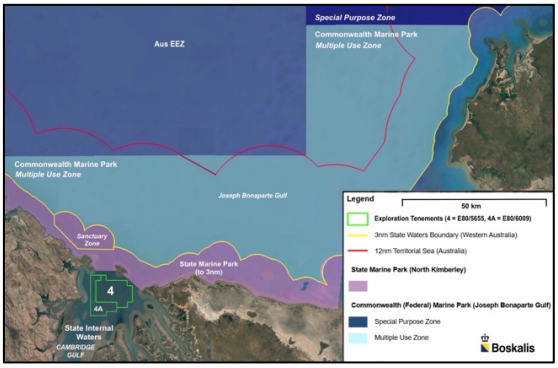
EPBC Referral Report No. 1

Boskalis Cambridge Gulf Marine Sand Proposal
Western Australia

DESCRIPTION OF THE PROPOSED ACTION & REGULATORY FRAMEWORK



Prepared for Boskalis Australia Pty Ltd by EcoStrategic Consultants

In support of Project Referral under Part 7 of Commonwealth *Environment Protection & Biodiversity Conservation Act*

(a State-aligned version of this report was also submitted in referral under the WA EP Act)

OCTOBER 2024

Boskalis

ecostrategic CONSULTANTS

CONTENTS

FURTHER INFORMATION

Peter Boere
Director
Boskalis Australia Pty Ltd
Suited 1.3 / 9 Havelock St, West Perth 6005
Mobile 041 9987 158
peter.boere@boskalis.com

Steve Raaymakers
Lead Report Author / Consultant to Boskalis
EcoStrategic Consultants
PO Box 968, Edge Hill, Cairns 4870
Mobile 040 9909 422
steve@eco-strategic.com

REFERRAL REPORTS

This report is part of a larger set of documents submitted as part of Boskalis Australia's referral under Part 7 of the Commonwealth *Environment Protection & Biodiversity Conservation Act* (EPNC Act), as listed in the table below.

A similar set of reports was also submitted as part of referral of the same proposal under section 38 of the Western Australia (WA) *Environmental Protection Act* (EP Act), with some differences to specifically address State requirements.

Doc No.	**Electronic File Names (PDFs)** (except Doc No.s 9 & 10 which are Excel files). As required, these file names are how the reports are referenced in the online referral submitted via the EPBC Act Business Portal https://epbcbusinessportal.environment.gov.au
0	List of EPBC Referral Reports - Boskalis Cambridge Gulf
1	**[THIS REPORT]** EPBC Referral Report No. 1 - Boskalis Cambridge Gulf - *Description of Proposed Action & Regulatory Framework*
2	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment* Includes in same document: • Annex 3 - *Drop Camera Video Extracts* • Annex 4 - *Dry Season Sample Point Specs* • Annex 5 - *Wet Season Sample Point Specs* • Annex 6 - *Benthic Taxa per Sample Point - Dry Season Maps* • Annex 7 - *Benthic Taxa per Sample Point - Wet Season Maps* • Annex 8 - *Benthic Taxa per Sample Point - Dry Season Graphs* • Annex 9 - *Benthic Taxa per Sample Point - Wet Season Graphs* • Annex 11 - *Sediment Contamination Assessment* • Annexes 1, 2, 10, 12, 13 and 14 are submitted as separate documents as listed below.
3	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 1 - *Sand Assessment*
4	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 2 - *MScience BCH Methods*
5	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 10 - *Aerial Drone Lidar Report*
6	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 12 - *Cape Domett Turtle Data Report*
7	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 13 - *Marine eDNA Report*
8	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 14 - *Marine Mega-fauna Surveys Report* Includes in same document: • Appendix 1 - *MMF Sightings Master Data Tables* • Appendix 2 - *MMF Images* • Appendix 3 - *MMF Sighting Locations* • Appendices 4 and 5 are submitted as separate Excel files as listed below.
9	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 14 - *Appendix 4 - Species Obs Data - Dry Season* (Excel)

Doc No.	**Electronic File Names (PDFs)** (except Doc No.s 9 & 10 which are Excel files). As required, these file names are how the reports are referenced in the online referral submitted via the EPBC Act Business Portal https://epbcbusinessportal.environment.gov.au
10	EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - Annex 14 - *Appendix 5 - Species Obs Data - Wet Season* (Excel)
11	EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters* Includes in same document: • Annex 1 - *BAC Native Title Determination Map* • Annex 2 - *MG Native Title Determination Map* • *Annex 3 - Letter from BAC* • *Annex 4 - Letter from MG*
12	EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* Includes in same document: • Annex 1 - *Main Datasets Used to Inform Impact Assessments* • Annex 2 - *Shipping & Oil Spill Risk Assessment* • *Annex 3 - Plume Mitigation Capability Statement* • *Annex 4 - Marine Mega-fauna Capability Statement*
13	EPBC Referral Report No. 5 - Boskalis Cambridge Gulf - *Metocean & Sed Dynamics Initial Report* • Includes in same document Annex 1 - *Supplementary Technical Note.* • Annex 2 is submitted as a separate document as listed below.
14	EPBC Referral Report No. 5 - Boskalis Cambridge Gulf - Annex 2 - *Factual Data Report* (NOTE: Superseded by *Updated Factual Data Report* - see Doc No. 19, Referral Report No. 8 - Annex B below).
15	EPBC Referral Report No. 6 - Boskalis Cambridge Gulf - *Consultation* • Includes in same document Annex 1 - *List of Meeting Minutes*
16	EPBC Referral Report No. 7 - Boskalis Cambridge Gulf - *Commonwealth Matters* • Includes in same document Annex 1 - *PMST Report for POA & 10 Km Buffer*
17	EPBC Referral Report No. 8 - Boskalis Cambridge Gulf - *Metocean & Sed Dynamics Full Modelling Report* • Appendices and Annexes are submitted as a separate document each, as listed below.
18	EPBC Referral Report No. 8 - Boskalis Cambridge Gulf - *Appendices* Includes: • Appendix A - *Model Calibration and Validation Plots* • Appendix B - *Hydrodynamic and Wave Impact Plots* • Appendix C - *Sediment Transport Impact Plots* • Appendix D - *Sediment Plume Modelling Results*
19	EPBC Referral Report No. 8 - Boskalis Cambridge Gulf - *Annexes* Includes: • Annex A - *Independent Expert Review* • Annex B - *Updated Factual Data Report*

ACRONYMS

ACHIS	Aboriginal Cultural Heritage Inquiry System
AFS Convention	International Convention on the Control of Harmful Anti-fouling Systems on Ships
AH Act	Aboriginal Heritage Act
AMSA	Australian Maritime Safety Authority
BKA	Boskalis Australia Pty Ltd
BWM Convention	International Convention for the Control & Management of Ships' Ballast Water & Sediments
CALM Act	WA Conservation and Land Management Act
CG	Cambridge Gulf
CMS	Convention on Migratory Species
COLREGS	International Regulations for Preventing Collisions at Sea
DAFF	Commonwealth Department of Agriculture, Fisheries & Forestry
DBCA	WA Department of Biodiversity, Conservation & Attractions
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment & Water
DEMIRS	WA Department of Energy, Mines, Industry Regulation & Safety
DPLH	WA Department of Planning, Lands & Heritage
EIA	Environmental impact assessment
EGS	Environmental Group Site Details (required by DEMIRS under WA Mining Act)
EMP	Environmental Management Plan
EMS	Environmental Management System (required by DEMIRS under Mining Act)
EOPCMP	Environmental Outcomes, Performance Criteria & Monitoring Plan (required by DEMIRS under Mining Act)
EPA	WA Environmental Protection Authority
EP Act	WA Environmental Protection Act
EPBC Act	Commonwealth *Environment Protection & Biodiversity Conservation Act*
ERA	Environmental Risk Assessment (required by DEMIRS under Mining Act)
FRM Act	WA Fish Resources Management Act
GHG	Greenhouse gas
IMO	International Maritime Organization
IUCN	International Union for the Conservation of Nature
MARPOL	International Convention for the Prevention of Pollution from Ships
MNES	Matters of National Environmental Significance (under Commonwealth EPBC Act)
MO	Marine Order (of AMSA)
POA	Proposed operational area
POW	Program of Work (under WA Mining Act)
PS(PPS) Act	Protection of the Sea (Prevention of Pollution from Ships) Act
PWONS Act	WA Pollution of Waters by Oil & Noxious Substances Act
Ramsar	Convention on Wetlands of International Importance
STCW	International Convention on Standards of Training, Certification & Watchkeeping for Seafarers
SOLAS	International Convention for the Safety of Life at Sea
SPV	Sand Production Vessel
SWEK	Shire of Wyndham & East Kimberley
TO	Traditional Owner
TSHD	Trailer Suction Hopper Dredger
UCH Act	Commonwealth Underwater Cultural Heritage Act
UNEP	United Nations Environment Programme
WA	Western Australia (State of)

PROJECT LOCATION

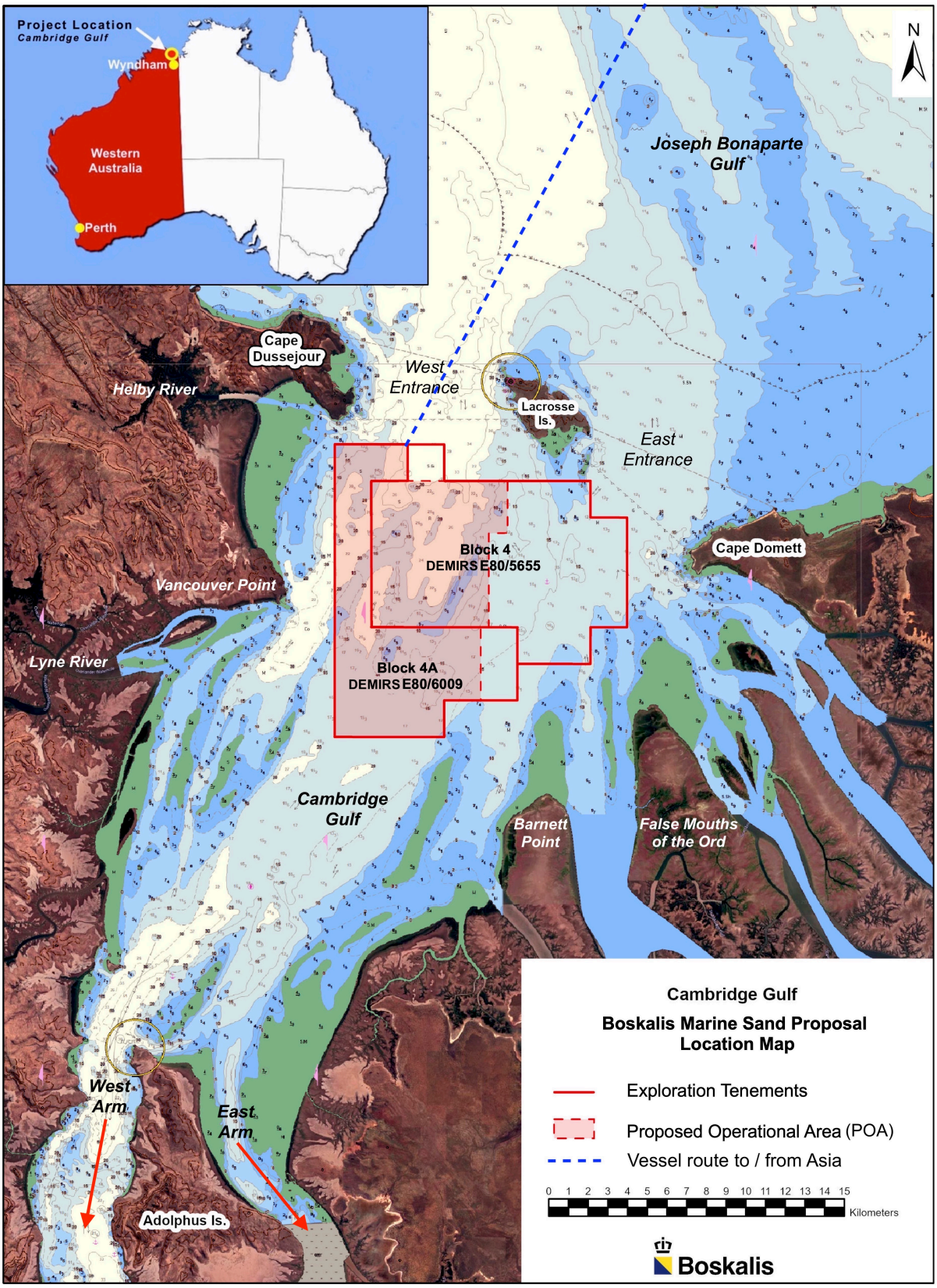


FIGURE 1: *Location of the proposed action in Cambridge Gulf near Wyndham in the northeast of Western Australia.*

