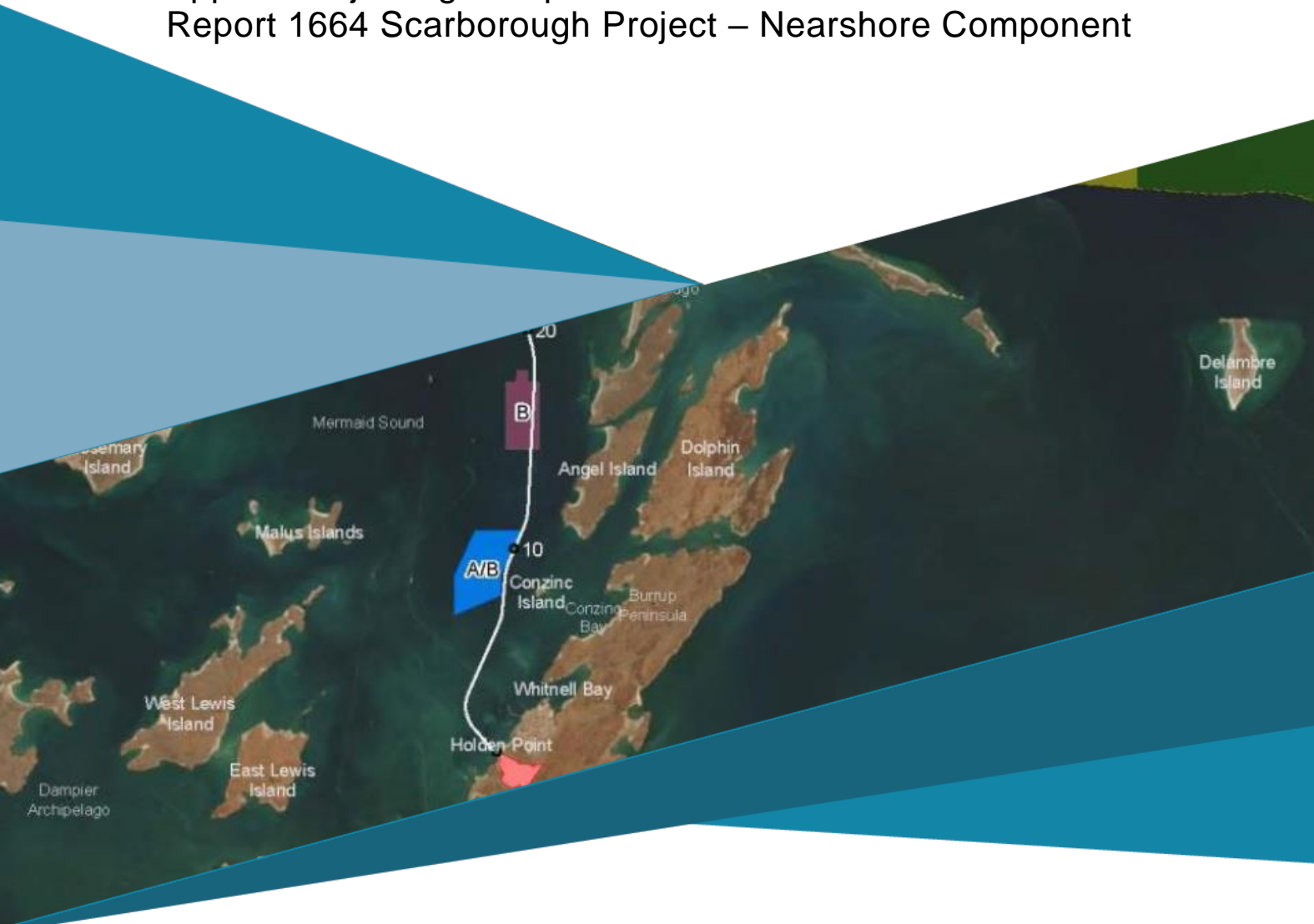




Government of **Western Australia**
Office of the **Appeals Convenor**
Environmental Protection Act 1986

Appeals Convenor's Report to the Minister for Environment

Appeals objecting to report and recommendations of the EPA
Report 1664 Scarborough Project – Nearshore Component



Appellants	Conservation Council of Western Australia (Inc) Deep History of the Sea Country Project Team
Proponent	Woodside Energy Limited
Authority	Environmental Protection Authority (EPA)
Appeal No.	002 of 2020
Date	June 2021

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Acknowledgement of Country

The Office of the Appeals Convenor acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community.

We pay our respects to all members of the Aboriginal communities and their cultures, and to Elders both past and present.

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1 Executive summary

1.1 Matter under appeal

Woodside Energy Limited (Woodside) proposes to construct, operate and decommission a pipeline from the State waters boundary to the Pluto liquefied natural gas (LNG) plant at Dampier. The location of the proposal is shown in Figure 1.

Figure 1 – Elements of the proposal within State waters



The Environmental Protection Authority (EPA) assessed the proposal and released its report and recommendations on 6 January 2020 (Report 1664).

1.2 Grounds of appeal and appellants concerns

Appeals against Report 1664 were received from the Conservation Council of Western Australia (CCWA) and the Deep History of the Sea Country Project Team (DHSC). The latter is a grouping of researchers from three Australian universities, with the lead from Flinders University in South Australia.

Table 1 Grounds of appeal

Ground	Main concerns in appeals
Ground 1 – Definition of proposal	CCWA submitted that the EPA failed to properly define the proposal, and specifically whether it included the ‘operation’ of the pipeline
Ground 2 – Air emissions	CCWA submitted that the EPA failed to properly assess air emissions associated with the extraction of gas from the Scarborough gas field and the processing of that gas at LNG plants onshore.
Ground 3 – Marine fauna	CCWA submitted that the conditions recommended by the EPA focus on coral and are insufficient to protect marine fauna
Ground 4 – Adequacy of public consultation	CCWA submitted that the high level of public interest in the proposal warranted more public assessment
Ground 5 – Submerged cultural heritage	DHSC submitted that there was inadequate assessment of submerged archaeological values at a raises barrier system at the entry to Mermaid Sound

1.3 Key issues and conclusions

Does the proposal include the operation of the pipeline?

The proposal includes the operation of the pipeline.

The EPA described the proposal the subject of the assessment in Report 1664, including the ‘operational’ elements specified in Table 2 of the Report.

The assessment did not consider emissions associated with the extraction of gas or the processing of gas before or after that gas is in the pipeline as these were not within the scope of the proposal as referred.

It is recommended this ground of appeal be dismissed.

Did the EPA appropriately assess emissions to air?

The EPA limited its assessment to emissions to air from the construction and operation of the pipeline as described in Table 2 of Report 1664. Emissions at the source of extraction or when the gas is processed onshore are not related to the proposal the subject of this assessment.

While outside the scope of the proposal, the EPA noted that emissions to air in Commonwealth waters are managed by the Commonwealth Government, and emissions to air from onshore processing are the subject of controls under Ministerial Statements and licence conditions applying to those facilities.

It is recommended this ground of appeal be dismissed.

Are the conditions adequate to protect marine fauna?

While the EPA's assessment in respect to marine fauna was appropriate, a peer review commissioned by the EPA recommended some refinements to the Dredging and Spoil Disposal Management Plan (DSDMP) to ensure monitoring and management elements of the Plan address the technical issues raised by CCWA.

Changes are also recommended to condition 6 to provide greater clarity in avoiding and minimising impacts to marine fauna from impacts if the proposal is approved.

It is recommended that this ground of appeal be allowed to the extent that condition 6 is modified to achieve the intent set out in Appendix 2.

Does the level of public interest in the proposal warrant further assessment?

The EPA's assessment was appropriate for the level of public interest.

The EPA assessed the proposal on referral information provided by Woodside without a formal public environmental review. While there were a number of public submissions, these primarily related to air emissions from the processing of gas onshore. For the reasons set out above, the EPA was justified in considering these emissions were unrelated to the proposal the subject of the assessment.

This ground of appeal should be dismissed.

Is further assessment of submerged cultural heritage required?

In relation to impacts from borrow activities in the vicinity of Madeline Shoals, as these are in Commonwealth waters they are outside the scope of the EPA's assessment.

In relation to impacts to a submerged three kilometre wide relict of palaeobeach formation at the entry to Mermaid Sound, additional work commissioned by Woodside found that the features were unlikely to contain embedded archaeological material as the age of the substrate preceded human occupation of the Australian continent.

Based on this information, it is unlikely that the values identified in the appeal will be present at the indicated location. In any event, Woodside has committed through its draft Cultural Heritage Management Plan (CHMP) to avoid dredging on harder calcareous rock and compact sediments with the potential to preserve archaeological materials. Both that Plan and the DSDMP are required to be finalised in consultation with Murujuga Aboriginal Corporation. This, together with obligations on Woodside to adhere to other statutory requirements relating to Aboriginal heritage, provides assurance that cultural heritage values will remain under active focus if the proposal is approved for implementation.

We conclude that further assessment is not warranted and recommend that this ground of appeal is dismissed.

1.4 Recommendation to the Minister

Allow the appeals to the extent that condition 6 in Report 1664 is amended as set out in Appendix 2.

The appeals are otherwise recommended to be dismissed.

2 Does the proposal include the operation of the pipeline?

The proposal includes the operation of the pipeline.

The EPA described the proposal the subject of the assessment in Report 1664, which included the 'operational' elements specified in Table 2 of the Report.

The assessment did not consider emissions associated with the extraction of gas or the processing of gas before or after that gas is in the pipeline as these were not within the scope of the proposal as referred.

It is recommended this ground of appeal be dismissed. Our consideration of the appellants concerns and our reasons for reaching this recommendation are outlined below.

2.1 Appellant's concerns

By this ground of appeal, the CCWA submitted that there is ambiguity in the way the EPA defined the proposal, and specifically, whether it includes the operation of the pipeline.

The CCWA noted the description of the proposal in Report 1664 as the:

[I]nallation of a 32.7 km long section trunkline running from the State water boundary to Kilometre Point 0 (KP0), which is located approximately 1.5 metres (m) above the Highest Astronomical Tide (HAT) adjacent to the Pluto Liquefied Natural Gas (LNG) facility, together with associated construction activities.¹

The appellant submitted that this 'narrow' description is followed by an acknowledgement that the proposal is a component of a 434 km long pipeline for the Scarborough Gas Field Project which includes 'commissioning and operation' activities and is expected to 'be operational for around 25 years'.²

CCWA submitted that it is unclear whether the proposal is restricted to the construction and installation activities or extends to operating the pipeline to provide gas for onshore processing and export.

It further submitted that:

... while "pre-commissioning" is included as an operational element of the Proposal, transportation of gas and eventual de-commissioning of the infrastructure and rehabilitation of the environment is not included in the Report. This is in our client's view a significant distinction. Part IV authorisation conditions would continue to operate until the completion of the Proposal, making it essential that its scope (both in terms of activities and duration) is precisely identified and defined. Without a clear indication of scope there is uncertainty as to, for example, how long the Proponent is required to submit annual compliance reports ...³

CCWA requested that Table 1 of Report 1664 be modified to include operations.

