5 Discussion

5.1 Section Summary

As illustrated in Table 11, the Project may be broken into the following components as each component was found to present a similar level of impact to a specific set of receptors:

- Fabrication facility (primarily impacting roadside locations);
- Bundle track corridor and launch way (impacting coastal locations); and
- Offshore operations (impacting high elevation vantage points and those at a further distance from the Project).

Impacts to landscapes and landforms are discussed in the following manner:

- Landforms: Assessment of direct loss of landforms, based on the landform types identified in Section 2.2.4; and
- Landscapes: Assessment of direct loss of landscape types as well as the impacts in relation to the impact matrix provided in Table 13 (Landscape Value and Nature of Impact).

5.2 Impact of the Project's Activities

5.2.1 Fabrication Facility

Results of the photomontages and viewshed analysis (Sections 4.4.1 – 4.4.8) suggest that the fabrication facility will be visible from several locations along the Exmouth- Minilya Road (VP01, VP02). The field assessment however found that based on typical observer speeds, the facilities will likely be visible mostly off axis to the direction of travel. The ZTV carried out for onshore components also suggest that the facility could be visible from several other areas in the surrounding landscape.

During construction, plant and construction equipment may be seen operating within the area (bulldozers, cranes, light and heavy trucks, road trains etc.) However, similar to the operation phase impacts, the visibility of these will be intermittent and is considered less obtrusive than for instance, routine road works on the Minilya-Exmouth Road (graders, rollers, road trains, light trucks etc.), due to the works being off away from the focal area of the road (off axis).

Current designs indicate that the access route will directly enter the site although Subsea7 has provided draft plans that considers non-direct access. Indirect access is preferable to minimise direct views into the fabrication facility, which may detract from the view experience (WAPC 2007).

The access road into the facility is currently designed to be unsealed, which may result in some impacts from dust if the site is frequently accessed. It should be noted that most tracks off the Minilya-Exmouth Road are unsealed which does generate some dust. Attention should be given to the frequency of access to the site, which ideally, should not significantly exceed the rates of existing access via other unsealed roads, so as not to

draw attention to the facility. Dust impacts from the access road will be minimised by frequent water spray dust suppression; it is also proposed to have a workforce bus to and from site to minimise vehicle numbers entering the site.

During the construction phase, minimal lighting will be required as construction is expected to operate on 12 hour day shifts. In addition to the short term nature of the construction phase, Impacts from light are not considered to be significant at this stage. During operations the facility will operate during the day, and when timelines require, 24 hours. Where night works are required, as well as during the bundle launch stage, 24 hour lighting may be required. Subsea 7 has indicated that a range of light spill impact management measures will be implemented, including the use of directional lighting. The adjacent RAAF's Learmonth airbase does emit a substantial amount of light spillage into the surroundings and it is reasonable to expect that light emitted from the fabrication facility will not significantly increase this.

The field assessment did not identify any high value receptor sites within these areas. In addition, the nature of the Linear Dunes LCU indicates a moderate to high level of visual absorption capacity to structures that are approximately under 10 m in height. At this height, structures generally blend into the landscape due to the undulating topography of the landscape and motion of the viewer. There is less capacity to absorb changes from tall structures and structures that are painted white. Overall dust and light impacts to visual amenity are considered low due to the short-term and temporary nature. Nevertheless, a number of VMMs have been proposed to further reduce the impact of the fabrication facility.

5.2.2 Bundle Track Corridor

The results of the photomontage analysis and estimations on site suggest that the bundle track corridor is unlikely to be visible from most of the Study Area. This is because:

- The moderate to high visual absorbance capacity of the Linear Dunes LCU has the potential to obscure the bundle track corridor based on the current design where the bundle tracks run in-between and parallel to the adjacent dunes;
- As evident in the view from VP05, linear infrastructure of similar width is generally not visible when a viewer is perpendicular to the infrastructure (e.g. the Minilya-Exmouth Road, which is off axis to the viewer is not visible from VP05, but a section of a cleared fence line is);
- The bundle track corridor involves very limited amounts of alterations to the surround landform, and is mostly consists of cut sections, with very low amounts of fill resulting in the bundle track corridor being lower than or minimally higher than the surrounding landscape; and
- The bundle track corridor is considered to have a similar level of impact as other comparable linear infrastructure such as the Minilya-Exmouth Road, which was found to have little impact at most surveyed sites.

5.2.3 Launchway

Sites VP03 and VP04 (Heron Point Beach and Schofield Shoal) are likely to have views of the launchway. The design of the launchway indicates that the bundle tracks will be built close to ground level and surrounded by rock protection that will be infilled with sand from the local area (Plate 30). The Gulf Coast LCU was found to have a relatively low visual absorbance capacity to built up features, likely due to the separation between the relatively low coastal dune ridge and the Canyons and Highlands LCU in the distance. This makes any building that is built higher than the ridge obvious (Plate 22). Subsea 7 has indicated that no buildings are currently proposed at the launchway facilities. All permanent structures at the launchway should be kept as low as possible, such as the launchway itself.

This level of disturbance is in line with or less than other works in the area. For example, the Learmonth Jetty is generally considered to be a positive contribution to the amenity of the area, contributing to recreational values and the character of the landscape. However, the jetty is constructed much higher than the surrounding landscape, with rock protection visible from surrounding areas. The jetty does however, fit into and blend with the landscape and it is expected that the launchway will as well.