1. INTRODUCTION & PURPOSE OF THIS REPORT

1. Boskalis Australia Pty Ltd (BKA) is assessing the feasibility of developing a marine sand-sourcing operation in Cambridge Gulf (CG) near Wyndham in the northeast of Western Australia (WA) (Figure 1). The sand in CG is derived from natural terrestrial sources via river inputs. The sand would be exported to Asian markets for use in construction projects. In proposing CG, BKA has screened alternative sites as outlined in EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments*.

2. The proposed action is subject to the WA *Mining Act,* including the comprehensive environmental assessment and management framework under that Act. BKA currently holds two sand exploration tenements in CG issued by the WA Department of Energy, Mines, Industry Regulation & Safety (DEMIRS) under the *Mining Act*, with tenement numbers E80/5655 and E80/6009. These are referred to by BKA as Block 4 and 4A respectively, as shown on Figure 1.

3. To support its feasibility assessment BKA has undertaken a wide range of environmental, engineering, economic and other studies since 2018, as well as a comprehensive stakeholder engagement and consultation process. These studies find that the proposed action is feasible and viable and unlikely to cause significant environmental impacts, as defined under the WA *Environmental Protection Act* (EP Act) and the Commonwealth *Environmental Protection & Biodiversity Conservation Act* (EPBC Act). The findings of these studies are presented in the set of reports listed under 'Referral Reports' above, including this report.

4. Despite the low likelihood of significant environmental impacts, as a responsible company with stringent environmental and social policies, BKA has self-referred the proposal to the WA Environmental Protection Authority (EPA) under section 38 of the EP Act, and to the Commonwealth under Part 7 of the EPBC Act, for their determination of what further environmental assessments might be required, if any. If it is determined that assessment is required under both Acts, BKA will seek a joint process under the WA environmental assessment system, which is accredited by the Commonwealth.

5. Subject to the outcomes of the State and Commonwealth referral processes, BKA plans to apply to DEMIRS to convert part of the two Exploration Tenements to a single Mining Tenement, shown as the proposed operation area (POA) on Figure 1. The eastern part of Block 4 is excluded from the POA, as exploration surveys did not find any sand resource in that area.

6. The purpose of this report is to support BKA's self-referral under the EPBC Act by:

    a) describing the technical and operational aspects of the proposed action (section 2); and

    b) describing the State, Commonwealth and international environmental regulatory frameworks that apply to the proposed action (section 3).

7. Sections 3.1, 3.2 and 3.3 respectively present the State, Commonwealth and international environmental regulatory frameworks in table format. The first column of each table lists each relevant law and the administering regulatory agency, the second column of each table identifies implications of each listed law for the proposed action, and the third column of each table outlines how the regulatory requirements of each listed law have been or will be addressed by BKA.

8. The description of regulatory frameworks only addresses environmental, biodiversity, cultural heritage, natural resources, marine pollution and related laws and regulations, and not the broader regulatory regime that might apply to the proposed action such as business, taxation, industrial and employment laws etc.

9. A comprehensive description of the environmental conditions, resources and values of the CG area is presented in EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment*, and a comprehensive description of the Commonwealth protected matters in the CG area is presented in EPBC Referral Report No. 7 - Boskalis Cambridge Gulf - *Commonwealth Matters*, and these are not repeated in this report.

2. DESCRIPTION OF THE PROPOSED ACTION

2.1 Summary Description of the Proposed Action

1. Key facts relating to the proposed action include:

   a) Project lifespan: Up to 15 years from commencement of operations.

   b) Zero coastal or land-based development: The proposal does not involve the construction and operation of any shore-based facilities and does not involve the alteration of the coastline in any way. It will be a 100% vessel-based operation.

   c) Marine area: The proposed operational area (POA) is located in the central part of the main body of CG where there is a significant seabed sand resource, covering an area of ~100 km^2 as shown on Figure 1. Water depths within the area average -25 m MSL. The seabed within and around the POA comprises highly-dynamic sand-waves with very little biota and no significant benthic communities, due to the constantly moving substrate, strong tidal currents (>2 m/s), constantly high suspended sediments and permanent lack of benthic light (see EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment*).

   d) Single vessel: The proposed operation will involve a Sand Production Vessel (SPV) based generally on the design of a large Trailer Suction Hopper Dredger (TSHD) (Figure 4). It will be an internationally-registered vessel subject to all relevant regulatory requirements of the International Maritime Organization (IMO) and the Australian Maritime Safety Authority (AMSA). While design is conceptual, indicative specifications are Length Overall (LoA) of ~350 m, draft of ~19 m, sand capacity 75K m^3 to 135K m^3 and crew of ~25. There will be no refuelling or waste discharges in CG.

   e) Zero activity in CG for 86% of time: The SPV will self-load sand in CG for one to two days every two weeks. It will then sail to the sand delivery port in Asia and return to CG two weeks later to repeat the cycle. This means that the SPV will only operate in CG for 52 days per year, or 14% of the time. There will be zero operational activity in CG for 86% of the time during the project's lifespan of up to 15 years.

   f) Sand volumes: Exploration surveys indicate that there is a minimum of 300 million m^3 of sand in the POA and likely several times more. There are several orders of magnitude higher volumes of sand throughout CG overall. It is proposed to export up to 70 million m^3 of sand. This is a maximum of only 23% of the minimum volume of 300 million m^3 of sand estimated to occur in the POA, and a much smaller % of the volume of sand that occurs throughout CG overall. A minimum of 230 million m^3 or 77% of the minimum existing sand resource in the POA will be left in the POA, and likely more.

   g) Low footprint each loading cycle: During each one- to two-day sand loading cycle, the SPV will work over an area of ~0.5 km^2 within the POA, with a draghead width of ~6 m. The SPV will remove a layer of approximately 40 cm of sand from the seabed during each loading cycle.

   h) End of project seabed condition: At the end of the 15-year project timeframe, if the proposed 70 million m^3 of sand is exported, the area within the proposed operational area will be on average <1m deeper than the pre-project seabed. It will still comprise sand with similar seabed morphology, dynamics and habitat features as before sand sourcing.

   i) No significant environmental impacts: Overall, due to the above factors and other factors as assessed in EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* and the other referral reports, and with the implementation of best-practice impact avoidance, prevention, minimization, mitigation, management and monitoring measures, the proposed action is unlikely to cause significant environmental impacts. If the proposal proceeds, BKA will seek to support research and monitoring initiatives to improve environmental protection and biodiversity conservation in the area, in cooperation with relevant stakeholders including TOs (see section 2.9).

   j) Economic benefits & TO support: The proposed action will generate a range of economic benefits, including payment of State royalties, payment of voluntary royalties to Traditional Owner (TO) groups, up to 40-50 local jobs, service contracts and business opportunities with priority focus on TOs, and support for local Indigenous Ranger groups and community development. Both TO groups in the area, Balanggarra and Miriuwung-Gajerrong, have issued letters of support for the proposed action (see EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters*).

2. Each of these points are presented in more detail in the sections below.

2.2 Sand Resource & Proposed Export Volume

1. A detailed description of the sand resource in Cambridge Gulf (CG) is presented in section 5 of EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment* and Annex 1 to that report - *Sand Assessment.* A summary description is provided here.

2. The sand in CG is derived from natural terrestrial sources in the catchment, where sandstone cliffs and rocky hills are eroded by the heavy wet season rains. The resulting sediment is carried into CG by the multiple rivers that drain the catchment, as indicated on Figure 2, and forms numerous subtidal and intertidal sandbanks throughout CG. Figure 3 shows an example of the seabed sand found in CG.

3. Exploration surveys indicate that there is no sand in the eastern half of Block 4, while there is significant sand in the western half of Block 4 and throughout Block 4A. Accordingly, the proposed operational area (POA) covers the western half of Block 4 and all of Block 4A, and excludes the eastern half of Block 4, as shown on Figure 1. The total area of the POA is 100 km^2 and the area of sand within the POA is assessed to be 75.3 km^2, or 75.3% of the POA. Non-sand areas within the POA comprise mixed clay, silt and gravel.

4. In February-March 2024 BKA undertook high resolution multibeam echo-sounder (MBES) surveys of the POA plus a 1 km buffer around the area (Figure 4). The MBES results show that most sand is present in a few large sand dunes, which run parallel to the tidal-current direction from SSW to NNE, as shown on Figure 4. The surface of the dunes comprises highly mobile sand waves, formed and constantly moved by the prevailing strong tidal currents. The sand waves have vertical heights ranging from 1 to 8 m and horizontal wavelengths of between 50 and 200 m (Figures 4 to 6) (see also Referral Report No. 5).

5. Repeat MBES surveys of two Target Areas in the POA over a month-long lunar tidal cycle in February-March 2024, measured horizontal migration of the seabed sand-forms by up to 10 m over just 27 days, showing that they are highly dynamic and constantly moving (Figures 4 to 6) (see also Referral Report No. 5).

6. Sand exploration surveys included sub-bottom profiling, vibro-core sampling and grab sampling. The maximum thickness (depth) of the sand in the POA may be up to approximately 15 m from the top of the dunes. Towards the troughs of the dunes the thickness reduces rapidly. However, the maximum thickness is a rough estimate because the vibro-cores had a maximum penetration of 5.7 m. For the volume calculations, the average thickness of sand recovered in the vibro-cores of 4 m was used.

7. The sand exploration surveys indicate that there is a minimum of 300 million m^3 of sand in the POA and likely several times more. There are several orders of magnitude higher volumes of sand throughout CG overall, beyond the POA.

8. It is proposed to export up to 70 million m^3 of sand over up to 15 years (see section 2.5). This is a maximum of only 23% of the minimum volume of 300 million m^3 of sand estimated to occur in the POA. At least 77% and possibly more of the sand that is present in the POA will be left there. The proposed 70 million m^3 is a much smaller percentage of the volume of sand that occurs throughout CG overall, beyond the POA.