¹ EPA, Scarborough Project – Nearshore Component, Report 1664, January 2020, page 2.

² CCWA, Appeal submissions, 20 January 2020, page 2.

³ Ibid, page 3.

2.2 Assessment documentation

The description of the proposal in the referral document

Paragraph 1.1.2 of the referral document defines the environmental assessment to relate to include 'all components of the Proposal within State waters and the onshore crossing as described in Table 1-1 ...'⁴

Table 1-1 of the referral document includes a 'project phase' of 'Operations', with the 'activities' in that phase being described as 'The operation of the trunkline in State waters up to point KP0.'⁵

The 'key proposal characteristics' are described in Section 2.3.1 of the referral document. This includes a 'short description' of the proposal as:

Woodside is proposing to develop the Scarborough gas field, with a target of achieving first gas production between 2023 and 2025. The Scarborough Project concept comprises subsea wells, a semi-submersible gas processing and compression floating production unit in offshore Commonwealth waters and export trunkline 434 kilometres long running to the Pluto LNG Facility on the Burrup Peninsula.

The nearshore component subject of this referral includes the installation of the section of the trunkline running from the State waters boundary up to KP0 (approximately 1.5m above HAT) (~32.7 kilometres long) and associated activities.⁶

Table 2-3 of the referral document sets out the 'location and proposed extent of physical and operational elements' of the proposal. In respect to operational elements, these are described as comprising three things:

- Dredging and disposal of material during the trenching
- Rock/sediment placement
- Pre-commissioning testing of trunkline

Section 2.3.4 of the referral document provides additional guidance on 'Commissioning and operation' of the proposal:

The trunkline will transport dehydrated export quality gas and will be operational for around 25 years. The gas would contain low concentration of CO₂, no H₂S or contaminants. The operating temperature would be close to ambient temperatures under high pressure. The gas would be processed upstream. Trunkline inspection and maintenance activities will be required throughout the life of the trunkline to ensure the structural integrity of the trunkline is retained for the life of the project.⁷

Section 2.3.5 relates to decommissioning and 2.3.6 sets out the 'schedule' which states (among other things) that 'once commissioned, the trunkline is expected to operate for around 25 years' and 'commissioning and operation' has an estimated start date of 'Mid 2023'.⁸

Table 4-4 of the referral document sets out the 'preliminary environmental impact assessment for benthic communities and habitat'. In this table, 'potential impacts during operation' are described as planned impacts (the physical presence of the trunkline on

⁴ Woodside, Scarborough Project Nearshore Component Referral Supplementary Report, December 2018.

⁵ Ibid.

⁶ Ibid, Table 2-2.

⁷ Ibid.

⁸ Ibid, Table 2-6.

seabed) and unplanned (hydrocarbon leak from the trunkline).⁹ The potential for hydrocarbon spills during ‘operation’ is further referenced in Table 4-8 of the referral document as including ‘gas leak/rupture from the trunkline’.

Multiple other references to ‘operation’ of the pipeline after construction is complete are included in the referral document.¹⁰

The description of the proposal in Report 1664

Section 2.1 of Report 1664 sets out the ‘proposal summary’. This includes:

- pre-commissioning testing
- commissioning and operation
- decommissioning.

Tables 1 and 2 of Report 1664 set out the description of the proposal and are in identical terms to Tables 1-1 and 2-3 of Woodside’s referral document.

2.3 Advice and submissions received

EPA advice

The EPA advised ‘it is clear from the EPA Report as a whole that [it] understood that the proposal involved both the construction and operation of the proposed pipeline.’¹¹ More specifically, the EPA advised:

... raw gas extracted as part of the Scarborough Gas Field project will be processed at the Pluto LNG and Karratha Gas Plants. The Proposal will transport the extracted gas from the Scarborough Gas Field through State waters to the Pluto LNG Plant.

However, the Proposal is one to construct and operate part of a gas trunkline that is within State waters. It is not a proposal to develop a gas field or to process gas into LNG.¹²

Appellant’s reply to EPA advice

CCWA reiterated its view that the proposal description should be modified to include specific reference to the operation of the pipeline. Much of the response related to the consideration of air emissions, which are considered under the next ground of appeal.

Proponent advice

Woodside responded in similar terms to the EPA, confirming that the proposal includes the operation of the pipeline, and is not limited to construction and installation. Woodside acknowledged, however, that the description of the proposal in the recommended conditions does not expressly state that operations are included as part of the proposal. To address this, Woodside recommended that:

... for the sake of clarity, the descriptions of the Proposal appearing on page 48 of the EPA Report and in Table 1 of Schedule 1 should be amended to state:

⁹ Woodside, Scarborough Project Nearshore Component Referral Supplementary Report, December 2018.

¹⁰ Ibid, for example, Tables 4-8, 4-13, 4-18 and 5-8.

¹¹ EPA, Response to Appeal 002/20.001, 12 March 2020, page 4.

¹² Ibid.

'The nearshore component subject of this referral includes the installation and operation of the section of the trunkline running from the State waters boundary up to KP0 (approximately 1.5 m above HAT) (~32.7 kilometres long) and associated activities' (amendment underlined).¹³

2.4 Discussion

The proposal includes 'operation' of the pipeline

In Section 2.1 of Report 1664, the EPA described the proposal as including eight separate 'activities', including:

- pre-commissioning testing
- commissioning and operation
- decommissioning.

As outlined in Section 2.1 of this report, 'Commissioning and operation' is more particularly described in Section 2.3 of the Referral Supplementary Report prepared by Woodside as:

The trunkline will transport dehydrated export quality gas and will be operational for around 25 years. The gas would contain low concentration of CO₂, no H₂S or contaminants. The operating temperature would be close to ambient temperatures under high pressure. The gas would be processed upstream. Trunkline inspection and maintenance activities will be required throughout the life of the trunkline to ensure the structural integrity of the trunkline is retained for the life of the project.¹⁴

This description establishes that the 'operational' activities will include inspection and maintenance activities over the life of the pipeline to ensure structural integrity is retained.

Proposal description includes 'associated activities'

Table 1 of Schedule 1 in Report 1664 sets out an inclusive description of the proposal, being the:

... installation of the section of the trunkline running from the State waters boundary up to KP0 (approximately 1.5 m above HAT) (~32.7 kilometres long) **and associated activities**. (emphasis added)

While this definition does not expressly refer to activities such as commissioning, operation and decommissioning, they are taken to form part of the 'associated activities'.

2.5 Conclusion

Taking the above into account, it is concluded that the proposal includes the operation of the pipeline and no changes are required to the draft implementation conditions.

¹³ Woodside, Response to Appeal 002/20, 18 February 2020, page 5.

¹⁴ Woodside, Scarborough Project Nearshore Component Referral Supplementary Report, December 2018, para 2.3.4.

3 Did the EPA appropriately assess emissions to air?

The EPA limited its assessment to emissions to air from the construction and operation of the pipeline as described in Table 2 of Report 1664. Emissions at the source of extraction or when the gas is processed onshore are not related to the proposal the subject of this assessment.

While outside the scope of the proposal, the EPA noted that emissions to air in Commonwealth waters are managed by the Commonwealth Government, and emissions to air from onshore processing are the subject of controls under Ministerial Statements and licence conditions applying to those facilities.

It is recommended this ground of appeal be dismissed. Our consideration of the appellants concerns and our reasons for reaching this recommendation are outlined below.

3.1 Appellant's concerns

CCWA submitted that the pipeline should not be viewed in isolation as it forms part of a larger proposal that will facilitate significant new air emissions:

... [T]he clearly identifiable purpose of the Proposal, as a means of increasing LNG development in the area, should have been considered by the EPA. This includes the role of the Proposal in facilitating the expansion of the North West Shelf Project, Browse and Scarborough gas fields, and the associated impacts of this expansion on the WA environment with particular regard to greenhouse gas emissions and climate change.¹⁵

CCWA stated that without the pipeline, additional greenhouse gas emissions would not occur:

... "but for" the Proposal, gas from the Scarborough field would not be processed as currently proposed and therefore greenhouse gas emissions associated with those activities (and increased climate change impacts on the WA environment) would not occur.

...

While ... the Proposal as currently described ... does not involve substantial direct emissions, it is evident to any reasonable person that the implementation of the Proposal will result in the gas extracted at one end of the pipeline being processed at the other end of the pipeline (and used both domestically and internationally), thereby resulting in emissions that would not occur without the pipeline transferring that gas.¹⁶

CCWA further submitted that it is not an answer to this contention that the gas will be extracted and processed under separate approvals (e.g. the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval for offshore development of the Scarborough gas field):

The State-based activity of transferring gas from offshore wells to onshore processing facilities is directly (and for a pipeline, literally) connected to those activities. A true Part IV assessment of the Proposal should ... take into account the environmental impacts of processing gas from the Scarborough field as contemplated in the Proposal.¹⁷

¹⁵ CCWA, Appeal submissions, 20 January 2020, page 8.

¹⁶ Ibid, pages 5 and 7.

¹⁷ Ibid, page 4.

In support of the above, CCWA referenced case law in other jurisdictions to the effect that every activity within the scope of, or reasonably connected to, the proposal should be included in the assessment. For example, CCWA noted:

... that the “impacts” of the Proposal are not constrained to the direct consequences of the activity. The “Burrup Hub” project is relevant to the EPA’s assessment of the impacts of the Proposal, which should include ‘each consequence which can reasonably be imputed as within the contemplation of the proponent of the action, whether the consequences are within the control of the proponent or not’: *Minister for Environment and Heritage v Queensland Conservation Council* [2004] FCAFC 190 at [57]. In this case, the consequences of increased emissions from processing additional gas as part of the “Burrup Hub” project is within the control of the Proponent, and indeed is its stated intention for this Proposal.¹⁸

3.2 Assessment documentation

Air emissions in the referral document

The referral document states that while temporary and localised impacts to air quality during dredging and installation of the trunkline may occur, these are not of a scale to warrant ‘air quality’ being identified as a key environmental factor.¹⁹ The referral document does not refer to emissions associated with onshore processing of gas conveyed through the pipeline.

In a response to a public submission, Woodside advised:

Direct greenhouse emissions associated with the Scarborough development are considered in the Scarborough Offshore Project Proposal, which is currently under assessment by NOPSEMA. Raw product from the Scarborough Project is proposed to be processed at the onshore Pluto LNG facility. Existing environmental approvals for the Pluto LNG facility already include processing emissions for a second train and scope 3 emissions associated with sold product. Pluto is required to have in place management plans including a Greenhouse Gas Abatement Program developed to address the requirements of Ministerial Statement 757, which ensures ongoing regulatory oversight.²⁰

Air emissions in Report 1664

Report 1664 sets out the basis for the EPA’s conclusion that ‘air quality’ (which at the time included greenhouse gas emissions) was not a ‘key environmental factor’ for the proposal. This included the EPA’s view that:

- greenhouse gas emissions are expected to be minimal as this is a short-term trunkline construction project
- the processing of gas is approved under Ministerial Statement 757 for Pluto and is being considered for the North West Shelf Project Extension proposal (Karratha Gas Plant)
- sensitive receivers such as residential areas are located away from any construction activities that may lead to substantial air quality impacts.²¹

¹⁸ CCWA, Appeal submissions, 20 January 2020, page 7.

