Mandurah Estuary Bridge Duplication (MEBD) Annual Sustainability Report 2023/2024

Prepared by Georgiou Group

This annual report covers the period from 1/07/2023 to 30/06/2024. This is the second annual report to be prepared for the Project. Previous annual sustainability reports include 2021-2022.

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Disclaimer

All information was true and accurate at date of publication. Data is subject to change pending audits, verifications, and reviews.

Abbreviations and Acronyms Table

Abbreviation	Full Form
ACROD	Australian Council for Rehabilitation of Disabled
ASS	Acid Sulfate Soils
ASSMP	ASS Management Plan
CABE	Commission for Architecture and the Built Environment
CSEMP	Community and Stakeholder Engagement Management Plan
DFES	Department of Fire and Emergency Services
DOH	Department of Health
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Authority of Western Australia
FMP	Fauna Management Plan
GJ	Gigajoule: unit of energy which is equivalent to 1 billion Joules
GRI	Global Reporting Initiative
ha	Hectare(s)
IAP2	International Association for Public Participation
ILUA	Indigenous Land Use Agreement
IS	Infrastructure Sustainability
ISAP	Infrastructure Sustainability Accredited Professional
ISC	Infrastructure Sustainability Council
kL	Kilolitre(s)
km	Kilometre(s)
LCA	Lifecycle Assessment
LTIFR	Lost Time Injury Frequency Rate
m	Metre(s)
MMO	Marine Mammal Observer
Main Roads WA	Main Roads of Western Australia
MEBD	Mandurah Estuary Bridge Duplication
MEHG	Mandurah Environment and Heritage Group
NSHA	Noongar Standard Heritage Assessment
NRM	Natural Resource Management WA
NEPM	National Environment Protection Measures
OGA	Office of Government Architect
PTA	Public Transport Authority
PRS	Peel Region Scheme
Ramsar	The RAMSAR Convention on Wetlands
SDG	Sustainable Development Goals
SLC	Sustainability Leadership Committee
SMP	Sustainability Management Plan

Abbreviation	Full Form
SWALSC	South West Aboriginal Land & Sea Council
tCO_2e	Tonnes of carbon dioxide equivalent
TEC	Threatened Ecological Community
UN	United Nations
WSUD	Water Sensitive Urban Design
WWTP	Waste Water Treatment Plant

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1 About this Report

1.1 Purpose

This report has been prepared for the Mandurah Estuary Bridge Duplication (MEBD) Project (herein 'the Project'). This report was compiled by Georgiou Group on behalf of Main Roads Western Australia (herein after 'Main Roads WA'). This report will accompany the Main Roads WA Annual Sustainability Report and will ultimately be integrated into the Main Roads WA Annual Report. The report content is prepared in accordance with Global Reporting Initiatives (GRI) principles. This report summarises the sustainability initiatives and potential environmental, social, and economic impacts of the Project. Material topics reported in this report have been determined through a materiality process that adheres to the Infrastructure Sustainability Council (ISC).

The Project is aligned with the ISC Infrastructure Sustainability (IS) Version 2.1 Design and As Built Rating framework.

1.2 Sustainability Statement

Originally constructed in the 1980s, the Mandurah Estuary Bridge was designed with future duplication in mind. With the current population growth in Perth, Mandurah, Peel and the South West, the amount of traffic currently using the bridge is causing congestion. More than 33,000 vehicles currently use the existing Mandurah Estuary Bridge daily.

The Project involves the construction of a second, two-lane bridge with a provision to add a future third lane to deliver the ultimate design of a six-lane bridge. The Project duplication bridge also includes the design and construction of a universally accessible recreational fishing platform and a shared path for pedestrians and cyclists. The new four-metre-wide shared path will provide the local community with better access to recreational activities, including fishing and a playground.

The ISC has been supporting the infrastructure industry to drive best practice since 2012 by using the IS Rating Tool to assist in assessing sustainability performance. We will be seeking an IS Rating during the design and construction phase of this Project. This rating will demonstrate the economic, social and environmental opportunities that are achieved through the construction phase and finally into operational and maintenance. An IS Planning Rating has been completed by Main Roads WA in the previous phase.

> *"Duplicating this bridge will significantly reduce the congestion that is currently experienced on approach to the bridge and cut travel times for the thousands of commuters who use the bridge each day." – Paul Buckie, Construction Manager*

1.3 Highlights

The following figure highlights several opportunities implemented during the design phase, linked to the Project Sustainability Objectives (for further detail refer to 3.1 Approach to Sustainability).

Figure 1 Sustainability highlights

2 Project Overview

The Project provides a fundamental safety and efficiency upgrade to the existing dual and single lane configuration currently constrained by increasingly high traffic volumes. The Project will involve a second, two-lane bridge being built on the south side of the existing structure (Figure 2Figure 2). This will provide additional traffic lanes for the original bridge, which is the main traffic access to southern Mandurah through to Bunbury. Delivery of the additional bridge will enable traffic to flow freely in both directions using dual lanes east and westbound with fully connected shared footpaths linking pedestrians and cyclists to nearby road reserves and public transport outlets.

A new accessible fishing platform, carpark and path connections are also being designed and constructed as part of the Project (Figure 3 Project Location and Scope).

The primary objectives of the Project are to:

- Reduce congestion and improve travel times.
- Improve accessibility and connectivity of road networks.
- Improve freight productivity.
- Improve road safety for all road users.
- Improve connectivity and safety for pedestrians, cyclists, and other users.

Construction of the second bridge provides an important economic contribution to the local Mandurah community; supporting local employment, Aboriginal participation, and enhancing business capability and capacity.

Awarded in October 2023, the Project is in the construction phase of delivery and is due for completion late 2025. For up-to-date Project information, please visit the Main Roads WA Project Website.

Figure 2 Existing Mandurah Estuary Bridge

2.1 Locality and Scope

The Project is located in the Dudley Park suburb, along Mandurah Road, situated between Leslie Street and Old Coast Road. This thoroughfare is used to travel within Dudley Park, Halls Head and Falcon, and passing from the south through to the northern suburbs and Perth. Mandurah Road links Mandjoogoordap Drive to the old Lake Clifton Road, which also serves as a major arterial network for oversize and over mass vehicles, which use the existing bridge to access Rockingham and Henderson ports.

Local stakeholders have been considered throughout project development to ensure final design delivers shared outcomes, and that construction activities do not disrupt businesses or residential operations. Community and stakeholder engagement has been a vital component of planning and delivery. Key project stakeholders include the City of Mandurah, Main Roads WA South West Region, and Perth Transport Authority (PTA). A full list of stakeholders engaged can be found in Appendix 1 .

The Project is within the Peel Region. Main Roads WA South West Region is the Asset Owner. The Project area is zoned as Primary Regional Roads within the Peel Region Scheme (PRS) – the basis for land use planning throughout the Peel Region. Foreshore reserves are zoned as 'Regional Open Space' in the PRS and the adjacent land to the Project area is zoned as 'Urban' (Figure 3 Project Location and Scope).

Works being completed as part of the Project include:

- Design and construction of Bridge No. 1910 on the Highway for southbound traffic over the Estuary including Design and construction of modifications to existing Bridge No. 1085 on the Highway to be converted for use by northbound traffic over the Estuary.
- Design and construction of a new fishing platform.
- Design and construction of noise walls, retaining structures and walls.
- Design and construction of all connections, modifications and improvements necessary to connecting roads including access roads and intersections.
- Design and construction of road safety barriers.
- Design and construction of screen walls for privacy and headlight glare.
- Resurfacing of existing pavements where lane markings change, including resurfacing of the existing Bridge No. 1085 (northbound Highway over the Estuary).
- Provision of road reserve and other permanent fencing.
- Upgrade of existing parking area for fishing platform users at the eastern foreshore of the Estuary, including provision of sealed parking bays and access road from Waterside Drive.
- Provision of shared paths and footpaths including connections to the existing network. Replacement of existing paths where required.
- Design, installation, modification and upgrading of lighting.

An overview of major works and temporary construction are outlined in Figure 3 Project Location and Scope, including the new fishing platform, the construction site compound and casting bed.

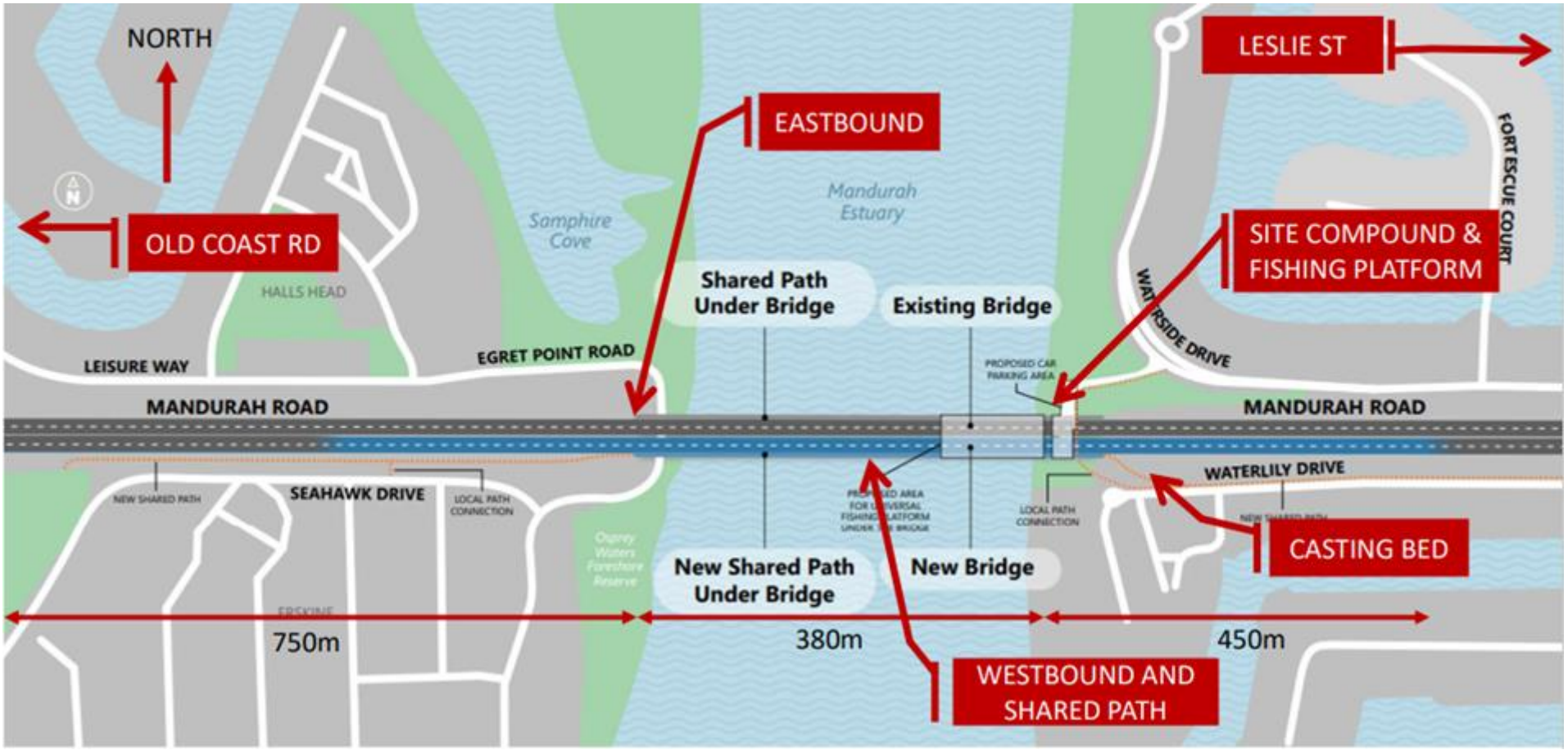


Figure 3 Project Location and Scope

2.2 Value and Funding

The $136 million Project is jointly funded by the Australian and Western Australian Governments, with each contributing $68 million.

2.3 Delivery Contractor

The Project is being delivered on behalf of Main Roads WA by local contractor Georgiou Group with a design team comprising of BG&E and WSP.

2.4 Project Timeline

Following contract award in October 2023, the Project immediately commenced stakeholder engagement activities and various sustainability workshops including a materiality assessment and resilience risk assessment (Figure 4) to identify and assess priority issues. During design development from October through to mid-2024, Georgiou has consulted with key stakeholders on design packages and discussed high priority issues for consideration in design, construction and operation (Section 6.2). This has included meeting with stakeholders to discuss the Project's sustainability objectives and targets (Section 3.1) and investigating and assessing environmental, social and economic opportunities for implementation. Following IFC Design, the Project will submit the ISC IS V2.1 Design Rating to ISC for third party verification. This will involve a two-round verification process, whilst Georgiou concurrently pursues the As Built Rating throughout the construction phase (Figure 4).

Construction works commenced in February 2024, with preloading works occurring along Mandurah Road from February to confirm the geotechnical conditions prior to the bridge launch. Piling works commenced in June 2024 in preparation for the planned incremental launch in September 2024. Ongoing monitoring, reviews and audits will take place during construction aligned with the Project's management procedures including the IS V2.1 As Built Rating requirements.

The Project will deliver annual sustainability performance reports until 2026, at which point the Project is at Practical Completion (Figure 4).

