7 Adjourned Items
8 Confidential Items

8.1 Coastal Walkway - Prudential Report	
Report Reference	SFRAC220426F8.1
Originating Officer	Coastal Walkway Coordinator – Alex Cortes
Corporate Manager	Manager City Activation - Charmaine Hughes
General Manager	Acting General Manager City Development - Tony Lines

CONFIDENTIAL MOTION

That pursuant to Section 90(2) and (3)(k) of the Local Government Act 1999, the Committee orders that all persons present, with the exception of the following persons: Chief Executive Officer, General Manager City Development, General Manager City Services, General Manager Corporate Services, Manager of the Office of the CEO, Chief Financial Officer, Manager City Activation, Coastal Walkway Coordinator and Unit Manager Governance and Council Support be excluded from the meeting as the Committee receives and considers information relating to the Coastal Walkway Prudential Report, upon the basis that the Committee is satisfied that the requirement for the meeting to be conducted in a place open to the public has been outweighed by the need to keep consideration of the matter confidential given the information relates to yet to be finalised tender outcomes and commercial expenditure.

REPORT HISTORY

Report Reference	Report Title
GC220308R18.4	Coastal Walkway Update
GC220222F11.3	Coastal Walkway Update
GC211214F18.3	Coastal Walkway Update
GC211026R10.5	Coastal Walkway Concept Design Update
GC210622F03	Coastal Walkway Update Field River
GC201124R10	Coastal Walkway Concept Design & Outcomes of Community Engagement
GC191126R07	Coastal Walkway Project

REPORT OBJECTIVE

To provide a Section 48 prudential report as required under the Local Government Act to the Finance, Risk and Audit Committee for review. The report prepared relates to the Coastal Walkway Project for Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully).

EXECUTIVE SUMMARY

In 2019, through a periodic Asset Audit, Council engaged an engineering consultancy firm to undertake a structural assessment of all structures associated with the coastal walkway network.

This audit identified that elements of the Walkway were deemed high risk of failure and subsequently Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully) were closed to the public. These structures were deemed high risk due to the inadequacy of the footings and concerns with safety to the users.

In November 2019, Council committed $2.44 million for the re-construction of these segments including the new connection of Segment 10, Field River.

The State Government provided matched funding through the 2020 Department for Infrastructure & Transport (DIT) open space funding stimulus bringing the total budget to $4.88 million.

The total project costs inclusive of forecasted professional services fees, additional extensive site investigations, increases in construction costs resulting from Covid-19 and current global impacts, identifies a funding budget gap of $4.47 million.

A figure of $4.1 million has been incorporated into the Draft 2022-2023 Annual Business Plan for public consultation endorsed by Council on 12 April 2022.

In line with the comments contained within the Section 48, an additional $370k will be required to provide greater contingency and cover provisional sums and be reflected in the final 2022-2023 Annual Business Plan to be adopted by Council in June 2022.

The vision for the project is to construct two suspension bridges for Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully). The upgrade of these segments is aligned to Council's endorsed 2020 -2030 Coastal Walkway Asset Management Plan.

A Section 48 report was prepared by Consultants BRM Advisory to review Administrations prudential activities in relation to progressing with the upgrade of this project. **Refer Attachment 1.**

The Section 48 report is in accordance with the Local Government Act and examines the project in its entirety in the following key areas.

- Relationship with strategic management plans.
- Objectives of the Development Plan.
- The project's potential contribution to the local economy.
- Consultation that has been undertaken with the local community.
- Financial Assessment: implications, viability and sustainability of the project both in the short and long term.
- Potential risks and mitigation strategies.
- Project delivery.

City of Marion also undertook a Cost Evaluation report prepared by North Project's assessing financial evaluation, rationale for project cost increase and program evaluation. **Refer Attachment 2.**

RECOMMENDATION

That the Finance, Risk and Audit Committee:

1. **Notes that the Section 48 Prudential Report addresses requirements under the *Local Government Act* 1999.**
2. **Recommends to Council the adoption of the Section 48 Prudential Report and confirms the report adequately addresses the following issues in relation to the Coastal Walkway Bridges project:**
    a. **The Project's support of Council's strategic objectives.**
    b. **The project's alignment with the objectives of the Council's Development Plan.**
    c. **The assessment of the potential economic impacts of the Project.**

d. **The level of consultation identified for the Project.**

e. **The assessment of the Project's risks and the appropriateness of the mitigation strategies developed.**

f. **The Project's financial viability in the short and long term.**

g. **Council's capacity to deliver the project within its financial sustainability targets.**

3. **In accordance with Section 91(7) and (9) of the *Local Government Act 1999* the Committee orders that this report, *Coastal Walkway – Prudential Report*, any appendices and the minutes arising from this report having been considered in confidence under Section 90(2) and (3)(k) of the Act, except when required to effect or comply with Committee's resolution(s) regarding this matter, be kept confidential and not available for public inspection until a construction contract has been executed. At this time the information will be released in its entirety. If not released prior, this confidentiality order will be reviewed at the General Council Meeting in December 2022.**

DISCUSSION

The City of Marion Coastal Walkway from Marino to Hallett Cove is a highly valued and important community asset that attracts visitors and contributes to the liveability of the city.

Following the completion of a structural audit of the structures associated with the Coastal Walkway during the Council's Asset Audit in 2019, it was deemed Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully) were high risk due to the inadequacy of the footings and concerns with safety to the users. Subsequently, these segments were closed to the public.

Council committed $2.44 million in November 2019 for the reconstruction of the two gullies and the connection of the walkway to the Field River. The State Government through the 2020 DIT (stimulus funding) for open space matched the funding bringing the project budget to $4.88 million.

At the General Council meeting on 26 October 2021 (GC211026R10.5), Council endorsed the concept cable bridge designs for Grey and Kurnabinna Gullies, following consideration of community feedback.

At the General Council meeting on 14 December 2021 (GC211214F18.3), Council noted an Early Contractor Involvement (ECI) model with the preferred contractor working collaboratively with the design team to finalise all aspects of final construction design, construction methodology and value management opportunities. The preferred contractor has subsequently submitted the full design, costings, and construction for endorsement by Council.

At the General Council meeting on 8 March 2022 (GC220308F18.4), General Council noted the project's status and received an evaluation report on the bridge versus boardwalk approach. This assessment confirmed the bridge alternative as the more favourable option for Council due to various factors including improved accessibility, minimised environmental impact, future maintenance and reduced construction cost and risk.

The final construction cost received for Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully) including provisional sums and contingencies is $7,315,911. This does not include the $909,387 of professional fees attributed to both Gullies and Field River. This is further explained and summarised in North Project's Final Cost Critical Evaluation Report. Refer Appendix 2.

This project was prioritised in Council's 2019-2023 Business Plan as a major project, aligning to Council's recently adopted Coastal Walkway Asset Management Plan.

The many benefits of this project include:

- This is an iconic project for not only the City of Marion, but Adelaide and South Australia and will attract visitors to the City of Marion, supporting the positioning of City of Marion and Hallett Cove as a destination, therefore strengthening the local economy.

- Improved accessibility for residents and visitors, allowing more people to safely access and enjoy the coastal trail and the health benefits associated with this.

- Minimised environmental impact to the gullies as compared with replacing the boardwalks – not only through the reduced impact of the construction process, but also in the longer term this project will enable the gullies' flora and fauna to flourish.

- A cost-effective capital solution and reduced whole of life maintenance costs to the City of Marion than replacing the current boardwalks.

Since the previous report to General Council in February 2022, extensive geotechnical exploratory works has been undertaken by the consultant team. The geotechnical exploratory works formed an important element of understanding the surface and subsurface conditions to determine the footing design requirements for the footings and anchor points for the bridges. As a result of finalising the footing design, the contractor then adjusted construction costs to reflect these requirements.

A Section 48 prudential report has been commissioned from BRM Advisory and is attached as Appendix 1**.** The Prudential Report has considered various documents and reports supplied by Administration together with North Project's Final Cost Critical Evaluation Report (Appendix 2).

The Section 48 report demonstrates that significant due diligence work has been undertaken by Administration across the various iterations and forms of the project and that it is BRM Advisory's opinion that sufficient information has and will be provided to Council to inform its decision on whether to progress with the project.

The Section 48 makes several observations:

- The contingency allowance provided within the 2022/23 draft budgets is low. This has been addressed by Administration, who will seek additional funding through the May 2022 General Council meeting to reinstate the construction contingency to a more reasonable level commensurate to the identified risks relating to the construction phase of the project.

- The whole of life cost assessment included within the North report assumes annual maintenance costs of $20,000 per annum and questions whether this figure is realistic. The design of the bridges ensures that any major maintenance for the first 10-15 years will be minimal, mainly based around asset inspection routines and maintenance required as a result of unforeseen defacement. The useful life of the bridges is 50 years.

- The comparative analysis for the boardwalk versus bridge designs was based on the concept design stage as opposed to a detailed design or tendered price. Due to the bridges being selected as the preferred option, further investigation was not undertaken on the costings for the boardwalks to minimise additional design costs and further project delays. However, North have estimated that similar professional fees would have been required due to the nature of the landscape and extensive ground investigation work required to explore the wider area of coverage by the boardwalk footings and that the price increases as a result of Covid-19 and global conditions would still have applied.

- The Section 48 report comments, whilst that the Project Risk Register dated 11 April 2022

covers most of the key risks, it would benefit from additional work. The contents of the Register are based on standard construction project risks, which have been expanded to note the high engineering focus of the project. However, it should be noted that following site handover to the lead contractor, the risks will be owned by the lead contractor, not Council for the duration of the programme of work.

Project Value
The final construction cost of the Bridges including provisional sums and contingencies is $7,315,911. This does not include the $909,387 of professional fees attributed to both the bridges and delivery of the Field River project. The original budget of $4.88 million is insufficient.

The increase in construction costs can be attributed to a number of issues including the additional extensive site investigations required to achieve 100% design: competitive market conditions as a result of impacts from both Covid-19 and current global impacts. As a result, a figure of $4.1 million has been incorporated into the Draft 2022/23 Annual Business Plan for public consultation endorsed by Council on 12 April 2022. However, in line with the comments contained within the Section 48, an additional $370k will be required to provide greater contingency and cover provisional sums. Subject to Council's endorsement in addition to the $4.1 million, an additional contingency of $370K will be included in the final 2022/23 Annual Business Plan to be adopted by Council in June 2022.

Should the boardwalk option have been the preferred choice, similar professional fees would have been attributed to the project due to extensive footings exploration and investigation to identify the best delivery method for the footings, which would have covered a far greater area across both gullies.

Administration has liaised with State Government Office regarding the grant funding agreement on the impact of the project not being completed by the completion date of December 2022. The State Government Office have advised Administration to formally write and provide a revised completion date to extend the current grant agreement a minimum of six week prior to the exiting completion date.

Programme
Should Council endorse the delivery of the bridge option, the contract will be awarded to Blubuilt for the construction of the bridges. The contractor will mobilise with immediate effect, engaging sub-contractors, with an aim to commencing site build late May 2022. The bridge construction works will commence in June 2022 with Grey Road Gully and Kurnabinna Gully works will commence November 2022. The programme will be project managed closely to monitor and mitigate any project delays as a result of Covid-19, global economic conditions, and general construction delays. A robust risk register will continue to be developed noting many of the construction risks will remain with the contractor.

Final rationale for bridges over boardwalks.
The Bridge & Walkway Evaluation report provided by North Project's in February 2022 concluded that the bridge alternative had significant financial, environment, sustainability, and social benefits over the boardwalk option.

The April 2022 Final Cost Critical Evaluation Report undertaken by North Project's concludes the bridge option remains the preferred option. Refer Appendix 2.

The Section 48 report also concludes that an appropriate level of due diligence has been applied to the project that ensures Elected Members are informed about the project and its impacts.

It should be noted, that whilst the overall construction costs of the bridges, including professional fees have increased, should the boardwalk option have been the preferred choice, similar professional fees would have been incurred to the project due to extensive footings exploration and investigation to identify the best delivery method for the footings. This would have resulted in a high increase in the cost of project delivery.

ATTACHMENTS

1. Coastal Walkway Prudential Report [**8.1.1** - 29 pages]
2. Final Price Critical Evaluation Report [**8.1.2** - 33 pages]

BRM Advisory

City of Marion

Section 48 Prudential Report: Coastal Walkway – Grey and Kurnabinna Gully Upgrade

April 2022

Final

BUSINESS • RESOURCE • MANAGEMENT

BRM ADVISORY
BUSINESS RESOURCE MANAGEMENT

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EXECUTIVE SUMMARY

The following prudential report has been prepared for the City of Marion (CoM) to review its prudential activities in relation to progressing the proposed upgrade to Cell 5 (Grey Gully) and Cell 6 (Kurnabinna Gully) of the Marion Coastal Walkway. The proposed Project design is to construct two new suspension bridges to replace the existing boardwalk and steps, to allow users to traverse the gullies.

As an alternative to the bridges, the CoM has also considered a boardwalk and steps style design but based on the cost benefit analysis undertaken (supported by external consultant North Projects) the bridge design is the favoured approach.

Summary Conclusion:

The CoM Administration will provide Council with a comprehensive report containing the information we have used to inform our prudential review during the May 2022 Council Meeting cycle. This will demonstrate that significant due diligence work has been undertaken by the Administration across the various iterations and forms of this Project and it is our opinion that sufficient information has and will be provided to Council to inform its decision on whether or not to progress the Project.

Project due diligence recommendations:

To enhance the due diligence processes undertaken to date, we make the following key observations and recommendations:

- The remaining contingency allowance of $0.091 million based on the funding provided for in the 2022/23 draft budget represents just over 1% of the current construction budget. This level of contingency is low given the known complexity and public interest surrounding the Project and there is a risk that additional funding will be required to complete the Project in accordance with desired design outcomes. The CoM Administration recognises this and have advised us they will be seeking an additional $0.370 million funding during the May 2022 Council Meeting cycle to reinstate the construction contingency to a more reasonable level commensurate to the identified risks relating to the construction phase of the Project.

- A high-level Whole of Life cost assessment has been included in the report prepared by North Projects titled 'Final Cost Evaluation Report'. This assessment assumed annual maintenance costs for the bridges to be $20,000 per annum, which represents only 0.29% of the total construction cost estimate. If future maintenance costs exceed this amount, whole of life costs may be more than the $8.812 million disclosed in the North Projects report.

- The decision to progress the bridge design was informed by a comparative analysis of the relative merits of a bridge versus boardwalk and steps design direction. The comparative analysis for the boardwalk and steps design was based on designs and cost estimates at the concept design stage as opposed to a detailed design or tendered price. It is not known with certainty what the final costs of the boardwalk and steps design would be which could influence Councils decision on progression of the Project. North Projects have estimated that the final costs of the boardwalk and steps design could be 16% more expensive than the original estimate. Obtaining final pricing on a boardwalk and steps design would result in additional design costs and further delays to the Project.

- The latest iteration of the Project Risk Register dated 11 April 2022 captures most of the key risks relating to the Project but would benefit from additional work and continued iterations to ensure that it more accurately captures and assesses all the risks relating to the Project.

PRUDENTIAL REVIEW KEY FINDINGS

S48 (2)	Description	Prudential Review Comments	Management Comments
(a)	The relationship with **strategic management plans.**	The Project is specifically referenced and/or aligned with the objectives in Council's key strategic planning documents and strategic documents prepared at the State level. The draft 2022/23 annual budget and updated LTFP contains sufficient capital provisions to complete the Project, albeit with limited contingencies. If the Project progresses, and once complete, CoM will need to update the Coastal Walkway Asset Management Plan to consider future maintenance and renewal of the new suspension bridges.	Noted. The Coastal Walkway Asset Management Plan will be updated to reflect operating costs through the asset life cycle.
(b)	The objectives of the **Development Plan.**	The CoM has received legal advice that a Development Application is not required for the Project due to the exclusion in relation to Recreation Paths in the PDI Regulations. The Project assets are located in the Conservation Zone. While Development Approval may not be required, CoM should seek to ensure where possible that the objectives of the Conservation Zone are met when delivering the Project.	Noted.
(c)	The expected contribution of the project to the **economic development** of the local area. The impact on **businesses carried on in the proximity**. How the project should be established in a way that ensures **fair competition** in the marketplace.	Economic modelling has been undertaken using the Remplan economic impact model to estimate the expected contribution of construction activity on economic activity and jobs. The modelling shows that the Project is expected to generate total economic output including all direct, supply chain and consumption effects, of $15.112 million There is not expected to be a material impact on businesses in the proximity from undertaking the Project, nor is there any requirement to consider fair competition principles.	Noted.

S48 (2)	Description	Prudential Review Comments	Management Comments
(d)	The level of **consultation** with the local community and the means by which the community can influence the project.	The consultation processes undertaken to date have been in accordance with the CoM Public Consultation Policy and Procedure, which commits to appropriate levels of community engagement before making significant decisions. It is worth noting that the relatively short (14 day) consultation period during the October 2021 consultation may have limited the number of responses received. The information from the consultation process was appropriately presented to Council to inform decision making at the 26 October 2021 Council meeting. There is evidence that feedback from consultation has been incorporated into updated Project designs in terms of reducing the visual impact of the structures for nearby residents.	Noted. Administration will continue to update the community during the construction phase.
(e)	**Revenue projections** and **potential financial risks.**	The Project is not expected to produce revenue. The major financial risk relates to the adequacy of the capital budget to undertake the Project. CoM has included additional provisions in their draft 2022/23 budget to meet the additional capital construction costs, however this budget has yet to be adopted by Council. There is a risk of additional unbudgeted costs during construction that further increase the cost of the Project which could mean that the increased budget is insufficient to complete the Project. The extent to which these risks are mitigated in the construction contract is not currently known.	Noted. Administration will seek to ensure appropriate contingency funding will be provided for in the 2022/23 budget to ensure the project budget is adequate.
(f)	**Recurrent** and **whole-of-life costs.**	Whole of Life costs for the bridges and the alternative boardwalk options have been included in the North Projects 'Final Cost Evaluation Report'. The assumed maintenance provision of $20,000 per annum for the bridges is only 0.29% of the capital cost which appears low. There is a risk that the actual whole of life cost of the Project is greater than the amount stated in the North Projects report if future maintenance costs exceed $20,000 per annum.	Noted. Council's future operating and maintenance budgets will be adjusted to reflect the required maintenance regime throughout the asset life cycle.
(g)	**Financial viability** of the project.	CoM has recently drafted its updated 2022-23 Budget and Long Term Financial Plan which includes an additional $4.100 million of capital budget provision to complete the Project in addition to the original $2.441 million CoM contribution. Even with this additional funding allocation, the capital cost of the Project is considered affordable based on CoM's key financial ratios remaining comfortably within the target ranges.	Agreed – the CoM draft 2022-23 budget and LTFP has sufficient capacity to complete the project considering Council's projected key financial ratios.

S48 (2)	Description	Prudential Review Comments	Management Comments
(h)	**Risks** associated with the project, and the steps that can be taken to manage, reduce or eliminate those risks.	There is evidence that risk has been considered during the planning phase of the Project through the preparation of three risk registers. While the latest register dated 11 April 2022 broadly captures most of the key risks relating to the Project, we consider it should be further enhanced and improved by the project manager / team to better reflect the relatively complex nature of the construction works and the high levels of community interest in relation to the Project.	Noted. Risk register will continue to be updated accordingly.
(i)	The most appropriate mechanisms or arrangements for **carrying out the project.**	The Project is being progressed through an Early Contractor Involvement delivery methodology and a project plan has been developed which plans for construction to be completed by May 2023. To ensure the grant funds are secured, CoM must write to the Attorney General's Department and request an extension of time to complete the Project as delivery will not occur in the timeframe set out in the grant documentation.	Noted.
(j)	If the project involves the **sale or disposition of land**, the valuation of the land by a qualified valuer under the Land Valuers Act 1994	The Project does not involve the sale of land. No valuation is required.	Noted.
	An **appropriate level of due diligence** is applied to the proposed project.	An appropriate level of 'due diligence' has been applied to the Project to ensure Elected Members are informed about the Project and its impacts.	Noted.

