trips)       50%	<i>J</i>	18
POST EVENT         Inbound         Outbound         Inbound         Outbound         TOTAL         Inbound         Outbound         Inbound         Inbound         Outbound         Inbound         Inbound         Outbound         Inbound         Inbound         Inbound         Inbound         Inbound         Inbound </td <td>231</td> <td>855</td>	231	855
Car - Parking (Trips)       0%       100%       0       1,964       1,964       1,964       1,768       1,768       1,768       1,111         Car - Drop Off (Trips)       50%       50%       1,111       1,111       2,222       1,000       1,000       2,000       1,111         Public Transport (Trips)       50%       50%       44       44       89       40       40       80       4         TOTAL TRIPS       27%       73%       1,156       3,120       4,275       1,040       2,808       3,848       116         TOTAL EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       1,571       1,768       3,339       393         Car - Drop Off (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Car - Drop Off (Trips)       50%       50%       8,92       1,76       76       151       1,3         Public Transport (Trips)       50%       50%       8,98       89       176       76       151       13         TOTAL TRIPS       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268	Outbound T	TOTAL
Car - Drop Off (Trips)       50%       50%       1,111       1,111       2,222       1,000       1,000       2,000       111         Public Transport (Trips)       50%       50%       44       44       89       40       40       80       4         TOTAL TRIPS       27%       73%       1,156       3,120       4,275       1,040       2,808       3,848       116         TOTAL TRIPS       Inbound       Outbound       Inbound       Outbound       TOTAL       1,964       3,929       1,571       1,768       3,339       393         Car - Drop Off (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Car - Drop Off (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Public Transport (Trips)       50%       50%       50%       89       89       178       76       76       151       13         TOTAL TRIPS       50%       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268       740	196	196
Public Transport (Trips)       50%       50%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60%       60% <td< td=""><td>111</td><td>222</td></td<>	111	222
Total TRIPS       27%       73%       1,156       3,120       4,275       1,040       2,808       3,848       116         TOTAL TRIPS       Inbound       Outbound       Inbound       Outbound       TOTAL       Inbound       Outbound       TOTAL         Car - Parking (Trips)       50%       50%       1,964       1,964       3,929       1,571       1,768       3,339       393         Car - Drop Off (Trips)       50%       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Public Transport (Trips)       50%       50%       60%       4,275       4,275       8,551       3,536       3,732       7,268       740		9
TOTAL EVENT       Inbound       Outbound       Inbound       Outbound       TOTAL       Inbound       Outbound       TOTAL         Car - Parking (Trips)       50%       50%       1,964       3,929       1,571       1,768       3,339       393         Car - Drop Off (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Public Transport (Trips)       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268       740	312	428
Car - Parking (Trips)       50%       50%       1,964       1,964       3,929       1,571       1,768       3,339       393         Car - Drop Off (Trips)       50%       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Public Transport (Trips)       50%       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268       740	Outbound T	
Car - Drop Off (Trips)       50%       50%       2,222       2,222       4,444       1,889       1,889       3,778       333         Public Transport (Trips)       50%       50%       60%       4,275       4,275       8,551       3,536       3,732       7,268       740	196	589
Control Diop On (Hips)       50%       50%       2,222       4,444       1,665       1,665       5,776       533         Public Transport (Trips)       50%       50%       89       89       178       76       76       151       13         TOTAL TRIPS       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268       740	333	667
TOTAL TRIPS       50%       50%       50%       4,275       4,275       8,551       3,536       3,732       7,268       740	12	27
	E42 1	1 202
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Largo Evont 10101 / Comine botoro/attor Evont	c hoforo/oftor Ev	vont
DEE EVENT	Suthernal T	
PRE EVENT INDOUND OULDOUND INDOUND OULDOUND IDTAL INDOUND OULDOUND IDTAL INDOUND OULDOUND IDTAL INDOUND		101AL
Car Parking (Trips) 0% 2,188 0 2,188 1,750 0 1,750 438	280	438
Call-Diop Off (Trips)         50%         50%         1,944         1,944         3,889         1,556         1,556         3,111         389           Dublic Transmost (Trips)         50%         50%         1,644         1,944         3,889         1,556         3,111         389	389	//8
Public transport (Trips)         50%         50%         156         156         311         124         124         249         31	31	62
TOTAL TRIPS         67%         33%         4,288         2,100         6,388         3,430         1,680         5,110         858	420 1	1,278
POST EVENT Inbound Outbound Inbound Outbound IOTAL Inbound Outbound IOTAL Inbound Outbound IOTAL	Outbound I	IOTAL
Car - Parking (Trips) 0% 100% 0 2,188 2,188 0 1,969 1,969 0	219	219
Car - Drop Off (Trips) 50% 50% 1,944 1,944 3,889 1,750 1,750 3,500 194	194	389
Public Iransport (Trips)         50%         50%         156         156         311         140         140         280         16	16	31
TOTAL TRIPS         33%         67%         2,100         4,288         6,388         1,890         3,859         5,749         210	429	639
TOTAL EVENT Inbound Outbound Inbound Outbound TOTAL Inbound Outbound TOTAL Inbound TOTAL		TOTAL
Car - Parking (Trips)         50%         50%         2,188         4,375         1,750         1,969         3,719         438	Outbound T	656
Car - Drop Ott (Trips) 50% 50% 3,889 3,889 7,778 3,306 3,306 6,611 583	Outbound T 219	1,167
Public Transport (Trips)         50%         50%         311         311         622         264         264         529         47	Outbound         T           219	
TOTAL TRIPS       50%       50%       6,388       12,775       5,320       5,539       10,859       1,068	Outbound         T           219	93

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TOTAL TRIPS
TOTAL EVENT
Car - Parking (Trips)
Car - Drop Off (Trips)
Public Transport (Trips)
TOTAL TRIPS

Table 7: Internal Distribution					
Zone Name	ID	Parking	Parking %	Drop Off	Drop Off %
Western Fields	А	200	10.0%	0	0%
Innovation Parkway Commercial	В	200	10.0%	0	0%
Industrial Precinct (north of Main St)	С	500	25.0%	0	0%
Kawana Sports Precinct	D	400	20.0%	100	100%
Residential Precinct (north of Wyanda Dr)	E	300	15.0%	0	0%
Residential Precinct (south of Wyanda Dr)	F	400	20.0%	0	0%
TOTAL		2000	100%	100	100%




Table 1	L: Population by Suburb		
ID	Suburbs	Population	%
А	Reesville-Curramore and District	2,756	0.84%
В	Belli Park - Cooloolabain - Gheerulla - Coolabine	1,349	0.41%
С	Eumundi - Eerwah Vale - North Arm - Bridges	4,142	1.26%
D	Doonan (part) - Weyba Downs - Verrierdale - Peregian Beach (pa	4,788	1.46%
Е	Mapleton - Flaxton - Obi Obi	2,757	0.84%
F	Kureelpa - Kiamba	1,138	0.35%
G	Yandina - Yandina Creek and District	7,767	2.36%
Н	Coolum Beach - Mount Coolum - Yarromba - Point Arkwright	16,293	4.96%
Ι	Peregian Springs	10,032	3.05%
J	Maleny - Witta - North Maleny	5,919	1.80%
Κ	Palmwoods - Chevallum - Montville - Hunchy	8,049	2.45%
L	Nambour - Burnside and District	18,895	5.75%
М	Woombye	3,529	1.07%
Ν	Bli Bli - Rosemount and District	15,112	4.60%
0	Marcoola - Twin Waters - Pacific Paradise - Mudjimba	11,889	3.62%
Р	Peachester - Crohamhurst - Booroobin - Wootha	2,174	0.66%
Q	Mooloolah Valley - Diamond Valley - Balmoral Ridge - Bald Knob	4,819	1.47%
R	Ilkley - Eudlo and District	5,198	1.58%
S	Buderim - Kuluin - Mons - Kunda Park	35,256	10.73%
Т	Maroochydore	18,356	5.59%
U	Mooloolaba - Alexandra Headland	12,425	3.78%
V	Mountain Creek	13,259	4.04%
W	Sippy Downs - Palmview	12,780	3.89%
Х	Wurtulla - Buddina and District	26,258	7.99%
Υ	Landsborough - Mount Mellum	4,811	1.46%
Ζ	Beerwah	7,439	2.26%
1	Glass House Mountains - Beerburrum - Coochin Creek - Bribie Is	6,532	1.99%
2	Little Mountain - Caloundra West - Meridan Plains - Bells Creek	25,751	7.84%
3	Currimundi - Aroona - Battery Hill - Dicky Beach	15,211	4.63%
4	Caloundra - Kings Beach - Moffat Beach - Shelly Beach	10,503	3.20%
5	Golden Beach	6,524	1.99%
6	Pelican Waters	6,724	2.05%
TOTAL		328,435	100%

םו			
	Suburbs	Population	%
A	Reesville-Curramore and District	2,756	0.84%
В	Belli Park - Cooloolabain - Gheerulla - Coolabine	1,349	0.41%
С	Eumundi - Eerwah Vale - North Arm - Bridges	4,142	1.26%
D	Doonan (part) - Weyba Downs - Verrierdale - Peregian Beach (p	4,788	1.46%
E	Mapleton - Flaxton - Obi Obi	2,757	0.84%
F	Kureelpa - Kiamba	1,138	0.35%
G	Yandina - Yandina Creek and District	7,767	2.36%
Н	Coolum Beach - Mount Coolum - Yarromba - Point Arkwright	16,293	4.96%
I	Peregian Springs	10,032	3.05%
J	Maleny - Witta - North Maleny	5,919	1.80%
K	Palmwoods - Chevallum - Montville - Hunchy	8,049	2.45%
L	Nambour - Burnside and District	18,895	5.75%
Μ	Woombye	3,529	1.07%
N	Bli Bli - Rosemount and District	15,112	4.60%
0	Marcoola - Twin Waters - Pacific Paradise - Mudjimba	11,889	3.62%
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U	Mooloolaba - Alexandra Headland	12,425	3.78%
V	Mountain Creek	13,259	4.04%
W	Sippy Downs - Palmview	12,780	3.89%
Х	Wurtulla - Buddina and District	26,258	7.99%
Y	Landsborough - Mount Mellum	4,811	1.46%
Z	Beerwah	7,439	2.26%
1	Glass House Mountains - Beerburrum - Coochin Creek - Bribie Is	6,532	1.99%
2	Little Mountain - Caloundra West - Meridan Plains - Bells Creek	25,751	7.84%
3	Currimundi - Aroona - Battery Hill - Dicky Beach	15,211	4.63%
4	Caloundra - Kings Beach - Moffat Beach - Shelly Beach	10,503	3.20%
5	Golden Beach	6,524	1.99%
6	Pelican Waters	6,724	2.05%
TOTA	-	328,435	100%

ID	Catchmont	Dopulation	0/	INTERNAL	EXTE	RNAL	TOTAL
	Catchinent	Population	70	78.0%	22	2%	100.0%
Red	Caloundra Road (East)	49,502	15.1%	11.8%			11.8%
Green	Parklands Boulevard (East)	15,211	4.6%	3.6%			3.6%
Blue	Caloundra-Mooloolaba Road (East)	51,942	15.8%	12.3%			12.3%
Black	Bruce Highway (North)	172,132	52.4%	40.9%	25%	5.5%	46.4%
Purple	Steve Irwin Way (West)	25,677	7.8%	6.1%			6.1%
Yellow	Bruce Highway (South)	13,971	4.3%	3.3%	75%	16.5%	19.8%
	TOTAL	328,435	100%	78.0%	100.0%	22.0%	100.0%



able 2	: Location 1 - Distribution Assumptions						
ID	Suburbs	Population	%				
А	Reesville-Curramore and District	2,756	0.84%				
В	Belli Park - Cooloolabain - Gheerulla - Coolabine	1,349	0.41%				
С	Eumundi - Eerwah Vale - North Arm - Bridges	4,142	1.26%				
D	Doonan (part) - Weyba Downs - Verrierdale - Peregian Beach (p	4,788	1.46%				
Е	Mapleton - Flaxton - Obi Obi	2,757	0.84%				
F	Kureelpa - Kiamba	1,138	0.35%				
G	Yandina - Yandina Creek and District	7,767	2.36%				
Н	Coolum Beach - Mount Coolum - Yarromba - Point Arkwright	16,293	4.96%				
1	Peregian Springs	10,032	3.05%				
J	Maleny - Witta - North Maleny	5,919	1.80%				
К	Palmwoods - Chevallum - Montville - Hunchy	8,049	2.45%				
L	Nambour - Burnside and District	18,895	5.75%				
М	Woombye	3,529	1.07%				
Ν	Bli Bli - Rosemount and District	15,112	4.60%				
0	Marcoola - Twin Waters - Pacific Paradise - Mudjimba	11,889	3.62%				
Р	Peachester - Crohamhurst - Booroobin - Wootha	2,174	0.66%				
Q	Mooloolah Valley - Diamond Valley - Balmoral Ridge - Bald Knob	4,819	1.47%				
R	Ilkley - Eudlo and District	5,198	1.58%				
S	Buderim - Kuluin - Mons - Kunda Park	35,256	10.73%				
Т	Maroochydore	18,356	5.59%				
U	Mooloolaba - Alexandra Headland	12,425	3.78%				
V	Mountain Creek	13,259	4.04%				
W	Sippy Downs - Palmview	12,780	3.89%				
Х	Wurtulla - Buddina and District	26,258	7.99%				
Y	Landsborough - Mount Mellum	4,811	1.46%				
Z	Beerwah	7,439	2.26%				
1	Glass House Mountains - Beerburrum - Coochin Creek - Bribie Is	6,532	1.99%				
2	Little Mountain - Caloundra West - Meridan Plains - Bells Creek	25,751	7.84%				
3	Currimundi - Aroona - Battery Hill - Dicky Beach	15,211	4.63%				
4	Caloundra - Kings Beach - Moffat Beach - Shelly Beach	10,503	3.20%				
5	Golden Beach	6,524	1.99%				
6	Pelican Waters	6,724	2.05%				
OTAL		328,435	100%				
		·		· · · · · · · · · · · · · · · · · · ·			ı ———
п	Suburbs	Population	%	INTERNAL	EXTE	RNAL	тот
	5050155	1 opulation	70	78.0%	22	2%	100
Red	Nicklin Way (south)	65,220	19.9%	15.5%			15.5
ellow	Kawana Way (south)	65,399	19.9%	15.5%	75.0%	16.5%	32.0
Black	Kawana Way (north)	110,774	33.7%	26.3%	25.0%	5.5%	31.8
reen	Nicklin Way (north)	87,042	26.5%	20.7%			20.7
	TOTAL	328,435	100.0%	78.0%	100.0%	22.0%	100.

D	Suburbe	Population	%	INTERNAL	EXTERNAL 22%		TOTAL
	Subulbs			78.0%			100%
ed	Nicklin Way (south)	65,220	19.9%	15.5%			15.5%
low	Kawana Way (south)	65,399	19.9%	15.5%	75.0%	16.5%	32.0%
ack	Kawana Way (north)	110,774	33.7%	26.3%	25.0%	5.5%	31.8%
een	Nicklin Way (north)	87,042	26.5%	20.7%			20.7%
	TOTAL	328,435	100.0%	78.0%	100.0%	22.0%	100.0%





Main Drive

Site Access





Main Drive

Site Access



C	
	D



# INTERSECTION ID \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ FIGURE TITLE Traffic Distribution Assumptions Parking Trips TRAFFIC DISTRIBUTION ASSUMPTIONS **Table 1: External Distribution** Origin / Destination Nicklin Way (south) Kawana Way (south) Kawana Way (north) Nicklin Way (north) **TOTAL** 32% 32% 21% **100%** Table 2: Internal Distribution Origin / Destination Parking 10% 100% TOTAL İ\_\_\_\_\_i DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID ------consulting traffic engineering - transport planni



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# INTERSECTION ID \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ FIGURE TITLE Traffic Distribution Assumptions Drop Off Trips E TRAFFIC DISTRIBUTION ASSUMPTIONS **Table 1: External Distribution** Origin / Destination Nicklin Way (south) Kawana Way (south) Kawana Way (north) Nicklin Way (north) **TOTAL** 32% 32% 21% **100%** Table 2: Internal Distribution Origin / Destination Drop Off 0% 100% TOTAL İ\_\_\_\_\_i DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID ------consulting traffic engineering - transport planni



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	Main Drive	0% 0%
	Site Access	



## INTERSECTION ID



FIGURE TITLE

# Traffic Distribution Assumptions Public Transport (Bus) Trips

## TRAFFIC DISTRIBUTION ASSUMPTIONS

### Table 1: Bus Service Distribution

Pouto No	Pouto	Classet Stan	Serv	vices	Distribu	ution
Roule No.	ule No. Roule Closest Stop		NB	SB	NB	SB
600	Caloundra to Maroochydore	Nicklin Way	58	59	22%	22%
602	Caloundra to Maroochydore	Nicklin Way	13	13	5%	5%
607	Caloundra to University	Kawana Way	31	31	12%	12%
611	Maroochydore to SCUH	Nicklin Way	29	29	11%	11%
TOTAL				132	50%	50%

### Table 2: Distribution

Origin	Distribution
Nicklin Way (south)	38%
Kawana Way (south)	12%
Kawana Way (north)	12%
Nicklin Way (north)	38%
TOTAL	100%

### DOCUMENT CONTROL

Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020

# LEGEND

- ## Thursday 4:00 to 5:00pm Traffic Volumes
  L Left Turn Movement
  T Through Turn Movement
  R Right Turn Movement
  U U-Turn Movement
  Intersection ID





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## INTERSECTION ID \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ FIGURE TITLE Traffic Distribution Assumptions Parking Trips TRAFFIC DISTRIBUTION ASSUMPTIONS **Table 1: External Distribution** Origin / Destination Nicklin Way (south) Kawana Way (south) Kawana Way (north) Nicklin Way (north) **TOTAL** 32% 32% 21% **100%** Table 2: Volume Distribution < 60mins before Event Outbound Inbound PRE EVENT TOTAL Car - Parking (Trips) 600 0 600 Car - Drop Off (Trips) 267 267 533 Public Transport (Trips) 3 3 5 869 269 1,139 TOTAL TRIPS \_\_\_\_\_\_ DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID ------consulting

traffic engineering - transport planni File Path: P:\P4844 CONFIDENTIAL Sunshine Coast Exp Stadium TIA\Technical Work\Traffic Assignment\



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## INTERSECTION ID \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ FIGURE TITLE Traffic Distribution Assumptions Drop Off Trips TRAFFIC DISTRIBUTION ASSUMPTIONS **Table 1: External Distribution** Origin / Destination Nicklin Way (south) Kawana Way (south) Kawana Way (north) Nicklin Way (north) **TOTAL** 32% 32% 21% **100% Table 2: Volumes Distribution** < 60mins before Event Outbound Inbound PRE EVENT TOTAL Car - Parking (Trips) 600 0 600 Car - Drop Off (Trips) 267 267 533 Public Transport (Trips) 3 3 5 869 269 1,139 TOTAL TRIPS \_\_\_\_\_\_ DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID ------consulting traffic engineering - transport planning



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	Main Drive	
	0 0	0 0
	Site Access	



## INTERSECTION ID \_\_\_\_\_ \_\_\_\_\_ FIGURE TITLE Traffic Distribution Assumptions Public Transport (Bus) Trips TRAFFIC DISTRIBUTION ASSUMPTIONS Table 1: Distribution Origin Nicklin Way (south) Kawana Way (south) Kawana Way (north) Nicklin Way (north) **TOTAL** <u>12%</u> 12% 100% **Table 2: Volumes Distribution** < 60mins before Event Outbound Inbound PRE EVENT TOTAL Car - Parking (Trips) 600 0 600 Car - Drop Off (Trips) 267 267 533 Public Transport (Trips) 3 3 5 869 269 1,139 TOTAL TRIPS \_\_\_\_\_\_ DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID ------consulting traffic engineering - transport planning



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	Main Drive		
110 28			
	Site Access		
			D







Main Drive

Site Access

# INTERSECTION ID 1,348 42 FIGURE TITLE 2023 Background + Development Traffic Volumes (6-7pm) **EVENT USE SCENARIO DETAILS Table 1: External Distribution Origin / Destination** INBOUND OUTBOUNT TOTAL Car - Parking (Trips) Car - Drop Off (Trips) Public Transport (Trips) **TOTAL TRIPS** 869 1139 269 DOCUMENT CONTROL Job Number: P4844 Job Name: Sunshine Coast Stadium TIA Prepared By: Aaron Lewis Reviewed By: Damien Scutt Prepared Date: 11/12/2020 Reviewed Date: 11/12/2020 LEGEND ## Thursday 4:00 to 5:00pm Traffic Volumes L Left Turn Movement T Through Turn Movement R Right Turn Movement U U-Turn Movement Intersection ID DIIZIUS ------consulting traffic engineering - transport planning



#### Appendix E: Detailed SIDRA Outputs

#### SITE LAYOUT

#### Site: 101 [2017 Survey (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated



SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com Organisation: BITZIOS CONSULTING | Created: Friday, 11 December 2020 9:51:29 AM Project: P:\P4844 CONFIDENTIAL Sunshine Coast Exp Stadium TIA\Technical Work\Models\SIDRA\P4844.001M Int #1 Nicklin Way - Palkana Dr - Kawana Island Blvd.sip7

#### Site: 101 [2017 Survey (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Move	Movement Performance - Vehicles												
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average		
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed		
Cautha	Nieklie M	veh/h	%	V/C	sec	_	veh	m	_	per veh	km/h		
South		vay		0.440					0.04	0.07	17.0		
1	L2	168	5.0	0.140	11.1	LOS B	3.0	21.7	0.31	0.67	47.9		
2	T1	1034	5.0	0.654	31.2	LOS C	16.9	123.5	0.93	0.79	43.9		
3	R2	22	5.0	0.102	43.0	LOS D	1.0	7.2	0.92	0.70	30.3		
Approa	ach	1224	5.0	0.654	28.7	LOS C	16.9	123.5	0.84	0.77	43.9		
East: F	Palkana D	Drive											
4	L2	22	5.0	0.020	8.1	LOS A	0.3	2.4	0.26	0.56	48.9		
5	T1	38	5.0	0.503	81.3	LOS F	2.9	21.3	1.00	0.73	9.3		
6	R2	35	5.0	0.488	86.1	LOS F	2.7	19.7	1.00	0.73	19.3		
Approa	ach	95	5.0	0.503	66.1	LOS E	2.9	21.3	0.83	0.69	18.8		
North:	Nicklin W	/ay											
7	L2	26	5.0	0.018	7.1	LOS A	0.1	0.9	0.11	0.60	54.1		
8	T1	899	5.0	0.470	25.3	LOS C	20.9	152.4	0.70	0.62	47.2		
9	R2	331	5.0	0.647	32.5	LOS C	12.9	94.4	0.92	0.84	25.1		
9u	U	8	5.0	0.647	33.7	LOS C	12.9	94.4	0.92	0.84	41.2		
Approa	ach	1264	5.0	0.647	26.9	LOS C	20.9	152.4	0.75	0.68	41.1		
West:	Kawana I	sland Boulev	ard										
10	L2	314	5.0	0.376	10.3	LOS B	7.4	53.8	0.40	0.68	47.4		
11	T1	38	5.0	0.153	63.3	LOS E	2.5	18.1	0.92	0.70	11.4		
12	R2	72	5.0	0.153	66.9	LOS E	2.4	17.2	0.92	0.73	20.8		
Approa	ach	424	5.0	0.376	24.6	LOS C	7.4	53.8	0.53	0.69	34.9		
All Ver	nicles	3007	5.0	0.654	28.5	LOS C	20.9	152.4	0.76	0.72	40.7		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians											
Mov		Demand	Demand Average Level of Average Back of Queue					Effective				
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate				
		ped/h	sec		ped	m		per ped				
P2	East Full Crossing	50	23.6	LOS C	0.1	0.1	0.56	0.56				
P3	North Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96				
P4	West Full Crossing	50	30.9	LOS D	0.1	0.1	0.83	0.83				
All Pedestrians		150	41.3	LOS E			0.78	0.78				

#### Site: 101 [2017 Survey (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, F, F1\*, F2\* Output Phase Sequence: A, B, C, D, E, F, F1\* (\* Variable Phase)

#### **Phase Timing Results**

Phase	Α	В	С	D	E	F	F1
Phase Change Time (sec)	0	37	59	77	103	115	127
Green Time (sec)	31	16	12	20	6	6	17
Phase Time (sec)	37	22	18	26	12	12	23
Phase Split	25%	15%	12%	17%	8%	8%	15%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.





#### **REF: Reference Phase** VAR: Variable Phase



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#### Site: 101 [2023 BG (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Move	ment Pe	rformance	- Vehic	les							
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV %	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South:	Nicklin V	Ven/m	70	V/C	Sec	_	Ven	111	_	per ven	K111/11
1	L2	230	5.0	0.195	13.3	LOS B	5.1	37.4	0.38	0.69	45.6
2	T1	1419	5.0	0.846	37.5	LOS D	27.7	202.3	0.98	0.91	40.8
3	R2	26	5.0	0.114	42.4	LOS D	1.1	8.4	0.92	0.71	30.5
Approa	ach	1675	5.0	0.846	34.3	LOS C	27.7	202.3	0.90	0.88	41.0
East: F	Palkana D	Drive									
4	L2	26	5.0	0.027	13.9	LOS B	0.6	4.7	0.40	0.60	43.9
5	T1	45	5.0	0.596	82.1	LOS F	3.5	25.5	1.00	0.77	9.2
6	R2	41	5.0	0.572	86.8	LOS F	3.2	23.2	1.00	0.76	19.1
Approa	ach	112	5.0	0.596	68.0	LOS E	3.5	25.5	0.86	0.72	18.4
North:	Nicklin W	/ay									
7	L2	31	5.0	0.021	7.2	LOS A	0.2	1.2	0.12	0.61	54.0
8	T1	1326	5.0	0.713	30.6	LOS C	37.6	274.3	0.83	0.76	44.2
9	R2	391	5.0	0.839	41.9	LOS D	18.4	134.1	1.00	0.91	22.6
9u	U	9	5.0	0.839	43.1	LOS D	18.4	134.1	1.00	0.91	37.3
Approa	ach	1757	5.0	0.839	32.7	LOS C	37.6	274.3	0.86	0.79	39.0
West:	Kawana I	sland Boulev	ard								
10	L2	371	5.0	0.523	17.1	LOS B	13.7	100.1	0.60	0.75	41.1
11	T1	45	5.0	0.182	63.6	LOS E	3.0	21.5	0.93	0.71	11.4
12	R2	106	5.0	0.225	67.7	LOS E	3.5	25.6	0.93	0.75	20.6
Approa	ach	522	5.0	0.523	31.4	LOS C	13.7	100.1	0.69	0.75	31.2
All Veh	nicles	4066	5.0	0.846	34.2	LOS C	37.6	274.3	0.85	0.82	38.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians											
Mov		Demand	Demand Average Level of Average Back of Queue				Prop.	Effective				
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate				
		ped/h	sec		ped	m		per ped				
P2	East Full Crossing	50	24.1	LOS C	0.1	0.1	0.57	0.57				
P3	North Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96				
P4	West Full Crossing	50	29.1	LOS C	0.1	0.1	0.81	0.81				
All Pedestrians		150	40.8	LOS E			0.78	0.78				

#### **Site: 101** [2023 BG (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, F, F1\*, F2\* Output Phase Sequence: A, B, C, D, E, F, F1\* (\* Variable Phase)

#### **Phase Timing Results**

Phase	Α	В	С	D	E	F	F1
Phase Change Time (sec)	0	40	61	80	106	118	130
Green Time (sec)	34	15	13	20	6	6	14
Phase Time (sec)	40	21	19	26	12	12	20
Phase Split	27%	14%	13%	17%	8%	8%	13%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.





#### **REF: Reference Phase** VAR: Variable Phase



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#### Site: 101 [2023 BG + ScenA (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Move	ment Pe	rformance	- Vehic	les							
Mov	OD	Demand	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South:	Nicklin V	Vay									
1	L2	230	5.0	0.195	13.3	LOS B	5.1	37.4	0.38	0.69	45.6
2	T1	1477	5.0	0.882	42.5	LOS D	30.8	225.1	0.99	0.96	38.6
3	R2	26	5.0	0.121	43.1	LOS D	1.2	8.5	0.92	0.71	30.2
Approa	ach	1733	5.0	0.882	38.7	LOS D	30.8	225.1	0.91	0.92	39.0
East: F	Palkana D	Drive									
4	L2	26	5.0	0.030	19.3	LOS B	0.8	5.9	0.49	0.62	40.1
5	T1	45	5.0	0.596	82.1	LOS F	3.5	25.5	1.00	0.77	9.2
6	R2	41	5.0	0.572	86.8	LOS F	3.2	23.2	1.00	0.76	19.1
Approa	ach	112	5.0	0.596	69.2	LOS E	3.5	25.5	0.88	0.73	18.2
North:	Nicklin W	/ay									
7	L2	31	5.0	0.021	7.2	LOS A	0.2	1.2	0.12	0.61	54.0
8	T1	1507	5.0	0.800	32.1	LOS C	45.7	333.6	0.89	0.82	43.4
9	R2	391	5.0	0.839	41.7	LOS D	18.1	132.5	1.00	0.91	22.6
9u	U	9	5.0	0.839	42.9	LOS D	18.1	132.5	1.00	0.91	37.4
Approa	ach	1938	5.0	0.839	33.7	LOS C	45.7	333.6	0.90	0.83	38.9
West:	Kawana I	sland Boulev	vard								
10	L2	371	5.0	0.531	18.6	LOS B	14.5	105.6	0.63	0.76	39.9
11	T1	45	5.0	0.182	63.6	LOS E	3.0	21.5	0.93	0.71	11.4
12	R2	106	5.0	0.225	67.7	LOS E	3.5	25.6	0.93	0.75	20.6
Approa	ach	522	5.0	0.531	32.5	LOS C	14.5	105.6	0.71	0.75	30.7
All Veh	nicles	4305	5.0	0.882	36.5	LOS D	45.7	333.6	0.88	0.85	37.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians											
Mov		Demand	Demand Average Level of Average Back of Queue					Effective				
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate				
		ped/h	sec		ped	m		per ped				
P2	East Full Crossing	50	23.6	LOS C	0.1	0.1	0.56	0.56				
P3	North Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96				
P4	West Full Crossing	50	28.6	LOS C	0.1	0.1	0.80	0.80				
All Pedestrians		150	40.5	LOS E			0.77	0.77				

#### Site: 101 [2023 BG + ScenA (6-7)]

Intersection #1 Nicklin Way / Palkana Drive / Kawana Island Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, F, F1\*, F2\* Output Phase Sequence: A, B, C, D, E, F, F1\* (\* Variable Phase)

#### **Phase Timing Results**

Phase	Α	В	С	D	E	F	F1
Phase Change Time (sec)	0	41	63	81	107	119	131
Green Time (sec)	35	16	12	20	6	6	13
Phase Time (sec)	41	22	18	26	12	12	19
Phase Split	27%	15%	12%	17%	8%	8%	13%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.





#### **REF: Reference Phase** VAR: Variable Phase



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#### SITE LAYOUT

#### Site: 102 [2017 Survey (6-7)]

Intersection #2 Nicklin Way / Main Drive Signals - Fixed Time Isolated



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#### Site: 102 [2017 Survey (6-7)]

Intersection #2 Nicklin Way / Main Drive

Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Move	ment Pe	erformance	- Vehic	les							
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
Ocutha	NE LESS A	veh/h	%	v/c	sec		veh	m		per veh	km/h
South		Ivay									
1	L2	19	5.0	0.019	22.6	LOS C	0.6	4.5	0.48	0.67	41.7
2	T1	795	5.0	0.395	20.5	LOS C	16.6	120.9	0.62	0.55	50.2
3	R2	14	5.0	0.232	86.6	LOS F	1.2	8.8	1.00	0.69	20.0
3u	U	2	5.0	0.232	87.9	LOS F	1.2	8.8	1.00	0.69	25.6
Appro	ach	830	5.0	0.395	21.9	LOS C	16.6	120.9	0.62	0.55	49.0
East: \	Wyanda I	Drive									
4	L2	5	5.0	0.077	64.0	LOS E	1.3	9.7	0.89	0.66	24.3
5	T1	16	5.0	0.077	59.4	LOS E	1.3	9.7	0.89	0.66	20.7
6	R2	22	5.0	0.084	64.1	LOS E	1.4	10.2	0.90	0.70	23.7
Appro	ach	43	5.0	0.084	62.4	LOS E	1.4	10.2	0.90	0.68	22.7
North:	Nicklin V	Vay									
7	L2	25	5.0	0.161	76.4	LOS E	1.7	12.7	0.96	0.72	21.6
8	T1	837	5.0	0.249	15.3	LOS B	9.5	69.3	0.51	0.44	54.1
9	R2	57	5.0	0.375	78.3	LOS E	4.1	30.2	0.98	0.76	24.2
9u	U	1	5.0	0.375	79.3	LOS E	4.1	30.2	0.98	0.76	27.1
Appro	ach	920	5.0	0.375	20.9	LOS C	9.5	69.3	0.55	0.47	49.3
West:	Main Driv	ve									
10	L2	25	5.0	0.035	7.1	LOS A	0.3	2.3	0.23	0.56	49.9
11	T1	42	5.0	0.380	76.4	LOS E	3.2	23.1	1.00	0.74	18.0
12	R2	1	5.0	0.380	81.0	LOS F	3.2	23.1	1.00	0.74	24.1
Appro	ach	68	5.0	0.380	51.0	LOS D	3.2	23.1	0.72	0.67	25.8
All Vel	hicles	1861	5.0	0.395	23.4	LOS C	16.6	120.9	0.60	0.52	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians												
Mov	-	Demand	Average	Level of	Average Bac	k of Queue	Prop.	Effective					
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate					
		ped/h	sec		ped	m		per ped					
P1	South Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96					
P2	East Full Crossing	50	15.4	LOS B	0.1	0.1	0.45	0.45					
P4	West Full Crossing	50	17.8	LOS B	0.1	0.1	0.49	0.49					
All Peo	destrians	150	34.2	LOS D			0.63	0.63					

#### Site: 102 [2017 Survey (6-7)]

Intersection #2 Nicklin Way / Main Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E Output Phase Sequence: A, B, C, D, E

#### **Phase Timing Results**

Phase	Α	В	С	D	E
Phase Change Time (sec)	0	76	88	103	131
Green Time (sec)	70	6	9	22	13
Phase Time (sec)	76	12	15	28	19
Phase Split	51%	8%	10%	19%	13%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



#### Site: 102 [2023 BG (6-7)]

Intersection #2 Nicklin Way / Main Drive

Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov	OD	Demand I	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South		veh/h	%	V/C	sec	_	veh	m	_	per veh	km/h
South		vvay	5.0	0.004	00.0	100.0	0.7	4.0	0.44	0.07	40.0
1	L2	22	5.0	0.021	20.3	LUSC	0.7	4.8	0.44	0.67	43.0
2	11	1170	5.0	0.548	20.2	LOSC	25.6	187.2	0.66	0.60	50.5
3	R2	17	5.0	0.274	86.9	LOS F	1.4	10.5	1.00	0.70	20.0
3u	U	2	5.0	0.274	88.2	LOS F	1.4	10.5	1.00	0.70	25.5
Appro	ach	1211	5.0	0.548	21.2	LOS C	25.6	187.2	0.66	0.60	49.5
East:	Wyanda	Drive									
4	L2	6	5.0	0.091	64.2	LOS E	1.6	11.6	0.90	0.67	24.2
5	T1	19	5.0	0.091	59.6	LOS E	1.6	11.6	0.90	0.67	20.7
6	R2	26	5.0	0.099	64.3	LOS E	1.7	12.1	0.90	0.71	23.6
Appro	ach	51	5.0	0.099	62.6	LOS E	1.7	12.1	0.90	0.69	22.6
North:	Nicklin V	Vay									
7	L2	30	5.0	0.251	80.8	LOS F	2.2	15.8	0.98	0.73	20.9
8	T1	1275	5.0	0.378	15.7	LOS B	15.8	115.4	0.55	0.49	53.8
9	R2	67	5.0	0.572	83.3	LOS F	5.1	37.0	1.00	0.77	23.4
9u	U	1	5.0	0.572	84.3	LOS F	5.1	37.0	1.00	0.77	26.1
Appro	ach	1373	5.0	0.572	20.5	LOS C	15.8	115.4	0.58	0.51	49.7
West:	Main Dri	ve									
10	L2	30	5.0	0.053	9.5	LOS A	0.5	4.0	0.31	0.58	48.1
11	T1	50	5.0	0.579	80.5	LOS F	3.9	28.5	1.00	0.76	17.4
12	R2	1	5.0	0.579	85.1	LOS F	3.9	28.5	1.00	0.76	23.4
Appro	ach	81	5.0	0.579	54.2	LOS D	3.9	28.5	0.74	0.70	25.0
All Vel	hicles	2716	5.0	0.579	22.6	LOS C	25.6	187.2	0.63	0.56	47.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians												
Mov		Demand	Average	Level of	Average Bac	k of Queue	Prop.	Effective					
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate					
		ped/h	sec		ped	m		per ped					
P1	South Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96					
P2	East Full Crossing	50	14.6	LOS B	0.1	0.1	0.44	0.44					
P4	West Full Crossing	50	15.4	LOS B	0.1	0.1	0.45	0.45					
All Peo	destrians	150	33.1	LOS D			0.62	0.62					

#### Site: 102 [2023 BG (6-7)]

Intersection #2 Nicklin Way / Main Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E Output Phase Sequence: A, B, C, D, E

#### **Phase Timing Results**

Phase	Α	В	С	D	E
Phase Change Time (sec)	0	81	93	106	134
Green Time (sec)	75	6	7	22	10
Phase Time (sec)	81	12	13	28	16
Phase Split	54%	8%	9%	19%	11%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



#### Site: 102 [2023 BG (6-7) + ScenA]

Intersection #2 Nicklin Way / Main Drive

Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Move	ment Pe	erformance	- Vehic	les							
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
0 11		veh/h	%	v/c	sec		veh	m		per veh	km/h
South	: Nicklin V	Vay									
1	L2	130	5.0	0.167	33.8	LOS C	5.7	41.6	0.65	0.75	36.5
2	T1	1209	5.0	0.810	38.6	LOS D	39.6	289.3	0.90	0.82	40.2
3	R2	26	5.0	0.400	87.6	LOS F	2.1	15.7	1.00	0.72	19.8
3u	U	2	5.0	0.400	88.9	LOS F	2.1	15.7	1.00	0.72	25.4
Appro	ach	1367	5.0	0.810	39.1	LOS D	39.6	289.3	0.88	0.81	39.3
East:	Wyanda I	Drive									
4	L2	6	5.0	0.091	64.2	LOS E	1.6	11.6	0.90	0.67	24.2
5	T1	19	5.0	0.091	59.6	LOS E	1.6	11.6	0.90	0.67	20.7
6	R2	26	5.0	0.099	64.3	LOS E	1.7	12.1	0.90	0.71	23.6
Appro	ach	51	5.0	0.099	62.6	LOS E	1.7	12.1	0.90	0.69	22.6
North:	Nicklin V	Vay									
7	L2	42	5.0	0.220	73.7	LOS E	2.9	20.9	0.95	0.74	22.2
8	T1	1348	5.0	0.488	26.0	LOS C	21.9	159.6	0.71	0.63	46.7
9	R2	150	5.0	0.791	82.7	LOS F	11.6	84.4	1.00	0.87	23.5
9u	U	1	5.0	0.791	83.7	LOS F	11.6	84.4	1.00	0.87	26.2
Appro	ach	1541	5.0	0.791	32.8	LOS C	21.9	159.6	0.74	0.65	42.1
West:	Main Driv	ve									
10	L2	106	5.0	0.149	15.2	LOS B	3.0	21.7	0.45	0.65	44.4
11	T1	98	5.0	0.826	72.9	LOS E	17.7	129.5	1.00	0.94	18.1
12	R2	134	5.0	0.826	77.5	LOS E	17.7	129.5	1.00	0.94	24.3
Appro	ach	338	5.0	0.826	56.6	LOS E	17.7	129.5	0.83	0.85	26.5
All Vel	hicles	3297	5.0	0.826	38.3	LOS D	39.6	289.3	0.81	0.74	38.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians												
Mov		Demand	Average	Level of	Average Bac	k of Queue	Prop.	Effective					
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate					
		ped/h	sec		ped	m		per ped					
P1	South Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96					
P2	East Full Crossing	50	22.5	LOS C	0.1	0.1	0.55	0.55					
P4	West Full Crossing	50	27.1	LOS C	0.1	0.1	0.60	0.60					
All Peo	destrians	150	39.6	LOS D			0.70	0.70					

#### Site: 102 [2023 BG (6-7) + ScenA]

Intersection #2 Nicklin Way / Main Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E Output Phase Sequence: A, B, C, D, E

#### **Phase Timing Results**

Phase	Α	В	С	D	E
Phase Change Time (sec)	0	59	71	100	128
Green Time (sec)	53	6	23	22	16
Phase Time (sec)	59	12	29	28	22
Phase Split	39%	8%	19%	19%	15%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



#### SITE LAYOUT

#### V Site: 103 [2023 BG + Scen1 (6-7)]

Intersection #3 Nicklin Way / Site Access Giveway / Yield (Two-Way)



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#### ▽ Site: 103 [2023 BG + Scen1 (6-7)]

Intersection #3 Nicklin Way / Site Access Giveway / Yield (Two-Way)

Move	Movement Performance - Vehicles												
Mov ID	OD Mov	Demand F Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h		
South:	Nicklin \	Way											
1	L2	40	5.0	0.022	7.6	LOS A	0.0	0.0	0.00	0.70	46.5		
2	T1	1255	5.0	0.329	0.0	LOS A	0.0	0.0	0.00	0.00	69.9		
3u	U	1	5.0	0.012	45.9	LOS E	0.0	0.2	0.92	0.97	22.2		
Approa	ach	1296	5.0	0.329	0.3	NA	0.0	0.2	0.00	0.02	68.0		
North: Nicklin Way		Vay											
8	T1	1333	5.0	0.540	2.6	LOS A	6.1	44.5	0.19	0.00	63.9		
9	R2	138	5.0	1.017	160.1	LOS F	12.4	90.3	1.00	1.94	7.9		
Approa	ach	1471	5.0	1.017	17.4	NA	12.4	90.3	0.27	0.18	39.7		
West: \$	Site Acce	ess											
10	L2	114	5.0	3.842	5185.4	LOS F	134.6	982.8	1.00	17.42	0.1		
12	R2	22	5.0	3.842	5313.9	LOS F	134.6	982.8	1.00	17.42	0.3		
Approa	ach	136	5.0	3.842	5206.2	LOS F	134.6	982.8	1.00	17.42	0.2		
All Veh	nicles	2903	5.0	3.842	252.8	NA	134.6	982.8	0.18	0.92	5.1		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\P4844 CONFIDENTIAL Sunshine Coast Exp Stadium TIA\Technical Work\Models\SIDRA\P4844.001M Int #3 Nicklin Way - Site Access.sip7

#### V Site: 103 [2023 BG + Scen1 (6-7) - Left in / Left Out]

Intersection #3 Nicklin Way / Site Access Giveway / Yield (Two-Way)

Move	Movement Performance - Vehicles											
Mov	OD	Demand I	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average	
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed	
		veh/h	%	v/c	sec		veh	m		per veh	km/h	
South:	Nicklin Wa	у										
1	L2	178	5.0	0.098	7.6	LOS A	0.0	0.0	0.00	0.70	46.5	
2	T1	1255	5.0	0.329	0.0	LOS A	0.0	0.0	0.00	0.00	69.9	
Approa	ach	1433	5.0	0.329	1.0	NA	0.0	0.0	0.00	0.09	63.8	
North:	Nicklin Way	/										
8	T1	1471	5.0	0.385	0.0	LOS A	0.0	0.0	0.00	0.00	69.9	
Approa	ach	1471	5.0	0.385	0.0	NA	0.0	0.0	0.00	0.00	69.9	
West: S	Site Access	;										
10	L2	136	5.0	0.209	4.2	LOS A	0.8	6.0	0.58	0.58	14.1	
Approa	ach	136	5.0	0.209	4.2	LOS A	0.8	6.0	0.58	0.58	14.1	
All Veh	icles	3040	5.0	0.385	0.7	NA	0.8	6.0	0.03	0.07	62.1	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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#### SITE LAYOUT

#### Site: 104 [2017 Survey (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated



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#### Site: 104 [2017 Survey (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average	
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed	
South	Nicklin W/	ven/n	%	V/C	sec	_	ven	m	_	per ven	KM/N	
1		15	5.0	0.010	6.0	1.05.4	0.0	0.3	0.08	0.60	52.1	
1		10	5.0	0.010	0.9	LOSA	0.0	120.0	0.00	0.00	JZ.1	
2		808	5.0	0.411	20.6	LOSC	17.9	130.9	0.62	0.55	49.8	
3	R2	57	5.0	0.235	39.4	LOS D	2.2	16.3	0.93	0.75	35.3	
3u	U	2	5.0	0.235	40.3	LOS D	2.2	16.3	0.93	0.75	36.2	
Approa	ach	882	5.0	0.411	21.6	LOS C	17.9	130.9	0.63	0.56	48.5	
East: E	Beach Driv	e										
4	L2	50	5.0	0.070	7.4	LOS A	0.6	4.7	0.27	0.57	49.4	
5	T1	1	5.0	0.004	63.1	LOS E	0.1	0.5	0.90	0.56	21.2	
6	R2	3	5.0	0.018	67.5	LOS E	0.2	1.4	0.90	0.63	27.4	
Approa	ach	54	5.0	0.070	11.7	LOS B	0.6	4.7	0.31	0.58	46.5	
North:	Nicklin Wa	iy										
7	L2	3	5.0	0.002	7.1	LOS A	0.0	0.1	0.11	0.59	52.7	
8	T1	845	5.0	0.410	11.5	LOS B	11.0	80.0	0.63	0.55	57.1	
9	R2	10	5.0	0.032	41.8	LOS D	0.5	3.4	0.86	0.67	29.7	
Approa	ach	858	5.0	0.410	11.8	LOS B	11.0	80.0	0.63	0.55	56.7	
West:	Meridan St	treet										
10	L2	15	5.0	0.021	5.6	LOS A	0.2	1.3	0.22	0.48	48.2	
11	T1	2	5.0	0.009	62.0	LOS E	0.1	0.9	0.90	0.56	21.6	
12	R2	53	5.0	0.315	70.2	LOS E	3.7	26.7	0.95	0.75	20.4	
Approa	ach	70	5.0	0.315	56.1	LOS E	3.7	26.7	0.80	0.69	23.4	
All Ver	nicles	1864	5.0	0.411	18.1	LOS B	17.9	130.9	0.63	0.56	50.5	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians												
Mov	Description	Demand	Average	Level of	Average Bac	k of Queue	Prop.	Effective					
U	Description	ped/h	Delay sec	Service	Pedestrian ped	Distance	Queuea	per ped					
P2	East Full Crossing	50	13.0	LOS B	0.1	0.1	0.58	0.58					
P3	North Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96					
P4	West Full Crossing	50	20.3	LOS C	0.1	0.1	0.52	0.52					
All Peo	destrians	150	34.2	LOS D			0.69	0.69					

#### Site: 104 [2017 Survey (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, E1\*, E2\* Output Phase Sequence: A, B, C, D, E (\* Variable Phase)

#### Phase Timing Results

Phase	Α	В	С	D	E
Phase Change Time (sec)	0	67	88	114	138
Green Time (sec)	61	15	20	18	6
Phase Time (sec)	67	21	26	24	12
Phase Split	45%	14%	17%	16%	8%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase


## Site: 104 [2023 BG (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Move	Movement Performance - Vehicles												
Mov	OD	Demand I	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average		
ID	Mov	Total	HV %	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed km/b		
South:	Nicklin V	Vay	/0	V/C	360		VCII			perven	K111/11		
1	L2	18	5.0	0.012	6.9	LOS A	0.1	0.4	0.09	0.60	52.0		
2	T1	1032	5.0	0.638	28.9	LOS C	30.9	225.7	0.76	0.68	44.6		
3	R2	186	5.0	0.625	39.4	LOS D	7.0	50.8	0.98	0.81	35.3		
3u	U	2	5.0	0.625	40.3	LOS D	7.0	50.8	0.98	0.81	36.3		
Appro	ach	1238	5.0	0.638	30.1	LOS C	30.9	225.7	0.79	0.70	43.0		
East: E	Beach Dri	ve											
4	L2	127	5.0	0.178	11.0	LOS B	2.7	19.6	0.40	0.63	47.0		
5	T1	7	5.0	0.019	52.4	LOS D	0.4	3.0	0.83	0.60	23.4		
6	R2	157	5.0	0.630	65.7	LOS E	10.8	78.8	0.97	0.82	27.8		
Approa	ach	291	5.0	0.630	41.5	LOS D	10.8	78.8	0.72	0.73	33.6		
North:	Nicklin W	/ay											
7	L2	242	5.0	0.187	8.7	LOS A	2.9	21.5	0.23	0.65	51.5		
8	T1	1046	5.0	0.636	21.2	LOS C	21.5	156.9	0.84	0.74	49.4		
9	R2	12	5.0	0.043	39.5	LOS D	0.5	3.7	0.88	0.68	30.5		
Approa	ach	1300	5.0	0.636	19.1	LOS B	21.5	156.9	0.72	0.72	49.6		
West:	Meridan S	Street											
10	L2	18	5.0	0.034	10.6	LOS B	0.4	2.6	0.43	0.55	43.9		
11	T1	19	5.0	0.050	51.6	LOS D	1.1	8.1	0.84	0.60	23.9		
12	R2	63	5.0	0.245	58.3	LOS E	3.9	28.7	0.88	0.74	22.8		
Appro	ach	100	5.0	0.245	48.4	LOS D	3.9	28.7	0.79	0.68	25.3		
All Vel	nicles	2929	5.0	0.638	27.0	LOS C	30.9	225.7	0.75	0.71	43.7		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians											
Mov	Description	Demand	Average	Level of	Average Bac	Prop.	Effective					
ID	Description	Flow ped/h	Delay sec	Service	Pedestrian ped	Distance m	Queued	Stop Rate per ped				
P2	East Full Crossing	50	20.0	LOS C	0.1	0.1	0.69	0.69				
P3	North Full Crossing	50	60.9	LOS F	0.2	0.2	0.90	0.90				
P4	West Full Crossing	50	25.3	LOS C	0.1	0.1	0.58	0.58				
All Pedestrians		150	35.4	LOS D			0.72	0.72				

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement. Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

### **Site: 104 [2023 BG (6-7)]**

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, E1\*, E2\* Output Phase Sequence: A, B, C, D, E, E1\* (\* Variable Phase)

#### **Phase Timing Results**

Phase	Α	В	С	D	E	E1
Phase Change Time (sec)	0	54	72	95	131	143
Green Time (sec)	48	12	17	30	6	1
Phase Time (sec)	54	18	23	36	12	7
Phase Split	36%	12%	15%	24%	8%	5%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



## Site: 104 [2023 BG + ScenA (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Move	ment Pe	erformance	- Vehio	cles							
Mov	OD	Demand	Flows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	Total	HV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South		Ven/h	%	V/C	sec	_	ven	m	_	per ven	Km/h
30utii.		20	5.0	0.026	6.0		0.1	1.0	0.00	0.60	52.0
1	LZ T4	39	5.0	0.020	0.9	LOSA	0.1	1.0	0.09	0.00	52.0
2	11	1136	5.0	0.672	27.0	LUSC	33.7	245.7	0.76	0.68	45.7
3	R2	208	5.0	0.601	45.7	LOS D	8.9	64.9	0.96	0.85	33.3
3u	U	2	5.0	0.601	46.6	LOS D	8.9	64.9	0.96	0.85	34.0
Approa	ach	1385	5.0	0.672	29.2	LOS C	33.7	245.7	0.77	0.70	43.3
East: E	Beach Dr	ive									
4	L2	127	5.0	0.181	11.8	LOS B	2.8	20.5	0.43	0.64	46.5
5	T1	7	5.0	0.020	54.2	LOS D	0.4	3.0	0.84	0.61	23.0
6	R2	157	5.0	0.672	68.6	LOS E	11.1	81.0	0.99	0.84	27.2
Approa	ach	291	5.0	0.672	43.5	LOS D	11.1	81.0	0.74	0.75	33.0
North:	Nicklin V	Vay									
7	L2	265	5.0	0.207	8.9	LOS A	3.5	25.2	0.24	0.65	51.4
8	T1	1068	5.0	0.670	19.8	LOS B	18.9	137.7	0.86	0.76	50.4
9	R2	12	5.0	0.047	41.6	LOS D	0.5	3.9	0.89	0.68	29.8
Approa	ach	1345	5.0	0.670	17.8	LOS B	18.9	137.7	0.74	0.74	50.4
West:	Meridan	Street									
10	L2	18	5.0	0.037	11.5	LOS B	0.4	2.8	0.45	0.56	43.2
11	T1	19	5.0	0.054	53.4	LOS D	1.1	8.3	0.85	0.61	23.4
12	R2	84	5.0	0.347	61.4	LOS E	5.4	39.7	0.91	0.77	22.1
Approa	ach	121	5.0	0.347	52.7	LOS D	5.4	39.7	0.84	0.71	24.1
All Ver	nicles	3142	5.0	0.672	26.6	LOS C	33.7	245.7	0.76	0.72	43.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians												
Mov	Description	Demand	Average	Level of	Average Bac	Prop.	Effective						
ID	Description	Flow ped/b	Delay	Service	Pedestrian	Distance	Queued	Stop Rate					
		peu/ii	360		peu	111		per peu					
P2	East Full Crossing	50	18.9	LOS B	0.1	0.1	0.70	0.70					
P3	North Full Crossing	50	62.7	LOS F	0.2	0.2	0.92	0.92					
P4	West Full Crossing	50	23.0	LOS C	0.1	0.1	0.55	0.55					
All Pedestrians		150	34.9	LOS D			0.72	0.72					

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement. Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

## Site: 104 [2023 BG + ScenA (6-7)]

Intersection #4 Nicklin Way / Meridan Street / Beach Drive Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B, C, D, E, E1\*, E2\* Output Phase Sequence: A, B, C, D, E (\* Variable Phase)

#### Phase Timing Results

Phase	Α	В	С	D	E
Phase Change Time (sec)	0	54	83	104	138
Green Time (sec)	48	23	15	28	6
Phase Time (sec)	54	29	21	34	12
Phase Split	36%	19%	14%	23%	8%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



## SITE LAYOUT

## Site: 105 [2017 Survey (6-7)]

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated



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#### Site: 105 [2017 Survey (6-7)]

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase Times determined by the program Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B\*, C\*, D, E, F Output Phase Sequence: A, D, E, F (\* Variable Phase)

#### **Phase Timing Results**

Phase	Α	D	E	F
Phase Change Time (sec)	0	70	94	126
Green Time (sec)	64	18	26	18
Phase Time (sec)	70	24	32	24
Phase Split	47%	16%	21%	16%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



## SITE LAYOUT

## Site: 105 [2023 BG (6-7)]

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated



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## **Site: 105 [2023 BG (6-7)]**

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Degree of Saturation)

Phase Times determined by the program Phase Sequence: Leading Right Turn Reference Phase: Phase B Input Phase Sequence: A, B, C, D, E Output Phase Sequence: A, B, C, D, E

#### **Phase Timing Results**

Phase	Α	В	С	D	E
Phase Change Time (sec)	108	0	35	52	83
Green Time (sec)	36	29	11	25	19
Phase Time (sec)	42	35	17	31	25
Phase Split	28%	23%	11%	21%	17%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



## SITE LAYOUT

## Site: 105 [2023 BG + ScenA (6-7)]

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated



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### Site: 105 [2023 BG + ScenA (6-7)]

Intersection #5 Nicklin Way / Lake Kawana Boulevard Signals - Fixed Time Isolated Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Degree of Saturation)

Phase Times determined by the program Phase Sequence: Leading Right Turn Reference Phase: Phase B Input Phase Sequence: A, B, C, D, E Output Phase Sequence: A, B, C, D, E