MANDURAH ESTUARY BRIDGE DUPLICATION (MEBD) PROJECT TIMELINE

OCT 2023	PROJECT AWARD
FEB 2024	CONSTRUCTION COMMENCES
JUL 2024	2023-2024 ANNUAL REPORT
SEP 2024	DESIGN COMPLETION
SEP 2024	BRIDGE LAUNCH COMMENCES
JAN 2025	IS DESIGN RATING FIRST ROUND VERIFICATION
JUL 2025	2024-2025 ANNUAL REPORT
NOV 2025	IS AS BUILT RATING FIRST ROUND VERIFICATION
MAR 2026	PRACTICAL COMPLETION (ALL MAJOR WORKS)
JUL 2026	2025-2026 ANNUAL REPORT
SEP 2026	PRACTICAL COMPLETION (LANDSCAPING AND FINISHING WORKS)

Figure 4 Project Timeline Infographic

3 Governance

3.1 Approach to Sustainability

The Project is seeking an ISC IS V2.1 Design and As Built 'Silver' Rating. This means we are embedding a high level of sustainable practice into all aspects of design and construction, based on industry-leading standards. These Ratings aim for optimal environmental, social and economic outcomes within the design and delivery of the Project. The Project is currently in the Design phase and preparing the IS V2.1 Design Rating submission (Figure 4Figure 4).

A Sustainability Management Plan (SMP) has been developed to outline how Georgiou will achieve all contractual deliverables and sustainability outcomes on the Project. The Project's governance structure involves integrating sustainability within all disciplines on the Project and assigning personnel responsible for delivering sustainable outcomes within each discipline rather than sustainability being delivered isolated to the Project. The Project has a dedicated Sustainability Manager who is also an Infrastructure Sustainability Accredited Professional (ISAP) and reports directly to the Project Manager. The Project's key personnel form the Sustainability Leadership Committee (SLC) and meet monthly throughout design and construction to discuss progress and issues/opportunities.

3.1.1 Sustainability Vision and Objectives

The Project's sustainability approach is based on the Sustainability Vision and Objectives established by Main Roads WA in the Planning Phase. The Vision articulates the forward positive direction of the Project; essentially an aspiration of the sustainability achievements. The Project Sustainability Vision is for:

> *"Connected, accessible and quality bridge and fishing platform that delivers a positive legacy by embracing local culture, improving habitat and amenity, and enhancing sense of place."*

The Project's Sustainability Objectives are:

- Protect, enhance and integrate the existing uses of the Estuary 'place'.
- Protect and enhance the local environmental features.
- Improve accessibility, capacity, connectivity and safety for all users.
- Maximise business and employment opportunities for local communities.
- Deliver a high-quality outcome that is socially and environmentally sustainable and responds to the context and character of the area.
- Deliver a durable, resilient, low maintenance bridge that delivers value for money across all project phases.

These Sustainability Objectives are designed to reflect the most important environmental, social and economic outcomes to be delivered during design, construction and operational phases of the Project. The Objectives are supported by several targets (Section 3.1.4) the team will work towards, to integrate the best environmental, social and economic outcomes for the community with the design and construction of the project works.

3.1.2 Sustainability Policy

Georgiou's Corporate Sustainability Policy commits the organisation to promoting a culture of sustainability across all operations and minimising environmental and social impacts by:

- Integrating sustainability initiatives throughout the business;
- Maintaining ethical responsibility in Project management, procurement and employment;
- Setting sustainable objectives and targets annually;
- Engaging with local communities;
- Supporting a diverse, engaged, motivated and competent workforce;
- Facilitating the sharing of ideas, knowledge and innovation that provide sustainable benefits;
- Maintaining health and safety of workforce, community and environment; and
- Delivering sustainable profits without compromising social, legal or contractual obligations.

A copy of the Sustainability Policy is provided in Appendix 1

3.1.3 Material Sustainability Issues

The materiality process is a critical part of establishment, identifying the most important (material) sustainability issues to tailor the IS Rating tool to the Project and determine the environmental, social and economic outcomes the delivery team focuses on. A materiality assessment was completed during the Planning Rating and utilised as the basis of the assessment process in the delivery phase, to incorporate the substantial engagement activities and workshops completed during this stage. The materiality assessment was a multidisciplinary review process, and resulted in the following issues being identified as the most important in terms of significance of impacts and importance to stakeholders:

- Local Business / Job Opportunities.
- Benthic Habitats.
- Recreational Use.
- Accessibility and Connectivity.
- Culture, History and Heritage.
- Resilience and Climate.
- Noise.
- Vibration.
- Water Quality and Wetlands.
- Urban and Landscape Design.
- Stakeholder Engagement.

3.1.4 Sustainability Targets

Sustainability targets have been developed for achievement over the design, construction and operational phases of the Project (Table 1). These targets were developed following input of key Project stakeholders and compilation of the Project's material issues (Section 3.1.3). Targets are displayed on the Project Website for the Project Planning, Design, Construction and Operation Phases. Performance of each of these targets will be reported annually within the Project Annual Sustainability Reports.

Table 1 Sustainability Targets

Sustainability objectives	Targets	Phase	Delivery Personnel Responsible	June 2024 Status Update
Protect, enhance and integrate the existing uses of the Estuary 'place'.	Enhance the existing recreational facilities and connected path network within the project area for all-abilities users, by: • implementing a new accessible fishing platform and associated fishing facilities; • new accessible car park with six Australian Council for Rehabilitation Of Disabled (ACROD) parking bays; and • enhanced shared path network. Demonstrated through survey that 75 per cent of responders are satisfied the quality of place has been improved.	Design	Stakeholder Manager & Design Manager	Design actions completed and opportunities implemented in final design. Pending survey responses.
	Improve existing recreational facilities through new playground and educational facilities, promoting the local environment.	Design & Construction	Sustainability Manager & Design Manager	Concept being developed for integration within design.
	Incorporate at least three pieces of public art into the Project incorporating themes that reflect the history, Aboriginal heritage, and/or environment of the local Mandurah Estuary area. Consult and incorporate input from Local Bindjareb Noongar people into all artwork reflecting Aboriginal culture. Create an additional seating node and collaborate with the Local Bindjareb Noongar people to enhance appreciation of the area.	Design	Indigenous Engagement Officer & Design Manager	A Bindjareb reference group is involved in the artwork development process. Three public art pieces are being coordinated by the project including noise wall artwork (concept at 100%), fishing platform artwork (artist selection completed June 2024) and a mural artwork (still selecting artist).
Protect and enhance the local environmental features.	Provide permanent interpretative elements regarding the heritage and environmental value of the area, recognising Dolphins of the Peel-Harvey Estuary, the Ramsar Wetland status and migratory birds, to enhance environmental awareness and appreciation.	Design	Sustainability Manager & Indigenous Engagement Officer	Content being developed by the Project in consultation with local stakeholders.
	Provide Marine Mammal Observer (MMO) monitoring data from the construction phase to Dr Krista Nicholson from Murdoch University.	Construction	Environmental Manager	The Project has commenced piling works and capturing MMO data. The format for data collection was reviewed by Dr Krista Nicholson for suitability.
	All plant species used for landscaping are indigenous species (endemics).	Design & Construction	Design Manager	Incorporated into design and consultation completed with Bindjareb reference group.
Improve accessibility, capacity,	Increase eastbound morning peak hour median speed by 10% compared to pre-construction traffic conditions.	Design	Design Manager	Design progressing to IFC.
	Reduce crash frequency (rear and side swipes) within Project area compared to pre-construction crash statistics.	Design	Design Manager	Design progressing to IFC.

Sustainability objectives	Targets	Phase	Delivery Personnel Responsible	June 2024 Status Update
connectivity, and safety for all users.	Undertake a permeability assessment and achieve an improved Link and Place (Jones & Boujenko, 2009) score, Movement and Place score or similar methodology, including facilitating safe path access to bus stop ID 27635 on the south side of Mandurah Road.	Design	Design Manager	Permeability assessment completed by the Project's landscape architect indicating an improvement in link and place score as a result of final design.
Maximise business and employment opportunities for local communities.	At least 3.5% project spend on materials sourced within 50km radius of the Project.	Construction	Commercial Manager	To date the Project has spent 6% on materials sourced locally.
	At least 3.5% of contract value is awarded to registered Aboriginal businesses during construction phase	Design & Construction	Indigenous Engagement Officer	Of contract value, a total of 2.6% was spent on Aboriginal businesses in June 2024l
	Provide two local businesses within 50km radius of the Project who have not completed Main Roads WA works, ability to competitively tender, understand specifications and quality requirements, and successfully submit bid for works on the project.	Design & Construction	Commercial Manager	The Project team has engaged two local businesses who have not previously been involved in a Main Roads WA project. The Project team has also engaged a local Aboriginal business.
	At least 7% of project value spend on businesses within a 50km radius of the Project.	Construction	Commercial Manager	Of the total spend to date, 7% has been spent locally.
	Keep navigational channel open for at least 95% of the construction project program	Construction	Construction Manager	No closures planned to date.
Deliver a durable, resilient, low maintenance bridge that delivers value for money across all project phases.	Implement at least three opportunities to reduce maintenance compared to the existing Mandurah Estuary Bridge.	Design & Operation	Design Manager	Opportunities are being implemented into final design to reduce maintenance including no scuppers and integrated drainage system on the new bridge.
	Identify and treat high climate and natural hazard risks and priority shocks and stresses within permanent design, to deliver a more resilient asset and associated infrastructure.	Design, Construction & Operation	Sustainability Lead (BG&E)	Risk assessment completed and treatment actions implemented in final design. Resilience Plan being developed.
	Design and install motion sensor lighting on the fishing platform and car park to reduce energy and emissions and light impacts to sensitive receptors.	Design & Operation	Design Manager	Incorporated into IFC design.
	Greater than 75% of all stakeholders are satisfied that their input has influenced positive outcomes on the Project	Design & Construction	Stakeholder Manager	Ongoing engagement activities and survey outstanding.
	Beneficially re-use outputs on the Project: • Casting bed formwork and launch nose/frame used for bridge launch is from previous project. • Casting bed lifting beam from previous project.	Design & Construction	Construction Manager	Both opportunities have been implemented in design and construction planning.
Deliver a high-quality outcome that is socially and	Achieve an ISC IS V2.1 Design and As Built Silver Rating	Design & Construction	Sustainability Manager	Monthly performance is positively tracking towards achieving the Silver Rating.

Sustainability objectives	Targets	Phase	Delivery Personnel Responsible	June 2024 Status Update
environmentally sustainable and responds to the context and character of the area.	Implement opportunities to optimise the use of materials on the Project and achieve a reduction in the environmental impacts of materials across design, construction and operational life of the asset, by a minimum of 10 per cent.	Design, Construction & Operation	Sustainability Lead (BG&E) & Sustainability Manager	A LCA is being prepared by the Project and the Base Case being verified by ISC to confirm performance of this target.
	Implement opportunities to reduce energy use and emissions across design, construction and operational life of the asset, by a minimum of 10 per cent. Design, Construction & Operation	Design, Construction & Operation	Sustainability Lead (BG&E) & Sustainability Manager	A LCA is being prepared by the Project and the Base Case being verified by ISC to confirm performance of this target.
	Implement opportunities to reduce water usage across design, construction and operational life of the asset, by a minimum of 10 per cent.	Design, Construction & Operation	Sustainability Lead (BG&E) & Sustainability Manager	A LCA is being prepared by the Project and the Base Case being verified by ISC to confirm performance of this target.
	At least >85% of treated ASS is diverted from landfill (including >50% onsite reuse) in line with the DWER approved ASSMP.	Design & Construction	Construction Manager & Section Leads	No ASS excavated to date.
	At least >85% of clean/inert material excavated is diverted from landfill (including >50% onsite reuse of clean/inert excavation spoil).	Design & Construction	Construction Manager & Section Leads	All clean material used to date has been stockpiled for reuse at later stages of construction.
	At least >60% office resource outputs are diverted from landfill.	Construction	Construction Manager & Section Leads	To date 53% of all office waste has been diverted from landfill. The Project has planned educational sessions with the office team in an effort to improve performance.
	At least >70% all other inert resource outputs are diverted from landfill	Construction	Construction Manager & Section Leads	To date 98% of all inert outputs have been recycled and diverted from landfill.
	Greater than 70% of all water used for construction purposes is recycled water.	Construction	Construction Manager & Section Leads	To date 47% of all water used by the Project has been recycled water.
	Minimise light pollution and impacts to sensitive receptors, demonstrated through no more than two horizontal lux level over the project boundary and two per cent upward light ratio (excluding decorative lighting).	Design, Construction & Operation	Design Manager	Report completed by lighting designer confirming this target has been achieved.