1. INTRODUCTION

1.1 Background

1.1.1 The Marion Coastal Walkway (Walkway) is located within the Marion Coast Park and extends 7.2 km from Marino in the north, to the Hallett Headland Reserve at Hallett Cove in the south. An overhead map of the Walkway is shown in Attachment One.

1.1.2 The Walkway was constructed in the 1990s and is a mixture of boardwalks, bridges and natural and made paths following the coastline, providing users with stunning views of the rugged cliffs and rocky coast.

1.1.3 In 2019, the City of Marion commissioned Sproutt, an independent engineering consultant, to undertake an audit of the entire length of the Walkway. The Audit rated the condition of each section including all boardwalks, paths, bridges and structures. The Audit findings led to a decision to take some of the most vulnerable sections of the Walkway out of service until investigations in relation to their renewal / replacement could be completed.

1.1.4 Following the Audit, the CoM developed and released a Coastal Walkway Plan and a Coastal Walkway Asset Management Plan 2020 to 2030 (CWAMP).

1.1.5 The Coastal Walkway Plan specifies the programming, priorities and high-level costings in relation to renewal of the Walkway over the next 15 years. The first three priorities identified in the Coastal Walkway Plan are shown in Figure One.

Figure One: Renewal priorities identified in the Coastal Walkway Plan

Location Summary

Location				Timeframe	Total Cost	Est. Total Cost Stage 1 & Stage 2
1	STAGE 1	CELL 6	Kurnabinna Gully	2020–2021	$1,820,293.15	
		CELL 10	Field River	to	$572,081.85	
2	STAGE 2	CELL 5	Grey Road Gully	2023–2024	$2,488,833.00	
						$4,881,208.00

1.1.6 The top three priorities identified relate to an upgrade of the Field River section and a reconstruction of the Grey Gully (Cell 5) and Kurnabinna Gully (Cell 6) sections of the Walkway.

1.1.7 In November 2019, CoM committed $2.441 million (rounded) of funding to the Stage 1 and 2 projects and resolved to seek matching funding from the State Government.

1.1.8 In July 2020, CoM submitted an application under the Places for People Grant Program seeking matching funding to support progression of the Stage 1 and 2 projects.

1.1.9 On 1 September 2020, CoM received written advice from the Department of Planning, Transport and Infrastructure (DPTI) confirming the funding arrangement in relation to the Coastal Walkway (as well as other projects). The State Government contribution was to be split over three years, with $0.140 million initially made available with proposed contributions of $1.193 million and the remaining $1.107 million over the following two financial years, making the total State Contribution $2.441 million (rounded).

1.1.10 Since the creation of the Coastal Walkway Plan and the approval of funding, CoM has completed the upgrade of the Field River section of the Walkway and has significantly progressed with the design process in relation to the Kurnabinna and Grey Gully (Gullies) section of the Walkway. The cost of completing the Field River section of the walkway was $1.126 million. This left a remaining budget provision of $3.754 million (after accounting for monies already spent on Field River and excluding professional fees incurred on Field River) to complete the Gullies.

1.1.11 While the original concept design, which informed the original budget for the Gullies, considered the reconstruction of the boardwalk structure and steps, similar to the existing treatment, CoM has instead decided to progress a design based on the construction of two new suspension cable bridges to cross the Gullies.

1.1.12 The revised design approach along with results from a community consultation process, undertaken in October 2021, was considered by Council at the 26 October 2021 Council Meeting. During the meeting, Council endorsed the cable bridge concept designs for the Gullies resolving as follows:

10.5 Coastal Walkway - Concept Design Update
Report Reference GC211026R10.5

Moved Councillor Crossland **Seconded Councillor Duncan**

That Council:

1. Notes the community engagement findings report
2. Endorse the cable bridge concept designs for Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully) for completion of detailed designs with consideration of Community feedback.
3. Endorse removal of beach access at Segment 6 (Kurnabinna Gully).
4. Receives a further report in December 2021 on the updated costs for the construction of the Coastal Walkway Project for Segment 5 (Grey Road Gully) and Segment 6 (Kurnabinna Gully) including suspension bridge option.

1.1.13 The design and delivery approach was considered again by Council at the 21 December 2021 and the 8 March 2022 Council Meetings.

1.1.14 At the 8 March 2022 meeting, Council considered a third-party consultant report from North Projects (a multidisciplinary consulting firm specialising in property and infrastructure) evaluating the relative merits of the proposed suspension bridge design against a more traditional boardwalk design across the Gullies. This report concluded that "the bridge(s) was the favourable structure to achieve a best for Council outcome".

1.1.14.1 We note that as part of the merits assessment, North Projects assumed that capital construction cost of the suspension bridges (excluding contingencies and professional fees) would be $3.496 million. This was a pre tender estimate (which excluded professional fees) that was informed by original concept designs.

1.1.14.2 Part of the rationale for concluding that the bridges were the favoured solution (compared with a Boardwalk) was on the grounds of a lower capital cost.

1.1.15 Since the 8 March 2022 Council Meeting, final tender prices have been provided by the Construction Contractor which show that the capital cost of the bridge design is significantly more than the amounts disclosed in the March Council Report.

1.1.16 CoM engaged North Projects to identify areas of increase in order to justify the need for additional funding over the $4.881 million already allocated to the Project.

1.1.17 The increases in direct construction costs were identified as being as a result of a significant amount of redesign required:

1.1.17.1 to meet community concern about the visual impact of the bridge structures including changes to the bridge lengths;

1.1.17.2 improvements to finishes;

1.1.17.3 closing out the structural design issues on account of more visibility on actual site conditions and areas of structural foundations; and

1.1.17.4 consequent changes to the engineering required to achieve the design objectives.

1.1.18 Based on final construction tender prices and after allowing for professional fees and some contingency allowance, CoM has allocated an additional $4.100 million of funding in the 2022/23 draft budget to enable completion of the Project.

1.1.19 While this additional budget will be sufficient to meet the current Project construction costs based on the final tender price, there is limited contingency and other headroom to meet any further increase in costs that may occur during the construction phase.

1.1.20 Council will receive updated information from CoM Administration during the May 2022 meeting cycle and will be asked to make a decision on the budget and the future progression of the proposed project works.

1.2 The Project

The Project is defined as the construction of two suspension bridges over the Grey and Kurnabinna Gullies on the Marion Coastal Walkway (as depicted in Figure Two and Three).

Figure Two: Grey Gully (Cell 5) cable suspension bridge concept design

Figure Three: Kurnabinna Gully (Cell 6) cable suspension bridge concept design

1.3 Purpose of a Prudential Review

1.3.1 Section 48 of the Local Government Act 1999 (Act) requires a Council to consider a report addressing the prudential issues set out in subsection (2) of the Act when a project meets certain criteria, namely where a council:

"(b) engages in any project

(i) Where the expected operating expenses calculated on an accrual basis of the council over the ensuing five years is likely to exceed 20 per cent of the council's average annual operating expenses over the previous five financial years (as shown in the council's financial statements); or

(ii) where the expected capital cost of the project over the ensuing five years is likely to exceed $4 000 000 (indexed); or

(iii) where the council considers that it is necessary or appropriate."

1.3.2 Council has a Prudential Management Policy, which was last adopted on 14 September 2021, that sets out Council's approach for prudential management of all its projects. The objectives of the Policy are:

1.3.2.1 to ensure the appropriate level of due care, diligence, risk management and foresight is applied before Council undertakes any Project; and

1.3.2.2 to ensure Council is provided with appropriate information to make informed and accountable decisions when using Council and public resources.

1.3.3 As at the time of writing, the current indexed threshold based on Section 48 (b) (ii) is $5.063 million.

1.3.4 Given the expected capital cost of the Project is likely to exceed the current indexed threshold of $5.063 million, the Project meets the definition of a 'Major Project' in the Prudential Management Policy and requires the preparation of a Prudential Report, which is the highest level of due diligence prescribed under the Policy.

1.3.5 This Prudential Report has been written to meet the requirements of the Act and CoM's Prudential Management Policy.

2. PRUDENTIAL REVIEW

2.1 Relationship with Strategic Management Plans

Section 48 (2) (a) the relationship between the project and relevant strategic management plans;"

Elements	Relevant Documents	Prudential Review Comments
Council Plans	Community Vision – Towards 2040 Strategic Plan 2019-2029 City of Marion Business Plan 2019-2023 Annual Business Plan and Budget 2021-22 Long Term Financial Plan 2021-2031 Coastal Walkway Asset Management Plan Coastal Walkway Plan	The Project broadly aligns with the long-term objectives of the Community Vision and Strategic Plan relating to the Liveable and Connected Themes. The Project is not specifically referenced in the City of Marion Business Plan 2019-2023 as a major project; this is not unexpected given the condition audits which informed this Project occurred after this document was prepared. $2.441 million of Council funding and $2.441 million of grant funding ($4.881m total) is included for the Project in the 2021-22 Annual Business Plan and Budget and in the Long-Term Financial Plan. We have been advised that a further $4.100 million of CoM funding has been included in the draft 2022-23 Budget and Long Term Financial Plan. Progressing the Project is consistent with the directions in the Coastal Walkway Asset Management Plan and the Coastal Walkway Plan.
State Plans	30 Year Plan for Greater Adelaide (2017 update)	Coast Park is a defined case study within the 30 Year Plan for Greater Adelaide and confirms an objective to create a 70km coastal linear park along the length of the coast from North Haven to Sellicks Beach.
Regional Plans	No Regional Plans have been reviewed	Not applicable
National Plans	No National Plans have been reviewed	Not applicable
Findings: Requirements of Section 48 (2) (a) **have been met.** The Project is consistent with the key themes and actions within the existing suite of Marion Strategic Management Plans. For the Project to progress as currently scoped, Council will be asked by the Administration to endorse an additional $4.100 million of capital provision (above the existing $4.881 million already allocated to the Coastal Walkway upgrade).		

2.2 Objectives of the Development Plan

Section 48 (2) (b) the objectives of the Development Plan in the area where the project is to occur;

Elements	Relevant Documents	Prudential Review Comments
Development Assessment	Planning, Development and Infrastructure Act 2016 (PDI Act) Planning, Development and Infrastructure (General) Regulations 2017 (PDI Regulations)	CoM has obtained written advice from both their internal Planning Team and Norman Waterhouse Lawyers that the proposed Project works do not constitute development under the PDI Act. This conclusion relies on Schedule 4 Clause 20 (1) of the PDI Regulations which states that the construction of Recreation Paths is exempt. Given the high levels of community interest in the Project, there remains a risk that a third party may seek a judicial review regarding the applicability of the Schedule 4, Clause 20 exemption as it relates to the requirement for Development Approval in relation to the Project.
Development zone	Planning and Design Code	The Gullies are located in the Conservation Zone. While Development Approval is not strictly required, CoM should seek to ensure where possible that the objectives of the Conservation Zone are met in delivering the Project.
Approving Authority	Planning, Development and Infrastructure Act 2016.	Not applicable
Findings: Requirements of Section 48 (2) (b) **have been met.** Based on legal advice received by CoM, a Development Application is not required for the Project on account of the exclusion in relation to Recreation Paths in the PDI Regulations. This has been confirmed in writing by CoM's external legal advisor and the internal Planning Team. Despite this advice, there remains some risk (albeit low) that an interested party could seek to challenge the decision to not seek Development Approval in relation to the Project.		

2.3 Contribution to Economic Development

Section 48 (2) (c) the expected contribution of the project to the economic development of the local area, the impact that the project may have on businesses carried on in the proximity and, if appropriate, how the project should be established in a way that ensures fair competition in the market place;"

Elements	Relevant Documents	Prudential Review Comments
Contribution to economic development	REMPLAN report	CoM has prepared a REMPLAN Economic Impact report to estimate the expected impact the construction phase of the Project will have on economic activity and jobs. The assessment has been based on a notional project value of $7.500 million. Based on a $7.500 million project value the Project is modelled to generate total economic output including all direct, supply chain and consumption effects, of $15.112 million. In addition, the Project is also estimated to create 42 new jobs. While there are economic benefits that will be generated by the construction phase of the Project, as an upgrade to community recreation infrastructure, economic development is not a key driver of progressing the Project.
Impact on businesses in the proximity	None	Given the location of the Project we do not expect that there will be any significant impacts on businesses in the proximity.
Fair competition	None	The principles of Fair Competition are not relevant to the Project as there are no commercial aspects relating to the Project.

Findings:

Requirements of Section 48 (2) (c) **have been met.**

CoM has quantified the expected economic impact from the construction phase of the Project on the local and national economy using the REMPLAN Economic Impact Model based on a total Project cost of $7.500 million, an amount which is not materially different to the likely total project cost based on the current construction tender price. Should value management initiatives or changes in scope reduce or increase the total capital cost, the economic impact will change proportionately.

Given the location of the Project we do not expect that there will be any significant impacts on businesses in the proximity nor will there be any impacts on Fair Competition.

2.4 Level of Consultation

Section 48 (2) (d) the level of consultation with the local community, including contact with persons who may be affected by the project and the representations that have been made by them, and the means by which the community can influence or contribute to the project or its outcomes;"

Elements	Relevant Documents	Prudential Review Comments
Level of consultation	CoM Public Consultation Policy (last updated May 2019) CoM Public Consultation Procedure (last updated May 2019) Community Engagement Report (provided in Council Agenda dated 26 October 2021) Local Government Act 1999	There are no specific requirements under the Local Government Act for CoM to undertake community consultation for this Project. However, in accordance with the objects of the Public Consultation Policy (Policy), CoM has exercised its discretion under Part 3 of the Public Consultation Procedure to seek community feedback on the proposed Project. There have been a number of instances of community consultation throughout the planning stage of the Project. The first was a community forum held on 17 August 2020 at the Cove Civic Centre. The purpose of this session was for CoM to obtain an understanding of the needs and desires of the community to inform future designs for amongst other things, the reconstruction of the Gullies. At this stage, a suspension bridge over the Gullies was not considered. Between 5 and 19 October 2021 (14 days) a formal community consultation process was undertaken on the design concept of constructing suspension bridges across the Gullies. The process attracted 121 online survey respondents through the Making Marion website. The community has also been provided with a copy of a consulting report prepared by North Projects to evaluate the relative merits of a bridge versus boardwalk design for the Gullies on the Making Marion website. The Project page on the Making Marion website has been continually updated throughout the duration of the Project, keeping residents informed of Council decisions and deliberations about the Project.
Level of community influence to the Project	CSCC Community Engagement Final Report – October 2020 Project Business Case	The feedback from the October 2021 consultation process showed that 63% of respondents were either dissatisfied or extremely dissatisfied with the proposed Project. Some of the major issues uncovered by the consultation include: • Diminishing visual amenity of the gully landscapes • Loss of access to the Beach • Removal of the boardwalk stairs and the impact that has on those using the Walking Trail for vigorous exercise.

Elements	Relevant Documents	Prudential Review Comments
		In reviewing the specific feedback provided and the Council report dated 26 October 2021, it is apparent that the consultation process uncovered a number of community concerns with the proposed designs. These issues were fully and fairly presented to CoM Elected Members at the October 2021 Council Meeting prior to Council making its decision to proceed with the suspension bridge option. While not specifically documented in the Council resolution following the October Council Meeting, the Making Marion website provides some additional context for the decision: **Coastal Walkway October Update 2021** On Tuesday 26 October, Marion Councillors voted unanimously to move ahead with the suspended cable bridge option across the Kurnabinna and Grey Rd gullies along the Coastal Walkway at Hallett Cove. Elected members noted some public opposition to the bridge design, but said ongoing requests to make the gullies section more accessible to all abilities and the public's desire to have it reopened as quickly as possible, along with the environmental benefits, helped shape the decision to finalise detailed designs. The cost of the bridge proposal is estimated at $4 million while it would cost roughly $5.3 million to replace the current gullies portion of the walkway. The bridge option also allows for a quicker delivery of the project meaning the popular beachside walk could be open again by mid-2022. Council also endorsed the removal of beach access at Kurnabinna due to safety concerns but will explore a safer beach access point within segment 7 closer to Fryer Street Reserve. The final design will be released to the public in early December 2021. CoM has also incorporated feedback from the consultation process to evolve designs of the suspension bridges post October 2022 to minimise the visual impact of the structures and to ensure the bridges are, where possible, set below the views from various properties to minimise the visual impact.

Findings:

Requirements of Section 48 (2) (d) **have been met.**

The consultation processes undertaken to date have been in accordance with the CoM Public Consultation Policy and Procedure, which commits to appropriate levels of community engagement before making significant decisions. One point to note is the relatively short (14 day) consultation period during the October 2021 consultation which may have limited the number of responses received. We recommend that CoM should where possible provide community members with more time to consider and provide feedback during consultation processes however as a discretionary consultation process, the shorter period of this consultation is not strictly a departure from CoM Policy.

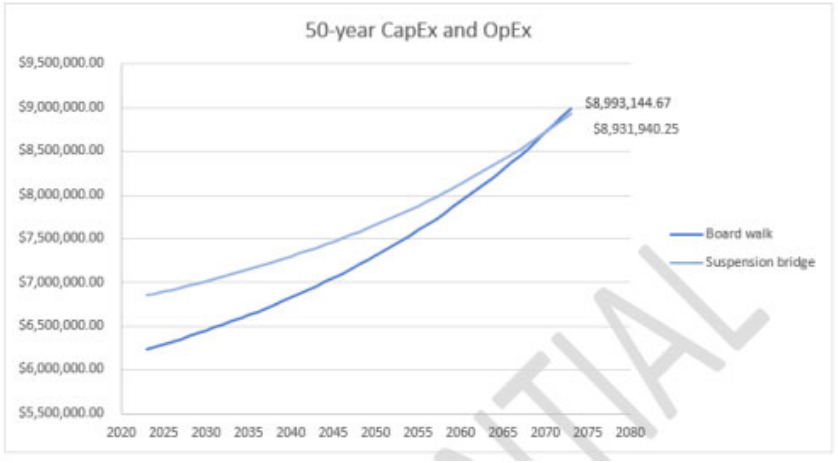
2.5 Revenue, Revenue Projections and Potential Financial Risks

Section 48 (2) (e) if the project is intended to produce revenue, revenue projections and potential financial risks"

Elements	Relevant Documents	Prudential Review Comments
Revenue projections	None	The Project is not expected to generate recurring revenue. The public will continue to have access to the Walking Trail and the proposed bridges for no charge. At this stage $2.441 million of State Government grant funding has been secured in relation to the Project. This grant funding will be recorded as revenue as the money is received and the conditions of the grant have been met.
Potential financial risks	Project Risk Register	A Risk Register for the Project has been prepared which details controls and treatment plans for a number of identified financial risks. While significant effort and money has been expended in the design stage of the Project to understand and mitigate construction risks, given the location of the build and the uncertainty surrounding footings and geotechnical information, there remains a risk that new information uncovered during the construction phase will lead to changes of scope and further increases to Project costs. At the time of writing, the construction contract has not yet been agreed, so we are unclear as the extent to which financial risk is being shared between CoM and the construction contractor. As a consequence there is at this stage a remaining residual risk that the revised budget allocation may still not be sufficient to deliver the Project if circumstances change during the construction phase (i.e. additional issues with footings of input prices for steel change).
Findings: Requirements of Section 48 (2) (e) **have been partially met.** The Project risk register identifies a number of potential financial risks and controls to mitigate against CoM's risk exposure. At this stage there remains some uncertainty as to the extent of CoM's future exposure to changes in construction conditions and changes in prices for key construction inputs and whether or not such factors could lead to increases in construction costs above the current allocated budget. These risks would need to be fully understood in order for CoM to address and properly understand the financial risk applicable to this Project.		