#### **Phase Timing Results**

Phase	Α	В	С	D	E
Phase Change Time (sec)	105	0	34	50	81
Green Time (sec)	39	28	10	25	18
Phase Time (sec)	45	34	16	31	24
Phase Split	30%	23%	11%	21%	16%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



## SITE LAYOUT

# **V** Site: 106 [2017 Survey (6-7)]

Intersection #6 Kawana Way / Metier Linkway Roundabout



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# ₩ Site: 106 [2017 Survey (6-7)]

Intersection #6 Kawana Way / Metier Linkway Roundabout

Move	Movement Performance - Vehicles													
Mov	OD	Demand I	Flows_	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average			
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed			
		veh/h	%	v/c	sec		veh	m		per veh	km/h			
South:	Kawana	a Way												
2	T1	561	5.0	0.273	4.6	LOS A	1.8	13.2	0.40	0.49	53.2			
3	R2	132	5.0	0.273	10.0	LOS B	1.8	12.9	0.41	0.56	50.3			
3u	U	3	5.0	0.273	12.2	LOS B	1.8	12.9	0.41	0.56	54.6			
Approa	ach	696	5.0	0.273	5.7	LOS A	1.8	13.2	0.40	0.51	52.7			
East: N	Metier Li	nkway												
4	L2	108	5.0	0.122	4.7	LOS A	0.6	4.1	0.50	0.58	49.4			
6	R2	164	5.0	0.156	9.0	LOS A	0.8	5.5	0.49	0.69	43.4			
6u	U	1	5.0	0.156	10.9	LOS B	0.8	5.5	0.49	0.69	42.3			
Approa	ach	273	5.0	0.156	7.3	LOS A	0.8	5.5	0.50	0.65	45.9			
North:	Kawana	a Way												
7	L2	100	5.0	0.190	4.6	LOS A	1.3	9.6	0.37	0.45	47.2			
8	T1	400	5.0	0.190	4.6	LOS A	1.3	9.6	0.38	0.44	53.9			
9u	U	1	5.0	0.190	11.9	LOS B	1.3	9.4	0.38	0.44	53.4			
Approa	ach	501	5.0	0.190	4.6	LOS A	1.3	9.6	0.37	0.44	52.8			
All Veh	nicles	1470	5.0	0.273	5.6	LOS A	1.8	13.2	0.41	0.51	51.6			

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# ₩ Site: 106 [2023 BG (6-7)]

Intersection #6 Kawana Way / Metier Linkway Roundabout

Move	Movement Performance - Vehicles													
Mov	OD	Demand F	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average			
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed			
		veh/h	%	v/c	sec		veh	m		per veh	km/h			
South:	Kawana	a Way												
2	T1	662	5.0	0.334	4.9	LOS A	2.4	17.2	0.46	0.52	52.9			
3	R2	159	5.0	0.334	10.3	LOS B	2.3	16.7	0.47	0.59	49.9			
3u	U	4	5.0	0.334	12.6	LOS B	2.3	16.7	0.47	0.59	54.2			
Approa	ach	825	5.0	0.334	6.0	LOS A	2.4	17.2	0.46	0.53	52.4			
East: Metier Link		nkway												
4	L2	127	5.0	0.152	5.1	LOS A	0.7	5.2	0.55	0.63	49.2			
6	R2	194	5.0	0.194	9.3	LOS A	1.0	7.0	0.54	0.72	43.2			
6u	U	1	5.0	0.194	11.1	LOS B	1.0	7.0	0.54	0.72	42.1			
Approa	ach	322	5.0	0.194	7.6	LOS A	1.0	7.0	0.55	0.69	45.6			
North:	Kawana	Way												
7	L2	118	5.0	0.231	4.7	LOS A	1.7	12.2	0.42	0.47	46.8			
8	T1	472	5.0	0.231	4.8	LOS A	1.7	12.2	0.43	0.47	53.6			
9u	U	1	5.0	0.231	12.2	LOS B	1.6	11.9	0.44	0.47	52.9			
Approa	ach	591	5.0	0.231	4.8	LOS A	1.7	12.2	0.43	0.47	52.5			
All Veh	nicles	1738	5.0	0.334	5.9	LOS A	2.4	17.2	0.47	0.54	51.2			

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# ₩ Site: 106 [2023 BG + ScenA (6-7)]

Intersection #6 Kawana Way / Metier Linkway Roundabout

Move	Movement Performance - Vehicles												
Mov	OD	Demand F	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average		
ID	Mov	Total	ΗV	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed		
		veh/h	%	v/c	sec		veh	m		per veh	km/h		
South:	Kawana	a Way											
2	T1	691	5.0	0.478	5.8	LOS A	3.8	27.7	0.62	0.61	52.0		
3	R2	366	5.0	0.478	11.4	LOS B	3.6	26.5	0.63	0.71	47.7		
3u	U	4	5.0	0.478	13.7	LOS B	3.6	26.5	0.63	0.71	52.2		
Approa	ach	1061	5.0	0.478	7.7	LOS A	3.8	27.7	0.62	0.65	50.5		
East: I	Metier Li	nkway											
4	L2	225	5.0	0.274	5.5	LOS A	1.5	11.1	0.64	0.70	48.8		
6	R2	292	5.0	0.307	9.7	LOS A	1.8	13.2	0.64	0.77	42.8		
6u	U	1	5.0	0.307	11.5	LOS B	1.8	13.2	0.64	0.77	41.6		
Approa	ach	518	5.0	0.307	7.8	LOS A	1.8	13.2	0.64	0.74	45.5		
North:	Kawana	i Way											
7	L2	356	5.0	0.412	6.3	LOS A	3.5	25.4	0.72	0.66	45.5		
8	T1	491	5.0	0.412	6.8	LOS A	3.5	25.4	0.73	0.68	51.8		
9u	U	1	5.0	0.412	14.1	LOS B	3.3	24.0	0.73	0.68	50.7		
Approa	ach	848	5.0	0.412	6.6	LOS A	3.5	25.4	0.72	0.67	49.6		
All Veh	nicles	2427	5.0	0.478	7.4	LOS A	3.8	27.7	0.66	0.67	49.2		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Linkway.sip7

## SITE LAYOUT

## Site: 107 [2017 Survey (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated



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## Site: 107 [2017 Survey (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Mover	nent Perfo	rmance ·	- Vehicl	es							
Mov	OD	Demand I	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
ID	Mov	lotal	HV %	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
South:	Sportsmans	Parade	70	V/C	360		VEIT	111		per ven	N111/11
1	L2	78	5.0	0.217	39.9	LOS D	7.0	51.1	0.73	0.75	27.9
3	R2	62	5.0	0.217	39.9	LOS D	7.0	51.1	0.73	0.75	30.3
Approa	ch	140	5.0	0.217	39.9	LOS D	7.0	51.1	0.73	0.75	29.1
East: N	lain Drive										
4	L2	22	5.0	0.141	21.1	LOS C	5.0	36.7	0.51	0.46	39.0
5	T1	126	5.0	0.141	16.5	LOS B	5.0	36.7	0.51	0.46	35.5
Approa	ch	148	5.0	0.141	17.2	LOS B	5.0	36.7	0.51	0.46	36.2
West: N	/lain Drive										
11	T1	228	5.0	0.216	17.3	LOS B	8.1	59.4	0.53	0.46	35.4
12	R2	35	5.0	0.042	22.6	LOS C	1.2	8.8	0.51	0.67	34.0
Approa	ch	263	5.0	0.216	18.0	LOS B	8.1	59.4	0.53	0.48	35.2
All Veh	icles	551	5.0	0.217	23.4	LOS C	8.1	59.4	0.58	0.55	33.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians							
Mov		Demand	Average	Level of	Average Bacl	k of Queue	Prop.	Effective
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	50	17.8	LOS B	0.1	0.1	0.49	0.49
P2	East Full Crossing	50	34.1	LOS D	0.1	0.1	0.67	0.67
P4	West Full Crossing	50	35.4	LOS D	0.1	0.1	0.69	0.69
All Pe	destrians	150	29.1	LOS C			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement. Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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#### Site: 107 [2017 Survey (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Split Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

#### Phase Timing Results

Phase	Α	В
Phase Change Time (sec)	0	90
Green Time (sec)	84	54
Phase Time (sec)	90	60
Phase Split	60%	40%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



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## Site: 107 [2023 BG (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand I Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South:	Sportsman	s Parade									
1	L2	92	5.0	0.256	40.5	LOS D	8.4	61.2	0.75	0.76	27.7
3	R2	73	5.0	0.256	40.5	LOS D	8.4	61.2	0.75	0.76	30.2
Approa	ich	165	5.0	0.256	40.5	LOS D	8.4	61.2	0.75	0.76	28.9
East: N	lain Drive										
4	L2	26	5.0	0.167	21.4	LOS C	6.1	44.2	0.52	0.47	38.9
5	T1	149	5.0	0.167	16.8	LOS B	6.1	44.2	0.52	0.47	35.4
Approa	ich	175	5.0	0.167	17.5	LOS B	6.1	44.2	0.52	0.47	36.0
West: N	Main Drive										
11	T1	269	5.0	0.254	17.8	LOS B	9.9	71.9	0.55	0.47	35.2
12	R2	41	5.0	0.051	23.2	LOS C	1.4	10.5	0.52	0.67	33.7
Approa	ich	310	5.0	0.254	18.5	LOS B	9.9	71.9	0.54	0.50	34.9
All Veh	icles	650	5.0	0.256	23.8	LOS C	9.9	71.9	0.59	0.56	33.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians							
Mov		Demand	Average	Level of	Average Bacl	k of Queue	Prop.	Effective
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	50	17.8	LOS B	0.1	0.1	0.49	0.49
P2	East Full Crossing	50	34.1	LOS D	0.1	0.1	0.67	0.67
P4	West Full Crossing	50	35.4	LOS D	0.1	0.1	0.69	0.69
All Pe	destrians	150	29.1	LOS C			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement. Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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## Site: 107 [2023 BG (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Split Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

#### **Phase Timing Results**

Phase	Α	В
Phase Change Time (sec)	0	90
Green Time (sec)	84	54
Phase Time (sec)	90	60
Phase Split	60%	40%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



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## Site: 107 [2023 BG+ ScenA (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Mover	Movement Performance - Vehicles										
Mov	OD	Demand F	lows	Deg.	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
UD	Mov	lotal	HV %	Satn	Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed km/b
South:	Sportsmans	s Parade	70	V/C	360		Ven	111		per ven	N111/11
1	L2	177	5.0	0.554	54.0	LOS D	17.3	126.1	0.91	0.83	24.2
3	R2	101	5.0	0.554	54.0	LOS D	17.3	126.1	0.91	0.83	26.8
Approa	ch	278	5.0	0.554	54.0	LOS D	17.3	126.1	0.91	0.83	25.2
East: N	lain Drive										
4	L2	54	5.0	0.261	16.8	LOS B	9.6	70.3	0.46	0.46	41.1
5	T1	259	5.0	0.261	12.2	LOS B	9.6	70.3	0.46	0.46	38.2
Approa	ch	313	5.0	0.261	13.0	LOS B	9.6	70.3	0.46	0.46	38.9
West: N	/lain Drive										
11	T1	555	5.0	0.551	14.5	LOS B	20.2	147.5	0.55	0.50	37.2
12	R2	203	5.0	0.263	21.6	LOS C	7.3	53.6	0.54	0.72	34.4
Approa	ch	758	5.0	0.551	16.4	LOS B	20.2	147.5	0.55	0.56	36.3
All Veh	icles	1349	5.0	0.554	23.3	LOS C	20.2	147.5	0.60	0.59	33.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	Movement Performance - Pedestrians							
Mov		Demand	Average	Level of	Average Back	k of Queue	Prop.	Effective
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	50	12.4	LOS B	0.1	0.1	0.41	0.41
P2	East Full Crossing	50	42.7	LOS E	0.2	0.2	0.75	0.75
P4	West Full Crossing	50	44.2	LOS E	0.2	0.2	0.77	0.77
All Pe	destrians	150	33.1	LOS D			0.64	0.64

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement. Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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### Site: 107 [2023 BG+ ScenA (6-7)]

Intersection #7 Main Drive / Sportsmans Parade Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Cycle Time)

Phase Times determined by the program Phase Sequence: Split Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

#### Phase Timing Results

Phase	Α	В
Phase Change Time (sec)	0	102
Green Time (sec)	96	42
Phase Time (sec)	102	48
Phase Split	68%	32%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.



REF: Reference Phase VAR: Variable Phase



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# Appendix F: Swept Path Diagrams











# Appendix G: Code Responses

# State code 1: Development in a state-controlled road environment

# Table 1.2.1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Buildings and structures		
<b>PO1</b> The location of buildings, structures, infrastructure, services and utilities does not create a safety hazard in a state-controlled road, or cause damage to, or obstruct road transport infrastructure.	AO1.1 Buildings, structures, infrastructure, services and utilities are not located in a state-controlled road. AND	Not Traffic Engineering Related
	<b>AO1.2</b> Buildings, structures, infrastructure, services and utilities can be maintained without requiring access to a state-controlled road.	
<b>PO2</b> The design and construction of buildings and structures does not create a safety hazard by distracting users of a state-controlled road.	<b>AO2.1</b> Facades of buildings and structures facing a state-controlled road are made of non-reflective materials. OR	Not Traffic Engineering Related
	<b>AO2.2</b> Facades of buildings and structures do not reflect point light sources into the face of oncoming traffic on a state-controlled road. AND	
	<b>AO2.3</b> External lighting of buildings and structures is not directed into the face of oncoming traffic on a state-controlled road and does not involve flashing or laser lights.	
	AND	
	<b>AO2.4</b> Advertising devices visible from a state- controlled road are located and designed in accordance with the Roadside Advertising Guide, 2 <sup>nd</sup> Edition, Department of Transport and Main Roads, 2017.	

Performance outcomes	Acceptable outcomes	Response
<b>PO3</b> Road, pedestrian and bikeway bridges over a state-controlled road are designed and constructed to prevent projectiles from being thrown onto a state-controlled road.	<b>AO3.1</b> Road, pedestrian and bikeway bridges over a state-controlled road include throw protection screens in accordance with section 4.9.3 of the Design Criteria for Bridges and Other Structures Manual, Department of Transport and Main Roads, 2018.	
Filling, excavation and retaining structures		
<b>PO4</b> Filling and excavation does not interfere with, or result in damage to, infrastructure or services in a state-controlled road. Note: Information on the location of services and public utility plants in a state-controlled road can be obtained from the Dial	No acceptable outcome is prescribed.	Not Traffic Engineering Related
Before You Dig service. Where development will impact on an existing or future service or public utility plant in a <b>state-controlled road</b> such that the service or public utility plant will need to be relocated, the alternative alignment must comply with the standards and design specifications of the relevant service or public utility provider, and any costs of relocation are to be borne by the developer.		
Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.		
<b>PO5</b> Filling, excavation, building foundations and retaining structures do not undermine, or cause subsidence of, a state-controlled road.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
Note: To demonstrate compliance with this performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with the Road Planning and Design Manual 2 <sup>nd</sup> Edition: Volume 3, Department of Transport and Main Roads, 2016, is provided.		
Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome and prepare a geotechnical assessment.		
<b>PO6</b> Filling, excavation, building foundations and retaining structures do not cause ground water disturbance in a state-controlled road.	No acceptable outcome is prescribed.	Not Traffic Engineering Related

Performance outcomes	Acceptable outcomes	Response
Note: To demonstrate compliance with this performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with the Road Planning and Design manual 2 <sup>nd</sup> Edition: Volume 3, Department of Transport and Main Roads, 2016, is provided.		
Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome and prepare a geotechnical assessment.		
<b>PO7</b> Excavation, boring, piling, blasting or fill compaction during construction of a development does not result in ground movement or vibration impacts that would cause damage or nuisance to a state-controlled road, road transport infrastructure or road works.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
Note: To demonstrate compliance with this performance outcome, it is recommended an RPEQ certified geotechnical assessment, prepared in accordance with Road Planning and Design Manual 2 <sup>nd</sup> Edition: Volume 3, Department of Transport and Main Roads, 2016, is provided.		
Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome and prepare a geotechnical assessment.		
<b>PO8</b> Development involving the haulage of fill, extracted material or excavated spoil material exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road.	<b>AO8.1</b> Fill, extracted material and spoil material is not transported to or from the development site on a state-controlled road.	Not Traffic Engineering Related
Note: It is recommended a pavement impact assessment is provided.		
Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, and the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome and prepare a pavement impact assessment.		

## State Development Assessment Provisions – version 2.6 State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
<b>PO9</b> Filling and excavation associated with the construction of vehicular access to a development does not compromise the operation or capacity of existing drainage infrastructure for a state-controlled road. Note: Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
<b>PO10</b> Fill material used on a development site does not result in contamination of a state-controlled road.	<b>AO10.1</b> Fill material is free of contaminants including acid sulfate content.	Not Traffic Engineering Related
Note: Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	Note: Soils and rocks should be tested in accordance with AS 1289.0 – Methods of testing soils for engineering purposes and AS 4133.0-2005 – Methods of testing rocks for engineering purposes. AND	
	<b>AO10.2</b> Compaction of fill is carried out in accordance with the requirements of AS 1289.0 2000 – Methods of testing soils for engineering purposes.	
<b>PO11</b> Filling and excavation does not cause wind- blown dust nuisance in a state-controlled road. Note: Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance	AO11.1 Compaction of fill is carried out in accordance with the requirements of AS 1289.0 2000 – Methods of testing soils for engineering purposes. AND	Not Traffic Engineering Related
outcome.	<b>AO11.2</b> Dust suppression measures are used during filling and excavation activities such as wind breaks or barriers and dampening of ground surfaces.	
Stormwater and drainage		
<b>PO12</b> Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state-controlled road.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
drainage in a state-controlled road environment, Department of		

## State Development Assessment Provisions – version 2.6 State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.		
<b>PO13</b> Run-off from the development site is not unlawfully discharged to a state-controlled road. Note: Refer to the SDAP Supporting Information: Stormwater and drainage in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	<ul> <li>AO13.1 Development does not create any new points of discharge to a state-controlled road.</li> <li>AND</li> <li>AO13.2 Stormwater run-off is discharged to a lawful point of discharge.</li> <li>Note: Section 3.9 of the Queensland Urban Drainage Manual, Institute of Public Works Engineering Australasia (Queensland Division) Fourth Edition, 2016, provides further information on lawful points of discharge.</li> <li>AND</li> <li>AO13.3 Development does not worsen the condition</li> </ul>	Not Traffic Engineering Related
	of an existing lawful point of discharge to the state- controlled road.	
<b>PO14</b> Run-off from the development site during construction does not cause siltation of stormwater infrastructure affecting a state-controlled road. Note: Refer to the SDAP Supporting Information: Stormwater and drainage in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	<b>AO14.1</b> Run-off from the development site during construction is not discharged to stormwater infrastructure for a state-controlled road.	Not Traffic Engineering Related
Vehicular access to a state-controlled road		
<b>PO15</b> Vehicular access to a state-controlled road that is a limited access road is consistent with government policy for the management of limited access roads. Note: Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and	AO15.1 Development does not require new or changed access to a limited access road. Note: Limited access roads are declared by the transport chief executive under section 54 of the <i>Transport Infrastructure</i> <i>Act 1994</i> and are identified in the DA mapping system. OR	<b>Complies with PO15</b> No new access locations are proposed to the State- controlled road network.

Performance outcomes	Acceptable outcomes	Response
Main Roads, 2017, for further guidance on how to comply with this performance outcome.	AO15.2 A new or changed access to a limited access road is consistent with the limited access policy for the state-controlled road. Note: Limited access policies for limited access roads declared under the <i>Transport Infrastructure Act 1994</i> can be obtained by contacting the relevant Department of Transport and Main Roads regional office.	
	<b>AO15.3</b> Where a new or changed access is for a service centre, access is consistent with the Service centre policy, Department of Transport and Main Roads, 2013 and the Access policy for roadside service centre facilities on limited access roads, Department of Transport and Main Roads, 2013, and the Service centre strategy for the state-controlled road.	
	Note: The Service centre policy, Department of Transport and Main Roads, 2013, Access policy for roadside service centre facilities, Department of Transport and Main Roads, 2013 and the relevant Service centre strategy for a state-controlled road can be accessed by contacting the relevant Department of Transport and Main Roads regional office.	
<b>PO16</b> The location and design of vehicular access to a state-controlled road (including access to a limited access road) does not create a safety hazard for users of a state-controlled road or result in a worsening of operating conditions on a state- controlled road.	AO16.1 Vehicular access is provided from a local	Complies with PO16
	road.	No new access locations are proposed to the State- controlled road network
	OR all of the following acceptable outcomes apply:	
Note: Where a new or changed access between the premises and a state-controlled road is proposed, the Department of Transport and Main Roads will need to assess the proposal to determine if the vehicular access for the development is safe. An assessment can be made by Department of Transport and Main	<b>AO16.2</b> Vehicular access for the development is consistent with the function and design of the state-controlled road. AND	

Performance outcomes	Acceptable outcomes	Response
Roads as part of the development assessment process and a decision under section 62 of <i>Transport Infrastructure Act 1994</i> issued. Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	<b>AO16.3</b> Development does not require new or changed access between the premises and the state-controlled road.	
	Note: A decision under section 62 of the <i>Transport Infrastructure</i> <i>Act 1994</i> outlines the approved conditions for use of an existing vehicular access to a <b>state-controlled road</b> . Current section 62 decisions can be obtained from the relevant Department of Transport and Main Roads regional office.	
	AND	
	<b>AO16.4</b> Use of any existing vehicular access to the development is consistent with a decision under section 62 of the <i>Transport Infrastructure Act</i> 1994.	
	Note: The development which is the subject of the application must be of an equivalent use and intensity for which the section 62 approval was issued and the section 62 approval must have been granted no more than 5 years prior to the lodgement of the	
	application.	
	A016.5 On-site vehicle circulation is designed to give priority to entering vehicles at all times so	
	vehicles do not queue in a road intersection or on	
	the state-controlled road.	
Vehicular access to local roads within 100 metres of an intersection with a state-controlled road		
PO17 The location and design of vehicular access to	AO17.1 Vehicular access is located as far as	Complies with PO17
a local road within 100 metres of an intersection with a state-controlled road does not create a safety hazard for users of a state-controlled road.	possible from the state-controlled road intersection. AND	No new access locations are proposed within 100m of the State-controlled road network
Note: Refer to the SDAP Supporting Information: Vehicular access to a state-controlled road, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	<b>AO17.2</b> Vehicular access is in accordance with parts, 3, 4 and 4A of the Road Planning and Design Manual, 2 <sup>nd</sup> Edition: Volume 3, Department of Transport and Main Roads, 2016. AND	

State Development Assessment Provisions – version 2.6 State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
	<b>AO17.3</b> On-site vehicle circulation is designed to give priority to entering vehicles at all times so vehicles do not queue in the intersection or on the state-controlled road.	
Public passenger transport infrastructure on state-con	trolled roads	
PO18 Development does not damage or interfere with public passenger transport infrastructure, public passenger services or pedestrian or cycle access to public passenger transport infrastructure and public passenger services.	<b>AO18.1</b> Vehicular access and associated road access works are not located within 5 metres of existing public passenger transport infrastructure. AND	<b>Complies with AO18.1</b> No additional access is proposed within 5m of existing public passenger transport infrastructure.
	AO18.2 Development does not necessitate the	Complies with AO18.2
	relocation of existing public passenger transport infrastructure. AND	The development does not necessitate the relocation of existing public passenger transport infrastructure.
this performance outcome.	AO18.3 On-site vehicle circulation is designed to	Complies with AO18.3
	give priority to entering vehicles at all times so vehicles using a vehicular access do not obstruct public passenger transport infrastructure and public passenger services or obstruct pedestrian or cycle access to public passenger transport infrastructure and public passenger services. AND	No new access is proposed to the State-controlled road network.
	<b>AO18.4</b> The normal operation of public passenger transport infrastructure or public passenger services is not interrupted during construction of the development.	Will comply with AO18.4
Planned upgrades		

Performance outcomes	Acceptable outcomes	Response
<b>PO19</b> Development does not impede delivery of planned upgrades of state-controlled roads.	<b>AO19.1</b> Development is not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road.	<b>Complies with AO19.1</b> The development is not located on land identified as required for upgrades.
	Note: Land required for the planned upgrade of a state-controlled road is identified in the <u>DA mapping system</u> .	
	OR	
	<b>AO19.2</b> Development is sited and designed so that permanent buildings, structures, infrastructure, services or utilities are not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state- controlled road.	
	OR all of the following acceptable outcomes apply:	
	<b>AO19.3</b> Structures and infrastructure located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of a state-controlled road are able to be readily relocated or removed without materially affecting the viability or functionality of the development.	
	<b>AO19.4</b> Vehicular access for the development is consistent with the function and design of the planned upgrade of the state-controlled road. AND	
	<b>AO19.5</b> Development does not involve filling and excavation of, or material changes to, land required for a planned upgrade to a state-controlled road. AND	
	<b>AO19.6</b> Land is able to be reinstated to the pre- development condition at the completion of the use.	
Performance outcomes	Acceptable outcomes	Response
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Network impacts		
<b>PO20</b> Development does not result in a worsening of operating conditions on the state-controlled road network. Note: To demonstrate compliance with this performance outcome,	No acceptable outcome is prescribed.	<b>Complies with PO20</b> The proposed development will not result in a greater number of persons attending events than would otherwise been allowed without the
assessment is provided. Please refer to the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.		Event Management Plans will be prepared and implemented as part of events expected to be attended by more than 3,000 people.
<b>PO21</b> Development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network.	<b>AO21.1</b> The layout and design of the development directs traffic generated by the development to the <b>local road</b> network.	<b>Complies with PO21</b> No changes to the existing access arrangements are proposed.
<b>PO22</b> Upgrade works on, or associated with, a state-controlled road are built in accordance with Queensland road design standards.	<b>AO22.1</b> Upgrade works required as a result of the development are designed and constructed in accordance with the <i>Road Planning and Design Manual</i> , 2 <sup>nd</sup> edition, Department of Transport and Main Roads, 2016.	N/A No road upgrades are proposed as part of the development
	Note: Road works in a state-controlled road require approval under section 33 of the <i>Transport Infrastructure Act 1994</i> before the works commence.	

#### Table 1.2.2: Environmental emissions

Statutory note: Where a **state-controlled road** is co-located in the same transport corridor as a railway, the development should instead comply with table 2.2.2: Environmental emissions in State code 2: Development in a railway environment.

Refer to the SDAP Supporting Information: Environmental emissions in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcomes in Table 1.2.2.

Performance outcomes	Acceptable outcomes	
Noise		
Accommodation activities		

Performance outcomes	Acceptable outcomes	
<b>PO23</b> Development involving an accommodation activity or land for a future accommodation activity	<b>AO23.1</b> A noise barrier or earth mound is provided which is designed, sited and constructed:	N/A
minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in habitable	<ol> <li>to meet the following external noise criteria at all facades of the building envelope:</li> </ol>	
rooms.	<ul> <li>a. ≤60 dB(A) L<sub>10</sub> (18 hour) façade corrected (measured L<sub>90</sub> (8 hour) free field between 10pm and 6am ≤40 dB(A))</li> </ul>	
	<ul> <li>b. ≤63 dB(A) L<sub>10</sub> (18 hour) façade corrected (measured L<sub>90</sub> (8 hour) free field between 10pm and 6am &gt;40 dB(A))</li> </ul>	
	<ol> <li>in accordance with chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013.</li> </ol>	
	Note: To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state-controlled road environment, Department of Transport and Main Roads, 2017.	
	If the building envelope is unknown, the deemed-to-comply setback distances for buildings stipulated by the local planning instrument or relevant building regulations should be used.	
	In some instances, the design of noise barriers and mounds to achieve the noise criteria above the ground floor may not be reasonable or practicable. In these instances, any relaxation of the criteria is at the discretion of the Department of Transport and Main Roads.	
	OR all of the following acceptable outcomes apply:	
	<b>AO23.2</b> Buildings which include a habitable room are setback the maximum distance possible from a state-controlled road or type 1 multi-modal corridor. AND	

Performance outcomes	Acceptable outcomes	
	<b>AO23.3</b> Buildings are designed and oriented so that habitable rooms are located furthest from a state-controlled road or type 1 multi-modal corridor.	
	<ul> <li>AND</li> <li>AO23.4 Buildings (other than a relevant residential building or relocated building) are designed and constructed using materials which ensure that habitable rooms meet the following internal noise criteria:</li> <li>1. ≤35 dB(A) L<sub>eq</sub> (1 hour) (maximum hour over 24 hours).</li> <li>Note: Noise levels from a state-controlled road or type 1 multimodal corridor are to be measured in accordance with AS1055.1–1997 Acoustics – Description and measurement of environmental</li> </ul>	
	noise. To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state controlled road environment, Department of Transport and Main Roads 2017. <b>Habitable rooms</b> of <b>relevant residential buildings</b> located within a <b>transport noise corridor</b> must comply with the Queensland	
	Development Code MP4.4 Buildings in a transport noise corridor, Queensland Government, 2015. <b>Transport noise corridors</b> are mapped on the State Planning Policy interactive mapping system.	
<b>PO24</b> Development involving an accommodation activity or land for a future accommodation activity	<b>AO24.1</b> A noise barrier or earth mound is provided which is designed, sited and constructed:	N/A
minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in outdoor	<ol> <li>to meet the following external noise criteria in outdoor spaces for passive recreation:</li> </ol>	
	<ul> <li>a. ≤57 dB(A) L<sub>10</sub> (18 hour) free field (measured L<sub>90</sub> (18 hour) free field between 6am and 12 midnight ≤45 dB(A))</li> </ul>	
	<ul> <li>b. ≤60 dB(A) L<sub>10</sub> (18 hour) free field (measured L<sub>90</sub> (18 hour) free field between 6am and 12 midnight &gt;45 dB(A))</li> </ul>	
	<ol> <li>in accordance with chapter 7 integrated noise barrier design of the Transport Noise</li> </ol>	

State Development Assessment Provisions – version 2.6 State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	
	Management Code of Practice – Volume 1 Road Traffic Noise, Department of Transport and Main Roads, 2013.	
	Note: To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state controlled road environment, Department of Transport and Main Roads 2017 OR	
	<b>AO24.2</b> Each dwelling has access to an outdoor space for passive recreation which is shielded from a state-controlled road or type 1 multi-modal corridor by a building, solid gap-free fence, or other solid gap-free structure.	
	AND	
	<b>AO24.3</b> Each dwelling with a balcony directly exposed to noise from a state-controlled road or type 1 multi-modal corridor has a continuous solid gap-free balustrade (other than gaps required for drainage purposes to comply with the Building Code of Australia).	
Childcare centres and educational establishments	5	
<b>PO25</b> Development involving a: 1. childcare centre; or	<b>AO25.1</b> A noise barrier or earth mound is provided which is designed, sited and constructed:	N/A
2. educational establishment	<ol> <li>to meet the following external noise criteria at all facades of the building envelope:</li> </ol>	
road or type 1 multi-modal corridor in indoor education areas and indoor play areas.	a. ≤58 dB(A) L₁₀ (1 hour) façade corrected (maximum hour during normal opening hours)	
	<ol> <li>in accordance with chapter 7 – Integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013.</li> </ol>	

Performance outcomes	Acceptable outcomes	
	Note: To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state controlled road environment, Department of Transport and Main Roads 2017. If the building envelope is unknown, the deemed-to-comply setback distances for buildings stipulated by the local planning instrument or relevant building regulations should be used.	
	OR all of the following acceptable outcomes apply: <b>AO25.2</b> Buildings which include indoor education areas and indoor play areas are setback the maximum distance possible from a state-controlled road or type 1 multi-modal corridor. AND	
	<b>AO25.3</b> Buildings are designed and oriented so that indoor education areas and indoor play areas are located furthest from the state-controlled road or type 1 multi-modal corridor. AND	
	<ul> <li>AO25.4 Buildings are designed and constructed using materials which ensure indoor education areas and indoor play areas meet the following internal noise criteria:</li> <li>1. ≤35 dB(A) L<sub>eq</sub> (1 hour) (maximum hour during opening hours).</li> </ul>	
	Note: Noise levels from a state-controlled road or type 1 multi- modal corridor are to be measured in accordance with AS1055.1– 1997 Acoustics – Description and measurement of environmental noise. To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state controlled road environment, Department of Transport and Main Roads 2017.	

Performance outcomes	Acceptable outcomes	
<b>PO26</b> Development involving a: 1. childcare centre; or	<b>AO26.1</b> A noise barrier or earth mound is provided which is designed, sited and constructed:	
2. educational establishment minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in outdoor education areas and outdoor play areas.	<ol> <li>to meet the following external noise criteria in each outdoor education area or outdoor play area:         <ul> <li>≤63 dB(A) L<sub>10</sub> (12 hour) free field (between 6am and 6pm)</li> </ul> </li> </ol>	
	<ol> <li>in accordance with chapter 7 – Integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013.</li> </ol>	
	Note: To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting Information: Environmental emissions in a state controlled road environment, Department of Transport and Main Roads 2017.	
	<b>AO26.2</b> Each outdoor education area and outdoor play area is shielded from noise generated from a state-controlled road or type 1 multi-modal corridor by a building, solid gap-free fence, or other solid gap-free structure.	
Hospitals		
<b>PO27</b> Development involving a hospital minimises noise intrusion from a state-controlled road or type 1 multi-modal corridor in patient care areas.	<b>AO27.1</b> Hospitals are designed and constructed using materials which ensure patient care areas meet the following internal noise criteria:	N/A
	<ol> <li>≤35 dB(A) L<sub>eq</sub> (1 hour) (maximum hour during opening hours).</li> </ol>	
	Note: Noise levels from a state-controlled road or type 1 multi- modal corridor are to be measured in accordance with AS1055.1– 1997 Acoustics – Description and measurement of environmental noise.	
	To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified noise assessment report is provided, prepared in accordance with the SDAP Supporting	

Performance outcomes	Acceptable outcomes	
	Information: Environmental emissions in a state controlled road	
Vibration		
Hospitalo		
<b>PO28</b> Development involving a hospital minimises vibration impacts from vehicles using a state-controlled road or type 1 multi-modal corridor in patient care areas.	<b>AO28.1</b> Hospitals are designed and constructed to ensure vibration in the treatment area of a patient care area does not exceed a vibration dose value of 0.1m/s <sup>1.75</sup> . AND	N/A
	<b>AO28.2</b> Hospitals are designed and constructed to ensure vibration in the ward area of a patient care area does not exceed a vibration dose value of $0.4$ m/s <sup>1.75</sup> .	
	Note: To demonstrate compliance with the acceptable outcome, it is recommended that a RPEQ certified vibration assessment report is provided.	
Air and light		
<b>PO29</b> Development involving an accommodation activity minimises air quality impacts from a state- controlled road or type 1 multi-modal corridor in outdoor spaces for passive recreation.	<b>AO29.1</b> Each dwelling has access to an outdoor space for passive recreation which is shielded from a state-controlled road or type 1 multi-modal corridor by a building, solid gap-free fence, or other solid gap-free structure.	N/A
<b>PO30</b> Development involving a:	<b>AO30.1</b> Each outdoor education area and outdoor	N/A
1. childcare centre; or	type 1 multi-modal corridor by a building, solid gap-	
2. educational establishment minimises air quality impacts from a state-controlled road or type 1 multi-modal corridor in outdoor education areas and outdoor play areas.	free fence, or other solid gap-free structure.	
<b>PO31</b> Development involving an accommodation activity or hospital minimises lighting impacts from a state-controlled road or type 1 multi-modal corridor.	<b>AO31.1</b> Buildings for an accommodation activity or hospital are designed to minimise the number of windows or transparent/translucent panels facing a state-controlled road or type 1 multi-modal corridor. OR	N/A

Performance outcomes	Acceptable outcomes	
	<b>AO31.2</b> Windows facing a state-controlled road or type 1 multi-modal corridor include treatments to block light from a state-controlled road or type 1 multi-modal corridor.	

	Table 1.2.3: Develor	pment in a future	state-controlled	road environment
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<b>PO32</b> Development does not impede delivery of a future state-controlled road.	<b>AO32.1</b> Development is not located in a future state- controlled road. OR	<b>Complies with AO32.1</b> The development is not located in a future State- controlled road.
	<b>AO32.2</b> Development is sited and designed so that permanent buildings, structures, infrastructure, services or utilities are not located in a future state-controlled road.	
	OR all of the following acceptable outcomes apply:	
	<b>AO32.3</b> Structures and infrastructure located in a future state-controlled road are able to be readily relocated or removed without materially affecting the viability or functionality of the development. AND	
	<b>AO32.4</b> Development does not involve filling and excavation of, or material changes to, a future state-controlled road. AND	
	<b>AO32.5</b> Land is able to be reinstated to the pre- development condition at the completion of the use.	
<b>PO33</b> Vehicular access to a future state-controlled road is located and designed to not create a safety hazard for users of a future state-controlled road or result in a worsening of operating conditions on a future state-controlled road.	<b>AO33.1</b> Development does not require new or changed access between the premises and a future state-controlled road.	<b>Complies with AO33.1</b> The development does not require new or changed access to the State-controlled road network
<b>PO33</b> Vehicular access to a future state-controlled road is located and designed to not create a safety hazard for users of a future state-controlled road or result in a worsening of operating conditions on a future state-controlled road.	Controlled road. OR all of the following acceptable outcomes apply: <b>AO32.3</b> Structures and infrastructure located in a future state-controlled road are able to be readily relocated or removed without materially affecting the viability or functionality of the development. AND <b>AO32.4</b> Development does not involve filling and excavation of, or material changes to, a future state- controlled road. AND <b>AO32.5</b> Land is able to be reinstated to the pre- development condition at the completion of the use. <b>AO33.1</b> Development does not require new or changed access between the premises and a future state-controlled road. AND	Complies with AO33.1 The development does not require new or chaccess to the State-controlled road network

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Performance outcomes	Acceptable outcomes	
Note: Where a new or changed access between the premises and a future state-controlled road is proposed, the Department of Transport and Main Roads will need to assess the proposal to determine if the vehicular access for the development is safe. An assessment can be made by Department of Transport and Main Roads as part of the development assessment process and a decision under section 62 of <i>Transport Infrastructure Act 1994</i> issued.	<b>AO33.2</b> Vehicular access for the development is consistent with the function and design of the future state-controlled road.	Complies with AO33.2 The development does not require new or changed access to the State-controlled road network
<ul> <li><b>PO34</b> Filling, excavation, building foundations and retaining structures do not undermine, or cause subsidence of, a future state-controlled road.</li> <li>Note: To demonstrate compliance with this performance outcome, it is recommended that an RPEQ certified geotechnical assessment is provided, prepared in accordance with the Road Planning and Design Manual, 2<sup>nd</sup> edition: Volume 3, Department of Transport and Main Roads, 2016.</li> <li>Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome and prepare a geotechnical assessment</li> </ul>	No acceptable outcome is prescribed.	Not Traffic Engineering Related
<ul> <li>PO35 Fill material from a development site does not result in contamination of land for a future state-controlled road.</li> <li>Note: Refer to the SDAP Supporting Information: Filling, excavation and retaining structures in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further</li> </ul>	<ul> <li>AO35.1 Fill material is free of contaminants including acid sulfate content.</li> <li>Note: Soil and rocks should be tested in accordance with AS1289 – Methods of testing soils for engineering purposes and AS4133 2005 – Methods of testing rocks for engineering purposes.</li> <li>AND</li> </ul>	Not Traffic Engineering Related

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Performance outcomes	Acceptable outcomes	
guidance on how to comply with this performance outcome.	<b>AO35.2</b> Compaction of fill is carried out in accordance with the requirements of AS1289.0 2000 – Methods of testing soils for engineering purposes.	
<b>PO36</b> Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a future state-controlled road. Note: Refer to the SDAP Supporting Information: Stormwater and drainage in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
<b>PO37</b> Run-off from the development site is not unlawfully discharged to a future state-controlled road.	<b>AO37.1</b> Development does not create any new points of discharge to a future state-controlled road.	Not Traffic Engineering Related
Note: Refer to the SDAP Supporting Information: Stormwater and drainage in a state-controlled road environment, Department of Transport and Main Roads, 2017, for further guidance on how to comply with this performance outcome.	A037.2 Stormwater run-off is discharged to a lawful point of discharge. Note: Section 3.9 of the Queensland Urban Drainage Manual, Institute of Public Works Engineering Australasia (Queensland Division), Fourth Edition, 2016, provides further information on lawful points of discharge. AND	
	of an existing lawful point of discharge to the future state-controlled road.	

## Table 6.2.2: All development

Performance outcomes	Acceptable outcomes	Response
Network impacts		
<b>PO1</b> Development does not result in a worsening of the safety of a state-controlled road. Note: To demonstrate compliance with this performance outcome, it is recommended that a Registered Professional Engineer of Queensland (RPEQ) certified road safety audit or road safety assessment (as applicable) is provided.	No acceptable outcome is prescribed.	<b>Complies with PO1</b> The proposed development will not result in a greater number of persons attending events than would otherwise been allowed without the development. Event Management Plans will be prepared and implemented as part of events expected to be attended by more than 3,000 people.
Further information on determining whether a road safety audit or road safety assessment is required is provided in section 9 of the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017.		
<ul> <li>PO2 Development does not result in a worsening of the infrastructure condition of a state-controlled road or road transport infrastructure.</li> <li>Note: To demonstrate compliance with this performance outcome, it is recommended that a RPEQ certified traffic impact assessment and pavement impact assessment are provided.</li> <li>Further information on how to prepare a traffic impact assessment is a sessment and pavement impact assessment is a sessment is a sessment and pavement impact assessment is a sessment is a sessment and pavement impact assessment is a sessment is a sessment and pavement impact assessment is a sessment is a sessment and pavement impact assessment is a set of the set of the</li></ul>	No acceptable outcome is prescribed.	<b>Complies with PO2</b> The proposed development will not result in a greater number of persons attending events than would otherwise been allowed without the development. Event Management Plans will be prepared and implemented as part of events expected to be attended by more than 3,000 people.
provided in the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017.		
<b>PO3</b> Development does not result in a worsening of operating conditions on a state-controlled road or the surrounding road network. Note: To demonstrate compliance with this performance outcome,	No acceptable outcome is prescribed.	<b>Complies with PO3</b> The proposed development will not result in a greater number of persons attending events than would otherwise been allowed without the development. Event Management Plans will be prepared and implemented as part of events expected to be attended by more than 3,000 people.

Performance outcomes	Acceptable outcomes	Response
it is recommended that an RPEQ certified traffic impact assessment is provided.		
Further information on how to prepare a traffic impact		
is provided in the Guide to Traffic Impact		
Department of Transport and Main Roads, 2017.		
<b>PO4</b> Development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network.	<b>AO4.1</b> The layout and design of the development directs traffic generated by the development to the local road network.	<b>Complies with PO4</b> No new access locations are proposed to the State- controlled road network The development will operate under event management procedures during events which are anticipated to generate large traffic demands. Traffic will be distributed appropriately across the state and local networks
<b>PO5</b> Upgrade works on, or associated with, a state- controlled road are built in accordance with relevant design standards.	<b>AO5.1</b> Upgrade works on a state-controlled road are designed and constructed in accordance with the Road Planning and Design Manual, 2nd edition, Department of Transport and Main Roads, 2016.	<i>N/A</i> No upgrades are proposed
<b>PO6</b> Development involving the haulage of fill, extracted material or excavated spoil material exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road.	<b>AO6.1</b> Fill, extracted material and spoil material is not transported to or from the development site on a state-controlled road.	N/A
Note: It is recommended that a transport infrastructure impact assessment and pavement impact assessment are provided.		
Further information on how to prepare a traffic impact assessment is provided in the Guide to Traffic Impact Assessment, Department of Transport and Main Roads, 2017.		
<b>PO7</b> Development does not adversely impact on the safety of a railway crossing.	<b>A07.1</b> Development does not require a new railway crossing.	N/A
Note: It is recommended that a traffic impact	OR	
assessment be prepared to demonstrate compliance with this performance outcome. An impact on a level	<b>A07.2</b> A new railway crossing is grade separated.	N/A

Performance outcomes	Acceptable outcomes	Response
crossing may require an Australian Level Crossing Assessment Model (ALCAM) assessment to be undertaken. Section 2.2 – Railway crossing safety of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this performance outcome.	OR all of the following acceptable outcomes apply: <b>AO7.3</b> Upgrades to a level crossing are designed and constructed in accordance with AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings and applicable rail manager standard drawings.	
	Note: It is recommended a traffic impact assessment be prepared to demonstrate compliance with this acceptable outcome. An impact on a level crossing may require an Australian Level Crossing Assessment Model (ALCAM) assessment to be undertaken. Section 2.2 – Railway crossing safety of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome	
	AND	
	A07.4 Access points achieve sufficient clearance from a level crossing in accordance with AS1742.7 – Manual of uniform traffic control devices, Part 7: Railway crossings by providing a minimum clearance of 5 metres from the edge running rail (outer rail) plus the length of the largest vehicle anticipated on-site. Note: Section 2.2 of the Guide to Development in a Transport Environment: Rail, Department of Transport and Main Roads, 2015, provides guidance on how to comply with this acceptable outcome.	N/A
	AND	
	<b>AO7.5</b> On-site vehicle circulation is designed to give priority to entering vehicles at all times.	N/A
<b>PO8</b> Development does not result in a worsening of	No acceptable outcome is prescribed.	N/A
transport infrastructure.		

Performance outcomes	Acceptable outcomes	Response
<b>PO9</b> Development does not result in a worsening of	No acceptable outcome is prescribed.	N/A
operating conditions of a railway		
<b>PO10</b> Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state transport corridor or state transport infrastructure.	No acceptable outcome is prescribed.	Not Traffic Engineering Related
<b>PO11</b> Run-off from the development site is not unlawfully discharged to a state transport corridor or state transport infrastructure.	<b>AO11.1</b> Development does not create any new points of discharge to a state transport corridor. AND	Not Traffic Engineering Related
	<ul> <li>AO11.2 Stormwater run-off is discharged to a lawful point of discharge.</li> <li>Note: Section 3.49 of the Queensland Urban Drainage Manual, Institute of Public Works Engineering Australasia (Queensland Division) Fourth Edition, 2016, provides further information on lawful points of discharge.</li> <li>AND</li> <li>AO11.3 Development does not worsen the condition</li> </ul>	Not Traffic Engineering Related Not Traffic Engineering Related
	of an existing lawful point of discharge to a state transport corridor.	
<b>PO12</b> Run-off from the development site does not cause siltation of stormwater infrastructure affecting a state transport corridor or state transport infrastructure.	<b>AO12.1</b> Run-off from the development site is not discharged to stormwater infrastructure for a state transport corridor.	Not Traffic Engineering Related
Planned upgrades		
<b>PO13</b> Development does not impede delivery of planned upgrades of state transport infrastructure.	<ul> <li>AO13.1 Development is not located on land identified by the Department of Transport and Main Roads as land required for the planned upgrade of state transport infrastructure.</li> <li>Note: Land required for the planned upgrade of state transport infrastructure is identified in the DA mapping system.</li> </ul>	<b>Complies with AO13</b> No new access locations are proposed to the State- controlled road network

Performance outcomes	Acceptable outcomes	Response
	OR	
	A013.2 Development is sited and designed so that	
	permanent buildings, structures, infrastructure,	
	services or utilities are not located on land identified	
	by the Department of Transport and Main Roads as	
	land required for the planned upgrade of state	
	transport infrastructure.	
	OR all of the following acceptable outcomes apply:	
	AO13 3 Structures and infrastructure located on	
	land identified by the Department of Transport and	
	Main Roads as land required for the planned	
	upgrade of state transport infrastructure are able	
	to be readily relocated or removed without materially	
	affecting the viability or functionality of the	
	development.	
	AND	
	AO13.4 Vehicular access for the development is	
	consistent with the function and design of the	
	planned upgrade of state transport infrastructure.	
	AND	
	AO13.5 Development does not involve filling and	
	excavation of, or material changes to, land required	
	for a planned upgrade to a state transport	
	infrastructure.	
	AND	
	AO13.6 Land is able to be reinstated to the	
	predevelopment condition at the completion of the	
	use.	

## Table 6.2.3: Public passenger transport infrastructure

Performance outcomes	Acceptable outcomes	Response
Public passenger transport infrastructure		
<b>PO14</b> Development does not damage or interfere with public passenger transport infrastructure, public passenger services or pedestrian or cycle access to public passenger transport infrastructure and public passenger services.	AO14.1 Vehicular access and associated road access works are not located within 5 metres of public passenger transport infrastructure.	<i>Complies with AO14.1</i> No new access works are proposed
	AO14.2 Development does not necessitate the relocation of existing public passenger transport infrastructure.	<b>Complies with AO14.2</b> No relocation of bus infrastructure is proposed.
	AO14.3 Development does not obstruct pedestrian or cyclist access to public passenger transport infrastructure or public passenger services. AND	<b>Complies with AO14.3</b> The development will not obstruct access to public passenger transport
	<b>AO14.4</b> The normal operation of public passenger transport infrastructure or public passenger services is not interrupted during construction of the development.	Will comply with AO14.4
<b>PO15</b> Upgraded or new public passenger transport infrastructure is provided to accommodate the demand for public passenger transport generated by the development.	No acceptable outcome is prescribed.	<b>Complies with PO15</b> No new or upgraded public infrastructure is required. Temporary bus stops will be provided for events if required.
Note: To demonstrate compliance with this performance outcome, it is recommended a public transport impact assessment be prepared in accordance with appendix 1 of the State Development Assessment Provisions Supporting Information – Public Passenger Transport Infrastructure, Department of Transport and Main Roads, 2017.		

Performance outcomes	Acceptable outcomes	Response
New or upgraded public passenger transport infrastructure provided should be in accordance with the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.		
Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.		
<b>PO16</b> Development is designed to ensure the location of public passenger transport infrastructure prioritises and enables efficient public passenger services. Note: Chapters 2 and 5 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this performance outcome.	No acceptable outcome is prescribed.	<b>Complies with PO16</b> The proposed development provides clear and efficient access to public transport services.
Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.		

Performance outcomes	Acceptable outcomes	Response
<b>PO17</b> Development enables the provision or extension of public passenger services to the development and avoids creating indirect or inefficient routes for public passenger services.	No acceptable outcome is prescribed.	<b>Complies with PO17</b> No new or upgraded public infrastructure services are required.
Note: Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.		
<b>PO18</b> New or modified road networks are designed to enable development to be serviced by public passenger services. Note: Refer to the SDAP Supporting Information:	<b>AO18.1</b> Roads catering for buses are arterial or sub-arterial roads, collector or their equivalent.	<b>N/A</b> No changes to the existing road network are proposed
Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.	<b>AO18.2</b> Roads intended to accommodate buses are designed and constructed in accordance with parts 3, 4-4C and 6 of the Road Planning and Design Manual 2nd edition, Volume 3: Guide to Road Design, Department of Transport and Main Roads, 2016 and Part 13 of the Manual of Uniform Traffic Control Devices, Department of Transport and Main Roads, 2018.	<b>N/A</b> No changes to the existing road network are proposed
	Note: Parts 3, 4-4C and 6 of the Road Planning and Design Manual, Volume 3: Guide to Road Design, Department of Transport and Main Roads, 2016, must be read in conjunction with the following standards where specified in the Manual:	
	<ol> <li>Supplement to Austroads Guide to Road Design (Parts 3,4-4C and 6), Department of Transport and Main Roads, 2014, and</li> <li>Austroads Guide to Road Design (Parts 3,4-4C and 6).</li> </ol>	
	AND	

Performance outcomes	Acceptable outcomes	Response
PO19 Development provides safe, direct and convenient pedestrian access to existing and future public passenger transport infrastructure. Note: Chapter 3 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this performance outcome. In particular, it is recommended that a pedestrian demand analysis be provided to demonstrate compliance with the performance outcome.	AO18.3 Traffic calming devices are not installed on roads used for buses. Note: Chapter 2 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015 provides guidance on how to comply with this acceptable outcome. No acceptable outcome is prescribed.	<ul> <li>N/A         No changes to the existing road network are proposed     </li> <li>Complies with PO19         The development provides safe, direct and convenient pedestrian access to existing and future public passenger transport infrastructure.     </li> </ul>
Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.	<b>A020 1</b> The location of on-site pedestrian crossings	N/A
safety of both public passenger transport services and pedestrians.	ensures safe sight distances for pedestrians and public passenger services.	
Note: Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further	<b>AO20.2</b> On-site circulation is designed and constructed so that public passenger services can enter and leave in a forward gear at all times.	N/A

Performance outcomes	Acceptable outcomes	Response
guidance on how to comply with the performance outcome.	AND	
	<b>AO20.3</b> Development does not result in public passenger services movements through car parking aisles.	N/A
<b>PO21</b> Taxi facilities are provided to accommodate the demand generated by the development.	No acceptable outcome is prescribed.	N/A
Note: Guidance on how to meet the performance outcome are available in chapter 7 of the Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.		
Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.		
<b>PO22</b> Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	<b>AO22.1</b> A taxi facility is provided parallel to the kerb and adjacent to the main entrance.	<b>Complies with AO22.1</b> No new or upgraded taxi facilities are required. Temporary facilities will be provided for events if required.
Note: Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.	<ul> <li>AO22.2 Taxi facilities are designed in accordance with:</li> <li>1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work</li> <li>2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices</li> <li>3. AS/NZS 2890.6–2009 Parking facilities – offstreet parking for people with disabilities</li> <li>4. Disability standards for accessible public</li> </ul>	N/A

Performance outcomes	Acceptable outcomes	Response
	<ul> <li>transport 2002 made under section 31(1) of the <i>Disability Discrimination Act 1992</i></li> <li>5. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements.</li> </ul>	
<b>PO23</b> Educational establishments are designed to ensure the safe and efficient operation of public passenger services and pedestrian access.	<b>AO23.1</b> Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	N/A
Note: Refer to the SDAP Supporting Information: Public passenger transport infrastructure, Department of Transport and Main Roads, 2017, for further guidance on how to comply with the performance outcome.		

## Transport and Parking Code

### Purpose and overall outcomes

- The purpose of the Transport and parking code is to ensure that transport infrastructure including pathways, public transport infrastructure, roads, parking and service areas, are provided in a manner which meets the needs of the development, whilst promoting active and public transport use and preserving the character and amenity of the Sunshine Coast.
- 2) The purpose of the Transport and parking code will be achieved through the following overall outcomes:-
  - (a) development is consistent with the objectives of the strategic transport network, which are to:
    - i. provide for a highly permeable and integrated movement network;
    - ii. improve coordination between land use and transport so as to maximise the potential for walking, cycling and public transport use and reduce reliance on private motor vehicle travel;
    - iii. achieve acceptable levels of access, convenience, efficiency and legibility for all transport users, with the needs of pedestrians considered in the first instance, then cyclists, public transport and then motorists;
    - iv. preserve the amenity of sensitive land uses;
    - v. limit road construction to the minimum necessary to meet the endorsed levels of service for ultimate development of the Sunshine Coast; and
    - vi. provide for staging of Council's limited trunk road construction program to maximise sustainability;
  - (b) the environmental, economic and social impacts of transport on the natural and urban environment are minimised;
  - (c) transport infrastructure is designed and constructed to acceptable standards and operates in a safe and efficient manner that meets community expectations, prevents unacceptable off-site impacts and reduces whole of life cycle costs, including reduced ongoing maintenance costs;
  - (d) development provides for on-site parking, access, circulation and servicing areas that are safe, convenient and meet the reasonable requirements of the development;
  - (e) development provides for parking areas that are shared between many uses rather than separate parking areas attached to each building where peak parking times of the uses occur at different times and where the parking area is sufficient to meet the anticipated demands of all uses;
  - (f) development provides appropriate buffering between sensitive receptors and the major road network and rail corridors; and
  - (g) development provides for major intersections and access points to be designed and constructed to reflect the natural values, character and identity of the Sunshine Coast.