9. As reported in EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment*, extreme environmental conditions in CG including an 8 m tidal range, strong tidal currents >2 m/s, very high suspended sediment loads and turbidity, constantly moving seabed substrates, a permanently aphotic benthic zone and major pulses of freshwater and terrestrial sediment inputs during the wet season, significantly inhibit colonization by and survival of benthic biota. Coral, seagrass, macroalgae, sponge-bed or similar significant primary producer communities are not present in CG.

10. The most significant benthic community in CG is a narrow band of mangroves found around most of the coast of CG, with a total area of 350 km^2, backed by extensive, barren mudflats and salt-flats.

11. The sand substrate within the POA is largely devoid of benthic biota, due to the fact that the sand is unstable and constantly moving, and the permanent aphotic benthic zone in CG. Comprehensive benthic sampling in both the dry and wet seasons found no biota in most sand grab samples from the POA, and the few examples of biota found in sand samples from that area were mainly small amphipods, isopods and brachyurans (see Referral Report No. 2). The proposed sand sourcing will therefore not cause impacts on significant benthic biota and communities.

FIGURE 2: *Indicative sand-supply routes from erosion in the surrounding catchments into CG.*

FIGURE 3: *Example of the seabed sand found in CG collected using a Smith-McIntyre Grab (image: Raaymakers).*

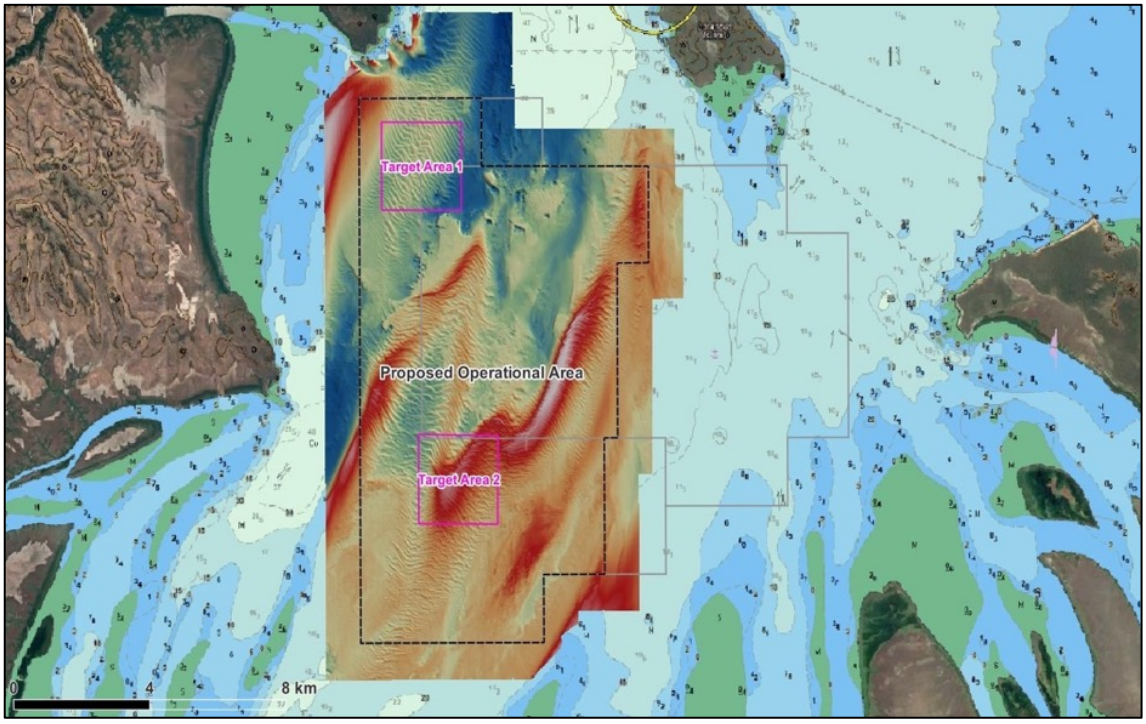


FIGURE 4: *High resolution Multi-beam Echo Sounder (MBES) survey of the POA and 1 km buffer showing the seabed sand-forms in this area, comprising several large dunes. Red indicates higher (shallower) bathymetry and thicker (deeper) bodies of sand, which may be up to 15 m thick (deep).*

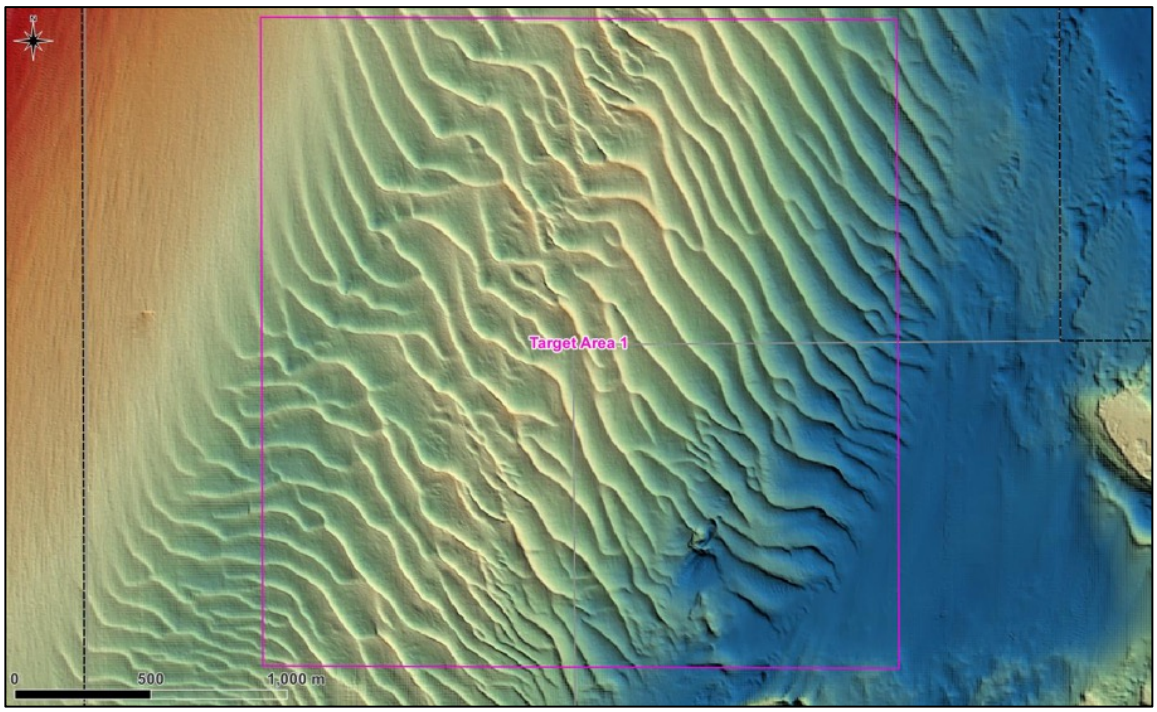


FIGURE 5: *Digital elevation model generated from the high-resolution MBES of Target Area 1 in the POA showing the seabed sand waves. The waves have vertical heights ranging from 1 to 8 m and horizontal wavelengths of between 50 and 200 m.*

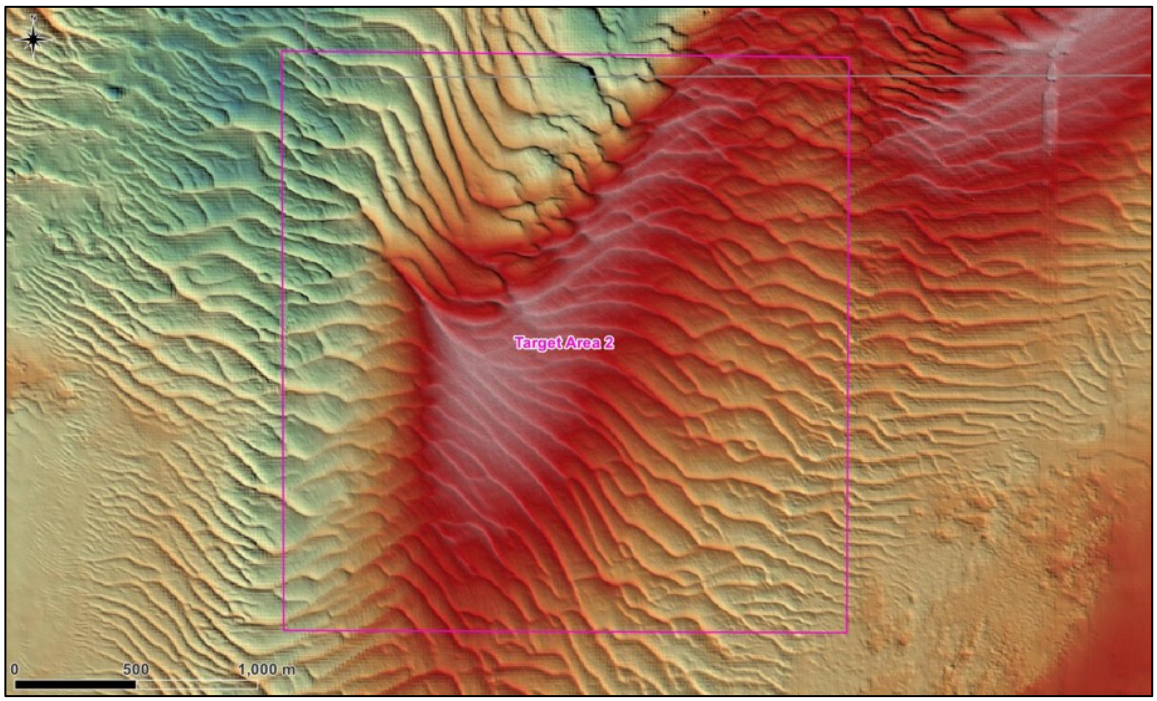


FIGURE 6: *As per Figure 5 but for Target Area 2. Red indicates higher (shallower) bathymetry.*

2.3 Sand Production Vessel Specs & Operational Cycle

1. The proposed sand-sourcing operation will involve a single Sand Production Vessel (SPV) based generally on the design of a large Trailer Suction Hopper Dredger (TSHD) (Figure 7). It will be an internationally-registered vessel subject to all relevant regulatory requirements of the International Maritime Organization (IMO) and the Australian Maritime Safety Authority (AMSA). While design is conceptual at this stage, indicative specifications are Length Overall (LoA) of ~350 m, draft of ~19 m, sand capacity of 75K m^3 to 135K m^3, crew of ~25 and a single drag-head with a width of ~6 m.

2. The SPV will be home-ported in an overseas port and will only enter CG for the sand loading operation for one- to two-days every two weeks over the 15-year project life-span (see section 2.5 below). The SPV will enter and depart CG via West Entrance as shown on Figure 1. The SPV will not navigate upstream of the POA and will not enter the Port of Wyndham located ~80 km upstream – it will be too large to do so.

3. Sand loading will only occur within the POA. When loading sand, the SPV may follow 'set runs' up and down the POA as depicted in Scenario 1 in Figure 8, or it may take a continuous track that follows the sand resource as depicted in Scenario 2 in Figure 8. The actual path of the SPV will depend on site conditions on the day. Manoeuvring of the SPV will occur both within and outside the POA, as the SPV will need to turn at the end of each sand loading run. The drag-head will be lifted and inoperable when outside of the POA.