Subsea 7 has indicated that lighting for the launchway, which will only be required during bundle launches, will be provided by mobile lighting units. Lighting design during bundle launches will include measures to reduce light spill out to sea such as shrouded and directional lighting. These lights are likely to be visible from some offshore locations which may increase the prominence of the site after dark. However, given the short duration of bundle launch operations and the existing activities such as trawling in the Gulf, it is not expected to be significant. Additionally, there is no known and common after dark use of the areas offshore of Heron Point for recreational or tourism purposes. Therefore, while significant impacts may be evident for short durations, these are unlikely to compromise the values and use of the area, resulting in an overall 'Moderate' impact rating.

In the medium to long term, impacts are not expected to be significant because:

- The activities at the launchway will only be visible for a short duration of time (estimated at 43 hours per launch, or roughly 1.47% of a year based on 3 launches a year);
- The nature of impact for the other 98.5% of the year is consistent with and generally lower than other pre-existing impacts in the area (e.g. Learmonth Jetty); and
- Access to the Heron Point beach and water is expected to be unimpeded.

Given that medium to long term visual amenity impacts of the onshore components of the Project are not expected; access to the current use of Heron Point and Bay of Rest will be maintained; and dust, light and noise will be appropriately managed - the VMOs for the onshore aspect of the Project will be met.

Plate 30. Artists Impression of the proposed launchway crossing

5.2.4 Offshore Operations

Sites VP05, VP06, VP07 and VP08 (Charles Knife Canyon, Bundegi Beach, Mildura Wreck and Vlamingh Head Lighthouse) all showed very low levels of impact from offshore operations. While the larger AHTS and support vessel may be visible, impact is expected to be minimal, because of the following reasons:

- The large distance causes the activities to blend into the ocean due to atmospheric distortions (evident in the photomontages as well as observations of offshore operations during the field assessment, in effect a high visual absorption capacity for objects at a distance);
- The nature of impact caused by the activities is equal to or less than existing impacts such as vessels already operating in the gulf, and the permanent offshore oil platforms visible from some locations); and
- The towed bundle is not appreciably visible from onshore locations, making the total time a vantage point may be practically affected significantly shorter (as opposed to a trailing 10km long bundle being in a viewshed for a longer duration).

The bundle and vessels would not practically be visible at these sites. Although support vessels are likely to be visible to the keen eye, the expected impact duration for these sites were estimated as being a maximum of 18 hours per launch as seen from Vlamingh Head Lighthouse, which had the largest viewshed (Section 4.4.8).

Vessels may also be visible at night from lighting, however this is expected to be a short term impact and generally in line with other vessels operating in the area. The route taken by the flotilla is one that is commonly used by other vessels and therefore should not cause any long term impacts to the 'wilderness' values of some areas of the Peninsula. Subsea 7 has indicated that light levels of vessels moored offshore will display the minimum light necessary for maritime safety.

Given that the offshore components of the Proposal are not expected to result in significant visual impacts and are in line with existing uses in the Gulf (freight and commercial prawn trawling) the VMOs for the offshore aspect of the Project will be met.

5.3 Impacts to Sensitive Receptors and Valued Areas

5.3.1 Heron Point and Adjacent Areas

The Project may have some short term, significant impacts on locally valued sensitive receptors and areas during bundle launches (Heron Point and Schofield Shoal; VP03 and VP04). Based on information provided by Subsea 7 (2019), these impacts at the launchway are expected to last no longer than two days per launch (~43 hours, equivalent to 129 hours or 1.47% of the year) and up to three weeks for vessels being visible in the Gulf in the lead up and following a launch. For the remaining time, it is understood that access to Heron Point and Schofield Shoal by the public will be maintained, and little to no loss in visual amenity should be expected (the launchway and fencing may be visible, but occupies a relatively small footprint; VP03 and VP04).

5.3.2 Ningaloo Coast World Heritage Area

Negligible impacts are expected to the nationally and internationally significant areas of the Exmouth Peninsula (e.g. the Ningaloo Coast World Heritage Area and Commonwealth Marine Reserve), as activities in these areas will not persist for any significant amount of time, and are similar to existing impacts in the area (large vessel operations).

As stated in Section 1.1, the bundle tow will be beneath the surface at a controlled depth for the majority of the tow route, except through the Ningaloo Marine Park and World Heritage Area (WHA) where it will be a 'Surface Tow', where the Bundle will be directly beneath the water surface, with some sections briefly breaching the surface. Subsea 7 identified, through stakeholder engagement, the public's concern regarding potential impacts to benthic communities and habitat (BCH) within the Ningaloo Marine Park and WHA. Therefore, the Surface Tow of the bundle ensures a significantly low risk of any potential impacts to BCH. The estimated time the bundle, flotilla of tugs and support vessels will take to travel through the Ningaloo WHA is approximately 4 hours (Subsea 7 2019). This equates to 12 hours per year (0.27 % visual amenity impact per year, (based on 12 hours of daylight and three Bundle launches a year).

The Ningaloo Coast was listed as a WHA because it met Criterion VII which states "*contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance*". Therefore, to determine potential impacts to amenity values, a viewshed analysis from the Vlaming Head Lighthouse was undertaken. This vantage point has uninterrupted views of the sea across the WHA, is a popular tourist destination and has the highest point on the northern end of the peninsula (and therefore has the largest zone of theoretical visibility). The viewshed analysis suggests that the following components of the project will be visible:

- A 55.7 km section of the proposed tow route (of which 25.4 km is within the WHA)

- A section of the Bundle Parking area.