### Criteria for self assessable and assessable development only

Performance Outcomes	Acceptable Outcomes	Proposal
Layout and Design of On-site Pa	arking and Access	
PO1 Development ensures that the layout and design of vehicle access, on-site circulation systems and parking areas and systems is safe, convenient and legible for all users, including people with disabilities, pedestrians, cyclists and public transport ir services, where relevant.A AVehicle access, on-site circulation systems and parking areas and systems is safe, convenient and legible for all users, including people with disabilities, pedestrians, cyclists and public transport ir services, where relevant.A A	AO1.1 Development provides access driveways, internal circulation and manoeuvring areas, service areas and parking areas in accordance with the standards specified in the Planning scheme policy for the transport and parking code, including ensuring:- (a) the number and type of vehicles planned for the development	<b>Complies with PO1.</b> Refer Section 8 of the Traffic Impact Assessment (TIA). The proposed arrangements will comply with Council's TAP Code, Council's TAP Policy, AS2890 and/or are considered acceptable from a traffic engineering perspective.

	<ul> <li>(b) on-site vehicle parking and manoeuvring areas provide for vehicles to enter and leave the site in a forward motion; and</li> <li>(c) a progressive reduction in vehicle speed between the external transport corridor and internal parking spaces such that lower speeds occur near areas of high pedestrian activity.</li> <li>A01.2 Development provides clearly defined pathways within and around on-site vehicle parking areas that:-</li> <li>(a) are located in identified pedestrian desire lines; and</li> <li>(b) ensure pedestrian movement through parking areas is along aisles rather than across them.</li> </ul>	
Site Access	<b>AO2 1</b> The location and design	Can Comply with PO2
PO2 Development ensures that the layout, design and construction of access:- (a) is safe, convenient and legible for all users, including people with disabilities, pedestrians, cyclists and public transport services, where relevant; (b) does not interfere with the planned function, safety, capacity and operation of the transport network; (c) minimises the impact of turning traffic from the development on external traffic systems; (d) provides sufficient sight distances to ensure safe operation; (e) is appropriate to design traffic volumes and vehicle types; and (f) includes appropriate and sufficient signage to ensure safe and convenient use.	<ul> <li>AO2.1 The location and design of any new site access is in accordance with the standards specified in the Planning scheme policy for the transport and parking code.</li> <li>AO2.2 For assessable development, the number of site access driveways is minimised (usually one), with access to the lowest order transport corridor to which the site has frontage, consistent with amenity impact constraints.</li> </ul>	Can Comply with PO2 Refer Section 8 of the TIA. The proposed site access configuration, location and sight distances comply with Council's TAP Policy, IPWEA and/or AS2890 requirements.
PO3 Development provides	AO3.1 Development provides	Complies with PO3 1
on-site car parking for the demand anticipated to be generated by the development.	on-site car parking spaces at the minimum rates specified in Table 9.4.8.3.3 (Minimum on- site parking requirements).	Refer Section 4.4 of the TIA. There is sufficient formal on- site parking that can be utilised within day-to-day operations
	OR	Informal on-site parking that can be utilised within an event situation. Event Management is proposed to be utilised for

Where located in a centre zone	events to limit the demand for
or the Tourist accommodation	on site parking
zone,	en eno ponting.
development provides on-site	
car parking spaces at rates	
varied from those in <b>Table</b>	
9.4.8.3.3 (Minimum on-site	
parking requirements) for	
specified development, as	
outlined below:-	
(a) rooming accommodation,	
resort complex or retirement	
facility – reduce visitor parking	
to 1 space per 10 rooming units	
or dwellings;	
(b) food and drink outlet,	
function facility, hotel, indoor	
and sport and recreation,	
theatre – reduce parking to 1	
space per 20m2 gross floor	
area;	
parking to 1 space per 25m2	
gross floor area for any	
component above 1,000m2	
gross floor area; and	
(d) child care centre – reduce	
customer parking to 1 space	
per / children.	
Note—where the calculated	
number of spaces is not a	
whole number, the required	
number of parking spaces is	
the nearest whole number.	
Deutsian an antinens of the first of	
Parking requirements for other	
vehicles including service	
motorcycles/scooters and	
cycles, as well as design	
requirements, outlined in the	
remainder of this code do not	
change.	
OR	
For self-assessable	
development, other than a call	
centre, located in premises that	
were lawfully established prior	
to the commencement of the	
planning scheme, the number	
or on-site car parking spaces	
of spaces required at the time	
the premises were lawfully	
established.	

	OR	
	Where development is physically unable to provide the required number of car parking spaces on-site, an Infrastructure Agreement is entered into between the developer and the Council which provides for contributions in lieu of on- site car parking spaces.	
	<b>AO3.2</b> For assessable development, car parking provided for mixed-use development is sufficient to meet the demand of residential and business uses, with exclusive designations for both user types.	
<b>PO4</b> Development provides for a reasonable portion of the total number of on-site car parking spaces to be wheelchair accessible spaces and to be identified and reserved for such purposes.	<b>AO4.1</b> Development provides the number of parking spaces for people with disabilities, required by the Building Code of Australia and, in any case, provides a minimum of one space.	<b>Complies with PO4</b> Refer Section 4.2.6 of the TIA. There is sufficient PWD provisions within the existing on-site formal parking provision. Additional PWD spaces will be provided via traffic management
	<b>AO4.2</b> Parking spaces for people with disabilities, access and signage complies with AS 1428 – General Requirements for Access: <i>Buildings and AS</i> 2890.6 – Parking facilities (Part 6: Off-street Parking for People with Disabilities).	
On-site Parking and End of Tri	p Facilities for Bicycles	
<b>PO5</b> Development provides on-site cycle parking facilities to encourage use of this mode of transport and support the demand anticipated to be generated by the development	<ul> <li>AO5.1 Development provides on-site cycle parking spaces at the minimum rates specified in Table 9.4.8.3.3 (Minimum on- site parking requirements).</li> <li>AO5.2 Cycle parking is designed in accordance with the Planning scheme policy for the transport and parking code.</li> </ul>	<b>Can comply with PO5</b> Bicycle parking is currently provided on site. Additional bicycle parking facilities can be provided for large scale events through event management planning.
	AO5.3 End of trip facilities, including personal lockers, change rooms, showers and sanitary compartments and wash basins are provided in accordance with the Planning scheme policy for the transport and parking code, for development involving:-	

Sorvice Vehicle Pequirements	<ul> <li>(a) a use in the business activity group;</li> <li>(b) a use in the community activity group;</li> <li>(c) a use in the industrial activity group, other than bulk landscape supplies and extractive industry;</li> <li>(d) a use in the residential activity group;</li> <li>(e) a use in the sport and recreation activity group, other than park; and</li> <li>(f) a use in the other activity group being air services.</li> </ul>	
BOG Development provides	AOG 1 Dovelopment provides	Complian with BOG
sufficient parking and access for service vehicles to meet the needs of the development.	<ul> <li>AC6.1 Development provides</li> <li>on-site service vehicle parking</li> <li>bays at the minimum rates</li> <li>specified in Table 9.4.8.3.3</li> <li>(Minimum on-site parking</li> <li>requirements).</li> <li>AC6.2 Service vehicle access,</li> <li>internal circulation and</li> <li>manoeuvring, loading and</li> <li>unloading, waste collection and</li> <li>fuel delivery facilities (if</li> <li>required) and parking areas are</li> <li>designed in accordance with</li> <li>the standards specified in the</li> <li>Planning scheme policy for the</li> <li>transport and parking code.</li> </ul>	Refer Section 8 of the TIA. The proposed servicing arrangements are considered acceptable from a traffic engineering perspective. This will be confirmed within detailed design.
<b>PO7</b> Development provides for driveways, internal circulation areas and service areas to be designed to:- (a) ensure that proposed loading, unloading, waste collection and fuel delivery facilities (if required) can satisfactorily accommodate the number and type of service vehicles expected on-site; and (b) the movement of service vehicles on-site and loading and unloading operations do not interfere with onsite amenity and the safe and convenient movement of other vehicles and pedestrians on the <i>site</i> .	A07.1 Driveways, internal circulation areas, and service areas are provided to accommodate the nominated design vehicles for each development type. A07.2 Driveways, internal circulation areas, manoeuvring areas, loading and unloading areas and refuse collection facilities are designed and constructed in accordance with the standards specified in the Planning scheme policy for the transport and parking code.	<b>Complies with PO7</b> Refer Section 8 of the TIA. The proposed servicing arrangements are considered acceptable from a traffic engineering perspective.

Criteria for assessable development only

PO1 Traffic on the street and rad network and public transport infrastructure, is considered in an integrated manner and in a regional street development:- <ul> <li>(a) is consistent with the Sunshine</li> <li>Coast 2031 Functional Transport infrastructure, is considered in a neigned localised context to ensure that development:-</li></ul>	Transport Network		
PO2 Development provides for a transport network which is designed to:- (a) achieve a high level of permeability and connectivity, particularly for development and to the surrounding area; and (b) maximise active and public transport access to activity centres, employment areas, residential areas, community facilities and open space in the local area.AO2.1 Development provides for a street and road network based on a modified grid pattern.N/AAO2.2 Development provides for high trip generating land uses, such as higher density residential development and employment generators, to be located in and around activity centres and around major public transport hubs.AO2.3 Development involving substantial increases in employment and residential activity are connected to the principal public transport network as shown on Figure 9.4.8C (2031 Strategic Network of Public Transport	PO1 Traffic on the street and road network and public transport and active transport networks and the provision of transport infrastructure, is considered in an integrated manner and in a regional and localised context to ensure that development:- (a) is consistent with the Sunshine Coast 2031 Functional Transport Hierarchy and strategic networks of pedestrian, cycle and public transport links; and (b) includes measures to upgrade the network to meet the imposed demands.	A01 Development makes provision for pedestrian, cyclist, public transport and private vehicle movement consistent with:- (a) the Sunshine Coast Functional Transport Hierarchy as shown on Figure 9.4.8A (2031 Functional Transport Hierarchy) and described in the Planning scheme policy for the transport and parking code; (b) the Sunshine Coast Strategic Network of Pedestrian and cycle Links as shown on Figures 9.4.8B(i) and (ii) (2031 Strategic Network of Pedestrian and Cycle Links); (c) the Sunshine Coast Strategic Network of Public Transport Links as shown on Figure 9.4.8C (2031 Strategic Network of Public Transport Links); and (d) any relevant local area	Complies with AO1 The site include provision for edestrian, cyclist, public transport and private vehicle movement
Links). AO2.4 Development involving substantial increases in	<b>PO2</b> Development provides for a <i>transport network</i> which is designed to:- (a) achieve a high level of permeability and connectivity, particularly for pedestrians, cyclists and public transport, both within the development and to the surrounding area; and (b) maximise active and public transport access to activity centres, employment areas, residential areas, community facilities and open space in the local area.	<ul> <li>AO2.1 Development provides for a street and road network based on a modified grid pattern.</li> <li>AO2.2 Development provides for high trip generating land uses, such as higher density residential development and employment generators, to be located in and around activity centres and around major public transport hubs.</li> <li>AO2.3 Development involving substantial increases in employment and residential activity are connected to the <i>principal public transport</i> <i>network</i> as shown on Figure 9.4.8C (2031 Strategic Network of Public Transport Links).</li> <li>AO2.4 Development involving substantial increases in</li> </ul>	N/A

	activity are connected to the principal public transport network as shown on Figure 9.4.8C (2031 Strategic Network of Public Transport Links). AO2.5 Development provides routing, stop and interchange arrangements for public transport services. Development provides safe, convenient and direct pedestrian and cyclist access to activity centres, public transport stops and stations and other strategic redevelopment and activity generators.	
<b>PO3</b> Development involving high trip generating land uses minimises any adverse impacts on surrounding land use and the external <i>transport network</i> , including by the provision of <i>infrastructure</i> and services to increase the use of active and public transport.	AO3 Development with potential to generate significant transport impacts is undertaken in accordance with an approved Traffic Impact Assessment Report and Integrated Transport Plan, prepared in accordance with the <b>Planning</b> scheme policy for the transport and parking code.	<b>Complies with PO3</b> The development implements Traffic Management for medium and large scale events to minimise adverse impacts
<b>PO4</b> Development is designed to operate in a safe and efficient manner and facilitates the orderly provision of transport <i>infrastructure</i> in accordance with the intended role, function and characteristics of the <i>transport</i> <i>network</i> .	<ul> <li>AO4.1 Development and any associated transport infrastructure is designed and constructed in accordance with the hierarchy characteristics and standards specified in the Planning scheme policy for the transport and parking code and Planning scheme policy for development works25.</li> <li>AO4.2 Development provides for upgrades or contributes to the construction of <i>transport network</i> improvements.</li> <li>AO4.3 The design features of streets and roads encourage driver behaviour appropriate to the role and function of the street or road in the functional <i>transport hierarchy</i>.</li> <li>AO4.4 Development design incorporates road safety auditing in accordance with the standards specified in the</li> </ul>	Complies with AO4.1 Refer to Section 4 of the TIA. The development will have negligible impact on the surrounding road network. No upgrades works are required to offset development impacts. Complies with AO4.2 Refer to Section 2.4 of the TIA. We are not aware of any planned upgrades to the Council-controlled transport network in proximity to the site. AO4.3 – N/A – No streets or roads are proposed. AO4.4 – N/A – No streets or roads are proposed.

Pedestrian and Cycle Network		
PO5 Development provides a	AO5.1 Footpaths, shared	Complies with PO5
conveniently located network	pathways and cycleways are	The development includes
of footpaths, shared pathways	provided in accordance with	conveniently located network
and cycleways that:-	Figures 9.4.8B(i) and (ii)	of footpaths, shared pathways
(a) achieve a high level of	(2031 Strategic Network of	and cycleways to promote
safety and accessibility,	Pedestrian and Cycle Links)	alternative transport options.
particularly to public transport	and the standards specified in	
facilities and high trip	the <b>Planning scheme policy</b>	
generating land uses located	for the	
Internally and externally to the	transport and parking code	
Sile;	and the <b>Planning scheme</b>	
(b) recognise the different	policy for	
nedestrians and cyclists:	development works.	
(c) provide for safe and	AO5 2 Development provides	
convenient	convenient and prominent	
ioint usage:	pedestrian entrances that cater	
(d) allow the retention of trees	for universal access	
and		
other significant features:	AO5.3 Development provides	
(e) maximise the visual interest	cycle access, that:-	
provided by views and	(a) is located close to the	
landmarks	building's	
where they exist;	pedestrian entrance;	
(f) do not compromise the	(b) is obvious and easily and	
operation of or access to other	safely	
infrastructure	accessible from outside the	
and services;	site;	
(g) are widened at potential	(c) does not adversely impact	
conflict	on visual amenity; and	
points;	(d) does not impede the	
(h) are well lit and located	movement of pedestrians or	
where there is casual	other vehicles.	
promises: and		
(i) incorporate safe street and		
(1) Incorporate sale street and		
crossings for pedestrians and		
cyclists with adequate sight		
distances pavement markings		
warning signs and safety rails.		
<b>PO6</b> Development provides for	AO6 Streets and roads provide	N/A
cyclists on streets and roads,	for on-road cycling in	
unless specifically prohibited	accordance with the standards	
(e.g. motorways).	specified in the <b>Planning</b>	
	scheme policy	
	for the transport and parking	
	code and the Planning	
	scheme policy for	
	development works.	
Public Transport Facilities	AO7 1 Development is	Complian with BO7
the use of public transport	AO7.1 Development is	The development promotes the
through:	provide convenient and	use of public transport through
(a) design which maximises	attractive linkages to existing	event management for medium
accessibility via existing and	and proposed public transport	and large scale events
planned public transport	facilities.	
facilities;		
and		

Access and On-site Parking		
Car Parking Requirements		
PO8 Development provides for	AO8 No acceptable outcome	N/A
shared or multiple use of car	provided	
parking areas particularly		
large car parking areas:		
(a) at times when ear parking		
(a) at times when car parking		
areas		
would otherwise not be		
occupied (e.g. weekends);		
(b) when car parking spaces		
service two or more land uses		
with varying peak usage times		
(e.g. restaurants and		
entertainment uses which		
generate peak parking		
demands in periods when retail		
or office uses are relatively		
in onlice uses are relatively		
(c) to reduce the amount and		
size of the car parking area.		
PO9 Development in a	AO9 No acceptable outcome	N/A
Regional Activity Centre	provided.	
provides for or contributes to		
the provision of public or		
shared car <i>parking</i>		
stations which serve a variety		
of nearby uses		
PO10 Development ensures	AO10 No acceptable outcome	Can Comply with PO10
that car parking areas service	provided	Refer Section 8 of the TIA The
areas and access drivewaye	provided.	proposed site access
are la sata dividaria		proposed site access
are located where:-		configuration, location and
(a) they will not dominate the		signt distances comply with
<i>streetscape</i> ; and		Council's TAP Policy, IPWEA
(b) will not unduly intrude upon		and/or AS2890 requirements.
pedestrian use of pathways,		
through:-		
(i) the use of rear <i>access</i>		
lanes;		
(ii) car parking areas and		
service areas situated at the		
rear of the premises or below		
around level: or		
(iii) shared driveways		
(iii) shared driveways.	AO11 No accentable outcome	NI/A
POTT Development does not	AUTT No acceptable outcome	N/A
provide for <i>basement</i> car	provided.	
parking areas to be located		
below public streets or roads.		
PO12 Development provides	AU12 No acceptable outcome	N/A
for multi-level car parking	provided.	
areas to be designed,		
articulated and finished to		
make a positive contribution to		
the local streetscape character		
PO13 Development provides	AO13 No acceptable outcome	N/A
for car parking areas which are	provided	
located designed and	Note-Section 9 4 5 (Safety	
monogod to promoto public	and accurity acda) acts and	
managed to promote public	and security code, sets out	
security and salety.	requirements for safety and	
	security in car parking areas.	

On-site Parking for Motorcycle	es and Scooters	
<b>PO14</b> Development provides sufficient on-site parking for motorcycles and scooters to encourage their use and support the demand anticipated to be generated by the development.	AO14.1 Development provides on-site motorcycle and scooter parking spaces at the minimum rates specified in Table 9.4.8.3.3 (Minimum on-site parking requirements). AO14.2 Motorcycle and scooter parking is designed in accordance with the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works	No motorcycle parking is provided as part of the development
On-site Parking for Buses	Horito.	
P015 Development provides for sufficient access, internal circulation and on-site parking for buses to meet the needs of the development.	AO15.1 Development for any of the following uses provides a number of on-site bus parking spaces commensurate with the scale of the use and in any case, does not provide less than one on- site bus parking space:- (a) rooming accommodation, short-term accommodation or resort complex where having more than 20 rooming units; (b) retirement facility, where having more than 20 dwellings; (c) function facility, where having a gross floor area exceeding 200m <sup>2</sup> ; (d) hotel, where having a gross floor area exceeding 500m <sup>2</sup> ; (e) tourist attraction; (f) community care centre, where having a gross floor area exceeding 200m <sup>2</sup> ; (g) community use, where having a gross floor area exceeding 200m <sup>2</sup> ; (h) educational establishment; (i) major sport, recreation and entertainment facility; (j) theatre, where having a gross floor area exceeding 500m <sup>2</sup> ; (k) indoor sport and recreation, where having a gross floor area exceeding 500m <sup>2</sup> ; and (l) outdoor sport and recreation. AO15.2 Bus parking is designed in accordance with the standards specified in the	Complies with PO15 There is sufficient on site area for the movement of buses if required.

	Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	
<b>PO16</b> Development provides for site <i>access</i> driveways to incorporate queuing provisions sufficient to ensure safe and convenient <i>access</i> without impacting on external traffic systems.	AO16.1 Development provides for vehicle queuing in accordance with the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	<b>Can comply with PO16</b> Refer Section 8of the TIA. Queue storage complies with AS2890.1 requirements and exceeds Council's TAP Policy requirements.
	AO16.2 Development provides on-site queuing for a minimum of four cars where <i>drive</i> <i>through facilities</i> or drop- off/pick-up services are proposed as part of the use, including the following development:- (a) <i>child care centre</i> ; (b) <i>educational establishment</i> , where for a school; (c) <i>food and drink outlet</i> , where including a <i>drive-through</i> <i>facility</i> ; (d) <i>hardware and trade</i> <i>supplies</i> , where including a <i>drive-through facility</i> ; (e) <i>hotel</i> , where including a <i>drivethrough facility</i> ; and (f) <i>service station</i> .	
Amenity and Environmental Im	pacts of Transport Infrastructur	re
<b>PO17</b> Development ensures that <i>access</i> , manoeuvring and parking facilities do not have adverse impacts on people, properties or activities, with regard to light, noise, emissions or stormwater run- off.	<b>AO17</b> No acceptable outcome provided.	Refer to Town Planning report.
PO18 Development provides for access and parking areas that incorporate appropriate landscapes so as to:- (a) provide shade; (b) maximise infiltration of stormwater runoff; (c) define parking areas; (d) soften views of hardstand areas.	AO18 No acceptable outcome provided. Note—Section 9.4.2 (Landscape code) sets out requirements for landscapes.	Refer to Town Planning report.
<b>PO19</b> The environmental impacts of transport <i>infrastructure</i> are minimised by appropriate design and the use of low impact construction techniques.	<b>AO19</b> Development ensures that the environmental impacts of transport <i>infrastructure</i> are minimised by the use of low impact construction techniques, including:-	Refer to Town Planning report.

	<ul> <li>(a) co-location of transport corridors</li> <li>within an existing or planned <i>infrastructure</i> corridor;</li> <li>(b) location of transport corridors within an area clear of <i>vegetation</i>, or consisting of disturbed <i>vegetation</i>;</li> <li>(c) avoidance of clearing of native</li> <li><i>vegetation</i> and provision of fauna</li> <li>underpasses and associated fencing, where appropriate;</li> <li>(d) minimisation of changes to the</li> <li>hydrological regime, including drainage patterns, run-off and water</li> <li>quality;</li> <li>(e) avoidance of crossing</li> <li><i>waterways</i>, drainage lines and <i>wetlands</i>. Where such crossings are unavoidable, disturbed areas are reinstated and revegetated on completion of works; and/or</li> <li>(f) minimisation of changes to the</li> </ul>	
	earthworks.	
Transport Corridor Widths, Pa	vement, Surfacing and Verges	
PO20 Development provides external road works along the full extent of the site <i>frontage</i> appropriate to the function and amenity of the transport corridor, including, where applicable:- (a) paved roadway; (b) kerb and channel; (c) safe vehicular <i>access</i> ; (d) safe footpaths, shared pathways and cycleways; (e) safe on-road cycle lanes or verges for cycling; (f) stormwater drainage; (g) conduits to facilitate the provision of street lighting systems and traffic signals; and (h) public transport priority measures, indented bays, bus shelters and associated <i>infrastructure</i> . <b>PO21</b> Development provides	AO20 External street and road works are designed and constructed in accordance with the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	N/A Any external works are proposed
for the reserve width, pavement, edging and	design and construction is undertaken in accordance with	Any external works are proposed

streetscape and landscape treatments of a transport corridor to support the intended role, function and amenity of the transport corridor.	the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.			
<b>PO22</b> Development provides for street and road pavement and surfacing that:- (a) is sufficiently durable to carry wheel loads for design traffic; (b) provides adequate area for parked vehicles; (c) ensures the safe passage of	AO22.1 Street and road pavement is designed and constructed in accordance with the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	N/A		
vehicles, pedestrians and cyclists; (d) ensures appropriate management of stormwater and maintenance of all- weather access; and (e) allows for reasonable travel comfort.	AO22.2 Street and road drainage is designed and constructed in accordance with the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.			
<ul> <li>PO23 Development provides pavement edging that controls:-</li> <li>(a) vehicle movements by delineating the extent of the carriageway; and</li> <li>(b) stormwater runoff.</li> </ul>	AO23 Pavement edging is designed and constructed in accordance with the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	<b>N/A</b> Any external works are proposed		
PO24 Development provides verges that:- (a) allow <i>access</i> for vehicles onto properties; (b) include an area for public utility services; (c) allow signage and line marking; and (d) contribute to the amenity of transport corridors.	AO24 Verges are designed and constructed in accordance with the standards specified in the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works.	N/A Any external works are proposed		
Intersections and Traffic Controls				
for traffic speeds and volumes to be catered for through the design and location of intersections and traffic controls so as to:- (a) reduce stop-start conditions; (b) provide for appropriate sight distances; (c) reduce increased vehicle	designed and constructed in accordance with the Planning scheme policy for the transport and parking code and the Planning scheme policy for development works. AO25.2 Speed management is achieved in accordance with the Planning scheme policy for the transport and parking	Any external works are proposed		

emissions; (d) minimise unacceptable traffic noise to adjoining land uses; (e) maintain convenience and safety levels for pedestrians, cyclists and public transport; and (f) integrate traffic controls with landscape and streetscape design.	code and the Planning scheme policy for development works.	
Development Staging		
<ul> <li>PO26 Staged development is planned, designed and constructed to ensure that:-</li> <li>(a) each stage of the development can be constructed without interruption to services and utilities provided to the previous stages;</li> <li>(b) transport <i>infrastructure</i> provided is capable of servicing the entire development;</li> <li>(c) early bus access and circulation is achieved through the connection of collector roads; and</li> <li>(d) materials used are consistent throughout the development.</li> </ul>	AO26 No acceptable outcome provided.	N/A
Appendix 4 Landscape Design prepared by Element Design





ISS DATE DESCRIPTION **ORIGINAL ISSUE** A 27.11.20 B 29.11.20 NOTE ADDITIONS C 03.12.20

AMENDMENT SCHEDULE

BY NH NH BIOBASINS ADDED NH Sunshine Coast Stadium

Member Australian Institut



CONSULTANT

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marchesepartners





## DESIGN APPROACH -

THE PROPOSED DESIGN APPROACH FOR THIS PROJECT IS ONE OF PRACTICAL DESIGN SOLUTIONS FOR A SUSTAINABLE AND AESTHETIC OUTCOME. THIS WILL BE ACHIEVED VIA THE FOLLOWING NOTES & INFORMATION.

SELECT NATIVE TREES, SHRUBS AND GROUND-COVER PLANTINGS TO PROPOSED BUILDINGS SURROUNDING AREAS TO SOFTEN THE BUILT FORM OF THE STRUCTURE & ASSIST IN CREATING A SUSTAINABLE, SAFE & FUNCTIONAL ENVIRONMENT FOR THE PROPOSED DEVELOPMENT.

- THE PLANTING DESIGN WILL INCORPORATE -
- 1. PLANTINGS TO BE PREDOMINANTLY NATIVE ENDEMIC SPECIES TO COMPLIMENT THE EXISTING ENVIRONMENT & LOCAL COUNCILS LANDSCAPE DESIGN POLICY.
- 2. SURVEILLANCE & SIGHTLINE CRITERIA FOR SAFE & EASY TRAVEL FOR USERS OF THE BUILDING THROUGH THE DEVELOPMENT SITE.
- 3. PROVISION OF TREE PLANTINGS TO DEEP PLANTING BOUNDARY AREAS AND DRIVEWAYS, WHERE PRACTICAL & POSSIBLE.
- 4. PLANTING SPECIES WILL BE CHOSEN FOR THEIR AESTHETIC VALUE, SUSTAINABILITY DURING WATER CONSCIOUS PERIODS AND LOW MAINTENANCE QUALITIES.

SHEET	LEGEND -			
SHEET	01 - SITE L	AYOUT P	LAN	
SHEET	02 - PLAN	TING CON	ICEPT PLA	Ν
SHEET	03 - PLAN	TING CON	ICEPT PLA	Ν
SHEET	04 - PLAN	TING CON	ICEPT PLA	Ν
SHEET	05 - PLAN	TING CON	ICEPT PLA	Ν
SHEET	06 - PLAN	T SCHEDI	JLE & PHO	то
	MON	TAGE.		



# SCHEMATIC DESIGN

scale in metres 01 5 10 20

**IMPORTANT:** ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE GENERAL NOTES SHEET

DRAWING TITLE	E OVERAL PLAN		
DATE <b>27/11/20</b>	scale @ a1 1:500	drawn NH	checked JV
DRAWING No.	A- LAN-01-06		ISSUE C











Tristaniopsis laurina



Acmena hemilampra



Cupaniopsis anacardiodes



Ficus Green Island



Pittosporum Miss Muffet



Phyllanthus Green Waterfall





Liriope variagata



Juniperis horizontallis





Ixora Prince of Orange



Syzygium Resillience



Liriope Evergreen Giant



Casurina Cousin It

151 Brisbane Rd. Mooloolaba Phone 07 5444 6155 Fax 07 5444 6055 PO Box 1546, Buderim QLD 4556 admin@elementdesign.net.au





Trachelospermum jasminoides



Ficinia nodosa

	AME	NDMENT SCHEDULE	
ISS	DATE	DESCRIPTION	В
Α	27.11.20	<b>ORIGINAL ISSUE</b>	N
В	29.11.20	NOTE ADDITIONS	N
С	03.12.20	<b>BIOBASINS ADDED</b>	Ν





Elaeocarpus reticulatis

Dietes Grandiflora



Hibiscus tiliaceus Rubra





Carpobrotus glauca



Doryanthes palmerii



TOOWOOMBA | BRISBANE | MOOLOOLABA www.aspectapm.net ABN 96 071 786 948 ACN 071 786 948 BOAQ 4487



GENERAL NOTES THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH ALL RELEVANT BUILDING CODES AND STANDARDS. NO AMENDMENTS SHALL BE MADE WITHOUT THE APPROVAL FROM ASPECT AND/OR RELEVANT LOCAL AUTHORITY THESE DRAWINGS ARE SUPPLIED ON THE CONDITION THAT, IN THE EVENT OF ERROR, ASPECTS' LIABILITY IS LIMITED ONLY TO THE COST OF AMENDING THESE DRAWINGS. CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR PRODUCING SHOP DRAWINGS. THESE DRAWINGS ARE PROTECTED BY THE LAWS OF COPYRIGHT AND MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN ERMISSION OF ASPECT

#### PROJECT SUNSHINE COAST STADIUM EX

SUNSHINE COAST COUNCIL

31 SPORTSMANS PARADE, BOKAR

		TREE & PALM S
	Code	Botanical Name
	ACM hem HIB til CUP ana ELA ret SYZ aus TRI lau	Acmena hemilampra Hibiscus tiliaceus Ru Cupaniopsis anacar Elaeocarpus reticlatu Syzygium australe Tristaniopsis laurina
	Quala	SHRUB SPECIES
	Code	Botanical Name
	ACM smi BAN rob CAL CC CAL GBF DIE gra FIC GI FIC nod MET LD MET FF PHY mul PHI xan PIT MM SYZ res	Acmena smithii Banksia robur Callistemon 'Captair Callistemon Great B Dietes grandiflora Ficus Green Island Ficinia nodosa Metrosideros Little D Metrosideros "Fiji Fi Phylanthus multiflora Philodendron 'xanad Pittosporum Miss Ma Syzygium Resilience
		GROUNDCOVER
	Code	Botanical Name
	ALL ci MYO ell CAR gla LIR EG	Allocasuarina Cousi Myoporum ellipitum Carpobrotus glauce Liriope Evergreen G
	LIR var	Liriope variagata

TRA Tri

Philodendron Xanadu



Strelitzia regina



Callistemon Captain Cook

# **INDICATIVE PLANT SCHEDULE**

## **REE & PALM SPECIES**

### otanical Name

Acmena hemilampra Hibiscus tiliaceus Rubra Cupaniopsis anacardiodes Elaeocarpus reticlatus Syzygium australe

## SHRUB SPECIES **Botanical Name**

- Acmena smithii Banksia robur
- Callistemon 'Captain Cook'
- Callistemon Great Balls of Fire
- Dietes grandiflora
- Ficus Green Island
- Ficinia nodosa
- Metrosideros Little Dougal
- Metrosideros "Fiji Fire"
- Phylanthus multiflora
- Philodendron 'xanadu'
- Pittosporum Miss Muffet
- Syzygium Resilience

## **GROUNDCOVER SPECIES Botanical Name**

Allocasuarina Cousin It Myoporum ellipitum Carpobrotus glaucescens Liriope Evergreen Giant Liriope variagata Trachelospermum jasminoides 'Tricolour''

## 45 Litre Bag **Common Name**

### **Bush Satinash Red Hibiscus** Tuckeroo Blueberry Ash Scrub Cherry Water Gum

## 200mm Pot Common Name

Lilly Pilly Swamp Banksia Captain Cook Great Balls of Fire Grandiflora Ficus Green Island Knobby Club Rush Little Dougal Fiji Fire Green Waterfall Dwarf Philodendron Miss Muffet Resilience

## 140mm Pot Common Name

Cousin It Coastal Myoporum Pigs Face **Evergreen Giant** Variagated Liriope **Tricolor Jasmine** 

NOTE: NOT ALL SPECIES SHOWN WILL BE NECESSARILY UTILISED & NEW SPECIES COULD BE INCLUDED INTO FINAL DESIGN AT OP.WORKS DOCUMENTATION STAGE

# **SCHEMATIC DESIGN**

IMPORTA	NT: ALL DRAWINGS MUST BE READ IN CONJUNCTION	ON WITH THE GENERAL NOTES	S SHEET
XPANSION	DRAWING TITLE PLANT MONTAGE		
	DATE SCALE @ A1 27/11/20	drawn NH	checked JV
RINA QLD 4575	DRAWING No. 200170_ A- LAN-06-06		ISSUE C

Appendix 5 Waste Management Plan prepared by TTM Consulting





# S Operational Waste Management Plan

Proposed Sunshine Coast Stadium Expansion

At 31 Sportsman Parade, Bokarina

On behalf of Aspect Design Studios Pty Ltd



## About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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#### Document Reference:

#### **Revision Record**

No.	Author	Reviewed/Approved	Description	Date
01	M. Krisanski	S. Kenny	Draft OWMP	10/12/2020
02	M. Krisanski	S. Kenny	OWMP	15/12/2020

## **Executive Summary**

This document is an Operational Waste Management Plan (OWMP) developed for the proposed Sunshine Coast Stadium Expansion, located at 31 Sportsman Parade, Bokarina.

The purpose of the OWMP is to provide compliance and design information relating to the handling, storage, and collection of refuse within the proposed development. Compliance relates to alignment with the Sunshine Coast Council's (SCC) refuse planning scheme policy and associated codes. The content of the OWMP is written with the purpose of providing a guide for the design, construction and operational phases of the development and therefore may be updated to include detailed information as required for each phase. Sections included as "client information only" are removed or amended during the appropriate phase and therefore should not be reviewed as assessable items.

#### Compliance

The OWMP satisfies SCC's Refuse PSP requirements as detailed in the compliance table in Section 1.3.1. The content of the OWMP provides the following information:

- Type of Development Uses
- Individual refuse streams for each development use; and
- Anticipated quantities likely to be generated for each refuse stream under 100% occupancy and operation of the proposed development.
- Refuse collection, storage, transfer, and disposal arrangements during full occupancy of the completed development.
- Recommended operational requirements for the operational phase of the development including.
  - design requirements for the development
  - the building and refuse management facilities.

#### Waste Management Summary

Access to the site is via Sportsmans Parade or Nicklin Way, the stadium will have loading areas for both the Western and Eastern stands is the internal road.

All waste rooms are located on the Ground Floor and are directly adjacent the loading areas, with the bins being collected directly from the waste rooms by the collection contractor and returned after servicing is completed.

**Western Stand:** It is estimated that a total of **8,601L** of general waste and **3,539L** of commingled recycling will be generated per event for the Western Stand. The refuse will be managed back of house by stadiums operation staff / cleaners and transferred by staff when appropriate or at designated times to the refuse room located on the southern side of the ground level of the stand.



**Eastern Stand:** It is estimated that a total of **4,868L** of general waste and **4,593L** of commingled recycling will be generated per event for the Eastern Stand. The refuse will be managed back of house by stadiums operation staff / cleaners and transferred by staff when appropriate or at designated times to the refuse room located on the southern side of the ground level of the stand.



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# 1 Introduction

### 1.1. Background

TTM Consulting has been engaged by Aspect Design Studios Pty Ltd to prepare an OWMP to support the proposed Sunshine Coast Stadium Expansion at 31 Sportsman Parade, Bokarina. It is understood that a Environmental Assessment Report will be lodged with the DSDMIP.

The purpose of this brief is to outline the refuse collection arrangements for the Sunshine Coast Stadium (SCS) with regards to recommending equipment, bin sizes and numbers and also how the waste is disposed of and transported throughout the stadium, this together with the final Operational Waste Management Report will provide an efficient and effective waste management processes and procedures for the Sunshine Coast Stadium operations.

#### 1.2. Scope

The content of this plan is intended to provide information in reverse order to the typical movement of waste streams from disposal to collection. The reverse order provides context for refuse collection, storage and transfer. Information about refuse disposal and disposal points is given for each use area within the development.

The items covered within the report are explained in Table 1.1. The key information for Council approval can be found in Section 2.

Item	Explanation
Refuse streams	Identification of refuse streams and anticipated refuse volumes that will be produced within each of the "Development Uses"
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse disposal	Recommendations for refuse disposal within the development
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

#### Table 1.1: Scope Items

Detailed information including refuse calculations, site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendix.



The recommendations in this report relate to the operational phase of the development. Additional requirements for refuse management during or after demolition or construction phases are not included and require a dedicated plan.

#### 1.3. Regulatory Considerations

#### 1.3.1. Council's Refuse Planning Scheme

The State Government provide the framework for the Local Government Areas who use this to describe the planning policies, therefore TTM has referred to SCC requirements as outlined in SCC's Section 9.4.10 Waste management code. Table 1.2 demonstrates the refuse management items addressed to align with SCC's requirements.

Performance Outcomes	Acceptable Outcomes	Compliance / Comments		
Waste Minimisation				
PO1 Development minimises waste generation (including construction, demolition and operational waste) and provides opportunities for re-use and recycling, where appropriate. Waste Storage	AO1 Development with the potential to generate significant amounts of waste is undertaken in accordance with an approved waste management plan, prepared in accordance with the <b>PSP for the waste management code</b> .	Food waste separation options are being considered		
PO2 Development provides adequate facilities on-site for the storage of waste and recyclable material, in a manner which minimises the potential for environmental harm and environmental nuisance.	AO2 A waste container storage area(s) is provided that is sited, screened and designed in accordance with the standards specified in the <b>PSP for the waste</b> <b>management code</b> .	Complies		
PO3 Development provides for source separation and segregation of wastes, by providing convenient access to recycling containers, green waste containers and other specialised waste storage containers, as required, which are easily recognised and appropriate to the type and volume of wastes generated.	AO3 No acceptable outcome provided.	Complies: Waste and Recycling separation provided, Landscaping / Green waste is being provided		
Waste Servicing				
PO4 Development is designed to facilitate and allow for safe, unobstructed and efficient servicing of waste containers.	<ul> <li>AO4.1</li> <li>Where on-site waste collection services are proposed:-</li> <li>(a) the layout and internal trafficable areas of the development is designed to facilitate direct servicing of waste containers by the refuse collection vehicle in a safe, efficient and unobstructed manner;</li> </ul>	Complies		

#### Table 1.2: Waste Management Plan Compliance Checklist



Performance Outcomes	Acceptable Outcomes	Compliance / Comments
	(b) refuse collection vehicle entry and exit from the <i>site</i> is carried out in a forward gear; and	
	(c) the proposed point of servicing is designed to minimise the potential for nuisances to be caused by way of noise and odour.	
	A04.2	Not Applicable
	Where on-street (kerbside) waste collection is proposed for standard domestic waste containers, sufficient kerbside space is provided adjacent to the <i>frontage</i> of the premises for the required number of bins, and such space is;-	
	(a) clearly separated from car parking bays, loading bays and other similar no-standing areas;	
	(b) clear of overhanging branches, awnings and other such hindrances to servicing by a lifter arm;	
	(c) clear of footpaths and pedestrian access connections to the road;	
	(d) not in front of shop entrances or private residential premises;	
	(e) not blocking the vision of vehicles using the roadway or entering and exiting the property;	
	(f) capable of being serviced safely without the collection vehicle impeding traffic flow during servicing; and	
	(g) capable of being serviced while the collection vehicle travels forward (i.e. without the vehicle needing to reverse).	
	A04.3	Not Applicable
	Where on-street waste collection is proposed for standard bulk bins:-	
	(a) a storage embayment is provided just inside the property boundary alignment of the <i>site</i> , preferably next to the site access point, and adjacent to the likely point on the street where the bulk bin will be serviced by the contractor;	
	(b) a reasonably level, smooth and nonslip access path is provided, from the temporary embayment continuous to the likely point on the street where a refuse collection vehicle will service the bin;	
	(c) a lawful point exists on the street for the refuse collection vehicle to stand, at the likely point for bin servicing, such that the refuse collection vehicle is not required to "double park" and/or is not impeding traffic flow during servicing and is not blocking the vision of vehicles using the roadway	
	or entering and exiting the property; and	
	(d) at the point of collection, there is clear volumetric space available that is:-	
	<ul><li>(i) clear of overhanging branches, awnings and other such hindrances to servicing by a lifter arm;</li></ul>	
	<ul><li>(ii) clear of footpaths and pedestrian access connections to the road;</li></ul>	
	(iii) not in front of shop entrances or private residential premises; and	
	(iv) capable of being serviced while the collection vehicle travels forward (i.e. without the vehicle preding to reverse)	



Performance Outcomes	Acceptable Outcomes	Compliance / Comments
	Note—the <b>Planning scheme policy for the waste</b> <b>management code</b> contains guidance in relation to the achievement of AO4.1, AO4.2 and AO4.3.	
	Editor's note— <b>Section 9.4.8 (Transport and parking code)</b> sets out additional requirements for service vehicle <i>access</i> and parking.	
PO5	A05	Complies
Development is designed to allow for safe and unobstructed manual handling and manoeuvring of standard domestic waste containers and standard bulk bins.	No acceptable outcome provided.	

#### 1.3.2. Waste Levy

The Queensland state government introduced a levy on commercial wastes sent to landfill which commenced on 1<sup>st</sup> July 2019. It will normally be applied per tonne of waste and will be passed on by waste collection contractors to customers, possibly based on an assumed volume per bin.

The cost of the levy for the start of the development's operation will be approximately \$95 per tonne and will continue to increase by a minimum \$5 per tonne each year thereafter. This cost will be on top of normal waste collection costs charged by waste collection contractors. Therefore, in order to reduce waste levy costs, waste generators should choose to avoid waste generation through a range of preventative measures and maximise recycling and food waste diversion from landfill.

#### 1.4. Site Location

The subject site is located at 31 Sportsman Parade, Bokarina, as shown in Figure 1.1. The property description is Lot 2 on SP163937. The site has a single road frontage to Sportsman Parade.



Figure 1.1: Site Location (Map View)

#### 1.5. Development Summary

The existing Sunshine Coast Stadium has a capacity of approximately 1,000 stadium seats and in 2019 has 224,384 in total attendance across 55 events.

#### Western Grandstand Expansion

- Currently holds 1046 patrons and post-development will provide 3533 fixed seats for patrons.
- The project will include food and beverage outlets and public amenities, first aid rooms, drug testing room, operations rooms, media boxes, camera platforms, coaches' boxes, production area and ground announcer's room. Also included is a state-of-the-art venue control and operations room, a dedicated police operations room and a serious medical injury clinic.
- Athlete facilities: improved amenities including cold and warm water recovery baths, recovery areas, warm up areas and team auditorium.
- Multi-purpose/community spaces: To meet event requirements and provide hire/lease opportunities on non–event days. Opportunities are also being explored to accommodate community outreach programs and services in the multi-purpose spaces in the stadium.



- Change rooms: Current change rooms are of high quality and meet current elite sporting guidelines. To accommodate larger scale events and women's events, two additional change room facilities are included in the design.
- Function/corporate facilities: The corporate offering in the Western Grandstand will be maximised to satisfy the potential market need for various product types and non-event days. Current designs include eight private corporate boxes, a function room/chairman's lounge and a sky bar.
- Commercial and community leasing: Cricket Queensland/Brisbane Heat, National Rugby League/Sunshine Coast Falcons, Sunshine Coast Rugby Union, Sunshine Coast Churches Soccer and Melbourne Storm are amongst those sporting bodies currently leasing office space at Sunshine Coast Stadium.

#### Eastern Grandstand

• The project includes construction of a new grandstand on the eastern side of the main field to hold 8085 patrons.



#### 1.6. Development Refuse Profile

Table 1.3 and Table 1.4 demonstrate the anticipated volumes for each of the commonly separated refuse streams across both stands. All calculations and equipment requirements are based on the development schedules and common waste generation rates as outlined in the detailed information in Appendix A.

Sunshine Coast Stadium L / day or Event	Areas	Waste	Co-mingled Recycling	Use Type / Generation Rate
	Kitchen	2641	527	Food and Beverage Outlets
Ground Level	Players / Referee	119	119	Office
	Office / Admin	39	39	Office
Maaaaniaa	Kitchen	474	94	Food and Beverage Outlets
Mezzanine	Office / Admin	143	143	Office
	Function	2201	439	Food and Beverage Outlets
Hanar Cancource	Corporate Box	1007	201	Food and Beverage Outlets
opper concourse	Media / Commentary	10	10	Office
	Bar	177	177	Food and Beverage Outlets
Upper Concourse Roof	Media / Broadcast	24	24	Office
Stadium Seating	3553 Seats	1767	1767	
Total (L)		8601	3539	

Table 1.3: Western Stand Refuse Summary

\*Litres are based on information provided in the briefing information and researched generation rates.

\*\* Based on 1 day or 1 event.



#### Table 1.4: Eastern Stand Refuse Summary

Sunshine Coast Stadium L / day or Event	Areas	Waste	Co-mingled Recycling	Use Type / Generation Rate
	Retail	144	144	Retail
Ground Level	Food and Beverage	408	204	Food and Beverage Outlets
	Retail	77	77	Retail
Main Course	Food and Beverage	141	70	Food and Beverage Outlets
Stadium Seating	8197 Seats	4099	4099	
Total (L)		4868	4593	

\*Litres are based on information provided in the briefing information and researched generation rates.

\*\* Based on 1 day or 1 event.

Taking in consideration the waste levy as outlined in Section 1.3.2, examples of waste costs for this development are outlined below. The calculation is based on the anticipated commercial refuse volumes as shown above with year 4 pricing to align with the completed development.

#### Table 1.5: Waste Levy Costs

Description	Measure	General Waste*	All Recycling**
Quantity (weight)	Tons/year	105.3	26.7
Estimated additional levy costs from 2022	A\$/year	\$ 10,007.92	\$1,268.93

Notes:

Assuming 1 event per week

Assuming volume to weight conversion factors as per

https://www.greenindustries.sa.gov.au/ literature 165892/Waste and Recycling Reporting Template (2017).

 $\ensuremath{^*}$  Assuming no diversion of food waste from the general waste stream.

\*\*Charge assuming 90% diversion. 10% of recycling not separated from general waste.



## 2 Refuse Management

This section describes the arrangements for the collection, storage, transfer and disposal of refuse within the development. This includes associated bin quantities, storage capacities, equipment details, collection frequencies and site access details.

#### 2.1. Refuse Collection

The following information relates to refuse collection arrangements for the entire development. All refuse will be collected by Councils Collection Contractor, or by a provider directed by Council.

#### 2.1.1. Bin Quantities

Table 2.1 outlines the estimated number of bins per collection. As waste volumes may vary according to the development occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation. Note: Final bin numbers for residential storage and collection will be assessed by Council field officers and adjusted as required upon commencement of the building operations.

#### Table 2.1: Total Equipment Summary

Equipment	Equipment size	Quantity
General Waste	1100L	13
Commingled Recycling	1100L	9
General Waste – Concourse / Public Area	240L	26 (+13)*
Commingled Recycling – Concourse / Public Area	240L	26 (+13)*
Secure Destruction – Office Areas	240L	(TBC)
Cooking Oil*	400L tank (TBC)	(TBC)
Organic (green) waste – Landscaping waste (TBC)	15m <sup>3</sup>	1
Bin lifter		2
Medical Waste	Various Sizes	TBC

#### Table 2.2: Western Stand Equipment Summary

Equipment	Equipment size	Quantity
General Waste	1100L	8
Commingled Recycling	1100L	4
General Waste – Concourse / Public Area	240L	8 (+4)*
Commingled Recycling – Concourse / Public Area	240L	8 (+4)*
Cooking Oil**	400L tank (TBC)	(TBC)
Bin Lifter		1

\*Additional bins provided to rotate empty bins through the public area bins

\*\*Used only to provide space for Oil



#### Table 2.3: Western Stand Equipment Summary

Equipment	Equipment size	Quantity
General Waste	1100L	5
Commingled Recycling	1100L	5
General Waste – Concourse / Public Area	240L	18 (+9)*
Commingled Recycling – Concourse / Public Area	240L	18 (+9)*
Cooking Oil**	400L tank (TBC)	(TBC)
Bin Lifter		1

\*Additional bins provided to rotate empty bins through the public area bins

\*\*Used only to provide space for Oil

#### 2.1.2. Collection Cycle

Table 2.4 outline the vehicles and estimated collection frequencies or site entries required to service the site refuse. The type of vehicles allocated, and demand will be subject to final design and potential selection of volume reduction equipment. The figures demonstrated apply as a maximum demand.

Commercial Re	fuse Collections	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Collections per Week
General	Collection Days	Ø							1
Waste	Vehicle Type	FEL RCV							T
Commingled	Collection Days		Ø						1
Recycling	Vehicle Type		FEL RCV						Ţ
Total Collection	s per Week								

#### Table 2.4: Estimated RCV Demands

\*Assumed 1 event and 1 service per week

#### 2.1.3. RCV Arrangements

The Refuse Collection Vehicles (RCV) will enter the site from either Sportsmans Parade or Nicklin Way and drive in a forwards gear into the service bays located at the southern end of each stand, to service the bins and perform a perform a single manoeuvre to turn around to exit the site in a forwards gear.

Figure 2.1 Shows the approximate locations of the RCV collection point at each stand.

#### Figure 2.1: RCV Access and Standing



Source: Aspect Architecture, Drawing S-ARC-10-02, Issue B, Dated 1/12/2020 – Site Plan - Proposed

Site: 31 Sportsman Parade, Bokarina - Proposed Sunshine Coast Stadium Expansion Reference: 20BRW0045

### 2.2. Refuse Storage

#### Western Stand

The Refuse storage room at the Western Stand is located on the Southern side on the ground floor level adjacent to the service yard.

This room will hold 1100L waste and recycling bins, spare 240L waste and recycling bins along with a cooking oil disposal tank / equipment and a bin lifter (for use of decanting public place bins into the bulk bins for servicing).

#### Eastern Stand

There are 2 refuse storage rooms at the Eastern Stand located on the Southern and Northern side on the ground floor.

These rooms will hold 1100L waste and recycling bins, spare 240L waste and recycling bins along with a cooking oil disposal tank / equipment along with a bin lifter (for use of decanting public place bins into the bulk bins for servicing).

All refuse will be stored in bins or appropriate equipment in the refuse storage rooms until collected by the designated waste contractors.

When full bins are returned to the refuse storage areas, they should be decanted into the respective bulk bins, once this is done the bins should then be positioned to be washed, the washing can be done at the end of day or once the bins have been emptied. This should be determined by the operations team to make once the stadium is operational. Bins should be washed to limit the odour and to maintain the bins.

### 2.3. Refuse Transfer

The prescribed below is the recommended disposal arrangements for the generated waste streams from each area. A simplified waste flow diagram is also provided with diagrams and indicative travel paths.



For all areas that are on levels above the Ground Floor bin room, all refuse should be transported down to the refuse rooms on ground levels via the use of a trolley and lift.



### 2.4. Refuse Disposal

The tables in this section summarise general recommended disposal arrangements for the generated refuse for each area use within the development.

#### Table 2.5: Disposal

Location	Disposal Details
Office / Media / All Team Areas – Western Stand	Waste and recycling bins of approximately 40L capacity should be provided in each of the office / media and team areas. Waste bins should be accompanied by a recycling bin in order to facilitate separation of general waste and recycling.
	Staff / Cleaners will transfer the contents of the bins to the Refuse store at the end of each day (Office) or at the end of the event (Media / Team areas). The bins are then decanted into the respective equipment for that refuse stream.
	Secure destruct paper bins may also be required in these areas. These bins are generally collected as a bin to truck service to ensure security of contents.
	Medical Waste bins should be provided in Teams and Medical areas – These bins are generally collected as a bin to truck service to ensure safe disposal of contents.
	Sanitary Waste bins should be provided in facilities areas – These bins are generally collected as a bin to truck service to ensure safe disposal of contents.
Main Kitchen – Western Stand	Kitchens should have waste and recycling caddy bins of approximately 30-60L in the BOH operations areas (separation of waste streams should occur in the BOH operations to promote and facilitate proper disposal of waste).
	When full / at designated times or at the end of the day's operation, the kitchen staff / cleaners will transfer the bins directly to the refuse store and decant the bins into the respective equipment for that refuse stream.
Concourses – Both Stands	Patrons will dispose of their waste and recycling in the Public Area Bins on the concourse areas, these Bin Bays will be specifically labelled for general waste and comingled recycling.
	Stadium staff / cleaners will transfer empty bins from the Waste Store and exchange with full bins in the Bin Bays. The full bins are then transferred to the refuse stores. The bins are then decanted into the respective equipment for that refuse stream.
	It is recommended that Public Area Bins are installed on the concourse areas. Based on Seating numbers and waste potential waste generation the following should be considered for each stand; Western Stand: 6 x waste and recycling bins
	<b>Eastern Stand:</b> 10 x waste and recycling bins These bins will require rotation / emptying of concourse bins will be required throughout an event to prevent overflowing.
Retail / Food and Beverage Outlets — Both Stands	Food and Beverage Outlets should have waste and recycling caddy bins of approximately 30-60L in the BOH operations areas (separation of waste streams should occur in the BOH operations to promote and facilitate proper disposal of waste).
	When full / at designated times or at the end of the day's operation, the kitchen staff / cleaners will transfer the bins directly to the refuse store and decant the bins into the respective equipment for that refuse stream.
Public Facilities – Both Stands	Waste Bins should be placed in the facilities for paper towelling disposal, these bins should be taken and decanted at designated times by stadium staff/cleaners.



Location	Disposal Details
	Sanitary Waste bins should be provided in public facilities – These bins are generally collected as a bin to truck service to ensure safe disposal of contents.

#### 2.4.1. Other Waste

#### Table 2.6: Disposal of Other Waste

Refuse Stream	Disposal Details
Landscaping and Organic / Green Waste (Grass Clippings) etc	Landscaping / Green waste / Grass clippings will be produced from the stadium in a variety of ways ie; Maintenance / mowing of the playing surface, maintenance of the surrounding landscaping areas etc. A roll on $-$ roll off bin of $10 - 15m^3$ should be provided to collect this material, and can be collected on an ad-hoc basis
E- Waste/Batteries, Lamps and Fluorescent Globes	E-Waste/Batteries will be managed within the office areas and an ad-hoc collection performed when required. Alternatively, a storage area could be designed near the service bay to store these items until a collection is required. Lamps and Fluorescent Globes are usually removed off site by an electrician when the job is completed, however 240L bins can be provided for the storage until enough are collected to provide an ad-hoc service
Liquid and Hazardous Waste (paints, chemicals and pesticides)	Hazardous waste must be handled with due care, separated and securely stored securely within a locked cabinet in or near the Facilities Management Areas to ensure they are safely maintained and stored prior to collection. A Specialist Contractor should be engaged for the removal of Liquid and Hazardous Wastes.



## 3 Recommended Operational Requirements

#### 3.1. Operational Equipment Summary

Equipment required or suitable for use as part of the operational phase of the development is outlined in Table 3.1. Lists of equipment, equipment suppliers and refuse management service providers for use during the operational phase of the development can be found in Appendix C.

Table 3.1: Equipment Schedule

Equipment	Equipment size	Quantity
General Waste	1100L	13
Commingled Recycling	1100L	9
General Waste – Concourse / Public Area	240L	26 (+13)*
Commingled Recycling – Concourse / Public Area	240L	26 (+13)*
Secure Destruction – Office Areas	240L	(TBC)
Cooking Oil*	400L tank (TBC)	(TBC)
Organic (green) waste – Landscaping waste (TBC)	15m <sup>3</sup>	1
Bin lifter		2
Medical Waste	Various Sizes	ТВС

#### 3.2. On-going Management

Responsibilities have to be assigned for all on-going refuse management operations. This is generally done by a building manager, staff and / or cleaners. The following lists (Table 3.2 to Table 3.8) are designed to help managing responsibilities and monitor the refuse operations in order to maintain efficient services and a safe environment.