4. During each sand loading cycle, the SPV will work over an area of ~0.5 km^2 (0.5% of the POA), remove a layer of ~40 cm of sand from the seabed and load between 75K m^3 to 125K m^3 of sand. It will take one to two days depending on site conditions to fully load the SPV. Once fully loaded the SPV will depart CG to deliver the sand to a port in Asia, and will return to CG two weeks later to repeat the cycle (see section 2.5 below).

5. The sand will be pumped aboard the SPV as a sand-water mixture and the overflow water will be discharged back into CG. The SPV will be equipped with best-practice turbidity reduction measures including 'green valve' fitted to the water overflow and the discharge being located at the keel of the vessel (~19 m below the waterline).

6. There will not be any discharges of pollutants from the SPV in CG or Australian waters. All garbage will be kept on board and managed per MARPOL Annex V, and discharged at MARPOL-compliant facilities at the sand-delivery port in Asia. There will not be any refuelling of the SPV in CG or in Australian waters, eliminating potential risk of spills from this activity.

7. The SPV will be subject to best-practice environmental management measures as outlined in section 2.9.

8. Up to 40 local crew positions (alternating teams of 20 each) will be available on the SPV for locally-based persons, and BKA is consulting with the local TO groups on providing training and development pathways for these positions.

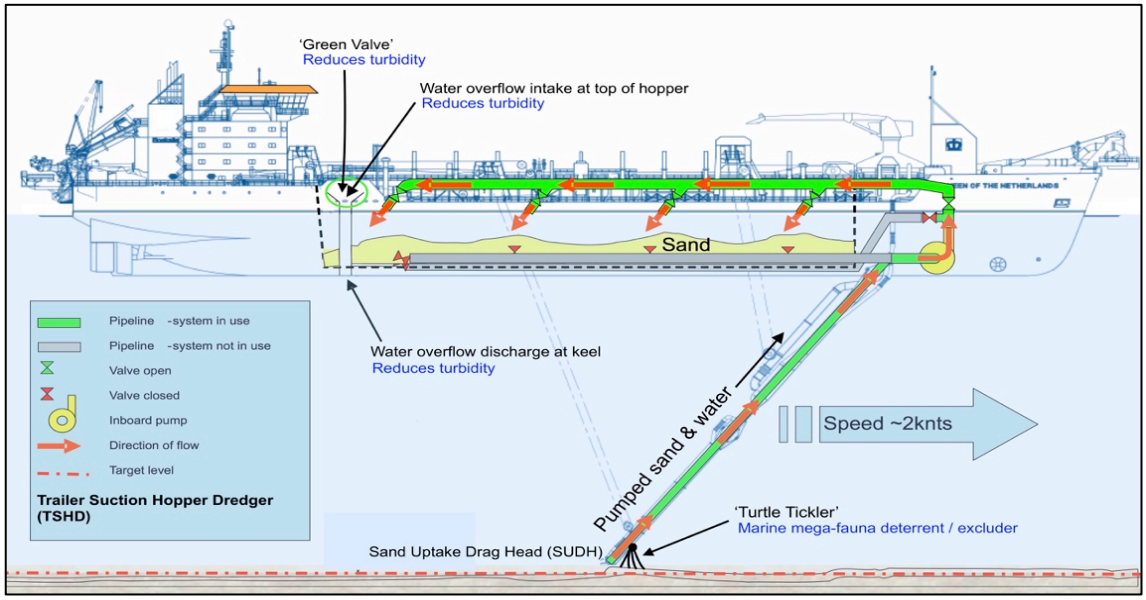


FIGURE 7: *The proposed operation will involve a single Sand Production Vessel (SPV) based generally on the design of a large Trailer Suction Hopper Dredger (TSHD).*

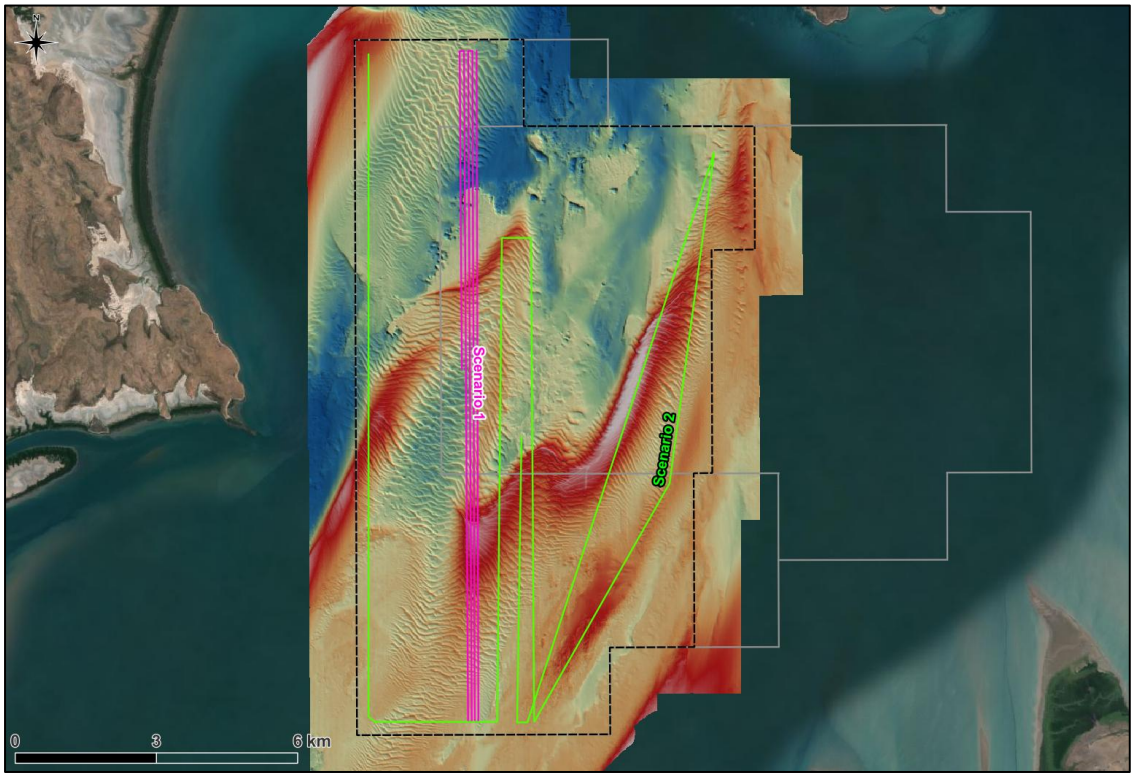


FIGURE 8: *When loading sand, the SPV may follow 'set runs' up and down the POA as depicted in Scenario 1 or it may take a continuous track that follows the sand resource as depicted in Scenario 2. The actual path of the SPV will depend on site conditions on the day.*

2.4 Spatial Scope of Operations

1. Key data from sections 2.1 to 2.3 relating to the spatial scope of the proposed action are as follows, and Table 1 presents a further summary of the spatial scope.

    a) The SPV will have an LOA of up to ~350 m and a draft of ~19 m, with a drag-head width of ~6 m.

    b) The SPV will enter and depart CG and the POA via West Entrance as shown on Figure 1. This is a designated shipping route for vessels entering and departing the Port of Wyndham located ~80 km upstream of CG. Outside of CG the shipping route passes through both the State North Kimberley Marine Park and the Commonwealth Joseph Bonaparte Gulf Marne Park, as shown on Figure X. Normal transit shipping is permitted through both marine parks and the Management Plan for the North Kimberley Marine Park includes a specific provision that no restrictions will be placed on commercial vessel transits to, from or within CG.

    c) The POA covers an area of 100 km^2 in the west-central part of the main body of CG as shown on Figure 1.

    d) The area of sand within the POA is 75.3 km^2, or 75.3% of the POA as shown on Figure 4.

    e) The area of the POA equates to ~5 % of the main body of CG from Lacrosse Island to Adolphus Island, which has an area of approximately 1,900 km^2, including the intertidal flats on both sides of the Gulf (Figure 9A). Further, this equates to ~ 2.8 % of the total marine area of CG from Lacrosse Island upstream past Wyndham and the upper tidal reaches of East Arm, which is approximately 3,700 km^2 (Figure 9B).

    f) Manoeuvring of the SPV will occur both within and outside the POA, as the SPV will need to turn at the end of each sand loading run. However, the SPV will not navigate upstream of the POA and will not enter the Port of Wyndham– it will be too large to do so.

    g) During each one- to two-day sand loading cycle, the SPV will work over an area of ~0.5 km^2 (0.5% of the POA), remove a layer of ~40 cm of sand from the seabed and load between 75K m^3 to 135K m^3 of sand.

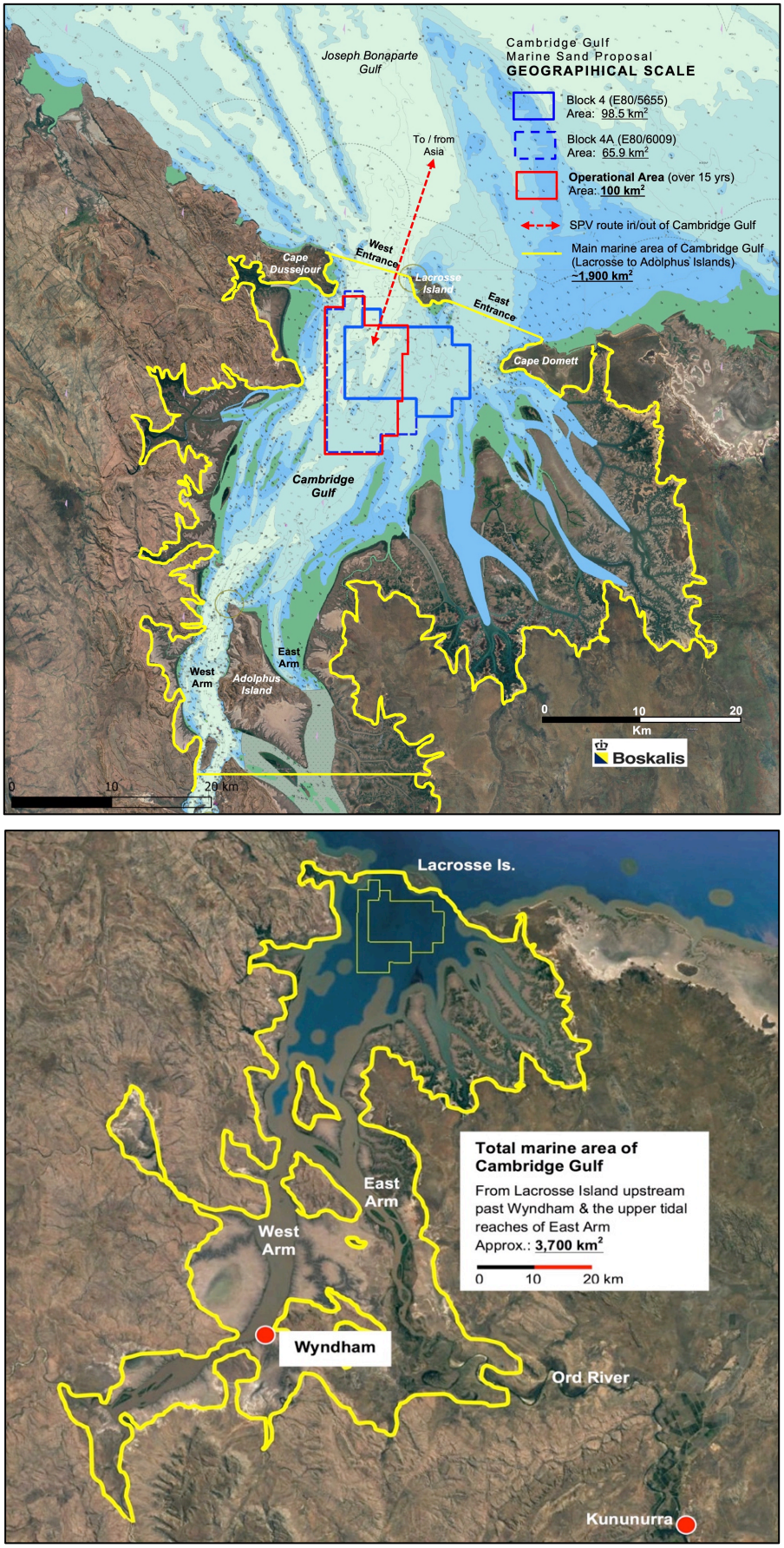
    h) It is proposed to export up to 70 million m^3 of sand over up to 15 years. This is a maximum of only 23% of the minimum volume of 300 million m^3 of sand estimated to occur in the POA. At least 77% and possibly more of the sand that is present in the POA will be left there. The proposed 70 million m^3 is a much smaller percentage of the volume of sand that occurs throughout CG overall, beyond the POA.