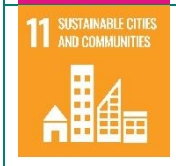
Sustainability objectives	Targets	Phase	Delivery Personnel Responsible	June 2024 Status Update
	Minimise impacts of noise emissions to nearby receptors as a result of the Project: • No occurrences of piling while a dolphin is sighted within the exclusion zone (50m). • Sensitive receptors are notified ahead of time of construction activities which may produce noise. • Works during regular hours (Monday to Saturday, 7am to 7pm, excluding public holidays) will be undertaken as quiet as reasonably practical and in accordance with Section 4 of AS 2436-2010 Guide to noise and vibration control on construction, maintenance and demolition sites. • Where out of hours construction works cannot comply with the assigned noise levels (as interpreted from the Noise Regulations), approval will be obtained from the City of Mandurah and sensitive receptors are notified of upcoming nightworks, noting the location and general timing.	Construction	Environmental Manager	Ongoing management of noise during construction as per the Environmental Management Plan.
	Minimise impacts to nearby receptors as a result of vibration generated by construction activities associated with the Project: • Keep vibration levels produced by the construction works below five mm/s at the nearest sensitive receptor(s), as far as is reasonably practicable; and • Close out all claims of damage as a result of vibration from the Project.	Construction	Environmental Manager	Ongoing management of vibration during construction as per the Environmental Management Plan.
	Achieve at least 10 per cent of total work hours undertaken by local Aboriginal persons.	Construction	Indigenous Engagement Officer	To date 12% of total work hours has been undertaken by local Aboriginal persons.
	Achieve at least 10 per cent of women in the workforce.	Construction	Project Manager	To date approximately 20% of the workforce is made up of women.
	Improve wellbeing for all employees on the Project including: • Monitoring work hours, weekend hours and night shift hours. • Creating a culture of wellness measured through team sentiment survey. • Supporting physical health through at least one opportunity implemented for nutrition, exercise and sleep.	Construction	Project Manager	A Health and Wellbeing Management Plan has been rolled out including initiatives; on-site fitness classes, involvement in the ‘Push-Up Challenge 2024’ 2024, on-site educational session focusing on the importance of sleep, run by an external psychologist.

3.2 United Nations Sustainable Development Goals

The UN SDGs are an internationally agreed set of sustainability targets developed by the UN in 2015 as part of the 2030 Agenda for Sustainable Development. The 17 SDGs recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. These 17 sustainability goals are being embedded into government policies and reporting frameworks globally, including the ISC IS Rating scheme. As is the nature of sustainability, the SDGs are correlated and work within one goal may support the performance of another. A high-level overview of the Project's contribution to these global sustainability targets is captured in Table 2 below.

Table 2 Project alignment to the SDGs

SDGs	Related project activities contributing to the SDGs
	• The Project is unlikely to impact poverty in the context of the sustainability targets and indicators for this SDG.
	• The Project scope is not aligned to the contribution of this goal.
	• The Project itself intends to improve safety and reduce the risk of collisions along Mandurah Road; contributing to the reduction of road traffic accidents. • Consideration of all road users within design development enables the delivery of safe road networks. • The Project upholds high safety and working standards aligned with Georgiou's Health and Safety Management Plan (refer to Section 6.8). The Project has also developed and implemented a Project Health and Wellness Management Plan, promoting workforce wellbeing and providing ongoing health and wellbeing guidance and resources to employees.
	• Indirect contribution through educational opportunities supported by Georgiou throughout design and construction including university and local school involvement.
	• Georgiou's Diversity and Equal Opportunity Policy governs the Project ensuring all employees are given equal opportunity irrespective of gender. This includes the ongoing provision of training and communications for the workforce throughout the design and construction phase. • Georgiou is also contributing to the aspirations of this target locally through the inclusion of a women in the workforce target (refer to Section 6.6.).
	• The sustainable management of construction water demand; Georgiou partnered with the City of Mandurah to utilise a sustainable water source for water demand and cancel out the use of groundwater (refer to Section 5.12 for further information). • The Project also indirectly contributes to this target through the appropriate management of hazardous materials on site and employing controls during construction activities to minimise and manage spills on site.
	• The Project is unlikely to impact access to affordable and clean energy and enhancing energy efficiency.

SDGs	Related project activities contributing to the SDGs
	• Supporting industry economic development through the actions outlined within the Project Industry Sustainability Management Plan. Further to this, the Project is supporting local business and job opportunities locally within the Peel Region and seeking to provide capability building opportunities (refer to Section 4.1). • Working with local, emerging aboriginal businesses on the Project also contributes to the intent of this SDG. • Georgiou's Health and Safety Policies and Management Plan ensure a safe working environment for all Project employees.
	• The Project directly contributes to this target through the pursuit of resilient infrastructure. A resilience risk assessment was completed early in the design phase, and a Resilience Plan is being developed to ensure all identified shocks and stresses are managed appropriately. Further information is captured in Section 3.3. • The Project has developed a Resource Efficiency Management Plan to ensure resources are used efficiently during the asset life. This also includes the targeted reduction of the environmental impact of materials supplied on the Project, supporting the use of more sustainable products within industry.
	• The Project is aligned with Georgiou's Diversity and Inclusion Policy, supporting a safe working environment, free from discrimination. • The Project is also indirectly contributing to this target through the implementation of workforce targets.
	• Through delivery of the Project Works, the Project is facilitating access to safe, accessible and sustainable transport systems for all road users. The Project sustainability targets include improving connectivity and accessibility for all-abilities users. Through the resilience risk assessment process implemented on the Project, the Project is identifying potential shocks and stresses, vulnerable communities and suitable treatment opportunities to be integrated. • The Project indirectly contributes to this target through the air quality baseline and impact assessment completed for construction and operational phases.
	• The Project contributes to the targets within this SDG through the implementation of the Resource Efficiency Management Plan, and the efficient management of all resources. Reduction of waste generation is pursued through the application of the waste hierarchy and implementation of resource output targets. • Supporting sustainable production and consumption of the Project supply chain through the implementation of sustainable procurement processes (refer to Section 4.3).
	• The Project is completing a detailed climate and natural hazard assessment with external stakeholders to determine high priority risks affecting the operational life of the asset and feasible treatment options; to deliver a more resilient asset.
	• The Project scope is not aligned to the contribution of this goal
	• The Project scope is not aligned to the contribution of this goal
	• The Project scope is not aligned to the contribution of this goal

SDGs	Related project activities contributing to the SDGs
	• Indirect contribution through the alignment of the global sustainability goals with the Project's sustainability outcomes.

3.3 Climate Change Assessments

The Project has engaged with a wide range of stakeholders to consider future projected climate changes for the Project area. Such changes can impact the way the Project is designed or operated, to reduce the risks of future change for local users of the area.

Some of the climate change risks that were raised by stakeholders related to the potential flooding of the Highway or adjacent land. Such events could occur locally or more broadly and be influenced by factors including increased rainfall intensities or sea level rise. The Project considered the risks and consequences of climate change in its calculations to determine drainage infrastructure needs. This included performing sensitivity analysis on key design inputs.

Most surface water runoff is captured in enclosed drainage systems sized to accommodate future higher-intensity storm events. The design of basin outfalls considered the effects of higher groundwater (due to adjacent Estuary levels) and established that safe overland flow paths would be available during extreme events. Outfall pipes immediately adjacent the Estuary have also considered sea level rise by incorporating one-way valves to prevent tidal backflows. The final design finds the right balance between minimising impacts on the existing surrounds whilst remaining readily adaptable to meet future conditions.

For the bridge structure, sensitivity assessment for increased flood event intensity allowed suitable hydrology parameters, scour levels and velocity to be used in the structural design.

3.4 Technology and Innovation

Georgiou and Main Roads WA support the identification and implementation of innovative technologies through design and construction phases. A process has been implemented to enable Georgiou to propose alternative options to the SWTC, for review and assessment by Main Roads WA, where Georgiou demonstrates a substantial benefit. This process has resulted in multiple opportunities implemented to date, including an alternative method for construction of pile caps to reduce plant movement and disturbance within the Estuary; reduction of overall asphalt thickness; reduction of final parapet design to minimise maintenance and overall plant movement within the Estuary.

Collaboration with the City of Mandurah and Department of Health has led to an innovative approach to meet the water demand for construction purposes. The Project is utilising recycled water for construction purposes (Section 5.12 for more information).

4 Economic

4.1 Key Economic Context

The Project is located within the Peel Region, considered part of the South West Region of Western Australia. Due to its location and capital value, the Project has the opportunity to contribute to business capability and capacity building in the local Mandurah and Peel Region. Local business and job opportunities were recognised as a material issue on the Project, and targets were established to see this realised during design and construction (Section 3.1.4).

The new bridge will decrease congestion, improve the safety of commuters and reduce commute time by an estimated three (3) minutes for residents and businesses servicing the areas to the north and south of the estuary. The ability to increase the flow of traffic would make the southern area of the estuary more attractive for residents and business to establish in the areas of Falcon, Halls Head and Dawesville.

Land uses immediately adjacent to the Project include the Mandurah Estuary, residential areas, public recreational areas including food trucks, and environmental reserves. All stakeholders are listed in Appendix 1 . Construction works will not impact traffic within the Estuary or cause any closures of roads where businesses are located.

Recently considered one of the fastest growing regional areas in Australia, the population in the Mandurah area has significantly increased and the areas south of Mandurah namely Erskine, Falcon, Halls Head and Dawesville have developed into large residential areas. This has created the need for the additional bridge to accommodate the increased traffic flow. The current number of vehicles travelling over the existing bridge is more than 35,000 vehicles per day with a predicted number of vehicles rising to more than 50,000 vehicles per day by 2041. There is currently no passenger rail system south of Mandurah and residents and businesses are solely reliant on the two roads that link north and south of the estuary outlet.

Currently, the Project employs approximately 50 staff that are either directly employed by Georgiou or as subcontractors. The Project is expected to employ more than 350 people during the construction period with a large proportion of persons employed either coming from the local area or a local business. A summary of economic aspects is included in Table 3.

Table 3 Summary of Economic Aspects

ECONOMIC ASPECT	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Indigenous Enterprises Onboarded	#	7	7
People Employed by Supply Chain	#	181	181
Suppliers Engaged	#	252	252
Buy Local* Spend	$	1,995,258	1,995,258

**Within 50km of the Project area*

4.2 Key Economic Outcomes

The key economic benefits from the construction of the Project are briefly as summarised below:

- Local business and employment opportunities within the local Mandurah area and wider Peel Region. A minimum 7% spend on local businesses within 50km of the Project (of total contract value) is being targeted by the Project. An estimated 350 jobs are created during construction.

- Local spend in the area will be increased by employing local staff and businesses.
- A minimum 3.5% (of total contract value) or $4.76M spend on Aboriginal businesses.
- Reduce congestion and improve travel times by an estimated three (3) minutes, expected to increase productivity.
- Improve freight productivity.
- Improve safety, accessibility and connectivity of roads and pedestrian and cyclist areas. This may increase the interest of families and businesses to join the area.
- Increase development and further business opportunities that accompany population growth.

4.3 Sustainable Procurement and Buy Local

Georgiou is committed to sustainable procurement for the Project and has a unique opportunity to support the local businesses by building the capability and capacity to deliver works on a major infrastructure project. Local business and job opportunities was identified as one of the most important sustainability aspects of the Project, and as a result Georgiou have targeted the following local spend targets at minimum:

- At least 7% of Project value spend on businesses within a 50km radius of the Project.
- Provide two local businesses within 50km radius of the Project and who have previously not completed Main Roads WA works, with the opportunity to competitively tender, understand specifications and quality requirements, and successfully bid for works on the Project.
- At least 3.5% of Project spend on materials sourced within 50km radius of the Project.

Georgiou is also actively engaging with local businesses to determine and ascertain their suitability to participate on the Project based on their capabilities, services and financial strength. Packages on the Project that have already been awarded locally include (but is not limited to):

- Concrete supply.
- Reinforcing steel supply.
- Limestone Blocks and Block layers supply.

In line with WA Government Buy Local Policy and commitment to sustainable procurement, Georgiou is:

- maximising opportunities for the local businesses to participate in the works.
- providing full, fair and reasonable opportunity through transparency and accountability in the tendering and award process.
- supporting local WA businesses to remain competitive on large projects in WA.
- endeavouring to achieve our targets for Aboriginal engagement and local business spend.
- awarding packages that are suited for smaller subcontractors and suppliers where possible.
- currently engaging the services of various Aboriginal companies.

These commitments are integrated in the Project's Procurement Management Plan. A sustainability risk and opportunity assessment was completed by the Project team to identify risks and opportunities within the Project's supply chain. Management actions and opportunities are reviewed and agreed with a multidisciplinary team.

4.4 Sustainable Transport

4.4.1 Accessibility

The wider area is a popular destination for fishers including the FishAbility program, assisting children and adults requiring support to experience the joy of fishing with assistance. The existing platform is only accessible through stairs and through consultation in the previous phase, the new platform is designed to be fully accessible through the new carpark planned off Waterlily Drive. The new carpark will also be constructed with nine ACROD parking bays.

Georgiou has met multiple times with the City of Mandurah Access and Inclusion Advisory Group (AIAG) to discuss permanent design and understand opportunities to adapt the fishing platform and associated infrastructure and make these areas more accessible. Further opportunities implemented in permanent design include the provision of additional ACROD bays, bicycle racks provided at new carpark, and the design of the fish cleaning station at an accessible height. Additional opportunities raised by the AIAG are currently being investigated by Georgiou for implementation where feasible.

4.4.2 Connectivity

The main objective of the new duplication bridge is to improve the connectivity between Mandurah and the areas south of Mandurah. By not destroying the existing bridge and building an entirely new bridge, the addition of a duplicate bridge with a design life of 100 years will contribute to the sustainability of the route between the north and south. Design has allowed for future provision of additional assets including an additional lane and additional infrastructure (CCTV).

Construction of the new bridge and associated works will increase pedestrian and cyclist connectivity through new connections being constructed as part of permanent works. New connections include:

- connection of Waterlily Drive to the new shared path on the bridge.
- connection of western shared path to existing shared path near Abbotswood Lake.
- connection of shared path on western side to Seahawk Drive.

These new connections facilitate access to the new fishing platform and carpark, improved connectivity to public transport, and improve north south access across the Highway.