Table 3.2: General Refuse Management Checklist

Objectives	Checked	Remarks
Organising of weekly pick-ups for all refuse streams.		Liaise with private contractors and Council as required.
Managing daily bin transfers between refuse storage / collection areas if required.		
Check bin fill levels and rotate / swap bins as required, e.g. under chutes.		



#### 3.2.1. Safety

Transferring refuse bins and using refuse management equipment are considered hazardous tasks. Therefore, contractors must ensure that a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

#### Table 3.3: Safety Checklist

Objectives	Checked	Remarks
Abiding by all relevant occupational health and safety legislation, regulations and guidelines to ensure site safety for residents, visitors, staff and contractors.		
Assessment of any manual handling risks and preparation of a manual handling control plan for waste and bin transfers.		
Provision of equipment manuals, training, health and safety procedures, risk assessments and personal protective equipment to staff / contractors in order to control hazards associated with all waste management activities.		

#### 3.2.2. Signage

All receptacles, bins and other refuse management equipment will have adequate signage. Standard signage will be provided in and around waste collection and storage areas (see Appendix D).

#### Table 3.4: Signage Checklist

Objectives	Checked	Remarks
Ensuring compliance of signage with government local council regulations.		Use signage provided by Council's if available
Ensuring that labelling on bins, refuse room etc. is appropriate and clear and easy to read and updated if required.		

#### 3.2.3. Cleaning and Maintenance

Regular cleaning and maintenance of all refuse management facilities is important to maintain a safe and hygienic environment for residents, visitors, staff and contractors.



Table 3.5: Cleaning and Maintenance Checklist

Objectives	Checked	Remarks
General cleaning of all refuse holding and transfer areas including		Frequency depends on refuse generation and building operation.
<ul> <li>Refuse bins, rooms and storage areas</li> </ul>		
<ul> <li>Refuse transfer areas including lifts and staircases</li> </ul>		
<ul> <li>Any other refuse management equipment</li> </ul>		
Coordination of specialised cleaning contractors as required.		
Maintenance and servicing of refuse management equipment as per schedule.		Frequency depends on equipment and building operation.
Coordination of specialised equipment contractors as required.		

#### 3.2.4. Refuse Minimisation

Refuse minimisation is an important part of any site operation. At a minimum, the following should be implemented. Additional refuse minimisation options can be found in Appendix C.

Refuse minimisation requires regular reviewing to ensure operational sustainability of refuse volumes, equipment and economic feasibility. It is recommended that refuse weights and movements are noted and reviewed. An external review is usually conducted 12 to 18 months after the implementation of the plan.

#### Table 3.6: Refuse Minimisation Checklist

Objectives	Checked	Remarks
Regular review of material quantities to avoid over-ordering.		
Consideration of secondary and recycled materials where possible.		
Encouraging refuse minimisation through education and signage (see below).		
Reduce refuse through continuous monitoring and review (see below).		

#### 3.2.5. Education and Communication

On-going education is important to ensure people continue to use the facilities as originally intended. All body corporate and leasing contracts should contain clauses pertaining to waste management arrangements and use of any associated equipment.

#### Table 3.7: Education and Communication Checklist

Objectives	Checked	Remarks
Communication of refuse management arrangements to residents, staff and contractors as required.		
Consideration of promotional opportunities for any successes e.g. awards programs.		



#### 3.2.6. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management or designated staff for maintenance and sustainability.

Table 3.8: Monitoring and Review Checklist

Objectives	Checked	Remarks
Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.		
Regular review of refuse management equipment and facilities such as bin volumes, refuse storage capacities and stormwater management arrangements.		



## 4 Recommended Design Requirements

This section lists general recommended design requirements for the building and refuse management facilities. They should be considered for optimal refuse management within the development, and to comply with relevant regulations and Council requirements.

#### 4.1. Bin Storage and Bin Servicing Point

The RCV's will access the servicing point as described in Section 2. The bin service point will have the following features:

- Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins, including no overhead obstructions.
- Allows bins to be serviced safely while minimising the impediment to traffic flow during servicing.
- Is clearly separated from car parking bays, footpaths and pedestrian access.
- Is of sufficient size to accommodate the bins.
- Is devoid of stairs, lips or ramps and allows bins to be manoeuvred easily.
- Does not block the entry and exit to the property.
- Is clear of speed control devices.
- If serviced from a public roadway:
  - Positioned on a level pad within the site, entire pad not more than 5m from the property boundary and 15m from the crossover, level with the kerbside and adjacent to a driveway or other approved crossover on the public roadway.
  - Connected to the crossover by a paved path so that the bin can be manoeuvred for servicing without lifting the bin over raised surfaces (pram ramp).
  - Not situated within 20m of an intersection or roundabout.
- Is not adjacent to a kitchen or eating area for public use.
- Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
- Is screened sufficiently to minimise the view of bins from neighbouring properties or passing vehicles and pedestrian traffic external to the site.
- Is positioned away from entrances to shops or residential premises.



#### 4.2. Refuse Rooms

The refuse room will have the following features in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Be insect and vermin proof.
- Be fire rated and ventilated in accordance with the National Construction Code Building Code of Australia.
- Doors must be wide enough to allow for the easy removal of the largest container to be stored.
- The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning.
- The floors must be graded to fall to a drainage point.
- A hose cock must be provided for cleaning bins and the rooms (see Section 4.3 below).
- Drainage points must be connected to sewer in accordance with trade waste requirements.
- Adequate artificial lighting.
- Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage).
- Permit unobstructed access for removal of the containers to the servicing point and for positioning the containers correctly in relation to the refuse chutes (if fitted).
- Will be attractively designed to minimise their visual impact on the surrounding areas.
- Does not have any steps or lips.
- Is enclosed on all sides except for the gated entrance to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site.
- Is of sufficient size to accommodate the bins with sufficient clearance around the combined bin area.
- Is positioned away from entrances to shops or residential premises.
- The height of the bin storage area allows for waste bins to be opened and closed.



#### 4.3. Bin Wash

A bin wash-down facility will need to be provided within the bin storage room or other appropriate area. It will have the following features:

- Constructed hardstand with a solid concrete base.
- Roofed and designed to prevent entry to rainwater.
- Graded to fall to a drainage point that is connected to sewer in accordance with trade waste requirements.
- Provided with a hosecock for cleaning.
- Is in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste.
- Is in a well-ventilated portion of the basement and not within 10m of an opening to a food premises or food handling area.

#### 4.4. Storm Water Prevention and Litter Reduction

Designated staff / cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be taken into account:

- Provide adequate signage to promote litter control.
- Provide sufficient refuse bins in appropriate areas.
- Prevent unauthorised entry to waste areas.
- Monitor waste and prevent waste overflow.
- Promote best practices for waste minimisation.
- Install litter traps in car parks for any unwanted discharge.

#### 4.5. Ventilation

Natural or mechanical ventilation must be provided to waste storage areas unless refrigerated below 4°C. Natural ventilation means unobstructed, permanent openings direct to external air no less than onetwentieth (1/20) of floor area. Mechanical ventilation requires a minimum rate of 100L/sec and 5L/m<sup>2</sup> exhaust rate.


### 4.6. Bin Carting

The bin carting route will the following features:

- Is via the hard stand pathways.
- Allows bins to be easily manoeuvred.
- Is clear of speed control devices or similar provisions.
- Does not impede traffic flow.
- Does not extend through any habitable parts of a building or food premises.
- Does not have any lips, stairs or steps for bins to be manoeuvred easily.

If bin moving equipment such as bin tug or bin trailers are required for transferring bins form the bin storage room(s) or chute discharge room(s) to the temporary bin storage or collection room from where bin will be serviced, space has to be provided for storing the bin moving equipment when not in use.



## Appendix A Detailed Refuse Calculations



### A.1 Refuse Generation Rates

There are no published refuse generation rates for each area of a sporting stadium, therefore TTM have chosen to break down the stadium into its area of uses and used the Local Government area of Sunshine Coast Councils *SC6.18 Planning scheme policy for waste management code* to provide generation rates based on these areas.

TTM have used an estimate for seating/patron waste generation based on discussion with waste industry contractors and information gathered on similar projects.

Туре	Measure	General Waste	Commingled Recycling	Source
Kitchen	L / 100m <sup>2</sup> / Day	667	133	Sunshine Coast - Restaurant
Player Areas	L / 100m <sup>2</sup> / Day	10	10	Sunshine Coast - Office
Office / Admin	L / 100m <sup>2</sup> / Day	10	10	Sunshine Coast - Office
Function	L / 100m <sup>2</sup> / Day	667	133	Sunshine Coast - Restaurant
Corporate Boxes	L / 100m <sup>2</sup> / Day	667	133	Sunshine Coast - Restaurant
Bar	L / 100m <sup>2</sup> / Day	50	50	Sunshine Coast - Bar
Media	L / 100m <sup>2</sup> / Day	10	10	Sunshine Coast - Office
Food and Beverage Outlets	L / 100m <sup>2</sup> / Day	667	133	Sunshine Coast - Restaurant
Retail	L / 100m <sup>2</sup> / Day	50	50	Sunshine Coast - Retail
Seating	L / Per Seat	0.5	0.5	Estimate

#### Table A.1: Generation Rates



### A.2 Refuse Calculations

#### Table A.2: Western Stand Refuse Calculations

Level	Description	Quantity	Measure	<b>General Waste</b> (L/Week)	Commingled Recycling (L/Week)
	Kitchen	GFA (m <sup>2</sup> ) 396 2641		2641	527
Ground Level	Player / Team Areas	GFA (m²)	1186	119	119
	Office / Admin	GFA (m²)	392	39	39
Mezzanine	Office / Admin	GFA (m²)	1429	143	143
Wiezzannie	Kitchen	GFA (m²)	71	474	94
	Function	GFA (m²)	330	2201	439
Upper Concourse	Corporate Box	GFA (m²)	151	1007	201
opper concourse	Bar	GFA (m²)	353	177	177
	Media	GFA (m²)	102	10	10
Upper Concourse Roof	oper Concourse Media/Broadcastin g / Coaching GFA (m <sup>2</sup> ) 241 2		24	24	
Stadium	Seating	Number	3533	1767	1767
Uncompacted Volumes (L / Event)				8601	3539
	Collections Per Week			1	1
Collection and	Equipment Size			1100L	1100L
	Equipment Quantity R	equired (min)		8	4

#### Table A.3: Eastern Stand Refuse Calculations

Level	Description	Quantity	Measure	General Waste (L/Week)	Commingled Recycling (L/Week)
Ground Lovel	Retail	GFA (m²)	GFA (m <sup>2</sup> ) 288 144		144
Ground Level	Food and Beverage	GFA (m²)	510	408	204
Mezzanine	Retail	GFA (m <sup>2</sup> ) 153 77		77	77
	Food and Beverage	GFA (m²)	176	141	70
Stadium	Seating	iting Number 8197		4099	4099
Uncompacted Volumes (L / Event)			4868	4593	
	Collections Per Week			1	1
Collection and	Equipment Size			1100L	1100L
Lya.p.nent Detailo	Equipment Quantity R	equired (min)		5	5



## A.3 Refuse Volume to Weight Conversion

Description	Measure	General Waste	Commingled Recycling
Tatal Values as	L / Week	13,469	8,132
Total volumes	m <sup>3</sup> / Week	13.5	8.1
Conversion Factor *	kg / m <sup>3</sup>	150	63
Tonnes	T / Week	2	0.5
Tonnes per Year	T / Year	105.3	26.7
Diversion Potential	-	50-70%	10%
Waste Levy **	\$ / Year	\$10,007.92	\$1,268.93

\* Applies to uncompacted volumes.



## Appendix B Site Plans and Drawings



### B.1 Bin Carting Route

#### Western Stand



Source: Source: Aspect Architecture, Drawing S-ARC-21-02, Issue A, Dated 1/12/2020 – West Stand Ground Floor Plan



Source: Source: Aspect Architecture, Drawing S-ARC-21-02, Issue A, Dated 1/12/2020 – West Stand Ground Floor Plan



Source: Source: Aspect Architecture, Drawing S-ARC-21-04, Issue A, Dated 1/12/2020 – West Stand Concourse Plan

#### Eastern Stand



Source: Source: Aspect Architecture, Drawing B-ARC-21-02, Issue D, Dated 1/12/2020 – East Stand Ground Floor Plan



Source: Source: Aspect Architecture, Drawing B-ARC-21-02, Issue D, Dated 1/12/2020 – East Stand Ground Floor Plan



### B.2 Refuse Room Configuration

Western Stand



Source: Source: TTM Mark-up 10/12/2020



### Eastern Stand – Southern Room



Source: Source: TTM Mark-up 10/12/2020



#### Eastern Stand – Northern Room

Source: Source: TTM Mark-up 10/12/2020

## Appendix C Systems and Specifications



## C.1 Typical Refuse Bins

Bin Types	Waste Streams	Examples	Information
Residential unit bins	General waste and recycling		Various options and sizes. Built and standalone bin available. Examples: <u>https://www.bunnings.com.au</u>
Back-of- house bins	General waste, recycling, food waste, paper / cardboard		Various options and sizes available. Tenant to supply depending on preference and space available. Example: 60L metro bins Dimensions approx. 559 x 279 x 635mm (L x W x H) Examples: <u>https://www.spacepac.com.au</u>
Caddy Bins	Food Waste		Example: https://pulpmaster.com.au/pulpmaster- caddy-system
60-80L bins	Glass		Dimensions approx. 500 x 460 x 640mm (L x W x H) (60L) 500 x 450 x 840mm (L x W x H) (80L) Example: <u>http://wheeliebinsonline.com.au/product/80-</u> <u>litre-wheelie-bin/</u>
120-140L bins	Food waste, Uncrushed Glass		Dimensions approx. 550 x 480 x 930mm (L x W x H) (dimensions may depend on contractor) Examples: <u>http://wheeliebinsonline.com.au,</u> <u>https://ksenvironmental.com.au</u>
240L bins	General waste, paper, recycling, green waste, food waste		Dimensions approx. 740 x 580 x 1080mm (L x W x H) (dimensions may depend on contractor) Examples: <u>http://www.justwheeliebins.com.au</u> , <u>http://wheeliebinsonline.com.au</u>
660L bins	General waste, recycling, paper / cardboard	BULO	Dimensions approx. 780 x 1260 x 1330mm (L x W x H) (dimensions depend on contractor) Examples: <u>http://www.justwheeliebins.com.au</u> , <u>https://www.australianwaste</u> <u>management.com.au</u>



Bin Types	Waste Streams	Examples	Information
1100L bins	General waste, recycling, paper / cardboard		Dimensions approx. 1070 x 1240 x 1330mm (L x W x H) (dimensions depend on contractor) Examples: <u>http://www.justwheeliebins.com.au</u> , <u>https://www.australianwaste</u> <u>management.com.au</u>
Cigarette butt bins / ashtrays	Cigarette butts		Various options and sizes available. Free- standing, wall / bin-mounted or integrated. Examples: <u>https://www.spacepac.com.au</u> , <u>http://www.nobutts.com.au</u>



Systems	Waste Streams	Examples	Information
Organics Household Composting, Worm Farm, Digesters	Food waste / organics		Organics / food waste separation, composting and digesting; household-type and commercial grade equipment available Examples Urban Composter <u>https://www.urbancomposter</u> .com.au
			https://closedloop.com.au/ upcycling-products ORCA https://www.feedtheorca.com
Food Waste Processing, Storage and Disposal	Food waste / organics	ANICS PROCESSION ORGANICS	Volume reduction and organics / food waste recycling through food waste separation and macerating Examples: Pulpmaster Food Processing and Storage <u>https://pulpmaster.com.au</u> Under-sink food waste macerators and disposers
Cooking oil storage and recycling	Used cooking oil		Cooking oil recycling Example: <u>https://www.cookers.com.au</u> Cooking oil delivery, used oil collection and provision of required equipment

## C.2 Typical Refuse Management Equipment



Systems	Waste Streams	Examples	Information
		Cookers PH IJJOB 882299	
Bunded pallets	Liquid Waste		Spill containment, e.g. for waste cooking oil containers Example: <u>https://www.tradeenviro</u> .com.au/bunded-pallets <u>https://www.materialshandling</u> .com.au/products/bunded-pallet
Balers	Paper / cardboard, plastics		Volume reduction of paper, cardboard, plastics by compaction (baling) Examples: <u>https://www.miltek.com.au/balers-</u> <u>and-compactors</u> <u>https://www.wastech.com.au</u> <u>/products/balers</u> <u>https://wasteinitiatives.com.au/</u> <u>product/vertical-balers/wastepac-</u> <u>60</u>
Compactors / bin presses	General waste		Volume reduction through refuse compaction Examples: Under-chute compactor <u>https://www.wastech.com.au</u> /products/chutes/ecopac- <u>compactor</u> Bin press <u>https://wasteinitiatives.com.au</u> /products/waste-compactors



Systems	Waste Streams	Examples	Information
Glass bottle crushing	Glass (bottles)		Volume reduction of glass bottles by crushing Example: <u>http://www.bottlecycler.com</u>
Trolleys	General waste, recycling, food waste, paper / cardboard		Assisted manual transfer of refuse Examples: <u>https://rubbermaidcommercial</u> .com.au/products/waste- management/mega-brute <u>https://www.materialshandling</u> .com.au/products/deluxe-compact- cleaning-carts
Bin tugs / trailers	-		Assisted transfer of refuse Examples: http://ev.spacepac.com.au /categories/tugger, https://www.spacepac.com.au /product/wheelie-bin-aluminum- steel-trailers

Method	Examples	Description	
Manual transfer / disposal	<image/>	<ul> <li>Manual transfer is simply the process of physically carrying waste bags, food waste receptacles or recycling boxes and crates without assistance.</li> <li>From a safety perspective, this is acceptable for small quantities and initial disposal into refuse chutes, refuse compartments or, in the case of ground level activities, directly into the refuse storage room.</li> <li>Waste material should be bagged prior to any transfer from apartments, suites, offices, back-of-house areas etc. to waste storage compartments or rooms.</li> <li>Food waste should be placed in receptacles such as a caddy style bin or bucket which will not allow leakage during transfer.</li> <li>Recycling material should be placed in boxes or crates prior to transfer.</li> <li>Cardboard and paper items can be placed within another cardboard box for transfer.</li> </ul>	
Assisted manual transfer		Assisted manual transfer includes the use of any wheeled container, wheelie bin or trolley with a capacity to carry refuse items with a combined weight of 20kg and above. The equipment bares the weight of the material, but it still requires physical force and or balance to move the bin or trolley. From a safety perspective, this type of equipment should be a minimum requirement for transfer of material greater than 20kg and when transferring between individual levels to the refuse storage room or loading areas. Use of enclosed or caged equipment will also eliminate 'litter or leakage trails' which can occur when using open or unsealed equipment. Examples: <u>http://www.justwheeliebins.com.au</u> , <u>https://rubbermaidcommercial.com.au</u> , <u>https://www.materialshandling.com.au</u>	
Assisted transfer		Assisted transfer includes the use of any container with capacity to carry 20kg or more, pushed or towed by mechanical or electrical self-propelling equipment. Examples: <u>http://ev.spacepac.com.au/</u> <u>categories/tugger, https://www.spacepac.com.au/</u> <u>product/wheelie-bin-aluminum-steel-trailers</u>	

## C.3 Refuse Transfer and Disposal Methods

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Method	Examples	Description
Sealed transfer		<ul> <li>Sealed transfer typically relates to the use of automated front end (pump) or back end (vacuum) equipment moving material through service pipes to a central tank or bulk storage or compaction equipment.</li> <li>Use of systems directly related to food waste processing and transfer are a cost-effective alternative and provide significantly less invasive requirements to build into final design and intrastate.</li> <li>Examples: <u>https://pulpmaster.com.au</u></li> </ul>

## C.4 Refuse Minimisation Options

Systems	Description
Systems Container deposit schemes	Description Container deposit / refund schemes are currently in place in several states in Australia. Various models exist including bottle return facilities and (automated) reverse vending machines. Residents, tenants, staff and cleaners should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams, and return them to one of the return points. Storage space or dedicated bins within tenancies, apartments or communal areas should be provided. For larger developments or precincts where large amounts of empty containers are expected, consideration may be given to an on-site return point. The return points should be located near recycling bins so that cardboard boxes or plastic bags that have been used to transfer the empty containers to the return point can be disposed appropriately. This can prevent cluttering of the area around the return point. The images below show a typical return point and containers that commonly qualify for a deposit refund.  For INFORMENCE CHEWING THE INFORMENCE THE INFOR
	Sources: https://returnandearn.org.au, https://envirobank.com.au/bottle-and-can-recycling-queensland, https://www.containersforchange.com.au/how-it-works
Glass crushing	Bottle crushers can reduce back-of-house and refuse room storage volumes by up to 80%. The machines are quiet and efficient. The inclusion of a glass crusher may either be designed into bar or kitchen areas, placed in back-of-house areas, or a machine may take the place of an existing recycling bin within a refuse storage room. Scanners are also being developed for these machines for scanning of bottles prior to crushing to align with government bottle return schemes. The images below show a typical setting of a glass crusher in a bar.



Systems	Description
	Sources: http://www.insideenterprises.com.au/bottlecycler/index.html, http://www.bottlecycler.com
Baling	Balers should be a consideration for use in reducing refuse volumes and creating safe environments by removing cardboard and plastic film which tends to overflow bins and clog up refuse room floors and doorways. The images below show a typical small baler that will produce a 60kg bale, easily removable by a trolley, as well as an option for multi chamber baler for baling multiple products.
	Source: https://www.miltek.com.au/balers-and-compactors



### C.5 Refuse Management Equipment Suppliers

Waste Management Equipment	Balers	Compactors	Shredders	Glass Crushers	Bin Tugs / Trailers	Trolleys / Manual Handling Equipment	Bin Lifters / Tippers	Bin Rotation	Weighing Systems	Spill Containment, Spill Response, Absorbents, Drain Protection	Food Waste Management / Vacuum Systems, Pulping, Digestors	Composting	Waste Cooking Oil Systems	Smoking Management	Bins (General), Bin Stands	Bin Cleaning Equipment
Elephants Foot Recycling Solutions http://www.elephantsfoot.com.au	$\bigcirc$	$\bigcirc$		$\bigcirc$			$\checkmark$	$\bigcirc$	$\bigcirc$							
Waste Initiatives https://wasteinitiatives.com.au	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$												
Wastech http://wastech.com.au	$\bigcirc$	$\bigcirc$	$\bigcirc$					$\bigcirc$								
Pakmor http://pakmor.com.au	$\bigcirc$	$\bigcirc$	$\bigcirc$				$\bigcirc$		$\bigcirc$							
Miltek http://www.miltek.com.au	$\bigcirc$	$\bigcirc$														
BottleCycler http://www.bottlecycler.com				$\bigcirc$												
Materials Handling https://www.materialshandling.com.au					$\bigcirc$	$\bigcirc$	$\bigcirc$			$\bigcirc$					$\bigcirc$	$\bigcirc$
Spacepac http://ev.spacepac.com.au					$\bigcirc$	$\bigcirc$										
Spacepac Solutions http://www.spacepac.com.au					$\bigcirc$	$\bigcirc$								$\bigcirc$	$\bigcirc$	
Draffin https://draffin.com.au							$\bigcirc$							$\bigcirc$	$\bigcirc$	
Electrodrive / Lift Master http://www.electrodrive.com.au					$\bigcirc$		$\bigcirc$									
Absorbenviro http://www.absorbenviro.com.au										$\bigcirc$						
Trade Environmental http://www.tradeenviro.com.au										$\bigcirc$						

Site: 31 Sportsman Parade, Bokarina - Proposed Sunshine Coast Stadium Expansion Reference: 20BRW0045



Waste Management Equipment	Balers	Compactors	Shredders	Glass Crushers	Bin Tugs / Trailers	Trolleys / Manual Handling Equipment	Bin Lifters / Tippers	Bin Rotation	Weighing Systems	Spill Containment, Spill Response, Absorbents, Drain Protection	Food Waste Management / Vacuum Systems, Pulping, Digestors	Composting	Waste Cooking Oil Systems	Smoking Management	Bins (General), Bin Stands	Bin Cleaning Equipment
Spillstationaustralia www.spillstation.com.au										$\bigcirc$						
Pulpmaster http://pulpmaster.com.au											$\checkmark$					
Australian Vacuum Systems http://www.australianvacuumsystems.com.au											$\checkmark$					
Meiko https://www.meiko.com.au											$\checkmark$					
Closed Loop Organics https://closedloop.com.au/upcycling-products,												$\bigcirc$				
Compost Revolution https://compostrevolution.com.au												$\bigcirc$				
Urban Composter https://www.urbancomposter.com.au												$\bigcirc$				
ORCA Digester https://www.feedtheorca.com												$\bigcirc$				
Cookers https://www.cookers.com.au													$\bigcirc$			
Rubbermaid https://rubbermaidcommercial.com.au/produc ts/waste-management						$\bigcirc$				$\bigcirc$				$\bigcirc$	$\bigcirc$	
Sulo http://www.sulo.com.au												$\bigcirc$			$\bigcirc$	
Australian Waste Management https://www.australianwastemanagement.com .au/products							$\bigcirc$									



## C.6 Refuse Management Service Providers

Specialist Waste Services	Food Waste	Waste Cooking Oil	Hazardous Waste	Liquid Waste	Electronic Waste	Industrial Waste	Construction & Demolition Waste	Waste Water	Secure Document Destruction
Cleanaway * https://www.cleanaway.com.au		$\bigcirc$	$\bigcirc$				$\bigcirc$	$\bigcirc$	
JJ Richards * https://www.jjrichards.com.au		$\bigcirc$	$\bigcirc$	$\bigcirc$		$\bigcirc$	$\bigcirc$	$\bigcirc$	
Veolia * <u>https://www.veolia.com/anz</u>			$\bigcirc$	$\bigcirc$	$\bigcirc$		$\bigcirc$	$\bigcirc$	$\bigcirc$
Suez * https://www.suez.com.au				$\bigcirc$	$\bigcirc$		$\bigcirc$	$\bigcirc$	
SecondBite https://www.secondbite.org	$\bigcirc$								
OZ Harvest https://www.ozharvest.org	$\bigcirc$								
Cookers https://www.cookers.com.au		$\bigcirc$							
ToxFree https://www.toxfree.com.au			$\checkmark$		$\checkmark$	$\checkmark$			
AceWaste https://www.acewaste.com.au			$\checkmark$			$\checkmark$			

Appendix D Refuse Signage

Site: 31 Sportsman Parade, Bokarina - Proposed Sunshine Coast Stadium Expansion Reference: 20BRW0045

### D.1 Refuse Signage

Waste signage guideline are provided by the Queensland government: <a href="https://www.qld.gov.au/environment/pollution/management/waste/recovery/recycling/signage">https://www.qld.gov.au/environment/pollution/management/waste/recovery/recycling/signage</a>.

#### General Refuse Signage



Other Refuse Signage





### D.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at <u>http://www.signblitz.com.au</u>, <u>https://www.wayout.com.au</u> or <u>https://www.smartsign.com</u>.

#### Example Refuse Room Signage



KAREAN ACT 2000 Prailies may apply

#### **Example Safety Signage**



## Appendix E Terms and Abbreviations



TERM	ABBREVIATION	DEFINITION
Equipment		
Bin (Refuse Bin)		A plastic or steel container for disposal and temporary storage of waste or recycling items. Various types and sizes exist for different items and purposes. Examples include residential unit bins, bulk bins, MGB, steely bins and specialised for medical waste or cigarette butts.
Bin Storage Area		An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin		A galvanized or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.00m <sup>3</sup> to 4.50m <sup>3</sup> used for the storage of refuse that is used for on-site refuse collection.
Bulk Mobile Garbage Bin	Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 660L to 1100L used for the storage of refuse.
Collection Point		An identified position where refuse bins are stored for collection and emptying. The collection point can also be the bin storage area.
Compactor		A receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Composter		A container or machine used for composting specific food scraps and/or organic materials.
Food Waste Recycling System		Defined as a vacuum or pump-based system for shredding, macerating or pulping of food waste. The food waste is transferred through pressure (service) pipes to sealed liquid storage tanks.
Green Waste		All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
Liquid Waste		Non-hazardous liquid waste generated by commercial premises should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Mobile Garbage Bin	MGB	A plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste		Putrescible waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling		Recycling contains all material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse		Refuse is material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Collection Vehicle	RCV	A vehicle specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Storage Room		An area identified for storing on-site MGBs or Bulk Bins within the property.
Refuse Tolley		A cart on wheels that can be used to collect smaller quantities of refuse from different areas or rooms of a building or site, and wheel the collected refuse to a (bulk) bin storage area where it is disposed. Refuse trolleys are commonly used in hotels or offices.
Regulated Waste		Regulated waste is waste prescribed under legislation as regulated waste.

In this OWMP, a term or abbreviation has the following meaning unless indicated otherwise:



TERM	ABBREVIATION	DEFINITION
Transfer (Manual Transfer)		Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste		Waste is referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)		General waste is generally referred to as material free of any actual or apparent contamination such as pathological / infectious, radioactive materials and / or hazardous chemical. Reporting use is for material considered to be free of food waste.
Wheelie Bin		A MGB of up to 360L, usually with 2 wheels for easy transfer. A common type is a 240L wheelie bin used for kerbside collection in many residential areas.
Measures		
Cubic Metre	m <sup>3</sup>	Volume in cubic metre(s) related to refuse management equipment.
Ground Floor Area	GFA	The GFA of all storeys of a building is measured from the outside of the external walls or the centre of a common wall. It is commonly measured in square metres.
Kilogram	kg	Kilogram(s) related to refuse weight.
Litre	L	Litre(s) related to refuse volumes.
Square Metre	m <sup>2</sup>	Square metre(s) related to refuse areas.
Ton	Т	Ton(s) related to refuse weight.
Collection Vehicles		
Body Truck		A conventional heavy vehicle with a covered loading area. It is generally not specifically designed for emptying the content of bins into the truck during refuse collections, but can be used to carry entire (full) bins for servicing by bin swap-over.
Rear-End-Loading Refuse Collection Vehicle	REL RCV	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Tank Truck		An RCV that is specifically designed to collect liquid wastes such as waste cooking oil and food waste pulp. The waste is typically pumped from a waste storage tank into the truck via a hose. Liquid waste management equipment is often provided by the contractor who collects the waste and operates the truck.

Appendix 6 Civil Engineering Report prepared by Barlow Shelley Consulting Engineers



Our Reference: 2057

10 December 2020

Department of State Development, Tourism and Innovation PO Box 15168 City East QLD 4002

**Development Assessment** 



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To the Assessment Team

### RE: PROPOSED SUNSHINE COAST STADIUM EXPANSION 31 SPORTSMANS PARADE, BOKARINA CIVIL INFRASTRUCTURE REPORT

### **1.0 INTRODUCTION**

This Civil Infrastructure Report was commissioned by the Sunshine Coast Council and compiled to facilitate the development application of the proposed development being the expansion of the Sunshine Coast Stadium at 31 Sportsmans Parade, Bokarina, Queensland.

This Civil Infrastructure Report was developed after assessing existing site constraints, current design guidelines, and relevant codes and planning scheme policies of Local and State authorities. The outcomes proposed in this report were created based on Architectural drawings by Aspect Architects, consultation with Sunshine Coast Council, and third-party consultants, pre-lodgement advice from the Department of State Development, Manufacturing, Infrastructure and Planning (Ref: MPL-0320-0128).

### 2.0 PROJECT DETAILS

The site is described as Lot 2 on SP163937 at 31 Sportsmans Parade, Bokarina, and is within the Sunshine Coast Council. The existing site is developed with a Sport Stadium facility comprising a grandstand, parking areas, sporting field, and mounded areas surrounding the field.

The proposed development is the expansion of the Sunshine Coast Stadium. The expansion includes extension to the existing Western Grandstand and a new proposed East Grandstand. Associated infrastructure will be provided to facilitate the expansion and generally consist of internal roadworks, service infrastructure (water, sewer), and stormwater drainage structures.

The proposed infrastructure will be designed and build in accordance with relevant design guidelines, and local and state authority planning schemes. Figure 2.1 below illustrates the location of the subject site in context to the surrounding area in Bokarina.



Figure 2.1 Subject Site - 31 Sportsmans Parade, Bokarina

### **3.0 INFRASTRUCTURE**

### 3.1 Internal Roadworks

Civil Engineering Drawing 2057-CIV-03, 07, and 08 details the internal works required. The Internal roadworks is limited to:

- Reconfiguration of the bus drop-off area accessed from 31 Sportsmans Parade
- Provision of a deliveries and services compound area adjacent to the proposed western grandstand extension.
- Internal road realignment at the north-eastern end of proposed East Grandstand
- Any associated works required for the provision of the internal roads, including footpaths, medians, and drainage.

All newly constructed roadworks (and associated works) will drain to existing stormwater systems and bioretention basins where practical. Where this cannot be achieved, additional bioretention basins are proposed for stormwater treatment before connecting to the existing stormwater systems.

A traffic report addressing the access arrangement and traffic requirements of the proposed development will be lodged under separate cover.

All roadworks and footpaths will be designed and constructed in accordance with the relevant Sunshine Coast Council and Australian Standards.

### 3.2 External Roadworks

No external roadworks is proposed for the development. Civil Engineering Drawing 2057-CIV-03 and 08 details the minor works required in the vicinity of the Sportsmans Parade verge that is required to facilitate construction of Unitywater services, stormwater infrastructure, and the upgrade of the bus drop-off area located within the subject site.

Existing utilities, road and drainage infrastructure will be protected or relocated in accordance with the Planning Scheme Policy for development works, such that any cost of alteration or repair to third-party infrastructure (road, drainage) are to be met by the applicant.

### 3.3 Sewer Supply

Unitywater sewer infrastructure services the existing site as demonstrated in Figure 3.1 below. Network capacity will be demonstrated to determine if upgrades to Unitywater sewer infrastructure are required to facilitate the development in accordance with Unitywater's Schedule of Works.



Figure 3.1 Existing Sewer and Water Infrastructure

Civil Engineering drawing 2057-CIV-09 outlines the proposed sewer connections from the development of the Stadium Expansion to Unitywater infrastructure, and internal sewer works. All required sewer supply works will be designed and constructed in accordance with the South East Queensland Water Supply and Sewerage Design and Construction Code, Unitywater's Connections Administration Manual, and other relevant design guidelines.

In accordance with Council's Planning Scheme, sewer infrastructure will be designed and built to provide effective functioning during and immediately after flood and storm tide inundation. The site is defined within a regional and local flooding area as outlined in Section 3.7 below, therefore resilience to natural hazards will be incorporated into the design of proposed sewer works.

### 3.4 Water Supply

Unitywater water infrastructure services the existing site as demonstrated in Figure 3.1 above. Refer to Civil Engineering drawing 2057-CIV-09, which outlines the proposed water connections to Unitywater infrastructure. Refer to hydraulic engineering design for future connections as shown on the Civil Engineering drawing. Network capacity will be
demonstrated to determine if upgrades to Unitywater water infrastructure are required to facilitate the development in accordance with Unitywater's Schedule of Works.

It is proposed a section of the existing 150mm diameter water main traversing the site will be realigned to suit the proposed road and path re-alignment in accordance with Unitywater Standards.

#### 3.5 Stormwater Drainage

The proposed stormwater drainage will be designed to capture and convey the minor and major design storm in accordance with the requirements of QUDM (2016). Proposed stormwater drainage will connect to existing Council stormwater infrastructure surrounding the site, being stormwater pits and pipes. The proposed stormwater infrastructure, demonstrated on drawing 2057-CIV-06, connects to the existing drainage structures by pipe extension as detailed in the hydraulic engineering design.

The results from the flood studies mentioned in Section 3.7 below, demonstrated the site experiences flooding due to regional and local flood waters. It is acknowledged Kawana Lake is connected to tidal waters and experiences tidal effects. Back-flow prevention devices may be incorporated into the design of the proposed drainage network to limit the ingress of tidal water into the site. Storm tide and astronomical tide data can be used to inform the design of back-flow devices, though may be inundated during regional and local flooding scenarios.

Connection to Council stormwater infrastructure complies with P02 of the Stormwater management code, such that the site is adequately drained and provided with a Lawful Point of Discharge being Lake Kawana. Existing drainage structures discharge to the lake and are located around the perimeter of the lake, as described in the Lake Kawana / Birtinya Lake Management Plan. This proposal does not seek to create new discharge points to Lake Kawana, rather connect to existing stormwater outlets discharging to the Lake.

#### 3.6 Stormwater Quality

The proposed development has a footprint larger than 2,500m<sup>2</sup>, which triggers the application of stormwater treatment devices to treat stormwater runoff prior to discharging to receiving waterways. The State Planning Policy (SPP 2017) and Council's Planning scheme policy outline the pollutant reduction objectives for post-developed stormwater runoff from developments in South-East Queensland and relative to the Sunshine Coast Council area. Table 3.1 below outlines the minimum pollutant reduction objectives, which are relevant to the development.

Pollutant	Minimum reductions in mean annual loads from unmitigated development (%)
Total Suspended Solids (TSS)	80
Total Phosphorous (TP)	60
Total Nitrogen (TN)	45
Gross Pollutants > 5mm	90

 
 Table 3.1 Stormwater quality design objectives - operational (post construction) phase of development (Source: SCC 2014)

To meet the relevant pollutant reduction objectives, the development will be provided bioretention basins, designed to treat operational phase stormwater runoff from the site. The bioretention basins have been designed in accordance with the SPP (2017) deemed to comply option, which is provided in lieu of stormwater quality modelling, and meets the pollutant reduction requirements set by the SPP and Council. The bioretention basins ensure stormwater runoff to Lake Kawana is compliant with State and Local planning instruments.

Further details of the bioretention system will be designed in accordance with the Bioretention Technical Design Guidelines (Water by Design 2014), also meeting the requirements of SC6.14.3.7 of Sunshine Coast Council's SC6.14 Planning Scheme Policy for Development works. Filter media depths, as outlined in the guidelines, vary depending on the type of vegetation specified to be planted in the basin, which will be determined prior to construction phase.

In addition to bioretention basin devices, the Stadium Expansion will include rainwater storage tanks capturing rainwater runoff from the Stadium roof. The rainwater tanks are not required as part of the stormwater treatment regime but were sized according to Alternative Management Measures outlined in Council's Planning Scheme. Stormwater harvesting and reuse at the stadium complies with P013 and A013 of the Stormwater Management Code.

The stormwater treatment measures proposed herein, also aim to maintain the outcomes of the Lake Kawana / Birtinya Lake Management Plan, which outline existing water quality improvement devices used at the lake to provide a quality and safe environment for the range of users who share the benefits of the lake.

Existing carparks to the east are treated by a bioretention basin to be reinstated in conjunction with the adjacent internal road works. Stormwater runoff from the new carpark will be managed with a bioretention basin that connects to the existing lawful point of discharge.

#### 3.7 Flooding

The stadium expansion is adjacent the Kawana Lake waterway, which experiences flooding from regional and riverine sources. Local overland flow flooding is also experienced within the sports precinct at Kawana, such that road inundation occurs. Flood resilience for the stadium expansion will be addressed in accordance with the SPP (2017), where development in a natural hazard area reduces risks to people and property to levels that are acceptable and tolerable. Flood resilience levels prescribed in Sunshine Coast Council's Flood Overlay Code will be applied to demonstrate freeboard above the relevant design storm event. A Council Flood Information Search (dated 24 November 2020) demonstrated the following Defined Flood Event (DFE) information relevant to the Stadium Expansion:

- The flood study for the Kawana Master Drainage Plan (2020 by AquaIntel) demonstrates the 1% AEP + Climate Change event maximum WSL to be 2.722m AHD for local overland flow flooding. Civil Engineering Drawing 2057-CIV-10 provides the Overland Flow Hazard Plan.
- The Mooloolah River Flood Study (2015 by Cardno) demonstrates the 1% AEP + Climate Change event maximum WSL to be 2.88m AHD for the regional / riverine flood. Civil Engineering Drawing 2057-CIV-11 provides the Regional / Riverine Flood Hazard Map.

The Flood Information Search is provided in Appendix B of this report, and references the respective flood studies, and illustrates the associated flood inundation.

In accordance with Council's Flood Hazard Overlay, the minimum required freeboard above the local overland flow flood is 300mm, and minimum required freeboard above the regional / riverine flood is 500mm. For the proposed stadium expansion and new buildings, the minimum required finished floor level is 3.38m AHD (2.88m AHD + 0.5m), as outlined in Table 3.2.

	Local Flood	<b>Regional Flood</b>	Minimum FFL
WSL + Freeboard (m AHD)	3.022	3.38	
Required Freeboard	0.3m (300mm)	0.5m (500mm)	3.38m AHD
1% AEP + Climate Change Event Modelled Flood Level (WSL m AHD)	2.722	2.88	

#### Table 3.2 Minimum Required FFL

The existing West Grandstand has an FFL of 3.3m AHD, which is provided 420mm freeboard above the DFE, which is sufficient above local flooding, and generally in accordance with the regional flooding freeboard requirement local of 3.222m (2.722m + 0.5m freeboard).

The East Grandstand will be situated in the location of the existing East mound, which includes areas above the regional flood event (1% AEP + CC). The development of the Stadium mitigates the risk to people and property by providing relevant freeboard to the finished floor level above the regional flood event.

Flood resilient materials for areas below and above the DFE are suggested in the Flood hazard overlay code. The use and extent of such materials will be defined with further detailed architectural design.

#### 3.8 Protection of Essential Services

An existing electrical substation is located adjacent to Sportsmans Parade in the vicinity of the proposed northern carpark.

In accordance with Energex's Underground Distribution Construction Manual (UDCM) section C3.1 sheet 1 of 9, *"all new distribution network padmounted transformers, ground mounted transformers, and ring main units shall be installed above the 1:100 year or the Defined Flood Level (DFL), whatever is greater."* 

In accordance with Energex's Commercial and Industrial Substation Manual, Section 4, "the selected substation site must be above the Defined Flood Level (DFL), as prescribed by Council, with the floor of the substation a minimum of 75mm above the DFL."

The existing padmount transformer site has a height of  $\pm 3.10$ m and is compliant to Energex's requirement of 2.955m (DFL 2.88m + 0.075m freeboard).

#### 3.9 Afflux

The impacts of afflux due to the proposed development have not been assessed. The previous flood study by Cardno was completed in 2015. Since then, significant earthworks have been undertaken at the sports field.

Future flood modelling may be required to assess the impact the development has on surrounding properties, where the existing case is the current topography of the sports field at the time of writing this report.

Freeboard above the DFE 2.88m AHD (Cardno 2015), places the building FFL 3.38m AHD. Filling to achieve the required FFL will be within the flood plain and will be assessed against the relevant codes.

#### 3.10 Preliminary Flood Evacuation Management Plan

The Flood Evacuation Management Plan is developed to ensure the safety of the public by implementing actions to either evacuate or provide refuge to visitors and staff at the Stadium. The Evacuation Management Plan aims to provide capacity for disaster management response as outlined in the SPP (2017).

#### 3.10.1 Stream Tide Gauge

A stream gauge is located at Mooloolah River (Station No. 540094) and is to be used to determine the flood level and action response at the sports stadium. The following is an example flood warning issued by the Bureau of Meteorology.

```
Australian Government Bureau of Meteorology
Queensland
FINAL FLOOD WARNING FOR THE MAROOCHY AND MOOLOOLAH RIVERS AND COOCHIN CREEK
Issued at 8:55 pm EST on Saturday 4 June 2016
by the Bureau of Meteorology, Brisbane.
```

Issue Number: 4 Minor flood levels to ease at Picnic Point with the high tide. No significant rainfall has been recorded across the Sunshine Coast catchments during the last 6 hours. Further showers and rain areas are forecast to gradually ease overnight. MAROOCHY RIVER: River levels continue falling in the North Maroochy River and South Maroochy Rivers. MOOLOOLAH RIVER: River levels have fallen below the minor flood level on the Mooloolah River at Mooloolah during Saturday afternoon. River levels continue rising downstream from Jordan St, with river levels at Mooloolaba Tide easing with the receding high tide. COOCHIN CREEK: River levels continue falling along Coochin Creek. Predicted River Heights/Flows: MAROOCHY RIVER: PICNIC POINT: River levels are expected to ease with the receding high tide. Remember: If it's flooded, forget it. For flood emergency assistance contact the SES on 132 500 For life threatening emergencies, call Triple Zero (000) immediately Current emergency information is available at www.qldalert.com Weather Forecast: For the latest weather forecasts see: www.bom.gov.au/qld/forecasts Next Issue: This is the final warning. River Height Bulletins will continue to be issued. Latest River Heights: Mooloolah R at Mooloolah # 2.8m falling 08:21 PM SAT 04/06/16 Ewen Maddock Dam # 25.54m rising 06:01 PM SAT 04/06/16 Mooloolah R at Jordan St # 3.35m rising 08:06 PM SAT 04/06/16 Mooloolah R at Palmview # 1.64m rising 07:45 PM SAT 04/06/16 Mooloolah R U/S Parreara Weir # 1.16m rising 08:05 PM SAT 04/06/16 Mooloolaba Tide # 2.27m rising 08:07 PM SAT 04/06/16

```
Maroochy R at Dunethin Rock # 1.45m rising 07:44 PM SAT 04/06/16
Yandina Ck at Yandina Ck # 4.19m falling 07:11 PM SAT 04/06/16
Maroochy R at Picnic Point # 1.26m rising 08:05 PM SAT 04/06/16
# auto station
Warnings and River Height Bulletins are available at www.bom.gov.au/qld/flood
Flood Warnings are also available on telephone 1300 659 219 at a low call cost
of 27.5 cents, more from mobile, public and satellite phones.
```

#### Table 3.3 Example Flood Warning from the Bureau of Meteorology

#### 3.10.2 Flood Warning Message

A flood warning message is to be created and implemented in accordance with the Flood Evacuation Management Plan to communicate the necessary action response to flooding forecasts issued by BOM. The flood warning message will ensure the public are made aware of flooding hazards, evacuation routes, and evacuation centres. The Local Disaster Management Plan (SCC 2018) indicates Sports Stadiums as an evacuation centre or place of refuge. The Flood Evacuation Management Plan will outline the appropriate use of the stadium and grounds as a place of refuge.

#### 3.10.3 Flood Level and Action Response

Internal roads can become inundated by local overland flooding, isolating the site in some flood events. In accordance with A04 of the Flood hazard overlay code, the evacuation route will remain passable by allowing sufficient warning time. The following example table lists action response procedures for the nominated flood levels.

Flood Level at Mooloolah		
River at Picnic Point Gauge	Status	Action
(m AHD)		
2 1	Minor inundation within the	Commence evacuation,
2.1	site	minor trafficable inundation.
23	Access to Nicklin Way is	Complete evacuation via
2.5	inundated	Sportsmans Parade
	Access to Nicklin way and	Any remaining visitors and
>2.8	evacuation via Sportsmans	staff to take refuge in
	Parade is inundated	Stadium

Table 3.4 Example Flood Level and Action Response

#### 3.10.4 Flood Escape Routes

Overland flow flooding affects the site during the 1% AEP event as demonstrated on drawing 2057-CIV-10.

In the event of inundation, flood escape routes from the site will be dependent on trafficability leading to either Nicklin Way or Sportsmans Parade as indicated in Figure 3.2. Trafficable depths of flood water are outlined in QUDM (2016) where during a major storm event, depths up to 200mm are trafficable (worst case: vehicle safety, transverse flow – risk to life).

The time for the Regional Flood Event to inundate the subject site and surrounds is likely to occur over many hours or even days, in which case flood warning messages will have been issued by the Bureau of Meteorology, and via local news broadcasts, giving ample notice to the sports stadium to initiate evacuation procedures (refer to sections 3.10.2. and 3.10.3).

In a rain event that causes flash flooding, there is the ability to seek access to "higher ground" within the complex without creating secondary and tertiary risks to the evacuees.



Figure 3.2 Flood Escape Routes (image from SCC Flood information Search)

#### 3.10.5 Staff / Management Training

It is the responsibility of the property owners and management staff to:

- Ensure they are aware of / make tenants aware of the final Flood Evacuation Management Plan.
- Provide sufficient warning time to all visitors and staff, to enable a safe and timely evacuation of the site.

#### 3.10.6 Plan Revision and Maintenance

The Flood Evacuation Management Plan is to be implemented, maintained, and reviewed on an annual basis and after major events to include new operating practices and improve the Flood Evacuation Management Plan. This Flood Evacuation Management Plan is to be finalised for use in consultation with building and disaster response personnel (QLD).

#### 3.11 Acid Sulfate Soils

Outcomes specified in Council's Planning scheme policy for Acid Sulfate Soils (ASS) overlay code will be addressed to manage disturbed soils containing the presence of ASS. The code provides suitable outcomes to avoid the release of ASS into the environment, as required in the SPP (2017). Performance Outcome P01 of the code will be met by undertaking an

appropriate ASS investigation conforming to *Queensland Sampling Guidelines* and soil analysis according to the *Laboratory Methods Guidelines* or Australian Standard 4969. Where Acid Sulfate Soil is identified it will be managed in accordance with an ASS Management Plan.

The site is located within the ASS mapping overlay of Sunshine Coast Council, presented below in Figure 3.3. Excavations are anticipated to be undertaken below RL5 m AHD, also outlined in Response to Environmental Matters 5857 by Future Plus, therefore ASS assessment is likely to be undertaken in accordance with the above guidelines.



Figure 3.3 Acid Sulfate Soil Overlay Map

Where the disturbance of ASS is unavoidable, it will be managed accordingly to minimise the release of acid and metal contaminants, such as in the case of extraction of groundwater, or aeration of soil was previously saturated.

As demonstrated on drawings 2057-CIV-04 and 2057-CIV-05 excavation is required to accommodate the Eastern grandstand. Future structural engineering drawings will demonstrate footings and foundation structures, which may require further excavation. Disposal of ASS will be addressed in accordance with SC6.14.10.5 of Council's Planning Scheme Policy for Development Works.

#### 3.12 Earthworks

Bulk earthworks associated with the development site will be the excavation (cut) of the East Mound to facilitate the construction of the proposed Grandstand, as demonstrated on Civil Engineering drawings 2057-CIV-04 and 2057-CIV-05. No fill is expected for the development of the stadium expansion. All earthworks will be conducted in accordance with Council's Planning Scheme Policy for Development Works. Spoil material will be removed from the site and disposed appropriately off site at a location to be determined prior to the commencement of construction.

Disposal of surplus material deemed to be Acid Sulfate Soil will be managed in accordance with the Planning scheme policy for Acid Sulfate Soils overlay code, as outlined in Section 3.11 above.

#### 3.13 Erosion and Sediment Control

The design objectives for water quality during the construction phase of the development will be in accordance with Table A in Appendix 2: Stormwater Management Design Objectives, Part G, SPP (2017). The design objectives will be achieved through appropriate Erosion and Sediment Control procedures during construction. Typical pollutants generated during construction phase of a development are listed in Table 3.5 below.

Pollutant	Potential Source	Priority
Litter	Paper, construction packaging, food packaging,	High
	cement bags, off cuts	
Sediment	Unprotected exposed soils and stockpiles during	High
	earthworks and building works	
Hydrocarbons	Fuel and oil spills, leaks from construction equipment	High
	and temporary car park areas.	
Toxic Materials	Cement slurry, asphalt primer, solvents, cleaning	Medium
	agents, wash waters (e.g. from tile works)	
Alkaline substances	Cement slurry and wash waters	High

Table 3.5: Typical Construction Phase Pollutants

The following are typical treatment measures to be implemented, as required, before the commencement of any construction works. Detailed erosion and sediment control procedures are to be undertaken in accordance with the IECA Best Practice Sediment & Erosion Control and the Erosion and Sediment Control drawings lodged as part of an Operational Works application.

- sensible site planning
- diversion of up-slope water (where appropriate)
- stabilised site entry/exit point
- minimisation of site disturbance and duration of disturbance
- installation of sediment control along the lower edge of the site
- appropriate location and protection of stockpiles
- early connection of roof water downpipes
- trap on-site runoff from tool, paint and concrete washing, brick, tile and concrete cutting
- continual monitoring and maintenance of all control measures
- compaction of backfilled trenches
- revegetation and stabilisation of the site
- development and implementation of Erosion and Sediment Control Plans when appropriate.

#### 4.0 LIMITATIONS & CLOSURE

This report has been commissioned by Sunshine Coast Council and specifically investigates the subject site as described in this report.

We consider that the report addresses the requirements for development of the subject site at the time the report was undertaken. If these conditions are known to change, the results of this report should be reviewed.

This report is only to be used in full and may not be used to support objectives other than those set out herein, except where written approval is provided by Barlow Shelley Consulting Engineers.

Barlow Shelley Consulting Engineers accept no responsibility for the accuracy of information supplied to them by second and third parties.

Should further information be required please contact:

AUTHORED BY:

Nan

VINCENT VICIC – ENGINEER BEng GradIEAUST For and on behalf of: BARLOW SHELLEY CONSULTING ENGINEERS

**REVIEWED & APPROVED BY:** 

Tomy Shells

TONY SHELLEY – DIRECTOR (RPEQ 7736) BEng, ADCE, RPEQ, MIEAust For and on behalf of; BARLOW SHELLEY CONSULTING ENGINEERS (AUST) PTY LTD

- Enc: Engineering Design Drawings by Barlow Shelley Consulting Engineers
  - Flood Information Search (dated 24 November 2020)
  - Stormwater management code and Flooding management code checklist



### Preliminary Civil Drawings

- Prepared by Barlow Shelley Consulting Engineers –

## **ENGINEERING DEVELOPMENT APPLICATION**

- SUNSHINE COAST COUNCIL -

#### PROJECT:

## **PROPOSED SUNSHINE COAST STADIUM EXPANSION AT 31 SPORTSMANS PARADE, BOKARINA**

CLIENT: **SUNSHINE COAST COUNCIL** 

**PROJECT No:** 2057

ISS DATE

A 25/11/20 B 03/12/20

#### SCHEDULE OF DRAWINGS

DWG	DESCRIPTION
2057-CIV01	LOCALITY PLAN AND SCHEDULE OF DRAWINGS
2057-CIV02	EXISTING SITE CONDITIONS
2057-CIV03	PROPOSED LAYOUT PLAN
2057-CIV04	PRELIMINARY BULK EARTHWORKS PLAN
2057-CIV05	PRELIMINARY TYPICAL CROSS SECTION
2057-CIV06	STORMWATER LAYOUT PLAN
2057-CIV07	PRELIMINARY ROADWORKS PLAN - SHEET 1 OF 2
2057-CIV08	PRELIMINARY ROADWORKS PLAN - SHEET 2 OF 2
2057-CIV09	PRELIMINARY WATER & SEWER CONNECTION PLAN
2057-CIV10	OVERLAND FLOW HAZARD PLAN
2057-CIV11	REGIONAL / RIVERINE FLOOD HAZARD MAP



## LOCALITY PLAN

ENDMENT SCHEDULE			CONSULTANT				GENERAL NOTES
DESCRIPTION	BY	Sunshine Coast Stadium		PMA Sports Architecture	ACDECT	TOOWOOMBA   BRISBANE   MOOLOOLABA www.aspectapm.net	THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH ALL RELEVANT BUILDING CODES AND STANDARDS. NO AMENDMENT SHALL BE MADE WITHOUT THE APPROVAL FROM ASPECT AND/X
MINOR CHANGES			Barlow	TW/ Sports Architecture		ABN 96 071 786 948 ACN 071 786 948	RELEVANT LOCAL AUTHORITY. THESE DRAWINGS ARE SUPPLIED THE CONDITION THAT, IN THE EVENT OF ERROR, ASPECTS' LIAB
	LIN				ARCHITECTURE	BUAQ 4467	IS LIMITED ONLY TO THE COST OF AMENDING THESE DRAWINGS
		VI // Sunshine Coast.	<b>Shelley</b>		INTERIORS		CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFO COMMENCING ANY WORK OR PRODUCING SHOP DRAWINGS. TH
		COUNCIL	CONSULTING ENGINEERS	marchesepartners	QUANTITY SURVEYING		DRAWINGS ARE PROTECTED BY THE LAWS OF COPYRIGHT AND NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN
		www.sunshinecoast.qld.gov.au	p 07 5443 8285 e office@barlowshelley.com.au ₩ www.barlowshelley.com.au			Member Australian Institute of Architects	PERMISSION OF ASPECT .