2. There will not be any facilities, infrastructure or operational activity outside of the spatial areas described above, except for a small support vessel as described below, and there will be zero development footprint on the adjacent coast and land, as outlined in section 2.6.

3. A small support vessel may be based in the Port of Wyndham for use in environmental monitoring in CG (see section 2.9). The support vessel could also do transfers to/from the SPV if needed, for example if a spare mechanical part is needed or if there is a medical situation where a crew-member on the SPV requires evacuation. Any support vessel will be moored in the Port of Wyndham at a Kimberley Ports Authority approved mooring, with a minor areal footprint. The area of operation for the small support vessel will be between Wyndham and CG and throughout CG for environmental monitoring.

TABLE 1: *Key data relating to the spatial scope of the proposed action*

SPV dimensions:	• LOA up to ~350 m • Draft ~19 m • Drag-head width ~6 m
SPV area of operations:	• Transit both the State North Kimberley Marine Park and the Commonwealth Joseph Bonaparte Gulf Marne Park using routine shipping route. • Enter / depart CG via West Entrance. • Sand-sourcing within POA only. • Manoeuvre outside the POA for turning etc.
POA area:	• 100 km^2 (~5% of the main body of CG and ~ 2.8% of the total marine area of CG)
Area of sand within POA:	• 75.3 km^2 (75.3% of the POA).
Area covered by SPV during each one- to two-day sand loading cycle:	• ~0.5 km^2 (0.5% of the POA).
Depth of sand removed during each one- to two-day loading cycle:	• ~40 cm
Depth of sand removed over 15-year project life:	• Average of <1 m over the whole POA.
Volume of sand removed during each one- to two-day loading cycle:	• 75K m^3 to 135K m^3
Volume of sand in the POA:	• 300 million m^3 minimum, possibly several times more.
Total volume of sand removed over 15-year project life:	• Up to 70 million m^3 (a maximum of only 23% of the minimum volume of 300 million m^3 of sand estimated to occur in the POA).
Volume of sand to be left in the POA:	• Minimum of 230 million m^3 or 77% of the existing sand resource, and likely more.
Coastal and land development footprint:	• Zero.
Small support vessel:	• Mooring in Port of Wyndham. • Operate between Wyndham and CG and throughout CG.



FIGURES 9A (top) & **9B** (bottom): *Geographical scale of the proposed action relative to marine areas of Cambridge Gulf.*

2.5 Temporal Scope of Operations

1. Key data from sections 2.1 to 2.3 relating to the temporal scope of the proposed action are as follows:

    a) The overall project timeframe is up to 15 years from commencement of operations.

    b) During each sand loading cycle, the SPV will self-load sand in CG for one to two days, depending on site conditions at the time, until fully loaded.

    c) The SPV will operate continuously (24 hours per day) when loading sand in CG.

    d) Once fully loaded the SPV will depart CG and sail to the sand delivery port in Asia, discharge the sand and return to CG two weeks later to repeat the cycle (the voyage each way will take approximately a week).

    e) This means that the SPV will only operate in CG for up to 52 days per year, or up to 14% of the time.

    f) There will be zero operational activity in CG for 86% of the time during the project's lifespan of up to 15 years.

2.6 Land-based Facilities

1. The proposal does not involve the construction and operation of any shore-based facilities or infrastructure and does not involve the alteration of the coastline in any way. It will be a 100% vessel-based operation.

2. As outlined in section 2.4 a small support vessel may be based in the Port of Wyndham, moored at a Kimberley Ports Authority approved mooring, with a minor areal footprint.

2.7 End of Project Decommissioning & Seabed Condition

1. End of project decommissioning will simply involve the permanent departure of the SPV after the final sand-loading operation is completed in CG.

2. Because the proposal does not require the construction of any marine or shore-based facilities, wharves, jetties or other infrastructure, there will be no requirements to decommission such facilities.

3. As outlined in section 2.2, assessment of seabed dynamics in the POA indicates that due to strong tidal currents (up to >2 m/s) the sand areas are highly dynamic, with seabed sand forms migrating between 5 and 10 meters horizontally over a 27-day period with spring tides. This indicates that natural sand forms are likely to reform rapidly after sand extraction, and that the pre-extraction seabed morphology will likely re-establish possibly within a matter of weeks.

4. At the end of the 15-year project timeframe, if the proposed 70 million m^3 of sand is exported, the sand area within the POA will be on average <1 m deeper than the pre-project seabed. As outlined in sections 2.2 and 2.4 at least 77% and possibly more of the sand that is present in the POA will be left there, and there are continuous, ongoing inputs of new sediments to CG from catchment sources. The post-project seabed in the POA will still comprise sand with similar seabed morphology and dynamics and thus the same habitat features as before sand extraction, comprising highly dynamic sand waves formed and constantly moved by the prevailing hydrodynamics.

5. Post-project environmental monitoring could continue if required.

2.8 Economic Benefits & TO Involvement

1. The proposal will generate the following economic benefits for Wyndham, Kununurra, the surrounding region and the state of WA:

    a) Payment of royalties per dry-tonne of sand to the State under the WA *Mining Act* over the 15-year life of the proposal.

    b) Payment of additional royalties per dry-tonne of sand to the two registered TO groups in the area (Balanggarra and Miriuwung-Gajerrong). This is not legally required but is being offered by BKA under MoUs being developed with each TO group. This may include establishing trust-fund mechanisms to support TO community development initiatives.

    c) Up to forty jobs for Australian crew on the SPV (alternating two-week swings of 20 crew each), with first priority given to local TOs, including training and career development.

d) Offer of marine crew cadetships and training to local TOs on the Boskalis global fleet.

e) Support to TOs to establish a small marine services business in Wyndham to support the operation in CG, for example transferring people, equipment and supplies when needed (bulk provisioning and refuelling of the SPV will be done at the Asian sand delivery port as it will be too large to enter the Port of Wyndham).

f) Environmental monitoring contract for the 15-year life of the proposal, ideally with TO indigenous ranger groups, including training, vessel and equipment.

g) Funding for scientific research on key marine biodiversity and fisheries issues in the CG area, in consultation and cooperation with relevant partners.

h) Possible sponsorship of the Wyndham Volunteer Marine Rescue Group and other similar community groups and initiatives.

2. Both TO groups in the area have issued letters of support for the proposed action (see EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters*).

2.9 Environmental Management Measures

1. A comprehensive environmental management plan (EMP) will be developed for the proposed action, in consultation with relevant regulatory agencies and the TOs.

2. The EMP will follow the WA EPA environmental management hierarchy and include the impact avoidance, prevention, minimisation and mitigation measures outlined for each of the relevant EPA environmental factors, as presented in the mitigation hierarchy tables for each environmental factor in the following sections of EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments*:

   - Section 7.4 for benthic communities and habitats,
   - Section 8.4 for coastal processes,
   - Section 9.4 for marine environmental quality,
   - Section 10.4 for marine fauna,
   - Section 11.4 for air quality; and
   - Section 13.4 for social surroundings.

3. The mitigation hierarchy tables with impact avoidance and reduction measures in those sections of Referral Report No. 4 are not repeated here for reasons of economy. These will be integrated into the EMP as it is developed, and include the following measures:

   a) The design and operation of the SPV will comply with the maritime safety and marine pollution prevention regime of IMO and the AMSA.

   b) There will not be any discharges of pollutants from the SPV in CG or Australian waters. All garbage will be kept on board and managed per MARPOL Annex V, and discharged at MARPOL-compliant facilities at the sand-delivery port in Asia.

   c) There will not be any refuelling of the SPV in CG or in Australian waters, eliminating potential risk of spills from this activity.

   d) The SPV will be equipped with an IMO-compliant ballast water treatment system consistent with the IMO *International Convention for the Control & Management of Ships' Ballast Water & Sediments*, and as required by the Commonwealth ballast water regulations under the Commonwealth *Biosecurity Act* and relevant amendments.

   e) The SPV will implement a biofouling management plan with stringent biofouling prevention, management, mitigation and monitoring measures, consistent with the IMO biofouling guidelines (IMO 2023) and as required by the Commonwealth biofouling regulations under the Commonwealth *Biosecurity Act* and relevant amendments. Biofouling management measures will include, *inter alia*:

      - Maintenance of a high-grade, IMO-compliant anti-fouling system on the SPV's wet hull.

      - Regular in-water inspections and when necessary, cleaning in Singapore – with a priority focus on niche areas.

- Normally scheduled dry docking, out-of-water hull cleaning and repainting / refresh of the anti-fouling system.

- Required reporting to Australian authorities including before each arrival in Australian waters, as per the Commonwealth ballast water and biofouling requirements.

f) The SPV will be equipped with best-practice turbidity reduction measures including 'green valve' fitted to the discharge water overflow and the discharge being located at the keel of the vessel (~19 m below the waterline).

g) The SPV will be permanently fitted with turtle-safe lighting as per Commonwealth guidelines.

h) The SPV will operate at a very low speed in CG (~2 knots) minimizing risk of striking marine mega-fauna. Best-practice marine fauna observation and avoidance systems will be implemented when the SPV operates in CG.

i) The drag-head of the SPV will be fitted with a proven marine mega-fauna deflector ('turtle-tickler').

j) All aspects of the operation of the SPV, including its tracks and sand loading coverage and production, will be automatically monitored with data able to be transmitted in real-time to shore-based recipients.

4. BKA would seek to undertake environmental monitoring in cooperation with the Traditional Owners (TOs) and relevant regulatory authorities. Monitoring activities could include, *inter alia:*

   a) periodic bathymetric surveys to assess seabed dynamics in response to sand removal; and

   b) periodic drone-Lidar surveys of the Cambridge Gulf coastline to assess coastal dynamics in response to sand removal.

5. Should the project be approved, BKA is prepared to support, in consultation and cooperation with the local TOs and relevant agencies and stakeholders, and within reason relative to the scale of the project:

   a) long-term research and monitoring of Flatback Turtles, Snubfin Dolphins, Humpback Dolphins, River Sharks and Sawfish in Cambridge Gulf; and

   b) long-term research and monitoring of ecological connections between Cambridge Gulf and offshore areas including in relation to the prawn fishery, mud crabs and other commercial fish species.