2.6 Recurrent and Whole of Life Costs

Section 48 (2) (f) the recurrent and whole-of-life costs associated with the project including any costs arising out of proposed financial arrangements;"

Elements	Relevant Documents	Prudential Review Comments
Recurrent costs	Final Construction Cost Evaluation Report – North Projects	The recurrent costs in relation to the Project relate to maintenance of the bridges, depreciation and finance payments on borrowings to support the capital cost of the Project. Depreciation will be calculated at 2% of construction cost based on a 50 year asset life. The final North Projects report has concluded that annual costs of maintenance for the bridges is expected to be $20,000 per annum. This represents just 0.29% of the total capital cost.
Whole of life costs	Final Construction Cost Evaluation Report – North Projects	A high level Whole of Life cost analysis has been performed on the cost of the bridges versus a replacement of the current boardwalk and stairs. The analysis, as shown in the Final Cost Evaluation Report from North Projects, shows that despite the additional capital cost, the whole of life cost of the bridges is comparable to the boardwalk design. 

<table>
<tr><th>Elements</th><th>Relevant Documents</th><th>Prudential Review Comments</th></tr>
<tr><td></td><td></td><td>We specifically note that the capital cost of the bridges in this WOL cost analysis is based on a final contracted cost while the assumed capital cost of the boardwalks is based only on a concept design. It is probable that the actual construction cost of the boardwalk option may be materially different to the concept design costs, if the boardwalk design option was progressed to a more detailed level. Based on subsequent work undertaken by North Projects, the actual final cost of the boardwalk option may have been 16% higher than the concept costs (if not more)[1] due to the additional footings required for the alternative boardwalk structure.</td></tr>
<tr><td>Financial arrangements</td><td>Annual Business Plan and Budget
Treasury Policy</td><td>CoM obtained a State Government Grant to support 50% of the original anticipated construction cost of the Project, totalling $2.441 million. Since this grant was applied for and approved, the actual construction cost and the construction methodology has changed significantly.
Based on the final construction cost estimates, the proposed financial arrangements are as follows:
<table>
<tr><th></th><th>($m)</th></tr>
<tr><td>CoM initial budget allocation</td><td>$2.441</td></tr>
<tr><td>State Government contribution</td><td>$2.441</td></tr>
<tr><td>Expended to date on Field River</td><td>($1.126)</td></tr>
<tr><td>Additional CoM proposed commitment (per LTFP)</td><td>$4.100</td></tr>
<tr><td>Total remaining funding</td><td>$7.855m</td></tr>
<tr><td>Less professional fees incurred and budgeted</td><td>($0.909)</td></tr>
<tr><td>Total remaining construction funding</td><td>$6.946m</td></tr>
<tr><td>Final tender price</td><td>($6.855m)</td></tr>
<tr><td>Remaining contingency allowance</td><td>$0.091m</td></tr>
</table>
To deliver the Project within the revised budget, the construction phase will need to be delivered for $6.946 million or less. The final tender price is $6.855 million.</td></tr>
</table>

[1] Section 4.7 of the final North Report

Elements	Relevant Documents	Prudential Review Comments
		While the revised budget provision is sufficient based on the latest costings provided by the construction contractor, there is still some uncertainty over the final form of the construction contract and the extent to which each party is bearing risk for future changes in scope and input costs which, given the nature of the site and the high levels of community interest in the Project, we consider are likely to occur. The remaining contingency allowance of $0.091 million represents approximately 1.3% of the remaining construction budget for the bridges. This level of contingency is low based on the known complexity of the Project. In recognition of the current low construction contingency, CoM Administration has advised us they will make a bid for $0.370 million additional funding above the amount currently included in the draft 2022/23 Annual Budget. We support this approach to help ensure the Project has sufficient funding to be completed in accordance with the expectations of stakeholders.

Findings:

Requirements of Section 48 (2) (f) **are partially met.**

CoM Administration has included $4.100 million of additional funding in the draft 2022/23 budget to complete the Project. This additional funding will need to be endorsed by Council or alternative funding sources be identified in order for the Project to proceed.

The remaining contingency allowance of $0.091 million (1.3% of total construction cost) is low considering the known complexity and public interest surrounding the Project and there is a risk that additional capital funding will be required to complete the Project. We have been advised that the CoM Administration will make a bid for an additional $0.370 million of funding during the May 2022 meeting cycle to reinstate the construction contingency to a more reasonable level.

Whole of Life costs for the bridges and the alternative boardwalk options have been included in the North Projects 'Final Cost Evaluation Report'. The assumed maintenance provision of $20,000 per annum is only 0.29% of the capital cost which appears low. There is an existing risk that the actual whole of life cost of the Project is greater than the amount stated in the North Projects report.

2.7 Financial Viability

Section 48 (2) (g) the financial viability of the project, and the short and longer term estimated net effect of the project on the financial position of the council;"

Elements	Relevant Documents	Prudential Review Comments
Financial viability	Draft FY2023 Long Term Financial Plan	CoM has recently prepared its draft 2022/23 to 2031/32 Long Term Financial Plan (LTFP), incorporating the draft 2022/23 annual budget. We have reviewed relevant parts of the updated LTFP. CoM has confirmed that there is an additional $4.100 million budget allocation within the draft 2022/23 capital expenditure budget to progress the Project. Even after progressing the Project with the additional $4.100 million of funding, CoM's forecast Net Financial Liabilities ratio as at the end of 2022/23 (13.22%) is comfortably within the target range for the ratio of between 0% and 50%. The debt servicing ratio measures the total annual loan principal and interest payments as a percentage of total income. The forecast ratio of 1.1% during 2022/23 is comfortably within CoM's target range for the ratio (between 0% and 5%).
Findings: Requirements of Section 48 (2) (g) **have been met.** The 2022/23 draft LTFP shows the financial impact of progressing the Project with the additional proposed $4.100 million funding contribution included in the plan. Even with this significant additional financial contribution, the capital cost of the Project is deemed to be affordable based on CoM's key financial ratios remaining comfortably within the target ranges.		

2.8 Risk Management

Section 48 (2) (h) any risks associated with the project, and the steps that can be taken to manage, reduce or eliminate those risks (including by the provision of periodic reports to the chief executive officer and to the council);"

Elements	Relevant Documents	Prudential Review Comments
Risk assessment	Risk Management Policy Coastal Walkway Bridges – Risk Register	In accordance with the CoM Risk Management Policy and Risk Management Framework, Project risk has been regularly considered throughout the planning phase: 1. An initial risk register was prepared at the concept design stage, where the Project was initially based on a boardwalk and steps design. 2. A more detailed risk register was then prepared in relation the specific design and safety risks which was used to progress detailed designs on the bridges. 3. And finally a Project Risk Register focussed on the post planning, construction and post completion risks was prepared dated 11 April 2022. The 11 April 2022 Project Risk Register details a total of 33 Project risks. In reviewing the 11 April 2022 Risk Register: • there is a lack of specificity regarding some of the risk descriptions and their relevance to the specific Project (i.e. there are risks in relation to operating a facility that does not appear to be specifically relevant to this Project); • there are some additional risks which have not been documented in the risk register (i.e. the risk that aboriginal artifacts or remains are located during construction) • there are a number of risks which we consider both the inherent risk rating and the residual risk ratings have been understated given the nature of the Project (i.e. the risk of expanding scope causing project delays and budget implications and the lack of consideration of whole of life costs) Risk management is an iterative exercise. While the Risk Register broadly captures most of the key risks relating to the Project, we consider it should be further enhanced and improved by the project manager / team to better reflect the existing and future risk profile of the Project and to inform future decisions. In accordance with Section 48 (2) (h) we recommend periodic risk reports are considered and reviewed in detail by the Project Team through regular Project Control Group meetings and then escalated to the CEO so he can be kept abreast of key Project risks.

Risk mitigation	Coastal Walkway Bridges – Risk Register	Each risk identified in the Project Risk Register has documented against it specific controls and a treatment plan in order to reduce forecast residual risk to either a medium (5) or low (28) level. We consider that the overall assessed level of residual risk in the risk register is too low given the nature of the Project and risk controls that are currently in place.

Findings:

Requirements of Section 48 (2) (h) **have been met**

The risk register presented to us for review is preliminary in nature and would benefit from additional work to ensure that it appropriately captures and rates all the relevant risks relating to the Project.

Given the relatively high levels of public interest in this project and the results of the community consultation, we consider it likely that this Project will attract significant public and media attention. In this environment it is critically important that CoM has in place measures to identify and appropriately mitigate risks throughout the construction phase of the Project.

In accordance with Section 48 of the Act, both the CEO and Council should be kept abreast of risks relating to the Project, particularly when the risk profile of the Project changes during the construction phase.

2.9 Project Delivery

Section 48 (2) (i) the most appropriate mechanisms or arrangements for carrying out the project;"

Elements	Relevant Documents	Prudential Review Comments
Project Delivery	Procurement Policy BlueBuilt Tender Program	The Project is being delivered through an Early Contractor Involvement (ECI) project delivery methodology. The Early Contractor Involvement (ECI) process is typically utilised on projects that are complex in nature and require specialist input from experienced personnel in order to guide the design to assist in improving the constructability of the project. Following an EOI process, two contractors were selected to participate in the ECI process. During the ECI process, both selected contractors were asked to submit a maximum price based on 70% designs and following this process, a single contractor (BlueBuilt) was selected to proceed to the final stage of the process, being 100% designs and final pricing. The current State Government grant required construction works to be completed by the end of 2022. Based on the current status of the Project, this timeframe will not be achieved which means CoM will need to negotiate an extension with the State Government or risk losing the grant. The current Project Plan prepared by BlueBuilt estimates construction of the bridges to commence in July 2022 and practical completion of the Project in May 2023.
Findings: Requirements of Section 48 (2) (i) **have been met.** In accordance with advice received by CoM from the Attorney Generals Department on 30 March 2022, we recommend that Council formally write to request an extension of time to meet the grant conditions that accompany the State Government's contribution to the Project. This will give CoM certainty that the grant funds are not at risk and the State Government with advance warning that the original timeframes will not be achieved.		

2.10 Sale or Disposition of Land

Section 48 (2) (j) if the project involves the sale or disposition of land, the valuation of the land by a qualified valuer under the Land Valuers Act 1994;"

Elements	Relevant Documents	Prudential Review Comments
Valuation of land	None	The Project does not involve the sale or disposition of land.
Findings: Requirements of Section 48 (2) (j) are not applicable to this Project.		

ATTACHMENT ONE: COASTAL WALKWAY OVERHEAD MAP

ATTACHMENT TWO: LOCAL GOVERNMENT ACT, 1999 SECTION 48

Section 48 – Prudential requirements for certain activities

(aa1) A council must develop and maintain prudential management policies, practices and procedures for the assessment of projects to ensure that the council—

(a) acts with due care, diligence and foresight; and

(b) identifies and manages risks associated with a project; and

(c) makes informed decisions; and

(d) is accountable for the use of council and other public resources.

(a1) The prudential management policies, practices and procedures developed by the council for the purposes of subsection (aa1) must be consistent with any regulations made for the purposes of this section.

(1) Without limiting subsection (aa1), a council must obtain and consider a report that addresses the prudential issues set out in subsection (2) before the council—

(b) engages in any project (whether commercial or otherwise and including through a subsidiary or participation in a joint venture, trust, partnership or other similar body)—

(i) where the expected operating expenses calculated on an accrual basis of the council over the ensuing five years is likely to exceed 20 per cent of the council's average annual operating expenses over the previous five financial years (as shown in the council's financial statements); or

(ii) where the expected capital cost of the project over the ensuing five years is likely to exceed $4 000 000 (indexed); or

(iii) where the council considers that it is necessary or appropriate.

(2) The following are prudential issues for the purposes of subsection (1):

(a) the relationship between the project and relevant strategic management plans;

(b) the objectives of the Development Plan in the area where the project is to occur;

(c) the expected contribution of the project to the economic development of the local area, the impact that the project may have on businesses carried on in the proximity and, if appropriate, how the project should be established in a way that ensures fair competition in the market place;

(d) the level of consultation with the local community, including contact with persons who may be affected by the project and the representations that have been made by them, and the means by which the community can influence or contribute to the project or its outcomes;

(e) if the project is intended to produce revenue, revenue projections and potential financial risks;

(f) the recurrent and whole-of-life costs associated with the project including any costs arising out of proposed financial arrangements;

(g) the financial viability of the project, and the short and longer term estimated net effect of the project on the financial position of the council;

(h) any risks associated with the project, and the steps that can be taken to manage, reduce or eliminate those risks (including by the provision of periodic reports to the chief executive officer and to the council);

(i) the most appropriate mechanisms or arrangements for carrying out the project;

(j) if the project involves the sale or disposition of land, the valuation of the land by a qualified valuer under the Land Valuers Act 1994.

(2a) The fact that a project is to be undertaken in stages does not limit the operation of subsection (1)(b) in relation to the project as a whole.

(3) A report is not required under subsection (1) in relation to—

(a) road construction or maintenance; or

(b) drainage works.

(4) A report under subsection (1) must be prepared by a person whom the council reasonably believes to be qualified to address the prudential issues set out in subsection (2).

(4a) A report under subsection (1) must not be prepared by a person who has an interest in the relevant project (but may be prepared by a person who is an employee of the council).

(4b) A council must give reasonable consideration to a report under subsection (1) (and must not delegate the requirement to do so under this subsection).

(5) A report under subsection (1) must be available for public inspection at the principal office of the council once the council has made a decision on the relevant project (and may be available at an earlier time unless the council orders that the report be kept confidential until that time).

(6) However, a council may take steps to prevent the disclosure of specific information in order to protect its commercial value or to avoid disclosing the financial affairs of a person (other than the council).

(6a) For the purposes of subsection (4a), a person has an interest in a project if the person, or a person with whom the person is closely associated, would receive or have a reasonable expectation of receiving a direct or indirect pecuniary benefit or a non-pecuniary benefit or suffer or have a reasonable expectation of suffering a direct or indirect detriment or a non-pecuniary detriment if the project were to proceed.

(6b) A person is closely associated with another person (the relevant person)—

(a) if that person is a body corporate of which the relevant person is a director or a member of the governing body; or

(b) if that person is a proprietary company in which the relevant person is a shareholder; or

(c) if that person is a beneficiary under a trust or an object of a discretionary trust of which the relevant person is a trustee; or

(d) if that person is a partner of the relevant person; or

(e) if that person is the employer or an employee of the relevant person; or

(f) if that person is a person from whom the relevant person has received or might reasonably be expected to receive a fee, commission or other reward for providing professional or other services; or

(g) if that person is a relative of the relevant person.

(6c) However, a person, or a person closely associated with another person, will not be regarded as having an interest in a matter—

(a) by virtue only of the fact that the person—

(i) is a ratepayer, elector or resident in the area of the council; or

(ii) is a member of a non-profit association, other than where the person is a member of the governing body of the association or organisation; or

(b) in a prescribed circumstance.

(6d) In this section, $4 000 000 (indexed) means that that amount is to be adjusted for the purposes of this section on 1 January of each year, starting on 1 January 2011, by multiplying the amount by a proportion obtained by dividing the CPI for the September quarter of the immediately preceding year by the CPI for the September quarter, 2009.

(6e) In this section—

employee of a council includes a person working for the council on a temporary basis;

non-profit association means a body (whether corporate or unincorporate)—

(a) that does not have as its principal object or 1 of its principal objects the carrying on of a trade or the making of a profit; and

(b) that is so constituted that its profits (if any) must be applied towards the purposes for which it is established and may not be distributed to its members.

(7) The provisions of this section extend to subsidiaries as if a subsidiary were a council subject to any modifications, exclusions or additions prescribed by the regulations.

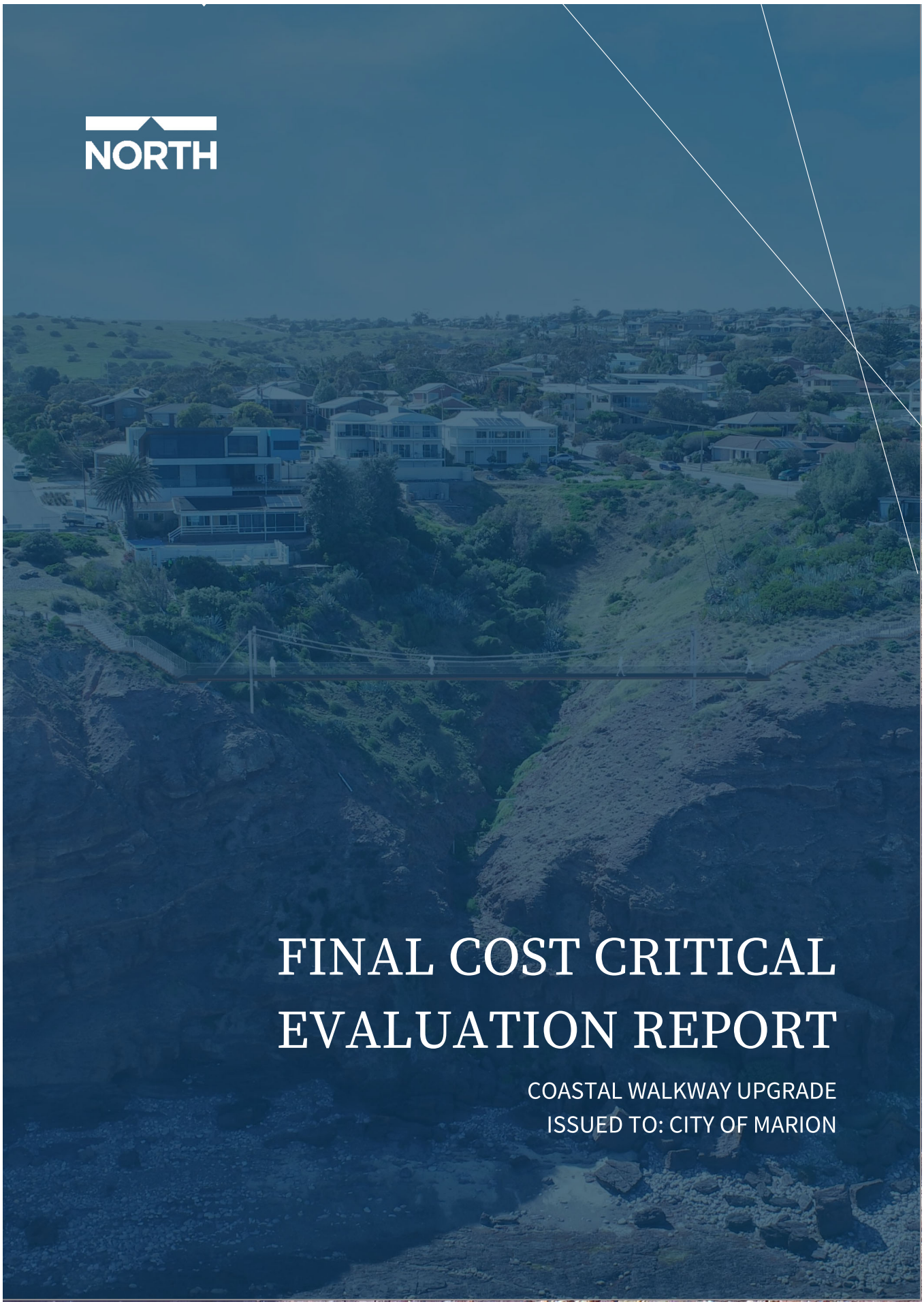

NORTH
FINAL COST CRITICAL EVALUATION REPORT
COASTAL WALKWAY UPGRADE
ISSUED TO: CITY OF MARION

Table of Contents

1. Executive Summary

BluBuilt submitted the Final Price for the 100% designs on 24/03/2022. With the assistance of North Projects, the City of Marion Council responded to their submission with a list of clarifications. BluBuilt's Revised Final Price was submitted on 28/03/2022 is assessed here to identify areas of increase and rationale for the growth to construction costs in order to justify the need for additional funding in excess of the current $4.88m allocated to the Coastal Walkway Upgrades.