IMPORTA	<b>ORTANT:</b> ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE GENERAL NOTES SHEET					
PROJECT SUNSHINE COAST STADIUM EXPANSION	DRAWING TITLE LOCALITY PLAN AND SCHEDULE OF DRAWINGS					
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PROPOSED BUILDINGS REFER TO ARCHITECT DRAWINGS PROPOSED BITUMEN

PROPOSED FOOTPATH

PROPOSED BIORETENTION BASIN

PROPOSED KERB AND CHANNEL PROPOSED STORMWATER OVERLAND FLOW PATH

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#### LEGEND



PROPOSED EARTHWORKS CUT PROPOSED EARTHWORKS FILL RL3.0 BULK EARTHWORKS LEVEL

NOTE • CUT/FILL SHADING IS SHOWN FROM EXISTING SURFACE TO PAD LEVEL OF PROPOSED BUILDING • EARTHWORKS PAD LEVELS APPROX. 300mm BELOW FINISH SURFACE LEVELS (TBA BY STRUCTURAL ENGINEERS)

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PROPOSED KERB ONLY	EXISTING KERB & CHANNEL (B1) EXISTING KERB & CHANNEL TO BE REMOVED	
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31 SPORTSMANS PARADE,

NEW ROAD TO BE BUILT (6.0m WIDE)





#### EXISTING LEGEND



EXISTING STORMWATER EXISTING EDGE OF BITUMEN EXISTING KERB EXISTING ELECTRICITY - UNDERGROUND EXISTING TELECOMMUNICATION

EXISTING BIORETENTION BASIN





PROPOSED BUILDINGS REFER TO ARCHITECT DRAWINGS

PROPOSED BITUMEN

PROPOSED FOOTPATH

PROPOSED BIORETENTION BASIN

PROPOSED KERB AND CHANNEL PROPOSED STORMWATER OVERLAND FLOW PATH

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ARCHITECTURE INTERIORS

PROJECT MANAGEMENT QUANTITY SURVEYING

TORS ARE TO VERIFY ALL DIMENSIONS ON SITE B

OT BE COPIED OR REPRO ERMISSION OF ASPECT.

MINOR CHANGES

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*P* 0/ 5443 8285 *e* office@barlowshell *a* PO Box 899, Maro

y.com.au W/ www.barlowshe hydore 4558 ABN 89 215 591 0

COUNCIL



#### **EXISTING LEGEND**

EXISTING STORMWATER EXISTING SEWER MAIN EXISTING WATERMAIN EXISTING ELECTRICITY - OVERHEAD EXISTING EDGE OF BITUMEN EXISTING KERB EXISTING ELECTRICITY - UNDERGROUND EXISTING TELECOMMUNICATION

EXISTING BIORETENTION BASIN

PROPOSED BUILDINGS REFER TO ARCHITECT DRAWINGS PROPOSED BITUMEN

PROPOSED FOOTPATH

PROPOSED BIORETENTION BASIN

PROPOSED KERB AND CHANNEL

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#### EXISTING LEGEND



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#### LEGEND

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EXISTING BIORETENTION BASIN





PROPOSED BUILDINGS

PROPOSED BITUMEN

PROPOSED FOOTPATH

SEWER CONNECTION (HYDRAULIC DESIGN)

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OVERLAND FLOW - 2.722m AHD (1%AEP+CC)

OVERLAND FLOW PATH OUTLET

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Flood Information Search



#### Request Type

Self-Assessable Dwelling

All Other

## Flood Information Search

This search is issued in response to an information request for a property which is located within the geographical boundaries of Sunshine Coast Council.

Applicant's Name	Aspect Architects & Project Managers	Issue Date	24 November 2020
Applicant's Address	123 Parkyn Parade The Warf Complex Level 1 The Tower MOOLOOLABA QLD 4557	Land Number Property Description Address	1450958 Lot 2 SP 163937 Sunshine Coast Stadium 320 Nicklin Way BOKARINA QLD 4575
Email Address	b.baille@aspectapm.net	Our Reference Issuing Officer Your Reference	Cer20/15517 jdm 200170

ENQUIRY DATE:	19/11/2020
REGISTERED OWNER(S) NAME:	Sunshine Coast Regional Council Under Dogit- Sports &
	Recreation & Showground Purposes & For No Other Purpose
	creation & Showground Purposes & For No Other Purpose & 1 Other(s)

#### 1 % AEP FLOOD EVENT INFORMATION (CURRENT CLIMATE)

FLOOD EVENT LIKELIHOOD:	1% AEP
FLOOD EVENT LEVEL:	Refer to digital data attached
SOURCE OF INFORMATION:	Mooloolah River Flood Study, Cardno, 2015
	Kawana Master Drainage Plan (Draft), AquaIntel, 2020

#### DEFINED FLOOD EVENT INFORMATION (ESTIMATED CONDITIONS AT YEAR 2100)

DEFINED FLOOD EVENT LIKELIHOOD:	1% AEP	
DEFINED FLOOD EVENT LEVEL:	Refer to digital data attached	
SOURCE OF INFORMATION:	Mooloolah River Flood Study, Cardno, 2015	
	Kawana Master Drainage Plan (Draft), AquaIntel, 2020	

# RECORDED HISTORIC FLOOD INFORMATION HIGHEST RECORDED FLOOD LEVEL: As per Figure 1 LOCATION DESCRIPTION: As per Figure 1 DATE OF EVENT: As per Figure 1 THIS SEARCH IS VALID FOR 6 MONTHS FROM DATE OF ISSUE.



Figure 1. Property Boundary Relative to Council Flood Mapping

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## NOTES SPECIFIC TO THE FLOOD LEVELS QUOTED ON THIS SEARCH. None Applicable

## QUEENSLAND DEVELOPMENT CODE MANDATORY PART 3.5 REQUIREMENTS FOR SELF-ASSESSABLE NEW CONSTRUCTION OF A DWELLING

MINIMUM DESIGN LEVEL - FLOODING REQUIREMENT					
FOR THE PURPOSES OF THE QDC MP 3.5 (2012) AND THE BUILDING REGULATIONS \$13.1 (2006) THE LEVELS PROVIDED IN THIS TABLE FOR NEW BUILDINGS ARE A DECLARATION OF THE FINISHED FLOOR LEVEL REQUIREMENTS FOR CLASS 1 BUILDINGS BUILT IN ALL OR PART OF THE FLOOD HAZARD AREA					
MINIMUM DESIGN FLOOR LEVEL:	Please contact Development Service for development that is not Self- Assessable (refer to interpretative notes 1)				
SOURCE OF INFORMATION:	Flood level data from Page 1				

MAXIMUM FLOW VELOCITY / INACTIVE OR BACKWATER AREA DECLARATION FOR THE PURPOSES OF THE QDC MP 3.5 (2012) AND THE BUILDING REGULATIONS \$13.1 (2006) THE LEVELS PROVIDED IN THIS TABLE FOR NEW BUILDINGS ARE A DECLARATION OF THE FINISHED FLOOR LEVEL REQUIREMENTS FOR CLASS 1 BUILDINGS BUILT IN ALL OR PART OF THE FLOOD HAZARD AREA							
DEFINED FLOOD EVENT VELOCITY:	Less than 0.5 m/s						
SOURCE OF INFORMATION:	Kawana Master Drainage Plan (Draft), AquaIntel, 2020						

If this box is marked, Council advises that the property is in an inactive flow or backwater area as defined by Section 13 of Building Regulations as determined by the flow being less than 1.5m/s. The property may still be in an important flow path where any obstruction could cause impact. Refer to Interpretive Note 13.

#### DRAINAGE DEFICIENT AREAS

If this box is marked, Council advises that the land is in a declared drainage deficient area as shown on Figure 8.27 Drainage Deficient Areas of the Sunshine Coast Planning Scheme (2014) Flood Overlay Code

If this box is marked, Council advises that no record exists of this property previously satisfying drainage deficient area requirements of the Sunshine Coast Planning Scheme (2014) Flood Overlay Code or the relevant prior planning scheme(s). An attachment will be included with this search that provides detail on the filling and survey requirements.

#### **CLIMATE ASSUMPTIONS**

The advice provided in this search is based upon standards relating to current and year 2100 climatic conditions and historically recorded flood events only. Year 2100 estimates include allowances for future climate conditions which specifically include increased rainfall intensity (20%) and higher mean sea level (0.8m).

Are you flood ready? Be Prepared with Council's award winning Disaster Hub. http://disasters.sunshinecoast.qld.gov.au/

Review Flood Mapping that shows how flood hazard changes as events get larger. Prepare your emergency plan and kit. Keep up to date with emergency warnings and road closure information.

#### INTERPRETATION NOTES FOR THIS SEARCH

- 1. Minimum floor levels are provided for residential land uses only in accordance with the criteria for self-assessable development in the Sunshine Coast Planning Scheme, 2014, flood overlay code. For other types of development the flood overlay code of the planning scheme may assign a different event probability to the Defined Flood Event and specify different freeboard requirements. Refer to Table 8.2.7.3.3 of the flood overlay code. In such instances a development application should already be lodged and the Development Services staff assisting with this application will provide guidance on the determination of minimum floor levels.
- 2. This search has not been prepared with knowledge of the date of construction or approval for development. It is incumbent upon the applicant, or the agent representing the applicant, in a purchasing situation to determine the date of approval for development in order to ascertain which of the minimum floor levels provided on this search are appropriate.
- The absence of Highest Historical Flood Level information does not imply that the above property is not subject to flooding, simply that Council has no record of this property flooding. Applicants are encouraged to make their own local enquiries.
- 4. Where a storm tide flood level is greater than the riverine flood level at the probability of the Defined Flood Event, then the Defined Flood Event is the Defined Storm Tide Event as reported on this search.
- 5. The MINIMUM FLOOR LEVEL as required by the Flood Overlay Code of the Sunshine Coast Council Planning Scheme, 2014, is calculated as whichever is greater of either:
  - (a) 500mm freeboard added to the Defined Flood Event Level (Regional Riverine or Storm Tide) for the site; or
  - (b) 300mm freeboard added to the Defined Flood Event Level (Drainage) for the site as per the Queensland Urban Drainage Manual; or
  - (c) Where a Defined Flood Event is unavailable, 600mm freeboard added to the Highest Recorded Historical Flood Level appropriate to the site.
- 6. If the property is located within a declared Drainage Deficient Area the MINIMUM FLOOR LEVEL may be returned as 'DDA Survey Required'. If so, refer Drainage Deficient Area requirements attachment for details.
- 7. When calculating Minimum Design Floor Level an additional 300mm allowance for wave setup is added to the Defined Flood Event for properties adjacent to Lake Weyba and properties within 200m of the Pumicestone Passage.
- 8. Applicants are advised that other property search services may specify a minimum floor level. In these circumstances applicants should adopt the higher of the minimum floor levels quoted.
- 9. All buildings shall conform to the relevant Planning Scheme Code in the Sunshine Coast Regional Council, 2014.
- 10. Please be aware of the natural topography in your area. Water runoff which exceeds the capacity of the underground drainage system (if present) and which concentrates in surface depressions and gullies as it flows down a catchment can cause localised overland flow flooding and may not be identified in this search.
- 11. Council advises that if there are openings to basements these openings require a minimum level at least equal to the minimum floor level.
- 12. The levels and velocities provided on this search are derived from information relating to the flood hazard area that is deemed most current and reliable at the time of search provision. This information may supersede flood information contained on the Sunshine Coast Regional Council Planning Scheme flood overlay (2014) which requires planning scheme amendment to maintain currency.
- 13. Section 13 of Building Regulations defines an inactive flow or backwater area to mean all or part of a flood hazard area where the maximum flow velocity of water is not likely to be greater than 1.5m/s. Council advises that velocity in some waterways, floodways and overland flow paths is less than 1.5m/s and would therefore meet this definition. Obstructing such flow paths is inherently problematic and likely to cause adverse impact. The declaration of a backwater area or inactive flow path should not be interpreted as acceptable to obstruct.

#### DISCLAIMERS

Flood information provided by Council represents the best information available to Council. It should only be used as a guide to the extent of flooding on the property. This information may be inaccurate or incomplete and it is recommended that purchasers make their own local enquiries with regard to the flooding and drainage history of the site.

The flood level information supplied does not represent the highest possible flood level that could occur on this property. Statistics indicate that a flood of equivalent or greater magnitude than the defined flood event is possible and has a 1% chance of occurring in any given year and similarly a 50% chance of occurring within 70 years.

The absence of flood information does not imply that the property is not subject to flooding, simply that Council has no information for this property flooding.

If the property has a history of flooding or drainage problems, Council recommends you seek professional advice on this matter.

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#### **GLOSSARY OF TERMS**

Term	Definition
Applicant	The individual(s) requesting a flood search to be completed for a specified property.
Registered Owners	The individual(s) that are registered by Council as owning the property for which a flood search is requested.
AHD	The Australian Height Datum (AHD) is the reference level for defining reduced levels adopted by the National Mapping Council of Australia. The level of 0.0 m AHD is approximately mean sea level.
Defined Flood Event Level	A water level derived through mathematical modelling of the Defined Flood Event.
Defined Flood Event	Terminology consistent with Single State Planning Policy (SPP, 2013) which states "Defined Flood Event is the flood event adopted by a local government for the management of development in a particular area". This may also be the defined storm tide event where the flood level of the storm tide exceeds the flood level of the freshwater flood event (at the AEP of the defined flood event ).
Source of Information	Is a reference to the document summarising the results of the anticipated flooding relevant to this location.
Highest Recorded Flood Level	The highest relevant flood water level from all historic events for which Council has records.
Location Description of Highest Recorded Event	A description of the site where the Highest Historical Flood Level was recorded.
Date of Highest Recorded Event	The date on which the Highest Historical Flood Level occurred.
Minimum Floor Level	The minimum floor level calculated in accordance with the planning scheme flood overlay through the addition of the relevant freeboard to the Defined Flood Event Level or the Highest Recorded Historical Flood Level. The minimum floor level on this search relates to a flooding requirement. In some instance town planning notation may also specify a minimum floor level. The applicant should ensure that a town planning notation search is also undertaken. The minimum floor level is the higher of the level provided on this search and a minimum floor level from a town planning notation.
AEP	Annual Exceedance Probability. The 1% AEP has a 1% chance of exceedance in any year.
Rainfall Intensity	The amount of rainfall occurring in a unit of time, usually expressed in millimetres/hour.
Mean Sea Level	A tidal datum; the arithmetic mean of hourly heights of the sea at the tidal station observed over a period of time (preferably 19 years). Source: BOM This is approximately 0.0 m AHD
Storm Tide	The elevation of water generated by a severe weather event such as an east coast low pressure system or tropical cyclone above the normal astronomical tide.
Tropical Cyclone	A tropical cyclone is a low-pressure system which develops in the tropics and is sufficiently intense to produce sustained winds of at least 63 km/h or greater and gusts in excess of 90 km/h near the centre.
Freeboard	A factor of safety usually expressed as a height above the adopted Defined Flood Level. A freeboard tends to compensate for factors such as wave action and historical and modelling uncertainties.
Flood Hazard Area	An area, whether or not mapped, designated by a local government as a natural hazard area (flood) in the Building Regulation 2006, section 13.
Drainage Flood	This flood type has a flood level derived from a stormwater drainage study with rainfall as the source of flooding. This is normally a local area study that incorporates elements of the stormwater network in the assessment. These studies can provide flood levels associated with overland flow beyond the flood extent shown derived from a Riverine\Creek flood study
Regional/Riverine	This flood type has a flood level derived from a Regional (Riverine or Creek) flood study with rainfall as the source of flooding. As these studies are for larger areas they only consider surface flows and not the sub surface drainage network. Often flows will be input into the flood model at 'source points' and thus overland flows are not represented for the whole catchment area.
Storm Tide Flood	This flood type has a flood level derived from a Storm Tide flood study with the ocean condition as the source of flooding.



**Development Codes** 



This code checklist is to help you address and respond to the applicable provisions in the Sunshine Coast Planning Scheme 2014 for your proposed development.

#### Instructions

The intent of this checklist is to specifically report on the exceptions of non-compliance with provisions of the code. For each acceptable outcome select whether you comply, don't comply or if not applicable to your proposed development.

Where non-compliance or no acceptable outcome is identified, provide a detailed justification on how the proposal satisfies the relevant performance outcome. In addition, identify any technical reports or plans required to demonstrate compliance with an acceptable outcome or performance outcome.

When you use any code checklist, it is recommended that it is accompanied by council's general assessment report template, found on council's website.

	Performance outcome (PO)		Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
Construction management								
PO1	Air emissions, noise or lighting arising from construction activities and works do not adversely impact on surrounding areas.	AO1.1 [	Dust emissions do not extend beyond the boundary of the site.	Yes	No	N/A	To be managed at OPW /	Refer to 2057-01
							construction phase. Construction methodologies to comply with relevant guidelines and policies.	Civil Infrastructure Report (Dec 2020)
		AO1.2 Air emiss detectab	Air emissions, including odours, are not	Yes	No	N/A	Refer to comment in A01.1	Refer to comment
			detectable at the boundary of the site.	$\boxtimes$			above.	A01.0 above.
		AO1.3		Yes	No	N/A		

#### Privacy

Council will use any personal information provided for the intended purpose only and for remaining in contact with you. Council is authorised to collect this information in accordance with the *Local Government Act 2009* and other Local Government Acts. Your personal information is only accessed by persons authorised to do so. Your personal information is dealt with in accordance with council's privacy policy.

Performance outcome (PO)		Acceptable outcome (AO)		Assessment (compliant / non- compliant)			Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			Works are only carried out between 7:00am to 6:00pm Monday to Saturday inclusive.				Refer to comment in A01.1 above.	Refer to comment A01.0 above.
		AO1.4	Noise generating equipment is enclosed, shielded or acoustically treated in a manner which ensures the equipment does not create environmental harm.	Yes	No	N/A	Refer to comment in A01.1	Refer to comment
	A						above.	A01.0 above.
		AO1.5	Outdoor lighting complies with AS4282- 1997 control of the obtrusive effects of outdoor lighting.	Yes	No	N/A	Refer to comment in A01.1 above.	Refer to comment A01.0 above.
				$\boxtimes$				
PO2	Construction activities and works	AO2.1	The health and stability of retained	Yes	No	N/A	Not Allpicable.	Not Required.
	<ul> <li>provide for:</li> <li>(a) the protection of the aesthetic and ecological values of retained vegetation, and</li> <li>(b) impacts on fauna to be minimised.</li> </ul>		<ul> <li>vegetation is maintained or enhanced during construction activities by:</li> <li>(a) clearly marking vegetation to be retained with temporary fencing and flagging tape</li> <li>(b) installing temporary barrier fencing around the outer drip line and critical root zone of the vegetation</li> <li>(c) preventing any filling, excavation, stockpiling, storage of chemicals, fuel or machinery within the fenced protection area</li> <li>(d) using low impact construction techniques in the vicinity of vegetation to minimise interference with the vegetation, and</li> <li>(e) removing all declared noxious weeds and environmental weeds from the site.</li> </ul>					

Performance outcome (PO)		Acceptable outcome (AO)		Assessment (compliant / non- compliant)			Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			All works sorriad out in the visibility of					
		AO2.2	retained vegetation comply with AS4970	Yes	No	N/A	Not Allpicable.	Not Required.
	A02.3		protection of trees on development sites and AS4687 temporary fencing and hoarding.					
		AO2.3 Where construction activities will result in	Yes	No	N/A	Not Allpicable.	Not Required.	
			clearing and/or removal of fauna habitat:			$\boxtimes$		
			<ul> <li>(a) a suitably qualified professional fauna spotter and catcher undertakes a fauna management report, pre-clearing inspections and is present for all clearing activities</li> <li>(b) all vacant hollows and nests are relocated or rendered unusable to prohibit fauna return during clearing works</li> <li>(c) all fauna is suitably relocated or humanely dealt with during the pre- clearing inspections or during clearing, and</li> <li>(d) 'offset' nesting hollows/nest boxes are provided in adjoining vegetation at least 1 month prior to the clearing.</li> </ul>					
PO3	Vegetation cleared from a site is	AO3	Where vegetation is cleared, vegetation	Yes	No	N/A	Not Allpicable.	Not Required.
	<ul> <li>(a) maximises reuse and/or recycling, and</li> <li>(b) minimises impacts on public health and safety.</li> </ul>		<ul> <li>waste is appropriately disposed of in the following order of preference:</li> <li>(a) milling for commercial timber products, landscaping or firewood</li> <li>(b) on-site chipping or mulching</li> </ul>					

	Performance outcome (PO)		Acceptable outcome (AO)	A: (con c	ssessm npliant complia	ient / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			<ul> <li>(d) use for forest floor habitat in adjoining bushland and revegetation areas.</li> </ul>					
PO4	Construction activities and works	AO4	Development is located, designed and	Yes	No	N/A	To be managed at OPW / construction phase. Construction methodologies to comply with relevant guidelines and policies.	Refer 2057-01 Civil Infrastructure Report (Dec 2020)
are managed such the reasonable and pract measures are taken to environmental values the functionality of sta infrastructure from the erosion, turbidity and sedimentation, both of downstream of the de site.	reasonable and practicable measures are taken to protect the environmental values of water and the functionality of stormwater infrastructure from the impacts of erosion, turbidity and sedimentation, both on and downstream of the development site.	erosion and sediment control plan, prepared in accordance with the requirements specified in the <b>planni</b> <b>scheme policy for development</b> <b>works</b> .	erosion and sediment control plan, prepared in accordance with the requirements specified in the <b>planning</b> <b>scheme policy for development</b> <b>works</b> .					
PO5	Construction activities and works	AO5.1	Existing utilities, road and drainage infrastructure are protected or relocated in accordance with the standards specified in the <b>planning scheme</b> <b>policy for development works</b> .	Yes	No	N/A	The proposal seeks to protect	Refer 2057-01 Civil
are underta utilities, roa infrastructu	utilities, road and drainage infrastructure: (a) continue to function efficiently,						drainage infrastructure.	Report (Dec 2020)
	and	AO5.2	The costs of any alterations or repairs to	Yes	No	N/A	The costs of any alterations or	Refer 2057-01 Civil
	(b) can be accessed by the relevant authority for maintenance purposes.		are met by the applicant.				repairs to utilities, road and drainage infrastructure are met by the applicant.	Report (Dec 2020)
PO6	Traffic and parking generated	ic and parking generated AO6 No ac g construction activities and s is managed to minimise cts on the amenity of the bunding area.	No acceptable outcome provided.	Yes	No	N/A	Traffic and parking during	Refer 2057-01 Civil
	works is managed to minimise impacts on the amenity of the surrounding area.						will be appropriately managed.	Report (Dec 2020)
PO7		AO7	No acceptable outcome provided.	Yes	No	N/A		N/A

Performance outcome (PO)			Acceptable outcome (AO)		ssessm npliant complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	<ul> <li>Construction activities and works provide for:</li> <li>(a) minimisation of waste material</li> <li>(b) separation of recyclable material</li> <li>(c) storage of waste and recyclable material, and</li> <li>(d) collection of waste and recyclable material in a manner that minimises adverse impacts on the amenity and safety of surrounding areas.</li> </ul>		Editor's note: <b>section 9.4.10 (waste management code)</b> sets out requirements for waste management.				To be managed at OPW / construction phase. Construction methodologies to comply with relevant guidelines and policies.	
Infrastr	ucture, services and utilities		·					
PO8	Development is provided with	AO8.1 V	Where development is located in an	Yes	No	N/A	The proposal will be connected to	Refer to 2057-01
	infrastructure, services and utilities appropriate to its setting and commensurate with its needs.	urban zone, appropriate connection is provided to reticulated sewerage, water supply, stormwater drainage, electricity, gas (where available in the street) and telecommunications services at no cost to the council, including provision by way of dedicated road, public reserve or as a minimum by way of easements to ensure continued access is available to these services in accordance with the standards specified in the <b>planning</b> <b>scheme policy for development</b> <b>works</b> , or where applicable, the requirements of the service provider.				all relevant and necessary infrastructure.	Civil Infrastructure Report (Dec 2020)	
		AO8.2		Yes	No	N/A		
Performance outcome (PO)			Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
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			Where development is located in a non- urban zone and reticulated sewerage is not available, an on-site treatment and disposal system is provided that complies with the requirements of the <i>Plumbing and Drainage Act 2003</i> .				The subject site is not identified as being contained within a nonurban zone	Not Required.
		AO8.3	Where development is located in a non-	Yes	No	N/A	The subject site is not identified	required?         If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application         Mot Required.         Mot Required.         Refer to 2057-01 Civil Infrastructure Report (Dec 2020)         set         Refer to comment A00.2 a basis
			<ul> <li>urban zone and reticulated water supply is not available, development is provided with appropriate on-site rainwater collection in accordance with the relevant use code.</li> <li>Editor's note: section 9.4.6 (stormwater management code) sets out requirements for stormwater management.</li> <li>Editor's note: the provision of telecommunications infrastructure is regulated in accordance with Federal Government legislation.</li> </ul>				as being contained within a nonurban zone.	
PO9	Development provides for infrastructure, services and utilities	AO9.1	Infrastructure is planned, and	Yes	No	N/A	Development design	Refer to 2057-01
	infrastructure, services and utilities that are planned, designed and constructed in a manner which: (a) ensures appropriate capacity to meet the current and planned future needs of the development	appropriate	appropriate				accommodates existing services to the subject site and provides passive design to minimise maintenance and long-term asset costs (eg. rainwater harvesting and boiretention basins).	Civil Infrastructure Report (Dec 2020)
		AO9.2	Infrastructure is planned, designed and constructed in accordance with council's Local Government infrastructure plan,	Yes	No	N/A	Design is in accordance with Council, Ausroads, and all other relevant standards.	Refer to comment A09.2 above.

Per	Performance outcome (PO)		Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ient / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
(b) (c) (d)	<ul> <li>(b) is integrated with and efficiently extends existing networks</li> <li>(c) minimises risk to life and property</li> <li>(d) avoids, or where avoidance is not practicable minimises and mitigates, adverse impacts on</li> </ul>		and the <b>planning scheme policy for</b> <b>development works</b> , or where applicable, the requirements of the service provider.				All utilities will be designed in accordance with the requirements of the service provider.	
	ecologically important areas	AO9.3	9.3 Compatible public utility services are co- located in common trenching in order to minimise the land required and the costs for underground services.	Yes	No	N/A	Not applicable.	Not Required.
(e) (f)	minimises risk of environmental harm achieves acceptable						Connection to existing services.	
	maintenance, renewal and	AO9.4	9.4 Stormwater drainage, sewerage and sullage systems are designed so that overflows do not enter residences.	Yes	No	N/A	Design will be compliant as noted	Refer to comment
(g) (h)	can be easily and efficiently maintained minimises potable water demand and wastewater						in the civil reports.	A09.2 above.
(i) (j) (k)	<ul> <li>production</li> <li>(i) ensures the ongoing construction or operation of the development is not disrupted</li> <li>(j) where development is staged, each stage is fully serviced before a new stage is released</li> <li>(k) ensures adequate clearance zones are maintained between utilities and dwellings to protect residential amenity and health</li> <li>(I) preserves visual amenity in</li> </ul>	AO9.5	<ul> <li>Infrastructure, services and utilities are located and aligned so as to:</li> <li>(a) avoid disturbance of ecologically important areas;</li> <li>(b) minimise earthworks; and</li> <li>(c) avoid crossing waterways or wetlands</li> <li>OR</li> <li>Where the provision of infrastructure has adverse impacts upon an ecologically important area which cannot reasonably</li> </ul>	Yes	No	N/A	Services will be aligned to meet the requirements of the acceptable outcome.	Refer to comment A09.2 above.
	key areas (i.e. in centres or along scenic routes), and		be avoided, development provides for a biodiversity offset for the area of an					

1	Performance outcome (PO)		Acceptable outcome (AO)	A: (con c	ssessm npliant / complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	(m) minimises interference with the passage of pedestrians in areas of high pedestrian traffic.		<ul> <li>ecologically important area, in accordance with the following:</li> <li>(a) the biodiversity offset requirements specified in table 9.4.9.3.2 (biodiversity offset requirements) of section 9.4.9 (vegetation management code), and</li> <li>(b) the standards specified in the planning scheme policy for biodiversity offsets.</li> </ul>	nts nts)				
		AO9.6 Where the crossing of a waterway or wetland cannot be avoided, tunnel boring techniques are used to minimise disturbance and disturbed areas are reinstated and revegetated on completion of works.	Yes	No	N/A	Not applicable.	Not Required.	
			wetland cannot be avoided, tunnel boring techniques are used to minimise disturbance and disturbed areas are reinstated and revegetated on completion of works.					
		AO9.7	The selection of materials used in the	Yes	No	N/A	Development design allows for	Not Required.
			construction of infrastructure is suitable, durable, easy to maintain and cost effective, taking into account the whole of life cycle cost, and achieves best practice environmental management and energy savings.				common building materials to be used in the construction of the infrastructure.	
		AO9.8	Except where in the rural zone, electrical	Yes	No	N/A	Development will comply where	Not Required.
			<ul> <li>and telecommunications reticulation infrastructure is provided underground in:</li> <li>(a) greenfield developments</li> <li>(b) development involving the creation of more than 5 lots</li> <li>(c) development in centre zones, and</li> </ul>				applicable.	

Performance outcome (PO)			Acceptable outcome (AO) (d) development in areas of high scenic	A (cor c	ssessm npliant complia	ient / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			amenity.					
Works	over or near sewerage, water and s	tormwate	r drainage infrastructure			1		
PO10	<ul> <li>Building or operational work near or over the council's stormwater infrastructure and/or sewerage and water infrastructure:</li> <li>(a) protects the infrastructure from physical damage, and</li> <li>(b) allows ongoing necessary access for maintenance purposes.</li> </ul>	AO10	Building or operational work near or over the council's stormwater infrastructure and/or sewerage and water infrastructure complies with the <b>planning scheme policy for</b> <b>development works</b> and the requirements of the water and sewerage service provider.	Yes	No	N/A	Proposed stormwater structures to be built in accordance with relevant guidelines and policies.	Refer to 2057-01 Civil Infrastructure Report (Dec 2020)
Filling o	or excavation			1		1	1	
PO11	<ul> <li>Filling or excavation:</li> <li>(a) does not cause environmental harm</li> <li>(b) does not impact adversely on visual amenity or privacy</li> <li>(c) maintains natural landforms as far as possible</li> <li>(d) provides for remediated soil conditions to support the successful establishment of landscapes, and</li> <li>(e) is stable in both the short and long term.</li> </ul>	AO11	<ul> <li>Development provides that:</li> <li>(a) on sites: <ol> <li>with a slope of 15% or more, or as identified in the Planning scheme policy for development works, the extent of excavation (cut) and fill does not involve a total change of more than 1.5 metres relative to the natural ground level at any point, or</li> <li>in other areas, the extent of excavation (cut) and fill does not involve a total change of more than 1.5 metres relative to the natural ground level at any point, or</li> <li>in other areas, the extent of excavation (cut) and fill does not involve a total change of more than 1.0m relative to the natural ground level at any point</li> </ol> </li> <li>(b) no part of any cut or fill batter is within 1.5 metres of any property boundary, except cut and fill</li> </ul>	Yes	No	N/A	Due to the natural topography of the land, cut and fill is to be in accordance with the relevant standards.	Refer to 2057-01 Civil Infrastructure Report (Dec 2020)

	Performance outcome (PO)		Acceptable outcome (AO)	A: (con c	ssessm npliant / compliar	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			<ul> <li>of less than 200mm that does not necessitate the removal of any vegetation</li> <li>(c) retaining walls are no greater than 1.0 metre high</li> <li>(d) retaining walls are constructed a minimum 150mm from property boundaries</li> <li>(e) all stored material is: <ul> <li>i. contained wholly within the site</li> <li>ii. located in a single manageable area that does not exceed 50m2, and</li> <li>iii. located at least 10 metres from any property boundary</li> </ul> </li> <li>(f) topsoil is harvested, stockpiled, remediated and reused in a manner that supports achievement of site specific vegetation performance objectives, and</li> <li>(g) any batter or retaining wall is structurally adequate.</li> </ul>					
PO12	Filling or excavation does not result in any contamination of land or	AO12	Development provides that: (a) no contaminated material is used as	Yes	No	N/A	Cut and fill to comply with the relevant standards.	Refer to 2057-01 Civil Infrastructure
	water, or pose a health or safety risk to users and neighbours of the site.		<ul> <li>fill</li> <li>(b) for excavation, no contaminated material is excavated or contaminant disturbed, and</li> <li>(c) waste materials are not used as fill, including: <ul> <li>i. commercial waste</li> </ul> </li> </ul>					Report (Dec 2020)

Performance outcome (PO)			Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			<ul><li>ii. construction/demolition waste</li><li>iii. domestic waste</li><li>iv. garden/vegetation waste, and</li><li>v. industrial waste.</li></ul>					
PO13	The location and extent of filling or	AO13	13 The extent of filling or excavation is in accordance with an existing development approval for a material change of use, reconfiguring a lot or building work (which has not lapsed).	Yes	No	N/A	There are no existing approvals	Not Required.
	excavation is consistent with the intended use of the site.						for a material change of use, reconfiguring lot or building work over the subject site.	
PO14	Filling or excavation does not	AO14	Driveways are able to be constructed	Yes	No	N/A	Current access is maintained and constructed in accordance with the relevant standards.	Refer to 2057-01 Civil Infrastructure Report (Dec 2020)
	the property.		and maintained in accordance with the requirements of the <b>planning scheme policy for development works</b> .					
PO15	Filling or excavation does not	AO15	Filling or excavation is undertaken in	Yes	No	N/A	Fill and / or excavation to be	Not Required.
	cause significant impacts through truck movements, dust or noise, on the amenity of the locality in which the works are undertaken or along routes taken to transport the material.		accordance with the requirements of the planning scheme policy for development works.				undertaken in accordance with the relevant standards.	
PO16	The transportation of materials in	s in AO16 Material is transported i	Material is transported in accordance	Yes	No	N/A	The transportation of material to	Not Required.
	association with filling or excavation activities minimises adverse impacts on the road system.		with the requirements of the planning scheme policy for development works.				be in accordance with the relevant standards where applicable.	



This code checklist is to help you address and respond to the applicable provisions in the Sunshine Coast Planning Scheme 2014 for your proposed development.

#### Instructions

The intent of this checklist is to specifically report on the exceptions of non-compliance with provisions of the code. For each acceptable outcome select whether you comply, don't comply or if not applicable to your proposed development.

Where non-compliance or no acceptable outcome is identified, provide a detailed justification on how the proposal satisfies the relevant performance outcome. In addition, identify any technical reports or plans required to demonstrate compliance with an acceptable outcome or performance outcome.

When you use any code checklist, it is recommended that it is accompanied by council's general assessment report template, found on council's website.

	rformance outcome (PO) Acceptable outcome (AO)		A (cor c	ssessm npliant complia	ient / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application	
Develo	pment design							
PO1	Development design, including but	AO1	No acceptable outcome provided.	Yes	No	N/A	Erosion and sediment control	Please refer to
	<ul> <li>not limited to layout, scale, intensity and staging, is based on a thorough assessment of:</li> <li>(a) site characteristics</li> <li>(b) potential environmental risks, and</li> <li>(c) the likely effectiveness and limitations of available erosion and sediment control and stormwater drainage measures to achieve protection of the</li> </ul>						procedures during construction and operation phase are outlined in the report provided.	the report titled 2057-01 Civil Infrastructure Report (Dec 2020).

#### Privacy

Council will use any personal information provided for the intended purpose only and for remaining in contact with you. Council is authorised to collect this information in accordance with the *Local Government Act 2009* and other Local Government Acts. Your personal information is only accessed by persons authorised to do so. Your personal information is dealt with in accordance with council's privacy policy.

	Performance outcome (PO)		Acceptable outcome (AO)	A (cor c	ssessm npliant complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	<ul> <li>environmental values of water and the functioning of stormwater infrastructure, both during and post construction.</li> <li>Editor's note: the planning scheme policy for development works provides guidance for satisfying PO1, including requirements for the preparation of an erosion risk assessment and an erosion hazard evaluation report. Section 9.4.11 (works, services and infrastructure code) sets out additional requirements in relation to erosion and sediment control during construction activities and works.</li> </ul>							
Stormw	ater drainage systems	400.4	Development is previded with a	Vaa	Na		The intention of the managed	A a la bassa
FUZ	stormwater drainage system which: (a) incorporates allowance for climate change, and	AU2.1	stormwater drainage system which is designed and constructed in accordance with the standards specified in the	Tes	ОИ	IN/A	stormwater drainage system is outlined in the above mentioned report, which demonstrates the	AS ADOVE
	<ul> <li>(b) ensures the development is adequately drained, and stormwater is managed and lawfully discharged without altering stormwater drainage characteristics external to the</li> </ul>	sures the development is equately drained, and rmwater is managed and fully discharged without ering stormwater drainage aracteristics external to the	planning scheme policy for development works.				proposed drainage structures to connect to the existing drainage infrastructure, which is assumed designed in accordance with Council's Planning scheme policy for development works.	
	site.	AO2.2	The stormwater drainage system	Yes	No	N/A	The stormwater drainage system	As above
		connects to a lawful point of di accordance with the <b>planning</b> <b>policy for development work</b>	connects to a lawful point of discharge in accordance with the <b>planning scheme policy for development works</b> .				connects to the existing stormwater infrastructure adjacent the site, which is the lawful point of discharge.	
		AO2.3		Yes	No	N/A		As above

Performance outcome (PO)			Acceptable outcome (AO)	Assessment (compliant / non- compliant)			Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			Stormwater flows discharged from the development are either within the capacity of the downstream drainage system such that non-worsening occurs, or are mitigated to pre-development characteristics.				As detailed above, the existing drainage was designed in accordance with Council's Planning scheme policy for development works.	
		AO2.4 Development provides for the management of stormwater to incorporate appropriate allowance climate change impacts (including rainfall intensity and sea level rise accordance with the <b>planning scl</b> <b>policy for development works</b> .	Development provides for the management of stormwater to incorporate appropriate allowance for climate change impacts (including rainfall intensity and sea level rise), in accordance with the <b>planning scheme</b> <b>policy for development works</b> .	Yes	No	<b>N/A</b>	Back-flow prevention devices are proposed as potential solutions to backflow in the proposed stormwater structures.	As above
PO3	Development is provided with stormwater conveyance channels which use natural channel design principles to convey external catchment stormwater through development and support	AO3.1	Development is provided with stormwater conveyance channels designed in accordance with the standards specified in the <b>planning</b> scheme policy for development works.	Yes	No	N/A	-	
	Development is provided with stormwater conveyance channels which use natural channel design principles to convey external catchment stormwater through development and support landscape, passive recreation and ecological values.       A         Stormwater infrastructure is designed to minimise maintenance costs and the requirement for       A	AO3.2	Landscape and ecological features (e.g.	Yes	No	N/A		
			plant species and habitat types) used in stormwater conveyance channels are complementary to the local context, including natural waterways.			$\boxtimes$		
		AO3.3	Bank and bed stability and planting	Yes	No	N/A		
		densities result in a stable channel of the long term and minimal potential invasive weed growth.	densities result in a stable channel over the long term and minimal potential for invasive weed growth.			$\boxtimes$		
PO4	Stormwater infrastructure is	AO4	Stormwater infrastructure is designed	Yes	No	N/A		
	designed to minimise maintenance costs and the requirement for		and constructed in accordance with the standards specified in the <b>planning</b>					

Performance outcome (PO)			Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ient / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	specialised equipment or maintenance techniques.		scheme policy for development works.					
PO5	Development avoids stormwater	AO5	No acceptable outcome provided.	Yes	No	N/A	Storwmater and sewer service	As above
	infrastructure network.						insfrastructure will be designed and built according to the relevant design standards.	
Hydrology and waterway stability								
PO6	Development prevents increased	AO6	Stormwater discharges are mitigated to achieve the waterway stability objective	Yes	No	N/A	Runoff does not pass through	
	waterways by limiting changes in flow rate and flow duration within receiving waters.		specified in the <b>planning scheme</b> <b>policy for development works</b> .				natural channels, or discharge to a non-tidal waterway.	
PO7	Development protects in-stream	A07	Frequent stormwater discharges are	Yes	No	N/A	Frequent flows are directed to	As above
	development low flow discharge regimes.		frequent flow management objective specified in the <b>planning scheme</b> <b>policy for development works</b> .				roof water storage tanks, and bioretention basins, which capture frequent flows, thus buffering low flow discharge.	
PO8	Development ensures adequate	AO8	Stormwater harvesting (excluding roof	Yes	No	N/A	Stormwater discharge points	
	maintain the environmental values of water dependent ecosystems, including downstream in stream and off stream aquatic, riparian, wetland and terrestrial ecosystems.		form of stormwater discharge points do not compromise the pre-development hydrology of receiving waters.				are to the existing stormwater infrastructure under the control of the local authority.	
Stormw	vater quality	1					I	
PO9		AO9.1		Yes	No	N/A		As above

Performance outcome (PO)			Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	Development protects or enhances the environmental values and water quality objectives of receiving waters or buffer areas within or downstream of a site. Editor's note: water quality objectives are prescribed in schedule 1 of the <i>Environmental Protection (Water)</i> <i>Policy 2009.</i>		Stormwater discharges achieve the pollutant load reduction objectives specified in the <b>planning scheme</b> <b>policy for development works</b> .				Pollutant load reduction objectives are met in accordance with the SPP (2017), where the deemed to comply option from the SPP for sizing bio-retention basins was applied, and meets the reduction targets specified in Table B of the SPP (2017), which reflects the objectives required by the planning scheme.	
	Policy 2009.	AO9.2	9.2 Where a development includes or adjoins a constructed waterbody or a buffer to a waterway or wetland, the pollutant load reduction targets are met prior to the discharge entering that buffer or waterbody.	Yes	No	N/A	Yes. As above.	
PO10	Treatment systems that use natural	AO10	No acceptable outcome provided.	Yes No N/A Bioretention system	Bioretention systems	As above		
	processes and materials are integrated into the development, wherever practicable, taking into account the whole of life cycle cost to enhance biodiversity and landscape benefits.						proposed with this development will be designed and built in accordance with the relevant design guidelines.	
PO11	Treatment systems are designed to	AO11	Risks associated with insect breeding,	Yes	No	N/A	The proposed roof water	As above
	and aesthetic hazards.		designing treatment systems in accordance with the <b>planning scheme</b> <b>policy for development works</b> .	$\boxtimes$			storage tanks will be designed in accordance with the planning scheme, such that the associated risks are mitigated.	
PO12	Treatment systems are designed to	AO12	Design achieves acceptable	Yes	No	N/A	Natural systems are proposed,	
	minimise maintenance, renewal and adaptation costs and the requirement for specialised		maintenance, renewal and adaptation costs for the project life in accordance				in contrast to proporietary	

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	equipment or maintenance		Acceptable outcome (AO)	Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	equipment or maintenance techniques.		with the planning scheme policy for development works. Editor's note: project life is a minimum of 50 years, unless the asset is proposed to be decommissioned in a shorter period.				devices, which generally require frequent maintenance.	
Stormw	ater harvesting and re-use							
PO13	Development provides for	AO13	Stormwater harvesting systems are	Yes	No	N/A	Stormwater / rainwater	report or plan         required?         If Yes, identify the title         of the technical report         or plan and confirm         that it has been         attached as         supporting         information to the         application
	stormwater capture, in addition to roof water capture.	si si	standards specified in the planning scheme policy for development works.		<ul> <li>harvesting system</li> <li>with this developn</li> <li>designed and buil</li> <li>accordance with t</li> <li>guidelines.</li> </ul>	harvesting systems proposed with this development will be designed and built in accordance with the relevant guidelines.		
PO14	Stormwater capture for the purpose	AO14.1	Stormwater harvesting systems are	Yes	No	N/A	Rainwater harvesting is not	As above
	of substituting for potable water use does not create a health, safety or aesthetic hazard.		standards specified in the planning scheme policy for development works.				proposed for potable use.	
		AO14.2	Water quality treatment is designed,	Yes	No	N/A		
			health standards appropriate for the intended use.					
PO15	Stormwater harvesting systems are	AO15.1	For systems that are to be dedicated to	Yes	No	N/A	-	
	designed to minimise maintenance costs and the requirement for specialised equipment or maintenance techniques and are		from the stormwater harvesting system.					As above sed ant
	provided with an ongoing funding	AO15.2	A detailed operations and maintenance	Yes	No	N/A		
			budget is prepared for the project life and financial assurances are in place to			$\boxtimes$		

	Performance outcome (PO)		Acceptable outcome (AO) operate and maintain the system for the	A (cor c	Assessment (compliant / non- compliant)		Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
0			project life.					
Constru	uction and establishment of stormy	vater man	agement systems	Vaa	Ne	NI/A	Complian	
	Construction methods and materials minimise environmental impacts and minimise the risk of asset failure.	AU 16. 1	accordance with the standards specified in the planning scheme policy for development works.	X				
		AO16.2	Construction timing is co-ordinated with civil and other landscape works to minimise risks to stormwater infrastructure and the environment.	Yes	No	N/A	Complies.	
PO17	Vegetated stormwater	AO17	Establishment and maintenance of	Yes	No	N/A	Complies. Stormwater sytems	
	management systems proposed to be dedicated as public assets are established and maintained during the maintenance period to ensure optimal vegetation growth and that the functional elements of the system achieve the design function at the end of the maintenance period.	ACT ACT Establishment and maintenal stems proposed to public assets are maintained during period to ensure in growth and that ements of the he design function maintenance					proposed to be dedicated as public assets will undergo the mandatory maintenance period in accordance with the Planning scheme.	
Constru	ucted waterbodies							
PO18	Constructed waterbodies which are	AO18	Where a constructed waterbody is	Yes	No	N/A		
	proposed to be dedicated as public assets are avoided, unless there is an overriding need in the public interest.		proposed to be dedicated as a public asset, an overriding need for the waterbody is demonstrated in accordance with the requirements of the <b>planning scheme policy for</b> development works					
PO19	Constructed waterbodies are	AO19	Constructed waterbodies are designed	Yes	No	N/A		
	designed and constructed to achieve environmental values and water quality objectives which		and constructed in accordance with standards specified in the <b>planning</b>					

	correlate to their intended function,		Acceptable outcome (AO)		Assessment (compliant / non- compliant)		Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	correlate to their intended function, use and receiving waters.		scheme policy for development works.					
PO20	Constructed waterbodies are	AO20 A d	A detailed maintenance and	Yes	No	N/A		
	designed, constructed and established to minimise maintenance and decommissioning costs and the requirement for specialised maintenance equipment and techniques, and are provided with an on-going funding source.		decommissioning costing is prepared for the project life in accordance with the <b>planning scheme policy for</b> <b>development works</b> and financial assurances are in place to provide for maintenance for the project life and, if required, decommissioning.					
PO21	Constructed waterbodies are not	AO21	Stormwater discharges achieve the	Yes	No	N/A		
	used as stormwater quality treatment devices.	pollutant load reduction objectives specified in the <b>planning scheme</b> <b>policy for development works</b> , prior to entering the constructed waterbody.			$\boxtimes$			
PO22	Constructed waterbodies support	AO22	Constructed waterbodies are designed	Yes	No	N/A		
	landscape, passive recreation and ecological values, and do not pose a health, safety or aesthetic risk.	and constructed in accordance with the standards specified in the <b>planning</b> scheme policy for development			$\boxtimes$			
			works.					



This code checklist is to help you address and respond to the applicable provisions in the Sunshine Coast Planning Scheme 2014 for your proposed development.

#### Instructions

The intent of this checklist is to specifically report on the exceptions of non-compliance with provisions of the code. For each acceptable outcome select whether you comply, don't comply or if not applicable to your proposed development.

Where non-compliance or no acceptable outcome is identified, provide a detailed justification on how the proposal satisfies the relevant performance outcome. In addition, identify any technical reports or plans required to demonstrate compliance with an acceptable outcome or performance outcome.

When you use any code checklist, it is recommended that it is accompanied by council's general assessment report template, found on council's website.

	Performance outcome (PO)		Acceptable outcome (AO)		Assessment (compliant / non- compliant)		Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
Dual oc	cupancy and dwelling house							
PO1	A dual occupancy or dwelling house is sited and designed such that risk to people and property from flooding and storm tide inundation is avoided or minimised.	AO1 The finished floor level of all habitable rooms is at least 500mm above the	Yes	No	N/A		Please refer to	
			defined flood event (DFE) and defined storm tide event (DSTE). Where the DFE and DSTE has not been modelled for the area, the finished floor level of all habitable rooms is at least 600mm above the highest recorded flood or storm tide inundation level. <b>OR</b>					the report titled 2057-01 Civil Infrastructure Report (Dec 2020).
			Where located on a site in a drainage					

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	Performance outcome (PO)		Acceptable outcome (AO)		Assessment (compliant / non- compliant)		Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			deficient area, as identified <b>on figure</b> <b>8.2.7 (drainage deficient areas)</b> , the finished floor level of all habitable rooms is in accordance with the minimum floor level specified in a current drainage deficient area flood information certificate issued by the council for the site.					
			<ul> <li>OR</li> <li>Where involving a minor extension to an existing dwelling house that is situated below the DFE or DSTE (or below the highest recorded flood or storm tide inundation level where the DFE and DSTE has not been modelled for the area):</li> <li>(a) the extension has a gross floor area not exceeding 20m<sup>2</sup>, and</li> <li>(b) the finished floor level of any new habitable room is not less than the floor level of existing habitable rooms.</li> </ul>					
PO2	A dual occupancy or dwelling house is sited and designed such	AO2	Enclosed car parking and manoeuvring areas situated below the DFE or DSTE	Yes	No	N/A		As above
	house is sited and designed such that enclosed car parking and manoeuvring areas do not obstruct the drainage of flood waters or create a health hazard after flood and storm tide inundation events.		areas situated below the DFE or DSTE (or below the highest recorded flood or storm tide inundation level where the DFE and DSTE has not been modelled for the area) are constructed at a level that permits the parking area to drain from the site by gravity means, without the need for mechanical pumping					

Performance outcome (PO)		Acceptable outcome (AO)		Assessment (compliant / non- compliant)		ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
PO3	Essential network infrastructure (e.g. on-site electricity, water supply, sewerage and telecommunications) maintains effective functioning during and immediately after flood and storm tide inundation events.	AO3	<ul> <li>Essential network infrastructure necessary</li> <li>to service the dual occupancy or dwelling house is:</li> <li>(a) located above the DFE and DSTE (or where the DFE and DSTE has not been modelled for the area, above the highest recorded flood or storm tide inundation level for the area), or</li> <li>(b) designed and constructed to exclude floodwater or storm tide intrusion and resist hydrostatic and hydrodynamic forces as a result of inundation by the DEE or DSTE</li> </ul>	Yes	No	<b>N/A</b>	Network infrastructure will be designed in accordance with the relevant design guidelines.	
PO4	A dual occupancy or dwelling	AO4.1	Filling of areas outside of the plan area	Yes	No	N/A		As above
P04	house does not directly, indirectly or cumulatively change flood characteristics which may cause adverse impacts external to the development site.		of all buildings and driveway areas does not exceed 50m <sup>3</sup> and does not result in net filling on the site. <b>OR</b> Where located on a site in a drainage deficient area, as identified on <b>figure</b> <b>8.2.7 (drainage deficient areas),</b> filling is undertaken in accordance with a current drainage deficient area flood information certificate issued by the council for the site.					
		AO4.2	Any building, structure or site access does not restrict overland flow.	Yes ⊠	No	<b>N/A</b>	Complies. Existing overland flow paths are not compromised.	As above

 Table 8.2.7.3.2 Performance outcomes and acceptable outcomes for assessable development

Floodp	Floodplain protection		Acceptable outcome (AO)		ssessm npliant complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	Development is undertaken in a	401	Not accontable outcome provided	Vaa	No			
FUI	<ul> <li>manner that ensures:</li> <li>(a) natural hydrological systems are protected</li> <li>(b) natural landforms and drainage lines are maintained to protect the hydraulic performance of waterways, and</li> <li>(c) development integrates with the natural landform of the floodplain rather than modifying the landform to suit the development.</li> </ul>						Complies. Development will be undertaken in accordance with the relevant guidelines.	As above
PO2	In a flood and inundation area, as	AO2	Not acceptable outcome provided.	Yes	No	N/A	The subject site is within the	
	<ul> <li>identified on a flood hazard</li> <li>overlay map, or in areas otherwise</li> <li>determined as being subject to the</li> <li>defined flood event (DFE) or</li> <li>defined storm tide event (DSTE):</li> <li>(a) any development involving</li> <li>physical alteration to land</li> <li>does not occur, or</li> <li>(b) urban and rural residential</li> <li>development, and other</li> <li>development involving the</li> <li>erection of a building or</li> <li>structure or significant</li> <li>earthworks satisfies at least</li> <li>one of the following criteria:</li> </ul>						Kawana Master Plan, and is intended for urbanised development.	

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F	Performance outcome (PO)	i. the development is on land that is already		(compliant / non- compliant)			Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	<ul> <li>i. the development is on land that is already committed to urban or rural residential development by an approval granted prior to the commencement of the planning scheme</li> <li>ii. the development is on land identified in a structure plan or a local plan as an area intended</li> </ul>							
	for urban development iii. the development is redevelopment or infill development within an existing developed area							
	iv. an overriding community need in the public interest has been demonstrated that warrants approval of the development despite its occurrence within an area subject to flooding							
	OR							
	<ul> <li>v. the development is for the infrastructure identified on the planning scheme maps, and</li> <li>(c) achieving flood immunity for the development minimises physical alteration to the floodplain</li> </ul>							

	Performance outcome (PO)		Acceptable outcome (AO)	As (con c	ssessm npliant / omplia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
Flood a	nd storm tide inundation immunity	and safet	y – development siting and design					
PO3	<ul> <li>Development provides that for all flood and storm tide inundation events up to and including the DFE and DSTE:</li> <li>(a) the safety of people on the site is protected; and</li> <li>(b) the risk of damage to property on the site is avoided or minimised as far as practicable.</li> </ul>	AO3.1	Finished surface and floor levels of urban lots, and buildings and infrastructure comply with the flood immunity requirements specified in <b>table</b> <b>8.2.7.3.3 (flood levels and flood</b> <b>immunity requirements for</b> <b>development and infrastructure).</b> Note: the finished surface levels referred to in <b>table 8.2.7.3.3</b> relate to regional/riverine flooding and do not override the freeboard requirements for smaller catchments and local drainage specified in QUDM which continue to apply for local area flooding (overland flow paths and roads)/master drainage plans.	Yes	No	N/A	Complies. The finished floor level for the proposed stadium expansion will be provided 500mm freeboard above the DFE 1% AEP + Climate change water level, in accordance with Council's Planning scheme.	As above
		AO3.2	A lot in the Rural residential zone has a	Yes	No	N/A		
			building envelope or development footprint at least 1,000m <sup>2</sup> in area that is generally rectangular in shape and has a finished surface level that complies with the criteria for residential development in <b>table 8.2.7.3.3</b> .					
		AO3.3	A lot in the Rural zone has a building	Yes	No	N/A		
		envelope of least 3,000 rectangula surface lev criteria for <b>table 8.2.</b> 7	least 3,000m2 in area that is generally rectangular in shape and has a finished surface level that complies with the criteria for residential development in <b>table 8.2.7.3.3.</b>					
PO4	Development does not compromise	romise AO4 Development provides an effective Yes	Yes	No	N/A	Evacuation procedures from the	As above	
PO4 [ t t	the residual flood or storm tide		evacuation route that remains passable, with sufficient flood warning time, to	$\boxtimes$			site will be outlined in a flood evacuation management plan. It	

	Performance outcome (PO)		Acceptable outcome (AO)	As (con c	ssessm npliant complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
	inundation risk associated with events exceeding the DFE or DSTE, up to and including the probable maximum flood (PMF) or probable maximum storm tide (PMST).		<ul> <li>enable people to progressively evacuate to areas above the PMF or PMST in the face of advancing flood or storm tide waters for events exceeding the DFE or DSTE</li> <li>OR</li> <li>Development incorporates building floor levels or surface levels within each lot, as adequate safe refuges, that are above the PMF or PMST.</li> </ul>				is also noted, the stadium is defined as a place of refuge by the Local Disaster Management Plan (2018).	
Building	g design and built form		·					
PO5	Development ensures that building design and built form: (a) maintains a functional and attractive street front address appropriate to the intended	AO5.1	Buildings incorporate appropriate screening to ensure that any under- storey is not visible from the street, where such screening does not impede flood water flows.	Yes	No	N/A		
	use, and (b) ensures that building materials used have high water resistance and will improve the resilience of a building during and after a flood or storm tide event.	AO5.2	Building materials and surface treatments used below the DFE or DSTE are resilient to water damage and do not include wall cavities that may be susceptible to the intrusion of water and sediment. Editor's note: the use of flood resilient building materials is also encouraged in areas above the DFE/DSTE (up to the PMF/PMST) to reduce the consequences of flooding associated with events larger than the DFE/DSTE. Note: the planning scheme policy for the flood hazard overlay code provides further advice in relation to building design and built form in flood hazard areas.	Yes	No	N/A	Extent of water resilient materials will be defined with further detailed design.	