6. The EMP will include relevant reporting, review and management response arrangements.

3. ENVIRONMENTAL REGULATORY FRAMEWORK

3.1 Overall Jurisdictional Setting

1. Figure 10 shows jurisdictions and tenure in the area including Native Title, and Figure 11 shows marine jurisdictions in and around CG. As shown on Figures 10 and 11, Cambridge Gulf (CG) and BKA's POA are located within the State Internal Waters of WA (landward of the Territorial Sea Baseline), and are thus subject to the full jurisdiction of the State of WA. The area is also within the sovereign territory of Australia and subject to relevant Commonwealth laws.

2. To seaward of CG is the State North Kimberly Marine Park, which extends from the Territorial Sea Baseline seaward to the 3 nm State limit, also within the jurisdiction of WA. Seaward of the 3 nm State limit are Commonwealth waters of the Commonwealth Joseph Bonaparte Gulf Marine Park.

3. The Port of Wyndham is located ~80 km upstream from the main body of CG and is under the jurisdiction of the Kimberley Ports Authority (KPA). The POA is not within the declared port area (the seaward extent of the port limits is shown on Figure 10).

4. As shown on Figure 10, the coast and hinterland on the western side of CG are Native Title lands of the Balanggarra peoples, which includes marine areas of the State Marine Park out to 3 nm. The coast and hinterland on the eastern side of CG are Native Title lands of the Mirriuwung-Gajerrong peoples, which includes marine areas within the 'False Mouths of the Ord River', which are part of the State Ord River Nature Reserve. There is no Native Title determination over marine waters within the main body of CG, including the POA (see also EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters*).

5. The local Government for the area is the Shire of Wyndham & East Kimberley (SWEK), with its main office in Kununurra.

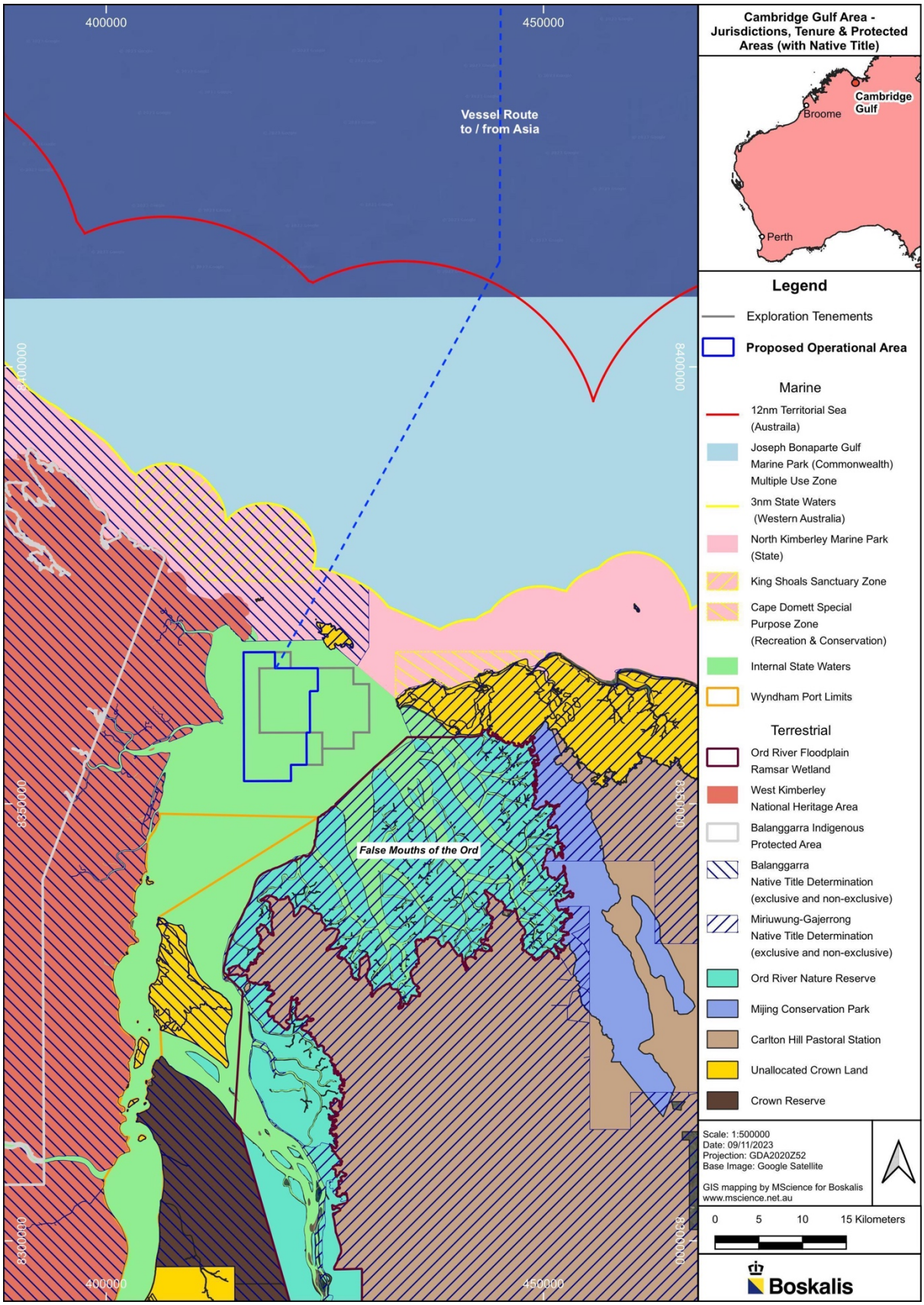


FIGURE 10: *Jurisdictions and tenure in the area including Native Title.*

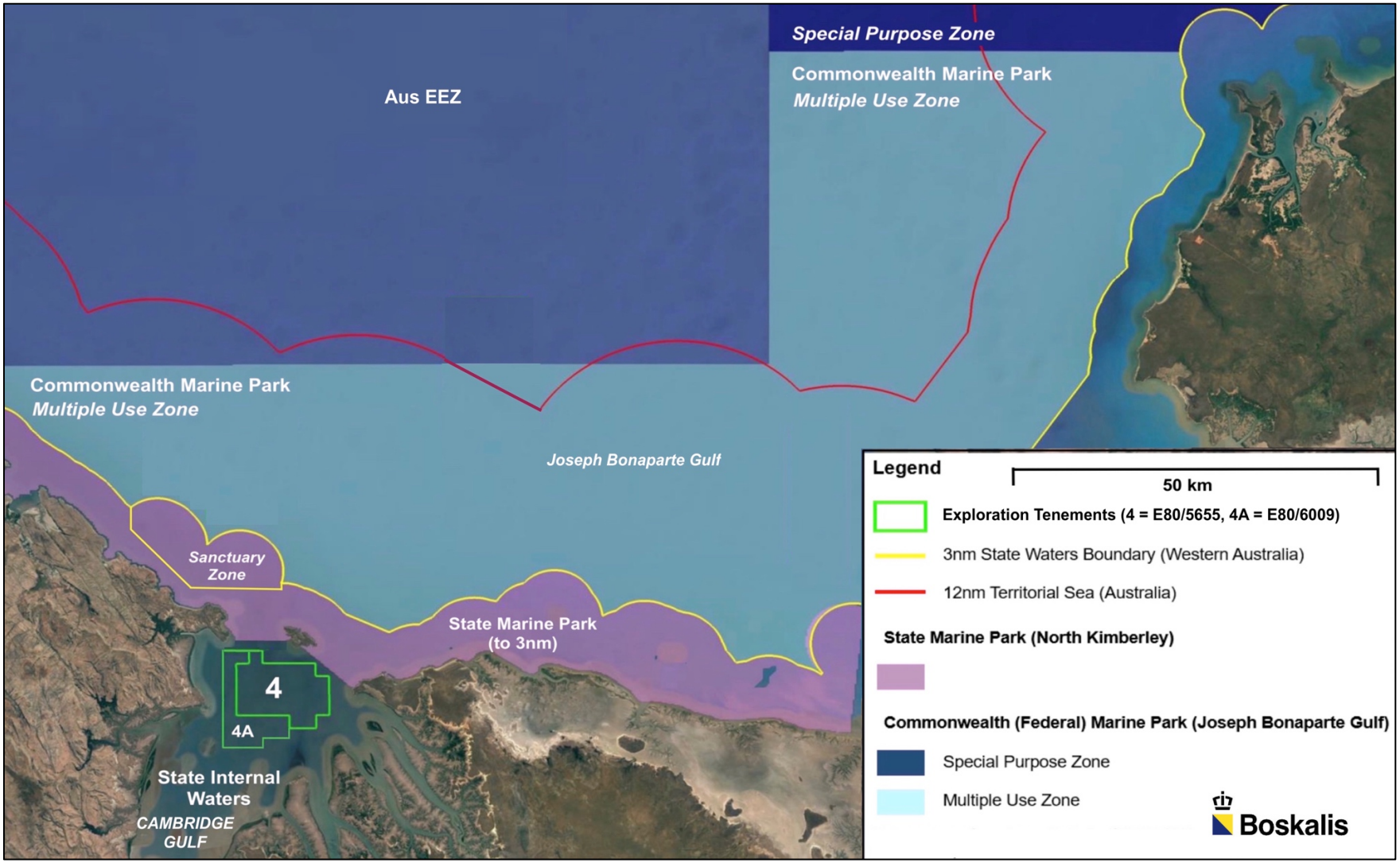


FIGURE 11: *Marine jurisdictions in and around CG.*

3.2. State Regulatory Framework

TABLE 2: *The main State environmental, natural resources, marine and associated laws that are applicable to the proposed action.*

WA Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Mining Act & Regulations Department of Energy, Mines, Industry Regulation & Safety (DEMIRS) - www.dmirs.wa.gov.au	Sand exploration: • Exploration Tenement / Licence is required to explore. – E80/5655 issued to BKA Aug 2022 (referred to by BKA as Block 4). – E80/6009 issued to BKA July 2024 (referred to by BKA as Block 4A). – Both have Endorsements and Conditions including need for Program of Work (PoW) and environmental requirements for exploration activities. Sand sourcing: • Mining Tenement / Licence is required to mine the sand. • Application to convert Exploration Tenement to Mining Tenement is subject to comprehensive environmental assessment process and must address, *inter alia*: – *Statutory Guidelines for Mining Proposals 2020,* – *Environmental Regulatory Strategy 2021,* – *Environmental Objectives Policy for Mining 2020,* – *Environmental Applications Administrative Procedures 2021;* and must include, *inter alia:* – *Environmental Group Site (EGS) Details Form,* – *Mining Proposal Checklist,* – *Stakeholder Engagement report,* – *Baseline Environmental Data report,* – *Environmental Risk Assessment (ERA),* – *Environmental Outcomes, Performance Criteria & Monitoring Plan (EOPCMP)(addressing DEMIRS Environmental Factors),* – *Environmental Management System (EMS);* and – *Mine Closure Plan (MCP).* • Any issue of a Mining Tenement will include conditions relating to environmental management & monitoring.	• BKA is consulting with DEMIRS. Sand exploration: • BKA developed PoW and Environmental Management Plan (EMP) for E80/5655, which was reviewed by relevant State agencies and approved by DEMIRS in Dec 2022. • BKA undertook exploration in E80/5655 in accordance with the PoW and EMP in Feb-Mar 2023. • BKA has not undertaken exploration in E80/6009 at August 2024. Endorsements and Conditions are the same as for E80/5655 and BKA will develop relevant PoW and EMP for State approval before any exploration activities are undertaken in E80/6009. Sand sourcing: • At an appropriate time, and subject to the outcomes of the WA EP Act and Commonwealth EPBC Act referral processes, BKA plans to apply to DEMIRS to convert the two Exploration Tenements to a single Mining Tenement, excluding the eastern half of Block 4 due to the lack of sand in that area, and covering the POA only, as shown on Figure 1. • The application will address all of the requirements listed in the column to immediate left, and will utilize the data and findings from BKA's comprehensive program of work undertaken to support the EP Act referral, including baseline data, impact assessments, stakeholder consultations and TO matters, as presented in BKA's full set of referral reports.