The report explores the costings from a differing lens. It sets out the overall cost of delivering the bridges, including the cost of professional fees incurred and allocation of City of Marion provisional sums and contingency. It reviews the final tender price and the associated work undertaken to reach 100% design. It evaluates the funding attached to the project within the City of Marion's Long Term Financial Plan (LTFP) as well as additional funding that is required to be allocated through the June 2022 financial review process. It also considers how, should the boardwalk concept have been the preferred option, additional costs around site investigations and professional services fees would have been applicable if not greater.

Within Phase 3, The Council undertook additional design management meetings, site investigations and workshops to mitigate project risk. Geotechnical investigations were undertaken at the proposed locations for the bridges and boardwalk footings. This work would have still been required should the Council have proceeded with the boardwalk as preferred option but a larger volume of exploratory works would be necessary to cover the area in which the boardwalk would have been situated.

As a result, a significant amount of redesign occurred from 70% to 100% design, this is reflective in the final construction cost submitted by BluBuilt detailing an increase in cost of $1.01M. This increase is largely attributed to the actual ground conditions, project site topography and the significant design growth within the structural documentation across the project. Through the completion of two rounds of clarifications, BluBuilt sufficiently justified all price increases, and were deemed to be fair and reasonable. It should be noted that the majority of these issues would still have arisen with the boardwalks should they have been the preferred option. The overall costs for delivery of Grey Gully, Kurnabinna Gully and Field River can be summarised in the table below:

CELL 5 & CELL 6	CELL 10	PROFESSIONAL SERVICES	CONTINGENCY	TOTAL PROJECT COST
$6,855,623.00	$1,125,910.00	$909,387.00	$460,288.00	$9,351,208.00

Figure 1: Total Project Costs

The above figure includes cost associated with Cell 10, Field River, which is now complete. This report details the rational for the price increase and evaluates the bridges' position in comparison with the original concept design. The percentage of pricing increased incurred from Gross Maximum Price (GMP) to Final Pricing has been applied to the original boardwalk estimate to demonstrate a truer representation of cost in light of the Geotechnical discoveries and increased structural founding requirements.

With regard to the final construction tender price, North evaluated the annual maintenance costs supplied by The City of Marion for each structure and applied escalation rates to the indicative whole of life costs. This arrived at demonstration of the net present cost of each asset. It should be noted that a higher escalation rate has been applied in the first five years of the assets to reflect the current market conditions with cost increases have been incurred as a result of COVID-19 and other global events currently impacting the construction industry. These calculations are detailed in the below table and graph below:

	ORIGINAL CONCEPT (BOARDWALK)	FINAL DESIGN (BRIDGE)
CONSTRUCTION COST	$6,242,024.45	$6,855,623.10
ANNUAL MAINTENANCE COST	$26,500.00	$20,000.00
TOTAL ASSET COST	$8,993,144.67	$8,931,940.25

Figure 8: Boardwalk vs Bridge Net Present Cost

This encapsulates both assets anticipated annual expenditure and the assumed escalation costs, 3.5% for the first 5 years based on the current market and 2.5% thereafter, until the end of design life at 50 years. It outlines that the boardwalks would cost $26,500.00 a year and the bridges $20,000.00. The NPC demonstrates a slight variance cost between the two assets of $61,204.42. Summarising that the financial benefit of a bridge in lieu of a boardwalk is marginal. However, when encapsulating the whole of life cost, risk profiles and the non-financial benefits, the bridge remains a more favourable asset.

The below table outlines the Final Project Budget and outlines the variance between the Project Budget and the allocated funding:

FUNDING POSITION	
CoM Budget (Including State contribution)	$4,881,208.00
Additional CoM Proposed Commitment	$4,100,000.00
Additional Funding to be requested in June 2022	$370,000.00
Total Forecasted Project Funding	**$9,351,208.00**
EXPENDED Cell 10 (Field River)	$1,125,910.00
Cells 5 & 6 Construction Costs	$6,855,623.00
Professional Fees	$909,387.00
Project Contingency	$460,288.00
Total Project Cost	**$9,351,208.00**

Figure 10: Funding Position Summary

The total project costs associated with the Costal Walkway's inclusive of forecasted professional services fees and project contingencies allocated by the City of Marion are stipulated above. It identifies the funding budget gap as $4.47m. This sum is the monies required to deliver the works. It is believed, based on the learnings founded in Phase 3 from the Geotechnical investigations, that the design growth and price increase incurred from GMP to Final Price would have been greater with the boardwalks that was not considered within the original concept costing and would have resulted in a similar funding gap.

Although there has been an increase in project cost, the costs of delivering the boardwalks would have also increased by a similar percentage due to the impact of COVID 19 and the process of reaching 100% design, site investigations and further understanding of the site complexities. The City of Marion and Design team made adjustments to the bridge's final design in order to include community feedback and decrease the visual impact of the structures. In doing so discussions with the specialist engaged on the project provided parameters to ensure that it was considerate of accessibility and environmental constraints. The final design encapsulates the project objectives and considers all community consultation to the best of its ability to provide a structure that is buildable

and the best for project outcome. The final design demonstrates a high-quality structure that has both financial and non-financial benefits to the City of Marion in providing a lower ongoing cost, lessened environmental impact and improved accessibility to the general public.

The report also highlights issues that have been identified at Nungamoora Street as a result of unapproved demolition and clearing works. These works are not currently within scope of the bridges project; however, an allowance has been made within the Final Pricing for the rebuild boardwalk structures within this portion of Cell 5.

2. Introduction

Note: all information provided within this report is confidential and for internal use only.

Following on from the Bridge and Walkway Evaluation Report, this report critically analyses the final construction costs submitted by BluBuilt for Cells 5 & 6 as per the 100% design documentation provided by Aspect Design Studios and provides details of the overall project cost for delivering the two bridges.

City of Marion and the State Government have allocated $4.88m to redevelop Cells 5, 6 and 10 of the existing Coastal Walkway. The existing walkway is coming to the end of its design life with the intent for funding to facilitate redevelopment by removing and replicating the most critical portions of the existing boardwalks.

Through early cost consultation and concept designs, it was discovered that the allocated $4.88m would not suffice to deliver all the required works as per the City of Marion's scope as detailed within the Concept Designs due to the site complexities such as access.

As a result, it was decided that Council would proceed with developing Cell 10 (Heron Way and Field River connection) and issue as a separate tender for construction to commence in early 2021. Cells 5 & 6 then would then be procured through an Early Contractor Involvement (ECI) model to engage industry specialists and contractors to provide expert advice to inform the design to ensure it is able to be constructed within the complex landscape. Through a select tender process, BMD and BluBuilt were engaged to provide a Gross Maximum Price (GMP) at 70% design. Before getting to this detail, they participated in workshops to inform and influence the design development. Both proponents submitted a Gross Maximum Price which was then evaluated and a single proponent, BluBuilt, was awarded and proceeded into Phase 3 of the project which involved development of the 100% design and Final Pricing.

Within Phase 3, the City of Marion undertook additional design management meetings, site investigations and workshops to mitigate project risk. Geotechnical investigations were undertaken in the proposed footing locations for the bridges and boardwalk footings. This report assesses the cost variances between the GMP and Final Price. It also outlines the rationale of all design changes, changes in the market conditions as a result of COVID-19, specific areas of increase, current project risks and assesses the overall project value inclusive of ongoing maintenance requirements. It should be noted that should the boardwalk option have been selected as the preferred option, a similar process would have been undertaken inclusive of additional design management meetings, site investigations and workshops to mitigate project risk (including additional geotechnical investigations) all impacting the projected total project cost of the boardwalks.

3. Status of Project

BluBuilt submitted the Final Price for the 100% designs on 24/03/2022. With the assistance of North Projects, the City of Marion Council responded to their submission with a list of clarifications in which BluBuilt provided a Revised Final Price Submission on 28/03/2022. The Councils procurement team are currently working through the responses in order to determine their position on the commercial items. The Revised Final Price submitted on 28/03/2022 is assessed here to identify areas of increase and rationale for the growth to construction costs in order to justify the need for additional funding in excess of the $4.88m currently allocated to the Coastal Walkway Upgrades. It is estimated that pending Council endorsement works will commence May 2022.

4. Financial Evaluation

4.1 Overview

North had been initially engaged to assist City of Marion to understand the project costs associated with the construction of Cells 5, 6 and 10. Through this engagement North discovered that the $4.88m budget allocated by the City of Marion and the State Government for the project was an insufficient sum.

Through the ECI process this was made evident and communicated by specialist contractors. Due to the topography of the landscape and conditioning of the land, a boardwalk climbing the terrain with multiple footings required for each portion of boardwalk would have a significant program and cost implications. It was at this point, a bridge was suggested. Cost comparisons undertaken in the earlier stages of the project identified that when considering the whole of life costs, the bridge option was the more feasible structure. Additional to financial benefits, the bridge had non-financial benefits such as minimising environmental impacts, increased accessibility, safety in construction and lower maintenance requirements.

Therefore the 70% design submitted to BMD and BluBuilt for costing a Gross Maximum Price was inclusive of bridges to Grey and Kurnabinna Gully. The GMP identified a funding gap to be greater than first anticipated due to the project unknowns which was further amplified by the tight program to execute construction documentation. It is important to note that it is likely that the same or similar gap would have resulted should the boardwalks have been selected due to the additional site investigations required to inform the Construction documentation.

Mitigation measures were employed during Phase 3 to reduce the project risk. The consultants involved within this Phase are summarised in the table below:

	CONSULTANT	ROLE
1	Aspect Design Studios	Lead Design Consultant and Landscape Designer
2	Innovis	Civil and Structural Designers
3	Moodie Outdoor Products	Bridge Designer
4	Cable Span	Bridge Installer
5	CWM Geosciences	Geotechnical Engineers
6	BluBuilt	Contractor
7	RW Solutions	Specials contractor installing the test anchors
8	North Projects Pty Ltd	Lead Cost Consultant, Construction Advisory and Project Management Assistance
9	Mott McDonald	Wind and Vibration Modelling and Report

Figure 2: Consultancy Table

BluBuilt and RW Solutions undertook early works to allow for the installation of test anchors to form the basis of the Geotechnical reports. This in turn provided the final information for the structural design consultant, Innovis, to close out the final structural designs and documentation. This robust critique of the 70% design identified the need to strengthen the preliminary footing designs, for both the bridge and the boardwalk structures. It was discovered that in the proposed final locations due to the gullies ground conditioning a greater anchor depth was required to

achieve required loading. As a result, the structural documentation required significant amendments within the 100% designs to accommodate these findings.

Other notable design changes following community feedback are as follows:

- Structural alterations to bridge to minimise vibration and noise output
- Realignment of the bridges to sit lower within the gullies and minimise visual impact for residents
- Additional retaining wall at boardwalk and bridge interfaces with at grade paths
- Removal of the retaining wall at Cell 6 and realignment of at grade path
- Balustrade detail change to bridge to ensure compliance with relevant codes
- Larger quantity of planting and jute mesh to accommodate natural erosion protection

The pricing for the Coastal Walkway is currently sitting significantly higher than the previously submitted GMP tendered pricing. The current price is $1.01M over the original GMP. In order to rationalise the cost increase, the below report further details the design changes and pricing increases that attribute to the final sum.

4.2 Areas of Increase

The below table outlines a summary of cost increases from Gross Maximum Price to Final Pricing. The figures below reflect the figures submitted by BluBuilt on 28/03/2022:

	70% DESIGN GMP COST	100% DESIGN FINAL PRICING	VARIANCE
PRELIMINARIES	$860,186.05	$748,515.36	-$111,670.69
CELL 5			
EARTHWORKS AND DEMOLITION	$194,227.12	$197,160.32	+ $2,933.20
BOARDWALKS	$350,655.12	$418,279.50	+ $67,624.38
AT GRADE PATH	$190,332.57	$286,428.60	+ $96,096.03
BRIDGE	$1,244,680.37	$1,613,454.86	+ $368,774.49
LANDSCAPING & OTHER	$490,841.71	$561,583.76	+$70,593.28
SUBTOTAL CELL 5			
SUBTOTAL	$2,470,736.89	$3,076,907,04	+ $606,170.15
CELL 6			
EARTHWORKS AND DEMOLITION	$153,338.91	$141,232.86	- $12,106.05
BOARDWALKS	$356,845.30	$427,839.79	+ $70,994.49
BRIDGE	$1,244,680.37	$1,624,572.37	+ $379,892.00
AT GRADE PATH	$142,981.98	$193,268.95	+ $50,286.97
CONCRETE PAVER	$19,407.34	$19,682.76	+ $275.42
RETAINING WALL	$86,037.40	*Included in At Grade Path Cost	- $86,037.40
LANDSCAPING & OTHER	$461,135.46	$503,603.97	+ $42,468.51
SUBTOTAL CELL 6			
SUBTOTAL	$2,464,426.76	$2,910,200.70	+$445,773.94
PROVISIONAL SUMS	$50,000.00	$120,000.00	+$70,000.00
PROJECT TOTAL			
TOTAL	**$5,845,349.70**	**$6,855,623.10**	+ $1,010,273.40

Figure 3: Areas of increase table

A full breakdown of each line item provided in both submissions can be found in Appendix A.

This price increase to the Bridges and Boardwalk is reflective of the true ground conditions and design growth to these items which eventuated from the Geotechnical site investigations undertaken by RW solutions and CWM. As a result of these discoveries Innovis finalised all footing and rock anchor design details to reflect the required loads for each structure in order to sufficiently support them and provide desire rigidity to minimise potential noise and vibration impacts. These structural design changes resulted in more than 50% price increase from the GMP submission for the bridge foundations and approximately $70,000.00 for boardwalks at each cell.

There is also a notable increase within the boardwalks, at grade paths and provisional sums. All scopes experienced a shift in scope as a result of realignment and site discoveries, in turn this resulted in some pricing increases as a result. Furthermore, as a result of the Council's endorsement within the December report, to proceed with the customised variation of Moodie's typical bridge at 100% designs, a price increase of approximately $200,000.00 per bridge was incurred. This was to ensure that the structure was more aesthetically pleasing and considerate to its environment. This achieved upgrades to the balustrade detailing with the implementation of timber post detailing and decking material to replicate the boardwalks, as well as customisation of bridge lengths ensuring they sat in the most idyllic locations of each gullies considerate of access, visibility and viewing opportunities.

Lastly, in listening to community concerns, the final design mitigates the potential for public dissatisfaction addressing these concerns by softening the Bridge structure through the inclusion of timber within the balustrade detailing and realigning the bridges to sit lower within the gullies. This also reduced this considerable cost increase by decreasing the bridge lengths. The City of Marion and the design team undertook a site walk with Moodie (Bridge Contractor) and BluBuilt to ensure the final alignment was also considered from a constructability perspective.

4.3 Rationale for Increase

There are some significant price increases within the Final Price, some of these are justified within the clarifications and the design changes from 70% documentation and the ancillaries of these changes. The current market conditions as a result of Covid-19 and global events have also impacted negatively on costings during this period.

As a result of the ECI Procurement Model, a bridge designer was not able to be engaged until award of the preferred contractor. This was due to each proponent putting forward a preferred subcontractor within GMP submissions. This limited the design team's ability to complete civil and structural documentation without transparency on the structures load and final location, as geotechnical studies in proposed locations where required to complete.

Upon engagement of the bridge designer, Moodie, the design team and BluBuilt attended site to land on the optimal location for the bridge that was considerate of the natural landscape, minimises visual impact to the residents and is more accessible for both construction and to the general public. A representative from City of Marion's Biodiversity department guided the final portal footing locations to ensure removal of native vegetation was minimal. A realignment resulted from these discussions which had the Bridge sit lower within the gullies, landing a more accessible location and reducing the line of sight. As a result, design changes where required to the interfacing elements, increasing the boardwalk quantities and creating variations to the initial footing designs making them larger to accommodate greater retention requirements.

Based on the geotechnical investigation's discoveries, it was found that the preliminary designs for the bridge footings and anchor points were deemed insufficient to accommodate the structures load in their proposed locations. This is reflective in both the boardwalk and bridge Final Pricing with an increase to both portions of work being directly reflective of alternative footing designs being greater than initially documented in 70% designs.

Furthermore, due to the footing increase, a retaining detail was included at the interfacing locations of all structures that are adjoining an at grade path. This resulted in a significant pricing increases, approximately $70,000.00, for each Cell. The difficulty of the terrain limits the contractor's ability to use machinery to complete these works, with a large volume of concrete required at each location to be delivered and installed by hand, these works increased the total project time and cost.

The Bridge portals (pillars) grew, marginally in height to 5.1m and additional structural members were included to minimise the potential vibration, lateral motion and noise , as per Mott McDonald's recommendation Report, within the Final Design. The height increase to the portals was inconsequential from a visual perspective due to the bridge realignment. It was determined that the reduced level of the portals would sit 60mm lower within the final design in comparison to 70% documentation. From a cost perspective, the inclusion of bolstering the rigidity of the bridges decreased the overall cost benefit in decreasing the bridge lengths. Irrespective of this, it was considered essential due to the vocalised community concerns during the consultation period.

Overall, a large portion of the increase is a result of the actual ground conditions, project site topography and the significant design growth within the structural documentation across the project. Through the completion of two rounds of clarifications, BluBuilt have sufficiently justified all price increases and they were deemed to be fair and reasonable. It should be noted that a large portion of these issues would still have resulted in the boardwalks should they have been the preferred option.

4.4 Clarifications

In evaluating BluBuilt's Final Price submission, North identified various areas of fluctuation, some in which could be justified and others that required further clarification. A list of items was collated and issued to BluBuilt for their response. BluBuilt's responses are encapsulated in the follow dot points, where area of increase that were deemed acceptable by the City of Marion upon evaluation.

- Δ Pricing increases to quarry rates was due to the fuel price increasing cost of deliveries and ongoing machinery running costs.
- Δ Landscaping quantities and area increased to stabilise the ground, after questioning on amount of increase, the contractor went back to EBS Landscaping and further revised their pricing, resulting in a decrease of $40,000.00 from initial submission.
- Δ Carey Gully Steps are reflective of the increase in footing and retaining requirements linked to the interfacing elements to the bridge and at grade paths. An additional detail has been included in the 100% design around the retaining requirements of this detail.
- Δ As a result of lowering the bridges within the gullies, additional safety equipment is required to accommodate a longer duration for construction and further climbing.

Further to the above, the City of Marion went through their qualifications and exclusions to close out any ambiguity and ensure the final revised pricing encapsulated all project costs. As a result of the above-mentioned clarifications, BluBuilt revised their submission on 28/03/2022. The revised pricing has been incorporated within this Critical Evaluation Report.

4.5 Risk Overview

When issuing the tender to market, the City of Marion attached a Risk allocation register. This register outlined the delegation of risk from GMP to Final Pricing to be considered within the Final submission on the key areas of risk known within the project. A few key items that played into the two pricing submissions are discussed below.

The rationale behind the City of Marion taking ownership of risks associated with the structure within GMP submission phase was due to the lack of visibility on the ground conditions limiting the design team's ability to close out critical design items such as the footings which play an integral role into constructability, durability and methodology of the bridge and boardwalk components of the project. These conditions would have been applicable should the boardwalks have been selected.