4.5 Economic Case Study

Working with local, emerging Aboriginal businesses is at the forefront of procurement activities on the Project. Not only does this support Aboriginal families and community but also brings opportunity to increase the local area's economic performance. Georgiou understands the importance of supporting Aboriginal businesses through the procurement of goods and/or services as required by the Project. We aim to assist in the continual development of Aboriginal businesses to expand their service/supply chain value proposition to ensure a sustainable enterprise is developed once the Project has concluded. Not only does this positively impact those involved within businesses but it extends to the wider communities and future generations. The Project has a target to spend a minimum of 3.5% of the total contract value on Aboriginal businesses. Georgiou continue to strive to meet with and engage with local and Aboriginal businesses and forecast an injection of over $3.2 million into local Aboriginal businesses.

So far within the lifespan of the Project, Georgiou has held their own Indigenous Business Open House in January 2024 which hosted 10 Aboriginal businesses (Figure 5). This Open House was held during early stages of design prior to majority of the procurement packages going out and gives businesses opportunity to speak directly to the Project Design team, Engineers, Supervision and Management around upcoming packages. From this forum, two businesses are actively being engaged with, regarding the electrical and concrete precast packages.

Figure 5 GG Project Manager & Design Manager discussing business opportunities with Uncle George Walley (Bindjareb Elder & Traditional Owner) at the Project Indigenous Businesses Open House January 24

Georgiou has also become involved with the Waalitj Hub – a subdivision of the Waalitj Foundation who provide support to Aboriginal and/or Torres Strait Islander people wanting to start, grow or sustain their business. The Project presented at the Hub's Mandjoogoordap Business Builders in May

2024 (Figure 6), in which we were able to provide details on the business, project itself, the packages in which business could price and a run through of our simplified procurement process.

Figure 6 Georgiou Waalitj Hub Presentation, Business Builders, Mandjoogoordap

5 Environmental

The Project is situated in an area with important environmental and social value. There are two Threatened Ecological Communities (TECs) adjacent to the Project area Appendix 3), and 2.27ha of the project area sits within the Mandurah Estuary. The Mandurah Estuary is part of the Peel-Yalgorup Wetland System, a Ramsar Wetland of International Importance. The Peel-Yalgorup system is used by tens of thousands of waterbirds, including large numbers of migrant shorebirds from the northern hemisphere. The Peel-Harvey Estuary is occupied year-round by a resident community of approximately 90 Indo-Pacific bottlenose dolphins.

A summary of environmental performance and aspects for the Project are detailed in Table 4.

Table 4 Summary of Environmental Aspects

ENVIRONMENTAL ASPECTS	UNIT	TOTAL THIS PERIOD	TOTAL FOR PROJECT
Native Terrestrial Vegetation Cleared	ha	0.00	0.00
Benthic Vegetation Cleared	ha	0.06	0.06
Revegetation/rehabilitation Undertaken	ha	0.00	0.00
Total Water Consumption	kL	8352.54	8352.54
Total Non-Potable Water Consumption	kL	3950.21	3950.21
Total Potable Water Consumption	kL	4402.33	4402.33
Non-Potable Water Replacement	%	47.00	47.00
Total Green House Gas emissions^	t CO_2-e	554.00	554.00
Total Energy Consumption^	GJ	7834.00	7834.00
Renewable Energy Mix of Total Electricity^	%	9.00	9.00

^ *Inclusive of construction related emissions only, as per Table 9*

A Resource Efficiency Strategy has been developed for the Project to set the overarching expectations for the management of resources during design, construction and operation. This includes development of a Resource Efficiency Action Plan and resource output targets to divert waste from landfill and maximise reuse on site (Section 5.6). A summary of resource inputs and wastes for the Project are detailed in Table 5.

Table 5 Resource and Waste Summary

RESOURCE INPUTS AND GENERATED WASTE	UNIT	TOTAL THIS PERIOD	TOTAL FOR THE PROJECT
Resource Inputs (Materials)			
Total Quantity of Virgin Materials Used	t	62,143.76	62,143.76
Total Quantity of Recycled Materials Used	t	1,083.20	1,083.20
Total Quantity of Reused Materials Used Onsite	t	37,080.48	37,080.48
Percentage of Reused/Recycled Material Used	%	31.00	31.00
Resource Outputs (Wastes)			
Waste Sent to Landfill	t	10.90	10.90
Total Waste Generated by Project	t	355.18	355.18
Waste Diversion Rate	%	96.93	96.93
Clean inert spoil material diversion rate	%	0.00	0.00
Office output diversion Rate	%	46.98	46.98
Inert output diversion rate	%	98.49	98.49
ASS Diversion Rate	%	0.00	0.00

5.1 Environmental Context

The Project area covers 20.5ha, out of which 6.51ha supports planted vegetation. A section of the Project area (2.27ha) sits within the Mandurah Estuary and to complete the construction of the new bridge including seven new piers and two reclamation pads (Figure 7), a total of 0.06ha benthic vegetation (seagrass) will be cleared. The remaining Project area includes land covered by roads, tracks, paths and bare areas.

Figure 7 Reclamation Pad, on the eastern foreshore (image taken prior to sheet piling installation)

The Project intersects with Djilba (Place ID 32696), an Aboriginal Heritage Site (Section 6.4) for further information regarding the Project's consultation process with the Bindjareb Reference Group). A

Section 18 consent under the *Aboriginal Heritage Act 1972* was granted on 7 October 2022.

The Mandurah Estuary forms part of the Peel-Yalgorup Wetland System, a Ramsar Wetland of International Importance. The Peel-Yalgorup system is used by tens of thousands of waterbirds, including large numbers of migrant shorebirds from the northern hemisphere. Impacts to the wetland have been considered in design, construction and operation, refer to Section 5.3 for more information. According to the findings of the biological survey, terrestrial areas within the Project area are not likely to support migratory species outside of transient visits due to a lack of suitable habitat.

The Peel-Harvey Estuary is occupied year-round by a resident community of approximately 90 Indo-Pacific bottlenose dolphins. Following stakeholder feedback, Georgiou engaged dolphin researcher Dr Krista Nicholson (Murdoch University) and Estuary Guardians volunteer Robyn Bickell, to deliver an informal educational toolbox to the Project team on site. This toolbox provided an overview of the dolphin population in the Mandurah Estuary and surrounding areas and emphasised the importance of mitigating potential impacts. A second session will be held for the workforce during offshore piling works.

Figure 8 Dolphin Educational Toolbox with external, local presenters Dr Krista Nicholson and Robyn Bickell

Two TECs sit directly adjacent to the Project area, including the Samphire Cove Nature Reserve. The Project works do not directly impact these areas. Wetlands are present immediately northwest and southeast of the Project area, and include two Class A Nature Reserves:

- Samphire Cove (Reserve No. R45089), approximately 40 metres north. The area is known for its bird life and presence of the Subtropical and Temperate Coastal Saltmarsh TEC.
- Creery Wetland Reserve (Reserve No. R46661) approximately 350 metres southeast.

5.2 Environmental Management

An Environmental Impact Assessment (EIA) was completed by Main Roads WA in 2022 to assess activities associated with the Project and the potential impacts upon the environment. A project specific Environmental Management Plan (EMP) was developed by Georgiou to manage all potential impacts outlined in the EIA. The Project was not referred to the Environmental Protection Authority of Western Australia (EPA) due to the findings of the EIA that there will be no significant impacts to low impacts to the surrounding environment. The EIA also determined that the Project is unlikely to impact on Matters of National Environmental Significance and thus was not referred under the EPBC Act. All legislative and regulative requirements are listed in Table 6. Environmental permits and approvals are summarised in

Table 7.

AECOM was commissioned to undertake the biological survey by Main Roads WA. The objective of the biological survey was to delineate key flora, vegetation, fauna and wetland values of the survey area to inform the environmental assessment and approval process. AECOM completed a detailed flora and vegetation assessment in September 2021 and a basic fauna and targeted black cockatoo survey in November 2021. Areas of native vegetation were traversed on foot and subjected to detailed surveys including flora sampling and opportunistic recordings. No threatened flora listed under the EPBC Act or *Biodiversity Conservation Act 2016* were identified. No weeds listed as Declared Pests or as a Weed of National Environmental Significance were recorded. Further information is captured in Appendix 3 and Appendix 4.

The EMP sets out how environmental aspects are to be managed, and is written in accordance with Georgiou's health, safety and environment management system which is third party certified to AS/NZS ISO 14001. A risk management approach is used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance.

Table 6 Summary of Project Compliance Requirements

Legislation/Other Requirement	How will the Project comply with the requirement
Main Roads WA' **Environmental Policy**	The EMP in its entirety
Contaminated Sites Act 2003 (WA)	Hydrocarbon and Chemical Management Sub Plan
Environment Protection and Biodiversity Conservation Act 1999 (C)	The EMP implements processes to minimise impact on the Environment
Environmental Protection Act 1986 (WA)	The EMP implements processes to minimise impact on the Environment
Environmental Protection Regulations 1987 (WA)	The EMP implements processes to minimise impact on the Environment
Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)	Waste Management Environmental Sub Plan
Heritage Act 2018	Culture & Heritage Management Environmental Sub Plan
*Biodiversity Conservation Act **2016***	Flora & Fauna Management Environmental Sub Plan
Biosecurity and Agriculture Management Act 2008 (WA)	Flora & Fauna Management Environmental Sub Plan

Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA)	Adherence to the clearing permit (CPS 818/15)
Rights in Water and Irrigation Act 1914 (RIWI Act) (WA)	Water Management Environmental Sub Plan
Environmental Protection (Controlled Waste) Regulations 2004 (WA)	Waste Management Environmental Sub Plan
Environmental Protection (Noise) Regulations 1997 (WA)	Noise & Vibration Management Environmental Sub Plan
Waterways Conservation Act **1976**	Water Management Sub Plan

Table 7 Environmental Allowances, Approvals and Permits

ENVIRONMENTAL ALLOWANCE TYPE	UNIT	PROJECT ALLOWANCE
Section 18 consent for Place ID 32696 (Djilba), in accordance with the *Aboriginal Heritage Act 1972*.	N/A	• Invites in writing, giving 60 days' notice for two representatives of the Gnaala Karla Booja Indigenous Land Use Agreement Group to be present during all ground disturbance works on the Land where it intersects with Aboriginal site ID 32696 (Djilba). • Georgiou is to aid Main Roads WA in written reporting as per Section 18 consent and SWTC requirements.
Clearing Permit Allowance (CPS818/15)	ha	• Maximum impact to benthic vegetation of 0.12 ha.
Licence to Take Water	kL	• 46,000kL annually
Licence to Dredge and/or Reclaim (in accordance with Section 46 of the *Waterways Conservation Act 1976*).		• 4,328m^3 clean fill material to be deposited for reclamation. • 143m^3 material to be dredged. • Water quality monitoring undertaken and no visible floating oil, grease, scum, litter or objectionable material as a result of dredging works. • All reclamation works are to proceed within an enclosed silt curtain.

5.3 Water Management

A section of the Project area sits within the Mandurah Estuary, which forms part of the Peel-Yalgorup Wetland System, a Ramsar Wetland of International Importance. Project construction activities are not expected to significantly impact other environmental values of the Peel-Yalgorup wetland system because:

- disturbance of the bed of the Estuary for the permanent works will be limited to temporary and permanent piling works, and for pilecaps an area no greater than the area of the pilecap plus 2.0m buffer. Works impacting on the bed of the Estuary beyond these limits will require consent from the Department of Water and Environmental Regulation.
- all reclamation works on the Project are to be done in accordance with a Department of Water and Environmental Regulation issued 'License to Dredge and/or Reclaim'.
- all dewatering activities and their impacts will be localised and confined to a short duration.
- the piers (and their construction) will not cause any significant alteration in flow regimes or velocities and, therefore, will not alter overall sediment deposition and erosion regimes of the Mandurah Channel.
- no riparian vegetation or significant fauna and/or flora species have been recorded as inhabiting the Project area.

Water quality and sediment monitoring will be conducted before, during, and after completion the Project to identify any deterioration in aquatic habitat that may adversely impact the environmental values of the Peel-Yalgorup Ramsar Site.

The Project has considered the indirect impacts on the Estuary, Peel-Yalgorup site, and adjacent Wetlands as part of design development. The key environmental requirements governing the drainage design are the principles of Water Sensitive Urban Design (WSUD), namely:

- to prevent scour, erosion and sediment transport.
- to maintain the existing flow regimes and water balance of the site as much as possible.
- to avoid adverse impacts on the environment.

The following were implemented in permanent design, which see an improvement to current conditions:

- riparian vegetation included in Urban and Landscape Design Plan.
- bioretention basins to treat drainage water from the bridge before it enters the Estuary. The bioretention basis are expected to provide the required filtration to remove pollutants from stormwater.
- all runoff to be treated prior to entering the Estuary and/or surrounding waterways.

The Project is targeting a reduction in at least 10% of all water used over design, construction, and operational life of the asset. A number of opportunities have been implemented to reduce water use and use sustainable water sources during the construction phase, including the use of recycled waste water. Georgiou has partnered with the City of Mandurah to utilise the recycled waste water from the Halls Head Waste Water Treatment Plant (WWTP) for construction purposes. Usage to date is captured in Table 8 and further information on this initiative in Section 5.12.

