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Yellow Submarine Site Selection Study





Document Control

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1. Background/Statement of Need:

The experimental “Yellow Submarine” was designed and built by a local farmer named Severn Graham in the 1960s for the M.G. Kailis Fishing Group. The vessel was intended to explore the potential of developing a green crayfish fishery in WA’s tropical waters, although its location of construction is disputed. Some sources suggest it was built in Dongara, while others claim it was made in Geraldton.

The submarine was first launched in Geraldton on 6 September 1969, but it never became operational due to concerns over toxic gas emissions from its batteries. The submarine, which was painted yellow after the Beatles’ famous song, changed hands several times before being displayed along Marine Terrace, next to the old Geraldton Maritime Museum, for about 35 years.

It became a popular attraction and an icon of the City. However, the submarine’s condition worsened over time. In 2007, the City of Geraldton-Greenough restored it with funding from Lotterywest and moved it to a new location on the Foreshore, close to Stow Gardens, as part of the 2008 Foreshore Redevelopment Project. In mid-2015, the submarine was deemed unsafe after years of exposure to the elements and it was fenced off and removed from the site to make room for the Geraldton’s Youth Foreshore Playground and to undergo another restoration process.

The Rotary Club of Batavia Coast was responsible for the latest restoration works but have been unable to put it back on display. The vessel is being transferred back to the City of Greater Geraldton to find a home for it. The City has undertaken a site selection study for the submarine to identify the most advantageous location for it to be rehomed.



Figure 1 - Yellow Submarine at Marine Terrace early 2000s.

2. Supporting Documents:

2.1 Relevant Reports/Data

Documents	
TRIM No.	Report Name
D-18-085587	File Note - Experimental Submarine "Yellow Submarine" Ownership Provenance - 2018
D-14-13851	Background Notes on the Experimental Submarine ("Yellow Submarine")
D-14-65760	Yellow Submarine Risk Assessment
D-15-56619	Community Service Announcement: Yellow submarine makes room for construction site - 2015

2.2 CGG's Strategies

CGG Strategies	
TRIM No.	Relevant CGG Strategies
D-17-48894	Heritage Strategy 2017-2022
D-13-27686	Geraldton Foreshore Conservation Plan - April 2003 (page 184)
D-21-018130	Public Arts Strategy 2020-2025

3. Site Selection Investigations

Site selection is a crucial step in the planning and execution of any project and choosing the right site can have significant impacts on the feasibility, cost, timeline and sustainability of the project. Therefore, need to conduct a comprehensive and systematic site selection study that considers various criteria and alternatives is important. In this report, we will evaluate the strengths and weaknesses of each option and provide our recommendation for the optimal site for installation of the Yellow Submarine.

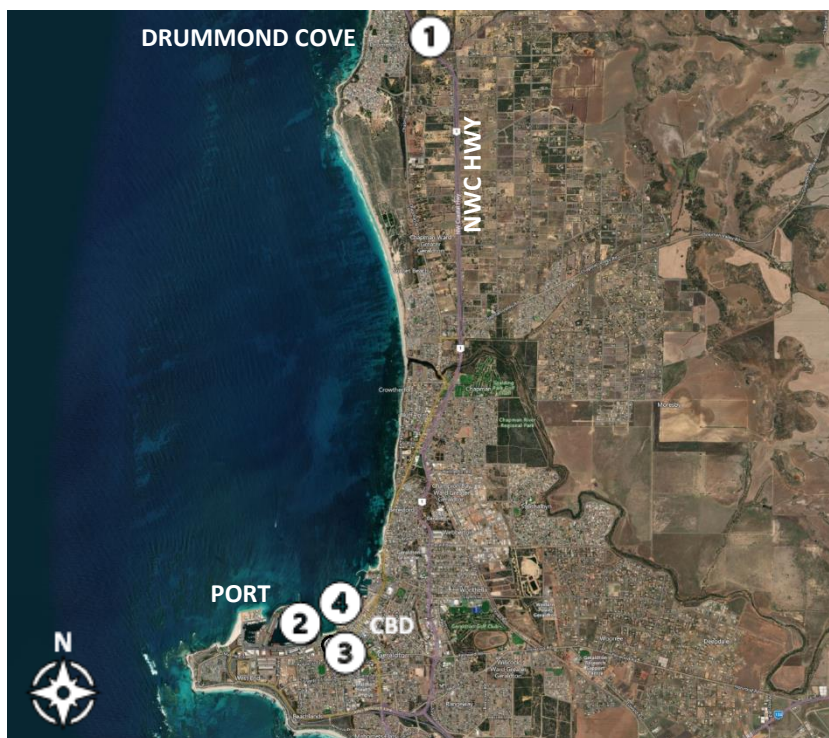


Figure 2- Geraldton Context Map showing proposed locations.