¹⁹ Woodside, Scarborough Project Nearshore Component Referral Supplementary Report, December 2018, Table 4-1.

²⁰ Woodside, Scarborough Project Nearshore Component – Summarised table of public submissions, 10 December 2019, public submission 5.

²¹ EPA, Scarborough Project – Nearshore Component, Report 1664, January 2020, pages 45-46.

3.3 Advice and submissions received

EPA advice

In response to this ground of appeal, the EPA advised:

The extraction and processing of gas from the Scarborough gas field do not form part of this Proposal. These activities are either outside the territorial limits of the State or covered by other proposals that are the subject of a Ministerial Statement or are under assessment.

... The EPA did not improperly limit its assessment to only activities proposed to be undertaken within WA territorial limits. The Proposal the subject of the referral relates to activities within State waters ... The EPA agrees that it is required to assess the impacts of the Proposal on the WA environment and that is precisely the assessment that it conducted.

... The EPA notes that it expects that greenhouse gas emissions arising from the development of the Scarborough gas fields will be assessed under relevant Commonwealth Acts.²²

While the EPA acknowledged that the proposal forms part of the broader 'Burrup Hub' project, it noted that elements of that project have been assessed and approved under the *Environmental Protection Act 1986* (EP Act):

For example, the Karratha Gas Plant has been operating since 1984 and has undergone a number of expansions and additional facilities have been installed since it was first commissioned. LNG processing facilities and associated infrastructure have been developed at the Burrup over a period of time. In the present circumstances, the EPA has assessed the Proposal as referred by the proponent.²³

In short, the EPA stated that it considered the greenhouse emissions that would be emitted from implementing the proposal, but these were limited primarily to the construction phase.²⁴

Appellant's reply to EPA advice

CCWA submitted that:

... the EPA is required to independently discharge its fact-finding responsibility to determine with precision the content of the proposal that has been referred. There is no basis in the EP Act that this must be limited to the proponent's description of and initial information on a proposal. The EPA is explicitly given further powers to enable it to determine the subject matter and impacts of a proposal after it has been referred. In order to conduct environmental impact assessment it is essential that the EPA understands the precise scope and content of the proposal, as is made clear by these provisions and existing case law.

... [A]llowing proponents to dictate the scope of environmental impact assessment by carving out particular elements of a project for individual and smaller-scale assessment is not acceptable. Such fragmentation of proposals in environmental impact assessment has been held to be misleading and deceptive.²⁵

In relation to emissions from the extraction of gas in Commonwealth waters, CCWA stated that it was 'deeply concerned that the EPA appears not to have understood the nature of the Commonwealth assessment processes':

... To reiterate, none of the existing EPBC Act assessments deal with emissions from processing or consumption of gas from the Scarborough field. Only extraction emissions are

²² EPA, Response to Appeal 002/20.002, 12 March 2020, page 5.

²³ Ibid.

²⁴ Ibid.

²⁵ CCWA, Submissions in Response to section 106 Report, 26 March 2020, page 3.

addressed in the currently available draft Offshore Project Proposal under assessment by NOPSEMA for EPBC Act purposes.

... In any event, Commonwealth assessments deal with matters of national environmental significance. The EPA has a separate statutory responsibility to assess the impact on the WA environment. While Commonwealth processes may result in particular controls and outcomes that the EPA could consider in relation to its assessment of the Proposal, this does not obviate the EPA's own task. Our client remains concerned that this responsibility appears not to have been fully discharged in relation to the impacts of the Proposal.²⁶

As to the territorial limits issue, CCWA reiterated its view that the EP Act has extraterritorial application where there is a sufficient nexus (i.e. a proposal which is likely to have a significant impact on the Western Australian environment):

... [T]he Proposal is the State-based component of the development of the Scarborough gas field ... [and] [o]ur client reiterates that there is no such "project" as the construction and operation of a section of pipeline within State waters, independent of the development of the Scarborough gas field.²⁷

Proponent advice

For its part, Woodside advised that the proposal does not include any extraction of gas or any production or processing of LNG, and that these activities are the subject of separate approvals processes. It submitted:

The relevant assessment required under the EP Act is that the EPA must consider the environmental factors raised by a proposal and whether the proposal is 'likely, if implemented, to have a significant effect on the environment'.

... Here, the proposal states in appropriate detail all of the marine areas involved, the proposed use, the actions anticipated and the key environmental factors identified ... That is an appropriate application and sets out the likely effect on the environment, if the Proposal is implemented.

... There was no evidence before the EPA which could lead to a conclusion that the implementation of the Proposal would have the effect of allowing further greenhouse gas emissions from either the offshore component of the Scarborough Project ... or Pluto LNG as approved under MS 757. Such information is fundamentally connected to the operation of those projects and not to the construction and operation of the Nearshore Trunkline.²⁸

In relation to case law from other jurisdictions, Woodside submitted that none of the tests established in those cases are consistent with a proper interpretation of the role of the EPA under the EP Act or as set out in any of the EPA's policies.²⁹

3.4 Discussion

Proposal will convey gas from Scarborough gas field to Pluto LNG plant

It is common ground that the proposal will convey gas extracted from the Scarborough gas field in Commonwealth waters to a connection point with the Pluto LNG plant. Woodside has stated that gas from the Scarborough gas field will be processed by an:

... expansion of Pluto LNG through the construction of a second gas processing train. Pluto Train 2 would process gas from the Scarborough gas resource and have a capacity of about 5 million tonnes per annum (Mtpa) (100% project).

²⁶ CCWA, Submissions in Response to section 106 Report, 26 March 2020, page 4.

²⁷ Ibid, page 3.

²⁸ Woodside, Response to Appeal 002/20, 18 February 2020, page 6.

²⁹ Ibid, page 5.

...

Expansion activities would also include modifications required to Pluto Train 1 for processing approximately 1.5 Mtpa of Scarborough gas and installation of domestic gas infrastructure to increase capacity to approximately 225 Terajoules per day.³⁰

The proposal also contemplates potential processing at the Karratha gas plant.

Pluto LNG plant assessment included two trains and 30 year life

Ministerial Statement 757 applying to the Pluto LNG Plant defines that proposal as including two LNG processing trains with a total nominated capacity of 12 million tonnes per annum of LNG.³¹

The Public Environmental Review (PER) document for the Pluto proposal also noted that the gas processing plant 'will be designed for an operational life of 30 years and will operate continuously, except during shut-down periods or emergency events.'³²

Existing onshore processing approvals include controls on air emissions

The EPA advised that air emissions from the processing of gas at the Pluto and Karratha gas plants are regulated through both Ministerial Statements or licences or a combination of both.³³ In relation to greenhouse gases in particular, the EPA advised:

The emissions of carbon dioxide from the Pluto LNG Plant are regulated through Ministerial Statement 757. Greenhouse gas emissions arising from the processing of gas at the Northwest Shelf Gas Project (Karratha Gas Plant) are regulated by Ministerial Statements MS 536 and MS 482.³⁴

Commonwealth approval considered greenhouse gas emissions

Greenhouse emissions associated with the offshore extraction of natural gas from the Scarborough gas field are described by Woodside in the Offshore Project Proposal (OPP) submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in February 2020. In April 2020, NOPSEMA published reasons for its decision to accept the OPP in accordance with regulation 5D of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cwth). As part of these reasons, NOPSEMA concluded that:

With the proposed management measures in place ... in conjunction with the monitoring and adaptive management commitment and [environmental performance outcomes], the OPP demonstrates that the GHG emissions associated with the Scarborough project will be managed to an acceptable level. This conclusion is supported when considering the cumulative global nature of GHG emissions and subsequent net global atmospheric GHG concentrations associated with global energy use.³⁵

NOPSEMA also noted that:

... GHG emissions from downstream processing of Scarborough gas are provided for under other appropriate legislation and approvals, i.e. Pluto LNG Facility (Ministerial Statement

³⁰ Woodside, <https://www.woodside.com.au/what-we-do/australian-growth-projects/pluto-train-2> (accessed 23 May 2021)

³¹ Minister for the Environment, Ministerial Statement 757, 24 December 2007, Table 1, Schedule 1.

³² Woodside, Pluto LNG Development PER, December 2006, para 4.9.3.1.

³³ EPA, Response to appeal 002/20, 12 March 2020, page 6.

³⁴ Ibid, page 3.

³⁵ NOPSEMA, Statement of Reasons for the Acceptance of the Scarborough Offshore Project Proposal, 6 April 2020, page 21.

757) and Karratha Gas Plant (Ministerial Statement 536). The limits and management requirements in relevant approvals documents are described in the OPP, along with how they relate to processing of Scarborough gas.³⁶

From this, it is noted that greenhouse gas emissions associated with the extraction of gas at the Scarborough field were considered by NOPSEMA. Woodside advised that reservoir CO₂ from the Scarborough gas field would be subject to offsetting requirements at the point of onshore processing and were not therefore considered as part of the Commonwealth process.³⁷

Air emissions from the proposal are limited to construction activities

Direct air emissions from the proposal are limited to construction emissions and no or limited on-going emissions are expected once it is operational.

We consider the EPA was justified in finding that air emissions were not a key environmental factor as emissions are associated with short-term construction activities .

Consideration of greenhouse gas emissions consistent with policy

At the time the proposal was assessed by the EPA, its policy in respect to greenhouse gas emissions was set out in the *Environmental Factor Guideline – Air Quality* (the **2016 Guidelines**), which relevantly provided:

The EPA may decide to assess greenhouse gas emissions within the EIA process if a proposal's expected total greenhouse gas emissions are deemed to be significant. The EPA defines this as proposals that have the potential to significantly increase the State's greenhouse gas emissions, which totalled 83.4 Mt of CO₂-e in 2013-14.³⁸

Where greenhouse gas emissions were identified as being 'significant', the 2016 Guidelines provided that the EPA may require a proponent to provide information or studies in respect to:

- characterisation of greenhouse gas emission sources from the proposal and estimation of expected Scope 1 (direct) and Scope 2 (energy indirect) greenhouse gas emissions in accordance with the *National Greenhouse and Energy Reporting Act 2007* (NGER Act)
- analysis of greenhouse gas intensity (i.e. quantity of CO₂-e generated per tonne of product produced) and comparison with published benchmarked practice for equivalent plant, equipment and operations.³⁹

The 2016 Guidelines did not refer to scope 3 emissions. Consistent with the above, Woodside's referral document did not address greenhouse gas emissions.⁴⁰

In August 2019 the State Government released its Greenhouse Gas Emissions Policy for Major Projects (the **Major Projects Policy**).⁴¹ This sets out the Government's commitment 'to working with all sectors of the Western Australian economy towards achieving net zero greenhouse gas emissions by 2050.'⁴² The Policy notes that it:

³⁶ NOPSEMA, Statement of Reasons for the Acceptance of the Scarborough Offshore Project Proposal, 6 April 2020, page 21.