The proposed Surface tow of the Bundle occurs at approximately 5-6 knots (up to a maximum of 8 knots). Therefore, the Bundle and tow/ support vessels should only be visible from Vlamingh Head Lighthouse for approximately 18 hours 21 minutes per tow (including time taken for submerged weight checks within the Bundle Parking area). The total visible time of 18 hours 21 mins is considered insignificant when considering the total daylight hours per year (approximately 0.42% impact per launch). From this location towards the north west end of the peninsula the proposed bundle tow visual presence is similar in character to existing vessel activity (though less frequent) and offshore oil platforms. It is significantly less visually intrusive than the Harold E. Holt Naval Communications Station. Given that the towheads and bundle pipeline will remain partially submerged, the large viewing distances (8km from popular tourist lookouts such as Vlaming Head Lighthouse, Mildura Wreck and Bundegi Beach), and the absorption/reflection/and refraction elements, it is unlikely that the bundle will be visibly discernible from these areas. Photomontages of the visual impact from these vantage points can be seen in Section 4.4.

Although offshore receptors within the Gulf and WHA will have more obtrusive views of the bundle tow, there will be an exclusion zone of 500 m, which remains a large viewing distance and the tow is not exclusive from other marine vessel activity in the area.

As discussed in the SIA and Social Surrounds Chapter of the PER tourism activities in the WHA are not expected to be significantly impacted by the Project (360 Environmental; Subsea 7 2019). There will be a 6-hour period which will require a 10 km detour for boaters between the North West Cape and Muiron Islands. No bundle launches will occur during the peak Humpback whale migration season (August-October) and the majority of the Whale shark tours operate on the western side of the North West Cape and away from the bundle tow operations. No key diving locations intersect, or lie close to, the bundle tow or associated exclusion zone.

Given the infrequent and temporary, short-term nature of the Bundle tow, with up to three Bundle tows a year, the minor visual amenity impact, and the ability for tourism operators to continue their businesses virtually unimpeded, the Project is not likely to impact the natural beauty or aesthetic importance of the WHA (360 Environmental 2019; Subsea 7 2019).

5.3.3 Ningaloo Marine Park and Muiron Islands Marine Management Area

The Management Plan for Ningaloo Marine Park and Muiron Islands contains a set of twelve social values which are considered major cultural, aesthetic, recreational and economic attributes of the area. Each social value has its own requirement, management objective and strategy. Two of these twelve values (Seascapes and Wilderness) are relevant to visual amenity and discussed further here. The remaining ten values are discussed in the Social Surrounds Chapter of the PER (Subsea 7 2019).

The requirements for the 'seascapes' and 'wilderness' values are:

- Seascapes: Requires generally uninterrupted coastal vistas; and
- Wilderness: Limited access to remote secluded areas of the foreshore, uninterrupted seascapes, limited numbers of visitors, low level of facilities/infrastructure.

The Project is not expected to affect any of these requirements, apart from 'uninterrupted coastal vistas'. The coastal vista may be interrupted temporarily (up to three times a year) during bundle towing, but as demonstrated for VP07 (the location at which the bundle is closest to the shore), the prominence of the interruption is minor, and less than the permanently visible offshore oil platforms in the region.

In relation to the management objectives for these values, the Plan states:

- Seascapes: To identify designated seascapes of the reserves and seek to minimise degradation of seascapes by coastal development, island structures or marine infrastructure within the reserves; and
- Wilderness: To identify designated 'wilderness' areas of the reserves and manage the water and adjacent coast so that these values are maintained.

The Project is not expected to affect the seascapes objective, as the proposal does not constitute coastal development, island structure or marine infrastructure within the reserve. As discussed for the impacts to uninterrupted coastal vistas, the Project may cause a minimal amount of impact. However, the 'wilderness' objective is not as applicable to the areas of the peninsula where impacts are evident as these areas are not generally considered to be 'wilderness' (the developed northern tip of the peninsula).

5.3.4 Cape Range National Park

The Cape Range National Park Management Plan divides the key values of the national park into five broad categories (DEC & CCWA 2010):

- Conservation – protection of an underrepresented bioregion within the conservation reserve system, unique karst ecosystems, fossil deposits, rich flora fauna and subterranean fauna, diverse habitats;
- Cultural - confirmed evidence of the earliest known occupation (Pleistocene) based on a marine economy in Australia, archaeological sites, culturally significant landscapes;
- Recreational and Tourism – nature-based recreation and tourism opportunities, contrasted scenic landscapes, terrestrial and marine environments provide viewing opportunities, remote qualities;
- Education and Research – provides evidence in various geomorphological, geological and biological features which gives insights into scientific pursuits and opportunities for visitors to interpret and acquire this knowledge; and
- Community – community involvement in the management of the park.

As demonstrated by the case study of VP05, the Project is not expected to cause any impacts to the values of the Cape Range National Park due to the large distance between the Project area and the sensitive receptors within the park.

5.3.5 Future Recreation and Tourism

As the land on which the Project is situated holds no specific recreation/tourism values, future recreational and tourism land uses may be impacted primarily from access restrictions during certain phases (most notably bundle launches).

As discussed in the Project's Social Impact Assessment (SIA) and Social Surrounds Chapter of the PER, Subsea 7's community engagement sessions revealed the regular recreational use of the Heron Point and Bay of Rest areas (360 Environmental 2019; Subsea 7 2019). Heron Point is used for camping, fishing and four-wheel driving along the beach area; the public also use the beach along the Bay of Rest to launch boats. For the majority of the year (98.8%) recreators will be able to access these areas via a launchway crossing. The launchway will be the only visible component of the Project from the Heron Point beach area and has been designed be of a very low profile along the beach to mitigate visual amenity and public access (Plate 3). The only situation in which access along the beach, with this crossing, will be impacted is during bundle launch operations. Each bundle launch will have an exclusion in place for 36 hours (a maximum of three bundles per year = 108 hours out of a total 8,760 or 1.2% of the year). On average each year, only two bundles will be launched, so this is a conservative calculated impact (Subsea 7 2019). As bundle launch operations are well planned in advance, sufficient notice will be provided. Signage will be erected in the approaches to the beach crossing to ensure that the closure is known. It is noted that the area around Heron Point and the Bay of Rest is not a gazetted camping site and is therefore not managed. However, continued access to these areas is important to recreators and a key priority for Subsea 7.