Due to timeframe allocated between GMP and Final price there was no perceived risk for material increase and it was noted that any material changes would be as a result of value management. However, some escalation did occur in

this time due to Covid-19 and global events which was unforeseeable, such as the cost of fuel and its impact on at grade path supply and installation rate.

An additional risk for uncontrolled fill causing delay to work, was discovered post GMP when undertaking early investigative works, South of Nungamoora and transferred to the contractor within the Final Price request for tender. As this now poses a huge risk to an entire section of Cell 5 due to the unpredictability of the material and unknown loads it is now imposing onto the existing structure. This issue is discussed in section 6.

It is still perceived and supported via the geotechnical investigations that there is still a significantly higher degree of risks associated with the construction of the boardwalk than for the bridge which has the potential to substantially impact time and cost of the project. This overall supports the key design to select a bridge structure minimising the potential cost and safety concerns associated in the construction of the boardwalks.

The table below highlights key current areas of risk within the program which are mostly likely to incur contingency costs. It highlights the timing in which the works are scheduled, the risk and justification for variation to warrant the use of contingency funds.

ITEM	DATE WORKS SCHEDULED	DESCRIPTION OF WORKS	RATIONALE FOR POTENTIAL COSTS
56-67	24/05/2022 - 30/11/2022	Demolition	- Uncovering existing services, which may require relocation or removal - Uncovering material that is unable to be excavated using a 1.8t excavator and standard tooth bucket.
71-74	11/07/2022 - 08/09/2022	Excavation & Installation of Rock Anchors to North/South Embankment	- Uncovering contaminated fill resulting in higher disposal costs - Excavation uncovers ground conditions that could not have been reasonably assumed prior to works commencing resulting in anchors needing to be founded deeper - Uncovering existing services, which may require relocation or removal
75-77	09/09/2022 - 20/10/2022	Construction & Curing of Concrete Pile Caps	- These works are taking place at the back end of the Winter period; whereby inclement weather could impact the ability of the helicopter to deliver materials to site. - Inclement weather may impact the ability of contractors to traverse the steep gullies resulting in delays. - Inability to find anchor points for workers to harness off due to latent conditions
115 - 130	03/01/2023 - 19/04/2023	At Grade Paths	- Uncovering & Treatment of unsuitable subgrade

Figure 4: Areas of Risk within the Program

Activities that involve excavation present the highest risk for the project, dure to the variability of the ground and therefore are most susceptible to variations in completion of this scope. The treatment or disposal of unsuitable subgrade or contaminated fill that is uncovered during these works, are noted as an exclusion within BluBuilt's pricing schedule and therefore the discovery of unsuitable fill would result in a variation. Additionally, Inclement weather will result in project delays, the areas of the program that are most vulnerable to delays as a result of severe

weather are works completed within the winter months. Within BluBuilt's Program and construction methodology the bridge portals and various other elements are said to be delivered via Helicopter. Helicopter's ability to carry out any delivery or installation works will be affected by wind and weather. Due to the delay in commencing on site, these are now scheduled within September and October and have a chance of being impacted by weather. As a mitigation measure, City of Marion have included additional contingency allowance within the overall project costs to cover costs should these risks occur.

4.6 Maintenance Overview

As previously advised, the Bridges have lower ongoing maintenance costs which are considered within the whole of life assessment stated in section 4.7 Due to the formation of the structure, its loading capacity and stability, the bridge is more accessible to undertake the ongoing maintenance requirements such as routine inspections and remedial works, should they be required. Additionally, because of the materials utilised to construct the bridges, little maintenance will be required to the structures within the first 5 years.

In respect to materiality for the final design, specifications where complete with consideration of market availability as well as durability within the coastal environment. Due to timber shortages, White Cypress Pine is specified for balustrade posts and wire fencing. White Cypress is a softwood with hardwood qualities. It is proven to withstand the harsh coastal environments, termites and is not prone to splitting. Whereas the boardwalk decking is nominated as a Fibre Reinforced Plastic mesh tread, which is more durable and far more feasible in comparison to a timber decking from a whole of life perspective as it does not require consistent and ongoing maintenance such as re-nailing.

Aspect opted for a Carey Gully Sandstone which is porous but hardy material. There is a total of 51 steps with this detail that will require ongoing maintenance such as sealing and that has been included within the whole of life cost assessment and would be applicable in both designs. An opportunity for value management was explored to use concrete instead of sandstone, but sandstone offered the better solution due to constructability and durability in the coastal and project landscape.

A summary of the final design lives is noted below:

ELEMENT	DESIGN LIFE (YEARS)
BRIDGE	
PORTALS	50
BALUSTRADE	50
HANDRAIL	50
CABLES	50
SUSPENSION RODS	50
TIE BACK CABLES	50
FRP DECKING	50
CONNECTION AND FIXINGS	50
BRIDGE	
CONNECTIONS	20
CONCRETE	20
BARS AND GROUT	50
BOARDWALK	
FRP STRUCTURE	50
FRP GRATING	50
STAINLESS STEEL BALUSTRADE AND HANDRAIL	50
HARDWOOD POSTS	25
HARDWOOD DECKING	25

HARDWOOK TOP RAIL	25
STAINLESS STEEL FIXINGS	50
AT GRADE PATH	
COMPACTED RUBBLE	25
HARDWOOD TIMBER POSTS	25
STAINLESS STEEL WIRE	30
STONE STAIR	50

Figure 5: Design Life Table

As noted above the bridge structure has a 50-year design life for all elements in comparison to the boardwalk which has varying design lives that will require ongoing maintenance and remedial works after 25 years. Noting that should the City of Marion have proceeded with the boardwalk structures the area of ongoing maintenance would be much larger and far more costly.

4.7 Final Position Financial Evaluation

With costs being the rationale behind undertaking an alternative procurement method, it was a key consideration that formed the basis of each decision in progressing through the phases of design development. Due to the lack of visibility on actual site ground conditioning, there was a cost increase incurred from GMP to Final Pricing. It is important to mention that as a result of the Geotechnical investigations and its effect on the structural design, it is anticipated that the budget allocated below for the construction of boardwalk would have further increased should the design have been developed to 100%.

We can estimate that due to the growth from the GMP to the Final Pricing a 16% increase, minimum, would have occurred in the final costing of the boardwalk, this has been applied below. A further increase would be expected due to the number of footings required for the boardwalks. This assumes the final cost of the boardwalk would have landed at approximately $6.24m inclusive of provisional sums. This sum has been applied to Figure 6 below for accurate comparison between the two structures whole of life cost.

The below tables outline the total project costs inclusive of anticipated whole of life costs to conclude that irrespective of the pricing increase.

	ORIGINAL CONCEPT (BOARDWALK)	FINAL DESIGN (BRIDGE)
CONSTRUCTION COST	$6,242,024.45	$6,855,623.10
WOL COST (50 YEARS)	$11,900,000.00	$9,000,000.00
TOTAL	**$18,142,024.45**	**$15,855,623.10**

Figure 6: Boardwalk vs Bridge Total Cost Comparison

In completing this comparison, the figures demonstrate a $2.28M benefit in adopting the Bridges to the gullies in lieu of the Boardwalk when considering the total asset cost. Although this comparison provides a total asset cost for City of Marion's consideration, this table does not consider the previously discussed substantial environmental, accessibility and safety in construction benefits associated with the Bridges.

The Bridge structures themselves have been designed to have a 50-year lifespan. It is anticipated due to the material selection, Galvanised Steel, that minimal to no remedial works to these elements will be required for approximately 10-15 years. As the bridge has a significantly smaller footprint than the boardwalks, its ongoing maintenance requirements are significantly less. The works associated with the whole of life cost calculations can be summarised in the table below:

	LEVEL 1	LEVEL 2	COST (PER ANNUM)	ADDITIONAL COMMENTS
CABLE BRIDGE	Inspections carried out twice a year – Visual	Inspection carried out periodically every **5 years** for main support cables, for tightening and any structural elements, complete by a specialist contractor	$20,000.00	Improved access to complete inspections, fewer materials resulting in more cost-effective repairs
BOARDWALK	Inspections carried out twice a year – Visual	Inspections carried out every **3 years**, identifies and collates structural elements by engineering consultants	$26,500.00	More time required for each inspection due to increased quantity of structure, difficulties in undertaking inspections

Figure 7: Whole of Life Assessment

North evaluated the annual maintenance costs supplied by Council for each structure and applied escalation rates that informed the whole of life costs, in order to demonstrate the net present cost of each asset. These calculations are detailed in the below table and graph below:

	ORIGINAL CONCEPT (BOARDWALK)	FINAL DESIGN (BRIDGE)
CONSTRUCTION COST	$6,242,024.45	$6,855,623.10
ANNUAL MAINTENANCE COST	$26,500.00	$20,000.00
TOTAL ASSET COST	$8,993,144.67	$8,931,940.25

Figure 8: Boardwalk vs Bridge Net Present Cost

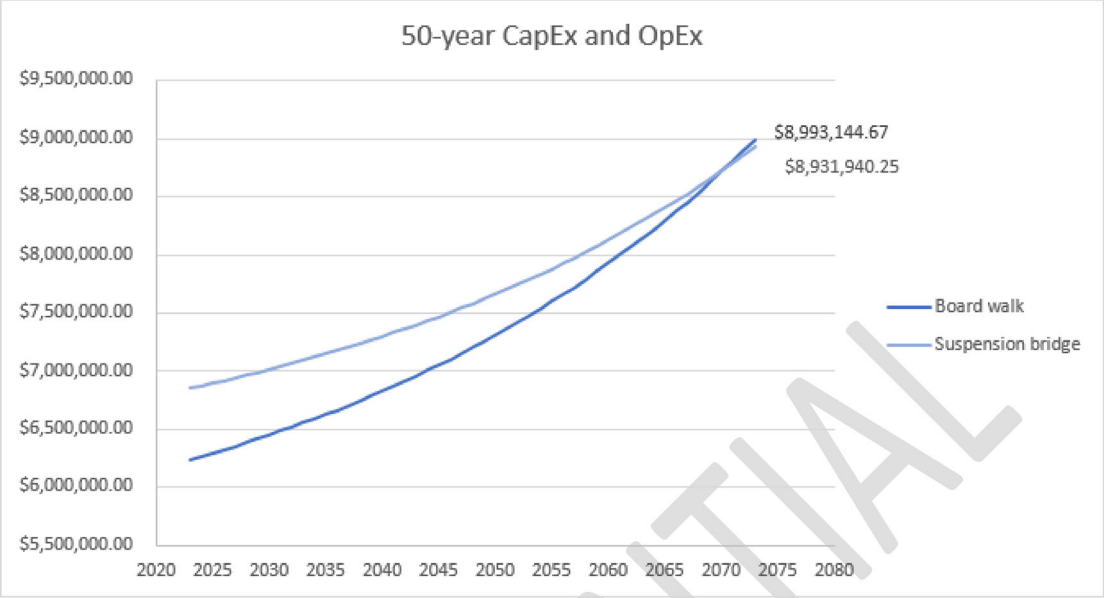


Figure 9: 50 Year CapEx and OpEx Graph

This encapsulates both assets anticipated annual expenditure and the assumed escalation costs, 3.5% for the first 5 years based on the current market and 2.5% thereafter, until the end of design life at 50 years. The NPV demonstrates a marginal variance cost between the two assets of $61,204.42. It should be noted that the nominal amount of $20,000 has been applied annually for the bridges as an average for the whole of life maintenance costs, however, due to the materiality only minor remedial works such as removal of vandalism and routine inspections should be required within the first 5 years for the structure, refer to section 4.6 for further clarity. Summarising that the financial benefit of a bridge in lieu of a is marginal. However, when encapsulating the whole of life cost and council risk, along with the non-financial benefits of the implementation of the bridge, it is still a more favourable asset.

4.8 Funding Budget Gap

The final funding budget gap can be understood in the table below.

FUNDING POSITION	
CoM Budget (Including State contribution)	$4,881,208.00
Additional CoM Proposed Commitment	$4,100,000.00
Additional Funding to be requested in June 2022	$370,000.00
Total Forecasted Project Funding	**$9,351,208.00**
EXPENDED Cell 10 (Field River)	$1,125,910.00
Cells 5 & 6 Construction Costs	$6,855,623.00
Professional Fees	$909,387.00
Project Contingency	$460,288.00
Total Project Cost	**$9,351,208.00**

Figure 10: Funding Position Summary

The total project costs associated with the Costal Walkway's inclusive of forecasted professional services fees and project contingencies allocated by the City of Marion are stipulated above. It identifies the funding budget gap as $4.47m.

The contingency has been applied to accommodate for the possibility of variations to occur during the works. These would be because of the exclusions eventuating. These costs are scopes that cannot be quantified and are perceived risks as opposed to actual project costs which have been encapsulated within the Final Price Submission. The contingency sum covers the provisional sums as outlined within the Revised Final Pricing and all other potential overruns, such as professional fees and additional works. Contingency will be available for allocation to additional works at Nungamoora once known, as discussed within section 6.

It is important to note that irrespective of the structure, investigative works, contingencies, and professional services fees would be applicable and comparative for the boardwalks. There are suggested value management opportunities in which the Council could further explore such as a decrease in planting scope, decrease in total project scope and the redesign or removal of stone detailing. However, arguably, with nominal financial gain from adopting these options, and its minimal impact on the final price, it is not considered worthwhile for the design alterations and program delays in commencing on site it would incur. The City of Marion Council should consider the quality of the project anticipated to be delivered for the significant gap in original budget and current project cost and minimise the risk to this.

4.9 Value Assessment & Design Changes

Irrespective of the cost increase, it is apparent that the bridges are still the preferred option as reflected in Figure 6, the boardwalk versus bridge cost comparison, and as discussed throughout the report. The Bridge considers the community's concerns and project risk within the 100% Design. It has been evaluated that these changes in value are justified and necessary.

Further to the Geotechnical investigations, Officers from the City of Marion's Biodiversity Department completed a site walk with Aspect to inform the final design scope of vegetation removal and replacement, as well as the desired species. This resulted in an increased density of planting and the application of jute mess to combat erosion, resulting in a cost increase to the landscaping competent of each cell.

As highlighted in the community consultation, there were concerns around the visual impact of the Bridge. To address and minimise the visual impact of the Bridges within the final design they were lowered to sit further within the gullies. This had adverse impact to the productivity in the paths adjoining the structure and retention to accommodate them, which is reflective in each cells cost growth. It was raised by Moodie that they had concerns with the current design for the Bridge's Balustrade climb-ability and conformity with the design parameters outlined in AS5100.1:2017. This query resulted in a design change from Ronstan Mesh. In order to ensure fluidity between at grade paths, boardwalks and bridges the balustrade detail was altered within the 100% design to mimic that used elsewhere, timber posts with stainless-steel vertical slats. This detailing created a significant increase to the cost of the bridges but was deemed necessary due to safety concerns.

Lastly, Mott McDonald were engaged to complete a Wind and Vibration Report to ensure minimal lateral sway and vertical movement on the structure. This assessment resulted in additional strengthening elements required on the bridge structure to minimise impact of these being experienced during standard use of the bridge and during the event of inclement weather and the coastal environment.

The Coastal Walkway Final Design considered the sensitivities of the community and their concerns, the environment and adhered to all the project objectives. Phase 3's discoveries and design development focused on minimising the visual impact of the Bridges, closing out the structural designs, addressing the community concerns and curating a finished product that would be buildable, respectful of its landscape and more accessible to be enjoyed by a larger portion of the public. It is evident in the cost comparisons within section 4.2 that although there has been an increase in project cost, the bridge is still has greater advantages as an asset for the City of Marion in non-financial aspect such as environmental sustainability, future maintenance, constructability and accessibility.

5. Program Evaluation

The Construction program was impacted because of the changes within the design documentation. This resulted in a total construction duration increase of 1.5 months with the estimated time for works now taking 12.5 months from site establishment to completion. The areas of increase can be summarised as follows:

	CELL 5 INCREASE (DAYS)	CELL 6 INCREASE (DAYS)
DEMOLITION	23	21
BRIDGES	24	21
BOARDWALK	25	N/A

Figure 11: Program Areas of Increase

Demolition to both cells increased more than 20 days. All the delays are reflective of the now understood ground conditioning and site access challenges. Noting that should delays or variations be incurred during the project, it is likely these would eventuate during the demolition, earthworks, and structural works.

The increase noted within the bridges and the boardwalks are a direct reflection of the larger footings now required to support the structures and the level of effort involved in constructing them. In comparison the program provided with the GMP had Cell 5 footings to be constructed in 60 days whereas the revised will take 87 days for installation.

The growth in the program from 11 months to 12.5 months is reflective of the work involved to construct the project given all the now understood setting and scope. A detailed outline of what is involved is attached in Appendix B of this report.

Assuming works commence May 2022 is it anticipated the project will reach practical completion June 2023. It is important to note that direct delays in obtaining funding and Contract execution will be reflective in the project program and completion date. City of Marion have liaised with the Attorney General's department and have received assurance that the provision of communication later in 2022 will resolve any queries regarding the extension of the grant funding.

6. Nungamoora Street

During early works, it was discovered that unapproved demolition and clearing works had occurred to the North of Nungamoora St. This resulted in a significant amount of uncontrolled fill to fall down the face of the gully and place additional, unknown load onto the existing boardwalk structure. As a result, City of Marion along with the assistance from BluBuilt, CMW and RW Solution are required to undertake additional geotechnical investigations to this portion of Cell 5. Discussions on these works are still ongoing. CWM have completed an assessment report on this portion of the works. They note within their report, implementation suggestions for treatment options to reduce the risk of instability along this cliffs edge. As the current structure has a 2-7 year design life, it is recommended that an additional independent assessment of the structure should be undertaken to confirm CWM's assumptions. Due to the evolving circumstances and incapacity to forecast the future impact on the asset, CMW have proposed four solutions for City of Marion's consideration. Their proposals can be summarised as follows:

1. Keep existing structure and complete superficial upgrades to tie into new, noting a reassessment and quantitative Slope Stability Assessment will be required.
2. Reconstruct the existing footings and boardwalk structure to mimic the existing. Subject to final outcomes of reassessment and quantitative Slope stability Assessment.
3. Stabilise the entire slope mass, subject to Slope Stability Assessment.
4. Making the structure independent of the fill mass through installation of another bridge structure.

The preferred option put forward by CWM is option 2, reconstruction, noting that the intent is not to retain the uncontrolled fill but implement mitigation measures to address the key risks. BluBuilt have currently allowed for the construction of these in line with the Final Design documentation. It is proposed that the Council undertake a Slope Stability Assessment to confirm structural documentation proposed will suffice after understanding the load of the uncontrolled fill and then proceed with Option 2. Innovis will be required to review the assessment and confirm current design for this portion of boardwalk to Cell 5. In addition to the above, it is suggested that Council issues parameters for construction with any development approval to 10 and 8 Nungamoora St, to ensure that during their construction, the boardwalk is not compromised.

Outcomes of the above scope of works not currently included within the final price of the project would need to be determined separately. Sufficient risk allowance should be allocated within Council's contingency for potential additional works to this section of the boardwalk. BluBuilt have made an allowance within the Final Pricing to rebuild the boardwalk structures within this portion of Cell 5 inline with the Final Design Documentation.

7. Conclusion

Additional works undertaken through the process of achieving 100% design resulted in the discoveries that the ground conditioning was not as documented within the Geotechnical Desktop report and thus required further design consideration and greater footings. This significantly impacted the structural documentation resulting in project cost increases of more than $880K of the total $1.01m pricing increase.