³⁷ The Minister for Environment on 8 June 2021 approved a revised Greenhouse Gas Abatement Program for the Pluto LNG Plant incorporating train 2.

³⁸ EPA, Environmental Factor Guideline: Air Quality, December 2016, page 3.

³⁹ Ibid, page 4.

⁴⁰ Woodside, Scarborough Project - Referral Form, 12 December 2018. This document does not identify 'air quality' as a likely significant environmental factor: page 3.

⁴¹ WA Government, Greenhouse Gas Emissions Policy for Major Projects, August 2019.

⁴² Ibid, page 1.

... is intended to apply to new significant proposals that meet the criteria of a designated large facility under the Australian Government's Safeguard Mechanism.

Consistent with the focus on new sources of emissions, the Policy would also apply when there is a future review of implementation conditions relating to a proposal that would result in an increase in greenhouse gas emissions.⁴³

To achieve the objective of net zero emissions by 2050, the Major Projects Policy states:

Where major proposals are assessed under Part IV of the Act, the Minister for Environment will consider the particular characteristics of each project and the advice and recommendations of the EPA. The Government may then consider whether it is appropriate to apply a condition that sets out the requirements for a plan detailing the proponent's contribution towards achieving the Government's aspiration of net zero emissions by 2050.⁴⁴

While this Policy was on foot during the assessment process, the EPA determined that the proposed pipeline would result in negligible air emissions. This is taken to mean that the greenhouse gas emissions for the proposal were below the criteria for a 'designated large facility' and that as a result the Major Projects Policy does not apply.

In April 2020 the EPA published the *Environmental Factor Guideline – Greenhouse Gas Emissions* (the **2020 Guidelines**). As these Guidelines were not in place at the time Report 1664 was published, they are not referenced in the Report. Among other things, the guidelines provide that where greenhouse gas emissions from a proposal exceed 100,000 tonnes of scope 1 emissions each year measured in carbon dioxide equivalent (CO₂-e), the proposal is likely to be assessed.⁴⁵ Scope 1 emissions are defined as 'emissions released to the atmosphere as a direct result of an activity, or a series of activities at a facility level'.⁴⁶

Noting the EPA's view that the proposal the subject of this appeal is limited to minor emissions associated with short-term construction activities, it is assumed that those emissions would be significantly below 100,000 tonnes CO₂-e per annum during construction, and negligible thereafter. On this basis, it is considered that even if the proposal had been referred or assessed after the 2020 Guidelines came into effect, the quantum of emissions would likely be below a threshold that would have prompted the EPA to identify greenhouse gas emissions as a preliminary key environmental factor.

It follows that given the short-term nature of greenhouse gas emissions associated with the proposal, the EPA's decision not to identify this as a key environmental factor was justified by reference to relevant policy.

3.5 Conclusion

Taking the above into account, it is noted that the EPA limited its assessment to emissions to air from the construction and operation of the pipeline as described in Table 2 of Report 1664. Emissions at the source of extraction or when the gas is processed onshore are not related to the proposal the subject of this assessment. It is therefore recommended that this ground of appeal be dismissed.

⁴³ WA Government, Greenhouse Gas Emissions Policy for Major Projects, August 2019, page 2.

⁴⁴ Ibid, page 2.

⁴⁵ EPA, Environmental Factor Guideline: Greenhouse Gas Emissions, April 2020, page 4.

⁴⁶ Ibid, page 3.

4 Are the conditions adequate to protect marine fauna?

While the EPA's assessment in respect to marine fauna was appropriate, during the appeal investigation, a peer review commissioned by the EPA recommended some refinements to the DSDMP to ensure monitoring and management elements of the Plan address the technical issues raised by CCWA.

Changes are also recommended to condition 6 to provide greater clarity in avoiding and minimising impacts to marine fauna if the proposal is approved.

It is recommended that this ground of appeal should be allowed to the extent that condition 6 is modified to achieve the intent set out in Appendix 2.

4.1 Appellant's concerns

CCWA noted that the EPA's recommended conditions for managing the impacts of dredging and dredge spoil is confined to impact on benthic habitat, specifically the maintenance of coral cover at particular monitoring sites. The appellant contended that this was insufficient to manage impacts to marine fauna:

The recommended conditions do not establish environmental outcomes or management controls for impacts on marine fauna ... and other impacts on the water column and the fish, plankton and invertebrate species that rely on this habitat. Our client submits that the EPA should have recommended conditions which require the DSDMP to achieve environmental objectives for all relevant factors, including marine fauna.⁵³

To address this deficiency, CCWA recommended that the conditions be amended to include a prescriptive condition as to the timing, duration and other aspects of the dredging and spoil activities to avoid, for example, whale and turtle migration times and other sensitive times or receptors.⁵⁴

4.2 Assessment documentation

Marine fauna in Report 1664

Marine fauna was identified as a key environmental factor for the proposal based on direct and indirect impacts associated with turbidity, noise, artificial light, and vessel movements.⁵⁵

The EPA's objective for marine fauna 'is to protect marine fauna so that biological diversity and ecological integrity are maintained'.⁵⁶

After considering (among other things) short-term nature of the construction activities and the mitigation and management measures proposed by Woodside, the EPA considered that the impacts to marine fauna were manageable subject to the finalisation of the DSDMP prior to commencement of dredging activities.⁵⁷

⁵³ CCWA, Appeal submissions, 20 January 2020, page 11.

⁵⁴ Ibid.

⁵⁵ EPA, Scarborough Project – Nearshore Component, Report 1664, January 2020, page 10.

⁵⁶ Ibid, page 25.

⁵⁷ Ibid, page 29.

4.3 Advice and submissions received

EPA advice

The EPA stated that it gave particular focus to the effects of dredging on the marine environment:

The EPA considered predicted impacts to marine mega fauna including humpback whales and dolphins, fish (including sawfish) and turtles. The EPA also considered critical associations between important marine fauna and key benthic communities and habitats that are likely to be impacted. Due to the proposed mitigation and management within the DSDMP, the direct and indirect impacts from the construction activities on marine fauna and marine fauna habitat was not considered by the EPA to be significant. Impacts to invertebrates and plankton were not considered to be significant due to the short term nature of the impacts and therefore not discussed.

... The EPA Report notes that the proponent has committed to implementing the DSDMP to minimise the potential for impacts to marina fauna and outlined the some of the mitigation measures from the DSDMP (see pages 27 and 28 of the EPA report).

... Accordingly, the EPA agrees with the appellant to the extent that the recommended conditions could be varied to better manage the impacts on marina fauna. As such the EPA suggests that recommended condition 6 could be amended ...⁵⁸

In this regard, the EPA recommended that condition 6 be modified, including a new environmental outcome, being:

[To] avoid where possible and otherwise minimise direct and indirect impacts on marina fauna listed as specially protected fauna under the *Biodiversity Conservation Act 2016*.⁵⁹

In addition to the above outcome, the EPA recommended that monitoring and management measures also be applied as conditions to the proposal to achieve that outcome, including measures to avoid direct strike of marine fauna and measures to minimise direct entrainment impacts on turtles, including not operating dredge pumps during transit.⁶⁰

Appellant's reply to EPA advice

CCWA advised that while it welcomed the changes recommended by the EPA, it remains concerned that:

... the actual environmental protection outcome has not been stipulated. To merely 'avoid where possible and otherwise minimise' impacts simply allows the proponent to determine the level of protection afforded to these specially protected fauna. Further, [CCWA] considers that the condition would be difficult to enforce and therefore creates uncertainty as to requirements for compliance and as to whether the EPA's objectives for this environmental factor will be met.⁶¹

The appellant recommended that the conditions be amended to include that there be no impact to marine fauna and no sediment contamination.⁶²

⁵⁸ EPA, Response to Appeal 002/20.002, 12 March 2020, page 8.

⁵⁹ Ibid, page 8.

⁶⁰ Ibid, pages 8 to 9.

⁶¹ CCWA, Submissions in Response to section 106 Report, 26 March 2020, page 6.

⁶² Ibid.

Proponent advice

Woodside was given an opportunity to comment on the EPA's recommended change to the condition 6. In its response, Woodside noted that the proposed change may unintentionally exclude dolphins (which Woodside advised are not listed under the *Biodiversity Conservation Act 2016*). However, on the basis that these were already captured by the EPBC Act approval, it submitted that the DSDMP would include dolphins in any event. Woodside therefore accepted the changes recommended by the EPA.⁶³

Additional technical information

CCWA submitted a technical review undertaken by Oceanwise of the EPA's assessment related to this ground of appeal in July 2020. This review raised a number of issues that were the subject of further discussion with CCWA, the proponent and the EPA. This culminated in the EPA commissioning an independent peer review into the issues raised by Oceanwise, the EPA's response to which was provided to the Appeals Convenor in March 2021.

In its response, the EPA advised that the peer review arrived at the following key conclusions:

- no significant flaws in the EPA's assessment of the proposal
- the approaches used in the Scarborough DSDMP to predict and describe the impacts of the proposal reflect the EPA's contemporary advice and guidance
- the predictions are informed by data gathered during the dredging of a much larger project by Woodside directly adjacent to the proposal
- some (not all) of the technical comments in the Oceanwise report should be considered further before operations commence, with a view to improving clarity and the efficacy of the management
- the primary mechanisms to do this are the Scarborough DSDMP revision and approval processes set out in recommended condition 6
- key issues are primarily associated with the adequacy and design of the environmental monitoring program, and the process for determining project attribution and triggering management actions
- modifications are required to the recommended conditions to help address some of the issues raised in the Oceanwise report and to add clarity and improve certainty for Woodside and the regulator.⁶⁴

In response to the peer review, the EPA recommended that the conditions be revised 'to address impacts of the proposal on marine fauna and benthic communities and habitats, condition function and minor typographical errors.'⁶⁵

Woodside was given an opportunity to respond to the EPA's advice, and in particular, the changes it recommended to the draft conditions. In response, Woodside advised that it had no substantive comments, aside from some minor typographical corrections.⁶⁶

⁶³ Woodside, email to Appeals Convenor, 12 June 2020.

⁶⁴ EPA, Letter to Appeals Convenor, 4 March 2021, page 2.

⁶⁵ Ibid, page 2.

⁶⁶ Woodside, Email from solicitor to Appeals Convenor, 17 March 2021.

4.4 Discussion

The EPA's assessment of impacts from dredging was appropriate

The peer review found no significant flaws in the EPA's assessment of the proposal and that the approaches used in the DSDMP to predict and describe impacts reflect the EPA's contemporary advice and guidance.

We agree with this advice and do not consider the proposal requires remittal to the EPA for further assessment of this factor.

Monitoring and management responses to be modified; reviewed

The peer review found that some of the issues raised by CCWA should be considered further before operations commence, with a view to improving clarity and the efficacy of the management. The peer reviewer said that the primary mechanisms to do this are the DSDMP revision and approval processes set out in recommended condition 6.

The key issues identified by the peer review were primarily associated with the adequacy and design of the environmental monitoring program and the process for determining project attribution and triggering management actions.