Schofield Shoal was identified as a locally valued offshore location near Heron Point (for recreational and charter fishing activities). Visual impacts from this vantage point were only considered significant for up to 1.47 % of the year when bundles are being launched, however there is minimal impact on this location for most of the year.

Given the minimal impact to access, the low-profile design of the launchway and the temporary visual impact for recreators, it is not expected that the Project will significantly impact future recreation or tourism (360 Environmental 2019, Subsea 7 2019).The Shire of Exmouth's Local Planning Strategy notes that the Heron Point area is designated as partially being 'Industrial Infrastructure' (aquaculture) and to the southeast, 'Tourism' (likely from the presence of the Bay of Rest) (Shire of Exmouth 2016). The Project is not expected to impact these uses provided that access can be maintained or disruptions minimised (e.g. alternate routes) during launch periods (360 Environmental 2019).

5.4 Impacts to Landscapes and Landforms

Based on an onshore Development Footprint of approximately 177 ha, the Land System most affected by the Project was the Cardabia System, peaking at 0.23% of the extent of that System within the Study Area (Table 17). The Cardabia System is not considered to

be 'rare' in the study area, having an extent that is in excess of 23% of the mainland within the Study Area.

From a Landscape perspective, the Project is only likely to affect the Gulf Coast, Linear Dunes and Flats LCUs. Maximum impact was noted to be 0.63% of the extent of the Gulf Coast LCU within the Study Area (Table 18). The characterisation exercise noted that the Gulf Coast LCU is likely to be the most valued Landscape directly affected by the project

Impacts to Landforms are therefore not considered significant because:

- The level of direct impact to land systems and their dominant landform types is relatively insignificant (<5%) even at the scale of the Study Area, and less so from a regional perspective.

Impacts to Landscapes are also considered insignificant because:

- The estimated level of direct impact to all LCUs, including the most valued LCUs were insignificant (<5%) at the Study Area scale; and
- The nature of the impact is consistent with or lesser than existing impacts in the Exmouth Gulf (e.g. oil and gas, industrial and other activities as illustrated in Figures 4 and 5).

5.5 Cumulative Impacts

At the time of the survey, there were a number of existing impact generators in the Study Area, primarily:

- Learmonth Airport;
- Various Radio Communications facilities;
- Solar Observation Station near Heron Point;
- Large vessels operating in the Exmouth Gulf;
- Offshore oil and gas platforms visible from some areas; and
- Commercial prawn trawling extending off Heron Point (Department of Fisheries 2018).

A review of the EPA's website and the DWER's database identified the following sources of (relevant) future potential impacts:

- Permit to clear up to 499 ha of native vegetation for gravel extraction granted to Main Roads Western Australia (CPS 7532/1; DWER 2017); and
- Application to clear up to 42 ha of native vegetation for a rebuild of a high voltage power line by Horizon Power (CPS 8067/1; DWER 2018).

We expect that the Project will not contribute significantly to cumulative impacts because of the following reasons:

- Offshore operations are transient and will only cause impacts for a very small amount of time in a year;

- The land occupied onshore by the project is approximately 10.5% of other comparable land uses within the Study Area (built up areas, defence, communications, extractive industries, industrial areas, other large private complexes, and future clearing for extractive industries and infrastructure; and
- The Project is situated within an area that contains a significant amount of interest amongst various industries (Table 5), and only represents a small portion of those interests (total of <2% of the Study Area).

5.6 Visual Mitigation Measures

As demonstrated in the assessment, the Project is unlikely to cause a significant, long term impact to Landscape and Visual Amenity Values of the Exmouth Gulf or the Peninsula. However, to further reduce localised impacts and to meet the determined VMOs, the following measures are recommended in Table 19.

Table 19. Visual Management Measures

	Project Element	Visual Management Objective	Impacts	Visual Management Measures
Onshore Operations				
1	Fabrication Facility	Activities at the Fabrication Facility should not significantly degrade the visual landscape character of the surrounding areas	The fabrication facility will be visible from some areas of the Minilya-Exmouth Rd. Viewers in this area are typically moving at high speeds. This, coupled with the fact that the linear dune LCT provides a significant amount of screening, makes views of the fabrication facility intermittent and of short duration. Impacts during construction and operation may also include some dust from vehicle moving to and within the facility. In general these impacts are considered to be consistent with the nature of existing impacts in the area (e.g. RAAF Learmonth)	Consider using excess fill or spoil to construct artificial linear dunes at strategic locations for further screening
				Consider undertaking a colour palette assessment for onshore infrastructure. Colours that blend in and complement the landscape would maintain the aesthetic of the area
				Consider a regular dust suppression strategy (using water cartage) during construction and operation phases to minimise dust generation during operations
				Consider keeping the exterior of buildings within the Pipeline Fabrication Facility clear of clutter
				Consider sealing the access road into the facility to minimise dust from vehicles. A concrete stabilised or layer of loose rock in laydown areas may also minimise the generation of dust from equipment.
2	Bundle Tracks Launchway Facilities	Activities on the bundle tracks should not significantly degrade the visual landscape character of surrounding areas	Bundle tracks were not visible from most locations (except the launchway), however fencing may be visible from some areas of the Minilya-Exmouth Rd. During launch operations, it is possible that the towhead may be visible for short periods of time as it moves along the tracks. Fencing did not appear to be prominent due to the distances between the road and	Minimise the amount of fill required for the bundle track alignment, and aim to place the track alignment between the sand dunes that run parallel to it
				Consider establishing vegetation on the batters of the bundle track corridor to further mask any impacts
				Consider a regular dust suppression strategy (using water cartage) during construction and operation phases to minimise dust generation during operations