Table 8 Water Parameters

WATER PARAMETER	TOTAL THIS PERIOD		TOTAL FOR PROJECT	
	kL	%	kL	%
Potable Water				
Standpipe / Scheme Water Purchased	4,402.3	53%	4,402.3	53%
Non-Potable Water				
Bore Water	0.0	0%	0.0	0%
Surface Water	0.0	0%	0.0	0%
Recycled / Waste water	3,950.2	47%	3,950.2	47%
Total Water Used	**8,352.5**	**100.0**	**8,352.5**	**100.0**

5.4 Vegetation

5.4.1 Clearing

Following a biological survey and benthic habitat assessment undertaken within and in the vicinity of the Project area, the only native vegetation recorded within the impact area is a seagrass community located within the Estuary; *Ruppia megacarpa*. Epibenthos and other fauna species was found to be lacking in the survey area and this was attributed to the presence of coarse sediments and strong influence of currents through the channel. The survey also noted bare sediment dominated the substrate which prevented the establishment of attaching sessile organisms.

A total of 0.12 ha of native vegetation in the form of benthic vegetation (seagrass) will be cleared during construction works. This species was noted in the survey to be a rapid coloniser with an abundance that can vary greatly over time and impacts to a total of 0.12 ha within the seagrass community not expected to have a significant impact on the occurrence of this benthic vegetation within the Mandurah Estuary.

As part of the upgrade to Mandurah Road and associated drainage works, retaining walls, noise walls and paths, planted vegetation will be cleared.

5.4.2 Revegetation/Rehabilitation

An Urban and Landscape Design Framework and Urban and Landscape Design have been developed for the Project, setting out the urban and landscape design and revegetation plans for the Project area to commence in 2026. The associated design plans have been reviewed by Main Roads WA, Main Roads WA South West Region and the City of Mandurah. The Plan has also been independently reviewed aligned with the Principles of Design Review developed by the UK Commission for Architecture and the Built Environment (CABE).

5.4.3 Dieback

The risk of dieback is low within the Project area. No records of dieback occurrence were found within the area on the Natural Resource Management WA (NRM) Dieback mapping tool. The Project area was considered 'Dieback Uninterpretable' within the EIA, as the site has been subjected to widespread historical clearing followed by soft landscaping with mostly non-proteaceous species and grasses. Standard hygiene practices are employed on the Project by Georgiou to ensure all imported materials are dieback free.

5.5 Carbon Emissions and Energy

Georgiou will investigate and implement opportunities to reduce energy and emissions over the design, construction and operational phases of the Project. Energy usage on the Project to date inclusive of the design and construction phase is detailed in Table 9Table 9. Investigation into the asset's energy and emissions footprint concludes the following as the largest sources of emissions:

- Scope 3 emissions during the operation phase, associated with road users of the asset.
- Scope 1 emissions during construction phase, associated with construction activities.
- Scope 2 emissions during the operation phase, associated with lighting and roadside cabinets.

This has informed the opportunity assessment process and as the Project cannot have a direct impact on the Scope 3 emissions, Scope 1 and 2 emissions have been the focus of all investigations. To date this has included the following:

- Investigating alternative technologies with suppliers and subcontractors such as 'hybrid' generators, portable PV systems, electric small machinery and alternative fuels.
- From June 2024, all site offices connected to the grid are powered by 75% 'GreenPower". This coverage is set to increase to 100% before the year ends.
- Motion sensor lighting system designed for the new fishing platform and carpark.
- Investigation of permanent operational solar lighting on the shared path scope for the Project.
- A permanent solar powered electric vehicle (EV) charging station at the Egret Point Carpark.
- Incorporating provisions for future battery storage into the Project structures.

Georgiou are responsible for reducing a minimum of 10% of all energy and emissions over the

design, construction and operational life of the asset. This will be measured using a LCA and compared to a Base Case (verified by a third-party verifier through the IS Rating process). The Project's performance in this space will be updated in future Annual Reports.

Table 9 Energy Parameters

ENERGY PARAMETERS	TOTAL THIS PERIOD				TOTAL FOR PROJECT			
	LITRES	KWH	GJ	% OF TOTAL USE	LITRES	KWH	GJ	% OF TOTAL USE
Unleaded (on and off road)	10.0	-	0.0	0.0	10.0	-	0.0	0.0
Diesel Used (on and off road)	201,569.9	-	7,781.0	99.3	201,569.9	-	7,781.0	99.3
Liquefied Petroleum Gas (LPG)	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Biodiesel	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Hydrogen	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Oil	334.25	-	13	0.3	334.25	-	25.0	0.3
Purchased Electricity from Grid	-	7,855.8	28.0	0.4	-	7,855.8	28.0	0.4
Green Power Mix^	-	9%	-	-	-	9%	-	-
Generated from Renewable Energy Onsite and Used Onsite	-	0.0	0.0	0.0	-	0.0	0.0	0.0
Total Energy Used	201,914.2	7,855.8	7,822.0	**100.0**	201,914.2	7,855.8	7,822.0	**100.0**

Note: Energy in gigajoules (GJ) is calculated using the conversion values detailed in the National Greenhouse Account Factors.
^percentage of Green Power from grid connection as per kWh consumption within Table 9.

5.6 Materials and Recycling

A Resource Efficiency Management Plan has been developed, detailing how Georgiou will manage and deliver resource efficiency outcomes on the Project. The delivery of positive resource outcomes on the Project is focused on the following objectives:

- Deliver a high-quality outcome that is socially and environmentally sustainable and responds to the context and character of the area.
- Deliver a durable, resilient, low maintenance bridge that delivers value for money across all Project phases.

Resource input and output targets have been established and an action plan implemented to achieve these over design, construction and operation phases. All resource inputs used to date are outlined in Table 5.

All resource efficiency opportunities and the management of inputs and outputs on the Project must be considered in the order of the waste hierarchy. The waste hierarchy is a widely accepted decision-making tool set out within the WA Waste Avoidance Strategy 2030, ranking waste management options in order of their general environmental desirability. The hierarchy is included in the desktop risk assessment used to review all resource outputs and opportunities for recovery.

All materials selected for use on the Project are considered aligned with the Project objectives and

targets. One of these targets includes the reduction of the Project's materials' environmental footprint by at least 10%, measured utilising a LCA (and compared to the Project's Base Case). Through the Project's purchasing power Georgiou recognises the role of procurement in supporting the industry's paradigm shift from a linear flow of materials to a circular economy. This is achieved through communication that resource efficiency is an important factor for subcontract packages, and the investigation of resource efficiency solutions with suppliers and subcontractors.

Georgiou has already implemented opportunities to avoid material use and maximise reuse, including the following:

- The Project has currently used 1,083.20 tonnes of recycled material (Table 5) comprising of CRC and recycled granular material.
- The design of the bridge launch (within the temporary works design) was specifically modified to allow for the re-use of temporary steel formwork from another project, Tonkin Gap Alliance (TGA). Approximately 59 tonnes of steel is re-used from TGA (of the 82 tonnes of formwork from TGA).
- Design optimisation removed the requirement for controlled modulus columns and a load transfer platform, using a preloading solution. Savings in materials associated with columns included concrete, reinforcement and temporary platform materials. Construction staging was completely revised to plan and allow for the reuse of this material at multiple locations on site rather than continuously importing new material. The full quantity of material required for this preloading solution will be reused on site (over 45,000 tonnes).

Figure 9 Aerial photograph of the preloading materials on western foreshore

5.7 Noise and Vibration

Noise and Vibration are recognised as high priority issues on the Project (Section 3.1.3). Construction will involve piling works expected to generate noise and vibration. Sensitive receptors are less than 10m from the piling works when considering the waterway as a sensitive receptor. The management of noise and vibration associated with the marine environment will be managed in line with the Project's approved Fauna Management Plan (FMP).

A MMO will be present at all times during piling works, to ensure that significant marine fauna and dolphins are not present within the pile-driving areas during the construction of the piers. All piling activities will cease if a dolphin comes within 50m of the activity and will not recommence until the dolphin has moved more than 200m away or has not been observed for at least 20 minutes. All other controls to mitigate impacts to marine fauna are listed in the Project FMP. Following stakeholder feedback the Project consulted with local expert Dr Krista Nicholson to review the controls in place and review the MMO training.

Residents are located on average within 50m of the Project works, with some locations being less than 10m for a limited scope of works expected to generate lower level noise; clearing, retaining walls, noise walls and/or tie ins. As part of regular practice, the Project offered property precondition surveys to properties within close proximity of the works. Noise and vibration monitoring is established 24/7 at four locations within the Project area, to enable the Project to monitor and respond to real-time noise and vibration levels. Alerts are programmed within these monitors to notify the construction team where noise and/or vibration levels are reaching near the limits, and in the event these limits are exceeded. The construction team investigate all exceedances and record nearby activities taking place.

An Out of Hours Management Plan is prepared monthly and issued to the City of Mandurah for approval, demonstrating how noise and vibration emanating from construction works will be managed during out of hours (that being outside the hours of 7am to 7pm Monday to Saturday, excluding public holidays).

Stakeholders are highly interested in the operational management of noise and have escalated their enquiries to the Minister for Transport.

5.8 Air Quality

Air quality impacts are only anticipated to occur during the initial movement of material for preloading activities and the re-use of this material within final alignment. These are not anticipated to exceed the air quality limits aligned with the National Environment Protection Measures (NEPM). The Project has established 24/7 air quality monitoring at four locations within the Project area, to enable the construction team to monitor and respond to real-time air quality levels.

An Air Quality Assessment was conducted by AECOM in the Project Proposal (2022) and concluded that there would be a negligible or minor changes to the air environment surrounding the Project area during the operational life of the asset.

5.9 Light Spill

Construction of the Project will involve nightworks which require temporary lighting. Light receptors are within 10m of nightworks when considering the waterway as a sensitive receptor. Regular

inspections are conducted during night works to ensure temporary lighting is positioned appropriately away from sensitive receptors.

Light pollution has been considered in the development of the permanent lighting design. During the design process light locations have been modified to coordinate with the adjustment in road alignment and ensure compliance is maintained. This includes repositioning lights within the foreshore carpark, further away from the waterline.

The sensitive receptors to the Project were identified by Georgiou early on in design development. As a result, the design and procurement of luminaires considered approaches to limit impacts and a specific type of luminaire was selected for the fishing platform and carpark lighting, to reduce light impacts to wildlife. Additional measures developed during the design process include the introduction of motion control lighting to the fishing platform and carpark to reduce the duration of light and thereby assist in minimising the ongoing impact. Light poles have been positioned in order to achieve no more than 2 horizontal lux level over the Project boundary and 2% upward light ratio (excluding decorative lighting).

5.10 Contamination

Investigations in the Planning Phase have determined there is low risk of contamination on site. The EIA denotes there are no previous known land use activities on or adjacent to the proposed activities with the potential to create contamination. There are no known contaminated sites within the Project Area and its vicinity.

5.11 Acid Sulfate Soils

Department of Water and Environmental Regulation (DWER) Acid Sulfate Soil (ASS) Risk Mapping (Swan Coastal Plain) has been reviewed and identifies that most of the site is categorised as having a high to moderate risk of ASS occurring within 3m of the natural soil surface. This is consistent with the findings of the Preliminary EIA. An ASS Management Plan (ASSMP) has been developed for the Project which sets out all controls, monitoring and reporting requirements during construction. The ASSMP will be approved by Main Roads WA and submitted to DWER prior to ASS being knowingly disturbed on the Project.

5.12 Environmental Case Study – Use of recycled waste water for construction purposes from the Halls Head Waste Water Treatment Plant (WWTP)

During the design phase, the construction team forecast the total water required for all construction activities including earthworks. The construction team then assessed the most sustainable supply options to meet water demand, and opportunities to reduce the overall demand itself. Alternative water supply options were investigated for earthworks activities, including the use of recycled waste water from the Halls Head Waste Water Treatment Plant (WWTP). Through collaboration with the City of Mandurah, Georgiou has implemented the use of recycled waste water sourced from the WWTP for construction activities.

Earthworks on the Project involves over 45,000 tonnes of material (Figure 10) used for preloading activities ahead of the super structure incremental launch and movement of this material into the final alignment across the Project area. Approximately 46,000 kL is forecast for all earthworks activities over the two year construction period, followed by a small amount required in 2026 for closing out the Project. This solution has been pursued since December 2023, through consultation with the DWER and approval of the City of Mandurah and Department of Health (DoH). Approval was received in February 2024 and since then, approximately 3,950kL of recycled water have been utilised (Table 8Table 8). Since implementation of this initiative, additional construction activities have been identified to use this alternative recycled waste water. An estimated 88,000kL of water used for construction activities will utilise recycled water.

The City of Mandurah has worked with Georgiou to coordinate approvals and management conditions with the DoH. The use of this recycled water is to be operated with the Recycled Water Quality Management Plan, the Guidelines for the Non-potable Uses of Recycled Water in Western Australia, and the conditions set out in the approval by DoH.

To enable the use of this waste water for construction purposes, additional infrastructure was required at the Halls Head WWTP. Georgiou has agreed to build the required infrastructure and build this to become ongoing infrastructure for use by the City of Mandurah beyond the Project works. This infrastructure will be finalised by Georgiou upon Project completion and handed over to the City for long-term use.