In response to the peer review, the EPA recommended a number of further changes to condition 6. As noted above, the changes were provided to Woodside for comment. Aside from some minor changes not affecting content, Woodside raised no objection to the changes.

The changes recommended to condition 6 by the EPA, inclusive of the initial response to the appeal and the response to the Oceanwise report, and Woodside's minor changes, are reflected in Appendix 2.

Overall, we consider that the changes recommended to condition 6 are appropriate and should be adopted. We also consider it appropriate for the DSDMP to be reviewed with modifications made (as necessary) to reflect the outcomes/recommendations of the peer review. It is expected this will be done through liaison between EPA Services within the Department of Water and Environmental Regulation (DWER) and Woodside.

Requirement for no impact to any marine fauna not supported

CCWA recommended that the conditions be amended to specify that there should be no impact to any marine fauna from the implementation of the proposal.⁶⁷

We do not agree that the amendment requested by CCWA is warranted, noting the EPA's advice that its objective for marine fauna is 'to protect marine fauna so that biological diversity and ecological integrity are maintained'. This objective does not require zero impact to marine fauna.

⁶⁷ CCWA, Submissions in Response to section 106 Report, 26 March 2020, page 6.

4.5 Conclusion

While the EPA's assessment in respect to marine fauna was appropriate, a peer review commissioned by the EPA recommended some refinements to the DSDMP to ensure monitoring and management elements of the Plan address the technical issues raised by CCWA.

Changes are also recommended to condition 6 to provide greater clarity in avoiding and minimising impacts to marine fauna if the proposal is approved.

It is recommended that this ground of appeal should be allowed to the extent that condition 6 is modified to achieve the intent set out in Appendix 2.

5 Does the level of public interest warrant further assessment?

The EPA's assessment was appropriate for the level of public interest.

The EPA assessed the proposal on referral information provided by Woodside without a formal public environmental review. While there were a number of public submissions, these primarily related to air emissions from the processing of gas onshore. For the reasons set out above, the EPA was justified in considering these emissions were unrelated to the operation of the pipeline.

This ground of appeal should be dismissed.

5.1 Appellant's concerns

CCWA submitted that:

The EPA received 77 public comments on the level of assessment to which the Proposal should be subject – 75 of these (over 97%) called for public environmental review (PER). The Proposal was assessed at the level of "Referral Information" with a limited public review of the DSDMP only.

... [W]ith particular regard to the sensitivity and quality of the receiving environment (which includes the Murujuga rock art, and the global airshed which is "full") and the cumulative impacts of the Proposal in the broader "Burrup Hub" project, the EPA should have assessed the Proposal at the PER level, as was clearly expected by the public.⁶⁸

CCWA also submitted that consultation on the referral supplementary report and DSDMP were too limited in scope and duration.

Based on the above, the appellant requested that the proposal be remitted to the EPA for further and more full public assessment.

5.2 Level of assessment decision

On 6 February 2019, the then Chairman of the EPA determined that the proposal should be formally assessed. The level of assessment for the proposal was set as 'Referral Information and additional information (public review required)'.⁶⁹

As part of that decision, the Chairman stated:

The proposal raises several preliminary key environmental factors. The proponent has generally provided adequate referral information about the proposal, potential impacts, and proposed management measures to enable the EPA to undertake its assessment.⁷⁰

It is understood that the DSDMP was subject to a four-week public review period commencing in August 2019.

⁶⁸ CCWA, Appeal submissions, 20 January 2020, page 12.

⁶⁹ EPA, Public record pursuant to s39(1) of the Environmental Protection Act 1986, Scarborough Gas Field development - Nearshore Component, 6 February 2019.

⁷⁰ Ibid.

5.3 Advice and submissions received

EPA advice

The EPA stated that it has a broad discretion as to how to assess a proposal. While the level of public interest can be considered, the EPA stated:

... the main concern [raised in public submissions] related to potential impacts on rock art on the Burrup Peninsula from air emissions being produced by the processing of gas at the Karratha Gas Plant and the Pluto LNG Plant. The processing of gas is not within the scope of the Proposal.⁷¹

Proponent advice

Woodside submitted that this ground of appeal should be dismissed on the basis that the appeal right does not include either a decision that a proposal will be assessed or a decision as to the level of assessment.⁷²

5.4 Discussion

Public interest relevant to ‘significance’ of a proposal

The EPA’s *Statement of Environmental Principles, Factors and Objectives* provides that the EPA may take into account public interest about the likely effect of the proposal, if implemented, on the environment, and public information that informs the EPA’s assessment.⁷³

Submissions relate to air emissions from onshore processing

While the EPA acknowledged that there was a high level of public interest in this proposal, it noted that the main concern of the submitters related to potential impacts on rock art from air emissions being produced by the processing of gas at the Karratha Gas and the Pluto LNG Plants. Noting the EPA’s advice (with which we agree) that the proposal the subject of this appeal does not include onshore processing, emissions from those sources are not amenable to consideration in this assessment.

Assessed proposal will have negligible air emissions

As noted above, the proposal the subject of this appeal will have negligible air emissions. These emissions were not identified as a key environmental factor by the EPA. In the absence of a connection between the emissions from the proposal and the level of public interest, we agree with the EPA that the proposal does not require further or more public impact assessment.

⁷¹ EPA, Response to Appeal 002/20.002, 12 March 2020, page 10.

⁷² Woodside, Response to Appeal 002/20, 18 February 2020, page 3.

⁷³ EPA, *Statement of Environmental Principles, Factors and Objectives*, April 2020, page 5 (although published after Report 1664 was published, this text is similar in terms to the 2018 version of this document: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Statement%20of%20Environmental%20Principles.%20factors%20and%20Objectives_29062018.pdf)

5.5 Conclusion

The EPA assessed the proposal on referral information provided by Woodside without a formal public environmental review. While there were a number of public submissions, these primarily related to air emissions from the processing of gas onshore. For the reasons set out above, the EPA was justified in considering these emissions were unrelated to the operation of the pipeline.

This ground of appeal should be dismissed.

6 Is further assessment of submerged cultural heritage required?

In relation to impacts from borrow activities in the vicinity of Madeline Shoals, as these are in Commonwealth waters they are outside the scope of the EPA's assessment.

In relation to impacts to a submerged three kilometre wide relict of palaeobeach formation at the entry to Mermaid Sound, additional work commissioned by Woodside found that the features were unlikely to contain any embedded archaeological material as the age of the substrate preceded human occupation of the Australian continent.

Based on this information, it is unlikely that the values identified in the appeal will be present at the indicated location. In any event, Woodside has committed through its draft CHMP to avoid dredging on harder calcareous rock and compact sediments with the potential to preserve archaeological materials. Both that Plan and DSDMP are required to be finalised in consultation with Murujuga Aboriginal Corporation. This, together with obligations on Woodside to adhere to other statutory requirements relating to Aboriginal heritage, provides assurance that cultural heritage values will remain under active focus if the proposal is approved for implementation.

We conclude that further assessment is not warranted and recommend that this ground of appeal is dismissed.

6.1 Appellant's concerns

The DHSC submitted that work it had undertaken in the vicinity of the proposed pipeline confirms the presence of ancient Aboriginal cultural activities on what is now the seabed within the Dampier Archipelago. This confirmed the appellant's hypothesis:

... that ancient Indigenous archaeological material can survive inundation and remain preserved for thousands of years resting on, and embedded in, the seabed.⁷⁴

As a result of its findings, the appellant contended there were two aspects of the proposal that it considered warranted further assessment:

- (a) Impacts from activities at Borrow Ground A on Madeline Shoals
- (b) Impacts to submerged palaeobeach barrier system that extends across the northern entrance to Mermaid Sound and stratified sand formations.

In relation to Borrow Ground A, the appellant submitted that:

The Madeline Shoals are ... located directly SW Borrow Ground A, but the Shoals are not mentioned anywhere in Woodside 420-page Scarborough Dredge spoil management plan. The Madeline Shoals are prospective from a cultural perspective, and ecologically significant. They are formed of the same igneous geology as [nearby islands], and thus represent the seaward-most extent of the NNE trend of these island landforms. Given the density of cultural heritage found on these Islands, as well as the submerged material we found in [other surveys] it would stand to reason that similar densities of cultural material would be expected with these Shoals.⁷⁵

In relation to the palaeobeach barrier system, the appellant submitted that:

⁷⁴ DHSC, Appeal letter, 12 January 2020, page 1.

⁷⁵ Ibid, page 2.

[T]he proposed pipeline route ... passes directly across a 3 km wide relict submerged palaeobeach barrier system that extends across the northern entrance to Mermaid Sound. This formation forms a cemented hard ground located at depths between 15 and 25 m below sea level. The coastal surveys undertaken by DHSC ... identified coastal beachrock formations having significant densities of [cultural heritage values] cemented within the deposits, and therefore makes the submerged beachrock formations along the outer Mermaid Sound highly prospective for cultural heritage ... Soft silty ground in these prospective cultural landscapes may also contain stratified archaeological deposits, which have not been investigated.⁷⁶

The appellant disputed the suggestion in Report 1664 that because sediments along the proposed trunkline are 'predominantly comprised of soft silty sands ... impacts to submerged rock and Aboriginal heritage are unlikely'.⁷⁷

To address these potential impacts, the appellant recommended that baseline heritage surveys be conducted before works begin.

6.2 Assessment documentation

Submerged heritage assessment in Report 1664

The EPA considered impacts to heritage under the factor 'Social Surroundings', the objective of which 'is to protect social surroundings from significant harm'.⁷⁸

In its assessment of the impacts of the proposal on submerged heritage values, the EPA noted that Woodside had commissioned a literature and ethnographic review which 'determined that the types of archaeological sites to survive inundation are likely to be more robust forms such as middens and artefacts within cemented dunes, quarry outcrops, curvilinear stone structures and standing stones on volcanic pavement'.⁷⁹

The EPA noted further that impacts to Aboriginal heritage will be minimised:

... by locating the pipeline along previously disturbed areas onshore and parallel to the existing Pluto trunkline in coastal waters. The EPA is aware of a commitment by the proponent to avoid dredging of igneous (volcanic) rock offshore, which is the predominant rock type where Murujuga rock art is found. Proposed dredging activity will affect calcarenite rock, not associated with Murujuga rock art. Geophysical and geotechnical investigations along the pipeline route identified no igneous rock within the dredging profile. Therefore potential impacts to heritage and submerged archaeological sites are unlikely.

Proposed mitigation measures have been recommended to avoid and/or minimise expected impacts and there is unlikely to be significant residual impacts. The proponent has updated this plan to include the proposal management measures during the development of the draft CHMP (Woodside 2019c) and consultation with Murujuga Aboriginal Corporation.

... The DSDMP and CHMP are required so that the proposal does not have long-term impact on Aboriginal heritage values.

The EPA notes that the Murujuga Aboriginal Corporation would not, in principle, object to the works being undertaken, but has outstanding concerns with the management plans for the proposal. The Murujuga Aboriginal Corporation indicated it expected its outstanding concerns to be addressed prior to the commencement of onsite works.⁸⁰

⁷⁶ DHSC, Appeal letter, 12 January 2020, page 2.