It is proven within the Net Present Cost that the financial benefit of implementation of the bridge in lieu of the boardwalk is marginal. However, when considering the maintenance requirements of each it is noted that the ongoing costs and upkeep of the bridge is significantly less. Subsequently resulting in a $2.28M variance in the structures when capturing the whole of life costs.

The City of Marion and Design team made adjustments to the bridge's final design in order to mitigate community dissatisfaction and decrease the visual impact of the structures. In doing so discussions with the specialist engaged on the project provided parameters to ensure that it was considerate of accessibility and environmental constraints. It has been noted previously that the location of the Coastal Walkway's provides constructability constraints and complexities that all attribute to the time and cost required to deliver an upgrade of the asset.

The final design encapsulates the project objectives and considers all community consultation to the best of its ability to provide a structure that is buildable and the best for project outcome. The final design demonstrates a high-quality structure that has both financial and non-financial benefits to the City of Marion in providing a lower ongoing cost, lessened environmental impact and improved accessibility to the general public.

8. Document Title

PROJECT REFERENCE

ISSUE	DESCRIPTION OF AMMENDMENT	AUTHOR	CHECKED	APPROVED	DATE
A	Creation	AF	CB	CB	31/03/2022
B	Revised	AF	CB	CH	11/04/2022
C	Revised Funding Figures	AF	AC	CH	13/04/2022

Previous issues of this document shall be destroyed or marked SUPERSEDED.

Appendix A: Cost Comparison

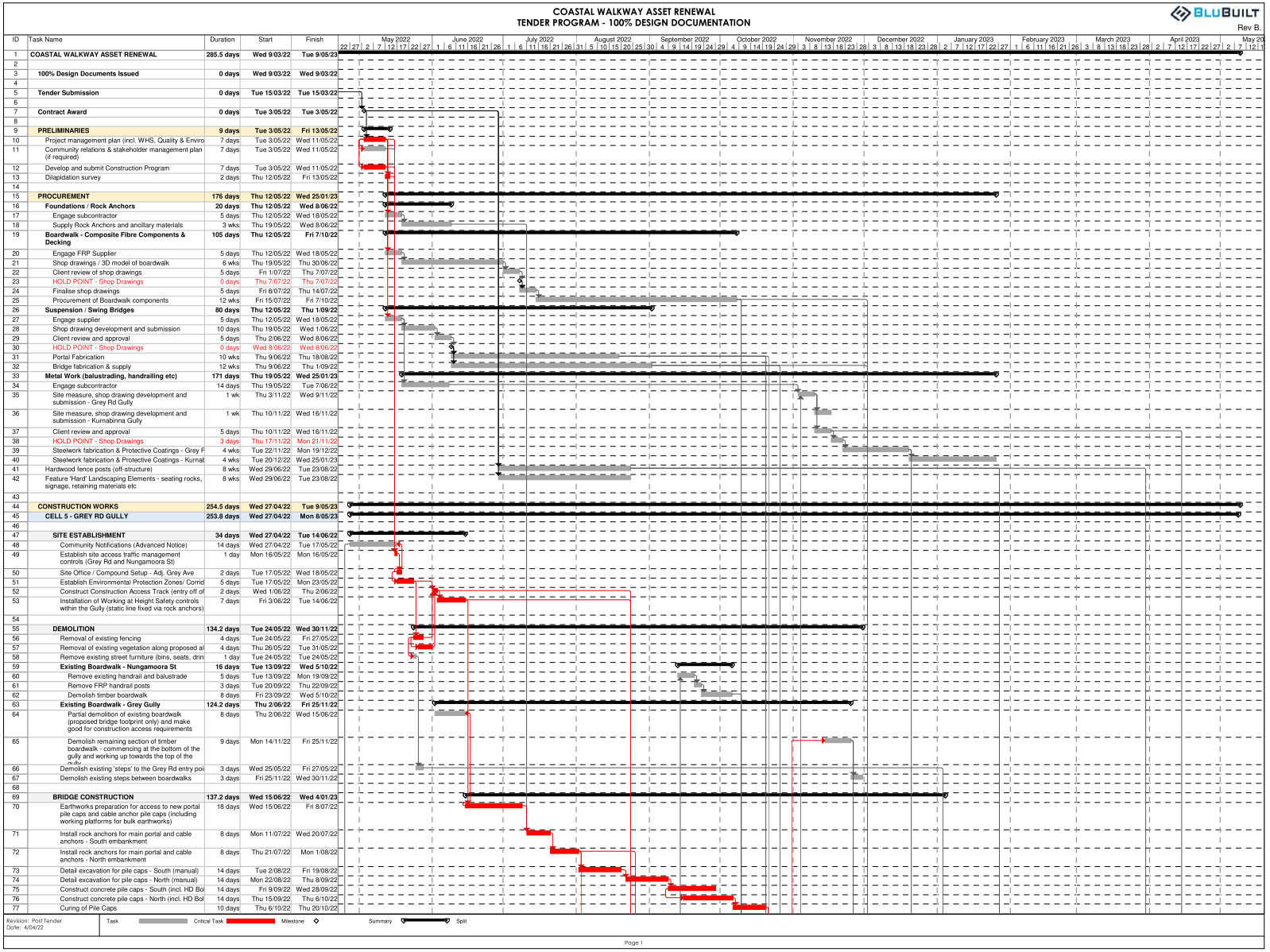
BluBuilt's GMP vs. Final Pricing Comparison

NORTH

			POST TENDER			FINAL PRICING 29/03/22			
BQREF	DESCRIPTION	UNIT	QTY	RATE	COST	QTY	RATE	COST	$ (POST - FINAL)
1	**PRELIMINARIES**								
1.1	Fixed Costs								
1.1.1	Mobilisation of Locally Based Plant and Equipment	Item	1	$ 12,215.07	$ 12,215.07	1	$ 12,103.74	$ 12,103.74	$ 111.33
1.1.2	Provision of Insurances, Bank Guarantee Fees and Other Contract Approvals	Item	1	$ 65,938.78	$ 65,938.78	1	$ 80,480.89	$ 80,480.89	-$ 14,542.11
1.1.3	Establishment of Site Facilities	Item	1	$ 12,486.52	$ 12,486.52	1	$ 12,372.71	$ 12,372.71	$ 113.81
1.1.4	Establishment of temporary construction access, laydown areas and staging areas	Item	1	$ 86,833.51	$ 86,833.51	1	$ 87,791.59	$ 87,791.59	-$ 958.08
1.1.5	Suspension Bridge Design								
1.1.5.1	Engineering Design of Suspension Bridge to AS5100 payment of 20% deposit to Moodie)	Item	1	$ 119,883.03	$ 119,883.03				$ 119,883.03
1.1.5.2	Additional Performance Design Assessment (Vibration performance and Pedestrian induced loads as per Tender Addendum #5)	PC_Sum	1	$ 25,000.00	$ 25,000.00				$ 25,000.00
1.1.5.3	Design of Portal & Cable Anchor Footings complete (including HD bolts, Pile Caps, & Piles)	by_Council							
1.1.6	All other Design & Documentation	by_Council							
	SUBTOTAL, FIXED COSTS				**$ 322,356.91**			**$ 192,748.93**	**$ 129,607.98**
1.2	Recurring Costs								
1.2.1	Project management, supervision and site labour	Item	1	$ 217,816.48	$ 217,816.48	1	$ 215,831.17	$ 215,831.17	$ 1,985.31
1.2.2	Site Facilities - Ongoing Cost	Item	1	$ 55,307.14	$ 55,307.14	1	$ 57,492.76	$ 57,492.76	-$ 2,185.62
1.2.3	Survey requirements	Item	1	$ 24,430.15	$ 24,430.15	1	$ 24,207.48	$ 24,207.48	$ 222.67
1.2.4	Environmental management	Item	1	$ 25,437.23	$ 25,437.23	1	$ 25,559.81	$ 25,559.81	-$ 122.58
1.2.5	Service Locating	Item	1	$ 3,930.31	$ 3,930.31	1	$ 3,961.73	$ 3,961.73	-$ 31.42
1.2.6	Safety Equipment (Anchor points, static lines, Harnesses)	Item	1	$ 129,009.16	$ 129,009.16	1	$ 144,240.59	$ 144,240.59	-$ 15,231.43
	SUBTOTAL, RECURRING COSTS				**$ 455,930.47**			**$ 471,293.54**	**-$ 15,363.07**
1.3	Demobilisation								
1.3.1	Removal of Site Facilities & make good	Item	1	$ 10,179.23	$ 10,179.23	1	$ 10,086.45	$ 10,086.45	$ 92.78
1.3.2	Demobilisation of Plant. Equipment and Personnel	Item	1	$ 12,215.07	$ 12,215.07	1	$ 12,103.74	$ 12,103.74	$ 111.33
1.3.3	Removal of temporary construction access, laydown areas and staging areas	Item	1	$ 40,220.39	$ 40,220.39	1	$ 42,356.36	$ 42,356.36	-$ 2,135.97
1.3.4	Site Cleanup	Item	1	$ 19,283.98	$ 19,283.98	1	$ 19,926.34	$ 19,926.34	-$ 642.36
	SUBTOTAL, DEMOBILISATION				**$ 81,898.67**			**$ 84,472.89**	**-$ 2,574.22**
	SUBTOTAL, ON SITE OVERHEADS				**$ 860,186.05**			**$ 748,515.36**	**$ 111,670.69**
2	**C5 - GREY GULLY ROAD (To Nungamoora Street)**								
2.1	Earthworks & Demolition								
2.1.1	Stripping topsoil	m2	1832	$ 8.93	$ 16,359.76	1832	$ 9.21	$ 16,872.72	-$ 512.96
2.1.2	Remove existing boardwalk	m2	232	$ 295.48	$ 68,551.36	232	$ 309.34	$ 71,766.88	-$ 3,215.52
2.1.3	Remove existing track/sand rubble	Incl_2.1.1							
2.1.4	Boxout for At Grade Path	Incl_2.1.6							
2.1.5	Remove existing fence	m	170	$ 99.63	$ 16,937.10	170	$ 104.00	$ 17,680.00	-$ 742.90
2.1.6	Other								
2.1.6.1	Demolish existing seats, signs, bins and drinking fountain	EA	5	$ 1,029.80	$ 5,149.00	5	$ 1,061.32	$ 5,306.60	-$ 157.60
2.1.6.2	Relocate guard rail and install in front of new boardwalk	m	65	$ 282.76	$ 18,379.40	65	$ 280.18	$ 18,211.70	$ 167.70
2.1.6.3	Earthworks from CH0 to CH110 - Cut to fill	m3	59	$ 171.49	$ 10,117.91	51	$ 187.12	$ 9,543.12	$ 574.79
2.1.6.4	Earthworks from CH0 to CH110 - Import fill	m3	105	$ 178.39	$ 18,730.95	90	$ 209.89	$ 18,890.10	-$ 159.15
2.1.6.5	Earthworks from CH175 to CH250 - Cut to fill	m3	98	$ 408.18	$ 40,001.64	86	$ 452.20	$ 38,889.20	$ 1,112.44
	SUBTOTAL, EARTHWORKS & DEMOLTION				**$ 194,227.12**			**$ 197,160.32**	**-$ 2,933.20**
2.2	Boardwalk (Fibre Reinforced Plastic structure with timber deck)								
2.2.1	Supply and Install Boardwalk	m2	168	$ 1,929.79	$ 324,204.72	180	$ 2,178.67	$ 392,160.60	-$ 67,955.88
2.2.2	Supply and Install FRP Stairs with substructure	Incl_2.2.1							
2.2.3	Supply and install of viewing platform	m2	12	$ 2,204.20	$ 26,450.40	9	$ 2,902.10	$ 26,118.90	$ 331.50
	SUBTOTAL, BOARDWALK				**$ 350,655.12**			**$ 418,279.50**	**-$ 67,624.38**
2.3	At Grade Path								
2.3.1	Subgrade prep	m2	658.8	$ 12.06	$ 7,945.13	633	$ 12.76	$ 8,077.08	-$ 131.95
2.3.2a	Supply and Place 150mm PM2/20 RG Subbase for At Grade Path	m2	658.8	$ 111.03	$ 73,146.56	633	$ 130.19	$ 82,410.27	-$ 9,263.71
2.3.2b	Supply and Place 100mm CTQR 3% for At Grade Path	m2	658.8	$ 111.00	$ 73,126.80	633	$ 128.47	$ 81,321.51	-$ 8,194.71
2.3.2c	Supply & Place Carey Gully Steps & edge restraint to Boardwalks	Item	1	$ 36,114.08	$ 36,114.08	1	$ 49,174.12	$ 49,174.12	-$ 13,060.04
2.3.2.d	Concrete RW abutments to bridge/path interface & boardwalk/path interface	Item				1	$ 65,445.62	$ 65,445.62	-$ 65,445.62
	SUBTOTAL, AT GRADE PATH				**$ 190,332.57**			**$ 286,428.60**	-$ 96,096.03
2.4	Bridge								
2.4.1	Supply & Install 50m Suspension Bridge with 4m approach decks each end (Galv only)	Item	1	$ 777,870.04	$ 777,870.04	1	$ 654,543.27	$ 654,543.27	$ 123,326.77
2.4.2	Supply & Install Bridge Portal Footings (2off)	Item	1	$ 215,863.69	$ 215,863.69	1	$ 382,691.67	$ 382,691.67	-$ 166,827.98
2.4.3	Supply & Install Bridge Anchor Blocks (4off)	Item	1	$ 147,167.67	$ 147,167.67	1	$ 427,647.35	$ 427,647.35	-$ 280,479.68
2.4.4	Supply & Install Bridge Termination Deck Portal Support Footings (2off)	Item	1	$ 103,778.97	$ 103,778.97	1	$ 109,217.73	$ 109,217.73	-$ 5,438.76
2.4.5	2 pack epoxy paint system to hot dip galv bridge steelwork	Excluded		$ 125,400.00	$ -				
2.4.6	Supply and install concrete canvas to bridge portal & landing footings	m2				63	$ 624.68	$ 39,354.84	-$ 39,354.84
	SUBTOTAL, BRIDGE				**$ 1,244,680.37**			**$ 1,613,454.86**	**-$ 368,774.49**
2.5	Miscellaneous								
2.5.1	Supply and Place post and wire fence (FE-01)	m	177	$ 129.72	$ 22,960.44	176	$ 131.31	$ 23,110.56	-$ 150.12
2.5.2a	Supply and Place Balustrade and handrail (BA-01)	m	156	$ 1,475.08	$ 230,112.48	190	$ 1,364.66	$ 259,285.40	-$ 29,172.92
2.5.2b	Supply and Place Balustrade and handrail (BA-02) to Viewing Platforms	m	12	$ 1,928.74	$ 23,144.88	11	$ 1,411.26	$ 15,523.86	$ 7,621.02
2.5.2c	Supply and Place Balustrade and handrail (BA-03)	m				20	$ 1,475.70	$ 29,514.00	-$ 29,514.00
2.5.2d	Supply and Place Balustrade and handrail (BA-04)	Incl_2.4.1							
2.5.3	Supply and install tube-stock plants	Incl_2.5.6							
2.5.4	Signage	Excluded							
2.5.5	Seatings (BE-01 Bench seat)	No	1	$ 4,061.92	$ 4,061.92	1	$ 4,072.94	$ 4,072.94	-$ 11.02
2.5.6	Other								
2.5.6.1	Site preparation (landscaping works) including herbicide knock-down and set-up	Item	1	$ 1,642.25	$ 1,642.25	1	$ 2,983.35	$ 2,983.35	-$ 1,341.10
2.5.6.2	Proposed revegetation (VG-01) - Respread 100mm topsoil	m2	854	$ 12.65	$ 10,803.10				$ 10,803.10
2.5.6.3	Proposed revegetation (VG-01) - Supply and place 100mm Jeffries Gardeners Choice mulch	m2	854	$ 31.27	$ 26,704.58				$ 26,704.58
2.5.6.4	Proposed revegetation (VG-01) - Supply and install 140mm pots	m2	854	$ 36.11	$ 30,837.94				$ 30,837.94
2.5.6.6	Proposed revegetation (VG-01) - 52 Week maintenance period	Weeks	52	$ 414.66	$ 21,562.32				$ 21,562.32
2.5.6.7	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install jute matting and coir logs	m2	326	$ 97.86	$ 31,902.36	453	$ 95.71	$ 43,356.63	-$ 11,454.27
2.5.6.8	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install hydroseeding	m2	326	$ 22.62	$ 7,374.12	453	$ 22.41	$ 10,151.73	-$ 2,777.61
2.5.6.9	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install 140mm pots	m2	326	$ 41.18	$ 13,424.68	453	$ 35.30	$ 15,990.90	-$ 2,566.22
2.5.6.10	Proposed revegetation, erosion control and coir logs (VG-02) - 52 Week maintenance period	Weeks	52	$ 219.76	$ 11,427.52	52	$ 357.16	$ 18,572.32	-$ 7,144.80
2.5.6.11	Supply and install boulders (BO-01)	no	10	$ 691.32	$ 6,913.20	7	$ 715.28	$ 5,006.96	$ 1,906.24
2.5.6.12	Supply and install logs (LO-01)	no	6	$ 696.29	$ 4,177.74	6	$ 713.48	$ 4,280.88	-$ 103.14
2.5.6.13	Stormwater Crossings (Pits, RCP and rock pitching)	Item	1	$ 43,792.18	$ 43,792.18	1	$ 43,529.52	$ 43,529.52	$ 262.66
2.5.6.14	Pram ramps	No				3	$ 2,021.97	$ 6,065.91	-$ 6,065.91
2.5.6.15	Proposed revegetation (VG03) - Supply and install jute matting	m2				1395	$ 19.50	$ 27,202.50	-$ 27,202.50
2.5.6.16	Proposed revegetation (VG03) - Supply and install tubestocks	m2				1395	$ 17.82	$ 24,858.90	-$ 24,858.90
2.5.6.17	Proposed revegetation (VG03) - 52 Week maintenance period	Weeks				52	$ 539.95	$ 28,077.40	-$ 28,077.40
	SUBTOTAL, MISCELLANEOUS				**$ 490,841.71**			**$ 561,583.76**	-$ 70,742.05
	SUBTOTAL, C5 - GREY GULLY				**$ 2,470,736.89**			**$ 3,076,907.04**	**-$ 606,170.15**
3	**C6 - KURNABINNA GULLY (Esplanade to Nungamoora Street)**								
3.1	Earthworks & Demolition								
3.1.1	Stripping topsoil	m2	1803	$ 8.93	$ 16,100.79	1803	$ 9.21	$ 16,605.63	-$ 504.84
3.1.2	Remove existing boardwalk	m2	184	$ 302.86	$ 55,726.24	184	$ 317.16	$ 58,357.44	-$ 2,631.20
3.1.3	Remove existing track/sand rubble	Incl_3.1.1							
3.1.4	Boxout for At Grade Path	Incl_3.1.6							
3.1.5	Remove existing fence	m	268	$ 89.86	$ 24,082.48	268	$ 93.66	$ 25,100.88	-$ 1,018.40
3.1.6	Other								
3.1.6.1	Earthworks from CH320 to CH495 - Cut to fill	m3	40	$ 237.62	$ 9,504.80	207	$ 177.78	$ 36,800.46	-$ 27,295.66
3.1.6.2	Earthworks from CH320 to CH495 - Import fill	m3	222	$ 206.66	$ 45,878.52	18	$ 127.88	$ 2,301.84	$ 43,576.68
3.1.6.3	Earthworks from CH620 to CH670 - Cut to fill	m3	6	$ 183.13	$ 1,098.78	5	$ 198.80	$ 994.00	$ 104.78
3.1.6.4	Earthworks from CH620 to CH670 - Cut to Spoil	m3	10	$ 94.73	$ 947.30	11	$ 97.51	$ 1,072.61	-$ 125.31
	SUBTOTAL, EARTHWORKS & DEMOLTION				**$ 153,338.91**			**$ 141,232.86**	**$ 12,106.05**
3.2	Bridge								
3.2.1	Supply & Install 50m Suspension Bridge with 4m approach decks each end (Galv only)	Item	1	$ 777,870.04	$ 777,870.04	1	$ 665,660.78	$ 665,660.78	$ 112,209.26
3.2.2	Supply & Install Bridge Portal Footings (2off)	Item	1	$ 215,863.69	$ 215,863.69	1	$ 382,691.67	$ 382,691.67	-$ 166,827.98
3.2.3	Supply & Install Bridge Anchor Blocks (4off)	Item	1	$ 147,167.67	$ 147,167.67	1	$ 427,647.35	$ 427,647.35	-$ 280,479.68
3.2.4	Supply & Install Bridge Termination Deck Portal Support Footings (2off)	Item	1	$ 103,778.97	$ 103,778.97	1	$ 109,217.73	$ 109,217.73	-$ 5,438.76
3.2.5	2 pack epoxy paint system to hot dip galv bridge steelwork	Excluded		$ 125,400.00					
3.2.6	Supply and install concrete canvas to bridge portal & landing footings	m2				63	$ 624.68	$ 39,354.84	-$ 39,354.84
	SUBTOTAL, BRIDGE				**$ 1,244,680.37**			**$ 1,624,572.37**	-$ 379,892.00