	Project Element	Visual Management Objective	Impacts	Visual Management Measures
			the proposed fencing and the see through nature of the proposed materials. The visibility of fencing may be reduced by placing the bundle track between parallel linear dunes or constructing artificial dunes at strategic locations.	
3		Activities at the launchway should not degrade the visual landscape character and amenity values of the surrounding areas.	The launchway was only visible from the Heron Point area and from areas immediately offshore, such as Schofield Shoal. In these areas, the launchway infrastructure itself is considered to be generally in line with existing disturbance found in the area. For instance, the rock lined launchway, cut through the dune line is considered to be similar to other noted infrastructure that is considered characteristic of the area (e.g. Learmonth Jetty, which is significantly higher up than the launchway and also required a larger cut at the dune line. Operations at the launchway during bundle launches were considered to present the	Avoid any landform changes to the coastal dunes at the launchway facility
				Maintain access to the launchway area when not in use (consider establishing public access to the end of the launchway);
				Consider implementing measures to improve amenity (including visual) at the launchway facilities when not in use (e.g. fishing platform on launchway or a simple boat ramp could be developed in consultation with the community. Such a facility could reduce impacts to the Gulf Coast LCU caused from indiscriminate launching of boats and possible damage to the sea bed, by providing a stable, non-damaging ramp into deeper water)
				Shrouded or directional lighting as well as motion-sensor or timed lighting will be used and placed such that the majority of light is focused on the working areas and not out to sea
				The hydro testing pond was not visible from any viewpoint, likely due to the low elevation of the dam crest. Therefore no

Project Element		Visual Management Objective	Impacts	Visual Management Measures
			highest impact to Heron Point and areas immediately offshore.	additional management measures are proposed for the hydro test water pond.
Offshore Operations				
5	Bundle Launch	Bundle launch activities should not interfere with access to surrounding high value offshore and inshore sites.	Impacts during bundle launches are similar to those of the Launchway. Large vessels will be operating just offshore from Heron Point which will temporarily restrict access off Schofield Shoal. Based on findings of the assessment, there are a number of locally valued sites surrounding the launchway (e.g. Bay of Rest).	Tug vessels should ideally spend the minimum amount of time in close proximity to the shoreline Alternate access routes to the south side of Heron Point should be considered during periods of access restrictions.
6	Off bottom tow	The off bottom tow phase should not degrade the visual landscape character of the Exmouth Gulf	Impacts during this phase of the project was found to be low, in part due to the distance between the flotilla and receptors on the coast, as well as the lack of offshore receptors in the Exmouth Gulf	No mitigation measures proposed. This is due to the lack of offshore sensitive receptors during this part of the operation and the distance of the activities to land based receptors. There are existing activities within the Gulf that are similar to that proposed (large vessels operating).
7	Surface Tow	The surface tow phase should not degrade the visual landscape character of the Ningaloo marine park during the surface tow phase	Impacts during this phase of the project was also found to be low, in part due to the distance between the flotilla and receptors on the coast (approximately 8 km), the lack of sensitive receptors in the vicinity of the tow route and the short timeframe that vessels will be operating within the Marine Park.	The surface tow should occur during periods with the least amount of possible viewers, such as during night time hours to reduce possible impacts

Figures 22 and 23 provide a conceptual photomontage illustration of the facility during the operations phase if all the strategies listed above were implemented, seen from offshore and onshore (Schofield Shoal and the Milinya-Exmouth Road). Note that the towhead has been excluded as it will only be on site for short periods (the tow head used in this assessment is the largest used and therefore represents a higher level of impact that is relatively uncommon).

Note that further consultation and investigations may be required to deliver on some of the objectives listed above as other permits and approvals may be needed.

A number of residual impacts may be evident even if all management strategies are implemented. These may include:

- The upper sections of the fabrication shed may still be visible intermittently from Minilya-Exmouth Road;
- Larger towheads may be highly visible from Minilya-Exmouth Road in the periods preceding a bundle launch; and
- Offshore operations (e.g. tug vessels) will be prominently visible from onshore and offshore locations during bundle launches.

As noted in the assessment, these residual impacts are generally temporary or are evident intermittently.