	Performance outcome (PO) Acceptable outcome (AO) ential network infrastructure		As (con c	(compliant / non- compliant)		Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application	
PO6	Essential network infrastructure	AO6	Any components of essential network	Yes	No	N/A	Comlies. Proposed services will	
	within a site (e.g. electricity, water supply, sewerage and telecommunications) maintains effective function during and immediately after flood and storm tide inundation events.		<ul> <li>infrastructure that are likely to fail to function or may result in contamination when inundated by flood water (e.g. electrical switchgear and motors, water supply pipeline air valves and the like) are:</li> <li>(a) located above the DFE and DSTE (or where the DFE and DSTE has not been modelled for the area, above the highest recorded flood or storm tide inundation level for the area), or</li> <li>(b) designed and constructed to exclude floodwater or storm tide intrusion or infiltration and resist hydrostatic and hydrodynamic forces as a result of inundation by the DFE or DSTE.</li> </ul>				be designed and built in accordance with the relevant gudielines.	
Essenti	al community infrastructure					<u> </u>	1	
PO7	Essential community infrastructure	AO7.1	Essential community infrastructure is	Yes	No	N/A	Complies. Appropriate freeboard	As above
i	is able to function effectively during and immediately after flood events.		located in accordance with the recommended flood level (RFL) and other flood immunity requirements for that infrastructure specified in <b>table</b> <b>8.2.7.3.3 (flood levels and flood</b> <b>immunity requirements for</b> <b>development and infrastructure</b> ).				expansion.	
		AO7.2	<ul> <li>Essential community infrastructure which is located below the RFL:</li> <li>(a) is designed and constructed to function effectively during and immediately after the RFL flood event, and</li> </ul>	Yes	No	<b>N/A</b>	The stadium is defined as a place of refuge in the Local Disaster Management Plan. It is assumed appropriate modelling of the relevant flood (PMF) has been undertaken, and demonstrates	As above

	Performance outcome (PO)		Acceptable outcome (AO) <ul> <li>(b) has an emergency rescue area above the PMF or PMST if it is for</li> </ul>	A: (con c	ssessm npliant complia	ent / non- nt)	Detailed justification assessment the stadium is a place of refuge in particular natural disaster	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			emergency services (including emergency shelters, police facilities,	emergency services (including emergency shelters, police facilities, hospitals and associated facilities).			scenarios.	
Hazard	ous and other materials		hospitals and associated facilities).					
POR	Development ensures that public	AO8	The site on which the hazardous	Yes	No	N/A		
100	safety and the environment are not	100	materials are manufactured or stored in				-	
	adversely affected by the detrimental impacts of floodwater on hazardous and other materials manufactured or stored in bulk during the DFE or DSTE.		<ul> <li>bulk complies with the flood immunity requirements specified in table 8.2.7.3.3 (flood levels and flood immunity requirements for development and infrastructure).</li> <li>OR</li> <li>Materials stored on the site: <ul> <li>(a) are those that are readily able to be moved in a flood or storm tide event</li> <li>(b) are not hazardous or noxious, or otherwise comprise materials that may cause a detrimental impact on the environment if discharged in a flood or storm tide event, and</li> <li>(c) where at risk of creating a safety hazard by being shifted by flood waters, are contained in order to minimise movement in times of flood or inundation.</li> </ul> </li> </ul>					
Flood in	npacts	1.00	In a flood and inundation area, as					
PO9	indirectly or cumulatively alter the flooding characteristics external to the development site for all flood events up to and including the DFE	AO9	identified on a flood hazard overlay map, or in areas otherwise determined as being subject to the DFE or DSTE:	Yes		<b>N/A</b>	I he Stadium Expansion will have minimal impact to the regional flood, which extends beyond the local areas adjacent the site. Any impact to flood water due to	

Performance outcome (PO)	Acceptable outcome (AO)	Assessment (compliant / non- compliant)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
or DSTE, based on: (a) current climate conditions, and (b) incorporating an appropriate allowance for the predicted impacts of climate change.	<ul> <li>(a) there is no loss of on-site flood storage capacity</li> <li>(b) any changes to level, depth, duration and velocity of floodwaters are contained within the site for all flood events up to and including the DFE or DSTE based on: <ul> <li>i. current climate conditions, and</li> <li>ii. incorporating an allowance for the predicted impacts of climate change at the year 2100</li> <li>iii. catchment conditions relevant at the time of upstream or downstream development</li> </ul> </li> <li>(c) no earthworks (including filling of land or reduction of flood storage capacity) occurs, unless: <ul> <li>i. such earthworks result in the rehabilitation and repair of the hydrological network and riparian ecology of a waterway, and</li> <li>ii. an assessment undertaken by a competent person demonstrates that reforming of the land does not negatively impact on the overall hydrology, hydraulics and flood capacity of the waterway and does not, in any way, result in the reduction of flood storage capacity on the site, or</li> </ul> </li> </ul>		filling, or construction are buffered due to the scale of the regional flood, impacting a large geographical area.	

	Performance outcome (PO)		Acceptable outcome (AO)	A (cor c	ssessm npliant complia	ent / non- nt)	Detailed justification assessment	Is a technical report or plan required? If Yes, identify the title of the technical report or plan and confirm that it has been attached as supporting information to the application
			drainage deficient area, as identified on <b>figure 8.2.7</b> (drainage deficient areas), and are undertaken in accordance with a current drainage deficient area flood information certificate issued by the council.					
PO10	Development does not increase the severity of storm tide related impacts for off-site property for all storm tide events up to and including the DFE or DSTE, based on: (a) current climate conditions, and (b) incorporating an appropriate allowance for the predicted impacts of climate change at the end of the design life of the development.	AO10	<ul> <li>Development does not involve any physical alteration to the storm tide inundation area, including vegetation clearing</li> <li>OR</li> <li>Development avoids or, where avoidance is not possible, minimises alterations to the site that would result in:         <ul> <li>(a) acceleration or redirection of flows towards neighbouring infrastructure and development</li> <li>(b) increased local water levels, or</li> <li>(c) increased breaking wave heights.</li> </ul> </li> </ul>	Yes	No	N/A	Complies. The east Grandstand is situated in the location of the existing east mound, being a large embankment area. The Grandstand footprint generally coincides with the mound area, thus minimising the area exposed to inundation, or affecting local water levels.	As above
				$\boxtimes$				

## Appendix 7 Response to Environmental Issues prepared by Future Plus Environmental





# 4/12/2020

Response to Environmental Matters

Our Ref: 5857

Sunshine Coast Stadium Expansion

31 Sportsman Parade, Bokarina QLD 4575

**Client: Sunshine Coast Council** 

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In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

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Signed on behalf of **Future-Plus Environmental** 

Date: 4 December 2020

Paul Wood Director



#### DOCUMENT CONTROL INFORMATION

Project Number: 5857

Project Manager: Dan Willis

Client: Sunshine Coast Council

Report Title: Response to Environmental Matters

**Project Summary:** Clarification as to the extent to which the State triggers with respect to UXOs, coastal development and waterway barrier works relate to the proposed upgrade of the Sunshine Coast Stadium through a ministerial designation.

Site Address: 31 Sportsman Parade, Bokarina QLD 4575

#### **Document Review**

Document Version	Document Status	Author	Reviewed By	Approved By
5857-25112020-0.1	DRAFT	Charlotte-Bree Williams	Daniel Willis	Paul Wood
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#### **Issue Approval**

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Appendix D.	Sunshine Coast Council Site Report	D



### **1.0 INTRODUCTION**

Future-Plus Environmental (FPE) were commissioned to investigate the mapped environmental aspects of the Sunshine Coast Stadium expansion located at 31 Sportsmans Parade, Bokarina and on land described as Lot 2 on SP163937. The document sets out the extent of environmental constraints mapped under the State and local government regulatory framework and details specific measures relevant for a Ministerial designation of the site to accommodate the future expansion of the stadium.

Mapping considered under this assessment includes:

- The State Assessment and Referral Agency (SARA) development assessment mapping; and
- Sunshine Coast Planning Scheme 2014 overlays

These have been considered in the following sections.

A layout plan of the proposed stadium expansion has been included as Appendix A to this document.



## 2.0 STATE MAPPING

#### 2.1 EROSION PRONE AREA PLAN

Reference to SARA mapping (2020) indicates that the allotment does not fall within a coastal management district. An erosion prone area plan is mapped as affecting the coastline, and has been extended to include land that may be subject to inundation as a result of sea level rise. Lot 3 on SP163937 located south of the subject allotment is affected by the erosion prone area as a result of sea level rise and this extends into the south of the subject land (refer **Figure 1**).



Figure 1. Mapped extent of erosion prone area within the allotment containing the Sunshine Coast Stadium (Image source: SARA Mapping 2020)

The extension of the mapped erosion prone area into Lot 3 is likely to be due to the connection of the land with Lake Kawana by a stormwater drainage pipe conveying drainage from land to the east and discharging into the lake.



The upgrade to the Sunshine Coast Stadium does not fall within land mapped as an erosion prone area and is separated by an existing roadway intended to be retained as part of the future development of the site (**Figure 2**). Therefore, the risk of the stadium expansion being impacted by coastal processes is considered to be remote.



Figure 2. Mapped erosion prone area for the Sunshine Coast Stadium (Image source: QLD Globe 2020)

As the proposed upgrade does not fall within an erosion prone area, the works within this area would not be assessable under Schedule 10, Part 17 of the *Planning Regulation 2017* and therefore no further consideration of this matter is warranted as part of the Ministerial designation process.

#### 2.2 UNEXPLODED ORDNANCE

The site is mapped within the area potentially affected by unexploded ordinance by the Commonwealth Department of Defence (**Figure 3**). Notwithstanding, the land is not included on the Environmental Management Register for contaminated land. A copy of the relevant search is provided in **Appendix B** of this report.

In 2007, G-tek conducted a second stage UXO assessment of Quad Park to confirm the presence/absence of UXO. The clearance assessment relied on traversing the site with a Foerster Ferex 4.03 magnetometer and/or Minelab electromagnetic (EM) detector, which provide both visual and aural cues to their operator in the presence of ferrous metal. This investigation concluded that no UXO or explosive ordnance (EO) was found and that the area is suitable for its intended use. Furthermore, the



site had already being previously cleared of all remnant vegetation and undergone significant earth disturbance, resulting in the conclusion that the proposed stadium upgrade is considered a low risk in relation to disturbance of UXO. A copy of the clearance report has been included as **Appendix C** of this document.



Figure 3. Mapped UXO area for the Sunshine Coast (Image source: Commonwealth Department of Defence 2020)

State Code 13, PO1 requires that for a material change of use to have complied with the performance outcome, a contractor approved by the Commonwealth Department of Defence has certified that the area identified as having substantial UXO potential has been remediated or can be managed to be suitable for the proposed use. G-tek as a contractor approved by the Commonwealth Department of Defence has concluded that on the basis of their investigation, the site is suitable for its intended use. As this satisfies



the performance outcome of State Code 13, no further consideration of UXOs with regard to the expansion of the Sunshine Coast Stadium is warranted for the Ministerial designation.

#### 2.3 WATERWAY BARRIER WORKS

Under the Queensland Waterway Barrier Works spatial layer, an amber waterway (moderate risk) is mapped as extending across the existing sports facility (**Figure 4**).



Figure 4. Mapped Queensland waterway for waterway barrier works extending across the existing sports facility (Image source: QLD Globe 2020)

This mapped waterway is an error as the mapped waterway is shown traversing many industrial buildings and residential premises to the north, as well as through school property to the south (**Figure 5**). The presence of an open waterway able to facilitate fish passage through the area does not exist, and it is uncertain whether this mapping has been completed historically prior to development of the area during the 1980s and not updated to reflect the existing landform or presence of infrastructure. Details available from the site have confirmed the absence of any waterway, drainage line or overland flow path along the alignment shown in the mapping and there would appear to be a requirement for the mapping to be upgraded accordingly.





Figure 5. Mapped Queensland waterway for waterway barrier works, traversing through residential areas to the north of the Sunshine Coast Stadium (Image source: QLD Globe 2020)


Photographs taken during a site inspection conducted on 20 November 2020 by FPE of location in which the waterway is mapped as extending across the site in vicinity of the proposed stadium expansion are shown below in **Figure 6**.





#### Figure 6. Site inspection photographs taken in the location of the mapped waterway

The site inspection confirmed there was no evidence of the waterway under the northern mound of the facility, or in proximity to the car park, access road or sports fields to the east.

Due to the absence of any waterways suitable for fish passage at the Sunshine Coast Stadium, a response to State Code 18 is not required for any operational works associated with the project, and in this regard, no further consideration of this mapped constraints is relevant to the Ministerial designation.



## 3.0 LOCAL PLANNING INSTRUMENT

Reference to the overlay mapping available within the *Sunshine Coast Planning Scheme 2014* has confirmed there are no biodiversity, waterways or wetland values on the allotment subject to the Sunshine Coast Stadium expansion (**Appendix D**). The only relevant environmental constraint shown in the overlays relates to the presence of acid sulfate soils (ASS) for works involving excavation below 5 m AHD (**Figure 7**).



Area 1 : land at or below 5m AHD Area 2 : land above 5m AHD and below 20m AHD

# Figure 7. The entire site is classed as below 5m AHD and is likely to be subject to ASS (Image Source: Sunshine Coast Council 2020).

Outcomes specified in Council's ASS overlay code will be achieved by an ASS investigation being undertaken in accordance with the *Queensland Sampling Guidelines* and soil analysis according to the *Laboratory Methods Guidelines* or Australian Standard 4969, in order to meet the Performance Outcome P01 of the code. ASS identified within the impact area will be managed in accordance with an Acid Sulfate Soil Management Plan to be prepared for the site.

Excavation required to accommodate the Eastern grandstand will accord with the above requirements and is likely to result in disposal of ASS in accordance with SC6.14.10.5 of Council's Planning Scheme Policy for Development Works. Additional information in relation to the management of ASS has been provided by Barlow Shelley (2020) in their Civil Infrastructure Report to the Department of State Development, Tourism and Innovation.



## 4.0 CONCLUSION

While a number of environmental management constraints have been identified as impacting the site under State mapping, this report has identified that these will have no bearing on the proposed expansion to the Sunshine Coast Stadium due to:

- The location of the erosion prone area to the south of and outside of the impact area associated with the stadium expansion;
- Completion of a clearance investigation by G-tek for the site in 2007 which concluded that no UXO or EO were found within the Sunshine Coast Stadium area and that the land is suitable for its intended use; and
- No waterways traverse the area in which the expansion is proposed.

In addition, the potential presence of ASS material is mapped within the site under the *Sunshine Coast Planning Scheme 2014* overlay mapping. This risk will be investigated further during subsequent phases of the development and will be managed appropriately through the construction phase of any works. Accordingly no further consideration of ASS is warranted during the Ministerial designation process.



## 5.0 REFERENCES

Barlow Shelley Consulting Engineers (2020) *Proposed Sunshine Coast Stadium Expansion, 31 Sprtsman Parade, Bokarina – Civil Infrastructure Report*, Maroochydore, Queensland, Australia.

G-tek (2007) Post Activity Report – UXO Operation. G-tek Australia Pty Ltd, Castle Hill, NSW, Australia.



Appendix A. Concept Layout Plan







			0 5 10 15 20 25 50 <u>IMPORT</u>	ANT: ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE GENERAL NOTES SHEET	
T	General Notes TOOWOOMBA   BRISBANE   MOOLOOLABA www.aspectapm.net ABN 96 071 786 948 ACN 071 786 948 BOAQ 4487 BOAQ 4487 General Notes General Notes This PLAN has been PREPARED IN ACCORDANCE WITH ALL ReLEVANT BUILDING CODES AND STANDARDS. NO AMENDMENTS SHALL BE MADE WITHOUT THE APPROVAL FROM ASPECT AND/OR RELEVANT LOCAL AUTHORITY. THESE DRAWINGS ARE SUPPLIED ON THE CONDITION THAT, IN THE EVENT OF ERROR, ASPECTS LIABILITY IS LIMITED OUNLY TO THE COST OF AMENDING THESE DRAWINGS. CONTRACTORS ARE TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR PRODUCING SHOP DRAWINGS. THESE DRAWINGS ARE PROTECTED BY THE LAWS OF COPYRIGHT AND MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF ASPECT.	RDANCE WITH ALL RDS NO AMENDMENTS FROM ASPECT AND/OR WINGS ARE SUPPLIED ON RROR, ASPECTS LIABILITY ING THESE DRAWINGS. SUNSHINE COAST COUNCIL	- SITE PLAN - STAGE 1		
		COMMENCING ANY WORK OR PRODUCING SHOP DRAWINGS. THESE DRAWINGS ARE PROTECTED BY THE LAWS OF COPYRIGHT AND MAY NOT BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF ASPECT.	@	DATE SCALE @ A1 DRAWN 44/02/20 1:500 DRAWING No.	
		31 SPORTSMANS PARADE, BOKARINA QLD 4575	200170_A - ARC-10-02	A	
				C:\KDA_Projects\200170-S01_b.baillie.rvt 18/11/2020 4:41:31	PM

# SCHEMATIC DESIGN



Appendix B. Environmental Management Register for Contaminated Land



Department of Environment and Science (DES) ABN 46 640 294 485 400 George St Brisbane, Queensland 4000 GPO Box 2454 Brisbane QLD 4001 AUSTRALIA www.des.qld.gov.au

#### SEARCH RESPONSE ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

#### Transaction ID: 50643942 AMA/AN Id: 24984 24 November 2020 This response relates to a search request received for the site: Lot: 2 Plan: SP163937

## **EMR RESULT**

The above site is NOT included on the Environmental Management Register.

## **CLR RESULT**

The above site is NOT included on the Contaminated Land Register.

#### **ADDITIONAL ADVICE**

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

The above site is in or contains an area of land categorised on the Commonwealth Department of Defence (Defence) website http://www.defence.gov.au/uxo/ as having a 'substantial' potential to be affected by residual unexploded ordnance (UXO).

Any development application for a material change of use or reconfiguration of the above site will require referral to the Department of State Development Infrastructure and Planning's (DSDIP's), State Assessment Referral Agency (SARA) in regard to UXO.

Explanation:

Defence's website includes advice on the land usage of UXO affected sites, on what to do should UXO be found, and on landowner indemnification for personal injury or property damage. Under the heading "Where is UXO?" the website provides the ability to conduct a search of land status in relation to UXO by Street Address, by Local Government Area, by Land Parcel, by Federal Electorate or by State Electorate.

Currently, SARA has a concurrence agency role in Queensland's development approval process which provides for land in the Defence 'substantial' category to be further investigated and, where necessary, remediated as part of the approval process. Relevant information is available at http://www.qld.gov.au/environment/pollution/management/contaminated-land/.

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

# Administering Authority



Appendix C. G-tek Post Activity Report G-tek Australia Pty Limited ABN 47 099 519 034

25 Applecross Avenue Castle Hill NSW 2154 Australia Tel: +61 (2) 9680 7268 Fax: +61 (2) 9680 7403



#### POST ACTIVITY REPORT UXO Operation Quad Park, Bokarina Portion of Lot 2 SP 163937

#### Introduction

Quad Park, the Site, is a sporting complex situated between the Nicklin Way and Sportsmans Parade in Bokarina. It is currently undergoing a major redevelopment, including the construction of the outdoor stadium, the Northern Building and associated car parks. Quad Park is located within the former WW11 Caloundra Field Firing Range and Defence has advised that the Site has the potential to be substantially contaminated with UXO.

#### Authority to Undertake Task

Adam Matthews Project Management Pty Ltd email dated 7 February 2007.

#### Objective

To conduct the second Stage of the UXO assessment of Quad Park order to confirm or deny the presence of UXO.

#### Nature of Report

This report details the conduct of this Stage of the UXO assessment and the results obtained.

#### Dates of Conduct

Fieldwork was conducted on the 9th of February 2007.

#### Previous Investigations of the Site

G-tek has not undertaken any previous UXO works on this portion of the Site; however, in August 2006 the south western area of the Site was subjected to an UXO assessment and the report was titled "Post Activity Report UXO Operation Quad Park Bokarina Portion of Lot 2 SP 163937" dated 11 September 2006. G-tek personnel have also performed extensive UXO works throughout the former Caloundra Field Firing Range and, in particular, conducted an UXO assessment on a portion of Lot 462 immediately to the west of this site. Due to the lack of finds during that assessment, Defence, who had overseen the task, removed the UXO classification on that area.

#### **UXO Contractor Details**

The contracting firm is G-tek Australia Pty Limited (G-tek) ABN 47 099 519 034.

#### G-tek Staff

The following G-tek staff were directly involved in this operation:

Project Manager/UXO Technician -	Max Verrier	
Field Operators –	Terry Foot	
	Jenny Verrie	

Email: info@g-tek.biz Website: www.g-tek.biz



#### **Ownership Details**

The complex is owned by the Caloundra City Council and managed on their behalf by the Quad Park Corporation.

#### Site Details

This element of the Quad Park development is located in the area which contains the existing north western sporting field and its details are:

- This area covers approximately 1.6 hectares on the Sportsmans Parade side of Quad Park, see Attachment 1.
- The site does not have a street address. The search area is located in Bokarina 4575.
- The real property description of the site is a portion of Lot 2 on SP 163937. Parish of Bribie, County of Canning. RP and Title are at Attachments 2 and 3 respectively.
- The site is located within the Caloundra City Council Local Government Area.
- The property is currently zoned for sport, recreation and showgrounds purposes.

#### **Military History**

During World War II the former Caloundra Field Firing Range was used by a number of units, including units from the 8th and 9th Divisions, for training and for demonstrations. The activities are summarised on Army's Headquarters 1st Military District file Q1300-1-2 dated 24 April 1992. This document records usage of the range from 1938 until 1944. It is possible that the range was employed after World War II however, firing details are not recorded. Past usage comprised Artillery (both field and anti tank), Infantry and Armoured field firing practices and demonstrations. Since 1955 a large quantity of UXO of varying calibres, has been located on this range. The site is located in a zone containing an impact area for field and anti-tank artillery.

#### Site History after Defence Use

The north western portion of the Site contains a sporting field which was formed by removing the vegetation and levelling the area. The western half appears to have been filled primarily with soil won from the immediate surrounds and the eastern portion was filled to a depth of at least 600 mm with imported soil containing some cultural debris. Water run-off was facilitated by filling the central portion of the sporting field and forming this fill into a ridge that runs the length of the field which slopes downwards towards each side line. Buildings, roads, floodlights, fences, drainage and footpaths were constructed and services were laid. A compound was erected in the north east corner and later demolished.

No UXO were reported during these works nor during subsequent use of the facilities.





Photograph 1. A view looking south west.

Photograph 2. A view looking north west.





Photograph 3. A view of the small grandstand.



Photograph 4. A view looking north.

#### Search Methodology

Due to the history of engineering works on the Site, the results of G-tek's UXO works on the adjacent property and the results of the Stage 1 assessment, G-tek proposed to conduct an UXO assessment on the Site using east west transects.

The Site was assessed by applying a Foerster Ferex 4.03 magnetometer along parallel lines spaced 5 metres apart; the magnetometer provides both visual and aural cues to the operator in the presence of ferrous metal. Where the magnetic shadow of underground pipes, fences and equipment precluded the use of the magnetometer, a Minelab electromagnetic (EM) detector was used. Additional EM assessment lanes were used to supplement the magnetometer lines. The EM detector provides an aural cue in the presence of both ferrous and non ferrous metal. All cues provided by the detectors were investigated. When cultural debris was located it was removed where practical and the area previously covered by this debris was subjected to a further search.

A DGPS was used to record each assessment lane and a map showing these lanes is at Attachment 4.



Photograph 5. DGPS operator marking and recording assessment lines.



#### **Detection Equipment**

Foerster Ferex 4.03 and Minelab F3 were used during the task.

The Foerster Ferex 4.03 is an analogue gradient magnetometer designed to Military specifications for non antipersonnel mine clearance, for ordnance detection and burials. Detection is indicated by aural cue and a visual deflection meter, which is operated through a series of logarithmic scales from 3 to 10,000 nT. The probe of the Ferex can be operated away from the main body and, with weights and ropes can be effectively utilised down boreholes and under reasonable depths of water.

The Minelab F3 is an Australian designed and built, electromagnetic, induction coil detector. Its superior performance results from the incorporation of components that overcome false signals from the extreme geomagnetic conditions encountered in much of Australia



Photograph 6. Assessment Underway using Pl Ferex. M

Photograph 7. Assessment Underway using the Minelab.

#### Results

No UXO or explosive ordnance (EO) was found during the operation however, a 37 mm armoured piercing (AP) projectile was found, the location is shown on Attachment 4. Additional magnetometer lines were assessed in the vicinity of this find and no other EO related material was found.

These projectiles can travel considerable distances and it is not unusual to find isolated items. The low incidence of finds is consistent with the results of the operation performed on Lot 462 to the west of this site.



Photograph 8. Find – 37 mm Armour Piercing Projectile.



An item of cultural debris was located at a depth of approximately 600 mm in the eastern portion of the Stage 2 assessment area indicating that this portion had been filled. A high incidence of cultural debris and building material was located in the north east portion of the area and this reduced the efficacy of the assessment in that area.

#### Conclusions

The confidence level in this operation is high and it is considered that the area is suitable for its intended use.

#### Recommendations

As a result of this UXO search and clearance, it is recommended that:

- The conclusion of this report be accepted by the QLD EPA.
- A Contaminated Site Report be raised.
- The searched area be deemed suitable for its intended use.

iner

Max Verrier Senior UXO Project Manager

11 February 2007

Cuta

Greg Guthrie Chief Operating Officer

Northern Building and Carparks Quad Park UXO ASSESSMENT

Site Map

Text and graphics are from data obtained during an operation in Q-SeX Australia PY Limited Contains data Group the State of Queensland (Department of Natural Resources, Mines and Water) and Western Filpeline Alliance



#### Attachment 2



Copyright protects the plan's being ordered by you. Unauthorised reproduction or amendments are not permitted.



## CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES & WATER, QUEENSLAND

Request No: 1159230 Search Date: 11/09/2006 11:41 am

Title Reference: 50483020 Date Created: 25/02/2004

Previous Title: 16134104

REGISTERED OWNER

Dealing No: 707485760 18/02/2004

COUNCIL OF THE CITY OF CALOUNDRA

DEED OF GRANT IN TRUST FOR SFORT, RECREATION AND SHOWGROUND PURPOSES AND FOR NO OTHER PURPOSE WHATSOEVER

#### ESTATE AND LAND

Estate in Fee Simple

LOT 2 SURVEY PLAN 163937 County of CANNING Parish of MOOLOOLAH Local Government: CALOUNDRA CITY

#### EASEMENTS, ENCUMBRANCES AND INTERESTS

- 1. Rights and interests reserved to the Crown by Deed of Grant No. 16134104 (ALLOT 1 SEC 11) (ALLOT 2 SEC 11) (ALLOT 905 SEC 36)
- 2. LEASE No 706152542 27/11/2002 at 14:59 QUAD PARK CORPORATION PTY LTD A.C.N. 087 076 766

ADMINISTRATIVE ADVICES - NIL UNREGISTERED DEALINGS - NIL

#### CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

\*\* End of Current Title Search \*\*

COPYRIGHT THE STATE OF QUEENSLAND (NATURAL RESOURCES, MINES & WATER) [2006] Requested By: JENNY VERRIER





Appendix D. Sunshine Coast Council Site Report Sites







The following report has been automatically generated to provide an indication (only) of development related information applying to the site.

For more information and to determine if the mapping overlays are applicable, refer to the Sunshine Coast Planning Scheme 2014. This report is not intended to replace the requirement to carry out a detailed assessment of Council and State controls. You are advised to seek your own professional advice on town planning laws and other controls that may impact on the existing or intended use of the subject site.

If you are undertaking conveyancing, development or building certification, it is recommended that Council property searches are sought. These may include (but not limited to) building information searches, planning and development certificates and flood information searches.

Site Information	Ch	nange location
Property Address	4575	
Lot Plan	2SP163937	
Land Area	120800 SQ METRES	
More Information	<ul> <li>View in MyMaps.</li> <li>View in Development.i.</li> <li>View in SARA Mapping (External Site).</li> <li>View in Google Street View (External Site).</li> </ul>	

## Location Map



🔗 Land Details - SCC

# Contour Map



/ Land Details - SCC

#### Water & Sewer Infrastructure Map

The following information has been provided and maintained by Unitywater. Please contact Unitywater directly for any errors or omissions. Limited layers have been displayed for the purpose of this report. Go to Unitywater's Web Mapping Application for more information. Usage in agreement with © Unitywater 2017 terms and conditions.



- / Land Details SCC
- Sewer Pressure Main Pressure Sewer
- Sewer Pressure Main Rising Main
- Sewer Pressure Main Vacuum Main
- Sewer Gravity Main Trunk Main
- Sewer Gravity Main Reticulation Main
- Sewer Gravity Main Overflow Main
- Sewer Gravity Main Siphon Main
- Sewer Manhole Flume Pit
- Sewer Manhole Maintenance Shaft
- Sewer Manhole Manhole
- Sewer Manhole Vacuum Collection Pit
- Water Main Raw Water Main
- Water Main Trunk Main
- Water Main Reticulation Main
- Water Network Meter Network Meter
- Water Hydrant Bulk Supply Point
- Water Hydrant Hydrant

## Easements and Covenants Map



- Covenants SCC
- 💋 Acoustic
- 🙆 Agricultural Buffer
- 💋 Vegetation Protection
- 💋 Voluntary Conservation Agreement
- 💋 Other Covenant Type
- SCC Easements SCC
- / Land Details SCC

## Applications Associated with Site

Development & Building applications lodged to Sunshine Coast Council since 2007 and searchable on Development.i. To check if applications or approvals exist over site prior to 2007, it is recommended that you contact council

Note: This list does not include applications lodged under the provisions of the *Economic Development Act 2012* with respect to the Caloundra South Priority Development Area (Aura) and Maroochydore City Centre Priority Development Area. Visit the web links to get an overview of the approval process for these areas and how to get further information.

Lodged over historical land parcel (Decided or Past):	<ul> <li>PC10/3251 - SPORTS STADIUM WITH ASSOCIATED FACILITIES - KAWANA SPORTSGROUND Nicklin Way BOKARINA - REF NO. 100422 - Hutchinson Builders Pty Ltd, Received: Mon Aug 30 2010</li> <li>2008/BLD0986 - 320 Nicklin Way Bokarina - Temporary Structure (Pavillion for Home Show 2008) - Australian Events Pty Ltd, Received: Wed Apr 16 2008</li> </ul>
	2008/BLD1294 - 320 Nicklin Way Bokarina - Temporary Structure (Family Expo) - JTSS T/As Ultimate Event Management, Received: Wed May 21 2008
	2008/BLD1360 - 320 Nicklin Way Bokarina - Temporary Steel Scaffolding and Raised Platform - Quad Park Corporation Pty Ltd As Lessee, Received: Wed May 21 2008
	2008/BLD1570 - 320 Nicklin Way Bokarina - Large Pylon Sign (Stockland Park) - Quad Park Corporation Pty Ltd As Lessee Attention: Mr Roger Desailly, Received: Thu Jun 05 2008
	2010/BLD0449 - 320 Nicklin Way Bokarina - Balcony addition to clubhouse - Dunemann Constructions Pty Ltd, Received: Fri Dec 18 2009
	2006/BLD0873 - 320 Nicklin Way Bokarina - 1 Grand Stand (Amended to include alternative solution for fire Protection) - Quad Park Corporation, Received: Thu Apr 13 2006
	<ul> <li>2006/BLD0752 - 320 Nicklin Way Bokarina - Compound Shed - Horticulture Equipment - Quad Park Corporation Pty Ltd As Lessee, Received: Mon Apr 03 2006</li> <li>More Results</li> </ul>

Lodged over current land parcel (Decided or Past):	PC19/2789 - CHANGE ROOM FACILITIES - Sunshine Coast Stadium 320 Nicklin Way BOKARINA - Urban Certifiers Pty Ltd, Received: Wed May 22 2019
	PC11/3278 - TEMPORARY EVENT STRUCTURES (SPECIAL STRUCTURES - HOME SHOW) - Stockland Park 320 Nicklin Way BOKARINA - REF NO. 110073 - Australian Events Pty Ltd, Received: Fri Aug 12 2011
	PC11/4184 - TEMPORARY STRUCTURE - STOCKLAND PARK 320 Nicklin Way BOKARINA - Ref 20113609 - Ringside Pty Ltd, Received: Tue Oct 04 2011

- PC11/4634 TEMPORARY CIRCUS TENT STOCKLAND PARK 320 Nicklin Way BOKARINA - Ref 20110270 - Circus Royale, Received: Wed Oct 19 2011
- PC12/3804 TEMPORARY SPECIAL STRUCTURE 320 Nicklin Way Bokarina - Ref No. 120127 - Australian Events Pty Ltd - Mr Patrick Carroll, Received: Fri Sep 07 2012
- 2007/BLD3198 320 Nicklin Way Bokarina 1 Temporary Tent Structure (Boat Show) - Australian Events Pty Ltd, Received: Wed Nov 07 2007
- 2008/BLD0589 320 Nicklin Way Bokarina Storage Shed (Boats) -Quad Park Corporation Pty Ltd As Lessee, Received: Thu Mar 06 2008
- 2009/BLD1950 320 Nicklin Way Bokarina Tent Structure Home Show - Australian Events Pty Ltd, Received: Wed Sep 23 2009
   More Results

Other Approval Information

- Key residential and industrial approvals varying the effect of a Planning Scheme; or
- Master Plan details for land within Development Control Plan 1 Kawana Waters

Sunshine Coast Planning Scheme 2014			
Growth Management Area	▶Land within the Urban Growth Management Boundary		
Zones: View Tables of Assessment View Zone Codes	Sport and Recreation Zone		
Local Plan Area: View Tables of Assessment View Local Plan Codes	≯Kawana Waters Local Plan Area		
Land Subject to Acid Sulfate Soils Overlay: View Tables of Assessment View Overlay Code	♦Area 1 : land at or below 5m AHD		
Land Subject to Airport Environs Overlay: View Tables of Assessment View Overlay Code	Obstacle Limitation Surface (OLS)		
Land Subject to Flood Hazard Overlay: View Tables of Assessment View Overlay Code Note: The Flood Hazard Overlay should not be used for any purpose other than triggering an interest in flooding for development assessment. This map is not readily updated. For more recent and detailed flooding information, refer to the Flood Hazard Area/Defined Flood Extent map at the end of this report.	✦Flooding and Inundation Area		
Height of Buildings and Structures Overlay: View Tables of Assessment View Overlay Code	≱21 metres		
Land Subject to Regional Infrastructure Overlay: View Tables of Assessment View Overlay Code	Major Road Corridor and Buffer		
Priority Infrastructure Plan: View Priority Infrastructure Plan View Priority Infrastructure Plan Maps	Priority Infrastructure Area		

## Growth Management Area



Urban Growth Management Boundary

#### Zones:

View Tables of Assessment View Zone Codes



- Low Density Residential Zone
- Medium Density Residential Zone
- High Density Residential Zone
- Tourist Accommodation Zone
- Principal Centre Zone
- Major Centre Zone
- District Centre Zone
- Local Centre Zone
- Sport and Recreation Zone
- Open Space Zone
- Environmental Management and Conservation Zone
- Low Impact Industry Zone
- Medium Impact Industry Zone
- High Impact Industry Zone
- Waterfront and Marine Industry Zone
- Community Facilities Zone
- Emerging Community Zone
- Limited Development (Landscape Residential) Zone
- Rural Zone
- Rural Residential Zone
- Specialised Centre Zone
- Tourism Zone

#### Local Plan Area:

View Tables of Assessment

View Local Plan Codes



Local Plan Area Boundary

Land Subject to Acid Sulfate Soils Overlay: View Tables of Assessment View Overlay Code



Area 1 : land at or below 5m AHD Area 2 : land above 5m AHD and below 20m AHD Land Subject to Airport Environs Overlay:

View Tables of Assessment

View Overlay Code



Obstacle Limitation Surface (OLS)

#### Land Subject to Flood Hazard Overlay:

View Tables of Assessment

#### View Overlay Code

**Note**: The Flood Hazard Overlay should not be used for any purpose other than triggering an interest in flooding for development assessment. This map is not readily updated. For more recent and detailed flooding information, refer to the Flood Hazard Area/Defined Flood Extent map at the end of this report.



Flooding and Inundation Area

## Height of Buildings and Structures Overlay:

View Tables of Assessment View Overlay Code



8.5 metres

10 metres

- 12 metres
- 15 metres

18 metres

21 metres

25 metres

30 metres

37.5 metres

40 metres

45 metres

Unspecified maximum height

Land Subject to Regional Infrastructure Overlay:

View Tables of Assessment

View Overlay Code



Major Road Corridor and Buffer

Priority Infrastructure Plan: View Priority Infrastructure Plan View Priority Infrastructure Plan Maps



Priority Infrastructure Area

#### Additional Site Information

 Flood Hazard Area/Defined
 This map contains the most recent flooding information mapped by Sunshine Coast Council and differs from the Sunshine Coast Planning Scheme 2014, Flood Hazard Overlay. The information presented on this map is relevant to most general flood mapping enquiries, including those relating to flood insurance. Click here for more information. If you are undertaking conveyancing, development or building certification, it is recommended that you make application to Council for a flood information search. A Council flood information search provides detailed flood information that considers different mechanisms of flooding and specifies the freeboard required for determining a finished floor level. Flood mapping alone cannot provide all the information that is given on a flood information search.

Electoral Division 3 Peter Cox

## Flood Hazard Area/Defined Flood Extent



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Appendix 8 Lighting Impact Assessment has been prepared by Webb Consulting Engineers





# SUNSHINE COAST COUNCIL

# SUNSHINE COAST STADIUM EXPANSION

# LIGHTING IMPACT ASSESSMENT REPORT

**CONSULTING ENGINEERS** ELECTRICAL LIGHTING MECHANICAL SECURITY COMMUNICATIONS AUDIO VISUAL PV SOLAR BRISBANE CANBERRA DOHA GOLD COAST MELBOURNE NEWCASTLE SUNSHINE COAST SYDNEY

CONSULTING ENGINEERS ELECTRICAL LIGHTING MECHANICAL SECURITY COMMUNICATIONS



## **DOCUMENT DETAILS**

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Document Title	LIGHTING IMPACT ASSESSMENT REPORT
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Prepared By	C. LITTLETON / B. DAUTH

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#### 1.0 INTRODUCTION

#### 1.1 **Report Context**

This report summarises the anticipated environmental impacts associated with proposed changes to the existing external lighting installation at the Sunshine Coast Stadium. The existing external lighting installation is expected to be marginally impacted by the proposed grandstand works including expansion of the western grandstand and introduction of a new eastern grandstand.

There are two primary components of the lighting installation being considered as part of this assessment:

- Sports field lighting
- General purpose exterior lighting (for wayfinding and security purposes)

This report will provide an overview of the existing lighting installation (for reference purposes), together with the expected modifications proposed as part of the stadium expansion project. The impact assessment will focus on the anticipated changes and their impact on the surrounding nighttime environment.

From a lighting impact perspective, the following considerations are addressed in this report:

- 9.4.3 Nuisance code (PO11 Development ensures that lighting and glare does not have any significant adverse amenity impacts or create nuisance to surrounding premises).
- 9.4.5 Safety and security code (PO7 Development provides for lighting to pathways, building entries, driveways and car parking areas in a manner which:-

(a) provides a sense of safety and security for residents, staff and visitors;

(b) does not cause adverse impact on adjacent land uses; and

(c) minimises the maintenance and operational cost of lighting infrastructure.

- National Light Pollution Guidelines for Wildlife including marine turtles, seabirds and migratory shorebirds.
- AS/NZS 4282 – Control of the obtrusive effects of outdoor lighting.

**Note:** This impact assessment provides an overview of the existing sports lighting installation for reference purposes only. This existing installation has been assessed and is approved under previous approval processes and is not intended to be significantly modified as part of the new works. The primary purpose of this Lighting Impact Assessment is to evaluate the impact of any proposed modifications to the existing lighting installation.

#### 1.2 Site Location Considerations

The site is located at 31 Sportsmans Parade, Bokarina (Lot 2 SP163937). The stadium is located on a broader sports precinct that consists of other full-sized playing fields (total 5), clubhouses (total 2) and parking facilities.

The surrounding fields within the Kawana Sports Precinct are provided with dedicated sports field lighting to AS 2560.2.3 Semi-Professional Competition level (200 Lux). The lighting installation on Fields 1, 2, 5, and 6 were upgraded in 2016; Fields 3 and 7 are currently legacy installations.



The following charaterises the adjacent surrounding land uses:

- North: Kawana industrial estate
- South: Kawana Aquatic Centre; Kawana State High School; Kawana Police Station
- East: Kawana sports precinct; Nicklin Way; Bokarina residential estate.
- West: Lake Kawana; multi-tenant residential (western shore of lake)
- Bokarina beach is located approximately 850m to the east of the site.

This site locality is shown diagrammatically in Figure 1. Based on the surrounding land use the site would be classified in the following Environmental Zones in accordance with AS/NZS 4282:

- During TV broadcast events: Zone "TV" High District Brightness
- Outside of TV broadcast events: Zone "A3" Medium District Brightness

Based on information provided by Council (ref. Sea Turtle Monitoring Sunshine Coast Season 2019/20), there are known turtle nesting sites located within 1.5km of the stadium site. As such, as part of the recent stadium sports lighting upgrade operational procedures were established to mitigate the impact of the artificial lighting on nesting turtles. This is further overviewed in Section 1.3 below.

#### 1.3 **Site Operational Considerations**

The stadium site is used for a variety of sporting and non-sporting events, each with varying lighting requirements. The existing sports lighting installation is setup to cater for different lighting levels associated with these events, with the "full output" scenario only being utilized for broadcast level sporting events.

Event lighting is controlled via set curfew periods associated with each event. Event Management Plans govern the operation of the lighting to ensure that event lighting does not operate beyond approved curfew/operating hours.

Beyond this, Council have incorporated additional management procedures to mitigate the impact of lighting on surrounding wildlife - most predominately the known turtle nesting areas to the east of the site. The key points of this management strategy can be broadly described as follows:

- It is acknowledged that there may be some events that occur during turtle nesting season (typically October – May), however the primary "major event" usage will be for televised NRL games. These will generally occur throughout winter which is outside of peak turtle nesting season.
- Broadcast lighting control is located in the level 2 control room and is password protected for the exclusive control by Council site management staff (ie. The broadcast lighting is not able to be operated by third party users outside the direct control of site management).
- As part of event planning process, Event Management are required to check with wildlife@sunshinecoast.gld.gov.au to ensure use of lighting will not impact any current registered nests on the adjacent dune area during the turtle nesting period.
- Should nesting be present in the adjacent dune area a wildlife officer may be required to manage the nest during the event, this may include the installation of barriers/guards at the back of the known nests.



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Figure 1: Site Locality



## 2.0 EXISTING INSTALLATION

## 2.1 Sports Lighting

NOTE: The following information is provided for reference purposes only. The existing sports lighting installation is not considered part of stadium expansion approval process.

The sports field lighting for the stadium site was upgrade in 2019-2020. The installation was designed/installed for compliance with the following:

- Free TV Australia Operation Practice OP-31 Lighting Requirements for Television
- AS 2560.1 Sports Lighting Part 1: General Principles.
- AS 2560.1 Sports Lighting Part 2.3: Lighting for Football (all Codes)
- AS/NZS 4282 Control of the Obtrusive Effects of Outdoor Lighting.

A summary of key broadcast lighting performance characteristics is provided in the table below.

Performance Requirement	OP-31 Requirement	
Ec min toward main cameras	≥1400 lux	
Uniformities	$Ec_{min}$ : $Ec_{max} \ge 0.7$ ;	
	$Ec_{min}$ : $Ec_{ave} \ge 0.8$ ;	
	$UG \le 20\%$ over $4m$	
Ev min toward other directions	≥1000 lux	
Ec min toward USM cameras	$\geq$ 1800 lux (within defined zones)	
Modelling	$0.5 \leq [Eh_{ave}/Ec_{ave}] \leq 2.0$	
Colour temperature, Tk	$4000K \le Tk \le 6500K;$	
	Preferred: 5600K	
Colour rendering, TLCI	$Qa \ge 85$	
or, CIE colour rendering index (CRI)	Minimum requirement Ra $\geq$ 85, preferred Ra $\geq$ 95	
Glare rating, GR, for main cameras	$GRmax \leq 40$	
50 Hz mains flicker and flicker	Light source control to be HF electronic to suit	
factor (FF)	$FF \le 10\%$ for $\le 400 fps$	
	$FF \leq 3\%$ for $>400 fps$	

In addition to broadcast lighting levels under OP-31, the installation also has the following operational modes in accordance with AS 2560.2.3.

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Level of Play	Maintained Average Horizontal Illuminance	Mini Horiz Unifor	mum ontal mities	Maximum Glare Rating	Maximum Uniformity Gradient
	E <sub>mh</sub>	U1	U2	GR <sub>max</sub>	
Professional Competition Level	500 Lux	0.7	0.5	50	20% per 5m
Semi-Professional Competition Level	200 Lux	0.6	0.4	50	N/A
Match Practice	100 Lux	0.5	0.3	50	N/A
Ball and Physical Training	50 Lux	0.3	N/A	N/A	N/A

The lighting installation consists primarily of 4x45m lighting towers, each with 74 light fixtures; together with an additional 14 fixtures mounted from the roof canopy of the western grandstand. The total quantity of light fixtures is 310.

The lighting fixtures are equal to the Philips OptiVision LED gen3 floodlighting system. A number of external louvers have also been fitted to assist in compliance with AS/NZS 4282 obligations.

A DMX lighting control system has been provided which allows lighting to be switched between preset operational modes, as well as manually dim the entire installation to suit event specific requirements (as applicable).

The lighting was designed, installed, commissioned and certified to comply with relevant sports lighting and obtrusive lighting requirements. The following handover material and certifications are provided for reference at as attachments to this report:

- A. Philips Optivision Luminaire Product Sheet
- B. Lighting Tower / Headframe Shop Drawing
- C. Form 15 Lighting Design Certification
- D. Form 16 Installation Certification
- E. Lighting Commissioning Audit Report

Whilst on-site verification is not required under AS/NZS 4282. Council have advised that a 60-point lighting test for obtrusive lighting was undertaken as part of the commissioning process. This testing confirmed that the lighting complies with the requirements of AS/NZS 4282.

#### 2.2 **General Exterior Lighting**

There is limited general exterior lighting provided across the stadium site. The bulk of the existing wayfinding / security lighting is constrained to the existing grandstand facility. As part of the recent sports field lighting upgrade, 4x battery-backed floodlights were provided to each of the 4 lighting towers. These act as emergency floodlights in the event that mains power was to fail during a night-time event.

The existing general purpose lighting typically only operates while the facility is open, with minimal security lighting operating on a dusk-dawn basis. This existing lighting has a negligible impact on the surrounding night time environment.



## 3.0 PROPOSED MODIFICATIONS

## 3.1 Sports Lighting

The existing sports lighting installation will remain largely unchanged as part of the proposed stadium expansion project as the following key elements are not being altered:

- Existing field position / line marking
- Existing lighting tower locations (these were carefully coordinated during the recent lighting upgrade project so as to minimise the impact on the lighting resulting from the expansion of the grandstands).
- Existing main camera and ultra-slow motion (USM) camera locations (refer Figure 2).



**Figure 2: Nominal Camera Locations** 

As the basis of design is not changing, the primary modifications to the existing sports lighting will be to compensate for any shadowing effects imposed by the grandstand structures. As shown in Figure 3, based on the proposed nature/extent of the grandstand structures, shadowing of the existing sports lighting is only anticipated to be a concern for the expanded western grandstand.

# SUNSHINE COAST STADIUM EXPANSION LIGHTING IMPACT ASSESSMENT REPORT

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INDICATIVE ROOF STRUCTURE EXTENTS





Figure 4: Nominal Impacts of Stadium Structures on Existing Lighting - Western Stand Elevation

As shown in Figures 3 and 4, the extension of the western stand will provide some shadowing effect to lighting aimed towards the western side of the field.

This was already evident during the recent sports lighting upgrade whereby additional lighting fixtures were provided to the underside of the roof structure to supplement lighting in the western extremities of the playing field.

This supplementation of lighting off the roof structure will be continued as part of the stadium expansion project, with additional fittings required to be mounted to the full extent of the expanded western roof structure. These fittings will be mounted at the height of the roof structure and are therefore anticipated to have very minimal adverse impact on the surrounding night time environment. These fittings will be aimed directly at the field, and the eastern stand will provide a physical barrier to reduce the direct visibility of these fittings from the eastern side of the site.

# SUNSHINE COAST STADIUM EXPANSION LIGHTING IMPACT ASSESSMENT REPORT

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Figure 5: Nominal Impacts of Stadium Structures on Existing Lighting - Eastern Stand Elevation

Figures 3 and 5 highlight that there is anticipated to be nil impact to the existing lighting installation associated with the new eastern grand stand. As the position of the existing towers in relation to the proposed grandstand roof canopy is not expected to create a shadowing effect, there are no proposed adjustments to the existing sports lighting installation on that side of the field.

## 3.2 General Exterior Lighting

The following general exterior lighting elements are intended to be included as part of the stadium expansion project:

- Pathway lighting (designed to AS/NZS 1158.3 and AS/NZS 4282)
- Plaza/forecourt lighting (designed to AS/NZS 1158.3 and AS/NZS 4282)
- Architectural feature lighting consisting of RGBW colour changing lights to provide illumination of key architectural elements (eg. Façade structures etc).

These elements will be refined through the detailed design process, but will not adversely impact the night time environment when considered against the existing sports lighting installation. New exterior lighting will be controllable in a similar manner to the sports field lights, with access restricted to site management staff only. The bulk of the exterior lighting will be used during curfewed events, with a minimal level of security lighting anticipated to operate beyond curfewed hours.



## 4.0 IMPACT ASSESSMENT SUMMARY

The above report sections have provided an overview of the existing and proposed external lighting arrangements associated with the stadium site. The following table summarises this lighting in accordance with the impact assessment criteria.

As a broad summary, there is expected to be no net worsening impacts to the night time environment associated with the proposed grandstand expansion works.

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Requirement	Performance Outcome	Acceptable Outcomes	Summary Comment
Nuisance Code P011	Development ensures that lighting and glare does not have any significant adverse amenity impacts or create nuisance to surrounding premises.	<ul> <li>AO11.1</li> <li>Lighting devices are located, designed and installed to:-</li> <li>a. minimise light spillage on surrounding premises;</li> <li>b. preserve an acceptable degree of lighting amenity at surrounding premises;</li> <li>c. provide covers or shading around lights;</li> <li>d. direct lights downwards;</li> <li>e. position lights away from possible affected areas; and</li> <li>f. enable the brightness of lights to be adjusted to low levels.</li> </ul>	Proposed exterior lighting will have a nil net worsening impact on the surrounding premises. Existing sports field lighting will not be significantly altered by the proposed works. Where additional/supplementary sports lighting is required, this will be mounted to the canopy of the western grandstand and directed onto the field of play. The development of the eastern grandstand will provide a physical barrier to these canopy lights when viewed from the east. New general purpose exterior lighting (including decorative lighting elements) will be designed in accordance with industry best practice and the requirements of AS/NZS 4282. Use of all lighting will be controlled through operational management procedures to ensure lighting usage and levels are appropriate for the time and nature of the event (within any stipulated curfew hours of operation).
		A011.2 Streets, driveways, servicing and car parking areas are located and designed to minimise vehicle headlight impacts on any surrounding residential premises.	Adjoining, impacted streets / vehicle access routes are not located directly adjacent to residential premises in the area. There is not anticipated to be any detrimental impacts to surrounding residential areas associated with vehicle headlights. There are no significant proposed changes to the nature / orientation of existing streets / access ways that would create an increase in vehicle headlight impacts beyond those impacts currently relevant to the existing site.

CONSULTING ENGINEERS ELECTRICAL LIGHTING



Requirement	Performance Outcome	Acceptable Outcomes	Summary Comment
		<ul> <li>A011.3</li> <li>Reflective glare that would cause nuisance to residents or the general public at surrounding premises and public spaces is avoided or minimised through the use of:-</li> <li>a. external building materials and finishes with low-reflectivity; or</li> <li>b. building design/architectural elements or landscape treatments to block or reduce excessive reflected glare.</li> </ul>	Based on the current architectural design intent and proposed building fabrics, there is not anticipated to be anything that would cause excessive reflective glare from these surfaces. As part of the feature lighting intent for the new structures, some exterior surfaces are proposed to be illuminated via RGBW coloured lighting effects. The lighting design intent will be to create subtle "glowing" coloured surfaces using indirect lighting which will ensure feature lighting elements are 1) not directly visible to neighbouring properties; and 2) surfaces are not illuminated with intense point sources of light that could create negative impacts through reflective glare.
Safety and C Security li Code e PO7 v a b b n a li i	<ul> <li>Development provides for lighting to pathways, building entries, driveways and car parking areas in a manner which:-</li> <li>a. provides a sense of safety and security for residents, staff and visitors;</li> <li>b. does not cause adverse impact on adjacent land uses; and</li> <li>minimises the maintenance and operational cost of lighting infrastructure.</li> </ul>	A07.1 Lighting of appropriate intensities is provided which satisfies the requirements of AS1158 – Lighting for Roads and Public Spaces and the Sunshine Coast Public Lighting Plan.	Applicable only to general purpose public area lighting elements. These are anticipated to be limited to access pathways / plaza areas etc. All general purpose exterior lighting in nominated areas will be designed (and certified) to AS/NZS 1158 and take guidance from the Sunshine Coast Urban Public Lighting Masterplan. Appropriate lighting categories will be agreed with Council as part of the detailed design process, and consideration will be given to adjustment of lighting levels to suit varying event types and occupancy.
		A07.2 Lighting is focussed to illuminate concealment areas and entrances (e.g. entrances to loading docks).	Lighting to entrances, loading docks and other such areas will be provided in accordance with the NCC, AS/NZS 1158, AS/NZS 1680, AS/NZS 2293 and other CPTED considerations as applicable. Lighting will also work in tandem with other broader CPTED objectives to ensure safe access/egress of the site.