As part of the investigations a site selection survey was conducted at the pre-selected site options and it considers some relevant points for site selection and its justification. The survey aimed to address any specific needs for a particular site, the identification of risks involved, assure efficient resource utilization, impacts for community and stakeholders, and the long-term operation and viability. See data collected at the table below;

Yellow Submarine Site Options Survey						Carried out on 27/02/2024
Site option:	01	Name:	The 440 Roadhouse		Comments:	
Site Current Condition:	Good	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Underused / poor maintained / littering
Site Visibility:	Good	<input type="checkbox"/>	Average	<input checked="" type="checkbox"/>	Poor	Sight obstructed by tree and advertising signs
Public Accessibility:	Good	<input type="checkbox"/>	Average	<input checked="" type="checkbox"/>	Poor	Located far from town centre
Need for earthworks:	Yes	<input checked="" type="checkbox"/>	Possible	<input type="checkbox"/>	No	Unsure about sandy base course stability
Ease of installation:	Easy	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Hard	Rock swale impede a truck to park close
Popularity within community:	High	<input type="checkbox"/>	Neutral	<input checked="" type="checkbox"/>	Low	Possible "entry statement" for the City
Existing services/infrastructure:	Lighting	<input type="checkbox"/>	CCTV	<input checked="" type="checkbox"/>	Paths	Practicable lighting connection.
Maintenance costs associated:	<input checked="" type="checkbox"/> Dust	<input type="checkbox"/>	Corrosion	<input type="checkbox"/>	Other:	Roadside site.
Risks:	<input checked="" type="checkbox"/> Low usage	<input type="checkbox"/>	Fall	<input type="checkbox"/>	Other:	Heavy vehicles turning close to site access
Site option:	02	Name:	Esplanade Entry / Francis St.		Comments:	
Site Current Condition:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Consolidated grassy area
Site Visibility:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Prime position
Public Accessibility:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Walking dist. from City's foreshore/parking
Need for earthworks:	Yes	<input type="checkbox"/>	Possible	<input checked="" type="checkbox"/>	No	Consolidated grassy area
Ease of installation:	<input checked="" type="checkbox"/> Easy	<input type="checkbox"/>	Medium	<input type="checkbox"/>	Hard	Clear area for installation
Popularity within community:	High	<input checked="" type="checkbox"/>	Neutral	<input type="checkbox"/>	Low	Close to port / wharf - link to marine industry
Existing services/infrastructure:	<input checked="" type="checkbox"/> Lighting	<input checked="" type="checkbox"/>	CCTV	<input checked="" type="checkbox"/>	Paths	Plenty of parking - part of esplanade precinct
Maintenance costs associated:	<input type="checkbox"/> Dust	<input checked="" type="checkbox"/>	Corrosion	<input checked="" type="checkbox"/>	Other:	Area susceptible to high tide inundation
Risks:	<input type="checkbox"/> Low usage	<input checked="" type="checkbox"/>	Fall	<input type="checkbox"/>	Other:	Children can climb it and fall / Retic conflict
Site option:	03	Name:	Marine Terrace / Lester Ave.		Comments:	
Site Current Condition:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Nice and shaded area
Site Visibility:	Good	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Sight obstructed by pole and trees around
Public Accessibility:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Walking dist. from City's foreshore / parking
Need for earthworks:	Yes	<input checked="" type="checkbox"/>	Possible	<input type="checkbox"/>	No	Organic material soil
Ease of installation:	Easy	<input type="checkbox"/>	Medium	<input checked="" type="checkbox"/>	Hard	Overhead power lines and trees around
Popularity within community:	<input checked="" type="checkbox"/> High	<input type="checkbox"/>	Neutral	<input type="checkbox"/>	Low	Submarine was installed here before
Existing services/infrastructure:	Lighting	<input type="checkbox"/>	CCTV	<input checked="" type="checkbox"/>	Paths	Viable lighting connection / plenty of parking
Maintenance costs associated:	<input type="checkbox"/> Dust	<input type="checkbox"/>	Corrosion	<input checked="" type="checkbox"/>	Other:	Accumulation of leaves accelerating rust
Risks:	<input type="checkbox"/> Low usage	<input checked="" type="checkbox"/>	Fall	<input type="checkbox"/>	Other:	Children can climb it and fall
Site option:	04	Name:	Foreshore/in front of GMC.		Comments:	
Site Current Condition:	Good	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Nice and shaded area
Site Visibility:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Sight obstructed by pole and trees around
Public Accessibility:	<input checked="" type="checkbox"/> Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	Walking dist. from City's foreshore / parking
Need for earthworks:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/>	Possible	<input type="checkbox"/>	No	Organic material soil
Ease of installation:	Easy	<input type="checkbox"/>	Medium	<input checked="" type="checkbox"/>	Hard	Overhead power lines and trees around
Popularity within community:	High	<input type="checkbox"/>	Neutral	<input type="checkbox"/>	Low	Submarine was installed here before
Existing services/infrastructure:	<input checked="" type="checkbox"/> Lighting	<input checked="" type="checkbox"/>	CCTV	<input checked="" type="checkbox"/>	Paths	Viable lighting connection / plenty of parking
Maintenance costs associated:	<input type="checkbox"/> Dust	<input checked="" type="checkbox"/>	Corrosion	<input checked="" type="checkbox"/>	Other:	Area susceptible to high tide inundation
Risks:	<input type="checkbox"/> Low usage	<input checked="" type="checkbox"/>	Fall	<input checked="" type="checkbox"/>	Other:	Sea view obstruction
Scoring System:	<input checked="" type="checkbox"/>	= +2				
	<input checked="" type="checkbox"/>	= +1				
	<input checked="" type="checkbox"/>	= 0				
	<input checked="" type="checkbox"/>	= -1				
Results:	Site Opt. 01 total Score: 3					
	Site Opt. 02 total Score: 12					
	Site Opt. 03 total Score: 8					
	Site Opt. 04 total Score: 9					