Figure 10 Aerial imagery of preloading material on the south east of the new bridge

6 Social

The Project is surrounded predominantly by residential areas. One quadrant has been identified as a well-established neighbourhood, and the other three quadrants relatively new with development still ongoing. Regular and ongoing stakeholder engagement with residents from all four quadrants is a priority for the Project, followed by recreational user groups of the surrounds including the Estuary. This extends to special interest and environmental groups relating to the estuary and wetlands. Engagement with the local government authority is another identified key stakeholder priority. These priorities and others are outlined in the Community and Stakeholder Engagement Management Plan (CSEMP) specifically developed for the Project during the planning phase.

A summary of social aspects is provided in Table 10 Summary of Social Aspects

Table 10 Summary of Social Aspects

SOCIAL ASPECT	UNIT	TOTAL FOR THIS PERIOD	TOTAL FOR THE PROJECT
Stakeholders engaged	#	827	827
Stakeholder enquiries received	#	175	175
Heritage sites in project vicinity*	#	10	10
Length of Principal Shared Path (Addition/Refurbished)	km	0	0
Women in Workforce	%	15%	15%
Indigenous People in Workforce	%	9.62%	9.62%
Lost Time Injury Frequency Rate (LTIFR)	#	0	0
Development Employees and Apprentices on the Project	#	3	3

**Project vicinity is defined as 5km from the Project boundary. Sites are as per Brad Goode & Associates Heritage Survey 2022 (p88-89). Sites are as identified on DPLH website.*

6.1 Social Context

The Project is located in the City of Mandurah, Western Australia, a rapidly growing regional centre known for its scenic waterways and vibrant community. In September 2021, the State Government announced the MEDB Project to improve safety and traffic flow while providing better connections to the Peel region.

The current bridge supports 33,000 vehicles a day, and in the five years leading up to 2020 experienced 126 crashes. The duplicate bridge is a critical infrastructure project aimed at easing traffic congestion and improving safety for all road users, increasing accessibility and connectivity of road networks, and improving connectivity and safety for pedestrians, cyclists, and other users.

According to 2021 Census data, Mandurah has a population of more than 107,000 residents, with approximately 3% indicating they are Aboriginal. Sixty-eight per cent of the population were born in Australia followed by England (10.8%) and then New Zealand (3.5%). Nearly 88% only use the English language at home.

The primary stakeholders for this Project include:

- State and Federal Government as project owners and funding project delivery.
- State Government agencies, e.g. Department of Transport WA, Peel Development Commission.
- Local Government, i.e. City of Mandurah.
- Aboriginal stakeholders, e.g. Winjan Aboriginal Corporation, Bindjareb Reference Group

- Residents and property owners: Individuals living in proximity to the bridge.
- Environmental Groups: Organisations focused on protecting the local estuarine environment, e.g., Mandurah Environment and Heritage Group (MEHG), Estuary Guardians, Peel Harvey Catchment Council.
- Emergency Services, e.g., St John, Department of Fire and Emergency Services (DFES), WA Police.
- Estuary recreational and business groups, e.g., Fishability, Mandurah Boat Hire, Sea West Cruises, Boating WA.
- Community and special interest groups, e.g., Access and Inclusion Advisory Group, Peel Chamber of Commerce and Industry.
- Tourists and Visitors: Individuals visiting Mandurah for recreation and tourism, Visit Mandurah.

A full list of stakeholders is included in Appendix 1

The primary objectives of the Project are to reduce congestion and improve travel times, enhance the accessibility and connectivity of road networks, improve freight productivity, and bolster road safety for all users. Additionally, the Project aims to enhance connectivity and safety for pedestrians, cyclists, and other users, ensuring a more comprehensive and integrated transport solution.

Other objectives include enhancing and integrating the existing uses of the Estuary, protecting and enhancing local environmental features, and maximising business and employment opportunities for local communities.

The Project seeks to deliver a high-quality outcome that is socially and environmentally sustainable, resilient, and low maintenance, providing value for money across all phases.

It also aims to offer opportunities for innovative approaches in design and construction, increase employment opportunities for Aboriginal persons, boost Aboriginal business participation through procurement, and contribute to industry sustainability.

Figure 11 Community Open House Engagement Session – March 2024

6.2 Community and Stakeholder Engagement

The overarching objectives of community and stakeholder engagement for the Project are to provide consistent, clear, and honest information to stakeholders and develop and maintain relationships with key stakeholders and impacted community members.

The Project aims to effectively engage with the community using preferred communication channels to manage complaints, concerns, and issues in a fair and timely manner. Regular weekly meetings with the construction team are held to develop strategies to minimise impacts during the construction phase.

Additionally, the Project seeks to create a positive perception of the Project, Main Roads WA, and Georgiou within the community, and provide opportunities for community involvement during the design and construction phases to achieve both short and long-term benefits for the community.

We will develop interesting and accurate information that help our stakeholders get to know the Project team and understand the Project including why decisions are made. Our lines of communication will remain open, and we will be transparent by sharing outcomes and the rationale for decisions with our stakeholders and the community.

We will adopt a proactive approach that ensures stakeholders, and the community are informed about potential issues or events in advance, and there are no surprises. We will also be proactive in understanding how the construction may impact their needs and work with them to reach a solution.

We have also considered the opportunities for the community to be involved, and listed negotiables in Section 1.4 of the Community and Stakeholder Engagement Management Plan. We will continue to work with the Project Team during the delivery phase to seek further opportunities for the community to be involved.

6.2.1 IAP2

Our engagement program follows the principles and core values of the International Association for Public Participation (IAP2), and the Community and Stakeholder and Engagement Manager is accredited to deliver IAP2 compliant programs.

The success of these objectives will be evaluated on an ongoing basis until the end of the Project. Methods used will include surveys, questionnaire forms at the Open Houses (Figure 11) and other community events, and feedback sought through other channels. If feedback/results indicate that objectives are not being met, corrective actions will be implemented in conjunction with Main Roads WA.

During the Project development stage, Main Roads WA undertook numerous engagement activities with Project stakeholders and the community. The Community and Stakeholder Engagement Strategy indicates engagement started in August 2020, then progressed in August 2021 meeting with State and Local Government bodies. In the planning phase, the Bindjareb Reference Group were also engaged with initial discussions around the issues and concerns regarding the Project, as well as identifying opportunities for the promotion of local Aboriginal history and heritage. Further workshops were held in September and October 2022, with the findings released in the Cultural Context and Interpretation Strategy. Notable other stakeholder groups engaged include environmental groups/bodies such as the Peel-Harvey Catchment Council and The Nature Conservancy, as well as residents close to the Project Site. A Project page on the Main Roads WA website has been established which includes communications that were disseminated in the community on this phase.

Stakeholders have the opportunity to influence some negotiables of the Project including design elements of the fishing platform, environmental offset opportunities and locations, community engagement tools and methods, shared use path connections to public transport facilities, and input into innovations and legacy ideas. They can also contribute to urban and landscape design elements, industry collaboration opportunities, ideas to mitigate construction impacts, noise wall colours, and the extents of noise mitigation. However, certain elements are non-negotiable and cannot be influenced by the community and key stakeholders, such as the bridge design, pier and span location, funding allocation, safety standards in road design, general road corridor, nautical navigational requirements, construction methodology and sourcing of materials, inclusion of a universally accessible fishing platform, environmental assessment levels and the need to protect certain flora and fauna communities.

6.3 Community Satisfaction and Amenity

The key community concerns were compiled in early 2024 based on the key issues identified within the Planning Phase, Community and Stakeholder Engagement Management Plan, early engagement activities with key stakeholders, and the initial Open House community event in December 2023. These events enabled the development of a clear understanding of the community priority issues and overall concerns. The high priority issues were reviewed and updated, in consultation with other key stakeholders including the City of Mandurah and Department of Transport Maritime. These issues continue to be reviewed and updated accordingly following ongoing consultation. Refer to Table 11 below for breakdown of concerns and actions undertaken by the Project to address community concerns and drive Project outcomes.

Table 11 High priority issues, actions and outcomes

Priority Issue(s)	Project Actions	Outcomes
Heritage and Cultural Significance	Hold three (3) yearly reference group meetings to obtain feedback and guidance on matters of culture and heritage relating to Project area, including presenting design for comment, reviewing artwork, interpretive elements, and seating node installations.	Continued communication to inform and address stakeholder as design progresses.
Noise walls	Escalated to Main Roads WA Steering Committee and Minister Saffioti office for consideration.	Still to be determined.
Vegetation clearing	Further explanation was provided in email responses and phones calls. An extra letterbox drops also went out to explain the clearing. A commitment was made to provide more detailed information in project communications. Fact sheets will be provided to summarise any further clearing if required. Any further clearing will have information provided early on.	Continued communication to inform and address stakeholder and community concerns as they arise.
Dust Mitigation	Further explanation was provided in email responses and phone calls. A fact sheet explaining dust has been created to share with residents. An extra water cart was employed on the project. Gluon was applied to affected areas, when possible, with a focus on the SE and NE east areas. (Waterlily Drive and Waterside Drive). 24/7 call line (Main Roads WA) for enquiries/complaints	Continued communication to inform and address stakeholder and community concerns as they arise. Continued commitment to ensure dust mitigation measures are implemented; included as part of the out of hours management plan submitted to and approved by City of Mandurah.

Priority Issue(s)	Project Actions	Outcomes
	and active engagement with affected residents. Open House event in March to inform community of construction activities and mitigation measures.	
Noise Mitigation	We have been very clear in our communications that the works will create noise during day hours. Baselines were undertaken to understand the noise before we started the works so we could compare. We will have noise monitors on site. 24/7 call line (Main Roads WA) for enquiries/complaints and active engagement with affected residents. Open House events to inform community of construction activities and mitigation measures.	Continued communication to inform and address stakeholder and community concerns as they arise. Continued commitment to ensure noise mitigation measures are implemented; included as part of the out of hours management plan submitted to and approved by City of Mandurah.
Fishing platform design	The Access and Inclusion Group is involved in the 15% and 85% design stages. We took on board all their suggestions and feedback, and where we could, we incorporated it into design.	Some changes to design were identified in the 100% impacting accessibility. Consultation was undertaken and the group are satisfied with the outcome.
Path Connections	Open House event to inform community of design and attain their feedback. We listened to their feedback and the current design reflects their feedback on final design. The team has committed to looking for opportunities to provide temp access during construction, however it doesn't seem possible yet. Waterlily Drive residents however want the path bike access from their street to Mandurah Rd permanently removed. With this in mind, we have opened an expression of interest for an active travel working group to work with community and stakeholders to assess opportunities and overcome issues.	Continued communication to inform and address stakeholder groups as design progresses.
Urban and Landscape Design (including artwork)	15%, 85% and 100% is reviewed by Main Roads WA, the City of Mandurah, the Office of Government Architects (OGA), and other stakeholders. The Landscape Architect consults with the Bindjareb Reference Group for input in the themes and revegetation strategy.	Continued communication to inform and address stakeholder groups as design progresses.
Environment (including estuary protection)	15% and 85% designs sent for comment. Consult with Dr Krista Nicholson on the controls implemented during construction activities, to manage potential impacts to marine fauna. Facilitate permanent educational signage.	Continued communication to inform and address stakeholder groups as design progresses.
Estuary and Vessel Management	15% and 85% designs sent for comment.	Continued communication to inform and address stakeholder groups as design progresses.

6.4 Heritage

An ethnographic assessment was undertaken for the Project in 2022. The assessment was undertaken in accordance with the Noongar Standard Heritage Agreement (NSHA) and was undertaken in collaboration with South West Aboriginal Land & Sea Council (SWALSC) and with participation of seven Gnaala Karla Boodja Indigenous Land Use Agreement (ILUA) group representatives.

Conclusion of the assessment confirmed the presence of registered ethnographic Aboriginal site #32696 Djilba within the Project area. Further to this ethnographic assessment, an Aboriginal archaeological survey was also undertaken in 2022 and again in 2023 and concluded no Aboriginal cultural material or archaeological sites were identified within the Project area.

Following the determination of DPLH site #32696 Djilba, Section 18 approval was obtained in October 2023. To ensure compliance with the approval, the Project has engaged Heritage Monitor's through Winjan Aboriginal Corporation to oversee any ground disturbance works within the protected area.

A Culture and Heritage Sub-Plan sits within the EMP, containing details of this assessment, and an "unexpected finds" procedure. Implementation of the unexpected finds procedure is monitored as part of regular Environmental Daily Hazard Inspections and no unexpected finds have been recorded on the Project to date.

Cultural awareness training is mandated for all long-term Project employees. Long-term employees are considered Project employees who have worked on the Project full-time for over 3 months. This Training provides invaluable knowledge and is fundamental to the Project's commitment to pursue an inclusive culture.

The Project team meets with the Bindjareb Reference Group (comprising of 8 Bindjareb Elders as voted in by the Winjan Aboriginal Corporation board) at a minimum of 3 times a year to obtain feedback and guidance on matters of culture and heritage relating to Project area. Outside of these meetings, we ensure that there is Bindjareb Reference Group representation at all input/voting meetings regarding any artwork to be installed on the Project.

6.5 Road Safety

The Project is a crucial initiative aimed at improving the travel times between the northern and southern sides of Mandurah, as well as providing safer access for pedestrians and cyclists. This Project aims to significantly improve traffic flow and reduce the risk of rear end and side-impact collisions, which are prevalent in this area due to high traffic volumes. Recent statistics highlight the urgency of this Project, with 96 traffic incidents reporteminid in the Lakelands Lake Clifton Area between 01/01/2018 and 31/12/2022, 71 of which being rear end collisions and 11 being sideswipe/same direction incidents.