FIGURE 22 - VMO IMPLEMENTATION SEEN FROM VP04

PRE-VMM IMPLEMENTATION

POST-VMM IMPLEMENTATION

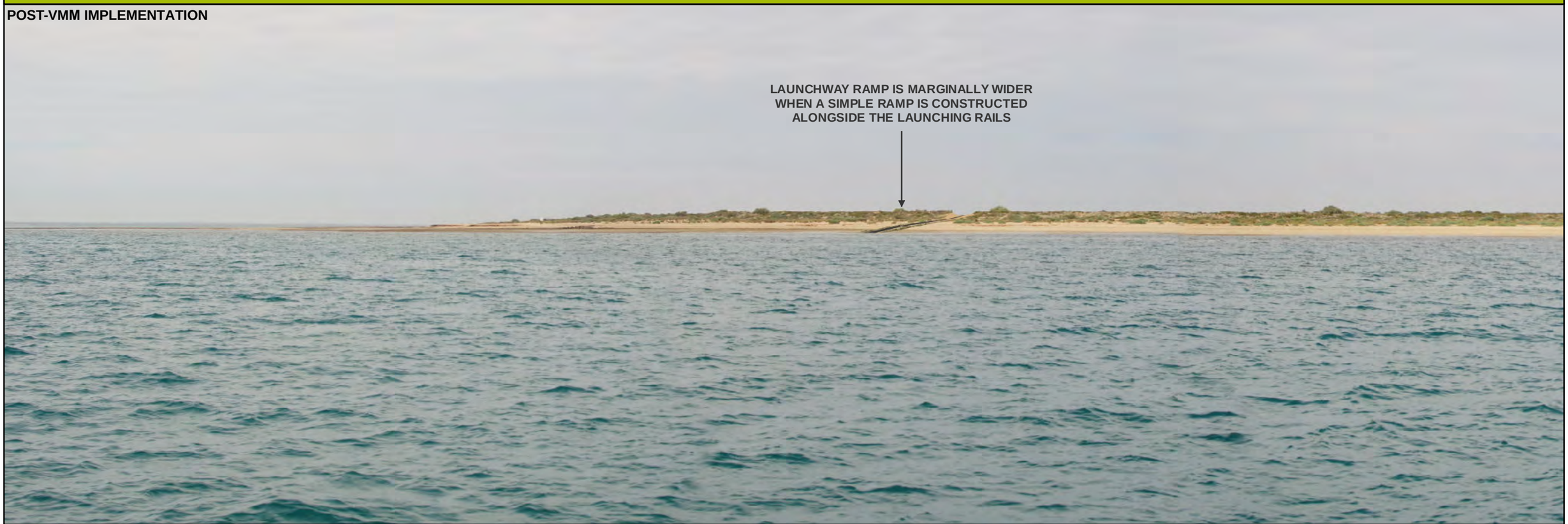

FIGURE 23 - VMO IMPLEMENTATION SEEN FROM VP01

PRE-VMM IMPLEMENTATION

POST-VMM IMPLEMENTATION

EXCESS SPOIL USED TO CONSTRUCT ARTIFICIAL LINEAR DUNES, DEPICTED HERE ONCE VEGETATION IS WELL ESTABLISHED (BUT SPARSER THAN NATURAL AREAS)

6 Conclusion

As demonstrated in the assessment, the Project is unlikely to cause a significant impact to Landscape and Visual Amenity Values of the Exmouth Gulf or the Peninsula. At a localised scale, the Project may have significant short term impacts in the immediate vicinity of Heron Point. This assessment considers these impacts are overall, moderate in severity, due to the short duration of higher-level impacts, and the predominantly low-level impact during most of the year (when bundles are not being launched). With appropriate management, it is likely that these impacts may be reduced further.

Section 5.4 details the expected views from key vantage points once suggested Visual Mitigation Measures have been implemented. As seen, the Project is likely to conform to the existing landscape character of the area, it is not likely to significantly affect visual amenity outside of its immediate vicinity and current use and access at Heron Point will generally be maintained.

From a visual amenity perspective, the Project is also unlikely to affect the values of sensitive areas within the Ningaloo Marine Reserve and Marine Park, World Heritage Area or the Cape Range National Park. This is primarily due to the distance from shore based sensitive receptors as well as the relatively short amount of time operations will be visible. Similarly, the Cape Range National Park is located a large distance from the site, which is likely to not be visible, especially in relation to surrounding land uses.

If the suggested management measures listed in Table 19 are implemented, it is likely that the Project will meet all Visual Management Objectives. Whilst the Project may have significant short-term impacts in the immediate vicinity of Heron Point during bundle launch operations, the temporary and low frequency nature of this operation should ensure Visual Management Objective #3 is maintained.

During the course of this assessment it was found that visual impacts from the Project are mostly consistent with activities already occurring within the gulf, such as commercial prawn trawling, pearling and heavy freight. Furthermore, the level of impact contributed by the Project is expected to be relatively low, due to the small timeframe that offshore operations will occur.

Stakeholder engagement will be undertaken during Project implementation with stakeholders and local communities to review the findings of the assessment and to discuss the feasibility of the measures proposed.

7 Limitations

This report is produced strictly in accordance with the scope of services set out in the contract or otherwise agreed in accordance with the contract. 360 Environmental makes no representations or warranties in relation to the nature and quality of soil and water other than the visual observation and analytical data in this report.

In the preparation of this report, 360 Environmental has relied upon documents, information, data and analyses ("client's information") provided by the client and other individuals and entities. In most cases where client's information has been relied upon, such reliance has been indicated in this report. Unless expressly set out in this report, 360 Environmental has not verified that the client's information is accurate, exhaustive or current and the validity and accuracy of any aspect of the report including, or based upon, any part of the client's information is contingent upon the accuracy, exhaustiveness and currency of the client's information. 360 Environmental shall not be liable to the client or any other person in connection with any invalid or inaccurate aspect of this report where that invalidity or inaccuracy arose because the client's information was not accurate, exhaustive and current or arose because of any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to 360 Environmental.

Aspects of this report, including the opinions, conclusions and recommendations it contains, are based on the results of the investigation, sampling and testing set out in the contract and otherwise in accordance with normal practices and standards. The investigation, sampling and testing are designed to produce results that represent a reasonable interpretation of the general conditions of the site that is the subject of this report. However, due to the characteristics of the site, including natural variations in site conditions, the results of the investigation, sampling and testing may not accurately represent the actual state of the whole site at all points.

It is important to recognise that site conditions, including the extent and concentration of contaminants, can change with time. This is particularly relevant if this report, including the data, opinions, conclusions and recommendations it contains, are to be used a considerable time after it was prepared. In these circumstances, further investigation of the site may be necessary.