3.3	Boardwalk (Fibre Reinforced Plastic structure with timber deck)								
3.3.1	Supply and Install Boardwalk	m2	154	$ 1,944.95	$ 299,522.30	153	$ 2,206.11	$ 337,534.83	-$ 38,012.53
3.3.2	Supply and Install FRP Stairs with substructure	Incl_3.3.1							
3.3.3	Supply and install of viewing platform	m2	28	$ 2,047.25	$ 57,323.00	32	$ 2,822.03	$ 90,304.96	-$ 32,981.96
	SUBTOTAL, BOARDWALK				**$ 356,845.30**			**$ 427,839.79**	**-$ 70,994.49**
3.4	At Grade Path								
3.4.1	Subgrade prep	m2	490	$ 18.30	$ 8,967.00	424	$ 19.31	$ 8,187.44	$ 779.56
3.4.2a	Supply and Place 150mm PM2/20 RG Subbase for At Grade Path	m2	490	$ 94.54	$ 46,324.60	424	$ 101.71	$ 43,125.04	$ 3,199.56
3.4.2b	Supply and Place 100mm CTQR 3% for At Grade Path	m2	490	$ 90.16	$ 44,178.40	424	$ 97.12	$ 41,178.88	$ 2,999.52
3.4.2c	Supply & Place Carey Gully Steps & edge restraint to Boardwalks	Item	1	$ 43,511.98	$ 43,511.98	1	$ 11,303.79	$ 11,303.79	$ 32,208.19
3.4.2d	Concrete RW abutments to boardwalk/path interface	Item				1	$ 46,965.60	$ 46,965.60	-$ 46,965.60
3.4.3a	Subgrade prep - Type D path (CH395 - CH455)	m2				140	$ 48.91	$ 6,847.40	-$ 6,847.40
3.4.3b	Supply and Place 250mm PM2/20 RG Subbase for Type D At Grade Path	m2				140	$ 169.52	$ 23,732.80	-$ 23,732.80
3.4.3c	Supply and Place 100mm PM2/20 QG Basecourse (finished surface) for Type D At Grade Path	m2				140	$ 85.20	$ 11,928.00	-$ 11,928.00
	SUBTOTAL, AT GRADE PATH				**$ 142,981.98**			**$ 193,268.95**	**-$ 50,286.97**
3.5	Concrete Paver								
3.5.1	Supply and Place 60mm pavers (including box out, basecourse & pavers)	m2	96.3	$ 201.53	$ 19,407.34	96.3	$ 204.39	$ 19,682.76	-$ 275.42
	SUBTOTAL, CONCRETE PAVER				**$ 19,407.34**			**$ 19,682.76**	**-$ 275.42**
3.6	Retaining Wall								
3.6.1	Supply & Place Retaining Wall	m	31	$ 2,775.40	$ 86,037.40				$ 86,037.40
	SUBTOTAL, RETAINING WALL				**$ 86,037.40**				**$ 86,037.40**
3.7	Miscellaneous								
3.7.1	Supply and Place post and wire fence (FE-01)	m	229	$ 125.55	$ 28,750.95	237	$ 126.55	$ 29,992.35	-$ 1,241.40
3.7.2a	Supply and Place Balustrade and handrail (BA-01 with welded balusters)	m	133	$ 1,606.27	$ 213,633.91	152	$ 1,331.89	$ 202,447.28	$ 11,186.63
3.7.2b	Supply and Place Balustrade and handrail (BA-02 with Ronstan mesh infill) to Viewing Platforms	m	22	$ 1,928.74	$ 42,432.28	28	$ 1,411.26	$ 39,515.28	$ 2,917.00
3.7.2c	Supply and Place Balustrade and handrail (BA-03)	m				14	$ 1,475.70	$ 20,659.80	-$ 20,659.80
3.7.2d	Supply and Place Balustrade and handrail (BA-04)	Incl_3.2.1							
3.7.3	Supply and install tube-stock plants	Incl_3.7.7							
3.7.4	Stormwater Crossings (Pits, RCP and rock pitching)	Item	1	$ 24,137.15	$ 24,137.15	1	$ 38,684.44	$ 38,684.44	-$ 14,547.29
3.7.5	Signage	Excluded							
3.7.6a	Seatings (BE-01 Bench seat)	No	1	4,061.92	$ 4,061.92	1	$ 4,072.94	$ 4,072.94	-$ 11.02
3.7.6b	Seatings (BE-02 Custom Bench seat)	No	1	$ 13,665.87	$ 13,665.87				$ 13,665.87
3.7.7	Other								
3.7.7.1	Site preparation (landscaping works) including herbicide knock-down and set-up	Item	1	$ 1,642.25	$ 1,642.25	1	$ 2,983.35	$ 2,983.35	-$ 1,341.10
3.7.7.2	Proposed revegetation (VG-01) - Respread 100mm topsoil	m2	813	$ 12.65	$ 10,284.45	381	$ 13.11	$ 4,994.91	$ 5,289.54
3.7.7.3	Proposed revegetation (VG-01) - Supply and place 100mm Jeffries Gardeners Choice mulch	m2	813	$ 31.27	$ 25,422.51	381	$ 30.99	$ 11,807.19	$ 13,615.32
3.7.7.4	Proposed revegetation (VG-01) - Supply and install 140mm pots	m2	813	$ 36.11	$ 29,357.43	381	$ 30.04	$ 11,445.24	$ 17,912.19
3.7.7.5	Proposed revegetation (VG-01) - 52 Week maintenance period	Weeks	52	$ 414.66	$ 21,562.32	52	$ 425.10	$ 22,105.20	-$ 542.88
3.7.7.6	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install jute matting and coir logs	m2	215	$ 97.86	$ 21,039.90	304	$ 95.71	$ 29,095.84	-$ 8,055.94
3.7.7.7	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install hydroseeding	m2	215	$ 22.62	$ 4,863.30	304	$ 22.41	$ 6,812.64	-$ 1,949.34
3.7.7.8	Proposed revegetation, erosion control and coir logs (VG-02) - Supply and install 140mm pots	m2	215	$ 41.18	$ 8,853.70	304	$ 35.30	$ 10,731.20	-$ 1,877.50
3.7.7.9	Proposed revegetation, erosion control and coir logs (VG-02) - 52 Week maintenance period	Weeks	52	$ 219.76	$ 11,427.52	52	$ 357.16	$ 18,572.32	-$ 7,144.80
3.7.7.10	Proposed revegetation (VG03) - Supply and install jute matting	m2				579	$ 19.50	$ 11,290.50	-$ 11,290.50
3.7.7.11	Proposed revegetation (VG03) - Supply and install tubestocks	m2				579	$ 17.82	$ 10,317.78	-$ 10,317.78
3.7.7.12	Proposed revegetation (VG03) - 52 Week maintenance period	m2				579	$ 48.49	$ 28,075.71	-$ 28,075.71
	SUBTOTAL, MISCELLANEOUS				**$ 461,135.46**			**$ 503,603.97**	**-$ 42,468.51**
	SUBTOTAL, C6 - KURNABINNA GULLY				**$ 2,464,426.76**			**$ 2,910,200.70**	**-$ 445,773.94**
4	Provisional Sums								
4.1	Rock Anchor "Pull Out or "Capacity Verification" Testing	PC_Sum		$ 20,000.00			$ 50,000.00		
4.2	Rock excavation for Fence Posts	PC_Sum		$ 10,000.00			$ 10,000.00		
4.3	Inclement Weather Allowance - Preventing Crane or Helicopter lifting	PC_Sum		$ 20,000.00			$ 20,000.00		
4.4	Boardwalk Soil Footing Detail Alternative (assumed all rock footings typical for pricing)	PC_Sum					$ 20,000.00		
4.5	Disposal of unsuitable excavated material (i.e. Rock) and PC_Sum importing of replacement Fill Material for path construction	PC_Sum					$ 20,000.00		
	SUBTOTAL, PROVISIONAL SUMS								
	TOTAL				**$ 5,845,349.70**			**$ 6,855,623.10**	**-$ 1,010,273.40**

Appendix B: Revised Construction Program


COASTAL WALKWAY ASSET RENEWAL
TENDER PROGRAM - 100% DESIGN DOCUMENTATION
BLUBUILT
Rev B.
ID
Task Name
Duration
Start
Finish
1 COASTAL WALKWAY ASSET RENEWAL 285.5 days Wed 9/03/22 Tue 9/05/23
3 100% Design Documents Issued 0 days Wed 9/03/22 Wed 9/03/22
5 Tender Submission 0 days Tue 15/03/22 Tue 15/03/22
7 Contract Award 0 days Tue 3/05/22 Tue 3/05/22
9 PRELIMINARIES 9 days Tue 3/05/22 Fri 13/05/22
10 Project management plan (incl. WHS, Quality & Enviro 7 days Tue 3/05/22 Wed 11/05/22
11 Community relations & stakeholder management plan (if required) 7 days Tue 3/05/22 Wed 11/05/22
12 Develop and submit Construction Program 7 days Tue 3/05/22 Wed 11/05/22
13 Dilapidation survey 2 days Thu 12/05/22 Fri 13/05/22
15 PROCUREMENT 176 days Thu 12/05/22 Wed 25/01/23
16 Foundations / Rock Anchors 20 days Thu 12/05/22 Wed 8/06/22
17 Engage subcontractor 5 days Thu 12/05/22 Wed 18/05/22
18 Supply Rock Anchors and ancillary materials 3 wks Thu 19/05/22 Wed 8/06/22
19 Boardwalk - Composite Fibre Components & Decking 105 days Thu 12/05/22 Fri 7/10/22
20 Engage FRP Supplier 5 days Thu 12/05/22 Wed 18/05/22
21 Shop drawings / 3D model of boardwalk 6 wks Thu 19/05/22 Thu 30/06/22
22 Client review of shop drawings 5 days Fri 1/07/22 Thu 7/07/22
23 HOLD POINT - Shop Drawings 0 days Thu 7/07/22 Thu 7/07/22
24 Finalise shop drawings 5 days Fri 8/07/22 Thu 14/07/22
25 Procurement of Boardwalk components 12 wks Fri 15/07/22 Fri 7/10/22
26 Suspension / Swing Bridges 80 days Thu 12/05/22 Thu 1/09/22
27 Engage supplier 5 days Thu 12/05/22 Wed 18/05/22
28 Shop drawing development and submission 10 days Thu 19/05/22 Wed 1/06/22
29 Client review and approval 5 days Thu 2/06/22 Wed 8/06/22
30 HOLD POINT - Shop Drawings 0 days Wed 8/06/22 Wed 8/06/22
31 Portal Fabrication 10 wks Thu 9/06/22 Thu 18/08/22
32 Bridge fabrication & supply 12 wks Thu 9/06/22 Thu 1/09/22
33 Metal Work (balustrading, handrailing etc) 171 days Thu 19/05/22 Wed 25/01/23
34 Engage subcontractor 14 days Thu 19/05/22 Tue 7/06/22
35 Site measure, shop drawing development and submission - Grey Rd Gully 1 wk Thu 3/11/22 Wed 9/11/22
36 Site measure, shop drawing development and submission - Kurnabinna Gully 1 wk Thu 10/11/22 Wed 16/11/22
37 Client review and approval 5 days Thu 10/11/22 Wed 16/11/22
38 HOLD POINT - Shop Drawings 3 days Thu 17/11/22 Mon 21/11/22
39 Steelwork fabrication & Protective Coatings - Grey F 4 wks Tue 22/11/22 Mon 19/12/22
40 Steelwork fabrication & Protective Coatings - Kurnat 4 wks Tue 20/12/22 Wed 25/01/23
41 Hardwood fence posts (off-structure) 8 wks Wed 29/06/22 Tue 23/08/22
42 Feature 'Hard' Landscaping Elements - seating rocks, signage, retaining materials etc 8 wks Wed 29/06/22 Tue 23/08/22
44 CONSTRUCTION WORKS 254.5 days Wed 27/04/22 Tue 9/05/23
45 CELL 5 - GREY RD GULLY 253.8 days Wed 27/04/22 Mon 8/05/23
47 SITE ESTABLISHMENT 34 days Wed 27/04/22 Tue 14/06/22
48 Community Notifications (Advanced Notice) 14 days Wed 27/04/22 Tue 17/05/22
49 Establish site access traffic management controls (Grey Rd and Nungamoora St) 1 day Mon 16/05/22 Mon 16/05/22
50 Site Office / Compound Setup - Adj. Grey Ave 2 days Tue 17/05/22 Wed 18/05/22
51 Establish Environmental Protection Zones/ Corrid 5 days Tue 17/05/22 Mon 23/05/22
52 Construct Construction Access Track (entry off of 2 days Wed 1/06/22 Thu 2/06/22
53 Installation of Working at Height Safety controls within the Gully (static line fixed via rock anchors) 7 days Fri 3/06/22 Tue 14/06/22
55 DEMOLITION 134.2 days Tue 24/05/22 Wed 30/11/22
56 Removal of existing fencing 4 days Tue 24/05/22 Fri 27/05/22
57 Removal of existing vegetation along proposed al 4 days Thu 26/05/22 Tue 31/05/22
58 Remove existing street furniture (bins, seats, drin 1 day Tue 24/05/22 Tue 24/05/22
59 Existing Boardwalk - Nungamoora St 16 days Tue 13/09/22 Wed 5/10/22
60 Remove existing handrail and balustrade 5 days Tue 13/09/22 Mon 19/09/22
61 Remove FRP handrail posts 3 days Tue 20/09/22 Thu 22/09/22
62 Demolish timber boardwalk 8 days Fri 23/09/22 Wed 5/10/22
63 Existing Boardwalk - Grey Gully 124.2 days Thu 2/06/22 Fri 25/11/22
64 Partial demolition of existing boardwalk (proposed bridge footprint only) and make good for construction access requirements 8 days Thu 2/06/22 Wed 15/06/22
65 Demolish remaining section of timber boardwalk - commencing at the bottom of the gully and working up towards the top of the 9 days Mon 14/11/22 Fri 25/11/22
66 Demolish existing 'steps' to the Grey Rd entry poi 3 days Wed 25/05/22 Fri 27/05/22
67 Demolish existing steps between boardwalks 3 days Fri 25/11/22 Wed 30/11/22
69 BRIDGE CONSTRUCTION 137.2 days Wed 15/06/22 Wed 4/01/23
70 Earthworks preparation for access to new portal pile caps and cable anchor pile caps (including working platforms for bulk earthworks) 18 days Wed 15/06/22 Fri 8/07/22
71 Install rock anchors for main portal and cable anchors - South embankment 8 days Mon 11/07/22 Wed 20/07/22
72 Install rock anchors for main portal and cable anchors - North embankment 8 days Thu 21/07/22 Mon 1/08/22
73 Detail excavation for pile caps - South (manual) 14 days Tue 2/08/22 Fri 19/08/22
74 Detail excavation for pile caps - North (manual) 14 days Mon 22/08/22 Thu 8/09/22
75 Construct concrete pile caps - South (incl. HD Bol 14 days Fri 9/09/22 Wed 28/09/22
76 Construct concrete pile caps - North (incl. HD Bol 14 days Thu 15/09/22 Thu 6/10/22
77 Curing of Pile Caps 10 days Thu 6/10/22 Thu 20/10/22
May 2022
June 2022
July 2022
August 2022
September 2022
October 2022
November 2022
December 2022
January 2023
February 2023
March 2023
April 2023
May 20
Revision: Post Tender
Date: 4/04/22
Task
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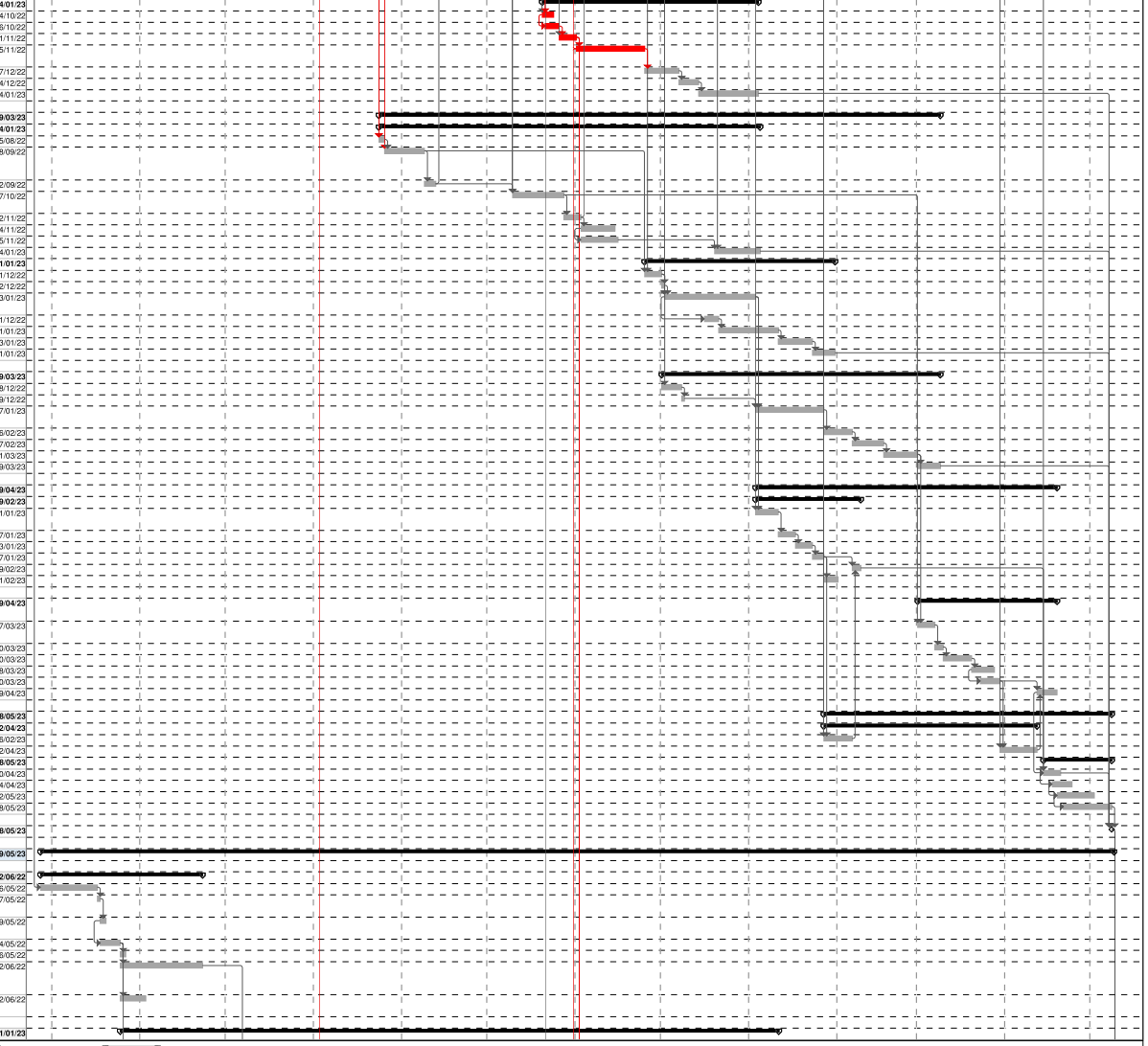
Page 1

COASTAL WALKWAY ASSET RENEWAL
TENDER PROGRAM - 100% DESIGN DOCUMENTATION

BLUBUILT

Rev B.