⁷⁷ EPA, Scarborough Project – Nearshore Component, Report 1664, January 2020, pages 30 to 31.

⁷⁸ Ibid, page 30.

⁷⁹ Ibid.

⁸⁰ Ibid, page 32.

Conditions 6 and 7 recommended by the EPA require Woodside to further review both the DSDMP and CHMP in consultation with the Murujuga Aboriginal Corporation. This must occur prior to commencing ground disturbing activities, should the proposal be approved for implementation.

6.3 Advice and submissions received

EPA advice

In relation to Madeline Shoals, the EPA stated:

The construction impacts from the Proposal are not anticipated in the Madeline Shoals. However, it should be noted that if the Shoals are proven to contain cultural heritage in the future, then, as a worse case, the turbidity caused by dredging Borrow Ground A would be temporary. Such short-term impacts are not uncommon in the Dampier Archipelago as it periodically experiences cyclones, which cause major sediment transportation/turbidity.⁸¹

In relation to the palaeobeach formation, the EPA reiterated the content in Report 1664 that the pipeline will be constructed in 'previously disturbed areas adjacent to the existing Pluto trunkline, [which] avoids potential areas of significant cultural significance, including igneous (volcanic) rock predominantly associated with submerged rock art.' In relation to submerged 'cemented beach ridges', the EPA advised that these have been 'previously dredged with cutter suction dredge (CSD) as part of the Pluto LNG Foundation Project' and 'that no nearshore blasting or CSD works are required as part of this project.'⁸²

The EPA recommended condition 7-1 which included as an objective of the CHMP to minimise direct and indirect impacts to social, cultural, heritage and archaeological values within and surrounding the development envelope. The EPA reiterated that the CHMP will be produced by Woodside in consultation with the Murujuga Aboriginal Corporation.

While the EPA did not recommend any changes to the conditions in response to this ground of appeal, it suggested that changes to the CHMP could be made through the appeal investigation to address the appellant's concerns.

Proponent advice

For its part, Woodside submitted that as Borrow Ground A is located within Commonwealth waters, it is not within the scope of the proposal. In any event, it noted that:

Based on dredge plume modelling, the Proposal will not result in detectable impacts on benthic biota in the Madeleine Shoals. The Proposal is therefore not expected to result in impacts to any cultural heritage at the Madeleine Shoals.⁸³

In relation to the palaeobeach formation in Mermaid Sound, Woodside agreed that 'some areas of beachrock exist along the Nearshore Trunkline route' and that there is 'the potential for cultural heritage to be present in ... [these] formations.'⁸⁴ To address this, Woodside proposes to minimise disturbance by laying the nearshore trunkline over these formations.

⁸¹ EPA, Response to Appeal 002/20.001, 9 March 2020, page 3.

⁸² Ibid.

⁸³ Woodside, Response to Appeal 002/20, 18 February 2020, page 2.

⁸⁴ Ibid, page 3.

In relation to possible impacts to stratified archaeological deposits in sands, Woodside stated:

While it is possible that archaeological deposits are present in this sediment, due to movement of this sediment (caused by a variety of metocean conditions), any archaeological material would not be stratified and, therefore, would not be located in context.⁸⁵

Woodside advised that it will continue to engage with researchers undertaking submerged landscapes studies to discuss options for identifying potential Aboriginal heritage sites and mitigation of potential risks to those sites and high risk areas within the proposal area.⁸⁶

Murujuga Aboriginal Corporation submission

Representatives of Murujuga Aboriginal Corporation approached the Office of the Appeals Convenor in February 2021 to make submissions on the proposal. While not an appellant, noting the authority of the Appeals Convenor to consult with any person she considers necessary,⁸⁷ Murujuga Aboriginal Corporation was invited to meet with the Appeals Convenor in March 2021.

Because Murujuga Aboriginal Corporation is identified as a body with whom Woodside must consult under conditions 6 and 7 of the recommended conditions, we also sought Murujuga Aboriginal Corporation's advice on changes to condition 7-1, which are discussed below.

Submissions on amendment of condition 7-1

Noting the EPA's recommendation that the Appeals Convenor consider what changes to the conditions may be required to address the concerns raised by this ground of appeal, discussions occurred between the relevant parties as to whether condition 7-1(1)(d) should be amended to include reference to the formations raised by the appellant.

Condition 7-1 recommended by the EPA provides:

- 7-1 The proponent must implement the proposal to meet the following objectives:
- (1) Minimise direct and indirect impacts to social, cultural, heritage and archaeological values within and surrounding the Development Envelope, including from, but not limited to:
 - (a) disturbance of the ground that may impact Aboriginal Heritage Site, 19675 Holden Point Quarry A and accompanying conservation zone (known as 'Tool Shed') registered under the Aboriginal Heritage Act 1972;
 - (b) potential loss of access to areas to undertake traditional activities;
 - (c) indirect impacts, including visual and dust impacts to social and cultural places and activities; and
 - (d) disturbance of areas of volcanic rock in the sea bed.

While subclauses (1) to (d) of condition 7-1(1) are not expressed in exclusive terms, subclause (d) is nonetheless limited to disturbance of areas of volcanic rock which is focused on rock art. There is no express reference to other archaeological values such as lithic materials which may be cemented in submerged beach rock. The option of amending

⁸⁵ Woodside, Response to Appeal 002/20, 18 February 2020, pages 3 to 4.

⁸⁶ Ibid, page 4.

⁸⁷ EP Act, section 109(1)(aa), as applied by s107B(1).

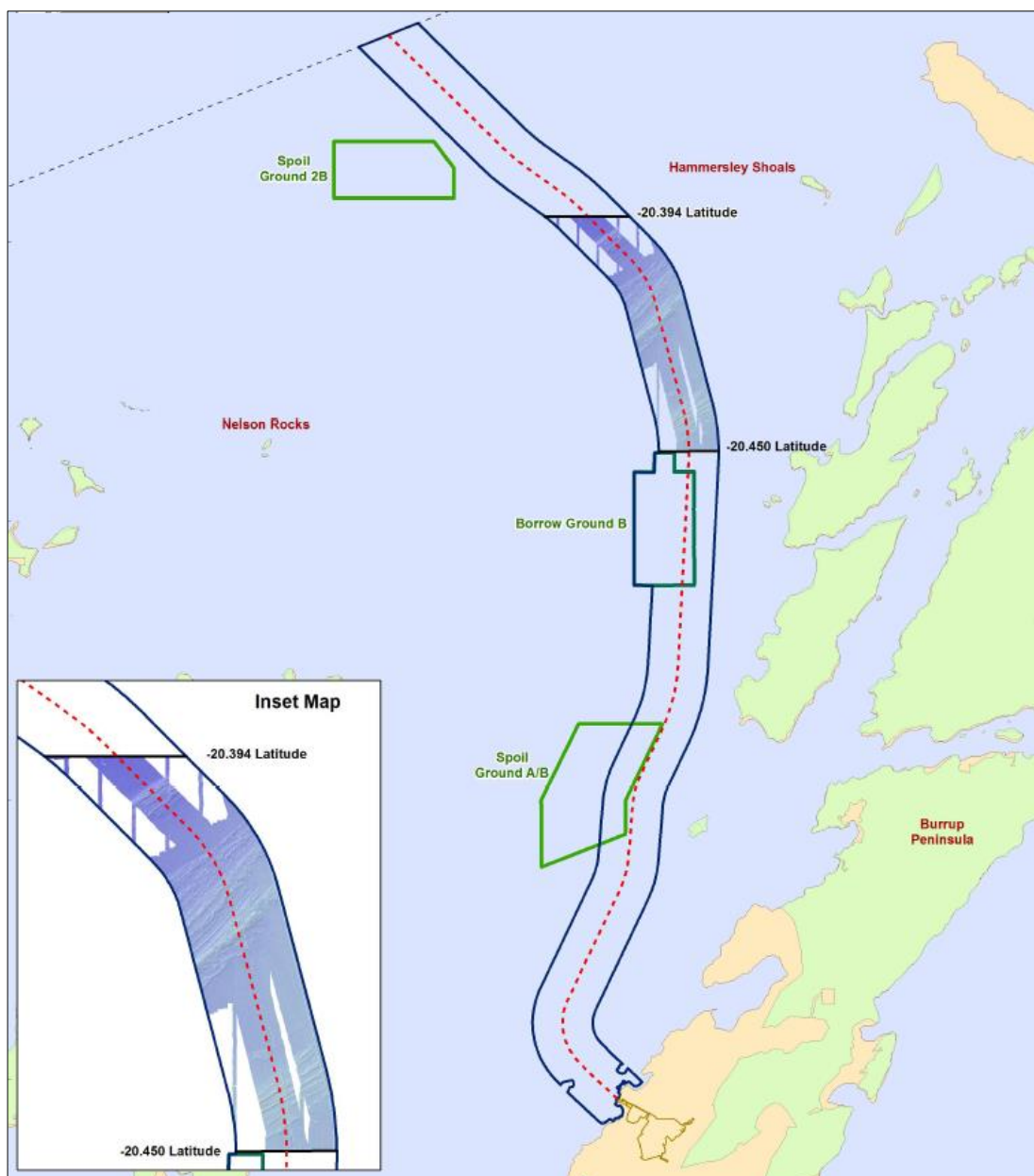
subclause (d) to include the palaeobeach formations raised by the appeal were discussed with Woodside, EPA Services, the appellant and Murujuga Aboriginal Corporation.

A final version of a possible change to condition 7-1(1)(d) was developed as follows (new text underscored):

- (d) disturbance of areas of volcanic rock in the sea bed and to those areas of the submerged paleobeach formations that extend across the northern entrance to Mermaid Sound between Nelson Rocks and Hamersley Shoals (that are exposed in isolated sections) and that are bounded approximately between minus 20.394 decimal degrees south and minus 20.450 decimal degrees south.

Figure 2 shows the location of these coordinates in context with the barrier formations raised by the appeal.

Figure 2 – Palaeobeach formation, northern Mermaid Sound (Source: Woodside, 2020)



This text was the subject of consultation with the appellant, which confirmed the coordinates appear to be consistent with the location of the features of concern raised by the appeal.⁸⁸

Publication of journal article, July 2020

In July 2020, members of the appellant published an article 'Aboriginal artefacts on the continental shelf reveal ancient drowned cultural landscapes in northwest Australia' in the peer-reviewed journal, PLOS ONE.⁸⁹ This article related to confirmed identification of submerged Aboriginal heritage materials close to the Burrup Peninsula (Murujuga) in Flying Foam Passage and Cape Bruquieres.

Woodside later questioned whether the article (and another published around the same time) should be relied on by the Minister in determining the current appeal as the subject matter appears to relate to findings in a different geomorphic context to the area of concern in the appeal (i.e. the palaeobeach formations in Mermaid Sound).