Increasing traffic demand through this road, especially during morning and afternoon traffic peaks, highlights the requirement for robust controls and plans to ensure road safety. To date, the Project has implemented various traffic controls which range from a minor speed reduction, up to contraflowing of the traffic to facilitate minor road works and the Project's first traffic staging requirement. Planning for these works involved a detailed process for which a Road Traffic Manager endorsed Traffic Control Plans are thoroughly reviewed by the Project Team, City of Mandurah and Main Roads WA South West Region. The main aim of the review process is to ensure the safety of the public during and after each traffic implementation.

Additional control such as pre-implementation and post-implementation audit by a non-affiliated

third party has been implemented for major traffic implementation to ensure that works are conducted safely, and the final road alignment are safe for motorists. The condition of the traffic setup post implementation is monitored through daily site drives with emphasis on road conditions and existing temporary traffic setup.

6.6 Diversity

The Project is committed to promoting an inclusive working environment and addressing the disadvantage and inequality which may be experienced by different diversity groups. To address these disadvantages the Project has implemented diversity and inclusion training for all employees within leadership roles, and diversity and inclusion is included in monthly Georgiou Wellbeing Committee meetings. The Project has also implemented the following targets:

- Achieve at least 10 % of total work hours undertaken by local Aboriginal persons. The project is currently at 9% (Table 100).
- Achieve at least 10 % of women in the workforce. The Project is currently achieving this target, achieving 15% to date for this financial year (Table 100).

The Project has already identified and engaged several local Aboriginal companies, including Waalitj Business Hub (Section 4.5), Job Trail, and Oaks Civil Construction.

Regular events are held supporting an inclusive working environment on the Project, and to recognise significant diversity and inclusion events. Since the Project mobilised to site in February 2024, the Project has celebrated Harmony Week, International Women's Day, Reconciliation Week and NAIDOC Week. The Project has an ongoing commitment to recognise diversity events for the lifetime of the Project, identified through the Wellbeing Committee.

6.7 Traffic Management & Community Safety

The Project team acknowledges the increased safety risk to road users and potential delays that the Project may cause to the travelling public. To address these concerns, a comprehensive Traffic Management Plan has been developed to complement the Project Safety Management Plan. This plan aims to mitigate major hazards associated with proximity to an active traffic environment for both workers and the public, while also minimising adverse impacts on traffic flow and network performance.

A thorough Risk Management process has been undertaken as part of our statutory duty obligations prescribed in the *Occupational Safety and Health Act 1984* and *Regulations 1996*. This process involves evaluating site hazards, likelihood, consequences, and treatments. Risks related to competent traffic management planning are addressed through the implementation of Traffic Control Plans and specific Traffic Guidance Schemes. To date, there has been a massive focus with traffic planning for pedestrian and cyclist detour around site to address community safety during the construction period with two detour routes currently established.

Access under the existing Mandurah Estuary Bridge has been closed since early January 2024 to facilitate construction works for the new bridge due to high risk for interaction with plants and machinery. An adequate detour has been established around site, based on approved plans from local authorities. Local cyclist groups were informed and consulted with regarding the detour route, with detour signs replacing permanent signage. Advance Warning signage was put in place a week prior to the closure displaying the detour.

Cyclist access on Mandurah Road between Leslie Street and Old Coast Road has been closed early June 2024 due to the changing conditions of construction works within the vicinity of Mandurah Road. A temporary roadside barrier has been installed site-wide to facilitate an effective separation

between road users and construction workers. From a thorough risk assessment, it was identified that cyclist access through site cannot be maintained with the placement of the barriers resulting in the loss of the cyclist access onto Mandurah Road. Like the previous closure, Advance Warning signage has been put in place with the detour route post mounted site-wide.

Closures and detours for the site are communicated through a variety of channels which includes Notification of Roadworks, Construction Update and Facebook. Notifications of Roadworks, outlines intended traffic plans, works, and implementation dates and times, which are sent to key stakeholders. General road users and residents are informed in advance of scheduled works and associated detours via Construction Update and Facebook. Regular roadworks updates are provided to up to 1,300 residents within the vicinity of the Project. These communications ensure road users can plan their routes to avoid congestion or hazards caused by closures or detours.

6.8 Workforce Safety

The Project has established a set of safety criteria against which it evaluates its safety performance. These criteria are not purely statistical but encompass various generic and site-specific objectives, including Health, Safety, Environment and Quality Management System Application, Communication, Workforce Consultation & Participation, Effective Risk Management, Training & Innovation, Health & Wellbeing, and Project Specific Objectives. Monthly assessments against these criteria determine compliance.

There's a notable focus on managing critical risks, with workshops held to review risks associated with high-risk activities. Despite these challenges, the Project has achieved key objectives, maintaining a record of no incidents during such activities. Audit schedules are based on Project requirements, and inspections are conducted periodically using Key Performance Indicators monitored by senior management for accountability.

The Project has implemented a safety culture program aimed at improving individual safety performance. This program emphasises specific safety behaviours expected from all Project personnel, including caring for colleagues, reporting hazards and incidents, individual accountability, and promptly addressing safety issues.

While safety remains paramount, the Project recognises the importance of creating a work environment where every worker feels valued and respected. This fosters a stronger safety culture, enhancing safety performance.

The Project has a strong focus on health and wellbeing and supports white and blue-collar workers through implementation of the Health and Wellbeing Management Plan. A Wellbeing Committee meets monthly to discuss actions to achieve wellbeing targets during delivery, including ongoing initiatives such as offsite group exercise sessions for both white and blue-collar workers, completing the Push up Challenge, and scheduling days off to support work-life balance and wellbeing. The Project holds regular toolbox sessions addressing critical issues such as men's health, mental health, and other culturally relevant topics. Additionally, industry professionals are engaged to conduct information sessions on these important issues such as sleep and nutrition.

Statistically, the Project to date reports no lost time, moderate or high severity incidents with a total of five (5) work-related incidents documented, two (2) of which are report only incidents.

6.9 Legacy Commitments

During the design phase the Project team has considered 'legacy' opportunities aligned with the ISC definition for legacy. Interpretive elements about the area, birdlife and dolphin population, including

promotion of the Ramsar significance, was raised during engagement activities within the design phase. Recognising the environmental significance of the local area surrounding the Project, the Project is facilitating the implementation of interpretative elements recognising the dolphins of the Peel-Harvey Estuary, the Ramsar Wetland System and broader environmental significance of the area, and local bird population.

During stakeholder engagement in the planning phase, one priority issue was raised by stakeholders, to ensure implementation of seven ACROD parking bays as a legacy initiative for the community as part of the Project works. Since this priority issue was raised, the Project has expanded this to include nine ACROD parking bays in the new carpark being designed and constructed at the eastern foreshore. The Project team has ensured we have engaged with the Access and Inclusion Group during the design phase to understand and implement accessibility considerations in permanent design and implemented a number of considerations based on this engagement.

6.10 Workforce Development

The Project is committed to developing and maintaining a positive, supportive, and inclusive organisational culture. Workforce development is a key component of this and contributes to ensuring appropriate workforce capacity and capability. These factors subsequently result in desired project outcomes such as reduced costs and improved productivity.

At Georgiou, we are committed to fostering a culture of continuous learning and development. Georgiou's Learning and Development team sign up Project staff on nationally recognised training programs. Through various training programs, workshops and resources, Georgiou endeavours to empower employees and expand their skills. The Project currently has trainees completing the following certifications:

- Cert III in Business Administration.
- Cert IV in Supervision.

The Project has currently engaged one Graduate Engineer and four university Cadets (Engineering Interns) who we intend to transition to permanent full-time Graduate Engineers in the next 12 to 18 months.

The Project is expected to employ more than 350 people during the construction period with a large proportion of persons employed local and local business given the opportunity to be engaged in the Project. With a target of at least 7% of project value spend on businesses within a 50km radius of the Project, the Project is hoping to engage a local workforce and result in a number of employees from the local community.

6.11 Social Case Study – Dedicated Project Facebook Group

During the early design phase, it became evident that the community liked to discuss our Project on community Facebook pages. As there were numerous pages, it was not easy to monitor all commentary. There needed to be a single Facebook page, one source of truth. A dedicated Project Facebook Group has been created to share information with the community on the Project and respond to queries raised. It is also used as a point of reference and to support other communications channels such as Main Roads WA website, monthly Construction Update, Fact Sheets and Project Updates.

A weekly draft of Facebook posts is provided each Thursday for the following week along with images for review and approval. Operational posts are allowed without approval if they are time sensitive and delivered in conjunction with Main Roads WA representative.

Engagement initially was slow, but the group now boasts 1,900 members. An initial boosted paid campaign on Facebook targeting residents in the wider Mandurah area was successful in the Facebook group gaining traction. Members now regularly use the page to access Project updates and ask questions. Importantly, we understand it has also reduced speculative commentary on other pages.

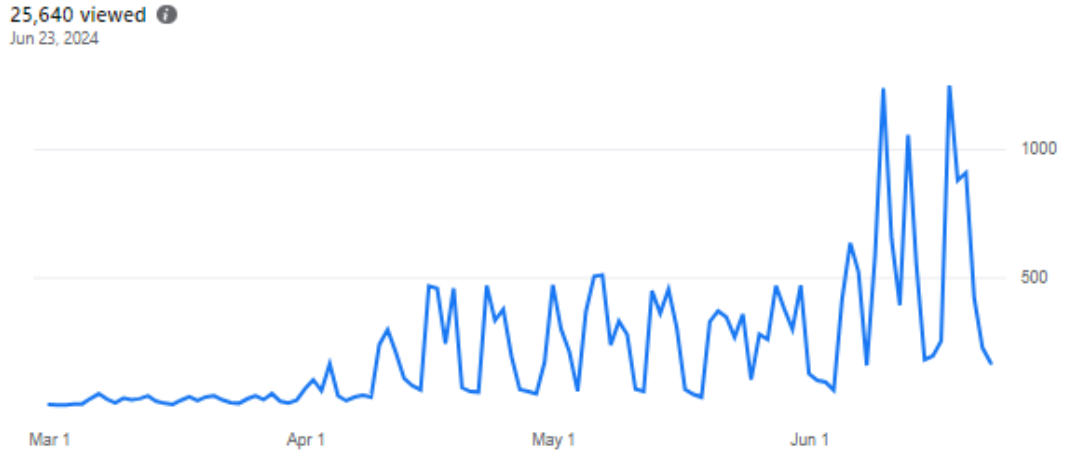


Figure 12 Total Facebook page views since inception

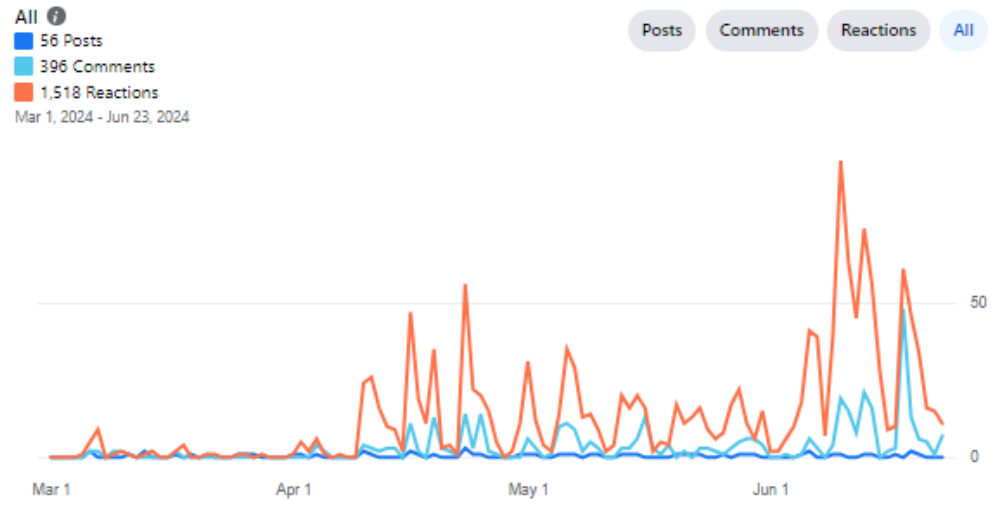


Figure 13 Total Facebook engagement since inception

7 Glossary

A glossary of terms used throughout this document is detailed in Table 12 Glossary of Terms.