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APPENDIX A

Other Surveyed Sites

Site 1 – Main Road 1

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.39014	Longitude: 114.05010
Significance	Main Road into Exmouth, Parking Bay	
Inclusion in Further Analysis	No, beyond practical visual range of Project	

Site 2 – Main Road 2

CRITERIA	CHARACTERISTICS	
Location	Latitude: 22.38188	Longitude: 114.06168
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	No, other sites are likely to show higher levels of impact	

Site 3 – Exmouth Gulf Station Access Road

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.37369	Longitude: 114.08596
Significance	Private access road into station's homestead	
Inclusion in Further Analysis	No. Private road with little usage. Impact likely to be similar to other sites on the Main Road.	

Site 4 – Main Road 3

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.36339	Longitude: 114.06827
Significance	Main Road into Exmouth; Parking Bay	
Inclusion in Further Analysis	No. Impacts likely to be more evident from Sites 7 and 8.	

Site 5 – Main Road 4

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.35294	Longitude: 114.07024
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	No. Impacts likely to be more evident from Sites 7 and 8.	

Site 6 – Main Road 5

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.34432	Longitude: 114.07246
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	No. Impacts likely to be more evident from Sites 7 and 8.	

Site 7 – Main Road 6

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.34116	Longitude: 114.07276
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	Yes. Vantage point with the most direct views of the Fabrication Facility from the south.	

Site 8 – Main Road 7

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.32984	Longitude: 114.07162
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	Yes. Vantage point with the most direct views of the Fabrication Facility from the north.	

Site 9 – Main Road 8

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.32026	Longitude: 114.07384
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	No. Impact from this location likely to be minimal to negligible due to the screening effect of the linear dune visible here.	

Site 10 – Main Road 9

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.27703	Longitude: 114.09251
Significance	Main Road into Exmouth	
Inclusion in Further Analysis	No. Impact from this location likely to be minimal to negligible due to the screening effect of the linear dune visible here.	

Site 11 – Heron Point Access 1

Criteria	Characteristics	
Location	Latitude: -22.25936	Longitude: 114.12865
Significance	Access to recreation area (fishing, camping, boating); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Impacts likely to be more evident at Site 15.	

Site 12 – Heron Point Access 2

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.25984	Longitude: 114.12949
Significance	Access to recreation area (fishing, camping, boating); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Impacts likely to be more evident at Site 15.	

Site 13 – Heron Point Beach 1

Criteria	Characteristics	
Location	Latitude:	Longitude:
Significance	Recreation (fishing, camping); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Impacts likely to be more evident at Site 15.	

Site 14 – Heron Point Beach 2

Criteria	Characteristics	
Location	Latitude: -22.25028	Longitude: 114.12103
Significance	Recreation (fishing, camping); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Impacts likely to be more evident at Site 15.	

Site 15 – Heron Point Beach 3

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.25938	Longitude: 114.13100
Significance	Recreation (fishing, camping); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	Yes. Direct views to launchway facility.	

Site 16 – Heron Point Beach 4

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.26127	Longitude: 114.13267
Significance	Recreation (fishing, camping); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Looking north towards launchway. Impacts likely to be similar to Site 15. Site 15 is more accessible due to proximity to beach access tracks.	

Site 17 – Heron Point Beach 5

Criteria	Characteristics	
Location	Latitude: -22.26624	Longitude: 114.13272
Significance	Recreation (fishing, camping); Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Site is around the corner of Heron Point, no direct views of the onshore operations area. Impacts likely to be more evident at Site 15.	

Site 18 – Schofield Shoal 1

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.25188	Longitude: 114.13688
Significance	Recreation (fishing, boating). Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	No. Impacts likely to be more evident at Site 19.	

Site 19 – Schofield Shoal 2

Criteria	Characteristics	
Location	Latitude: -22.25638	Longitude: 114.13385
Significance	Recreation (fishing, boating). Generally only known to locals, not signposted or mapped as a regionally significant location.	
Inclusion in Further Analysis	Yes. Closest offshore location to the launchway, restricted by low tide.	

Site 20 – Bay of Rest

Criteria	Characteristics	
Location	Latitude: -22.31604	Longitude: 114.13337
Significance	Recreation (fishing, boating)	
Inclusion in Further Analysis	No. Impacts unlikely to be evident (high level of screening by mangals)	

Site 21 – Mangrove Creek

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.23662	Longitude: 114.10968
Significance	Recreation (camping, fishing, boating)	
Inclusion in Further Analysis	No. Impacts unlikely to be evident (high level of screening by mangals)	

Site 22 – Potshot Memorial

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.20284	Longitude: 114.08940
Significance	Historical; lookout. Easy access from main road	
Inclusion in Further Analysis	No. Onshore operations not visible. Offshore operations may be visible and are at similar distance to Site 33.	

Site 23 – Charles Knife Canyon 1

CRITERIA	CHARACTERISTICS	
Location	Latitude:	Longitude:
Significance	Recreation, Conservation; lookout	
Inclusion in Further Analysis	Yes. Impacts from this area likely to be most evident from this location.	

Site 24 – Charles Knife Canyon 2

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.10863	Longitude: 114.02847
Significance	Recreation, Conservation	
Inclusion in Further Analysis	No. Impacts are likely to be more evident at nearby Site 23.	

Site 25 – Charles Knife Canyon 3

Criteria	Characteristics	
Location	Latitude: -22.10919	Longitude: 114.01697
Significance	Recreation, Conservation; lookout	
Inclusion in Further Analysis	No. Impacts are likely to be more evident at nearby Site 23.	