Further discussions and correspondence with a representative of the appellant confirmed that the PLOS ONE article focused on subtidal sites, but that through this work, beachrock was identified and most occurrences did have artifacts imbedded and visible:

These observations of intertidal beachrock in the Archipelago would suggest that there is a probability that submerged beach ridges observed along the entrance to Mermaid Sound could host lithic material. We would argue that there is lithic material preserved in these beach ridges then there would be a high probability that it would be present at the surface due to the same erosional processes that affect the present intertidal beach rock would also have been occurring in these submerged ridges before there were inundated.⁹⁰

The representative of the appellant also indicated that if the formations are older than 65,000 years, it is likely they formed before human occupation and therefore sterile in terms of embedded archaeological material. He also submitted that the distance from the source material would be instructive: most of the present beachrock deposits are located quite close to the source granite rocks, whereas the submerged formations at the mouth of Mermaid Sound are about 3 to 6 kilometres away.⁹¹

It was also understood at this time that the representative of the appellant (and others) had been commissioned by Woodside to undertake further research on the submerged heritage values of along the pipeline route. The representative confirmed this would include interrogating core samples that would provide a means to date the age of the formations.⁹²

Additional research on age of palaeobeach formations in Mermaid Sound

In May 2021, Woodside provided the Appeals Convenor with a copy of a report assessing the cultural heritage values of the pipeline corridor, including assessment of the estimated ages of the palaeobeach formations at the entry to Mermaid Sound (this is the same research as flagged in earlier discussions with a representative of the appellant). This study concluded, based on a 'purely scientific assessment', that the proposed Scarborough

⁸⁸ DHSC, Email to Office of the Appeals Convenor, 17 June 2020.

⁸⁹ Benjamin J, O'Leary M, McDonald J, Wiseman C, McCarthy J, Beckett E, et al. (2020) Aboriginal artefacts on the continental shelf reveal ancient drowned cultural landscapes in northwest Australia. PLoS ONE 15(7): 0233912. <https://doi.org/10.1371/journal.pone.0233912>

⁹⁰ DHSC, Email to Office of the Appeals Convenor, 16 November 2020.

⁹¹ Ibid.

⁹² Ibid.

pipeline development will have nil or very low impact on any heritage values within the inner shelf (including the palaeobeach formations raised by the appeal). The study found that the ages of the four submerged barrier formations crossed by the pipeline corridor were in excess of 65,000 years before present, making it unlikely that these features will contain underwater cultural heritage.⁹³

Woodside submitted that, because of the content of this report, 'the proposed amendment to condition 7-1(1)(d), which was aimed at providing a specific precautionary protection in relation to the DHSC's area of concern, is no longer justified'.⁹⁴

On Woodside's consent, a copy of this report was provided to the project lead in the appellant for comment. The project lead provided a detailed response on behalf of the appellant project team, which included an overall observation that 'the report is of a very high quality, with some exceptionally strong elements' and commendation to the 'authors for further engaging experienced, independent peer reviewers to provide increased depth in quality control and external, non-biased review of this work, which adds to the credibility of this report'.⁹⁵

Relevant to the palaeobeach formations the subject of the DHSC appeal, the project lead advised:

The specific locations of interest that were raised in our original appeal have largely been addressed by this report and the authors' findings.⁹⁶

The project lead noted, however, that new data have now been introduced and which Woodside and the WA Government should consider as part of the finalisation of the CHMP.⁹⁷ This included the project lead's observations that:

Although there is not likely to be stratified cultural sites in the relict Pleistocene land surfaces (unless there were extenuating circumstances of cementing or migration of artefacts with the older layers), their existence as potential cultural or archaeological sites must not be dismissed. In many regions of Australia cultural materials are situated on ancient landforms long pre-dating the initial peopling of the continent.⁹⁸

Woodside was provided an opportunity to comment on the response received from the project lead. In its reply, Woodside expressed the view that the appellant appears to acknowledge that the palaeobeach formations raised by the appeal are now unlikely to contain 'significant densities of Aboriginal lithic materials cemented within the deposits'.⁹⁹ In relation to the suggestion of the project lead that further consideration of heritage values requires consideration under the CHMP, Woodside advised that it:

... had committed to ongoing research in relation to submerged heritage in the DSDMP. The DHSC Response encourages research as the ongoing pathway "to consider how all future work will include a formalised underwater cultural heritage management plan"; (page 3). Woodside considers that such research has been undertaken with the completion of the UWA Report and peer reviews (including the DHSC Response) but intends to continue

⁹³ Earth Sciences and Centre for Rock Research and Management UWA, Scarborough Pipeline Cultural Heritage Assessment: Establishing Archaeological Potential and Significance (Commercial-in-confidence), April 2021, page ix.

⁹⁴ Woodside, Email to Office of the Appeals Convenor, 21 April 2021.

⁹⁵ DHSC, Letter to Appeals Convenor, 26 May 2021, page 1.

⁹⁶ Ibid, page 3.

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Woodside, Email to Office of Appeals Convenor, 31 May 2021.

discussions with researchers as to any further research Woodside may support in the future whether or not associated with the implementation of this proposal.¹⁰⁰

Woodside also reiterated its earlier view that the proposed amendment to condition 7-1(1)(d) is no longer justified.¹⁰¹

More generally, Woodside reiterated earlier advice that:

... the EPA's recommended environmental conditions, if imposed, will explicitly require Woodside to implement the proposal to meet the stated objective of minimising direct and indirect impacts to cultural, heritage and archaeological values within and surrounding the Development Envelope. Specifically, subject to consultation with Murujuga Aboriginal Corporation, Woodside will be required to obtain CEO approval of a CHMP which contains management actions and targets to ensure it meets this stated objective.¹⁰²

Murujuga Aboriginal Corporation was provided with an opportunity to comment on the view expressed by Woodside that changes to condition 7-1(1)(d) are no longer required. In reply, it advised that it is concerned with protecting ethnographic significance and intangible heritage and these values were not considered in the cultural heritage assessment:

As mentioned at the meeting, intangible Aboriginal heritage is incredibly important to communities' sense of identity and continuity. It can include ceremony, song lines and creation stories, knowledge, language and dance and often has a strong connection with country. Protecting intangible Aboriginal cultural heritage is currently a priority for the Western Australian government. As you may be aware, the Western Australian State Government has released the Aboriginal Cultural Heritage Bill 2020, which, if enacted, will modernise the definition of 'Aboriginal cultural heritage' to include these intangible elements.

We appreciate that Woodside continues to engage with traditional custodians in relation to the ethnographic significance of the area. And in principle, we do not object to the project being undertaken. However, we are concerned that if the proposed amendment to condition 7-1(1)(d) is not put in place, there will be no safeguard for protecting these intangible heritage values and for recommendations from any ethnographic studies to be carried out or implemented for the duration of the project.¹⁰³

6.4 Discussion

Borrow Ground A not in State waters

DHSC submitted that activities associated with Borrow Ground A posed a risk submerged heritage materials at Madeline Shoals.¹⁰⁴

In response to this issue, the EPA stated that if the Shoals are proven to contain cultural heritage, the implementation of the proposal would only raise the turbidity and this would be temporary. The EPA said such short-term impacts are not uncommon in the area due to cyclones.¹⁰⁵

For its part, Woodside submitted that Borrow Ground A is located within Commonwealth waters and is therefore not within the scope of the proposal. It also submitted (similarly to the EPA) that the proposal will not result in detectable impacts on benthic biota in the Madeline

¹⁰⁰ Woodside, Email to Office of Appeals Convenor, 31 May 2021.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ MAC, Letter to the Appeals Convenor, 13 May 2021, page 2.

¹⁰⁴ DHSC, Appeal letter, 12 January 2020, page 2.

¹⁰⁵ EPA, Response to Appeal 002/20.001, 9 March 2020, page 3.

Shoals and (therefore) is not expected to result in impacts to any cultural heritage at the Madeline Shoals.¹⁰⁶

We find that as Borrow Ground A is not within State waters, the EPA was justified in not assessing impacts at that location. In any event, we note the EPA's advice that any impacts to heritage values will be undetectable or temporary.

Low likelihood of embedded lithic materials in submerged barrier system

By this element of the appeal, DHSC submitted that the proposed pipeline route passes directly across a 3 km wide relict submerged palaeobeach barrier system that extends across the northern entrance to Mermaid Sound and that these formations are highly prospective for cultural heritage.¹⁰⁷

Additional work commissioned by Woodside identified that the ages of the barrier ridges the subject of the appeal were likely to pre-date human occupation of the Australian continent. As a result, the authors of that report considered it unlikely that these submerged features would contain embedded materials of the kind raised by the appeal.

In coming to this conclusion, we agree with the project lead of the appellant that the age of the palaeobeach formations does not establish that that part of the pipeline route (or any part of the pipeline route for that matter) is devoid of cultural heritage values: rather, it is an indication that cemented lithic materials raised in the appeal are unlikely to be present.

Woodside to avoid dredging of certain substrates

The current draft CHMP commits Woodside to avoiding dredging on harder calcareous rock and compact sediments with the potential to preserve archaeological materials. This, combined with the EPA's advice that locating the pipeline parallel to the existing Pluto trunkline in coastal waters, provides additional assurance that impacts to submerged cultural heritage values in State waters will be avoided and minimised.

Amendments to condition 7-1(1) not necessary

The change to condition 7-1(1)(d) circulated during the appeal investigation preceded receipt of the cultural heritage assessment provided to the Appeals Convenor in May 2021. As noted above, that assessment suggests there is low likelihood for lithic materials being cemented in the palaeobeach formations raised by the appeal.

Because of the above finding, and noting the commitment by Woodside in the current draft of the CHMP to avoid dredging of harder calcareous rock and compact sediments with the potential to preserve archaeological materials, the change to condition 7-1(1)(d) (with a narrow focus on a small section of the proposal length) is no longer considered necessary.

Murujuga Aboriginal Corporation to be consulted

The EPA's recommended conditions require Woodside to finalise and submit further revisions of both the CHMP and DSDMP. Woodside is required to consult with Murujuga Aboriginal Corporation in respect to the revisions of the plans.

¹⁰⁶ Woodside, Response to Appeal 002/20, 18 February 2020, page 2.

¹⁰⁷ DHSC, Appeal letter, 12 January 2020, page 2.

This requirement provides for traditional custodians to input into the finalisation of the two plans before they are submitted to the chief executive officer (CEO) of DWER, including in respect to submerged cultural heritage values.

The *Aboriginal Heritage Act 1972* also applies to State waters, so the provisions of that Act will apply to site and objects in addition to the controls applicable through the EP Act.

6.5 Other information

Heritage issues raised during the appeal investigation

As part of his response to the cultural heritage assessment, the project lead for the DHSC requested that both Woodside and the WA Government consider how new information raised by that assessment will be considered under the CHMP.

Murujuga Aboriginal Corporation also raised concern about the consideration and assessment of intangible heritage values within the development envelope.

As these matters were not issues raised on appeal, they are not the subject of consideration in this report. However, it is noted that condition 7-1 of the recommended conditions, if imposed, will require Woodside to implement the proposal to meet the objective of minimising 'direct and indirect impacts to social, cultural, heritage and archaeological values within and surrounding the Development Envelope.'