Table 12 Glossary of Terms

Term	Description	Link to Further Information
Material; Materiality	Relevant topics are those that may reasonably be considered important for reflecting the organisation's economic, environmental, and social impacts, or influencing the decisions of stakeholders.	Global Reporting
National Greenhouse Accounts Factors	The National Greenhouse Accounts (NGA) Factors has been prepared by the Department of Industry, Science, Energy and Resources and is designed for use by companies and individuals to estimate greenhouse gas emissions. The NGA Factors is not published for the purposes of reporting under the *National Greenhouse and Energy Reporting Act 2007* (the NGER Act). While drawing on the National Greenhouse and Energy Reporting (Measurement) Determination 2008, the methods described in the NGA Factors have a general application to the estimation of a broader range of greenhouse emissions inventories.	Australian National Greenhouse Account Factors
Scope 1 Emissions	Scope 1 greenhouse gas emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Scope 1 emissions are sometimes referred to as direct emissions.	Clean Energy Regulator
Scope 2 Emissions	Scope 2 greenhouse gas emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity. Scope 2 emissions from one facility are part of the scope 1 emissions from another facility.	
Scope 3 Emissions	Scope 3 emissions are indirect greenhouse gas emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business. Some examples are extraction and production of purchased materials, transportation of purchased fuels, use of sold products and services, and flying on a commercial airline by a person from another business.	
Sustainable Development Goals (SDGs)	The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.	United Nations Sustainable Development Goals 2030

8 Appendices

Appendix	Title
Appendix 1	List of Project Stakeholders
Appendix 2	Georgiou Sustainability Policy
Appendix 3	List of Protected Areas
Appendix 4	Protected/Conservation Significant Flora and Fauna Species and Habitat

Appendix 1 – List of Project Stakeholders

STAKEHOLDER GROUP	SPECIFIC STAKEHOLDERS	ENGAGEMENT TYPE

State Government	• Premier Hon. Roger Cook (MLA)
	• Minister for Transport, Hon. Rita Saffioti
	• Lisa Munday Dawesville (Lab)
	• David Templeman Mandurah (Lab)
	• Director General Transport, Peter Woronzow
		• Inform and consult – all through Main Roads WA
		  ○ Briefing notes
		  ○ Site visits
		  ○ Presentations
		• Information sheets

Federal Government	• Catherine King Minister for Infrastructure, Transport, Regional Development and Local Government
	• Andrew Hastie Member for Canning (Lib)
		• Inform
		  ○ Project updates
		  ○ Site visits
		  ○ Presentations
		• Information sheets

State Government agencies	• Office of Environmental Protection Authority
	• Public Transport Authority
	• Department of Aboriginal Affairs
	• Department of Transport, including Marine Safety Branch
	• Department of Biodiversity, Conservation and Attractions
	• Department of Planning, Lands and Heritage (DPLH)
	• Department of Water and Environmental Regulation (DWER)
	• Department of Fisheries
	• Tourism WA
	• Western Australian Planning Commission
	• Peel Development Commission
	• Department of Biodiversity, Conservation and Attractions
		• Inform, consult, involve and collaborate
		  ○ Meetings
		  ○ Presentations
		  ○ Sie visits
		  ○ Working group representation
		  ○ Email/phone calls
		  ○ Workshops
		  ○ Construction update
		• Relevant notices

Local Government	• City of Mandurah
	• Management
	• Elected members (especially Coastal and East ward councillors)
	• Mayor – Rhys Williams
		• Inform, consult, involve and collaborate
		  ○ Construction update
		  ○ Fortnightly Meetings
		  ○ Emails/phone calls
		  ○ Fact sheets
		  ○ Complaints register
		  ○ Site visits
		  ○ Presentations
		• Project updates

STAKEHOLDER GROUP	SPECIFIC STAKEHOLDERS	ENGAGEMENT TYPE

Aboriginal stakeholders	• Winjan Aboriginal Corporation
	• Bindjareb Noongar representatives
	• Winjan Rangers
	• Gnaala Karla Booja
		• Inform and involve
		  ○ Working group
		  ○ Construction update
		  ○ Relevant notices
		  ○ Emails/phone calls
		  ○ Meeting
		  ○ Aboriginal monitoring
		  ○ Site visits
		  ○ Story-telling
		• Smoking ceremony

Environment Groups	• Peel Harvey Catchment Council
	• Friends of Samphire Cove
	• Conservation Council of WA
	• Peel Preservation Group
	• MEHG
	• Estuary Guardians
	• Birdlife
	• Birds Australia
	• The Nature Conservancy Australia
		• Inform, consult and involve
		  ○ Working groups
		  ○ Meetings
		  ○ Construction updates
		  ○ Phone calls/emails
		  ○ Site visit
		  ○ Volunteering
		  ○ Mammal observers
		• Open Houses

Emergency services	• St John WA • WA Police • DFES	• Inform and involve ○ Email/phone calls • Relevant notices

Utility service providers	• ATCO Gas
	• Telstra
	• Water Corporation
	• Western Power
	• Telcos/service providers
		• Inform, consult, involve and collaborate
		  ○ Emails/phone calls
		  ○ Meetings
		• Relevant notices

Property owners/residents (within 100m)	• Tenants
	• Homeowners
	• Landowner
	• Waterside Residents Association
	• Mariners' Cove Residents' Association
		• Inform, consult and involve
		  ○ Meetings
		  ○ Face to face
		  ○ Phone calls/emails
		  ○ Construction updates
		  ○ Relevant notices
		  ○ Working groups
		  ○ Open Houses
		  ○ Project updates
		  ○ Fact sheets
		• Property condition surveys

Developers	• Mirvac	• Inform and consult
		  ○ Phone calls/emails
		  ○ Meetings
		• Construction updates

STAKEHOLDER GROUP	SPECIFIC STAKEHOLDERS	ENGAGEMENT TYPE

Business	• Local business	• Inform, consult and involve
		  ○ Face to face
		  ○ Meetings
		  ○ Relevant notices
		• Construction updates

Estuary recreational and business groups	• Fishability Group
	• RecFishWest
	• Mandurah Licensed Fisherman's Assoc.
	• Boating WA
	• Fishers with Disabilities Association
	• Mandurah offshore Fishing and Sailing Club
	• Blue Lighting Charters
	• Port Bouvard Charters
	• Mandurah over 55s Kayak Club
	• Mandurah Vikings Dragon Boat Club
	• Rowing WA
	• Mandurah Boat hire
	• Over 55 Sailors mental health group
		• Inform, consult and involve
		  ○ Working groups
		  ○ Meetings
		  ○ Phone calls/emails
		  ○ Construction updates
		  ○ Relevant notices
		  ○ Website
		• Open House

Community interest	• Access and Inclusion Advisory Group (City of Mandurah)	• Meetings • Emails • Open House

Other Interest Groups	• Peel Chamber of Commerce and Industry
	• Mandurah and Peel Tourism Organisation
	• Mandurah Communities page - Facebook
	• Mandurah Notice Board - Facebook group
	• Our Dawesville Community - Facebook group
	• South West Community Notice Board - Facebook Group
	• Visit Mandurah
	• Mandurah Over 55 Cycle Club
	• School and TAFE groups
		• Inform, consult and involve
		  ○ Meetings
		  ○ Phone calls/emails
		  ○ Open House
		  ○ Construction update
		  ○ Fact sheets
		  ○ Working groups
		  ○ Website
		• Monitor online media

Cyclist groups	• Westcycle
	• Dept of Transport Network Planning
	• Local community groups
		• Inform and involve
		  ○ Meetings
		  ○ Working groups
		  ○ Phone calls/emails
		  ○ Site visits
		• Signage and VMS

STAKEHOLDER GROUP	SPECIFIC STAKEHOLDERS	ENGAGEMENT TYPE

Community	• Residents in neighbouring suburbs
	• Wider community
		• Inform and involve
		  ○ Public displays
		  ○ Open House
		  ○ Construction update
		  ○ Website
		• Project update

Motorists	• General road users	• Inform and involve
		  ○ Public displays
		  ○ Open House
		  ○ Construction update
		  ○ Website
		  ○ Project update
		• Signage and VMS

Appendix 2 – Georgiou Sustainability Policy

COMPANY POLICY

Georgiou

Sustainability

Georgiou is committed to achieving sustainable growth by managing its operations to maximise environmental, economic and social outcomes.

To achieve this commitment, Georgiou will:

- Apply innovation, lifecycle thinking and effective planning to drive sustainable performance.
- Be ethically responsible in managing project construction, materials procurement and companies engaged.
- Build long-term relationships with communities and stakeholders.
- Support the workforce in being diverse, engaged, motivated and competent.
- Engage with supply chain to achieve project sustainability objectives and targets.
- Value a culture based on leadership, inclusiveness and personal development.
- Facilitate the sharing of ideas, knowledge and innovation within the business and stakeholders.
- Manage and minimise all environmental impacts.
- Implement risk and hazard management principles to maintain the health and safety of its people, the surrounding community and the environment.
- Create long-term sustainable outcomes for our clients aligned to their objectives.
- Deliver sustainable profitable growth while satisfying social, legal and contractual obligations.

Gary Georgiou
Chief Executive Officer
Georgiou Group
September 2023

Care.
Integrity.
Excellence.

The best people to work with.

Appendix 3 – List of Protected Areas

The following table lists Protected Areas identified within the Project Area, by the Flora, Vegetation, Fauna and Black Cockatoo Assessment Report completed by AECOM in 2022 and the Georgiou EMP.

PROTECTED AREA	DETAILS	LOCALITY/ PROXIMITY	IMPACT
Environmental			
Peel-Yalgorup Wetland	Ramsar Wetland – Site 482 Internationally important wetlands under the Ramsar convention 1971	A section of the Project Area (2.27ha) lies within the wetland	Project construction activities are not expected to significantly impact environmental values of the Peel-Yalgorup wetland system because: • no areas of the wetland will be destroyed or substantially modified due to disturbances associated with the construction of Bridge 1910 piers being confined to a maximum area of 2m around each pier. • only 0.06ha of benthic vegetation (seagrass) has been cleared for the reclamation pad construction. • all dewatering activities and their impacts will be localised and confined to a short duration. • the Project piers (and their construction) will not cause any significant alteration in flow regimes or velocities and, therefore, will not alter overall sediment deposition and erosion regimes of the Mandurah Channel. • no riparian vegetation or significant fauna and/or flora species have been recorded as inhabiting the Project area.
Sub-tropical and Temperate Coastal Saltmarsh	Threatened Ecological Community (Cth VU, WA P3) as per Western Australian Environmental Protection (Environmentally Sensitive Areas) Notice 2005	Inside Project Area	No material impact expected on this area.

PROTECTED AREA	DETAILS	LOCALITY/ PROXIMITY	IMPACT
Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Threatened Ecological Community (Cth CR, WA P3) as per Western Australian Environmental Protection (Environmentally Sensitive Areas) Notice 2005	Inside Project Area	No material impact expected on this area.
Samphire Cove	Class A Nature Reserve	Approximately 40m from the proposed works.	No material impact expected on this area.
Creery Wetland Reserve	Class A Nature Reserve	Approximately 350m from the proposed works.	No material impact expected on this area.
Heritage			
Djilba - Aboriginal Site (ID: 32696)	Registered Aboriginal Heritage Site	Inside Project Area	• Direct impacts of dust and vibration on the Project Area and surrounds are monitored continuously and managed as per the Environment Management Plan. • Invites in writing, giving 60 days' notice are sent to two representatives of the Gnaala Karla Booja Indigenous Land Use Agreement Group. This is so they can be present during all ground disturbance works on the Land where it impacts Djilba, if they desire. • Georgiou engages with a suitably qualified archaeologist to firstly identify and then be present during excavation of any areas with potential for buried material who then engage Aboriginal 'monitors' approved by the South West Aboriginal Land and Sea Council to be present during the excavation work in Djilba

Appendix 4 – Conservation Significant Flora and Fauna Species and Habitat

The following table lists significant flora and fauna identified within the Project Area, by the Flora, Vegetation, Fauna and Black Cockatoo Assessment Report completed by AECOM in 2022. General risks to fauna exist and as such are outlined in the Georgiou Fauna Management Plan.

WA State Codes:
P3 – Poorly known species that do not appear to be under imminent threat
P4 – Rare, near threatened and other species in need of monitoring
CE – Critically endangered
EN – Endangered
VU – Vulnerable
OS – Other specially protected species
DD – Data deficient

Federal Codes:
Mi, Ma – Migratory
CR – Critically endangered
E – Endangered
V – Vulnerable
DD – Data deficient

SPECIES	CONSERVATION SIGNIFANCE CODE		IMPACT
	FEDERAL	STATE	
Flora			
Dillwynia dillwynioides	-	P3	No sighting of species or impact caused as part of works (although it is deemed likely to occur within Project Area from AECOM's EIA 2022).
Fauna			
Calidris canutas (Red knot)	V, Mi, Ma	EN	No direct impacts expected or confirmed have occurred.
Calyptorhynchus banksii naso (Forest red-tailed black cockatoo)	V	VU	No direct impacts expected or confirmed have occurred.

SPECIES	CONSERVATION SIGNIFANCE CODE		IMPACT
	FEDERAL	STATE	
Calyptorhynchus latirostris (Carnaby's cockatoo)	E	EN	No direct impacts expected or confirmed have occurred.
Numenius madagascariensis (Eastern curlew)	CR, Mi	CE	No direct impacts expected or confirmed have occurred.
Tursiops Aduncus (Indo-Pacific Bottlenose Dolphin)	DD	DD	Although not specifically marked as of State or Federal significance with regards to conservation. The Mandurah Estuary dolphin population are extremely significant to the local community. As such MMOs will be stationed at the construction site during marine piling to ensure work stops when dolphins are within 50m of piling equipment.
Calidris ferruginea (Curlew sandpiper)	CR, Mi, Ma	CE	No direct impacts expected or confirmed have occurred.
Calidris tenuirostris (Great Knot)	CR, Mi, Ma	CE	No direct impacts expected or confirmed have occurred.
Calyptorhynchus baudinii (Baudin's cockatoo)	E	EN	No direct impacts expected or confirmed have occurred.
Falco peregrinus (Peregin Falcon)	-	OS	No direct impacts expected or confirmed have occurred.
Hydromys chrysogaster (Rakali)	-	P4	No direct impacts expected or confirmed have occurred.
Isoodon fusciventer (Quenda)	-	P4	No direct impacts expected or confirmed have occurred.
Idiosoma sigillatum (Shield-backed trapdoor spider)	-	P3	No direct impacts expected or confirmed have occurred.