Requirement	Performance Outcome	Acceptable Outcomes	Summary Comment
		A07.3 Lighting is directed onto the site or building and away from neighbouring sites.	All on-site lighting will be designed in accordance with relevant codes/standards (including AS/NZS 1158 and AS/NZS 4282). No lighting is anticipated to be directed into neighbouring sites.
A07.4 All on-site light Lighting is consistent to reduce the contrast between shadows and well lit areas. All on-site light		All on-site lighting will be designed in accordance with relevant codes/standards (including AS/NZS 1158 and AS/NZS 4282), including broader CPTED recommendations.	
National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds.		<ul> <li>Always using Best Practice Lighting Design to reduce light pollution and minimise the effect on wildlife. Best practice lighting design incorporates the following design principles.</li> <li>Start with natural darkness and only add light for specific purposes.</li> <li>Use adaptive light controls to manage light timing, intensity and colour.</li> <li>Light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill.</li> <li>Use the lowest intensity lighting appropriate for the task.</li> <li>Use non-reflective, dark-coloured surfaces.</li> <li>Use lights with reduced or filtered blue, violet and ultra-violet wavelengths.</li> </ul>	<ul> <li>Existing sports lighting has been provided to achieve overarching operational requirements for the site. The installation was designed in accordance with best practice to ensure obtrusive lighting impacts were minimised as far as practicable within the bounds of the overarching performance requirements and standards obligations. The existing sports lighting installation has been certified to comply with AS/NZS 4282. Minor modifications as part of this project will have a nil net worsening effect on exiting obtrusive light outcomes.</li> <li>All new general purposes and decorative lighting elements will be designed in accordance with accepted best practice, including:</li> <li>Appropriate lighting levels to suit the intended performance requirements and broader safety CPTED obligations.</li> <li>Use of adaptive lighting controls to vary lighting levels to suit the nature of different event types (ensuring small scale events are not unnecessarily "over-lit").</li> <li>Use of full cut-off luminaires with zero tilt wherever possible.</li> <li>Indirect lighting will be utilised for feature lighting elements.</li> </ul>

CONSULTING ENGINEERS ELECTRICAL LIGHTING MECHANICAL SECURITY COMMUNICATIONS



Requirement	Performance Outcome	Acceptable Outcomes	Summary Comment
		Undertaking an Environmental Impact Assessment for effects of artificial light on listed species for which artificial light has been demonstrated to affect behaviour,	Lighting impacts on nearby wildlife are primarily associated with the sports lighting installation. General purpose exterior / feature lighting elements are not expected to impact on wildlife.
		survivorship or reproduction. This report has highlighted that whilst the existing sport installation is not subject to this approval process, the i has been designed to comply with relevant codes/stan- minimise obtrusive lighting impacts.	
			In addition to these design mechanisms, Council has in place operational management strategies related to minimising the effects of this sports lighting on nearby turtle nesting beaches. These management plans have been in place for some time and will continue to be monitored and updated to reflect current best practice in turtle safe management arrangements.
AS/NZS 4282 – Control of the obtrusive effects of outdoor lighting.		Compliance with performance requirements of standard.	Existing sports field lighting (not subject to this assessment process) has been certified to comply with AS/NZS 4282.
			New general purpose exterior lighting will be designed to comply with AS/NZS 4282.

CONSULTING ENGINEERS ELECTRICAL LIGHTING MECHANICAL SECURITY



#### 5.0 **ATTACHMENTS**

The following items have been attached for reference/information only.

- A. Existing Sports Lighting Installation Project Certifications
  - i. Philips Optivision Luminaire Product Sheet
  - ii. Lighting Tower / Headframe Shop Drawing
  - Form 15 Lighting Design Certification iii.
  - Form 16 Installation Certification iv.
  - Lighting Commissioning Audit Report ۷.

#### FINAL : Feb 2019 CR V0

## Philips OptiVision LED gen3 floodlighting system

## OptiVision LED gen3 - data sheet

Optivision LED Scho du			
<b>OptiVision LED gen3</b> LUMINAIRE & DRIVER BOX	BVP527 HGB BV BV BV BV BV BV BV BV BV BV BV BV BV		
Luminaire types	BVP517 (2 LED Engines) / BVP527 (3 LED Engines)		
Luminairo vorsions	BV/ Basic Version (senarate driver hox) / HGP: Housing Gear Box (driver hox pre-fitted on the mounting bracket) in a Box		
	by basic version (separate unver box)/ ride. riosing deal box pre-fried on the mounting bracket) in a box		
Driver box type	EVP500 (DALI Version)		
Source light flux (Ta dependent)	Up to 221,000 lm (BVP527; CCT 5700, CRI 70) Up to 212,000 lm (BVP527; CCT 4000, CRI 70) Up to 147,000 lm (BVP517; CCT 5700, CRI 70) Up to 141,000 lm (BVP517; CCT 4000, CRI 70) (tolerances on light flux: +/- 7%)		
System power	Up to 1578 W (BVP527) / Up to 1052 W (BVP517)		
, , , , , , , , , , , , , , , , , , , ,	(tolerances on system nower: +/- 10%)		
Luminairo officacy	Lin to 125 lm/W (depends on floadlight's Ta dependent viewing CCT and CDI)		
Luminaire efficacy	op to 123 milly wild persons on ploughts sind dependent version, cc1 and cki/		
Correlated Color Temp. (CCT)	Cool White (CW) 5700 K / Natural White (NW) 4000 K (tolerances on CC1: +/-400 K)		
Color Rendering Index (CRI)	min: 70		
TLCI per color code	49 (757) / 48 (740)		
SDCM (MacAdam ellipse)	<5		
Light distributions / ontics	A Rotational Symmetrical hearn ontics from 2 x 11° to 2 x 10° / 14 Asymmetrical ontics Narrow to Extra Wide Ream		
Operating temperature range	-40 C up to +45 C (aepenas or 1 a dependent version)		
Electrical insulation class	Class I		
Degree of Ingress Protection	IP66		
Luminaire dimensions (LxWxH)	737 x 695 x 128 mm (BVP527) / 538 x 695 x 118 mm (BVP517)		
Driver box dimensions (LxWxH)	500 x 145 x 120 mm		
Luminaire weight	$R_{1}$ R/10517 (R/1), 22 kg / R/10517 (HGR), 20 kg / R/10527 (R/1), 25 kg / R/10527 (HGR), 23 kg (tolerances on weight: +/, 10%)		
Driver her weight			
Driver box weight			
Luminaire windage area (SCx)	BVP517 (BV: 0.10 - 0.34) (HGB: 0.18 - 0.33) / BVP527 (BV: 0.12 - 0.48) (HGB: 0.20 - 0.47)		
	Tilt between 0° - 90°		
Material / Finishing	Housing/ Electrical connection box / Mounting bracket: PDC Molded aluminum		
	End caps: PDC Aluminum in GREY color		
	Plastics / Cables: IIV protected		
	Standar Daw aluminium calar. Ontigrad Dark grav BAL 10714 for Hausing Decelect and Front Face		
	Standar Raw aluminium color. Optional Dark grey KAL 10714 for Housing, Bracket and Front Face		
	Driver box is always painted in raw aluminum color (other paint colors are not possible)		
Driver box mains input	230-400V/50-60Hz (tolerances on mains supply voltage fluctuations: -/+ 10%)		
	( some limitation of light flux versions for BVP527 / BVP517 floodlight if used at 220V)		
Inrush current	20 A during 160 us at 230 V mains / 30 A during 160 us at 400 V mains		
Power factor	> 0.95 at full nower		
Surge protection	10 kV standard (driver integral)		
Life-time / Lumen maintenance			
Driver box lifetime / Failure rate	50000 nours at operation temperature range / 0.5% per 5000 nours		
Luminaire installation	Outdoor: on mast-head frame/wall/catwalk or Indoor: on roof or ceiling/wall or catwalk		
	U-shaped mounting bracket with foot-print suitable for 3-point fixation by means of M20 bolts		
	Vertical aiming from the horizontal: -90° / +90° (not suitable for uplighting)		
	Standing-up or hanging-down mounting (not for HGB version, Refer Mounting Instrusction sheet for options)		
Driver box installation	Indoor/outdoor open air without need of cabinet or inside electrical cabinet (IP54) or inside electrical room or inside mast (min. entrance door opening 125 x 600 mm)		
	Fither pre-fitted on the luminaire (HGR version) or remotely at may 200 m distance to luminaire		
	Existing on the surface to wash of the surface are surfaced as a surface by the surface by the surface by the surface are surfaced as a surface by the surface as a surface by the surface as a surface by the surface as a surface by the surface by		
	Frikation on has surface by means 4 standard screws/builts till a tille key slot holes		
	Universal trixation position (cable glands never upward for outdoor)		
Luminaire electrical connection /	Luminaires are always supplied with electrical connection box pre-fixed enabling wiring between floodlight and driver box		
Cabling	Cable entry via 1xM25 cable gland accepting cable diameter between 13 and 18 mm and wiring with screw-less terminals for wires up to 2.5mm <sup>2</sup>		
Driver box electrical connection /	Mains input: Screw-less terminals for wires up to 4mm <sup>2</sup> / Cable entry via 1xM25 cable gland accepting cable diameter between 13 and 18 mm (no thru-wiring in/out)		
Cabling	Output to luminaire: Screw-less terminals for wires up to 2 5mm <sup>2</sup> / Cable entry via 1xM25 cable aland accenting cable diameter between 13 and 18 mm		
	Cable to luminaire (R) version luminaire). One cable of Z-one (8-one for distance 2-50m) at least of sector and sector cable content of sector and se		
to the second affect of the second second second second second second second second second second second second	Cable to turning the version turning to the cable of zone to used interversion performance (by version turning the performance). The cable of zone to used interversion of used interversion performance performance in the performance of the pe		
Integral dimming controls	Uynaainmer in three options UDF1, DDF2, DDF3 (factory preset)		
DALI control interface	Screw-less terminals suitable wires up to 2.5 mm <sup>2</sup> / Cable entry via 1xM20 cable gland accepting cable diameter between 10 and 14 mm (no thru-wiring in/out)		
Luminaire accessories	External spill-light control louvre, Precision Aiming Device (Optional)		
Optional versions	CLO / Integral spill-light control louvre or control plate for asymmetrical beam optics (LO, BL or LT) / Indoor swimming pool protected (SWP) / Marine salt protected (MSP)		
Certification / Listing	CF FNEC VDE-Rall proof		
ser aneution / Listing			
Packaging content	Contains tionalight and driver hay either hre-titted (Higk) or senarate (RV). Driver hay of RV version contains a suspension vit with its twing parts		





## **Department of Housing and Public Works**

# Form 15—Compliance certificate for building design or specification

Version 4 – July 2017

NOTE: This is to be used for the purposes of section 10 of the Building Act 1975 and/or section 46 of the Building Regulation 2006.

RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the Queensland Development Code (QDC). A building certifier (Class B) can not give a certificate regarding QDC boundary clearance and site cover provisions.

1. Property description	Street address (include no., street, suburb/locality and postcode)		
This section need only be completed if details of street address and property description are applicable	31 Sportsmans Pde		
E.g. in the case of (standard/generic) pool design/shell manufacture and/or patio and	Bokarina	Postcode 4575	
carport systems this section may not be applicable.	Lot and plan details (attach list if necessary)		
The description must identify all land the subject of the application.	In which local accomment area is the lond situated	<b>)</b>	
The lot and plan details (e.g. SP/RP) are shown on title documents or a rates notice.	Sunshine Coast Regional Council		
If the plan is not registered by title, provide previous lot and plan details.			
2. Description of component/s certified Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.	Obtrusive lighting for stadium sports lighting		
<b>3. Basis of certification</b> Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.	AS4282:2018 for TV broadcast		
<b>4. Reference documentation</b> Clearly identify any relevant documentation, e.g. numbered structural engineering plans.	Raylinc Lighting Design 10923[C2]		
5. Building certifier reference number	Building certifier reference number		
6. Competent person details A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practice in an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect. If no relevant law requires the individual as having appropriate experience, qualifications or skills to be able to give the help. If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines when assessing the person.	Name (in full)         Lionel John Ferris         Company name (if applicable)       Contact         Building Services Design       Image: Contact         Phone no. (business hours)       Mobile no.         3056 0230       Image: Contact         Email address       Image: Contact         Iionel@bsdpl.com.au       Postal address         PO Box 296       Arana Hills         Licence or registration number (if applicable)       RPEQ 5938	person Fax no. Postcode 4054	
7. Signature of competent person This certificate must be signed by the individual assessed by the building certifier as competent.	Signature Da	<b>te</b> 4/10/19	

The Building Act 1975 is administered by the Department of Housing and Public Works

LOCAL GOVERNMENT USE ONLY			
Date received	Re	eference Number/s	

# Inspection Certificate / Aspect Certificate / QBSA Licensee Aspect Certificate

NOTE	This form is to be used for the purposes of section 10(c) and 239 of the <i>Building Act</i> 1975 and/or sections 32, 35B, 43, 44 and 47 of the <i>Building Regulation</i> 2006.		
1. Indicate the type of certificate	Inspection Certificate for		
The stages of assessable building work are listed in section 24 of the <i>Building</i> <i>Regulation 2006</i> or as conditioned by the building certifier. An aspect of building work is part of a stage (e.g. waterproofing).	<ul> <li>Stage of building work (for single detached class 1a or class (indicate the stage)</li> <li>Aspect of building work (indicate the aspect)</li> <li>Final Inspection</li> </ul>	s 10 building or structure)	
	QBSA Licensee Aspect Certificate Scope of the work Scope of the work covered by the licence class under the <i>Queensland Building Services Authority</i> <i>Regulation 2003</i> for the aspect being certified, e.g. scope of work for a waterproofing licence is "installing waterproofing materials or systems for preventing moisture penetration". An aspect being certified may include "wet area sealing to showers".		
	Installation of electrical equipment, components and wiring for sp	ports lights on 4 New poles to	
	Field 1 including stadium awning lights and alterations.		
	All associated works for the lighting installation to Field 1 includir	ng distribution board works.	
<b>2. Property description</b> The description must identify all land the subject of the application. The lot & plan details (eg. SP / RP) are shown on title documents or a rates notice.	Street address (Include no., street, suburb / locality & postcode) 31 Sportsmans Parade Bokarina Postcode 4575		
previous lot and plan details.	N/A		
	In which local government area is the land situated?		
	Sunshine Coast Regional Council		
3. Building/structure description	Building/structure description	Class of building / structure	
4. Description of component/s certified	d		
Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the	Installation of 310 x Philips LED sports lights to Filed 1		
steel roof beams.	Supply, installation and alteration of cabling from MSB to each new light pole DB.		
	Commissioning of Sports Field lighting and electrical co		
	Supply and installation on new Sports Lighting Distribut	ion Switchboards and control.	
	All electrical equipment was installed and tested by a licensed electrical contractor as     AS 3000, AS3008 wiring rules		

5 Basis of certification			
Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.	<ul> <li>Installation of 310 x Philips LED sports lights to Filed 1</li> </ul>		
	Supply, installation and alteration of cabling from MSB to each new light pole DB.		
	Commissioning of Sports Field lighting and electrical components		
	Supply and installation on new Sports Lighting Distribution Switchboards and control.		
	All electrical equipment was installed and tested by a licensed electrical contractor as per AS 3000, AS3008 wiring rules		
6. Reference documentation Clearly identify any relevant documentation, e.g. numbered structural engineering plans.	Drawings 19391E01, 19391E02, E004		
7. Building certifier reference number and development approval number	Building certifier reference number     Development approval number       Not Applicable		
8. Building Certifier, competent person or QBSA licensee details	Name ( <i>in full</i> )		
A competent person must be assessed as competent before carrying out the inspection.	Company name if applicable Contact person		
The builder for the work cannot give a stage	Australian Sports Lighting Solutions PTY LTD         Nathan Gundry		
A competent person is assessed by the	Phone no. <i>business hours</i> Mobile no. Fax no.		
building certifier for the work as competent to	3846 3666         0448 700 158         3846 1487		
specification design, because of the individual's	Email address		
skill, experience and qualifications. The competent person must be registered or	Nathan.gundry@sports-lighting.com.au		
licensed under a law applying in the State to	Postal address		
If no relevant law requires the individual to be	41 Devlan Street Mansfield QLD		
licensed or registered, the certifier must assess	Postcode 4122		
experience, qualifications or skills to be able to	Licence class Licence number		
give the help.	Electrical Contractor   82313 / QBCC 1088291		
assessing a competent person, the building certifier must use the guidelines when assessing the person.	Date approval to inspect received from building certifier		
9. Signature of building certifier,			
Note: A huilding certifier must sign this form for	Signature Date		
temporary swimming pool fencing under section 4 of Schedule 1 of QDC MP 3.4.	Matthew Biggs 27/03/2020		









## LIGHTING AUDIT REPORT



Issue	Date	Issued to:	Purpose	Author
В	26-03-2020	ASLS	Audit	Troy Henderson

## RAYLINC LIGHTING

BRISBANE ABN: 50 059 479 122 9 Colebard Street West, Acacia Ridge, 4110 Ph: (07) 3216 7969







## Table of Contents

1	AUDIT OVERVIEW	3
2	PROJECT OVERVIEW	3
3	PROJECT SUMMARY	3
4	APPENDIX	3







## 1 Audit overview

Raylinc Lighting conducted a lighting audit this week post the completion of the final aiming on site. The results indicated a slight variation in lux levels and uniformities compared to the original lighting design produced for the project, but the project still achieves all the broadcast lighting and the pre-set lower, dimmed/competition lighting level requirements in the Webb Performance Specification project document.

## 2 Project overview

Further investigations confirmed the current pole positions vary compared to the pole locations nominated and used within the original documentation. A revised desktop lighting design has since been developed based on these new pole locations using the original aiming points surveyed on site.

The revised desktop lighting design reflects these variations and confirms that the actual aiming of the floodlights is correct.

## 3 Project summary

In summary, it is of our opinion that the commissioning and aiming on site for this project is within the nominated tolerances of 10% of aiming / photometry as per the current Australian standard allowances.

## 4 Appendix

- Audit Results Summary. Broadcast Lighting Levels
- Audit Results Summary. Pre-set Dimmed Lighting Levels
- Audit Results Rugby Eh Broadcast Lighting Levels
- Audit Results Rugby Main Camera C1 Ev Broadcast Lighting Levels
- Audit Results Rugby SRZ zones C2+3 Ev Broadcast Lighting Levels
- Audit Results Rugby SRZ zones C4+5 Ev Broadcast Lighting Levels
- Revised Desktop lighting design 10923 Rev C3 survey

### Sunshine Coast Stadium - Design and Construct Broadcast Sports Lighting (ITT195)

### **Commisioning Results Summary - Broadcast Lighting Levels**

#### Full Field Horizontal Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Average (lux)	2517	898-3592 (0.5-2 of Ev ave Cam 1)	Pass
U1 Min/Ave	0.83	0.80	Pass
Fitting colour Rendering	CRI 85-90 (data sheet)	CRI 85	Pass
Fitting colour Temperature	5600K (data sheet)	5700K	Pass

#### Full Field Ev Cam 1 Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Min. (Lux)	1501	1400	Pass
U1 Min/Ave	0.84	0.80	Pass
U2 Min/Max	0.66	0.70	Pass marginally under required level but accepable as Min and Max are not near each other

#### SRZ North Area Ev Cam 2 Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Min. (Lux)	2042	1800	Pass
U1 Min/Ave	0.86	0.70	Pass
U2 Min/Max	0.74	0.60	Pass

#### SRZ South Area Ev Cam 3 Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Min. (Lux)	2239	1800	Pass
U1 Min/Ave	0.89	0.70	Pass
U2 Min/Max	0.79	0.60	Pass

#### SRZ North Area Ev Cam 4 Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Min. (Lux)	2060	1800	Pass
U1 Min/Ave	0.90	0.70	Pass
U2 Min/Max	0.77	0.60	Pass

#### SRZ South Area Ev Cam 5 Light Level Results

	Measured Levels	Broadcast Lighting OP31/32 & Project Required Level	Result
E Min. (Lux)	2128	1800	Pass
U1 Min/Ave	0.90	0.70	Pass
U2 Min/Max	0.77	0.60	Pass

#### AS4282-2019 TV1-4 Obtrusive Light Levels

	Measured Levels (spot check only)	AS4282-2019	Result
TV1	completed	150	as per design
TV2	completed	25	as per design
TV3	completed	10	as per design
TV3	completed	5	as per design

### Sunshine Coast Stadium - Design and Construct Broadcast Sports Lighting (ITT195)

## Commisioning Results Summary - Pre-Set Dimmed Lighting Levels

#### 500 Lux Pre-Set Results

	Measured Levels	AS260.2.3 Required Level	Result
E Average (lux)	725	500	Pass
U1 Min/Ave	0.83	0.70	Pass
U2 Min/Max	0.62	0.50	Pass

#### 200 Lux Pre-Set Results

	Measured Levels	AS260.2.3 Required Level	Result
E Average (lux)	241	200	Pass
U1 Min/Ave	0.83	0.60	Pass
U2 Min/Max	0.62	0.40	Pass

#### 100 Lux Pre-Set Results

	Measured Levels	AS260.2.3 Required Level	Result
E Average (lux)	122	100	Pass
U1 Min/Ave	0.83	0.50	Pass
U2 Min/Max	0.62	0.30	Pass

#### 50 Lux Pre-Set Results

	Measured Levels	AS260.2.3 Required Level	Result
E Average (lux)	66	50	Pass
U1 Min/Ave	0.83	0.30	Pass

#### Note:-

Pre-set light levels are achieved by broadcasting the same dimmed levels to all fittings, so Pre-set light level uniformities will be identical to broadcast lighting level uniformities.
 Pre-set measured level averages and uniformities were calculated from measured values for each Pre-set level in the centre of field.

Broadcast Level Eh (at ground level)

			X(m) -		68	68M		X(m) +		
			-32.5	-22.5	-12.5	-2.5	2.5	12.5	22.5	32.5
	_	57.5	2900	3160	2538	2550	2499	2418	2810	2872
		47.5	2870	3280	2960	2879	2864	2820	3030	2658
		37.5	2686	2738	2640	2650	2560	2405	2636	2420
0		27.5	2530	2570	2369	2320	2269	2191	2392	2399
'ANI	Y(m) +	17.5	2458	2480	2259	2160	2130	2105	2115	2285
DST		7.5	2450	2320	2225	2176	2165	2052	2060	2080
RAN	N	2.5	2350	2374	2220	2197	2180	2070	2069	2049
UZ	÷	-2.5	2380	2310	2222	2210	2202	2086	2118	2069
TER		-7.5	2330	2307	2228	2218	2207	2116	2069	2090
VES.	Y(m) -	-17.5	2470	2392	2295	2209	2217	2190	2130	2265
>		-27.5	2520	2627	2449	2356	2370	2279	2350	2381
		-37.5	2648	2840	2635	2691	2704	2401	2610	2403
		-47.5	2829	3150	3120	2970	2950	2800	2930	2439
	-	-57.5	2850	3110	2652	2610	2598	2430	2775	2649

X0 / Y0 is located within the centre of the field

EASTERN GRANDSTAND

E Average (lux)
E Min. (Lux)
E Max. (Lux)
U1 Min/Ave
U2 Min/Max

Calc.	Corr	Corr/Maint
Result	Result	Result
2468	2517	2190
2049	2090	1818
3280	3346	2911
0.83	0.83	0.83
0.62	0.62	0.62

Light Lab Meter Correction Factor (CF) = 1.02 Measured by :- Troy Henderson of Raylinc Lighting

MF= 0.87

Meter Type:- Konica Minolta T-10a - Sensor - Serial No. 20015855 - Meter Serial No. 30017883

Meter Calibration Certificate:- Light Lab Report LL22158 (2-10-2019)

#### Broadcast Level Ev Main Cam (at 1500mm above ground level)

CAM C1 (X=0,Y=-65,Z=12)

WESTERN GRANDSTAND

Y(m) +

116M

Y(m) -

		X(m) -			68M			X(m) +		
	-32.5	-22.5	-12.5	-2.5	2.5	12.5	22.5	32.5		
57.5	1754	1906	1682	1753	1762	1797	2108	1856		
47.5	2045	2209	1932	1859	1768	1851	2100	2018		
37.5	1873	1900	1701	1620	1646	1741	2135	2162		
27.5	1856	1922	1559	1563	1614	1656	2005	2184		
17.5	1749	1798	1475	1487	1560	1689	1706	1920		
7.5	1613	1541	1535	1541	1615	1703	1747	1725		
2.5	1676	1554	1555	1604	1682	1678	1745	1692		
-2.5	1607	1565	1503	1585	1696	1689	1760	1711		
-7.5	1617	1532	1489	1560	1620	1736	1726	1698		
-17.5	1819	1686	1472	1506	1619	1720	1721	1882		
-27.5	1802	1887	1610	1601	1628	1717	1869	2065		
-37.5	1930	1893	1621	1669	1682	1734	2102	2111		
-47.5	2064	2228	1772	1723	1702	1684	2037	2046		
-57.5	1926	1937	1718	1718	1670	1639	1949	1841		

EASTERN GRANDSTAND

X0 / Y0 is located within the centre of the field

	Oalo.	0011
	Result	Result
E Average (lux)	1761	1796
E Min. (Lux)	1472	1501
E Max. (Lux)	2228	2273
U1 Min/Ave	0.84	0.84
U2 Min/Max	0.66	0.66

Calc.	Corr	Corr/Maint
Result	Result	Result
1761	1796	1563
1472	1501	1306
2228	2273	1977
0.84	0.84	0.84
0.66	0.66	0.66

Light Lab Meter Correction Factor (CF) = 1.02 MF= Measured by :- Troy Henderson of Raylinc Lighting

1F= 0.87

Meter Type:- Konica Minolta T-10a - Sensor - Serial No. 20015855 - Meter Serial No. 30017883

Meter Calibration Certificate:- Light Lab Report LL22158 (2-10-2019)

Broadcast Level Ev SRZ USM Cams 2+3 (at 1500mm above ground level)

	(/==00,1=	-33,Z=1.5)									
			CAM 2	X(m) -		68	BM		X(m) +		
			-32.5	-22.5	-12.5	-2.5	2.5	12.5	22.5	32.5	
	_	57.5	2270	2239	2192	2450	2272	2215	2570	2268	
		47.5	2340	2255	2264	2483	2375	2125	2632	2289	[
		37.5	2551	2432	2255	2090	2086	2002	2720	2620	
0		27.5									
TAN	Y(m) +	17.5									
'DS		7.5									
RAN	6M	2.5									
N N N	÷	-2.5									
1EF		-7.5									
WES	Y(m) -	-17.5									
		-27.5									
		-37.5	2778	2707	2551	2375	2393	2289	2767	2723	
		-47.5	2580	2442	2518	2594	2387	2233	2628	2524	L
		-57.5	2252	2195	2383	2490	2292	2257	2593	2306	

(X=66,Y=-33,Z=1.5)

X0 / Y0 is located within the centre of the field

0.87

E Average (lux) E Min. (Lux) E Max. (Lux) U1 Min/Ave U2 Min/Max

Calc.	Corr	Corr/Maint
Result	Result	Result
2333	2380	2070
2002	2042	1777
2720	2774	2414
0.86	0.86	0.86
0.74	0.74	0.74

CAM 2 USM

Calc.	Corr	Corr/Maint
Result	Result	Result
2469	2518	2191
2195	2239	1948
2778	2834	2465
0.89	0.89	0.89
0.79	0.79	0.79

CAM 3 USM

Light Lab Meter Correction Factor (CF) = 1.02 MF=

Measured by :- Troy Henderson of Raylinc Lighting

Meter Type:- Konica Minolta T-10a - Sensor - Serial No. 20015855 - Meter Serial No. 30017883

Meter Calibration Certificate:- Light Lab Report LL22158 (2-10-2019)

#### Broadcast Level Ev SRZ USM Cams 4+5 (at 1500mm above ground level)

											(X=-66,Y=	=33,Z=1.5)
				X(m) -		68	BM		X(m) +	CAM 4		
			-32.5	-22.5	-12.5	-2.5	2.5	12.5	22.5	32.5		
	_	57.5	2064	2419	2168	2020	2094	2168	2236	2239		
		47.5	2271	2560	2161	2155	2329	2333	2371	2206		
		37.5	2510	2610	2054	2100	2155	2198	2179	2436		
~		27.5									-	
AND	Y(m) +	17.5										AND
DST		7.5										DST
RAN	W9	2.5										AN
NG	÷	-2.5										N GF
TER		-7.5										TER
VES	Y(m) -	-17.5										.SA5
>		-27.5										
		-37.5	2610	2664	2121	2152	2163	2244	2707	2678		
		-47.5	2106	2494	2086	2213	2311	2302	2315	2511		
	-	-57.5	2092	2410	2109	2172	2275	2130	2190	2428		-
										CAM 5		
				>	(0 / Y0 is lo	cated withi	n the centr	e of the fiel	d		(X=66,Y=	-33,Z=1.5)

NO / NO :-		and the first	Al		- 6 41	6 - 1 -1
XU / YU IS	located	within	tne	centre	or the	tiela

E Average (lux)
E Min. (Lux)
E Max. (Lux)
U1 Min/Ave

U2 Min/Max

CAM 4 USM					
Calc.	Corr	Corr/Maint			
Result	Result	Result			
2252	2297	1998			
2020	2060	1793			
2610	2662	2316			
0.90	0.90	0.90			
0.77	0.77	0.77			

CAM J USW				
Calc.	Corr	Corr/Maint		
Result	Result	Result		
2312	2358	2051		
2086	2128	1851		
2707	2761	2402		
0.90	0.90	0.90		
0.77	0.77	0.77		

Light Lab Meter Correction Factor (CF) = 1.02 Measured by :- Troy Henderson of Raylinc Lighting

MF= 0.87

Meter Type:- Konica Minolta T-10a - Sensor - Serial No. 20015855 - Meter Serial No. 30017883

Meter Calibration Certificate:- Light Lab Report LL22158 (2-10-2019)

Appendix 9 Pre-lodgement Written Advice prepared by DSDMIP





Department of State Development, Manufacturing, Infrastructure and Planning

Our reference: MPL-0320-0128

18 March 2020

Pete Sparks Director / Town Planner Adams + Sparkes Town Planning and Development Sent by email: pete@astpd.com.au

Dear Mr Sparkes

# Pre-lodgement written advice – proposed designation – Sunshine Coast Stadium expansion

This pre-lodgement record provides a summary of relevant matters based on the supporting information provided in the pre-lodgment request. This record is provided in good faith and provides initial advice regarding likely issues relevant to the proposed request to designate premises for the development of infrastructure (designation).

If the proposal is changed from that which was provided in the pre-lodgement request, you may wish to seek further or amended pre-lodgment advice from the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP).

Meeting details	
Information provided:	11 March 2020
Site details	
Street address:	320 Nicklin Way, Bokarina, QLD, 4575
Real property description:	Lot 2 on SP163937
Local government area:	Sunshine Coast Regional Council (the council)
Existing use:	The site contains the existing Sunshine Coast Stadium
Relevant site history:	A number of previous approvals exist on the site for temporary home show structures and more recently for the construction of the Sunshine Coast Stadium and associated facilities

## Proposed infrastructure details

Type of infrastructure:	Item 15: sporting facilities.
Infrastructure description:	Sunshine Coast Stadium expansion
State interests relevant to the assessment:	<ul> <li>Natural hazards, risk and resilience – flood hazard area, erosion prone area and medium storm tide inundation area</li> </ul>

• Transport infrastructure – State controlled road and future busway corridor.

## Supporting information

Plan / Report title	Author	Ref no.	Version / date
Sunshine Coast Stadium	Sunshine	180084_A_S-	-
plans	Coast Council	BinderSet_reduced.pdf	

## Written advice

ltem	Advice						
Infrast	ructure entity overview of designation proposal						
1.	Proposed stadium expansion involving an extension to the stadium's existing western grandstand, plus the addition of a new eastern stand. The proposal may also include northern and southern stands.						
Stadiu	m capacity						
2.	It is assumed that the expansion will result in an increase to the stadium capacity. A Traffic Impact Assessment will be required to address any additional capacity.						
State-o	controlled road						
3.	The site adjoins the State-controlled Nicklin Way which is also identified as a Future Busway Corridor. The TIA should address and impacts on the state-controlled road and future busway corridor.						
Erosio	n prone area						
4.	Most of the site is in the medium storm tide inundation area and the southern edge is in the erosion prone area. The EAR should be supported by a coastal hazard assessment.						
Flood	hazard						
5.	The site is mapped within the Flooding and Inundation Area and the Future Climate Riverine Flood (Flood Modelling) in the Flood Hazard Overlay. The EAR should be supported by a flood risk assessment.						
Water	quality						
6.	The proposal results in an increase to impervious area. The EAR should be supported by a Stormwater Management Plan that demonstrates a lawful point of discharge, no net worsening to adjoining and downstream properties and						
	compliance with the SPP water quality benchmarks.						
-------	-------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--
Recom	Recommended technical reporting						
7.	It is recommended that the entity consider the following matters when preparing the infrastructure designation request:						
	Coastal processes assessment/statement						
	Flood risk assessment/statement						
	Stormwater management plan						
	Traffic impact assessment.						

#### General information

#### Pre-engagement requirements

Pre-engagement should include, but not be limited to, consultation with the council, native title parties, letters to local and state members and a letter box drop to the surrounding properties identified in **Attachment 1**. The brochure should describe and illustrate the proposal and provide 10 business days for comment. Please provide draft material to DSDMIP for review prior to commencing pre-engagement activities.

#### Endorsement to proceed

DSDMIP will seek endorsement for the streamlined designation process following completion of pre-engagement activities and the provision of the following information:

- indicative proposal plans indicating built form (including existing and proposed heights) and any proposed demolition
- project value and funding source
- list of any preliminary/technical assessments that have been undertaken
- a list of the technical reports to be provided in support of the request
- approximate number of site users
- outcomes of preliminary consultation
- the approval/s history for the site, to ensure that the designation does not conflict with any ongoing obligations from previous development approvals
- 'desired' designation date and relationship to the delivery programs etc
- any further additional information, preliminary plans or details that may assist.

#### Environmental Assessment Report

Should the proposal be endorsed, to apply for a designation, submit an Environmental Assessment Report (EAR) via the online portal that includes/addresses:

- the matters identified chapter 7, part 3, section 4 of the Minister's Guidelines and Rules (in relation to content of the EAR)
- the matters raised in this pre-lodgement advice
- the proposed consultation strategy.

#### Formal consultation stage

Formal consultation will include a 20 business day public consultation period which is to include as a minimum: sign/s on the land, a notice in the paper and letters to surrounding landowners, elected representatives and native title parties. Requirements for the formal consultation stage will be determined following the outcomes of pre-engagement.

#### Timing

The streamlined designation process takes approximately 4-5 months from lodgement of the Environmental Assessment Report (EAR). Decisions are unlikely to be made during the caretaker period prior to the Queensland State Election which begins on 19 September 2020.

If you require any further information, please contact Chris Lee, Principal Planner on 3452 7694 or chris.lee@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely

Paul Beutel MANAGER

### Attachment 1 - Pre-engagement plan



Appendix 10 Pre-lodgement advice prepared by TMR



ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)							
Netwo	ork impact (North Coast District input)							
1.	Traffic Impact Assessment							
	The Applicant is to prepare a detailed traffic impact assessment (in accordance with GTIA) identifying any proposed additional impacts on the surrounding transport network, beyond the existing land use approval for the site. The assessment should generally demonstrate compliance with relevant state codes under SDAP.							
	Day to Day operations It is not anticipated wider network modelling will be required to assess the performance of the network during current operations and future day to day operation of the site. It is anticipated that the detailed description of all activity will be supported with transport surveys to inform the existing operations assessment. As the development is already operating the assessment criteria will have to be based on an acceptable DOS or LOS rather than a non- worsening criteria. These items may be addressed through SIDRA analysis as part of Traffic Impact Assessment submitted in support of the application.							
	<b>Event management</b> It is recommended the proponent utilise event management plans to mitigate safety and efficiency impacts during events. TMR North Coast Region recommend the proponent consider the recommendation detailed in the MBRC Planning Scheme policy – Woodfordia Transport and Access Management especially the aspects that address preparation and implementation of the management strategies. The policy was developed in close consultation with TMR North Coast Region.							
Public	Passenger Transport							
2.	Public Transport Impact Assessment							
	A public transport impact assessment should be prepared in accordance with Austroads <i>Guide to Traffic Management</i> , Parts 1-13, to provide an assessment of the overall impact of the proposed development on all forms of public passenger transport such as urban bus services, private/chartered buses, taxis and rideshare This assessment should address the following, amongst other relevant considerations:							
	<ul> <li>(i) <u>Establish the existing context</u> Identify the location (within or beyond a walkable catchment) and capacity (i.e. number of parking bays) of all existing public passenger transport infrastructure and all existing public passenger transport services (bus stops, bus routes, car parking and taxi facilities etc) in relation to the site.</li> </ul>							
	<ul> <li>(ii) <u>Describe operational and event mode</u> The report should provide an adequate description of: <ul> <li>anticipated day to day operational mode;</li> <li>all anticipated event types (sporting and non-sporting events, and size/scale – small, medium and large);</li> <li>their frequency (number of events per month, year etc);</li> <li>likely maximum attendance with attendance threshold.</li> </ul></li></ul>							
	(iii) <u>Modal split</u> Provide the likely modal split of travel to and from the site so that it is supported by appropriate justifications for each event type. The modal split should differentiate between the different public transport modes (urban bus, private/chartered bus, taxi, rideshare), active transport modes (walking and cycling) and private vehicle travel.							

Item	n Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)						
	(IV) <u>Demand analysis</u> Assess the impact (including demand) of the proposed development on all forms of existing and planned public passenger transport.						
	<ul> <li>(v) <u>Capacity assessment</u></li> <li>Assess the capacity of the existing public transport network to support the anticipated development impacts. This should give consideration to, for example, consultation with relevant operators and the Department of Transport and Main Roads and factors such as bus size, public passenger transport timetables, demographics, existing available service capacity and impact of the development demand.</li> </ul>						
	<ul> <li>(vi) <u>Recommendations</u>         Identify the necessary public passenger transport infrastructure (temporary and permanent) required to support the development including the upgrade of existing facilities and/or provision of new facilities, including compliance with relevant design requirements, such as the Department of Transport and Main Roads <i>Public Transport Infrastructure Manual (2015)</i>, relevant Australian Standards, Disability Standards for Accessible Public Transport 2002 made under section 31(1) of the Disability Discrimination Act 1992, the Department of Transport and Main Roads <i>Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design</i> (March 2016) and other applicable requirements.     </li> </ul>						
	The following specific comments are provided:						
	<i>Events:</i> Identify the events for which a Transport Management Plan is required and events where a Transport Management Plan is not required. A Transport Management Plan should address all transport modes and take into account the following, amongst other relevant considerations:						
	<ul> <li>expected numbers of events per year and attendees;</li> <li>transport and traffic management before, during and after events;</li> <li>modelling of event traffic volumes (all modes) around the proposed site and along major nearby arterials/ public transport routes;</li> </ul>						
	<ul> <li>based on modelling, expected bus servicing requirements and proposed means of delivering additional services where identified;</li> </ul>						
	<ul> <li>clarification of interaction with and potential delays/conflicts with scheduled urban buses in proximity to the site during events;</li> <li>extent of any regular road closures and traffic delays.</li> </ul>						
	<ul> <li>Taxis:</li> <li>a. Demonstrate how the development will provide taxi facilities with sufficient capacity (number of parking bays) to cater for maximum demand. This should consider likely passenger volumes and the demand for taxi services given factors such as the anticipated spectator capacity and demand, demographic considerations, and type of events</li> </ul>						
	<ul> <li>b. Demonstrate how taxi facilities will be appropriately positioned to maximise coverage and decrease the distance that potential passengers have to walk. Importantly, taxi services provide an essential form of transport for those who cannot access other forms of transport or drive independently and are completely reliant on taxi services. Taxi ranks should be sited parallel to the kerb at the main entry to the development and at major pedectrian facilities.</li> </ul>						
	<ul> <li>c. Provide dedicated taxi parking bays which are not to be used for other pick-up and drop- off purposes (rideshare)</li> </ul>						
	<ul> <li>d. Minimize conflict with other vehicle types and pedestrians and avoid crossing driveways and pathways.</li> </ul>						

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)							
	e. Demonstrate that taxi facilities will be in accordance with relevant Australian Standards and Chapter 7 – Taxi Facilities of the <i>Public Transport Infrastructure Manual 2015</i> to ensure their safety and operational integrity as well as accessibility to people with a disability.							
	Rideshare:							
	<ul> <li>Demonstrate how the development will provide passenger loading zones for drop-off/ pick-up by rideshare with sufficient capacity to cater for the maximum demand. A demand analysis should be provided.</li> </ul>							
	<ul> <li>Demonstrate how passenger loading zones will be suitably positioned, in convenient location(s) to cater for this demand.</li> </ul>							
	<ul> <li>Minimize conflict with other vehicle types and pedestrians and avoid crossing driveways and pathways.</li> </ul>							
	Private/ chartered coaches/ buses:							
	a. Demonstrate adequate how bus parking provision will be provided to cater for the maximum demand generated by the development with consideration given to both passenger setdown and bus lay-by requirements, bus dwell time, and bus capacity amongst other factors.							
	<ul> <li>b. Provide a layout design for the proposed bus facility with consideration given to Chapter</li> <li>5 – Bus Stop Infrastructure of the <i>Public Transport Infrastructure Manual 2015</i>. Bus setdown for events should be allocated specific stops and not be in a continuous zone.</li> </ul>							
	c. Demonstrate that setdown areas have shelter, seating and hardstand waiting areas sufficient to accommodate the maximum numbers of anticipated passengers and their associated dwell times and provide disability access.							
	<ul> <li>d. Provide swept paths for the largest design vehicle (single unit rigid bus of 14.5m in length) to demonstrate how buses will be able to safely and efficiently manoeuvre into and out of the bus setdown areas, with priority over private vehicles and minimising conflict with other vehicles and pedestrians. This should also investigate the need for bus priority treatments during events such as bus lanes, queue jumps, etc. to prevent delays to bus services and encourage higher mode share to public transport.</li> </ul>							
	<ul> <li>e. Demonstrate that roads intended to run buses will allow the safe, efficient passage of a 14.5m length single unit rigid bus, considering on-street parking on both sides of roads during events, roundabouts, and the need to avoid congested or circuitous routes and conflict between different vehicle types. The applicant should ensure that proposed bus routes meet the following requirements and demonstrate this through a RPEQ certified swept path analysis:</li> <li>Department of Transport and Main Roads <i>Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design</i> (March 2016);</li> <li>Department of Transport and Main Roads <i>Supplement to Austroads Guide to Road Design</i> (Parts 3, 4-4C and 6);</li> <li><i>Austroads Guide to Road Design</i> (Parts 3, 4-4C and 6);</li> <li><i>Austroads Design Vehicles and Turning Path Templates;</i> and</li> <li>Department of Transport and Main Roads <i>Queensland Manual of Uniform Traffic Control Devices, Part 13 Local Area Traffic Management (March 2018).</i></li> <li>Chapter 2 - Planning and Design, Section 2.3.2 Bus Route Infrastructure (page 6) of</li> </ul>							
	the Department of Transport and Main Roads Public Transport Infrastructure Manual 2015.							
3.	Active Transport Impact Assessment When lodging a formal development application, the development proponent should provide an active transport impact assessment.							
	In particular, the active transport impact assessment and associated proposal plans should demonstrate how direct, safe and convenient access to public passenger transport and also pedestrian/ cycle access to the development will be achieved during events. This should:							

ltem	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)							
	<ul> <li>Generally, give highest priority to active transport facilities with less priority to private vehicles with the aim to decrease private vehicle trips and increase active transport trips.</li> <li>Endeavour to separate transport modes, with an increased emphasis on building active transport facilities.</li> <li>Ensure consistency and good connectivity to the existing and future public transport network.</li> </ul>							
	In particular, the active transport impact assessment should address the following:							
	(i) The existing and planned active transport infrastructure servicing the development, for example, pedestrian paths, crossing arrangements, shared/ bicycle paths, cycle lanes/dedicated cycle paths. This should consider the large number of pedestrian movements both on and off site during events as anticipated in the traffic engineering report.							
	(ii) Provide information and concept plans demonstrating how the proposed shared zone along Sportsmans Parade will operate during event modes. This should demonstrate that pedestrian and vehicle conflict will be avoided.							
	(iii) Anticipated cyclist and pedestrian demand generated by the development proposal based on a robust analysis of the modal split to walking and cycling and a walkable catchment of 800m and cycling catchment of 2km. The traffic engineering report should provide sufficient justification.							
	(iv) Gaps and deficiencies in existing active transport provision within the site and the surrounding area in relation to the demand generated by the development.							
	(v) Potential safety risks to visitors, employees, spectators, patrons etc. walking or cycling to the development including vehicular/ pedestrian conflict and crossing arrangements of roads.							
	(vi) Identify the necessary active transport infrastructure (temporary and permanent) required t support the development including the upgrade of existing facilities and/or provision of new facilities.							
	The recommended outputs of the active transport impact assessment should include:							
	<ul> <li>An Active Transport Movement Plan identifying key pedestrian and cyclist desire lines, the anticipated pedestrian and cyclist volumes along these desire lines and the following:</li> <li>The principal cycle routes as mapped in the South East Queensland Principal Cycle Network Plan (https://www.tmr.qld.gov.au/Travel-and-transport/Cycling/Principal-Cycle-Network-Plans.</li> <li>key attractors and high demand areas surrounding the development, for example, residential areas within a walkable catchment.</li> </ul>							
	<ul> <li>ii. A bicycle and pedestrian movement plan showing existing and proposed active transport infrastructure to support peak pedestrian and bicycle volumes, including: <ul> <li>pedestrian and bicycle pathways within and external to the development, such as, but not limited to bus setdown, taxi facility, rideshare, etc.</li> <li>pedestrian and bicycle access points to the development.</li> <li>highlight indicative location(s) of proposed bicycle parking and end of trip facilities and how these will seamlessly connect with the proposed bicycle network.</li> <li>disability access requirements.</li> <li>appropriate level of separation between cyclists, pedestrians and other modes focusing on potential conflict zones such as car parks, passenger loading areas, passenger setdown and bus stops.</li> <li>pedestrian and cyclist crossing treatments based on a safety audit that considers the locational circumstances of the site, desire lines, proposed traffic arrangements, the speed environment of roadways and anticipated pedestrian, cyclist and vehicle volumes.</li> </ul> </li> </ul>							

Item	Prelodgement advice – Sunshine Coast Stadium (MPL-0320-0128)
	<ul> <li>iii. A conceptual wayfinding strategy to enhance legibility between the proposed development and the following: <ul> <li>coach/private bus setdown;</li> <li>taxi facilities;</li> <li>passenger loading / rideshare;</li> <li>urban bus stops;</li> <li>cycle parking.</li> </ul> </li> </ul>
	<ul> <li>Relevant references and design standards include the following:</li> <li>Cycling Aspects of Austroads Guides, focussing on the Guide to Road Design Part 6A: Paths for Walking and Cycling;</li> <li>Australasian Pedestrian Facility Selection Tool [V2.0] User Guide (https://austroads.com.au/network-operations/network-management/pedestrian-facility- selection-tool);</li> <li>TMR Technical Notes and Guidelines in particular Guideline Selection and Design of Cycle Tracks</li> </ul>
	Refer to: <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Cycling-guidelines">https://www.tmr.qld.gov.au/business-industry/Technical-publications/Cycling-guidelines</a> and <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Technical-Notes/Traffic-engineering.aspx">https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Cycling-guidelines</a> and <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-standards-publications/Technical-Notes/Traffic-engineering.aspx">https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Technical-Notes/Traffic-engineering.aspx</a> .
4.	<ul> <li>We note that the Sunshine Coast Stadium has previously hosted an Elton John concert but the Department of Transport and Main Roads would like to highlight, that on-going events of this nature, and more frequent events at small, medium and large scales, will require transport impacts to be appropriately considered and addressed on a more permanent basis just as the seating capacity is becoming more permanent. The department notes that the concert resulted in private/contracted bus operations – shuttle services including park 'n' ride options with key attractors, conflicts with peak hour traffic and parking implications to be considered. Further consideration may need to be given to more permanent improvements identified as part of a Transport Impact Assessment (roads, public passenger transport and active transport) to facilitate the stadium's event mode function such as but not limited to:</li> <li>Bus access, manoeuvring and priority as well as setdown and lay-by provisions in relation to the surrounding road network and development site;</li> <li>Facilitating better walk-up and cycle-up catchment access to the development and to public passenger transport;</li> <li>Measures to reduce conflict between vehicle types and vehicular/pedestrian conflict.</li> </ul>

Appendix 11 Stakeholder Engagement Evidence





Officer: Grantley Switzer Direct telephone: 07 5441 8049 Direct email: <u>Grantley.switzer@sunshinecoast.qld.gov.au</u>

08 June 2020

Mr Cameron Adams Managing Director Adams & Sparkes Town Planning

Email: cameron@astpd.com.au

**Dear Cameron** 

#### **Re: Sunshine Coast Stadium Expansion Project**

In respect to Sunshine Coast Council's commitment to the Stadium Expansion project, I can advise that on 12 December 2019, Council resolved the following:

Council Resolution (OM19/201) That Council:

- (a) receive and note the report titled "Sunshine Coast Stadium Proposed Expansion"
- (b) endorse the concept design for Stage 1 of the Sunshine Coast Stadium expansion and support the commitment of \$17 million to deliver this stage in the 2021/22 and 2022/23 financial years subject to external funding being obtained for the balance of the required funding
- (c) authorise the Chief Executive Officer to prepare a prospectus and associated advocacy plan with a view to engage other potential funding sources and communicate the project to the wider community and
- (d) authorise the Chief Executive Officer to negotiate and execute a formal agreement with funding partners for Stage 1 of the Sunshine Coast Stadium expansion project.

Following the recent Council elections, a workshop was undertaken on 1 June 2020 at which Councillors were presented with an update in respect to the project. Following this workshop, the resolution from 12 December 2019 still remains as the course of action for pursuit.

Yours sincerely

Grantley Switzer Manager Sport & Community Venues

Page 1 of 1

T 07 5475 7272 E mail@sunshinecoast.qld.gov.au Locked Bag 72 Sunshine Coast Mail Centre Qld 4560 sunshinecoast.qld.gov.au Caloundra Maroochydore Nambour Omrah Avenue Caloundra Qld 4551
 First Avenue Maroochydore Qld 4558
 Cnr Currie and Bury Streets Nambour Qld 4560

#### Michael Lyell

From:	Cameron Adams
Sent:	Tuesday, 22 December 2020 12:42 PM
То:	Michael Lyell
Subject:	FW: Written Advice - MPL-0320-0128 - Sunshine Coast Stadium expansion
Attachments:	Written Advice - MPL-0320-0128 - Sunshine Coast Stadium expansion.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

From: Chris Lee <Chris.Lee@dsdmip.qld.gov.au> Sent: Thursday, 30 April 2020 1:48 PM To: Cameron Adams <cameron@astpd.com.au> Subject: Written Advice - MPL-0320-0128 - Sunshine Coast Stadium expansion

Hi Cameron

Thanks for the call. Further to the written advice provided in March (attached), I can confirm that the proposal can proceed to the endorsement stage without the need for any further pre-engagement activities.

Thanks



Principal Planner Development Assessment Division Department of State Development, Manufacturing, Infrastructure and Planning

Queensland

P 07 3452 7694 **Government** Level 13, 1 William Street, Brisbane QLD 4000 PO Box 15009, City East QLD 4002 www.dsdmip.qld.gov.au





Chris Lee

#### **DSDMIP** is working hard to support Queensland at this time. We are open for business and

you can contact me in the usual ways.

Appendix 12 Sunshine Coast Stadium Expansion Project Summary





Our region. Healthy. Smart. Creative.

### SUNSHINE COAST STADIUM EXPANSION BOKARINA

## Project Summary





### **AUSTRALIA'S SUNSHINE COAST**

Located one hour from Brisbane, and as one of Australia's top ten significant urban areas with a projected population of more than 518,000 by 2041<sup>1</sup>; the Sunshine Coast is a leading city region of the 21st century.

As one of Australia's top 10 significant urban areas and Queensland's third largest city, the Sunshine Coast has been recognised as one of only five city regions across Australia that – along with the State capitals – will drive the nation's future productivity<sup>2</sup>.

The Sunshine Coast is building a new economy based on a clear 20year economic plan, with multiple opportunities and avenues for infrastructure and business growth, development and expansion.

This exciting future for the Sunshine Coast is being developed on the back of strong economic foundations, awardwinning infrastructure and a nationally recognised lifestyle, pristine natural landscape and tourism offering coupled with a strong culture of innovation. Investing in the right infrastructure at the right time is helping to strengthen and mature the region's economy, meet community needs, keep pace with growth and consolidate the Sunshine Coast's role as an international gateway in SEQ for global trade, visitation and major events.

In conjunction with considerable private sector investment in the region, Sunshine Coast Council is driving a range of region-shaping projects and initiatives to transform the Sunshine Coast and generate further, associated investment opportunities. Sunshine Coast Airport is being expanded to deliver Australia's next international gateway providing direct access to more Australian and international destinations. The recent arrival of Queensland's and eastern Australia's fastest digital connection to Asia

through the International **Broadband Submarine** Cable Network will provide the opportunity for faster, more reliable broadband connectivity for Queensland, providing greater bandwidth and redundancy to underpin the development of key industries reliant on global connectivity. A new greenfield city centre is being developed in Maroochydore and offers a central focal point for commercial and high-value business growth.

The Sunshine Coast has excellent access to national and international air and sea ports, including the Sunshine Coast Airport, Brisbane International Airport and the Port of Brisbane, along with direct access to national road and rail networks. From the Sunshine Coast, it is easy to stay connected both domestically and internationally. The combination of the region's competitive business environment, award winning reputation for innovation, accessibility to markets, new infrastructure, highly skilled workforce and idyllic lifestyle is generating a suite of emerging opportunities for the Sunshine Coast.

The expansion of the Sunshine Coast Stadium will add significant value to the region and act as one of the many catalysts in ensuring the region is well serviced with community infrastructure that provides lifestyle, entertainment and economic opportunities.





### \$33 billion

Queensland's Sunshine Coast is one of Australia's fastest growing economies, anticipated to grow to \$33 billion by 2033.

# **P**OP

500,000+

\$12.5 billion

The Sunshine Coast's population is expected to grow to 518,000 people by 2041, representing one of the fastest expected growth rates in Queensland (QGSO, 2018; ABS, 2018) and currently has more than 1 million people living within a 45 minute radius.

More than \$2.5 billion in major infrastructure projects and over \$10 billion in private investment already underway or in



One of Australia's largest regional economies, achieving over 4% annual average growth across the last 15 years, well

the pipeline.

above the national rate of economic growth.

**Economic growth** 

### High value jobs

The Sunshine Coast is in the Top 10 leading regions in Australia for employment generation, creating more than 23,000 high-value jobs over the last 5 years.

### Perfect location

Queensland's Sunshine Coast provides international businesses the perfect launch pad for their Australian operations through a safe, low-risk, welcoming, regional location complete with all the big city benefits.

### Australia's newest international airport

New runway under construction delivering direct access from 2020 from more Australian and international destinations.

### Australia's fastest connection to global markets

New submarine broadband cable from 2020 at Maroochydore delivering diverse and robust capacity to position the region as one of Australia's most attractive business destinations.

> SUNSHINE COAST INTELLIGEN COMMUNIT (020

SUNSHINE COAST

BRISBANE •

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### A GROWTH **FCONOMY**

The Sunshine Coast economy (A\$20.3 billion<sup>3</sup>) has outpaced most of the regional economies in Australia in terms of growth over the last 15 years.

The economy is anticipated to grow in a strong and sustainable manner over the next 20 years to reach \$33 billion in 2033<sup>4</sup>, accompanied by an increase in knowledge-based jobs, exports and household income. The Sunshine Coast is one of Australia's largest local government areas with a future population of over 518,000 by 20415; providing a strong foundation for future economic growth. The Sunshine Coast economy is rapidly advancing on the back of a clear economic strategy, development of targeted high-value industries and a strong culture of innovation.

The future strength of the regional economy is also assured through the region's focus on diversity in digital, tourism and creative industries. These future-focused industries are being supported by the Sunshine Coast International Broadband Network; Australia's fastest and most affordable international data and telecommunications connection from the east coast to Asia along with emerging and new initiatives, such as the Sunshine Coast Digital Trade Hub and eGames Events.

Sunshine Coast Council has proven itself to be an innovative organisation, thinking outside the square to stimulate economic growth and create Australia's healthy, smart, creative capital.