WA Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Environmental Protection Act & Regulation (EP Act & Reg) Supported by policies and Environmental Factor Guidelines and related Technical Guidance. *Assessment & recommendations to Minister:* Environmental Protection Authority (EPA) www.epa.wa.gov.au *Process support:* Department of Water & Environmental Regulation (DWER) www.dwer.wa.gov.au	The EP Act: • provides the over-arching environmental law in WA, • sets penalties for causing serious and material environmental harm (which are defined), and controls pollution, emissions, discharge of waste and clearing of native vegetation; and • provides a framework for environmental impact assessment (EIA) of development proposals – with different assessment pathways potentially triggered if the proposal is likely to cause significant impacts on the environment, including on the following defined Environmental Factors: – Marine: – Benthic Communities & Habitats. – Coastal Processes. – Marine Environmental Quality. – Marine Fauna. – Inland waters: – Freshwater bodies, resources and values. – Land: – Flora and Vegetation. – Landforms. – Subterranean Fauna. – Terrestrial Environmental Quality. – Terrestrial Fauna. – Air: – Air Quality. – GHG Emissions. – People: – Social Surroundings. – Human Health. • If one of the environmental assessment pathways under the EP Act is triggered, completion of the assessment pathway will result in a recommendation to the State Environment Minister on whether or not to approve the proposal. Approvals usually have environmental conditions.	• BKA is consulting with DWER. • As outlined in EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments,* it is assessed that none of the proposed activities will cause serious or material environmental harm, or cause pollution, emissions or discharge of waste in a manner that contravenes the provisions of the EP Act. • As also outlined in Referral Report No. 4, it is assessed that the Environmental Factors relating to Inland Waters, Land, GHG Emissions and Human health are not relevant to the proposal. • As further outlined in Referral Report No. 4, it is assessed that the proposal is unlikely to cause significant impacts on the relevant (key) Environmental Factors or on environmental resources and values overall. • Given this assessment, and the fact that the proposal is subject to the environmental assessment and management regime of the WA *Mining Act* and other environmental regulatory requirements described in this report, including the vessel regulatory regimes outlined in sections 3.3 and 3.4, BKA considers that the proposal may not require an assessment process under the WA EP Act. • Never-the-less, as a responsible company with stringent environmental and social policies, BKA has committed to self-referring the proposal under section 38 of the WA EP Act, and to the Commonwealth under Part 7 of the EPBC Act, for their determination of what further assessments might be required, if any. • BKA will continue to address and comply with all EP Act requirements moving forward.

WA Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Biodiversity Conservation Act & Regulations (BC Act & Regs) Department of Biodiversity Conservation and Attractions (DBCA) - www.dba.wa.gov.au	• The BC Act and Regulations provide for the protection, conservation and management of the native flora and fauna of WA, including marine. • With some exceptions, it is generally an offence to harm or kill all protected wildlife in WA, including turtles, dolphins, dugong, crocodiles, sharks and rays, plus various seabird species.	• BKA is consulting with DBCA. • EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment* includes a description of protected marine fauna in CG, and Annex 14 to Referral Report No 4 includes the results of field surveys commissioned by BKA. • EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* includes an assessment of potential impacts of the proposal on marine fauna in accordance with the EPA Environmental Factor Guideline for Marine Fauna. It was assessed that the proposal is unlikely to cause significant impacts on marine fauna, and best practice impact avoidance, minimization, management and monitoring measures are proposed in Referral Report No. 4.
Conservation and Land Management Act & Regulations (CALM Act & Regs) DBCA	• This CALM Act and Regulations provide for the use, protection and management of certain public lands and waters and the flora and fauna thereof, including the establishment and management of reserves and parks, including marine parks. • The State North Kimberley Marine Park located to seaward of CG, is declared and managed under the CALM Act and Regulations, with an associated Marine Park Management Plan. • The closest distance between the inner (shoreward) boundary of the Marine Park and the outer (seaward) boundary of the POA is ~1.5 km. • Commercial vessels are expressly permitted to transit through the Marine Park in order to enter and depart CG. • The State Ord River Nature Reserve, located on the eastern side of CG covering the False Mouths of the Ord, is also declared and managed under the CALM Act and Regulations. • The closest distance between the western boundary of the Nature Reserve and the eastern boundary of the POA is ~9 km.	• BKA is consulting with DBCA. • BKA obtained a licence from DBCA to take 'fauna' (invertebrates in benthic grab samples) from the North Kimberley Marine Park under the CALM Act (Licence No. BA27000873), as part of the environmental assessment studies reported in EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment.* • EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* includes an assessment of potential impacts of the proposal on the North Kimberley Marine Park and the Ord River Nature Reserve. It was assessed that the proposed action is unlikely to cause significant impacts on these areas, and best practice impact avoidance, minimization, management and monitoring measures are proposed in Referral Report No. 4.

WA Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Aboriginal Heritage Act & Regulations (AH Act & Regs) Department of Planning, Lands & Heritage (DPLH) - www.dplh.wa.gov.au	• Protects Aboriginal cultural heritage in WA. • There are significant land-based Aboriginal cultural heritage sites on the eastern side of CG, centred on Cape Domett, and on Lacrosse Island – listed on the WA *Aboriginal Cultural Heritage Inquiry System* (ACHIS) • See EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters.*	• BKA is consulting with both TO groups in the CG area (Balanggarra and Miriuwung-Gagerrong). Both TO groups have issued letters of support for the proposal (attached as Annexes to EPBC Referral Report No. 3 - Boskalis Cambridge Gulf - *Traditional Owner Matters*). • The significant land-based Aboriginal cultural heritage sites on the eastern side of CG and on Lacrosse Island will be not affected by the proposal. • BKA consulted with the TO groups about marine-based cultural heritage and undertook an extremely comprehensive survey for potential underwater Aboriginal cultural heritage, and found no indications. • BKA has offered to work with TO groups to develop a Joint Aboriginal Cultural Heritage Management Plan for the area should the proposal proceed. • See Referral Report No. 3 for details.
Maritime Archaeology Act Western Australian Museum.	• The Maritime Archaeology Act protects the wrecks and artefacts of historic ships lost before 1900 and maritime archaeological sites associated with historic ships, in WA State waters. It also protects terrestrial maritime archaeological sites such as jetties and shipwreck survivor camps, vesting them in the Western Australian Museum.	• BKA searched the WA Historic Shipwreck Database and no historic shipwrecks were identified in the proposed operational area, although there are several in the general CG area. • BKA undertook high-resolution multi-beam hydrographic surveys throughout the entire proposed operational area and a 1 km buffer around the boundary of the area in Feb-March 2024, with no evidence of shipwrecks or related material. See EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments.*
Fish Resources Management Act & Regulations (FRM Act & Regs) Department of Primary Industries and Regional Development (DPIRD) – Fisheries Division - www.fish.wa.gov.au	• The primary purpose of the FRM Act and Regulations is the protection and management of fish resources in WA – with 'fish' being very broadly defined as '*an aquatic organism of any species (whether alive or dead) and includes the eggs, spat, spawn, seeds, spores, fry, larva or other source of*	• BKA is consulting with DPIRD Fisheries. • BKA obtained a licence (Instrument of Exemption No. 251137723) from DPIRD to take 'fish' (invertebrates in benthic grab samples) from throughout CG, as part of the environmental assessment studies reported in EPBC Referral Report No. 2 - Boskalis Cambridge Gulf - *Setting & Existing Environment.*

WA Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
	reproduction or offspring of an aquatic organism; and, but does not include aquatic mammals, aquatic reptiles, aquatic birds and amphibians . . .' • The Act provides for the declaration of Fish Habitat Protection Areas (FHPAs) – there are no declared FHPAs in the vicinity of the proposal. • The Act includes controls on introductions of 'exotic' and 'noxious' fish into WA waters, which extends to vessel bio-fouling ('fish' meaning any aquatic species).	• EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* includes an assessment of potential impacts of the proposal on fish in accordance with the EPA Environmental Factor Guideline for Marine Fauna. It was assessed that the proposal is unlikely to cause significant impacts on fish, and best practice impact avoidance, minimization, management and monitoring measures are proposed in Referral Report No. 4. • As outlined in Referral Report No. 4, the potential for introductions of exotic and noxious 'fish' into WA waters via vessel bio-fouling will be avoided and minimized through implementation of stringent bio-fouling management measures on the SPV, not only in accordance with the State FRM Act, but because the SPV will be an international vessel, also in accordance with the biofouling regulations under the Commonwealth *Biosecurity Act* and the *IMO Biofouling Guidelines 2023* (see also section 3.2).
Pollution of Waters by Oil & Noxious Substances Act (PWONS Act) Department of Transport – Maritime Division (DoT Maritime) https://www.transport.wa.gov.au/imarine/maritime-environmental-emergency-management-and-arrangements.asp	• Under this Act it is an offence to discharge oil, oily-water mixtures and noxious substances from vessels into WA waters. • There is a legal obligation to report discharges and spills to DoT Maritime, and to respond to discharges and spills. • Links to WA Maritime Environmental Emergencies response system which is part of the national system. • Will apply to the BKA Sand Production Vessel (SPV) when in State waters.	• BKA is consulting with DoT Maritime. • As an international vessel the SPV will comply with the maritime safety and marine pollution prevention regime of the International Maritime Organization (IMO) and the Australian Maritime Safety Authority (AMSA), including best practice measures to prevent discharges and respond to accidental discharges should they occur. It will thus also comply with the State Act. • EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* includes a Shipping and Oil Spill Risk Assessment which outlines the best-practice measures. • The SPV's pollution prevention, preparedness and response plans will integrate with the relevant port-, state- and national-level plans, and BKA will consult further with DoT Maritime and Kimberley Ports Authority on these matters should the proposal proceed.