ID	Task Name	Duration	Start	Finish
78	**Bridge Installation**	**47 days**	**Thu 20/10/22**	**Wed 4/01/23**
79	Install Portal Frames (incl. deck support portal)	2 days	Thu 20/10/22	Mon 24/10/22
80	Erect temporary access scaffold	3 days	Fri 21/10/22	Wed 26/10/22
81	String main cables and secure to cable anchors	4 days	Wed 26/10/22	Tue 1/11/22
82	Install bridge substructure frames (including bracing as required)	18 days	Tue 1/11/22	Fri 25/11/22
83	Install FRP decking units	8 days	Fri 25/11/22	Wed 7/12/22
84	Fix Handrail to bridge substructure frames	5 days	Wed 7/12/22	Wed 14/12/22
85	Install Ronstan balustrade mesh	8 days	Wed 14/12/22	Wed 4/01/23
86				
87	**BOARDWALK CONSTRUCTION**	**132.2 days**	**Wed 24/08/22**	**Thu 9/03/23**
88	**Nungamoora St Boardwalk**	**88 days**	**Wed 24/08/22**	**Wed 4/01/23**
89	Survey setout of post locations	2 days	Wed 24/08/22	Thu 25/08/22
90	Install rock anchors for new Boardwalk Structure (noting existing boardwalk to be used for access and harness fixing point)	10 days	Fri 26/08/22	Thu 8/09/22
91	As-built survey of rock anchors	2 days	Fri 9/09/22	Mon 12/09/22
92	Install FRP boardwalk substructure (posts, bearers, joists and bracing)	14 days	Mon 10/10/22	Thu 27/10/22
93	Install hardwood handrail stanchions	4 days	Fri 28/10/22	Wed 2/11/22
94	Install stair treads	8 days	Thu 3/11/22	Mon 14/11/22
95	Install FRP grating/ decking panels	9 days	Thu 3/11/22	Tue 15/11/22
96	Install balustrade	5 days	Tue 20/12/22	Wed 4/01/23
97	**Grey Rd Gully - North**	**39 days**	**Fri 25/11/22**	**Tue 31/01/23**
98	Install rock anchors	4 days	Fri 25/11/22	Thu 1/12/22
99	As-built survey of pile caps, anchors and final c	1 day	Thu 1/12/22	Fri 2/12/22
100	Install FRP boardwalk substructure (posts, bearers, joists and bracing)	15 days	Fri 2/12/22	Tue 3/01/23
101	Install hardwood handrail stanchions	3 days	Fri 16/12/22	Wed 21/12/22
102	Install stair treads	8 days	Wed 21/12/22	Wed 11/01/23
103	Install FRP grating/ decking panels	8 days	Wed 11/01/23	Mon 23/01/23
104	Install balustrade	5 days	Mon 23/01/23	Tue 31/01/23
105				
106	**Grey Rd Gully - South**	**62 days**	**Thu 1/12/22**	**Thu 9/03/23**
107	Install rock anchors	5 days	Thu 1/12/22	Thu 8/12/22
108	As-built survey of pile caps, anchors and final c	1 day	Thu 8/12/22	Fri 9/12/22
109	Install FRP boardwalk substructure (posts, bearers, joists and bracing)	17 days	Tue 3/01/23	Fri 27/01/23
110	Install hardwood handrail stanchions	6 days	Fri 27/01/23	Mon 6/02/23
111	Install stair treads	9 days	Mon 6/02/23	Fri 17/02/23
112	Install FRP grating/ decking panels	8 days	Fri 17/02/23	Wed 1/03/23
113	Install balustrade	6 days	Wed 1/03/23	Thu 9/03/23
114				
115	**AT-GRADE PATHS**	**71 days**	**Tue 3/01/23**	**Wed 19/04/23**
116	**Grey Rd Entrance to new Gully Boardwalk**	**26 days**	**Tue 3/01/23**	**Thu 9/02/23**
117	Detail Excavation / cut-to-fill of new alignment (incl. landscaped areas)	6 days	Tue 3/01/23	Wed 11/01/23
118	Existing subgrade preparation	4 days	Wed 11/01/23	Tue 17/01/23
119	Install new stormwater crossings	4 days	Tue 17/01/23	Mon 23/01/23
120	Install 150mm PM3/20 subbase layer	3 days	Mon 23/01/23	Fri 27/01/23
121	Install 100mm PM2/20CT basecourse layer	3 days	Mon 6/02/23	Thu 9/02/23
122	Construct kerb transition to Grey Rd	3 days	Fri 27/01/23	Wed 1/02/23
123				
124	**Nungamoora St Boardwalk to Grey Rd Gully Boardwalk**	**31 days**	**Wed 1/03/23**	**Wed 19/04/23**
125	Detail Excavation / cut-to-fill of new alignment (incl. landscaped areas)	4 days	Wed 1/03/23	Tue 7/03/23
126	Existing subgrade preparation	3 days	Tue 7/03/23	Fri 10/03/23
127	Install new stormwater crossings	5 days	Fri 10/03/23	Mon 20/03/23
128	Install step risers (at bridge approach)	6 days	Mon 20/03/23	Tue 28/03/23
129	Install 150mm PM3/20 subbase layer	5 days	Thu 23/03/23	Thu 30/03/23
130	Install 100mm PM2/20CT basecourse layer	5 days	Wed 12/04/23	Wed 19/04/23
131				
132	**GENERAL LANDSCAPING WORKS**	**66.6 days**	**Fri 27/01/23**	**Mon 8/05/23**
133	**Fencing**	**49 days**	**Fri 27/01/23**	**Wed 12/04/23**
134	Install new Post and wire fencing - Grey Rd	6 days	Fri 27/01/23	Mon 6/02/23
135	Install new Post and wire fencing - Boardwalk t	6 days	Thu 30/03/23	Wed 12/04/23
136	**Landscaping Works**	**15.1 days**	**Fri 14/04/23**	**Mon 8/05/23**
137	Install 'hard' landscaping elements (if required)	4 days	Fri 14/04/23	Thu 20/04/23
138	Reinstate site won topsoil (likely to be minimal)	5 days	Mon 17/04/23	Mon 24/04/23
139	Supply and place organic mulch	8 days	Wed 19/04/23	Tue 2/05/23
140	Planting works	10 days	Fri 21/04/23	Mon 8/05/23
141				
142	**SUBSTANTIAL COMPLETION - CELL 5**	**0 days**	**Mon 8/05/23**	**Mon 8/05/23**
143				
144	**CELL 6 - KURNABINNA GULLY**	**254.5 days**	**Wed 27/04/22**	**Tue 9/05/23**
145				
146	**SITE ESTABLISHMENT**	**40 days**	**Wed 27/04/22**	**Wed 22/06/22**
147	Community Notifications (Advanced Notice)	14 days	Wed 27/04/22	Mon 16/05/22
148	Establish site access traffic management controls (SA Water property and The Esplanade)	1 day	Tue 17/05/22	Tue 17/05/22
149	Site Office / Compound Setup - SA Water property (subject to SA Water approval)	2 days	Wed 18/05/22	Thu 19/05/22
150	Establish Environmental Protection Zones/ Corrid	5 days	Wed 18/05/22	Tue 24/05/22
151	Construct Construction Access Track (off of the T	2 days	Wed 25/05/22	Thu 26/05/22
152	Bulk earthworks, including Cut-to-Fill providing construction access from SA Water property (incl. new stormwater crossings)	20 days	Wed 25/05/22	Wed 22/06/22
153	Installation of Working at Height Safety controls within the Gully (static line fixed via rock anchors)	7 days	Wed 25/05/22	Thu 2/06/22
154				
155	**DEMOLITION**	**156.7 days**	**Wed 25/05/22**	**Wed 11/01/23**



Revision: Post Tender
Date: 4/04/22

Task | Critical Task | Milestone | Summary | Split

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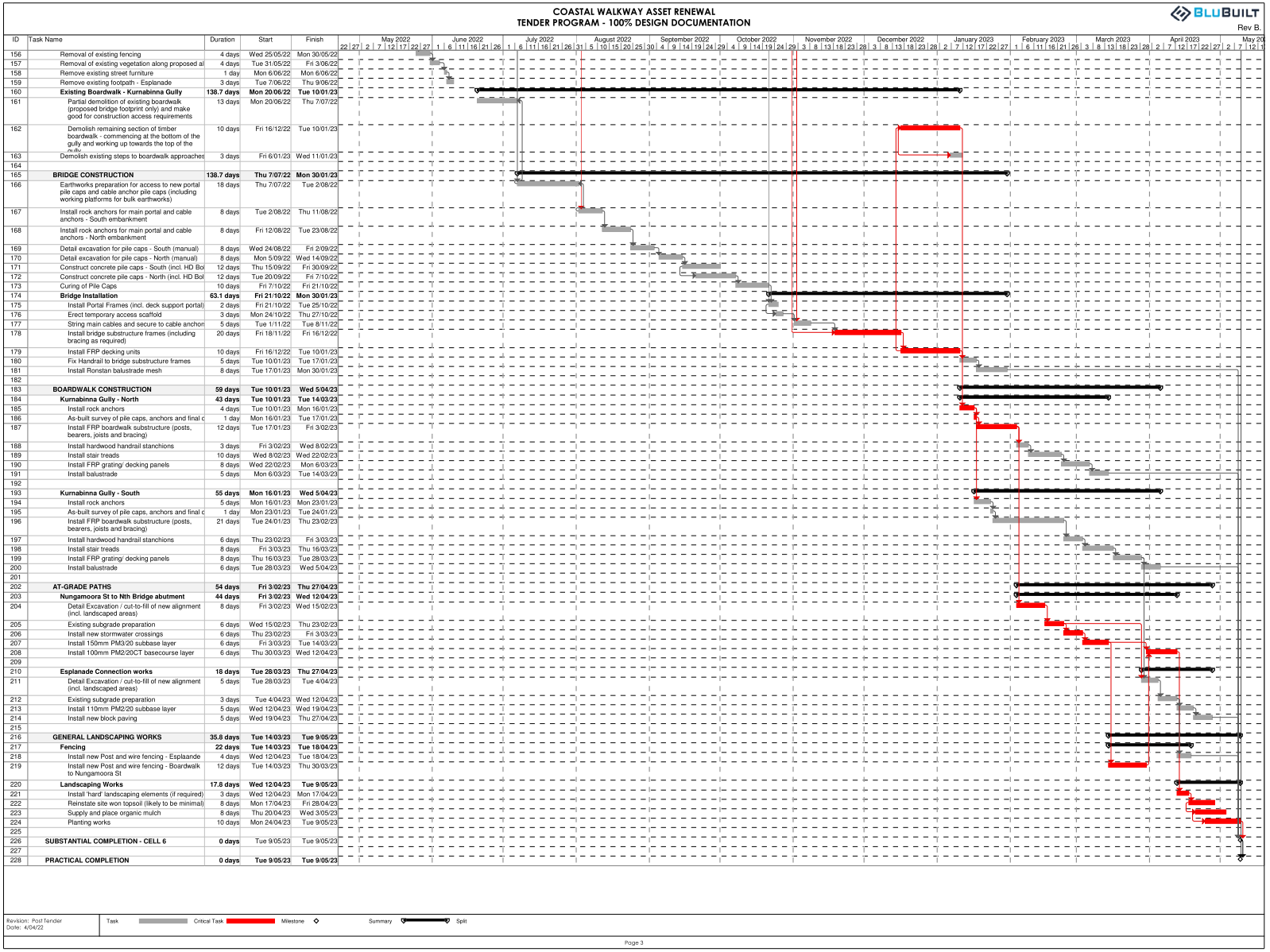
COASTAL WALKWAY ASSET RENEWAL
TENDER PROGRAM - 100% DESIGN DOCUMENTATION
BLUBUILT
Rev B.
ID
Task Name
Duration
Start
Finish
156 Removal of existing fencing 4 days Wed 25/05/22 Mon 30/05/22
157 Removal of existing vegetation along proposed al 4 days Tue 31/05/22 Fri 3/06/22
158 Remove existing street furniture 1 day Mon 6/06/22 Mon 6/06/22
159 Remove existing footpath - Esplanade 3 days Tue 7/06/22 Thu 9/06/22
160 Existing Boardwalk - Kurnabinna Gully 138.7 days Mon 20/06/22 Tue 10/01/23
161 Partial demolition of existing boardwalk (proposed bridge footprint only) and make good for construction access requirements 13 days Mon 20/06/22 Thu 7/07/22
162 Demolish remaining section of timber boardwalk - commencing at the bottom of the gully and working up towards the top of the 10 days Fri 16/12/22 Tue 10/01/23
163 Demolish existing steps to boardwalk approaches 3 days Fri 6/01/23 Wed 11/01/23
164
165 BRIDGE CONSTRUCTION 138.7 days Thu 7/07/22 Mon 30/01/23
166 Earthworks preparation for access to new portal pile caps and cable anchor pile caps (including working platforms for bulk earthworks) 18 days Thu 7/07/22 Tue 2/08/22
167 Install rock anchors for main portal and cable anchors - South embankment 8 days Tue 2/08/22 Thu 11/08/22
168 Install rock anchors for main portal and cable anchors - North embankment 8 days Fri 12/08/22 Tue 23/08/22
169 Detail excavation for pile caps - South (manual) 8 days Wed 24/08/22 Fri 2/09/22
170 Detail excavation for pile caps - North (manual) 8 days Mon 5/09/22 Wed 14/09/22
171 Construct concrete pile caps - South (incl. HD Bol 12 days Thu 15/09/22 Fri 30/09/22
172 Construct concrete pile caps - North (incl. HD Bol 12 days Tue 20/09/22 Fri 7/10/22
173 Curing of Pile Caps 10 days Fri 7/10/22 Fri 21/10/22
174 Bridge Installation 63.1 days Fri 21/10/22 Mon 30/01/23
175 Install Portal Frames (incl. deck support portal) 2 days Fri 21/10/22 Tue 25/10/22
176 Erect temporary access scaffold 3 days Mon 24/10/22 Thu 27/10/22
177 String main cables and secure to cable anchor 5 days Tue 1/11/22 Tue 8/11/22
178 Install bridge substructure frames (including bracing as required) 20 days Fri 18/11/22 Fri 16/12/22
179 Install FRP decking units 10 days Fri 16/12/22 Tue 10/01/23
180 Fix Handrail to bridge substructure frames 5 days Tue 10/01/23 Tue 17/01/23
181 Install Ronstan balustrade mesh 8 days Tue 17/01/23 Mon 30/01/23
182
183 BOARDWALK CONSTRUCTION 59 days Tue 10/01/23 Wed 5/04/23
184 Kurnabinna Gully - North 43 days Tue 10/01/23 Tue 14/03/23
185 Install rock anchors 4 days Tue 10/01/23 Mon 16/01/23
186 As-built survey of pile caps, anchors and final c 1 day Mon 16/01/23 Tue 17/01/23
187 Install FRP boardwalk substructure (posts, bearers, joists and bracing) 12 days Tue 17/01/23 Fri 3/02/23
188 Install hardwood handrail stanchions 3 days Fri 3/02/23 Wed 8/02/23
189 Install stair treads 10 days Wed 8/02/23 Wed 22/02/23
190 Install FRP grating/ decking panels 8 days Wed 22/02/23 Mon 6/03/23
191 Install balustrade 5 days Mon 6/03/23 Tue 14/03/23
192
193 Kurnabinna Gully - South 55 days Mon 16/01/23 Wed 5/04/23
194 Install rock anchors 5 days Mon 16/01/23 Mon 23/01/23
195 As-built survey of pile caps, anchors and final c 1 day Mon 23/01/23 Tue 24/01/23
196 Install FRP boardwalk substructure (posts, bearers, joists and bracing) 21 days Tue 24/01/23 Thu 23/02/23
197 Install hardwood handrail stanchions 6 days Thu 23/02/23 Fri 3/03/23
198 Install stair treads 8 days Fri 3/03/23 Thu 16/03/23
199 Install FRP grating/ decking panels 8 days Thu 16/03/23 Tue 28/03/23
200 Install balustrade 6 days Tue 28/03/23 Wed 5/04/23
201
202 AT-GRADE PATHS 54 days Fri 3/02/23 Thu 27/04/23
203 Nungamoora St to Nth Bridge abutment 44 days Fri 3/02/23 Wed 12/04/23
204 Detail Excavation / cut-to-fill of new alignment (incl. landscaped areas) 8 days Fri 3/02/23 Wed 15/02/23
205 Existing subgrade preparation 6 days Wed 15/02/23 Thu 23/02/23
206 Install new stormwater crossings 6 days Thu 23/02/23 Fri 3/03/23
207 Install 150mm PM3/20 subbase layer 6 days Fri 3/03/23 Tue 14/03/23
208 Install 100mm PM2/20CT basecourse layer 6 days Thu 30/03/23 Wed 12/04/23
209
210 Esplanade Connection works 18 days Tue 28/03/23 Thu 27/04/23
211 Detail Excavation / cut-to-fill of new alignment (incl. landscaped areas) 5 days Tue 28/03/23 Tue 4/04/23
212 Existing subgrade preparation 3 days Tue 4/04/23 Wed 12/04/23
213 Install 110mm PM2/20 subbase layer 5 days Wed 12/04/23 Wed 19/04/23
214 Install new block paving 5 days Wed 19/04/23 Thu 27/04/23
215
216 GENERAL LANDSCAPING WORKS 35.8 days Tue 14/03/23 Tue 9/05/23
217 Fencing 22 days Tue 14/03/23 Tue 18/04/23
218 Install new Post and wire fencing - Esplaande 4 days Wed 12/04/23 Tue 18/04/23
219 Install new Post and wire fencing - Boardwalk to Nungamoora St 12 days Tue 14/03/23 Thu 30/03/23
220 Landscaping Works 17.8 days Wed 12/04/23 Tue 9/05/23
221 Install 'hard' landscaping elements (if required) 3 days Wed 12/04/23 Mon 17/04/23
222 Reinstate site won topsoil (likely to be minimal) 8 days Mon 17/04/23 Fri 28/04/23
223 Supply and place organic mulch 8 days Thu 20/04/23 Wed 3/05/23
224 Planting works 10 days Mon 24/04/23 Tue 9/05/23
225
226 SUBSTANTIAL COMPLETION - CELL 6 0 days Tue 9/05/23 Tue 9/05/23
227
228 PRACTICAL COMPLETION 0 days Tue 9/05/23 Tue 9/05/23
May 2022
June 2022
July 2022
August 2022
September 2022
October 2022
November 2022
December 2022
January 2023
February 2023
March 2023
April 2023
May 20
Revision: Post Tender
Date: 4/04/22
Task
Critical Task
Milestone
Summary
Split
Page 3

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