In addition, and as noted above, recommended condition 7-2, if imposed, provides that:

Prior to ground disturbing activities [Woodside] shall finalise and submit a further version of the Cultural Heritage Management Plan (SA0006GH1401311448, Rev A, November 2019), in consultation with the Murujuga Aboriginal Corporation, to meet the objectives specified in condition 7-1.

By this condition, Murujuga Aboriginal Corporation has the opportunity to consider the content of a revised CHMP before ground disturbing activities commence. This will allow Murujuga Aboriginal Corporation to identify how the concerns it raised through the appeal investigation have been addressed.

Statutory context

The Western Australian Government is a signatory to the Intergovernmental Agreement on Australian Underwater Cultural Heritage, which includes as its objective to assist the parties meet their obligations for the identification, protection, management, conservation and interpretation of Australia's underwater cultural heritage.¹⁰⁸

In addition to the EP Act, the *Aboriginal Heritage Act 1972* provides for the protection of places of importance and significance where persons of Aboriginal descent have left any object used for any purpose connected with the traditional cultural life of Aboriginal people, past or present.¹⁰⁹

In addition to the EPA's conclusion that there will be no long-term impact to Aboriginal heritage values from the implementation of the proposal, section 15 of the *Aboriginal Heritage Act 1972* provides:

¹⁰⁸ Commonwealth of Australia, 5 July 2010 <https://www.environment.gov.au/system/files/resources/8320e7bd-b451-4e88-8be1-16cf4687202e/files/underwater-cultural-intergovernmental.pdf>

¹⁰⁹ *Aboriginal Heritage Act 1972*, s.17.

Any person who has knowledge of the existence of any thing in the nature of Aboriginal burial grounds, symbols or objects of sacred, ritual or ceremonial significance, cave or rock paintings or engravings, stone structures or arranged stones, carved trees, or of any other place or thing to which this Act applies or to which this Act might reasonably be suspected to apply shall report its existence to the Registrar ... unless he has reasonable cause to believe the existence of the thing or place in question to be already known to the Registrar.

Noting Woodside's advice that it is continuing to engage with researchers undertaking submerged landscapes studies and the requirement by condition 7-2 for Woodside to liaise with the Murujuga Aboriginal Corporation on the finalisation of the CHMP, any finding of the nature contemplated of by section 15 of the AH will require notification to the Registrar under that Act.

In addition, the Minister for Aboriginal Affairs is identified as a decision making authority with whom the Minister for Environment is required to consult under section 45(1) of the EP Act following the determination of the appeals (and assuming the proposal is not remitted to the EPA for further assessment). This process provides an additional opportunity for consideration of submerged Aboriginal heritage before a final decision on the implementation of the proposal is made.

6.6 Conclusion

In relation to impacts from borrow activities in the vicinity of Madeline Shoals, as these are in Commonwealth waters they are outside the scope of the EPA's assessment.

In relation to impacts to a submerged three kilometre wide relict of palaeobeach formation at the entry to Mermaid Sound, additional work commissioned by Woodside found that the features were unlikely to contain any embedded archaeological material as the age of the substrate preceded human occupation of the Australian continent.

Based on this information, it is unlikely that the values identified in the appeal will be present at the indicated location. In any event, Woodside has committed through its draft CHMP to avoid dredging on harder calcareous rock and compact sediments with the potential to preserve archaeological materials. Both that Plan and DSDMP are required to be finalised in consultation with Murujuga Aboriginal Corporation. This, together with obligations on Woodside to adhere to other statutory requirements relating to Aboriginal heritage, provides assurance that cultural heritage values will remain under active focus if the proposal is approved for implementation.

We conclude that further assessment is not warranted and recommend that this ground of appeal is dismissed.

Appendix 1 Appeal process

The Minister assesses the merits of a decision

Environmental appeals follow a merits-based process. This means the Minister can consider all the relevant facts, legislation and policy aspects of the decision and decide whether it was correct and preferable.

However, for appeals relating to a licence amendment, the Minister can only consider matters directly linked to the amendment. Appeal rights do not extend to parts of the licence that were not amended.

A merits review cannot overturn the original decision to grant a licence. But if the appeal is upheld, the licence conditions might change or an amendment might not go ahead.

We report to the Minister, as does the decision-making authority

To decide an appeal's outcome, the Minister for Environment must have a report from both:

- the Appeals Convenor (see section 109(3) of the EP Act), and
- the authority that originally made the decision under appeal (see section 106(1)).

To properly advise the Minister in our report, our investigation included:

- meetings with representatives of each appellant, Woodside and officers of DWER and EPA
- consideration of the appeal grounds, supporting information and additional information
- consideration of Woodside's response to the appeals and additional information
- relevant policy and guidance material
- the content of referral documentation, other assessment documentation, and the EPA's assessment report
- consultation with Murujuga Aboriginal Corporation in respect to possible changes to condition 7-1 relevant to its interests

Appendix 2 Recommended changes to condition 6

The changes recommended to condition 6 are marked below (new content underscored; deleted content struck-through).

6 Dredging and Spoil Disposal Management Plan

- 6-1 The proponent must ensure implementation of the proposal achieves the following environmental protection outcomes:
- (1) no detectable net reduction of ~~net~~ live coral cover at any of the coral impact monitoring locations attributable to the proposal; and
 - (2) avoid where possible and otherwise minimise direct and indirect impacts on marina fauna listed as specially protected fauna under the *Biodiversity Conservation Act 2016*.
- 6-2 Prior to dredging activities, the proponent shall finalise and submit a further revision of the Dredging and Spoil Disposal Management Plan (SA0006AH0000002, Rev 2, November 2019), in consultation with the Murujuga Aboriginal Corporation, to meet the outcomes specified in condition 6-1.
- 6-3 The Dredging and Spoil Disposal Management Plan ~~shall be prepared and submitted prior to construction and~~ as required by condition 6-2 shall include:
- (1) a requirement for all dredging and spoil disposal activities to be managed with the objective of achieving the Environmental Protection Outcomes required by condition 6-1;
 - (2) a benthic habitat map showing the extent and distribution of benthic communities and habitats;
 - (3) sediment plume modelling outputs to inform predicted impacts and losses of benthic communities and habitat, including a cumulative loss assessment;
 - (4) presentation of the sediment plume outputs in an impact zonation scheme;
 - (5) management trigger indicators based on pressure response pathways and proposed adaptive management actions;
 - (6) monitoring program including reference and impact monitoring site locations and methods (including timing) to provide data to allow assessment against the management trigger indicators and the Environmental Protection Outcome required by condition 6-1(1), and to inform adaptive management actions;
 - (7) a tiered monitoring/management feedback loop to manage dredging, spoil disposal and backfill operations to achieve the Environmental Protection Outcome required by condition 6-1(1);
 - (8) procedures to be implemented to minimise the environmental impact of trunkline installation vessel operations, including vessel anchoring;
 - (9) procedures developed in consultation with the Department of Primary Industries and Regional Development for managing all vessels and immersible equipment activities prior to mobilisation and during the life of the Proposal to prevent the introduction of marine pests into the State, within the State and into or out of the Dampier Archipelago;
 - (10) monitoring and management measures to achieve the Environmental Protection Outcome in condition 6-1(2), including but not limited to:
 - (a) measures to avoid direct vessel strikes with marina fauna;

- (b) measures to minimise direct entrainment impacts on turtles, including not operating dredge pumps during transit;
 - (c) exclusion zones and observation zones for dredging;
 - (d) noise management procedures to avoid temporary and permanent changes to hearing sensitivity in marine fauna and minimise behavioural responses during any pile driving activities (including implementing soft start procedures, restricting pile-driving to day-light hours and precluding pile- driving operations during the period August to March inclusive, exclusion zones and trained fauna observers);
 - (e) measures to minimise indirect impacts on turtles from vessel lighting, including by minimising lighting use on vessels and during on shore construction;
 - (f) recording sightings and locations of marine fauna in the vessels' daily log book; and
 - (g) documenting and reporting to relevant regulators any incidents relating to marine fauna injury / mortality.
- (11) procedures for determining whether any management trigger exceedances are attributable to the implementation of the proposal;
- (12) contingency management strategies to be employed if management triggers are reached as a result of the proposal;
- (13) clear reporting procedures if management triggers are reached;
- (14) mechanisms to provide the public with details of exceedances of management triggers and contingency actions as soon as practicable;
- (15) mechanisms to notify the public if marine recreational values are likely to be impacted as a result of the dredging, spoil disposal and/or backfill activities; and
- (16) ~~provide~~ evidence of the consultation required and the outcomes of this consultation.
- 6-4 Dredging activities may not commence until the proponent has received notice in writing from the CEO that the Dredging and Spoil Disposal Management Plan satisfies the requirements of condition 6-3 ~~meets the relevant Environmental Protection Outcomes required by condition 6-4.~~
- 6-5 The proponent:
- (1) may review and revise the Dredging and Spoil Disposal Management Plan; or
 - (2) must review and revise the Dredging and Spoil Disposal Management Plan as and when directed by the CEO.
- 6-6 The proponent shall implement the latest revision of the Dredging and Spoil Disposal Management Plan required by condition 6-2, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 6-3.
- 6-7 In the event that monitoring carried out under the Dredging and Spoil Disposal Management Plan determines that the relevant Environmental Protection Outcomes required by condition 6-1 are not being achieved the proponent shall:
- (1) immediately implement the relevant contingency management actions specified in the Dredging and Spoil Disposal Management Plan, and continue implementation of those

actions until it is demonstrated that the Environmental Protection Outcomes required by condition 6-1 are being achieved and will continue to be achieved;

- (2) investigate the likely cause of the Environmental Protection Outcomes required by condition 6-1 not being achieved;
- (3) within twenty-four (24) hours of determining that any of the Environmental Protection Outcomes required by condition 6-1 are not being achieved, report the non-achievement to the CEO;
- (4) within seven (7) days of determining that any of the Environmental Protection Outcomes required by condition 6-1 are not being achieved submit to the CEO a report detailing the following:
 - (a) the results of the monitoring that led to the determination that any of the Environmental Protection Outcomes required by condition 6-1 are not being achieved;
 - (b) the investigation being undertaken as required by condition 6-7(2);
 - (c) any notifications and contingency management actions implemented by the proponent following determination that any of the Environmental Protection Outcomes required by condition 6-1 are not being achieved; and
 - (d) provide a report detailing the findings of the investigation required by condition 6-7(2) to the CEO within twenty-one (21) days of first determining that any of the Environmental Protection Outcomes set in condition 6-1 are not being achieved.

6-8 The proponent shall submit to the CEO annual compliance assessment reports in accordance with condition 4-6 which includes:

- (1) all monitoring data and reportable incidents required by conditions 6-7(3) and 6-7(4);
- (2) an analysis and interpretation of monitoring data to demonstrate compliance with the requirements of condition 6-1; and
- (3) an assessment of the effectiveness of monitoring, management and contingency measures implemented to ensure compliance with the requirements of conditions 6-1.