### **GROWING THE** SPORTS FCONOMY

The sports economy in Australia generates \$39 billion in economic activity<sup>6</sup> across almost all areas of industry. On the Sunshine Coast, the sports economy is estimated to account for \$442 million in direct and indirect economic activity and 1913 full time equivalent jobs per annum<sup>7</sup>.

Most of the economic activity associated with major sporting events is spent in local businesses, who pay wages and procure supplies and services from other local businesses.

The Sunshine Coast is well known as one of Australia's most desirable regions. It is also increasingly being recognised as one of Australia's premier sports training destinations and a great host of major and international sporting events and teams.

With national or international standard training facilities for 39 sports on the Sunshine Coast, the region offers excellent training venues for a wide range of sports disciplines. The region's appeal as a leading sports destination is further strengthened by the University of the Sunshine Coast (USC) - Sports Science Division, which is the only university accredited with the Australian Institute of Sport (AIS).

In addition to world class training facilities and great accessibility, the Sunshine Coast has a unique point of difference to many other sporting destinations - an abundance of natural training assets and outstanding weather conditions. Our region enjoys an average of 7 hours of sunshine, 300 days a year and has expansive

beaches and natural surrounds that offer coaches and athletes a unique setting for games, training and relaxation.

The appeal of the region as a premier sports destination is significant to the local economy. A single major sporting event like the NRL fixture between South Sydney Rabbitohs and New Zealand Warriors can generate in excess of \$2 million in economic activity. The region's national sporting team, Sunshine Coast Lightning, contributes an estimated \$3.2 million per annum in local economic activity and deliver a total \$19.7 million in economic benefit when all media coverage is taken into account.

In total, there over 13,960 registered active businesses in the Sunshine Coast Local Government Area that have products or services that contribute to the sports industry supply chain. While the current sports economy on the Sunshine Coast is substantial, to fully capitalise on the region's significant competitive advantages there is a need for facilities which meet competition standards at the national and international level, which will in turn allow for targeted action to attract sporting activities and events that will deliver the greatest return to the local economy.

3 National Institute of Economic and Industry Research (NIEIR) ©2019. Compiled and presented in economy.id by .id, the population experts. Sunshine Coast Council, Regional Economic Development Strategy, 2018.

<sup>4</sup> Sunshine Coast Council, Regional Economic Development endergy, Economic Stategy, Economic S impacts and consequential consumption. Source: National Institute of Economic and Industry Research (NIEIR) ©2016. Compiled and presented in economy.id by .id, the population experts.





\$4.1 billion contribution to econo

International Broadband Submarine cable

\$927 million \$ \$453m to Sunshine Coast econom

Sunshine Plaza \$440 million

ADDRESS AND ADDRESS AND



University 33 \$81 million expansion complete 20,000 students by 2020 Mapleto

Monty

udlo a

Landsboroug





**Bruce Highway** 

\$1.6 billion 🖪 expansion and upgrade First stage to be completed by











# SUNSHINE COAST MAJOR PROJECTS

oolum

SUNSHINE COAST SOLAR FARM

Mount Co

Marcool

SUNSHINE COAST AIRPORT

Aoolo

5

Pacific Paradise

INTERNATIONAL BROADBAND SUBMARINE CABLE (IN SERVICE MID-2020)

AURA

MAROOCHYDORE CITY CENTRE

SUNSHINE COAST UNIVERSITY

BEERWAH EAST MAJOR

AREA

DEVELOPMENT

PALMVIEW SUNSHINE COAST UNIVERSITY HOSPITAL

> (CALOUNDRA SOUTH) DEVELOPMENT AREA

> > North Bribie

Sippy Downs

Kawana **UNSHINE COAST** STADIUM

> Currimundi SUNSHINE COAST MASS TRANSIT SOLUTION

Caloundra

PROTECTED HEAVY RAIL CORRIDOR

Sunshine Coast QUEENSLAN

### FUTURE FOCUSED

The forthcoming SEQ City Deal and the proposed 2032 SEQ Olympic and Paralympic Games bid provide a catalyst to transform the regional economy and accelerate infrastructure investment and industry diversity on the Sunshine Coast.

The SEQ City Deal will provide a clear blueprint for the region's future productivity, connectivity and liveability.

The SEQ City Deal is an opportunity for the three tiers of government to form a long-term partnership to achieve a strong future for SEQ, which is currently home to one in seven Australians. Central to the SEQ City Deal will be the delivery of solutions to transform regional connectivity across SEQ; along with digital connectivity to support new and emerging trade, industries, businesses and jobs.

As our region continues to grow and as we respond to the opportunities and challenges that come with that growth, a City Deal will provide a platform to generate confidence in our communities and encourage further employmentgenerating investment from the private sector. A 2032 SEQ Olympic and Paralympic Games has the potential to offer a once-in-a-lifetime opportunity for the ongoing development and innovation of regional tourism, sport and leisure, especially for future generations. All levels of government are collaboratively working towards a bid that will provide a lasting legacy to maximise SEQ's destination competitiveness in the global tourism marketplace whilst realising economic, social and community objectives that support new tourism developments and investment in accommodation, sport and leisure.

### THE FUTURE OF TOURISM

While tourism is a key economic driver on the Sunshine Coast, diversification of activity beyond leisure tourism will provide even more value and benefits for investors, businesses, workers and the community; and strengthen the region's destination brand.

#### A PREMIER EVENT DESTINATION

The Sunshine Coast attracts significant tourism, which directly contributes more than \$3.0 billion<sup>8</sup> annually to the region's economy. However, there is a major opportunity for the region to expand and tap into the national and international event market.

Currently, the leisure market dominates the Sunshine Coast tourism industry. In 2017, approximately 86.5 per cent of visitors to the Sunshine Coast were holidaying or visiting friends or relatives.

The expansion of Sunshine Coast Stadium and the associated high level events that it will bring will assist to diversify the regional tourism offer by increasing high-yield visitor numbers and business turnover, growing event supply chains and creating new employment and jobs.



### A SPORTS, HEALTH AND WELLBEING PRECINCT

The Kawana Precinct is now recognised as the region's sports, health and wellbeing precinct of the Sunshine Coast. Sunshine Coast Stadium is conveniently located within this precinct, is easily accessible and is in close proximity to key public and private infrastructure and facilities.



#### SUNSHINE COAST SPORTS, HEALTH AND WELLBEING PRECINCT

- 1 Sunshine Coast Stadium
- 2 Lake Kawana
- 3 Western Fields
- 4 Kawana Aquatic Centre
- 5 Sports Hub Sunshine Coast
- 6 Sunshine Coast University Hospital
- 7 Sunshine Coast University Private Hospital
- 8 The Sunshine Coast Mind and Neuroscience Thompson Institute
- 9 Kawana Waters State College

Along with the national standard playing field at Sunshine Coast Stadium, there are seven additional high quality fields in the precinct and a further four fields, known as Western Fields, in close proximity. This creates the opportunity to host a number of regular local sporting groups, and attracts a significant number of state and national events that require multiple fields in one precinct.

#### LAKE KAWANA

Lake Kawana is located opposite Sunshine Coast Stadium and offers two kilometres of pristine waterways for local, national and international training and competitions. It hosts triathlons, model boat championships, dragon boat racing, surf ski and outrigging, stand up paddle boards, canoeing, kayaking and open water swimming championships. Its central location and eastbank foreshore parkway provide the perfect viewing platform to attract crowds from far and wide. Lake Kawana has already been identified as the potential location for the open water swim events if the 2032 Olympic and Paralympic Games bid is successful.

#### KAWANA AQUATIC CENTRE

The Kawana Aquatic Centre is the region's premier aquatic facility and has five heated swimming pools (including a 50 metre Olympic pool), all-purpose built to cater for learnto-swim, junior squads, competitive swimming, water polo, diving and adult fitness.

#### SPORTS HUB SUNSHINE COAST

Recently completed, the Sports Hub Sunshine Coast is a not-for-profit Health and Wellbeing Sports Club and a High Performance Sports and Medical Centre, located adjacent to Sunshine Coast Stadium at the northern end of Lake Kawana. The High Performance Sports and Medical Centre provides a variety of integrated sports and allied health services, multipurpose sports training areas, strength and conditioning, recovery, rehabilitation specialist facilities, sports education, sports marketing and management consultancy and a health cafe.

#### SUNSHINE COAST UNIVERSITY HOSPITAL

Within the precinct is the new \$1.87 billion tertiary teaching hospital, adjacent to the health and medical precinct, offering the strategic opportunity to cluster advanced complementary medical activities.

#### SUNSHINE COAST UNIVERSITY PRIVATE HOSPITAL

Sunshine Coast University Private Hospital is an accredited multi-disciplinary hospital that provides four operating theatres to offer a broad range of surgical services for all patients. The hospital was opened in November 2013 and in this short time, has built a well-deserved reputation as a centre of excellence for health care services.

#### THE SUNSHINE COAST MIND AND NEUROSCIENCE THOMPSON INSTITUTE

The Institute was established by the University of the Sunshine Coast as a hub for world-class mental health research, teaching and clinical services. Opened in 2018, it has already built a reputation for using a unique, integrated model of care, which has placed it at the forefront of research for some of regional Australia's most pressing mental health issues, including dementia, suicide prevention, posttraumatic stress disorder and youth mental health.

#### KAWANA WATERS STATE COLLEGE

Kawana Waters State College is a co-educational Queensland Government State School offering quality education from Prep to Year 12 (P-12). The campus is located adjacent to Sunshine Coast Stadium with playing fields shared between Sunshine Coast Council and the college. Due to its proximity to world class sporting facilities, the college has a strong focus on sports and health, giving students the opportunity to apply for inclusion in Programs of Excellence in Academic Curriculum Extension (ACE) for football and aquatics.

#### ACCOMMODATION

Along with the accommodation offering at the Sports Hub, the 4 star Mercure Sunshine Coast Kawana Waters is conveniently located at the heart of the sports, health and wellbeing precinct, next to Sunshine Coast University Hospital and a few minutes by car from Sunshine Coast Stadium. There is also additional accommodation houses planned for development in the precinct in the coming years.

### SUNSHINE COAST STADIUM EXPANSION

Sunshine Coast Council is driving major regional infrastructure initiatives that generate jobs and prosperity and support the liveability of the Sunshine Coast for current and future generations.



The Sunshine Coast Stadium expansion is a region-shaping opportunity and council infrastructure priority. An enhanced stadium with the capability to stage national sport events and large entertainment events is a 'missing piece' of the core economic and community infrastructure mix for a region of this size and its projected growth.

Located in the centre of the Sunshine Coast at Bokarina, Sunshine Coast Stadium services a catchment population of more than one million people.

Sunshine Coast Stadium is owned and managed by Sunshine Coast Council. The venue currently comprises a traditionalbuild roofed Western Grandstand, constructed in 2011. Total seated capacity in the current Western Grandstand is 1046. Recent upgrades to the stadium in 2016 included construction of grass mounds, which increased total capacity to 12,000, and a new 36 square metre LED scoreboard. Council is currently fully funding a \$2.7 million main field lighting upgrade to increase quality and brightness to >1400 lux to ensure it is broadcast compliant for evening fixtures.

The Sunshine Coast community is passionate about sport, entertainment and lifestyle. Sunshine Coast Stadium has already demonstrated the ability to attract and host major events, including NRL regular season fixtures and major entertainment acts such as Sir Elton John. The expansion will provide an increase in seating capacity and a higher standard of player and spectator experience, allowing an even greater opportunity to attract national and international events, bringing with them significant economic benefit to the region and wider Queensland.



#### THE SUNSHINE COAST STADIUM EXPANSION WILL:

- deliver a major sports facility with the capacity to stage national and international sporting, recreational and entertainment events
- create jobs during both the construction and operational phases
- enhance the region's offering in respect to training camps and major competition events
- complement the existing infrastructure mix – planned or underway – including the Sunshine Coast Airport expansion, Sunshine Coast University Hospital and Sunshine Coast International Broadband Network
- deliver a community facility that is vibrant, inclusive, accessible, adaptable and which meets the needs of the region and of

people of all ages, abilities and backgrounds

• be a part of the Sunshine Coast urban fabric and identity

The Sunshine Coast Stadium expansion has been designed to ultimately seat 23,400 patrons. Stage 1 of the expansion will deliver an additional 10,572 fixed seats, taking total fixed seated capacity to 11,618. By utilising the mounds at the Northern and Southern ends, the stadium will have a total capacity of 16,618.



#### WESTERN GRANDSTAND EXPANSION BENEFITS

- The Western Grandstand currently holds 1046 patrons, and an addition to the grandstand will accommodate an increase to 3533 patrons. This will also include increased access to food and beverage outlets and public amenities.
- Athlete facilities: improved amenities including cold and warm water recovery baths, recovery areas, warm up areas and team auditorium.
- Multi-purpose/community spaces: To meet event requirements, and provide hire/lease opportunities on non-event days. Opportunities are also being explored to accommodate community outreach programs and services in the multi-purpose spaces in the expanded stadium.
- Change rooms: Current change rooms are of high quality and meet current elite sporting guidelines. To accommodate larger scale events

and women's events, two additional change room facilities are included in the design.

- Compliance: All event compliance requirements will be included in the Western Grandstand. This includes first aid rooms, drug testing room, operations rooms, media boxes, camera platforms, coaches' boxes, production area and ground announcer's room. Also included is a state of the art venue control and operations room, a dedicated police operations room and a serious medical injury clinic.
- Function/corporate facilities: The commercial offering at the current stadium is lacking and the offering needs to be significantly expanded. The corporate offering in the Western Grandstand will be maximised to satisfy the potential market need for various product types and non-event days. Current designs include eight private corporate boxes, a function room/chairman's lounge and a sky bar.
- Commercial and community leasing: Cricket Queensland/Brisbane Heat. National Rugby League/Sunshine Coast Falcons, Sunshine Coast Rugby Union, Sunshine Coast Churches Soccer and Melbourne Storm are amongst those sporting bodies currently leasing office space at Sunshine Coast Stadium. Increased stadium demand would also generate demand for additional office space and provide a source of ongoing revenue for Council. There is an opportunity to develop a 'sports house' based on a shared services model, and an additional 1208 square metres of office space is incorporated in the Sunshine Coast Stadium expansion design.



#### EASTERN GRANDSTAND

- The expansion includes construction of a new grandstand on the eastern side of the main field to hold 8085 patrons. Whilst the current mounding allows for increased capacity, it is commercially less viable and not a fan-friendly structure. Formal seating attracts a much higher price per patron than a 'spot on the hill' and is significantly more attractive for large event organisers.
- Provision of seating is identified as the major driver in the Eastern Grandstand. There is no intention in Stage 1 to include other facilities, other than provision of food and beverage outlets and public amenities.



### A STRONG PLANNING PROCESS

This proposal represents the culmination of significant planning and consideration. It has been prepared cognisant of the need to minimise both capital and operational costs, whilst maximising the benefits as outlined in the various studies undertaken and to meet Sunshine Coast Council and community ambitions.

#### KPMG FEASIBILITY STUDY

In 2017, KPMG was engaged by Sunshine Coast Council to investigate the feasibility of developing a national standard stadium on the Sunshine Coast. This was based on the view that there may be a need for a larger national standard venue to accommodate the needs of a growing population on the Sunshine Coast.

Additionally, the facilities at the current Sunshine Coast Stadium, in some areas, were assessed as being below the standard (quantity and/or quality) demanded of modern stadiums and this is impeding the venue's ability to meet expectations for both spectators and event owners and hirers. KPMG was engaged to provide analysis and recommendations on two key phases:

- Location and Site Assessment
- Feasibility Assessment.



"The current stadium at Kawana is a good facility. However with a number of stadium improvements recently completed/planned for Sydney and other regional locations, it will be important for the stadium infrastructure to be improved to maintain its status as an NRL suitable venue. In particular, increased seating and corporate areas will allow the Council or event holder to increase the commercial returns on any event (through increased numbers and higher yields). This will ensure that the Sunshine Coast remains competitive in any bidding or tender process for the allocation of NRL matches."

Blake Solly, Chief Executive Officer, South Sydney Rabbitohs.

#### PHASE 1: LOCATION AND SITE ASSESSMENT

In October 2017, Council endorsed Sunshine Coast Stadium, Bokarina, as the preferred location for a significant stadium development and that this site be the focus for the next phase of this project the Detailed Feasibility Study.

#### This site was chosen with the following in mind:

Site characteristics	<ul> <li>No obvious prohibitive physical site characteristics for a stadium development</li> <li>Stadium development aligned to zoning and current and/or planned uses</li> <li>Economically sound in that existing infrastructure and past investment can be utilised.</li> </ul>
Connectivity	<ul> <li>Positioned within the higher-growth southern end of the Sunshine Coast, also proximate to the central and hinterland population centres</li> <li>Well connected to existing road and bus network and strategically located to capitalise on the Mass Transit initiatives on the Sunshine Coast.</li> </ul>
Destination appeal	High visibility and exposure to passing traffic, appealing waterfront position and excellent existing surrounding amenity.
Economic opportunity	<ul> <li>Located in an existing and developing commercial and retail hub, close to the Sunshine Coast Health Precinct and Sunshine Coast University Hospital, with good precinct amenity</li> <li>Greatest opportunity to support existing economic activity and to promote new economic activity.</li> </ul>

#### PHASE 2: FEASIBILITY ASSESSMENT

The key finding of the KPMG Feasibility Study was that whilst the region should have a long term target for a 20,000-25,000 seated capacity stadium, the short to medium term aim should be to increase seated capacity progressively until the Sunshine Coast has secured a full time national sporting franchise or a significant event, such as the Olympic Games, is attracted to the region.

The Study therefore suggested to undertake an interim development to allow the region to enhance its offering and attractiveness to large-scale event organisers without over-capitalising in the short to medium term. Failing to undertake an interim development of the Stadium would likely result in the Sunshine Coast not being considered for large scale major events in the future.

It has been identified that there is demand to host additional events on the Sunshine Coast, in particular, national level sporting events (e.g. NRL, A-League and Super Rugby), music concerts and entertainment events. The Stadium's ability to service this demand would be subject to requirements to enhance the attractiveness, functionality and commerciality of the venue.

### **KEY PRINCIPLES OF DESIGN**

Many years of planning and studies have provided a comprehensive base for the demand, scope and functionality of an expanded Sunshine Coast Stadium.

The following five key principles have been the cornerstone of design works:

#### A FAN FRIENDLY VENUE

Embellishment to ensure the fan experience is improved consideration given to seating layout and sight lines, supply of food and beverage concession, access to public amenities, access to egress to venue, people with a disability (PWD) access, technology enforcement

#### OPERATIONAL EFFICIENCY

Consideration given to operational costs associated with running events and ongoing maintenance costs, particularly in light of the coastal location.

#### COMPLIANCE

Guidelines for key sports such as the NRL, A-League and Rugby Union are incorporated into the design to ensure event compliance. Consideration also needs to be given to requirements for large scale entertainment events.

#### CAPACITY FOR GROWTH

The Stage 1 design needs to consider the future desired state of a 20,000-25,000 seat stadium and allow for future expansion without significant demolition or retro fitting.

#### IMPROVED REVENUE STREAMS

Focus on maximising event day revenues and expansion of current event calendar but also enhancing non-event day revenue opportunities such as conferences, functions and leasing.



With the above being considered, a minimalist approach has been taken for the most recent design. It is intended to be a maximum value stadium redevelopment with maximum re-use of existing facilities and infrastructure. There is an intent to minimise capital expenditure but nonetheless provide a positive spectator experience with an expected life of 25-30 years.

Cost estimates indicate the total capital costs to deliver Stage 1 of the expansion to Sunshine Coast Stadium is \$68 million.

### LINKS TO NATIONAL AND STATE STRATEGIES

An expanded Sunshine Coast Stadium will play a key role in delivering the outcomes identified in the Australian Sports Commission Corporate Plan 2019-2023 and the Queensland Government's Activate! Queensland 2019-2029 Strategy.



#### GETTING MORE AUSTRALIANS MOVING MORE OFTEN

- Act as a motivating tool for locals to become active
- All national/elite events will contain a community engagement obligation (school visits, clinics, etc.) and bring high profile athletes to regional Queensland
- Increased accessible events leading to greater participation in community life
- Continue to foster participation at a local level by providing ongoing access to important community facilities



 Address the current challenge of continuing to attract fans to the in-venue experience.



#### BUILDING THE CAPABILITY OF SPORT TO CREATE A ROBUST, CONNECTED INDUSTRY

ACTIVATE COLLABORATION

> capabilities with our sporting facilities, the Sunshine Coast would have a unique point of difference to other regional elite sporting

ACTIVATE

destinations in Australia

ENVIRONMENTS

 Strategically leveraging the Stadium's strengths and assets will contribute to industry innovation, education and tourism. Access to supply chain capabilities that exceed those available to a team or athlete at their home base would make the Sunshine Coast a superior destination.

#### Add significant value to the sports, health and wellbeing precinct and broaden the attractiveness of South East Queensland as a sports innovation destination

- Position the Sunshine Coast to continue to attract world class female content such as the 2020 Women's State of Origin
- Enhance local partnerships with current Stadium tenants including the NRL, Cricket Queensland and Sunshine Coast Rugby Union, and provide opportunities for other sports bodies to be co-located in

the stadium precinct

- Enhancement of education spaces for event and non-event day usage, with a strong focus on community outreach programs
- Growing the sports economy will ensure Council fully leverages built and natural assets to attract national and international attention, private investment and greater visitation
- The Sunshine Coast's outstanding health and tourism services are highly relevant to the sports industry. By combining these



CREATING NATIONAL PRIDE AND INSPIRATION THROUGH INTERNATIONAL SPORTING SUCCESS

- Provide world-class fan experiences and attract world class content
- Position the Sunshine Coast to enhance its already attractive offering as a leading destination for elite sporting teams for training and camps
- Position the Sunshine Coast to increase its already proven capability to attract and host world class sporting events
- Act as a motivator for local talent by showcasing the world's best in the region



• Enhance the precinct and enable the region's very best to be able to stay and train locally.

### DEMAND AND MARKET ASSESSMENT

Fundamental to the success of any stadium is the maximisation of its utilisation, ensuring that, where possible, events are being held consistently and regularly.

Throughout Council's consultation process, all competition stakeholders indicated that a minimum 15,000 seat capacity would suit their needs. The NRL noted that there is a lack of boutique venues in Queensland at present, making a 15,000 seat capacity stadium attractive to national sporting organisations when considering regional fixtures.

Sunshine Coast Stadium was recognised as a good regional venue by national competition stakeholders, however, a number of improvements were required to increase the competitiveness and attractiveness of the venue.

These included:

- additional undercover grandstand seating
- broadcast quality lighting to allow televised night games
- improved premium/corporate hospitality product offering (quantity and style) for hosting and entertaining sponsors
- improved and expanded food and beverage offerings
- improved and expanded services and amenities
- improved (permanent) player recovery facilities
- additional space for medical rooms, green rooms, changing rooms, etc.

#### **EVENT DEMAND**

Consultation with national league sporting organisations confirmed there is little likelihood of a national franchise in the short term being permanently based at Sunshine Coast Stadium.

The possibility to develop partnerships with national sporting franchises is identified as a key strategy for the Sunshine Coast. This has been actively and successfully pursued by Sunshine Coast Council.

Council, with support from Tourism Events Queensland, signed a three year contract with the South Sydney Rabbitohs to host one regular season game per season in 2019, 2020 and 2021. Council again partnered with the State Government to announce hosting of the Women's NRL State of Origin Fixture at the Stadium in July 2020. Council has also secured other large events such as one Cronulla Sharks NRL fixture for each of the 2020 and 2021 seasons, and two Elton John concerts in March 2020.

Due to the limitations of the Stadium, the ability to generate significant spectator and commercial revenue is not possible, and both Council and the State Government have been required to make financial contributions to ensure these events are commercially attractive for the competing clubs and hirers. Additionally, there is a requirement to 'bump in' a large amount of infrastructure to ensure the venue is compliant. An enhanced stadium offering would offset these ongoing costs.

The erection of mounding at Sunshine Coast Stadium in 2016, combined with a strong focus and accompanying financial allocation to attract events to the Stadium, has resulted in a positive trend in respect to major events held at the venue.

#### FUNCTIONS AND EVENTS

A number of stakeholders also identified an opportunity to enhance the Stadium's conference/function spaces in order to proactively target the meetings and events market. The location and aspect of the venue, overlooking Lake Kawana, present an excellent proposition for events of this nature outside of the core sporting and entertainment event calendar.

	NATIONAL COMPETITIONS		ENTERTAINMENT EVENTS		
2016*	1	1 x NRL trial game	1	1 x Nitro Circus	
2020	3	2 X NRL regular season games 1 X Women's NRL State of Origin	4	2 x Elton John concerts 1 x Nitro Circus 1 x Under the Southern Stars	
PROJECTED**	6	3 x NRL games 3 X A-League / Super Rugby games	7	4 x concerts 2 x entertainment events 1 x large scale community event	

\* pre-mounding \*\* pending expansion

### COMMUNITY COLLABORATIONS

Within the Sunshine Coast Stadium expansion, there is a desire to establish socially focused outreach programs which will ensure ongoing activation of the Stadium and, more importantly, endeavour to reduce disadvantage amongst local youth.

In collaboration with the Queensland Police Service and key sporting organisations, a program has been developed to operate out of an expanded Sunshine Coast Stadium. The program will focus on early intervention mentoring for youth at-risk of entering the Queensland Juvenile Justice system, aged between 10 and 17 years of age. Each participant will receive intensive mentoring, including an annual leadership camp for participants who engage with the program and make positive changes, such as increased school attendance. Unique rewards and incentives for participants will be focused on sport.

## FINANCIAL FEASIBILITY

Governments invest in facilities of this nature due to the broader social and economic benefits that they generate for their communities, regions and states.

These benefits include, but are not limited to:

- · retention of expenditure within the region
- promotion of the Sunshine Coast as an events destination
- · 'liveability' of the Sunshine Coast
- improved facilities for athletes, staff, spectators and the wider community
- · regional/community identity, pride and recognition
- increased sports participation in the community, with related health benefits.

All of these benefits, whilst unable to quantify in a financial analysis, do represent important factors when considering projects of this nature.

All endeavours have been made to design a low cost, maximum value stadium that will meet the needs of the Sunshine Coast over the next 10-15 years. This philosophy has been a key driver in the development of the design. What is now being presented compares favourably to recent stadium developments across the country and is also cognisant of ongoing operational and maintenance requirements.

The existing Stadium and enabling infrastructure has been valued at more than \$50 million. Council invests on average \$2.9 million per annum into operations and maintenance of the Stadium and surrounding precinct. Unlike those venues which form part of the Stadiums Queensland portfolio and are funded by the State Government, all these costs are met by Sunshine Coast Council.



### STADIA IN AUSTRALIA

There are many regions of similar or smaller size that have tier two stadiums. Most recent rectangular stadia developments in Australia have well exceeded a cost of \$10,000 per seat. The design for Sunshine Coast Stadium (Stage 1 at \$68 million) represents a cost of approximately \$6400 per seat.

The table below demonstrates comparisons with other recent developments:

NAME	CAPACITY	CONFIG.	POPULATION	BUILD DATE	MOST RECENT REFURB.	OWNERSHIP	MANAGEMENT
BALLARAT STADIUM	11,000	Oval	101,578	1990	2016/17 (\$22M)	City of Ballarat	City of Ballarat
NEWCASTLE STADIUM	33,189	Rectangular	161,225	1970	2008-2011 (\$70M)	Venues NSW	Venues NSW
CENTRAL COAST STADIUM	20,059	Rectangular	173,138	1999	-	Central Coast Council	Central Coast Council
NORTH QUEENSLAND STADIUM, TOWNSVILLE	25,000	Rectangular	193,946	2019	2019 (est \$250M)	Stadiums Queensland	Stadiums Queensland
WOLLONGONG STADIUM	23,000	Rectangular	208,875	1911	2009 (\$29M)	Venues NSW	Venues NSW
SUNSHINE COAST STADIUM*	16,618	Rectangular	320,000	<b>2011</b> (\$7.1M)	<b>2021</b> (\$68M)	Sunshine Coast Council	Sunshine Coast Council
CARRARA STADIUM	25,000	Oval	555,608	1987	2009-2011 (\$144M)	Stadiums Queensland	AFL/ Gold Coast Suns
ROBINA STADIUM	27,400	Rectangular	555,608	2006-2008 (\$160M)	\$160M	Stadiums Queensland	Stadiums Queensland
PERTH RECTANGULAR STADIUM	20,500	Rectangular	2,039,193	1910	2013 (\$95M)	Venues West	Venues West
PARRAMATTA STADIUM	20,741	Rectangular	2,166,487	1985	2019 (est \$300M)	Venues NSW	Venues NSW

\* Proposed expansion.

## THE FUTURE

The Stage 1 expansion of Sunshine Coast Stadium needs to take into account the future desired state of a 20,000-25,000 seat stadium and allow for future expansion without significant demolition or retro fitting. It is acknowledged that no venue is ever 'Olympic Ready'. The current SEQ Olympics Feasibility Study indicates that the Stadium would be used for football (soccer) preliminaries and would have a requirement for a minimum seating capacity of at least 20,000. The design allows for a future total capacity of 23,400 patrons.

### SUNSHINE COAST STADIUM EXPANSION: PROJECT FUNDING AND DELIVERY

To bring delivery of Stage 1 of the Sunshine Coast Stadium expansion project to fruition, a collaborative approach between the three levels of government and the Sunshine Coast community is required.

The Sunshine Coast – through contributions from Sunshine Coast Council and local philanthropic circumstances – is committing \$28 million towards this project. The balance of funding (i.e. \$40 million) is being sought as a collective commitment from each of the Australian and Queensland governments (i.e. \$20 million each). The project will be delivered in the 2021/22 and 2022/23 financial years to accommodate the Stadium's existing forward events schedule.



### FUNDING CONTRIBUTIONS SOUGHT

	2020/21	2021/22	2022/23	TOTAL
Sunshine Coast Council and Local Community (committed)	\$0.5M	\$13.75M	\$13.75M	\$28M
Queensland Government		\$10M	\$10M	\$20M
Australian Government	A A A A A A A A A A A A A A A A A A A	\$10M	\$10M	\$20M
				¢69M






## SUNSHINE COAST STADIUM EXPANSION BOKARINA

Further Information

## Grantley Switzer

Manager – Sport and Community Venues Economic and Community Development Sunshine Coast Council

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Our region. Healthy. Smart. Creative. Appendix 13 Services Impact Information prepared by Sunshine Coast Council





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#### www.sunshinecoast.qld.gov.au

Officer:Stephen porterDirect telephone:0488780201Response address:Locked Bag 72, SCMC QLD 4560Email: scstadiumexpansion@sunshinecoast.gld.gov.au

17 December 2020

Dear Sir/Madam

#### Re – Sunshine Coast Stadium Ministerial Infrustructure Designation

Additional services impact information to EAR consultants reports.

#### **Telecommunications**

Current telecommunications services are historically fed via the sports house being the first building on the site. This supply then runs underground near the main field to the current stadium structure. After consultation with Telstra in the early phases it has been preferenced for the stadium to have a direct line from Sportsmans Parade which would limit potential impacts from future construction works while being more independent. This feed would come from the services corridor conduit existing along Sportsman Parade. 100meters of additional conduit is expected to be laid.

Further to this a Digital Video Network Cable is proposed to be run before construction starts to support Council Venue 114 and the current Stadiums direct communications. This is a direct network to Maroochydore and would eliminate the requirement for satellites.

*Figure 1* is an indicative proposal that has been used to obtain pricing for these services. **Impacts** – Limited impact on the services corridor but will require coordination as to the primary point of contact within the building communications room.

#### **Electrical Utility Supply**

Current supply and loading on the stadium are at full capacity. With additional load to be proposed Energex will be commissioned to provide a design and letter of offer. This has been anticipated in the design as being a second transformer on site next to the existing. **Impact** – Limited impact on existing services as the 11kv supply would connect to the existing pit and Energex Supply feed. Minor Services corridor additional works and possibility of registered easement may be experienced. This area is known and allowed in the current concept designs.

Yours sincerely

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#### Stephen Porter - Project Delivery

**Project Coordinator Sunshine Coast Stadium Expansion** Liveability and Natural Assets Group | Sunshine Coast Council

Caloundra1 Omrah Avenue Caloundra Qld 4551Maroochydore10 First Avenue Maroochydore Qld 4558NambourCnr Currie and Bury Streets Nambour Qld 4560



Fig 1 – Note overlay on existing stadium aerial.

Appendix 14 Economic Impact Model prepared by .id



# • C the population experts

# Sunshine Coast Council Economic impact model

Economic impact modelling enables Sunshine Coast Council to explore how change in employment or output (sales) in one sector of the local economy will impact on all other sectors of the economy, by modelling the flow-on effects across different industries. This provides Sunshine Coast with powerful evidence to advocate against industrial closures or strategically target new industry sectors which are likely to have the greatest positive economic impact.

Different industries will have different flow on effects. Adding jobs in a particular sector will not only add to the value of that sector, but also to other industries related to the supply chain (eg. suppliers, wholesalers) and service industries (retail, food services, administration) which will expand to service the additional workforce. Jobs in associated industries may be added in the local area or outside it, based on journey to work information. The economic impacts are calculated using an input-output model which is derived from the local economy microsimulation model by National Economics (NIEIR).

This scenario looks at the economic impact and jobs created as a result of an expansion of the Sunshine Coast Stadium through construction and event attraction.

## **Impact Summary**

- The expansion of the Sunshine Coast Stadium is estimated to add an additional 308 direct and indirect jobs and overall economic impact of \$100.6m for the Sunshine Coast economy.
- Events attracted on a 12 month calendar following the completion of the construction is estimated to have an economic impact of \$23.8m which is estimated to add 263 direct and indirect jobs into the Sunshine Coast

Industry: Building Construction Impact modelled: ADDITION of \$68.0 million sales Company name: Expansion of the Sunshine Coast Stadium

## Impact Summary

Sunshine Coast - Modelling the effect of adding \$68.0m sales in Building Construction - Inflation adjusted

Summary	Output (\$m)	Value-added (\$m)	Local jobs	Residents jobs
Starting position Sunshine Coast (year ended June 2019)				
Building Construction	2,104.04	468.74	5,580	6,363
All industries	30,845.30	13,768.03	149,362	156,418
Impacts on Sunshine Coast economy				
Direct impact on Building Construction sector	68.00	15.15	180	
Industrial impact		8.94	73	
Consumption impact	12.98	5.61	55	
Total impact on Sunshine Coast economy	100.66	29.69	308	273
<ul> <li>Type 1 multiplier (direct &amp; industrial)</li> </ul>	1.29	1.59	1.40	
<ul> <li>Type 2 multiplier (direct, industrial &amp; consumption)</li> </ul>	1.48	1.96	1.71	
Impact on Queensland economy				
Total impact - Queensland outside Sunshine Coast	16.21	7.29	64	93
Total impact Queensland economy		36.98	372	367
Impact on Australian economy				
Total impact outside Queensland economy	18.41	8.42	67	68
Total impact on Australian economy	135.28	45.40	438	435

Source: National Institute of Economic and Industry Research (NIEIR) ©2019. Compiled and presented in economy.id by .id,

## Impact on Output

The direct addition of \$68.0 million annual output in the Building Construction sector of Sunshine Coast economy would lead to an increase in indirect demand for intermediate goods and services across related industry sectors. These indirect industrial impacts (Type 1) are estimated to be an additional \$19.68m in Output, representing a Type 1 Output multiplier of 1.29.

There would be an additional contribution to Sunshine Coast economy through consumption effects as correspondingly more wages and salaries are spent in the local economy. It is estimated that this would result in a further increase in Output of \$12.98m.

The combination of all direct, industrial and consumption effects would result in total estimated rise in Output of \$100.66m in Sunshine Coast economy, representing a Type 2 Output multiplier of 1.48.

These impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy to the tune of \$34.62m in Output.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be \$135.28m added to Australia's Output.

## Impact on Local Employment (jobs)

The direct addition of \$68.0 million annual output in the Building Construction sector of Sunshine Coast economy is estimated to lead to a corresponding direct addition of 180 jobs in the local Building Construction sector. From this direct expansion in the economy it is anticipated that there would be flow on effects into other related intermediate industries, creating an additional 73 jobs. This represents a Type 1 Employment multiplier of 1.40.

This addition of jobs in the local economy would lead to a corresponding increase in wages and salaries, a proportion of which would be spent on local goods and services, creating a further 55 jobs through consumption impacts.

# The combination of all direct, industrial and consumption effects would result in a total estimated increase of 308 jobs located in Sunshine Coast. This represents a Type 2 Employment multiplier of 1.71.

Employment impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy creating a further 130 jobs.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be an addition of 438 jobs.

## Impact on value added

The direct addition of \$68.0 million annual output in the Building Construction sector of Sunshine Coast economy would lead to a corresponding direct increase in value added of \$15.15m. A further \$8.94m in value added would be generated from related intermediate industries. These indirect industrial impacts represent a Type 1 value added multiplier of 1.59.

There would be an additional contribution to Sunshine Coast economy through consumption effects as correspondingly more wages and salaries are spent in the local economy. It is estimated that this would result in a further increase in value added of \$5.61m.

# The combination of all direct, industrial and consumption effects would result in an estimated addition in value added of \$29.69m in Sunshine Coast economy, representing a Type 2 value added multiplier of 1.96.

These impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy to the tune of \$15.71m in value added.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be \$45.40m added to Australia's value added.

## Impact on GRP

Value added by industry represents the industry component of Gross Regional Product (GRP). The impact on Sunshine Coast's GRP as a result of this change to the economy is directly equivalent to the change in value added outlined in the section above.

In summary, GRP in Sunshine Coast is estimated to increase by \$29.69m.

The effect on the Australian economy (including Sunshine Coast) is estimated to be a growth in Gross Domestic Product (GDP) of \$45.40m.

## Events attracted as a result of an expansion

The below scenario modelling has been prepared based on the successful attraction of new events in the first 12 months.

An expansion of Sunshine Coast Stadium could also generate an additional \$23.8 in the first 12 months through event attraction based on the estimations and event data below

Event attraction impact summary	/			
first 12 month post construction				
8 x National / State Multi Sport Tournaments	Total Attendance	e Estimated overall economic impact		
ARU Sevens	2500	\$ 1,504,000.00		
ARU national Championships schools	3500	\$ 2,796,500.00		
6 x National Sporting Events				
NRL Event	165000	\$ 2,018,000.00		
NRL Event	165000	\$ 2,018,000.00		
NRL Event	165000	\$ 2,018,000.00		
Super Rugby	13500	\$ 1,269,000.00		
Super Rugby	13500	\$ 1,269,000.00		
A League Football	13500	\$ 761,400.00		
Large Scale Entertainment				
Moto x	16000	\$ 2,406,400.00		
Nitro Circus	16500	\$ 806,520.00		
Large community event	20000	\$ 188,000.00		
Monster Trucks	15000	\$ 1,410,000.00		
Music Festival event	12000	\$ 1,579,200.00		
Major Music Concert	25000	\$ 1,880,000.00		
Major Music Concert	25000	\$ 1,880,000.00		
		\$ 23,804,020.00		

#### Based on the above events, the estimated economic impact of the first 12 months is \$23.8m

Industry: Sports and Recreation Activities – Sports and Physical Recreation Venues, Grounds and Facilities Operation Impact modelled: ADDITION of \$23.8 million sales Company name: Expansion of the Sunshine Coast Stadium

## **Impact Summary**

#### Sunshine Coast - Modelling the effect of adding \$23.8m sales in Sports and Recreation Activities - Inflation adjusted

Summary	Output (\$m)	Value-added (\$m)	Local jobs	Residents jobs
Starting position Sunshine Coast (year ended June 2019)				
Sports and Recreation Activities	191.70	73.39	1,381	330
All industries	30,845.30	13,768.03	149,362	156,418
Impacts on Sunshine Coast economy				
Direct impact on Sports and Recreation Activities sector	23.80	9.11	171	
Industrial impact	13.22	5.86	60	
Consumption impact	7.47	3.22	32	
Total impact on Sunshine Coast economy	44.49	18.20	263	246
<ul> <li>Type 1 multiplier (direct &amp; industrial)</li> </ul>	1.56	1.64	1.35	
<ul> <li>Type 2 multiplier (direct, industrial &amp; consumption)</li> </ul>	1.87	2.00	1.54	
Impact on Queensland economy				
Total impact - Queensland outside Sunshine Coast	6.25	2.92	27	47
Total impact Queensland economy		21.12	291	293
Impact on Australian economy				
Total impact outside Queensland economy	7.86	3.71	30	30
Total impact on Australian economy	58.60	24.83	320	323

Source: National Institute of Economic and Industry Research (NIEIR) ©2019. Compiled and presented in economy.id by .id , the population experts.

## Impact on Output

The direct addition of \$23.8 million annual output in the Sports and Recreation Activities sector of Sunshine Coast economy would lead to an increase in indirect demand for intermediate goods and services across related industry sectors. These indirect industrial impacts (Type 1) are estimated to be an additional \$13.22m in Output, representing a Type 1 Output multiplier of 1.56.

There would be an additional contribution to Sunshine Coast economy through consumption effects as correspondingly more wages and salaries are spent in the local economy. It is estimated that this would result in a further increase in Output of \$7.47m.

The combination of all direct, industrial and consumption effects would result in total estimated rise in Output of \$44.49m in Sunshine Coast economy, representing a Type 2 Output multiplier of 1.87.

These impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy to the tune of \$14.11m in Output.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be \$58.60m added to Australia's Output.

## Impact on Local Employment (jobs)

The direct addition of \$23.8 million annual output in the Sports and Recreation Activities sector of Sunshine Coast economy is estimated to lead to a corresponding direct addition of 171 jobs in the local Sports and Recreation Activities sector. From this direct expansion in the economy it is anticipated that there would be flow on effects into other related intermediate industries, creating an additional 60 jobs. This represents a Type 1 Employment multiplier of 1.35.

This addition of jobs in the local economy would lead to a corresponding increase in wages and salaries, a proportion of which would be spent on local goods and services, creating a further 32 jobs through consumption impacts.

The combination of all direct, industrial and consumption effects would result in a total estimated increase of 263 jobs located in Sunshine Coast. This represents a Type 2 Employment multiplier of 1.54.

Employment impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy creating a further 57 jobs.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be an addition of 320 jobs.

## Impact on value added

The direct addition of \$23.8 million annual output in the Sports and Recreation Activities sector of Sunshine Coast economy would lead to a corresponding direct increase in value added of \$9.11m. A further \$5.86m in value added would be generated from related intermediate industries. These indirect industrial impacts represent a Type 1 value added multiplier of 1.64.

There would be an additional contribution to Sunshine Coast economy through consumption effects as correspondingly more wages and salaries are spent in the local economy. It is estimated that this would result in a further increase in value added of \$3.22m.

The combination of all direct, industrial and consumption effects would result in an estimated addition in value added of \$18.20m in Sunshine Coast economy, representing a Type 2 value added multiplier of 2.00.

These impacts would not be limited to the local economy. Industrial and consumption effects would flow outside the region to the wider Australian economy to the tune of \$6.63m in value added.

The combined effect of economic multipliers in Sunshine Coast and the wider Australian economy is estimated to be \$24.83m added to Australia's value added.

## Impact on GRP

Value added by industry represents the industry component of Gross Regional Product (GRP). The impact on Sunshine Coast's GRP as a result of this change to the economy is directly equivalent to the change in value added outlined in the section above.

In summary, GRP in Sunshine Coast is estimated to increase by \$18.20m. The effect on the Australian economy (including Sunshine Coast) is estimated to be a growth in Gross Domestic Product (GDP) of \$24.83m.

Disclaimer: Information contained in this document is based on available information at the time of writing. All figures and diagrams are indicative only and should be referred to as such. While the Sunshine Coast Regional Council has exercised reasonable care in preparing this document it does not warrant or represent that it is accurate or complete. Council, its officers and contractors accept no responsibility for any loss occasioned to any person acting or refraining from acting in reliance upon any material contained in this document. Any forecasts or projections used in the analysis can be affected by a number of unforeseen variables, and as such no warranty is given that a particular set of results will in fact be achieved.



Appendix 15 Construction Management Plan prepared by Aspect Architects and Project Managers





## **CONSTRUCTION MANAGEMENT PLAN**

The Sunshine Coast Stadium Expansion design and documentation is currently in the Schematic Design Phase, with these documents being used to seek a ministerial designation approval for the proposed Stadium Expansion Works. The Design Development Documentation Phase will commence in 2021with the engagement of the Architectural and Consultant team. This stage will see the production of a Tender Reference Documentation set which will be issued for a Design & Construct tender process. Once this process has been completed, a suitably qualified D&C Main Contractor will be selected and appointed. As part of this selection and appointment process, the Main Contractor will be required to submit their detailed Construction Management Plan. This will be reviewed by both the consultant team as well as the relevant Sunshine Coast Council parties.

The contents of this Construction Management will be required to include, at a minimum, the following information and detailed planning:

- A. Project Management Details
- B. Site Management Plan
- C. Construction Safety Management Plan
- D. Environmental Management Plan

#### 1. GENERAL PROJECT OVERVIEW

Construction Impacts to the site and neighbouring surrounds will be explored through the Design Detailing process by all parties, including the Client Group, The Design Team and ultimately the Principal Contractor. The Construction Methodology and a Site Management Planning in the form of a "Construction Management Plan" will be important criteria for non-price-evaluation for tenderers and will be addressed as part of the tender process. Thus, ensuring a focus on outcomes and detailed consideration for potential construction impacts, all planned well before construction starts on site.



**Site access and traffic management:** One of the main challenges for every construction site. Items to be considered include:

• Site access for all heavy vehicles, equipment, and plant deliveries

• Impacts on the surrounding environment such as normal traffic conditions, public and pedestrian traffic conditions, etc.

• Various stakeholders to be addressed to assess what is and isn't possible in relation to site access.

**Extent of site Boundary:** To be identified to included extended space allocations for material lay-down areas, vehicular deliveries, site offices, site amenities, and storage containers, etc. It is critical that all parties agree on the extent of the footprint of all construction activities in the area concerned.

The site allocation is to consider the impact of construction

activities on the existing infrastructure – roads, paths, turfing etc and who will be responsible for making good to these areas when the project is completed and to what extent is the area made good.

It is often realistic to expect that the principal contractor to completely "replace" existing areas unless this has been clearly documented in the tender phase.



**Contractor parking:** This parking allocation will have a considerable impact on the immediate area of the construction site, and the number of vehicles cannot be underestimated. Capacity to accommodate contractor parking is to be measured and planned, especially the impact on surrounding traffic, public parking, and pedestrian access.

**Environmental impact:** Noise, dust control, sediment control & overland stormwater drainage, even visual amenity are all considerations that must have expectations clearly articulated – every Principal Contractor will address this in their environmental management plan.

**Site cranage and concrete placement booms:** This can be a sensitive issue in confined spaces where overhead booms and cranes may encroach across public access areas. Exclusion/safety zones may be applicable when cranes/booms are in use for extreme instances such as falling items.

**Services Interruptions:** There will be times when services such as power, water, data, etc may need to be temporarily interrupted – an investigation into these potential impacts onto the local surrounds will be undertaken as well as the development of a management plan to deal with these potential interruptions.

**Neighbouring Properties:** This is directly related to many of the items above – noise, dust, sediment control, stormwater drainage, visual amenity, parking, traffic and access – An assessment of the potential affects associated with these activities will be undertaken and a strategy implemented to mitigate them.

**Site & Public Safety:** On site safety is the Contractor's responsibility and they will be required to have high quality systems in place, other risks for the client will be associated with the area surrounding the construction site and interaction with construction activities:

- Pedestrian traffic
- Vehicular traffic
- Neighbouring properties

A thorough understanding of the potential impacts and to have a developed strategy outlined to ensure mitigation of potential negative construction impacts. In addition to this, thorough documentation and safety-in-design processes will be adopted.

#### 2. CONSTRUCTION MANAGEMENT PLAN

To be prepared by the principal contractor and to address at a minimum, the items outlined below:

#### A. PROJECT MANAGMENT DETAILS

- Contract Information
- Project Team Structure and contact information
- Construction Milestone objectives including:
  - Site clearing and establishment
  - Bulk Earthworks Fill and Compact site.
  - Sub-Structure Foundations and reinforced concrete footings
  - o Superstructure Reinforced concrete frame and slabs
  - Roof and Façade structures
  - Building Fit Out
  - Site Works
  - o Remediation works as required
- Construction Program



### B. SITE MANAGEMENT PLAN

- A detailed Site Establishment Plan to be provided for review and approvals prior to the site establishment
- Site Entry and Access points
- Traffic Control points and proposals for various stages of activity that could impact neighbouring roads and traffic flow
- Site Fencing and compounds
- Site Parking Contractors & Deliveries
- Pedestrian Access
- Site Accommodation
- Temporary Services including
  - Power Supply
  - Water Supply
  - o Sanitary Waste
- Access and Safety
- Proposed Crane locations
- Materials Handling
  - Deliveries and Storage
  - Cranage locations, timing, site safety, wind load analysis
  - Concrete pumping
  - Construction waste
  - o Community Consultation Communications and Complaints

#### C. CONSTRUCTION SAFETY MANAGEMENT PLAN

- To be developed prior to the commencement on site
- Project details
  - Project description and methodology
- Project team,
  - o Organisation objectives and priorities
  - Duties of all personnel
  - Emergency phone numbers
  - Health and safety management responsibility
- Quality, Occupational Health & Safety, And Environmental (QSE) Policy Statement
- Project delivery
  - Monitoring and review
  - Purchase of goods and services
  - Safety in design (WHS ACT S22)
- Workplace consultation, representation, and participation
  - Information, training, and instruction provided to workers
  - Workplace incidents
  - o First Aid
  - Resolution of health & safety issues
- Inspections and audits
- Risk management process
  - Pre project risk assessment
  - High risk construction work
  - Site specific risk assessment



- Risk register
- Management of plant and equipment including:
  - Scaffolds
  - Electricity, Power Tools and Leads
  - o Ladders
  - Excavators
  - o Cranes
  - o Concrete Pumps
  - o Elevated Working Platforms
  - o Lasers
  - Personal Protective Equipment
  - o Barricades, Hoarding and Gantries
  - Legislative Requirements
- Emergency management
- General Duties Pursuant to Queensland Work Health and Safety Regulation 2011
  - Preparation of WHS management plan
  - Preparation of a Construction Safety Plan to include:
    - Internal Site Audit Process
    - External Site Audit Process corrective action/improvements
    - Site Safety Inspections internal/external
    - Changes to site personnel
    - Changes to site safety rules
    - Changes to legislation
    - Changes to Client/Operator site specific requirements or contact details
    - Safe work method statements
  - General and site-specific induction process
  - Authority to perform high risk and hazardous work
  - Erection of signage
  - Safe housekeeping practices
  - Hazardous chemicals
  - Excavation and trenching works, including under and above ground essential services
  - Protection from falling objects
  - o Amenities

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- Main contractor site safety rules
- Common Hazards, Risks, And Control Measures
  - Health and safety of the public
  - Traffic management
  - Personal protective equipment
  - Electricity
  - Work at heights
    - Scaffolding and Ladders
    - Guardrails and edge protection
    - Roof Access
    - Risk of Fall
  - Starter bars
  - Penetrations
  - o Lasers
  - Hazardous manual tasks
  - Confined spaces
  - Excessive noise
  - High risk hazards



### D. ENVIRONMENTAL MANAGEMENT PLAN

- Site Responsibilities
  - Project manager
  - Site manager
  - o Environmental management officer
- Statutory requirements
  - o Legislation
  - Environmental protection act 1994
  - Reference guidelines
- Stormwater, Erosion and Sediment Control
  - Stormwater Management
  - o Erosion & sediment control
  - o Dust suppression
- Water quality monitoring
  - o Monitoring
  - o Treatment
  - Records, Results and Reporting
- Vegetation & Fauna Management
  - Vegetation management
  - o Fauna management
  - Weed control
- Air quality management
  - o Release of air pollutants
  - Vehicular movement
  - Watering
- Noise management
  - Hours of operation
  - o General construction site conditions
- Waste management
- Storage and Use of Plant and Materials
  - o Hazardous Chemical/Material usage and Storage
  - Plant and Machinery Storage
- Environmental Incident Management
- Erosion and Sediment Control Plan

Appendix 16 Cultural Heritage Register Search



Reference Number:	68708
Lot:	2
Plan:	SP163937
LGA:	Sunshine Coast Regional
Buffer Distance:	100 metres



There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

#### Cultural heritage party for the area is:

QC Ref Number	QUD Ref Number	Party Name	Contact Details
QC2018/007	QUD20/2019	Kabi Kabi First Nation Traditional Owners Native Title Claim Group	Andrea Olsen Queensland South Native Title Services Limited Level 10, 307 Queen Street BRISBANE QLD 4000 Phone: (07) 3224 1200 Fax: (07) 3229 9880

There is no cultural heritage body recorded in your specific search area.

There are no cultural heritage management plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Study Cultural Heritage Areas recorded in your specific search area.

#### **Regional Coordinator:**

Name	Position	Phone	Mobile	Email
Andrew Rutch	Cultural Heritage Coordinator Southern Region	07 3003 6446	0459 840 294	Andrew.Rutch@datsip.qld.gov.au

**Disclaimer**: Department of Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information provided by third parties or any errors in this search report arising from such information.

I refer to your submission in which you requested advice regarding Aboriginal or Torres Strait Islander cultural heritage recorded at your nominated location.

The Cultural Heritage Database and Register have been searched in accordance with the location description provided, and the results are set out in the above report.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the terms of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003*, even if the Department of Aboriginal and Torres Strait Islander Partnerships has no records relating to it.

Under the legislation a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

Please refer to our website <u>https://www.datsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage</u> for a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the legislation.

If your proposed activity is deemed a Category 5 activity pursuant to the Duty of Care Guidelines, there is generally a high risk that it may harm cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where a category 5 activity is proposed, it is necessary to notify the Aboriginal or Torres Strait Islander Party and seek:

- a. Advice as to whether the area is culturally significant;
- b. If it is, agreement on how best the activity may be managed to avoid or minimise harm to any cultural heritage values.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.

Should you have any further queries, please do not hesitate to contact the Search Approval Officer on 1300 378 401.

Kind regards

The Director Cultural Heritage | Community Participation | Department of Aboriginal and Torres Strait Islander Partnerships

Appendix 17 Surrounding landowners map





Appendix 18 Environmental Management and Contaminated Land Register Search





Department of Environment and Science (DES) ABN 46 640 294 485 400 George St Brisbane, Queensland 4000 GPO Box 2454, Brisbane QLD 4001, AUSTRALIA www.des.qld.gov.au

SEARCH RESPONSE ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Globalx Terrain Ann St Brisbane QLD 4000

Transaction ID: 50643601 Cheque Number: Client Reference: AMA/AN Id: 24984

23 November 2020

This response relates to a search request received for the site: Lot: 2 Plan: SP163937 320 NICKLIN WAY BOKARINA

#### **EMR RESULT**

The above site is NOT included on the Environmental Management Register.

## **CLR RESULT**

The above site is NOT included on the Contaminated Land Register.

## ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

The above site is in or contains an area of land categorised on the Commonwealth Department of Defence (Defence) website http://www.defence.gov.au/uxo/ as having a 'substantial' potential to be affected by residual unexploded ordnance (UXO).

Any development application for a material change of use or reconfiguration of the above site will require referral to the Department of State Development Infrastructure and Planning's (DSDIP's), State Assessment Referral Agency (SARA) in regard to UXO.

Explanation:

Defence's website includes advice on the land usage of UXO affected sites, on what to do should UXO be found, and on landowner indemnification for personal injury or property damage. Under the heading "Where is UXO?" the website provides the ability to conduct a search of land status in relation to UXO by Street Address, by Local Government Area, by Land Parcel, by Federal Electorate or by State Electorate.

Currently, SARA has a concurrence agency role in Queensland's development approval process which

provides for land in the Defence 'substantial' category to be further investigated and, where necessary, remediated as part of the approval process. Relevant information is available at http://www.qld.gov.au/environment/pollution/management/contaminated-land/.

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

**Administering Authority**