Site option 02 outcores the other options.

a. Site Option 01 – The 440 Roadhouse – Glenfield

Area Map



Impact (Positive/Negative)

Positive/Pros	Negative/Cons
<ul style="list-style-type: none"> • New point of interest. • Sense of arrival, entry statement. • Existing site enhancement. • Less corrosive environment 	<ul style="list-style-type: none"> • Limited accessibility/Lack of audience. • Lack of surveillance - open to vandalism. • No maritime connection • Remote site will require specific maintenance

Site Visit Report

The area adjacent to the 440 Roadhouse has a mix of conditions, with some aspects requiring attention. Overall, it falls within the range of average to poor condition. The access and nearby gazebo are in fair condition, while the table surface is covered with dirt and grease. However, there is an unpleasant smell due to travellers using it as a dog's toilet and the service station's bins being located close to the site. If the submarine is installed here, its visibility would be limited by the existing tree and the advertising sign boards and its poles surrounding the site. The installation process should be relatively easy, given the existing conditions and the area is already half fenced. No existing lighting and CCTV.

Risks

Low visitation, low visibility, poor lighting, lack of regular maintenance due to distance, potential for vandalism due to lack of surveillance, busy intersection with trucks in the vicinity.


Land Type

In a City Road Reserve. Requires MRWA approval because of its proximity to NWCH.

b. Site Option 02 – Francis Street Carpark, adjoining to The Esplanade – Geraldton

Area Map	
Impact (Positive/Negative)	
Positive/Pros	Negative/Cons
<ul style="list-style-type: none"> • Adds to an already consolidated tourist area. • Parking/lighting/CCTV already available. • Strong connection to maritime industry • Greater visibility and general oversight. • Ease of installation • On existing Foreshore pedestrian route 	<ul style="list-style-type: none"> • Disruption to existing visual harmony. • Isolated position in a traffic island. • Direct exposure to marine corrosion. • Existing signage relocation needed. • Smell from the nearby fish filleting station
Site Visit Report	
<p>The area at the Francis Street carpark, close to the Esplanade’s entrance is a grassed space that adjacent of a City’s landscape project for the eastern breakwater and the Geraldton Multipurpose Centre. With ample parking available, it has already become a popular spot among Geraldton’s locals and tourists, including overnight caravan parking bays. Its proximity to the Port and Wharf fosters a sense of connection to the maritime industry. Existing infrastructure, including lighting, CCTV, picnic tables, and barbecues, is already in place. It can also be seen by tourists accessing the new jetty located nearby.</p>	
Risks	
<p>Accelerated corrosion process near ocean. Sited within parking area road network</p>	
Land Type	
<p>CGG owned</p>	