3.3. Commonwealth Regulatory Framework

TABLE 3: *The main Commonwealth environmental, natural resources, marine and associated laws that are applicable to the proposed action.*

Commonwealth Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Environment Protection & Biodiversity Conservation Act (EPBC Act) Department of Climate Change, Energy, the Environment and Water (DCCEEW) - www.dcceew.gov.au	• The EPBC Act protects, *inter alia*, a list of 10 defined *Matters of National Environmental Significance* (MNES). • It is an offence to undertake any action that causes, will cause or is likely to cause significant impact on MNES, unless approved under the Act. • Criteria for 'significant impact' for each MNES are laid out in guidelines. • The 10 MNES and their relevance to the BKA proposal are as follows: 1. World Heritage sites (not relevant to the proposal – none in area). 2. National Heritage sites (indirectly relevant to the proposal, the West Kimberly National Heritage Place is located to the west of CG, but no overlap). 3. Wetlands of international importance (Ramsar sites) (indirectly relevant to proposal, the Ord River Floodplain is on east coast of CG, but no overlap). 4. Listed threatened ecological communities (not relevant to the proposal – none in area). 5. Listed threatened species (relevant to the proposal – some in area). 6. Listed migratory species (relevant to the proposal – some in area). 7. Nuclear actions, including uranium mines (not relevant to proposal). 8. Commonwealth marine areas (indirectly relevant to the proposal – no overlap but vessel will navigate through Commonwealth waters). 9. The Great Barrier Reef Marine Park (not relevant to proposal). 10. Protection of water resources from coal seam gas and coal mining (not relevant to the proposal). • As can be seen from this list, five of the ten MNES are not relevant to the proposal, three are indirectly relevant (in general area but no overlap) and two are relevant.	• BKA is consulting with DCCEEW • As outlined in EPBC Referral Report No. 7 - Boskalis Cambridge Gulf - *Commonwealth Matters*, supported by EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments*, BKA assessed potential impacts of the proposal on the five MNES that are directly and indirectly relevant to the proposal, following DCCEEW's significant impact guidelines for each MNES. • These reports assess that the proposal is unlikely to cause significant impacts on MNES, as defined in the DCCEEW significant impact guidelines. • Given this assessment, and the fact that the proposal is subject to the State environmental regulatory regime, as well as the IMO and AMSA vessel regulatory regimes outlined below, BKA considers that the proposal may not require an assessment process under the Commonwealth EPBC Act. • Never-the-less, as a responsible company with stringent environmental and social policies, BKA has committed to self-referring the proposal under Part 7 of the EPBC Act, for determination by DCCEEW of what further assessments might be required, if any. • Should the Commonwealth and State assessment processes be triggered, BKA will apply to have them undertaken jointly / in parallel through the Commonwealth-accredited State process.

Commonwealth Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
	• Where there is a likelihood that a proposed development project could potentially cause significant impact(s) on one or more MNES, it should be referred to the Commonwealth via DCCEEW for initial assessment, when it becomes a 'proposed action' under the EPBC Act. • The EPBC Act provides a framework for environmental assessment and regulatory approval / non approval of proposed actions – with different assessment pathways potentially triggered if the proposal is deemed by DCCEEW to be likely to cause significant impacts on MNES, based on the information submitted with the referral. • If one of the environmental assessment pathways under the EPBC Act is triggered, the 'proposed action' becomes a 'controlled action' under the Act. Completion of the assessment pathway will result in a recommendation to the Commonwealth Environment Minister on whether or not to approve the proposal. Approvals usually have environmental conditions. • The State EIA process in WA is accredited by the Commonwealth and it is possible to request a joint, parallel process.	
Underwater Cultural Heritage Act (UCH Act) DCCEEW	• Protects historic shipwrecks and other types of underwater cultural heritage including Aboriginal and Torres Strait Islander underwater cultural heritage in Commonwealth waters.	• Not relevant as while the SPV will transit through Commonwealth waters enroute to and from CG, there will not be any activities in Commonwealth waters that could potentially impact on underwater cultural heritage.

Protection of the Sea (Prevention of Pollution from Ships) Act
(PS(PPS) Act)
 	
Supported by Marine Orders (MOs) per MARPOL:
• MO 91 - Oil.
• MO 93 - Noxious Liquid Substances.
• MO 94 - Harmful Packaged Substances.
• MO 95 - Garbage.
• MO 96 - Sewage.
• MO 97 - Air pollution.
 	
Australian Maritime Safety Authority (AMSA) - www.amsa.gov.au
	• The PS(PPS) Act and supporting Marine Orders (MOs) implement the *International Convention for the Prevention of Pollution from Ships* (MARPOL Convention) in Australia, including pollution discharge controls and other requirements under the following MARPOL Annexes:
	  • Annex I - Oil.
	  • Annex II - Noxious Liquid Substances.
	  • Annex III - Harmful Packaged Substances.
	  • Annex IV - Sewage.
	  • Annex V - Garbage.
	  • Annex VI - Air Emissions.
	
	• The Sand Production Vessel (SPV) will need to comply in full except for Annexes II and III, as the SPV will not carry Noxious Liquid Substances or Harmful Packaged Substances as defined by those Annexes.
		• As outlined in EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments,* as an international vessel the SPV will comply in full with all relevant requirements of the international maritime regulatory regime administered by the International maritime Organization (IMO), including the MARPOL Convention, as implemented in Australia through the PS(PPS) Act and supporting MOs.
		
		• In addition to regulatory oversight by AMSA during operations in Australian waters, the SPV will be subject to Flag State Control, Classification Society surveys and Boskalis' internal vessel QA/QC procedures to ensure compliance.

Commonwealth Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
Protection of the Sea (Harmful Anti-fouling Systems) Act (AFS Act) • Supported by MO 98 - Anti-fouling Systems. AMSA	• The AFS Act and supporting MO 98 implement the *International* Convention *on the Control of Harmful Anti-fouling Systems on Ships* (AFS Convention) in Australia. • Prohibits anti-fouling systems (AFS) that contain organo-tin compounds and cybrutryne compounds.	• As per PS(PPS) Act above. • The SPV will not use an AFS system that is banned under the IMO AFS Convention and Australian AFS Act and MO 98.
Navigation Act + supporting Marine Orders (MOs) AMSA	• The Navigation Act regulates the safety of navigation of vessels and implements in Australia the: – *International Regulations for Preventing Collisions at Sea* (COLREGS), – *International Convention for the Safety of Life at Sea* (SOLAS Convention), – *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers* (STCW Convention); and – related international maritime legal instruments in Australia. • While these instruments are focussed on safety of navigation, they play an important role in marine environmental protection by preventing and minimizing maritime accidents that can result in marine pollution and other forms of environmental damage.	• As per PS(PPS) Act above. • The SPV will comply in full with all relevant requirements of the international maritime regulatory regime administered by IMO, as implemented in Australia through AMSA' suite of legislation and MOs. • In addition to regulatory oversight by AMSA during operations in Australian waters, the SPV will be subject to Flag State Control, Classification Society surveys and Boskalis' internal vessel QA/QC procedures to ensure compliance.
Biosecurity Act & Regulations Department of Agriculture, Fisheries & Forestry (DAFF) www.biosecurity.gov.au www.marinepests.gov.au www.agriculture.gov.au	• For overseas vessel arrivals, the Biosecurity Act and Regs cover: • Human Health - introduction of diseases by crew / passengers. • Dry Pest species - terrestrial pests & diseases via: • Pests or diseases aboard / within the vessel itself (defined as a 'conveyance' in the Act), including wood components which might host boring insects. • Pests or diseases amongst personal effects, baggage, stores, provisions, equipment, containers or cargo (defined as 'goods' in the Act). • Pests or diseases in/on plants & animals (including potentially the plants or animals themselves – if not native to Australia). • Pests or diseases in food and organic material, including wastes. • Wet Pest species - introduction of invasive marine species via ballast water and/or bio-fouling.	As outlined in EPBC Referral Report No. 4 - Boskalis Cambridge Gulf - *Impact Assessments* the potential introduction of marine pests will be avoided and minimized as follows: • The SPV will be equipped with an IMO-compliant ballast water treatment system consistent with the IMO *International Convention for the Control & Management of Ships' Ballast Water & Sediments*, and as required by the Commonwealth ballast water regulations under the Commonwealth *Biosecurity Act* and relevant amendments. • The SPV will implement a biofouling management plan with stringent biofouling prevention, management, mitigation and monitoring measures, consistent with the IMO biofouling guidelines (IMO 2023) and as required by the Commonwealth biofouling regulations under the

Commonwealth Law & Regulatory Authority	Implications for the proposed action	How addressed by BKA
	• The SPV will not call at the Port of Wyndham (it will be too large to enter Wyndham) or any other Australian Port (unless required in an emergency), will not carry passengers and will not place garbage ashore in Australia, so the human health and dry-pest species aspects of the Biosecurity Act are not fully applicable to the operation. In the unlikely event of a need to enter an Australian port or put people and/or material ashore in Australia, the Act will need to be complied with. • Wet Pest species aspects are fully applicable as the SPV will carry ballast water and discharge this before entry to CG, and will pose a potential risk of bio-fouling introductions.	Commonwealth *Biosecurity Act* and relevant amendments. • Biofouling management measures will include, *inter alia*: – Maintenance of a high-grade, IMO-compliant anti-fouling system on the SPV's wet hull. – Regular in-water inspections and when necessary, cleaning in Singapore – with a priority focus on niche areas. – Periodic dry docking, out-of-water hull cleaning and repainting / refresh of the anti-fouling system. – Required reporting to Australian authorities including before each arrival in Australian waters, as per the Commonwealth ballast water and biofouling requirements. • As the SPV will operate in CG which is within State Internal Waters, it will also comply with the WA Department of Primary Industries & Regional Development (DPIRD) (Fisheries) Vessel Check program (https://vessel-check.com/). • Although the risk of marine pest introduction is low through implementation of the avoidance and prevention measures outlined above, potential impacts will be further minimized and mitigated through development and implementation of an Introduced Marine Pests - Monitoring, Detection & Response Plan (IMP-MRP), in consultation with relevant stakeholders.

3.4 International Regulatory Framework

TABLE 4: *The main international environmental, biodiversity, maritime and associated treaties and conventions that are applicable to the proposed action.*

Relevant International treaty or convention	Implications for the proposed action	How addressed by BKA
United Nations Environment Programme (UNEP) ***Convention on Migratory Species*** (CMS)	• Implemented in Australia by DCCEEW through the Commonwealth EPBC Act which defines migratory species as MNES, including dolphin and marine turtle species found in the CG area.	As per EPBC Act in Table 3.
International Union for the Conservation of Nature (IUCN) ***Convention on Wetlands of International Importance*** (Ramsar Convention)	• Implemented in Australia by DCCEEW through the Commonwealth EPBC Act which defines wetlands of international importance as MNES, including the Ord River Floodplain Ramsar site to the east of CG.	As per EPBC Act in Table 3.
International Maritime Organization (IMO) ***International Convention for the Prevention of Pollution from Ships*** (MARPOL Convention)	• Implemented in Australia by AMSA through the Commonwealth PS(PPS) Act. • SPV will need to comply.	As per PS(PPS) Act in Table 3.
IMO ***International* Convention *on the Control of Harmful Anti-fouling Systems on Ships*** (AFS Convention)	• Implemented in Australia by AMSA through the Commonwealth AFS Act. • SPV will need to comply.	As per AFS Act in Table 3.
IMO ***International Regulations for Preventing Collisions at Sea*** (COLREGS) ***International Convention for the Safety of Life at Sea*** (SOLAS Convention) ***International Convention on Standards of Training, Certification & Watchkeeping for Seafarers*** (STCW Convention)	• Implemented in Australia by AMSA through the Commonwealth Navigation Act. • SPV will need to comply.	As per Navigation Act in Table 3.
IMO ***International Convention for the Control & Management of Ships' Ballast Water & Sediments*** (BWM Convention)	• Implemented in Australia by DAFF through the Ballast Water Regulations of the Commonwealth Biosecurity Act. • SPV will need to comply.	As per Biosecurity Act in Table 3.