Site 26 – Thomas Carter Lookout

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.09074	Longitude: 114.01034
Significance	Recreation; lookout and walk trail	
Inclusion in Further Analysis	No. Some views of ocean evident, no views of onshore operations.	

Site 27 – WAPET Oil Well No. 3

CRITERIA	CHARACTERISTICS	
Location	Latitude: -22.09643	Longitude: 113.99610
Significance	Historical	
Inclusion in Further Analysis	No. Site is recessed in a lower area of the Highlands LCU, no views of Project area was evident.	

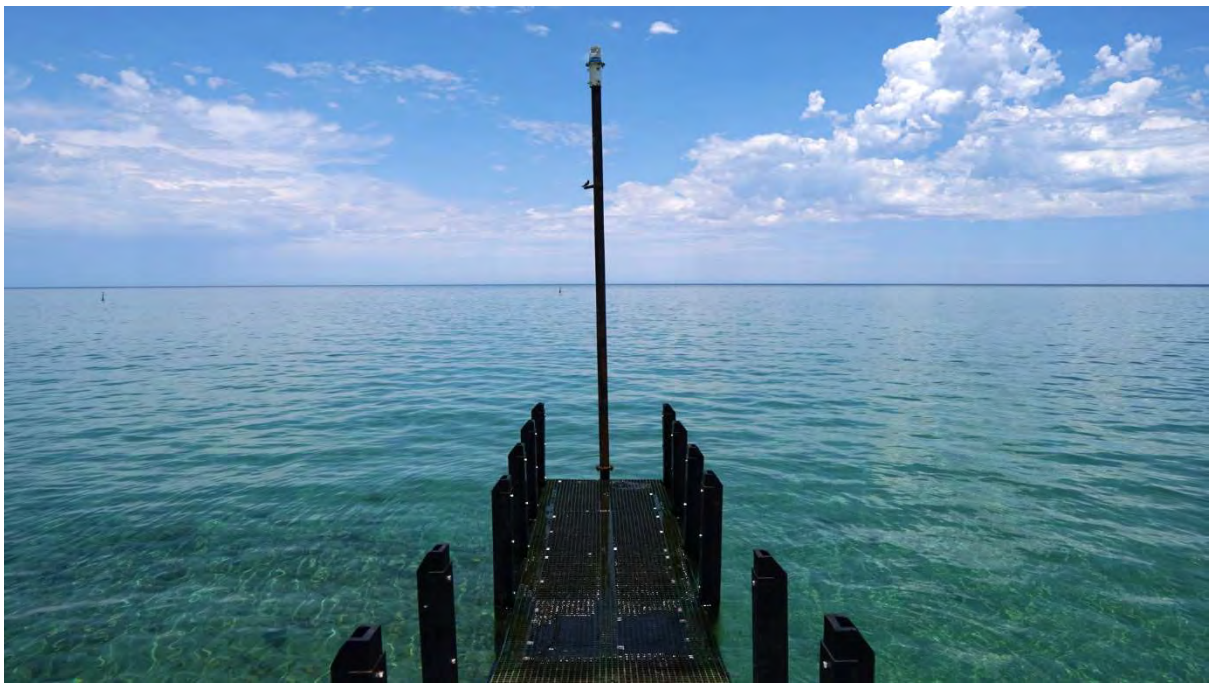
Site 29 – Exmouth Townsite

CRITERIA	CHARACTERISTICS	
Location	Latitude: -21.94794	Longitude: 114.13352
Significance	Local residential area	
Inclusion in Further Analysis	No, no appreciable views of Project.	

Site 30 – Bundegi Sanctuary Zone

CRITERIA	CHARACTERISTICS	
Location	Latitude: -21.87123	Longitude: 114.14849
Significance	Recreation and conservation	
Inclusion in Further Analysis	No. Usage relatively low and Impacts similar to Site 31.	

Site 31 – Bundegi Beach Jetty



CRITERIA	CHARACTERISTICS	
Location	Latitude: -21.83124	Longitude: 114.17394
Significance	Recreation and leisure (swim beach and boat ramp)	
Inclusion in Further Analysis	Yes. Closest vantage point in this location to operations; requested by the EPA.	

Site 32 – Bundegi Beach Cafe

CRITERIA	CHARACTERISTICS	
Location	Latitude: -21.82607	Longitude: 114.17688
Significance	Recreation and leisure (café)	
Inclusion in Further Analysis	No. Site 31 is closer to offshore operations.	

Site 33 – Mildura Wreck

Criteria	Characteristics	
Location	Latitude: -21.78586	Longitude: 114.16516
Significance	Recreation (diving/snorkelling); historical significance	
Inclusion in Further Analysis	Yes. Views out to the wreck are also in the line of sight of offshore operations. Closest land based point within the Ningaloo Coast Marine Park to offshore operations.	

Site 34 – Vlamingh Head Lighthouse

CRITERIA	CHARACTERISTICS	
Location	Latitude: -21.80766	Longitude: 114.11140
Significance	Well signposted tourist destination, panoramic views of surroundings; some historical significance	
Inclusion in Further Analysis	Yes. This site has the largest viewshed, and from its elevated position, views of the project are likely to be the most evident.	

Site 35 – Jurabi Turtle Beach

Criteria	Characteristics	
Location	Latitude: -21.80579	Longitude: 114.10140
Significance	Well signposted tourist destination; some conservation uses.	
Inclusion in Further Analysis	No, impacts from this side of the peninsula better encapsulated from Site 34.	

360 environmental

10 Bermondsey Street West Leederville WA 6007 **t** (+618) 9388 8360 **f** (+618) 9381 2360
PO BOX 14, West Perth WA 6872
w 360environmental.com.au **e** admin@360environmental.com.au

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