c. Site Option 03 – Marine Terrace in front of Lester Avenue – Geraldton

Area Map	
	
Impact (Positive/Negative)	
Positive/Pros	Negative/Cons
<ul style="list-style-type: none"> • Previously located on this site – popular with the community. • Shaded area & parking available nearby. • Reduced corrosion 	<ul style="list-style-type: none"> • Low lighting and no CCTV. • Located at busy roundabout, isolated. • Away from popular Foreshore paths • Little connection to maritime industry • Fig Tree, leaf litter and debris
Site Visit Report	
<p>The area under the grand leafy trees at the Marine Terrace intersection with Lester Avenue is in fair condition. The trees provide pleasant shade to the area, which is adjacent to the Geraldton Multipurpose Centre (GMC) and Stow Gardens. There is ample parking available nearby. However, other services such as lighting and CCTV require further investigation to assess their feasibility. Depending on the precise location where the vessel will be installed, there may be proximity to gas pipes or overhead powerlines, which could pose challenges during installation.</p>	
Risks	
<p>Overhead powerlines, accumulation of leaves in the area, services relocations, accelerated corrosion process.</p>	
Land Type	
<p>Crown Land, leased to Sail Inn Snack Bar.</p>	

d. Site Option 04 – Foreshore walk, in front of the GMC – Geraldton

Area Map	
<p>The map shows an aerial view of a coastal area. A red circle highlights a proposed site for a foreshore walk, which is a narrow strip of land between a grassed area and the ocean. The walkway is marked with yellow and black diagonal stripes. To the left is a large body of water (the ocean) with a rocky breakwater. In the center, there is a large building complex labeled 'GMC'. To the right, there is a residential or commercial area labeled 'STOW GARDENS'. A road labeled '506' is visible near the highlighted site. The highlighted site is situated between a grassed area and the ocean, with a parking lot and other buildings nearby.</p>	
Impact (Positive/Negative)	
Positive/Pros	Negative/Cons
<ul style="list-style-type: none"> • Adds to an already consolidated tourist area. • Parking/lighting/CCTV nearby. • Great visibility (“Instagrammable”) and activation. • On existing Foreshore pedestrian route 	<ul style="list-style-type: none"> • Disruption to existing ocean view, only structure on the seaward side of the Foreshore footpath • Direct exposure to marine corrosion. • Exposure to damage in storm event.
Site Visit Report	
<p>This coastal grassed area in front of the Geraldton Multipurpose Centre and adjoining the Stow Gardens was advocated for by the Rotary Club of Batavia Coast, a key stakeholder and is located between the Foreshore Walk and the beach. There are parking options available within walking distance, the site is clear of nearby roads and, and the location is visible and accessible. The site connects with the maritime theme with the nearby ocean, Esplanade and Port. The submarine will, however, form a barrier between the footpath and the beach, blocking views of the ocean. This is also the lowest site and carries some risk of inundation in a storm event.</p>	
Risks	
<p>Accelerated corrosion process near ocean. Possible susceptibility to damage in storm event.</p>	
Land Type	
<p>CGG Land</p>	

e. Alternative Sites:

The City of Greater Geraldton is home to many parks, open areas and landscaped foreshore areas. Although most of them would have potential for the installation of the submarine, the four most suitable site for the project have been reflected in this report. A summary of the alternative sites reviewed are illustrated on the map below:

No.	Site Name
1	Bob Davies Park (opposite Point Moore Lighthouse)
2	Pages Beach
3	Stow Gardens
4	Champion Beach Foreshore (multiple locations)
5	Department of Transport Site (at the end of Forrest Street)
6	The Geraldton Museum's Front Garden
7	Batavia Coast Marina Boat Ramp Surroundings
8	Beresford Foreshore (multiple locations)
9	Rundle Park (St Georges Beach)



Among the reasons for excluding the sites in this selection report we can list:

- Installation of the vessel could undesirably obstruct sea views. (i.e.: sites 1, 4, 8 & 9)
- Submarine would not fit well in the environment, and would contrast too strongly with the existing landscape and features (i.e.: sites 3, 4, 6, & 8)
- Isolated location, monitoring challenges, unfavourable for walking/public transport access. (i.e.: sites 1, 2 & 9)
- Substantial risk of the vessel getting vandalised, poor lighting, lack of consistent monitoring or activation and/or CCTV (i.e.: sites 1, 2, 7 & 9)

f. Native Title, Heritage and Environmental:

Aboriginal Heritage Inquiry System (AHIS)	
All data is retrieved from AHIS https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS	
TRIM No.	Report Outcomes
TBC	The Aboriginal Heritage Inquiry System conducted for the four sites in the Site Selection Study does not indicate any heritage issues. Although all pre-selected sites have been already disturbed, an AHIS report can be produced upon selection of preferred option.

g. Services:

Before You Dig Australia (BYDA) information	
All data is retrieved from BYDA https://www.byda.com.au/ and Intramaps	
TBC	<p>A BYDA check was conducted for each of the pre-selected sites. See below a summary for each site option.</p> <ul style="list-style-type: none"> • Site 01: Water main & Telstra main cables are present in the area. • Site 02: CGG reticulation is present. • Site 03: ATCO gas service pipe and overhead powerlines are present in the area. • Site 04: CGG reticulation

4. Stakeholder Consultation:

CGG Stakeholders	Name
Project Nominator	Chris Edwards (Manager Project Delivery & Engineering)
Staff Engaged	Caio Moreira (Graduate Civil Designer) Kerry Smith (Manager Maintenance Operations) Trevor Pitt (Coordinator Engineering Planning & Design) Janell Kopplhuber (Communication Officer – Engagement) Trudi Cornish (Manager Libraries, Heritage, and Gallery) Mark Adams (Manager Sport & Leisure)
External Stakeholders	Name
Geraldton Museum	Leigh O’Brien (Museum Manager)
Rotary Club of Batavia Coast	Peter Teakle (Club Member) Greg Eastman (Club Member)
UDLA	Scott Lang (UDLA Director, Design Leader – Youth Precinct Masterplan)

5. Scope of Works:

For a concept level site evaluation purposes, we are considering that the sites herein listed would present similar construction challenges and civil works scope. Although, Site Options 02 and 04 present existing services that could drop estimate figures for the project. Please see below an outline of the scope of works.

- General site clearing, vegetation removal and tree pruning.
- Minor earthworks.
- Construction of a reinforced concrete slab on ground.
- Submarine transportation, lift and installation.

- Fence construction around of the vessel.
- Appropriate lighting/CCTV installation.
- Signage installation.
- Landscaping

6. Estimate:

The below budget assumes all sites are the same. Some sites have lighting and CCTV nearby and could potentially cost less than budgeted;

Stage	Item	Budget
Design & PM	Design and Project Management	\$6,000
Delivery	Earthworks	\$5,000
	Construction of reinforced concrete slab	\$15,000
	Transport to the final location	\$5,000
	Traffic Management for installation.	\$5,000
	Fencing	\$5,000
	Lights & Electrical Services	\$10,000
	CCTV	\$15,000
	Signage	\$4,000
	Subterranean Services Location	\$4,000
	Landscaping and irrigation	\$6,000
	Contingency	\$5,000
	Total	\$80,000

7. Recommendations

Site Option 02 – Francis Street Carpark

Site Option 02 at Francis Street carpark offers several advantages, including existing infrastructure such as parking, lighting and CCTV which would optimise installation projects and reduce costs. Additionally, its seamless integration with the Foreshore and The Esplanade enhances its appeal without generating significant sight obstruction to the existing views and without conflicting with any existing equipment, natural feature or landscape treatment. While other sites could still be considered viable options, our investigation found that this sites proximity and direct link to the port, the Esplanade, the boat ramp and the fishing industry make it the preferred option.

8. Appendix A – Site Photos:

a. Site Option 01 – The 440 Roadhouse, Glenfield



b. Site Option 02 - Francis Street Carpark, adjoining to The Esplanade – Geraldton



c. Site Option 03 - Marine Terrace in front of Lester Avenue – Geraldton:



d. Site Option 04 - Foreshore walk, in front of the GMC – Geraldton

